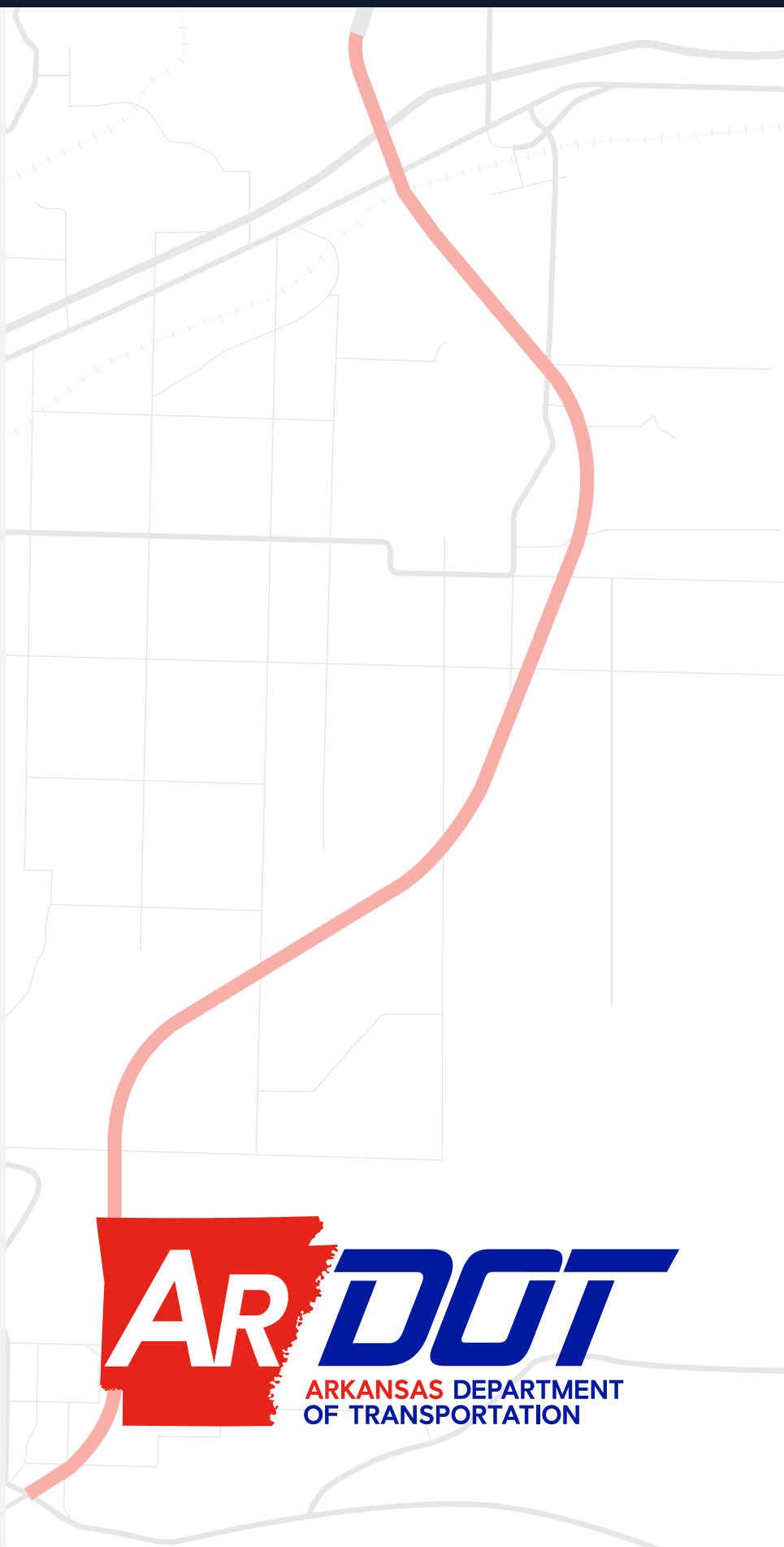

NEPA Re-evaluation

U.S. 71 Relocation
DeQueen to I-40

Crawford and Sebastian
Counties, Arkansas

November 2023
Job 001747

ARDOT
ARKANSAS DEPARTMENT
OF TRANSPORTATION

NEPA Re-evaluation

Crawford and Sebastian Counties, Arkansas
Federal Project Number NHPP-1765(6)
ARDOT Job 001747

U.S. Department of Transportation
FEDERAL HIGHWAY ADMINISTRATION
And
ARKANSAS DEPARTMENT OF TRANSPORTATION

In cooperation with the United States Coast Guard, the United States Army Corps of Engineers, the United States Environmental Protection Agency, the Unites States Fish and Wildlife Service, and the Arkansas State Historic Preservation Officer.

Cooperating agencies will be notified if there are changes to environmental issues under their jurisdiction.

Tribal coordination occurred as part of the 1997 FEIS and will occur for the cultural resources survey reports as part of this re-evaluation.

The following people may be contacted for additional information concerning this document

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In compliance with the National Environmental Policy Act, this Re-evaluation of the previously-approved Environmental Impact Statement (EIS) and Record of Decision (ROD) describes the construction of Interstate 49 from Highway 22 in Sebastian County to Interstate 40 in Crawford County.

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Chapter 1 – Project Status

What's in Chapter 1?

Chapter 1 describes the current status of the project and why the re-evaluation is needed.

1.1 What is the purpose of the re-evaluation of the Interstate 49 project?

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), the United States Army Corps of Engineers (USACE), the United States Coast Guard (USCG), the United States Environmental Protection Agency (USEPA), the United States Fish and Wildlife Service (USFWS), and the Arkansas State Historic Preservation Officer (SHPO), is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. This 14-mile section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County. The project location is depicted in **Figure 1-1**.

Figure 1-1: Project Location Map

Source: Project Team, 2022

This project was originally part of a larger environmental study known as the U.S. 71 Relocation DeQueen to Interstate 40. That study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation Project and a Record of Decision (ROD) was issued in December 1997 approving the general alignment of a new location, four-lane highway in western Arkansas.

Interstate 49 has been under construction since the early 1990s, with several sections fully constructed as shown in Figure 1-2). From Highway 71 to Highway 22 and north of Interstate 40, the corridor currently consists of a median-separated fully-controlled access highway with two travel lanes in each direction and no frontage road.

Figure 1-2: Existing and Future Interstate 49 Segments – Louisiana, Arkansas, and Missouri

Source: Project Team 2022

Figure 1-3: Future Interstate 49 Segment - Arkansas

Source: Project Team 2022

An Alternative Delivery Study was conducted in 2018 that included the development of conceptual design for Interstate 49 from Highway 22 to Interstate 40 (Figure 1-3), toll feasibility, local access evaluations, and the potential to utilize alternative delivery design methods. Environmental constraints were updated, including historic resources coordination with the Arkansas SHPO.

As a priority project for ARDOT, a re-evaluation was initiated for the section of Interstate 49 from Highway 22 to Interstate 40, with funding allocated in the current Statewide Transportation Improvement Program (STIP). Of the entire 125-mile corridor studied in the U.S. 71 Relocation Project, the project limits of this re-evaluation were referenced as segments M, N, and O within the Selected Alignment. This re-evaluation discusses design refinements and environmental analyses of impacts and benefits of the preliminary design presented at the public meeting on September 29, 2022 to determine whether any additional NEPA documentation is warranted or if the previous findings described in the ROD remain valid. The re-evaluation describes the proposed project, purpose and need, environmental impacts, commitments, and public involvement.

This document is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), and all other applicable Federal and state laws and regulations, specifically 23 Code of Federal Regulations (CFR) § 771.129. ARDOT is required to complete a re-evaluation to update the analysis in prior NEPA documents when there are changes to the project which could affect the previous determination of potential environmental impacts.[1]

[1] 23 CFR § 771.129(c)

Chapter 2 – Project Area Description

What's in Chapter 2?

Chapter 2 describes the existing conditions in the project area.

2.1 What are the existing conditions in the project area?

The project is located in northwest Arkansas across Sebastian and Crawford counties. The project footprint, spanning 1,544 acres or 2.4 square miles, starts at Highway 22 and heads northward, crossing the Arkansas River. Other major cross streets as the project heads north include Gun Club Road, Westville Road, Thornhill Street, Clear Creek Road, Waterfront Road, Highway 162, the Union Pacific Railroad (UPRR), and Interstate 40.

The terrain of the project footprint consists of generally level ground that slopes towards the Arkansas River, with an area of low broken hills separated by creeks at and south of Kibler. The project footprint consists primarily of forested areas from Highway 22 to the levee north of the Arkansas River. North of the levee, there is a large section of the project footprint that has been plowed and contains row crops. North of the row crops, the project footprint is primarily agricultural land with some developed areas. This section of the project footprint is considered prior converted croplands. Based on historic aerials, the area has been farmed continuously since before 1985.

The project footprint has not changed much since the FEIS, except for some residential development along Clear Creek Road and Waterfront Road. While some residences were present along Clear Creek Road, more development occurred subsequent to the 1997 FEIS. Residential development expanded in the early to mid-2000s along Waterfront Road extending from Kibler Highway.

Under existing conditions, most of the major roadways surrounding the proposed Interstate 49 facility, including Interstate 40 and the existing sections of Interstate 49, operate at a level of service (LOS) B or better.[2]

[2] LOS is a measure of how well a roadway performs relative to capacity, and is evaluated on a scale of LOS A to LOS F. LOS A represents the best travel conditions (low-density and free-flow speeds) and LOS F represents the worst conditions (high density, unstable stop and go traffic).

Chapter 3 - Purpose and Need

What's in Chapter 3?

Chapter 3 describes why the project is needed and its purpose.

3.1 What is the purpose of the project?

The purpose and need of the project are the same as presented in the 1997 FEIS. The purpose of this project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve modal connectivity.

3.2 Why is the project needed?

The proposed project is needed to complete a vital section of the larger Interstate 49 national interstate corridor which is Congressionally designated as High Priority Corridor 1. The proposed project is needed to provide linkage and modal connectivity to the surrounding interstate highway system. This includes links to both the surrounding Interstate 49 corridor sections already completed and a critical link to Interstate 40, resulting in increased mobility through the region and enhanced modal connectivity.

The proposed project is also needed to address safety issues associated with increasing volumes of vehicular traffic in northwest Arkansas. The proposed project would provide an alternate route around Fort Smith, Arkansas, for those traveling north/south through the area. Traffic diverted to the new interstate would experience less congestion than it would in the no-build condition using the existing transportation network, and existing facilities that traffic is diverted from, including Interstate 40 between Interstate 540 and Interstate 49, would also experience less congestion. For example, several segments on Interstate 40 are expected to operate at LOS E and F in 2045, particularly westbound during the AM peak period[3]. Likewise, Interstate 540 experiences recuring congestion during peak travel times. Vehicles traveling through Fort Smith could avoid this congestion by using the proposed Interstate 49 facility. It is anticipated that the improved operations resulting from the diversion would reduce the amount of rear end crashes, which accounted for 22% of all crashes in the study area (2015-2019). Additionally, the proposed project, including the new bridge over the Arkansas River, would be constructed to meet the latest design standards and would be a safer facility than the existing three river crossings, which all have shoulders narrower than current design standards. The Arkansas River crossing closest to the proposed project on Highway 59 is a two-lane, undivided highway with reduced shoulders. This type of facility had a statewide average KA crash rate approximately three times greater than the facility type proposed at the new river crossing, which for 2015 – 2019 was 3.38 per 100 million vehicle miles traveled.

Overall, the new facility and river crossing would provide safer conditions for the traveling public.

[3] Source: Interstate 49 Interchange Justification Report, October 2022.

Chapter 4 – Alignment Modification

What's in Chapter 4?

Chapter 4 describes changes to the design of the Selected Alternative.

4.1 How has the project changed since the 1997 FEIS?

The proposed project generally follows the Selected Alignment identified in the 1997 FEIS. The roadway and bridge designs have continued to advance to a greater level of detail for this segment of Interstate 49 since the 2018 Alternative Delivery Study. The preliminary design includes refined roadway and bridge typical sections and interchange types and locations have been determined. The preliminary design is also referred to throughout this document as the proposed project. The project footprint includes the preliminary design and proposed right of way and was used to determine direct impacts area for the environmental analyses in **Section 5**.

Nomenclature used throughout the Re-evaluation

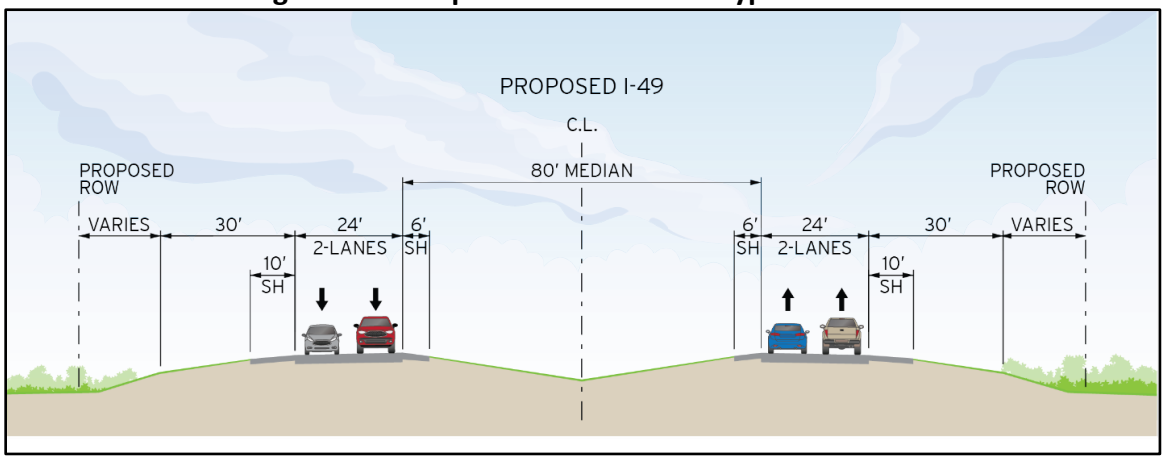
Selected Alignment *= preferred alternative/corridor from the 1997 FEIS*

Proposed Project *= preliminary design that analysis was based upon*

Project Footprint *= encompasses all anticipated direct impact areas for the proposed project; used to determine impacts for environmental resources*

As shown in **Figure 4-1**, the proposed typical section would consist of four 12-foot wide main lanes (two in each direction), an approximately 80-foot wide median between the inside edges of travel lanes, and 6-foot wide inside and 10-foot wide outside shoulders. The overall right of way width would vary to a maximum width of approximately 300 feet, except at interchanges where the right of way width would be greater. The design speed for the main lanes is 70 miles per hour.

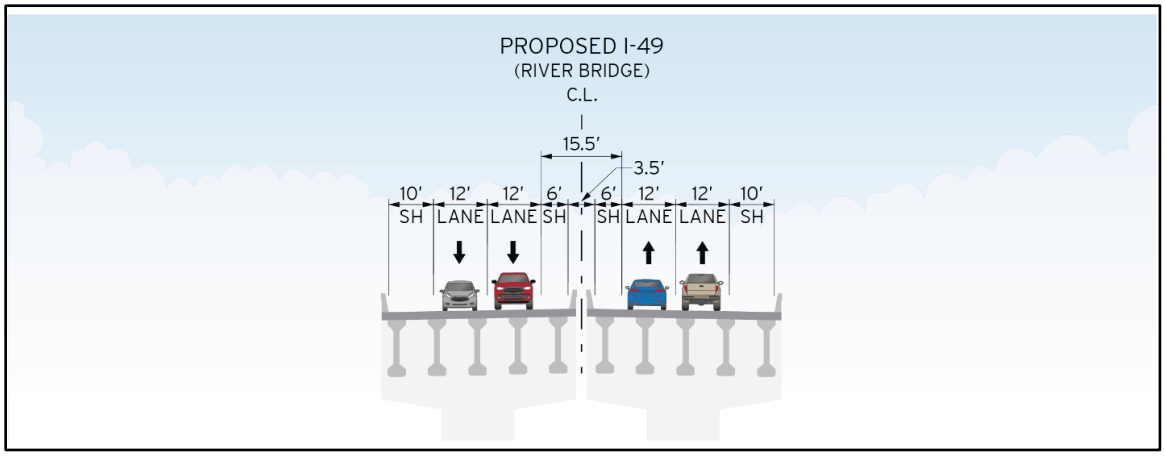
Figure 4-1: Proposed Interstate 49 Typical Section



Source: Project Team, 2022

A new bridge is proposed to be constructed over the Arkansas River, which was included in the 1997 FEIS**.** The proposed typical section would consist of four 12-foot wide main lanes (two in each direction), with 6-foot wide inside and 10-foot wide outside shoulders, as shown in **Figure 4-2**.

Figure 4-2: Proposed Intestate 49 Arkansas River Bridge Typical Section

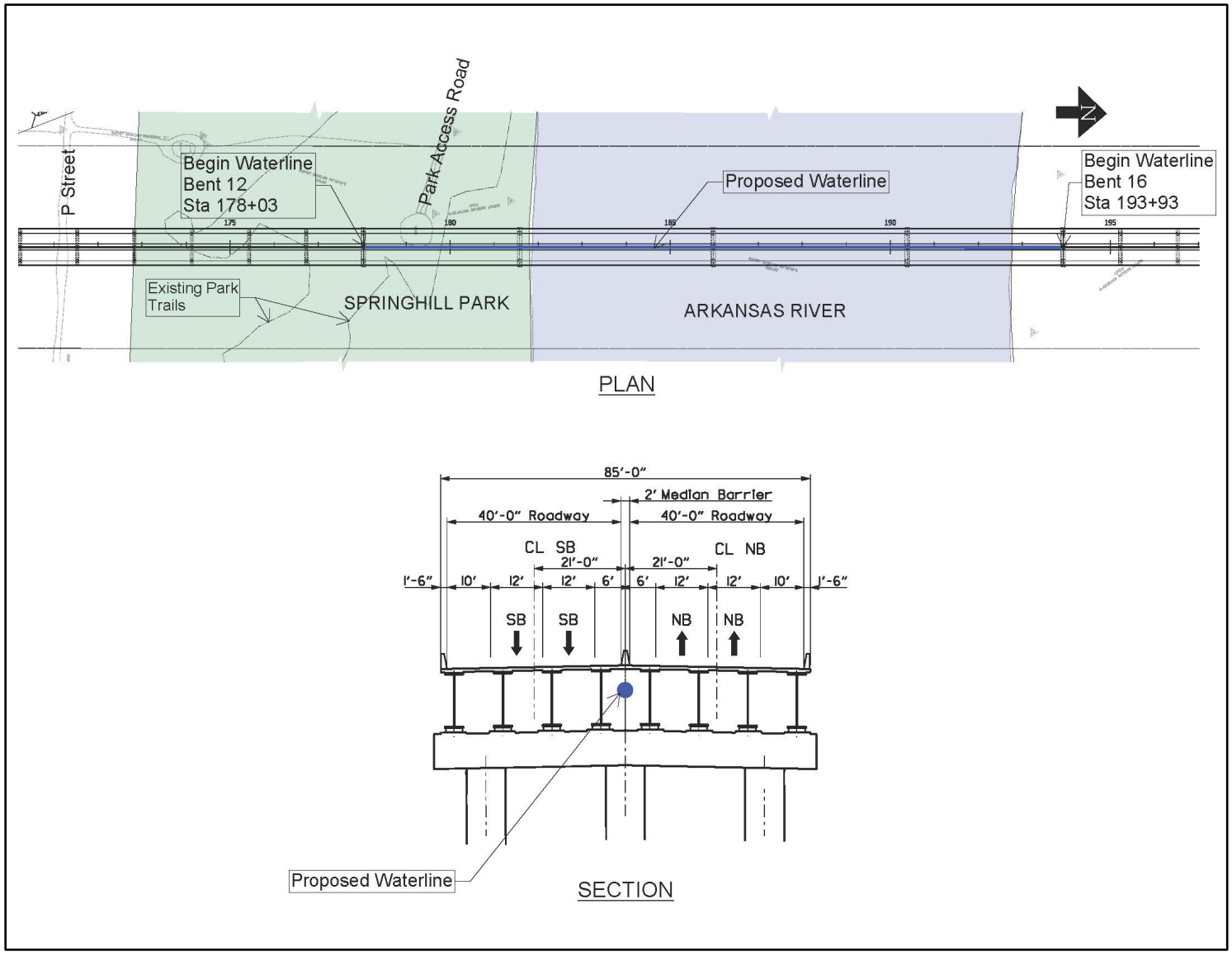


Source: Project Team, 2022

At Interstate 40, a fully directional interchange with direct connect ramps is proposed. The interchange proposed at Interstate 40 was included in the 1997 FEIS. Interchanges with slip/loop ramps are proposed at Highway 22, Gun Club Road, and Clear Creek Road. Proposed grade-separated intersections without ramps, are proposed at P Street, Westville Road, Thornhill Street, Waterfront Road, Highway 162 (Henry Street), UPRR, and Highway 64 to maintain local access. **Figure 1-1** shows the locations of these proposed interchanges and intersections.

In addition, a 36-inch waterline will be constructed on the Arkansas River Bridge for future use by the City of Fort Smith. As shown in **Figure 4-3**, the waterline will extend approximately 1,600 feet and will be located within the bridge superstructure, between the girders. The decision to include a waterline on the Arkansas River Bridge was subsequent to the 1997 FEIS and done per the request of the City of Fort Smith.

Figure 4-3: Proposed Waterline on the Arkansas River Bridge



Source: Project Team, 2022

4.2 How will the project be constructed?

The proposed project is planned to be constructed in four segments, each with an individual job number as outlined below and shown in **Figure 4-4**. Each segment has logical termini and independent utility and will be open to traffic as constructed.

- Job 040901 – This segment will be implemented first. The limits extend from Highway 22 to Gun Club Road and include the interchange at Gun Club Road and the reconstruction and widening of Gun Club Road within the project limits.

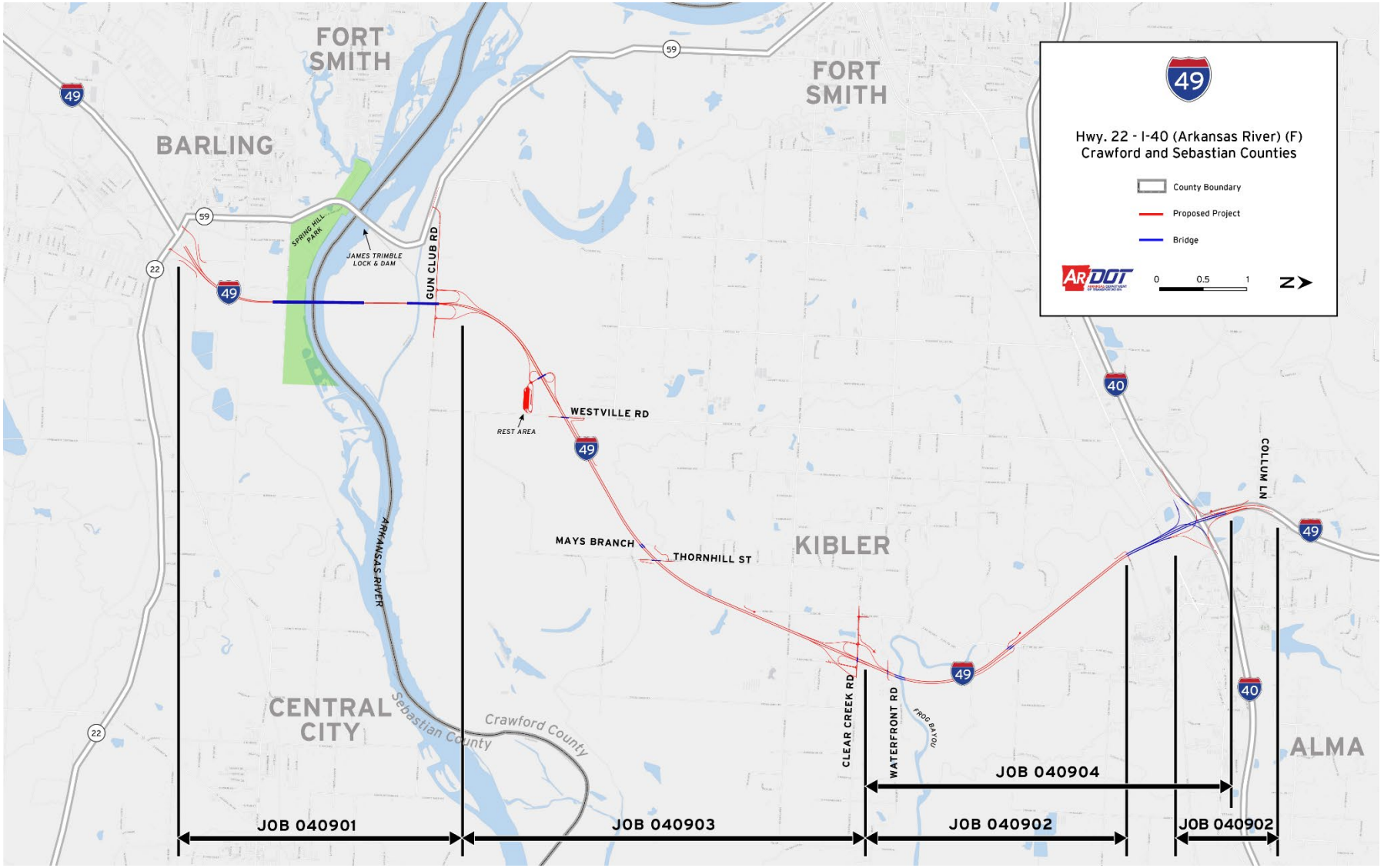
- Job 040902 – This segment will be implemented second. It includes the reconstruction of ramps from eastbound Interstate 40 to northbound Interstate 49 and southbound Interstate 49 to westbound Interstate 40; grading and bridge header slopes for future Interstate 49 main lanes and other ramps through the Interstate 40 interchange; and grading and bridges from north of Clear Creek Road to the bridge header slope at the southern end of the Interstate 49 main lane bridge at the Interstate 40 interchange.

- Job 040903 – This segment will be implemented third. The limits extend from north of Gun Club Road to Clear Creek Road and include the interchange at Clear Creek Road.

- Job 040904 – This segment will be implemented fourth. It includes the remaining bridges at the Interstate 40 Interchange and paving from north of Clear Creek Road to the southern end of the Interstate 49 main lane bridge at the Interstate 40 interchange.

The construction segments identified above are preliminary and may be modified as final design progresses. Construction status updates will be provided through the project website and other outreach means, as applicable.

Figure 4-4: Proposed Construction Segments



Source: Project Team, 2023

Chapter 5 - Environmental Impacts

What's in Chapter 5?

Chapter 5 identifies changes, if any, to the environmental impacts that were evaluated in the FEIS/ROD for the Selected Alternative as a result of preliminary design refinements associated with the re-evaluation.

5.1 How would the project impact the community?

Potential community impacts resulting from the proposed project are detailed in the *Community Impacts Technical Report* (**Appendix A**) and are summarized below.

5.1.1 1997 FEIS

Community impacts were evaluated in the 1997 FEIS for the Selected Alignment, which concluded the following for the segments in which the proposed project is located: improved intermodal connectivity to other highways; improved safety and emergency response time as well as access to medical facilities; improved travel times to community and medical facilities; trip duration generally would be reduced in the Fort Smith area; and no disproportionate amount of minority or low-income households relocated for the Selected Alignment.

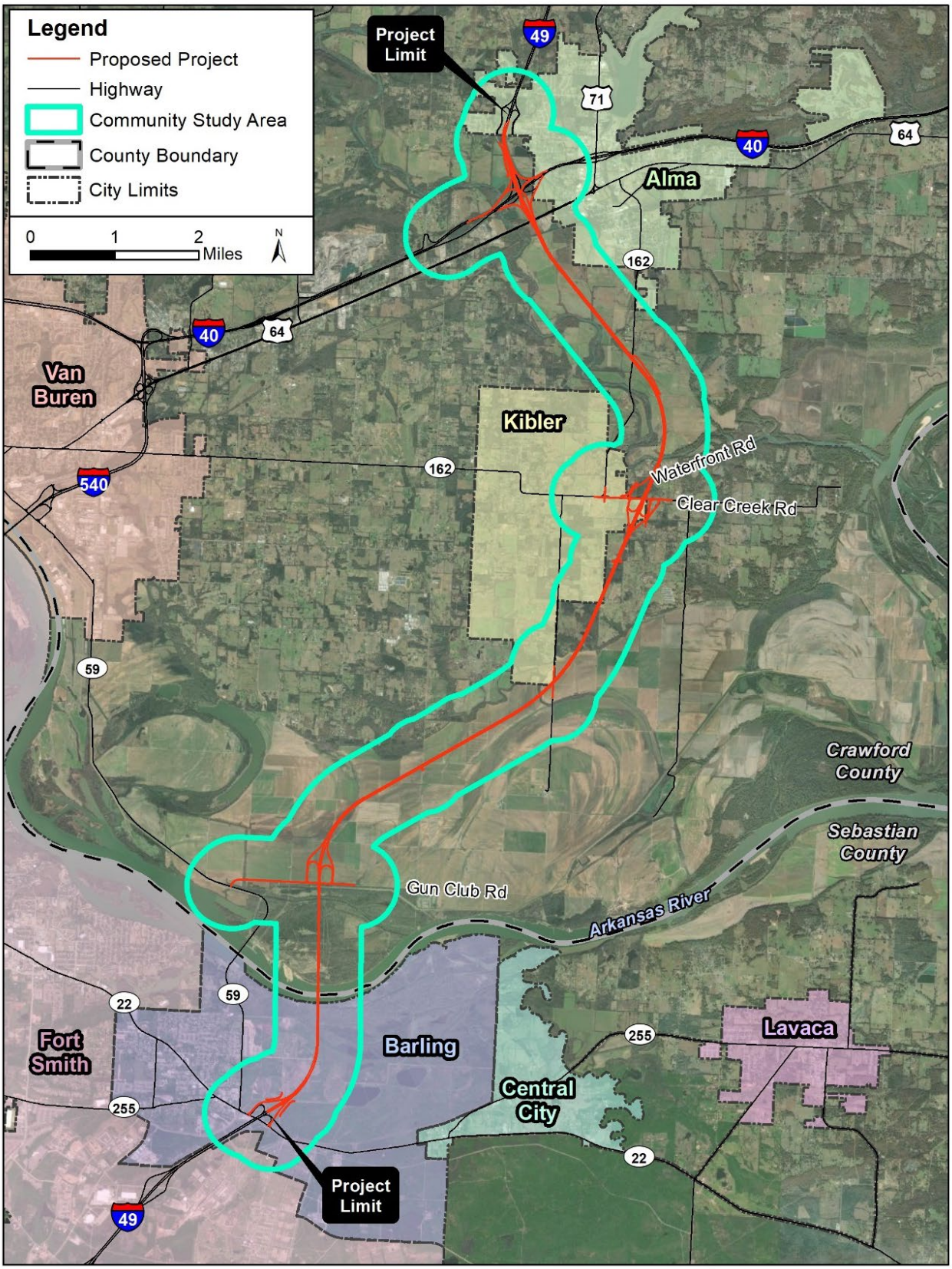
5.1.2 Re-evaluation

An updated community impacts analysis was completed for this re-evaluation utilizing the latest available U.S. Census data, aerial imagery and field reconnaissance to accurately account for land use changes occurring since the 1997 FEIS. The community study area encompasses the project limits and was established using a 0.5-mile buffer from the centerline of the proposed project. The community study area includes the communities potentially impacted, including portions of the cities of Barling, Kibler, and Alma; the residences along Clear Creek and Waterfront Roads; and residences and businesses along Interstate 40, as shown in **Figure 5-1**.

Demographics of the proposed community study area include the following:

- **Minority Populations:** Of the 98 census blocks reporting a population within the community study area, 16 reported a minority population equal to or greater than 50 percent of the total population.
- **Low-Income Populations:** Of the 13 census block groups within the community study area, one had a median household income below the 2002 Department of Health and Human Services poverty level of $27,750. Median household incomes ranged from $25,556 to $68,182.
- **Limited English Proficiency (LEP) Populations:** Of the 13 census block groups within the community study area, two have a presence of persons who speak English less than "very well". The primary language spoken in these cases was Spanish.

Figure 5-1: Community Study Area



Source: Project Team, 2022

The proposed project would potentially result in both positive and negative impacts within the community study area. The proposed project would result in the relocation of 21 residences and three farm structures. The farm structure relocations are within an environmental justice (EJ) area (high percentage of minority households), but would not result in a residential relocation. The remaining 21 relocations are non-EJ. Disproportionate adverse impacts to EJ communities are not anticipated as a result of the proposed project. For those relocated as a result of the proposed project, the analysis presented in **Appendix A** identified numerous existing homes for sale within a reasonable distance of the relocated residents and at similar price points and square footages.

The proposed project would cross through two neighborhoods in the community study area. These include the Waterfront Park neighborhood and the residences along Clear Creek Road. While construction of the proposed project would introduce a visual barrier were the facility crosses these neighborhoods, access would be maintained within the communities through the use of interstate overpasses. Existing travel patterns would shift from predominantly small rural roads to a new highway facility, which would reduce travel times within and outside of the study area.

Because LEP populations exist within the community study area, public involvement activities included the opportunity to request language accommodations and translators were available at all public meetings.

All populations within the community study area would benefit from shorter travel times within and outside of the study area. Based on the above discussion and analysis, the proposed project would not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of Executive Order (EO) 12898 and FHWA Order 6640.23A. No further EJ analysis is required.

In conclusion, while the re-evaluation assessed community impacts to a greater level of detail compared to the FEIS/ROD, and development over time has led to changes in the community landscape, no substantial changes to community impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.2 Would any historic resources be impacted by the project?

5.2.1 1997 FEIS

The 1997 FEIS encompassed a larger project area and supplied historic resource information by segments. The 1997 FEIS identified 11 historic sites, seven pre-historic sites, and ten sites potentially eligible for nomination to the National Register of Historic Places (NRHP) within the segments of the re-evaluation limits.

5.2.2 Alternative Delivery Study

ARDOT coordinated with the SHPO to determine eligibility of historic resources and potential impacts of NRHP properties. ARDOT in coordination with the SHPO's staff at the Arkansas Historic Preservation Program (AHPP), evaluated 37 structures in February 2018. AHPP determined that

28 of the 37 properties (Properties 1-27) were not eligible for inclusion in the NRHP. For Property 28-28H, six structures (28, 28A, 28D, 28E, 28F, and 28H) were considered not eligible for listing in the NRHP while three of these structures (28B, 28C, and 28G) were considered eligible as contributing elements to a dairy/livestock farming operation site in Crawford County. However, a potential historic district would need to include all nine structures. Since more than half would be considered non-contributing, Property 28 would not constitute a historic district.

None of these NRHP-eligible historic properties are anticipated to have potential impacts which would directly or indirectly alter the characteristics that qualify them for inclusion in the NRHP. The undertaking would cause no direct impacts, including physical, visual, auditory, or vibratory impacts, or other changes to their setting, which would diminish the integrity of the properties' significant historic features. In addition, the undertaking would cause no indirect effects – those which are reasonably foreseeable effects caused by the undertaking that may occur later in time or be farther removed in distance – to these historic properties. Therefore, there would be no adverse direct or indirect effects to these historic properties under Section 106 of the National Historic Preservation Act.

An additional site (Property 29) was evaluated in June 2018 and coordinated with AHPP. This structure, Old Wire Road, was determined eligible for inclusion in the NRHP under Criterion A for being an early post road and route and Criterion C for its association with a method of road construction in the 19th century. The SHPO concurred with this determination in a letter dated June 21, 2018. In December 2021, an Assessment of Effects (AOE) was prepared and it was determined that proposed project would result in an adverse effect to the resource. A Memorandum of Agreement (MOA) was prepared to resolve the adverse effect. The AOE and MOA are included in the individual Section 4(f) evaluation in **Appendix D.**

5.2.3 Re-evaluation

As part of this Re-evaluation, a total of 53 structures (associated with 23 properties) were evaluated for potential NRHP eligibility. It was the opinion of FHWA and ARDOT that none of the structures evaluated were eligible for the NRHP. SHPO concurred with these findings in a letter dated December 16, 2021 (**Appendix L**). A copy of the *Historic Resources Survey Report* is included in **Appendix B**.

In conclusion, additional historic resources have been identified since the 1997 FEIS/ROD. Only one property, Old Wire Road, was determined eligible for inclusion in the NRHP. While the proposed project would result in an adverse effect to Old Wire Road, an MOA was prepared to resolve the adverse effect.

5.3 Would any archeological resources be impacted by the project?

5.3.1 1997 FEIS

The 1997 FEIS encompassed a larger project area and supplied archeological resource information by segments. The 1997 FEIS identified 62 archeological sites within the Selected Alignment limits. The AHPP recommended that site delineations and evaluations be conducted prior to any ground disturbing activities given the numerous previously recorded archeological

sites located in and in close proximity to the area of potential effect (APE).

5.3.2 Re-evaluation

Impacts to archeological resources were assessed within the project footprint or APE. Previously identified archeological sites are organized in groups with pertinent information, including NRHP status and management recommendations. **Table 5-1** and this section summarizes the sites by recommendations, including those recommended for further work if they were determined eligible or potentially eligible for the NRHP or had an undetermined status.

Not Eligible Sites

There are 46 total sites which have been recommended as not eligible for NRHP listing under Criterion D (3CW0049, 3CW0307, 3CW0650, 3CW0651, 3CW0652, 3CW0653, 3CW0655, 3CW0866, 3CW0868, 3CW0869, 3CW0870, 3CW0871, 3CW0872, 3CW0873, 3CW0874, 3CW0875, 3CW0876, 3CW0877, 3CW0878, 3CW0881, 3CW0883, 3CW0884, 3CW0885, 3CW0886, 3CW0895, 3CW0899, 3CW0900, 3CW0904, 3CW1166, 3CW1336, 3CW1347, 3CW1348, 3CW1349, 3CW1350, 3CW1351, 3CW1352, 3CW1353, 3CW1355, 3CW1355, 3CW1358, 3CW1359, 3CW1360, 3CW1361, 3CW1362, 3SB0600, and 3SB1059). No further work is recommended for these sites. Site 3CW0900's recommendation has been updated based on the results of analysis of the Phase II testing.

Sites Avoided by the Project

There are three sites located within the project limits which are expected to be avoided by direct ground disturbance activities, sites 3CW0867, 3CW0879, and 3CW0897. Portions of these sites extend into the project footprint but the construction activities are not expected to overlap any portion of their site boundaries. Two sites (3CW0867 and 3CW0879) have an undetermined NRHP status and 3CW0897 is considered potentially eligible. Each site should be designated as an environmentally sensitive area (ESA) and protected by protective fencing.

Site Portions within the Project Limits Recommended for No Further Work in the APE

There are four sites which extend beyond the APE and have either Eligible or Undetermined NRHP status. Sites 3CW0017 and 3CW0154 have Eligible NRHP recommendations under Criterion D and portions of those sites were recommended for no further work within the surveyed (1998) right of way by previous investigators. Sites 3CW0067 and 3CW1237 have an undetermined NRHP status and portions of those were recommended for no further work within the within the surveyed (1998 or 2021) right of way, respectively.

Sites Recommended for Monitoring

Site 3CW0864/3CW0865 was previously indicated to be Eligible for the NRHP under Criterion D according to the AMASDA site files. Monitoring is recommended during construction activity in the area adjacent to Gun Club Road near 3CW0864/0865 because the potential for a buried surface was indicated in previous geomorphological investigations.

Undetermined with Further Work Phase II and III

A recent Phase I survey located three sites which are currently undetermined and require a staged approach to determine their NRHP eligibility. These sites were located on previously unsurveyed parcels within the project footprint and include sites 3CW1354, 3CW1356, and 3CW1357.

Eligible Sites with Phase III Proposed

There are two sites, 3CW0882 and 3CW0894, which are Eligible for NRHP listing under Criterion D and have Phase III mitigation work recommendations. The portion of 3CW0882 within the APE is expected to have a staged approach for further investigation and avoidance for the portion located beyond there project limits which includes a historic cemetery and should be designated as an ESA and protected by protective fencing. Site 3CW0894 is expected to have a standard Phase III data recovery as its preferred treatment plan. Site 3CW1326, Old Wire Road, is eligible under Criteria A and C. This resource has a Section 4(f) designation as an eligible historic trail route.

Several sites on the list may have initially been recorded as individual sites and later combined and/or were simultaneously tested in part by subsequent investigators (i.e., sites 3CW0878, 3CW0879, and 3CW0880). However, recommendations made for the individual sites when they were last investigated are still valid in some respects and **Table 5-1** reflects the most recent individual site recommendations.

All information in **Table 5-1** reflects the most recently reported information for each resource available from site forms, reports, and ongoing work within the project footprint. There have been several stages of reporting for the proposed project since the 1990s, including a 1997 Programmatic Agreement that documented the known sites prior to several rounds of archeological investigations and reporting. These subsequent investigations were also summarized in an ARDOT interoffice memorandum which outlined areas that still required Phase I survey, Phase II testing to determine NRHP eligibility, Phase III mitigation work, and archival research. Some of the Phase I survey, Phase II testing, and archival research has since been completed as part of this re-evaluation as summarized in the ARDOT 2018 memorandum. An Archeological Management Summary submitted to SHPO addressed the Phase I survey of previously inaccessible properties, additional work such as archival research and revisiting additional sites during the Phase I survey, and Phase II testing at two sites.

Additional resources identified during the Phase I survey still require Phase II testing for NRHP determinations and the Phase III work from prior and current recommendations would also still be necessary before project construction. A Phase I/Phase II Survey Report will be completed for the proposed project.

Table 5-1: Summary of Archeological Sites within the Project Footprint Requiring Further Work

Site No.	NRHP Status	Site Type	Period/Cultural Affiliation	Recommendation
3CW0017*	Eligible	Precontact and Historic Scatter with Midden	Precontact: Archaic, Middle Archaic, Woodland, Mississippian; Historic: Late 19th-Early 20th Century	NFW Where Previously Surveyed Mitigation Recommended West of 1998 right of way
3CW0154*	Eligible	Precontact Lithic Scatter	Precontact: Late Archaic-Early Woodland	NFW Where Surveyed 2000 & 2021 Survey Recommended East of 1998 right of way
3CW0864/ 3CW0865*	Eligible (AMASDA)	Precontact and Historic Scatter with Midden	Precontact: Late Archaic, Woodland; Historic: Late 19th-Early 20th century	Monitoring
3CW0882*	Eligible	Precontact and Historic Scatter with Midden	Precontact: Middle Archaic-Woodland; Historic: Late 19th-Early 20th Century	Phase III Mitigation for Precontact Site (Staged approach) and Avoidance o of Historic Cemetery
3CW0894*	Eligible	Precontact and Historic Scatter with Midden	Precontact: Late Archaic-Woodland, Mississippian; Historic: Late 19th-20th Century	Phase III Mitigation
3CW0900	Not Eligible	Precontact and Historic Artifact Scatter	Unknown Precontact; Historic: Late 19th-Early 20th century	Results of Phase II Analysis Indicates Data Potential Exhausted. NFW.
3CW0867*	Undetermined	Precontact Scatter with Midden	Precontact: Late Archaic, Woodland	NFW Where Surveyed 1997 Avoidance
3CW0897	Potentially Eligible	Precontact Lithic Scatter, Historic Cemetery	Unknown Precontact; Historic: mid-to-Late 19th Century	Avoidance
3CW0067*	Undetermined	Precontact and Historic Scatter with Midden	Precontact: Middle-Late Archaic, Woodland; Historic: 20th Century	NFW Where Previously Surveyed Survey Recommended East of 1987 Borrow Pit
3CW0879*	Undetermined	Precontact Lithic Scatter	Unknown Precontact	Avoidance
3CW0880*	Undetermined	Precontact and Historic Scatter with Midden	Unknown Precontact; Historic: mid-19th Century - Modern	Survey and Testing Recommended East of 1998 right of way due to Limits Change
3CW1237*	Undetermined	Precontact and Historic Artifact Scatter	Precontact: Woodland, Fourche Maline; Unknown Historic	NFW Where Previously Surveyed
3CW1354	Undetermined	Precontact and Historic Artifact Scatter	Unknown Precontact; Historic: Late 19th-Early 20th Century	Phase II Testing, Phase III Mitigation (Staged approach)
3CW1356	Undetermined	Precontact Lithic Scatter	Unknown Precontact	Phase II Testing, Phase III Mitigation (Staged approach)
3CW1357	Undetermined	Precontact and Historic Artifact Scatter	Unknown Precontact; Historic: 20th Century	Phase II Testing, Phase III Mitigation (Staged approach)
3CW1326*	E (Crit. A&C)	Historic Road/Trail	Historic: 19th Century	Section 4(f) Designation
3CW0886*	Not Eligible	Precontact and Historic Scatter with Midden	Precontact: Late Archaic-Early Woodland; Historic: Late 19th-Early 20th Century	NFW Where Previously Surveyed Testing Recommended West of 1998 right of way
3CW1336	Not Eligible	Precontact Lithic Scatter, Historic Isolate	Unknown Precontact; Unknown Historic	NFW Where Previously Surveyed

*Notes: *Denotes a site where a prior recommendation or NRHP Status is the default because HNTB did not survey it or could not locate or assess it fully for NRHP status.*
Abbreviations used: E=Eligible, U=Undetermined, Crit=Criterion/Criteria, NFW=No Further Work; Source: Project Team, 2021 and 2022

In conclusion, additional archeological resources have been identified since the 1997 FEIS/ROD. Any of the subsequent work described above will follow the 1997 Programmatic Agreement.

5.4 How would the project impact Section 4(f) resources?

Section 4(f) of the Department of Transportation Act of 1966 protects publicly owned and accessible parks, recreation areas, wildlife and waterfowl refuges, and historic sites, regardless of ownership and accessibility. The law is implemented by the FHWA through the regulation of 23 CFR 774.

5.4.1 1997 FEIS

The 1997 FEIS identified one Section 4(f) resource, Springhill Park, in the re-evaluation limits of the proposed project. The Selected Alignment proposed to incorporate land from Springhill Park. Four abandoned camp sites and a water fountain (not in use) would be impacted. For the 1997 FEIS, coordination with the official with jurisdiction, the United States Army Corps of Engineers (USACE), occurred, resulting in the identification of 14 mitigation measures.

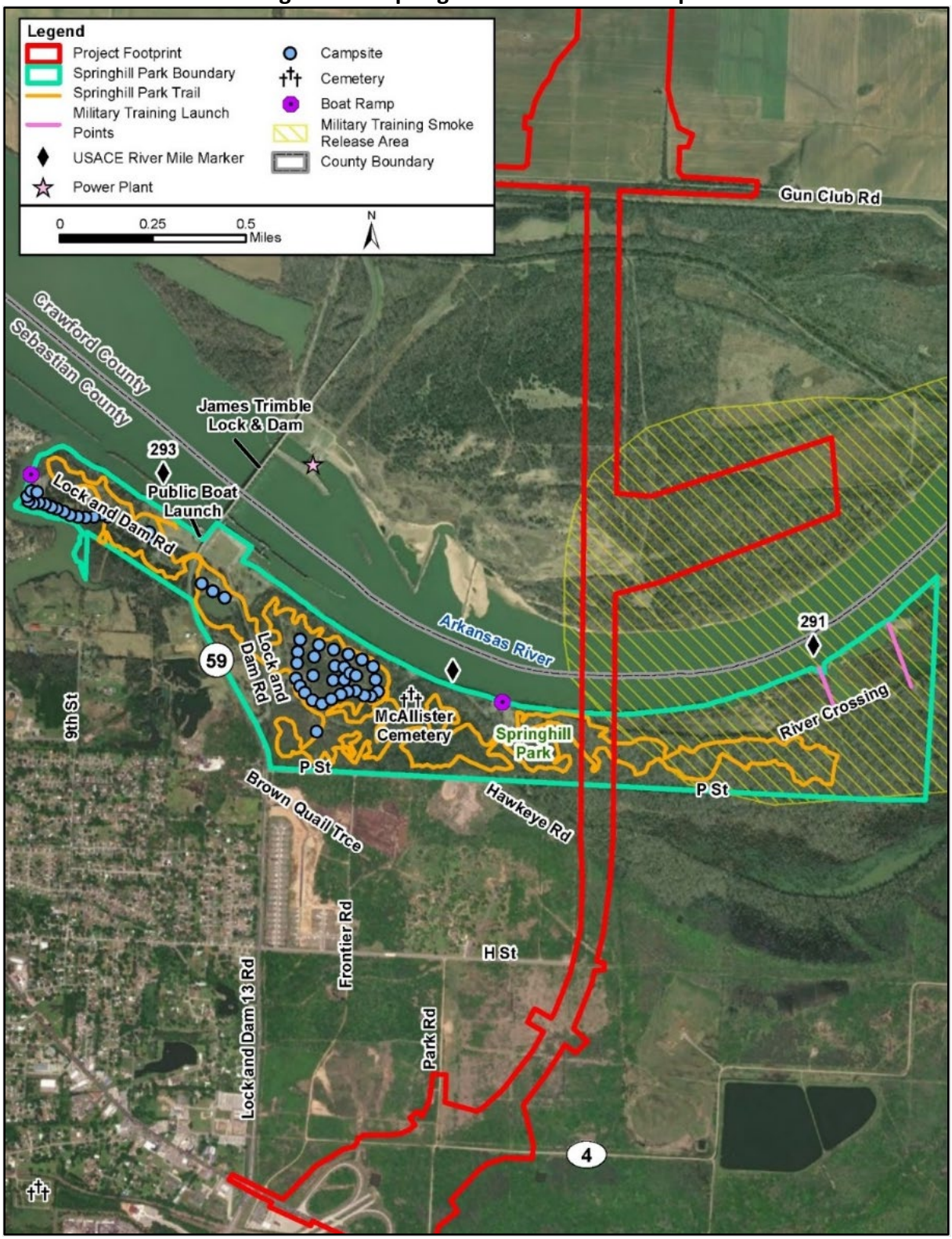
5.4.2 Re-evaluation

Springhill Park

Impacts and mitigation details for Springhill Park are included in the *Individual Section 4(f) Evaluation for Springhill Park* (**Appendix E**) and are summarized below.

An overview of Springhill Park and its existing facilities are shown in **Figure 5-2.** The new Interstate 49 bridge would span approximately 900 feet through Springhill Park and require approximately 10 acres of USACE property, of which approximately six acres would be cleared, resulting a direct use of Springhill Park. The four abandoned campsites and currently-unused water fountain) identified in the 1997 FEIS are still within the project footprint. Tree and vegetation clearing would be limited to 150-feet east and west of the roadway centerline, for a total width of 300-feet across Springhill Park. Since the 1997 FEIS, Springhill Park Trail, a mountain bike/hiking trail, was constructed and would be impacted by the construction of the proposed project. Approximately 2,000 feet of the trail is located within the proposed right of way, of which approximately 583 feet is located under the proposed bridge deck. Portions of the trail under the bridge deck would need to be re-routed to avoid the proposed bridge substructure.

Figure 5-2: Springhill Park Overview Map



Sources: Arkansas GIS Office, 2022 and USACE, 2022

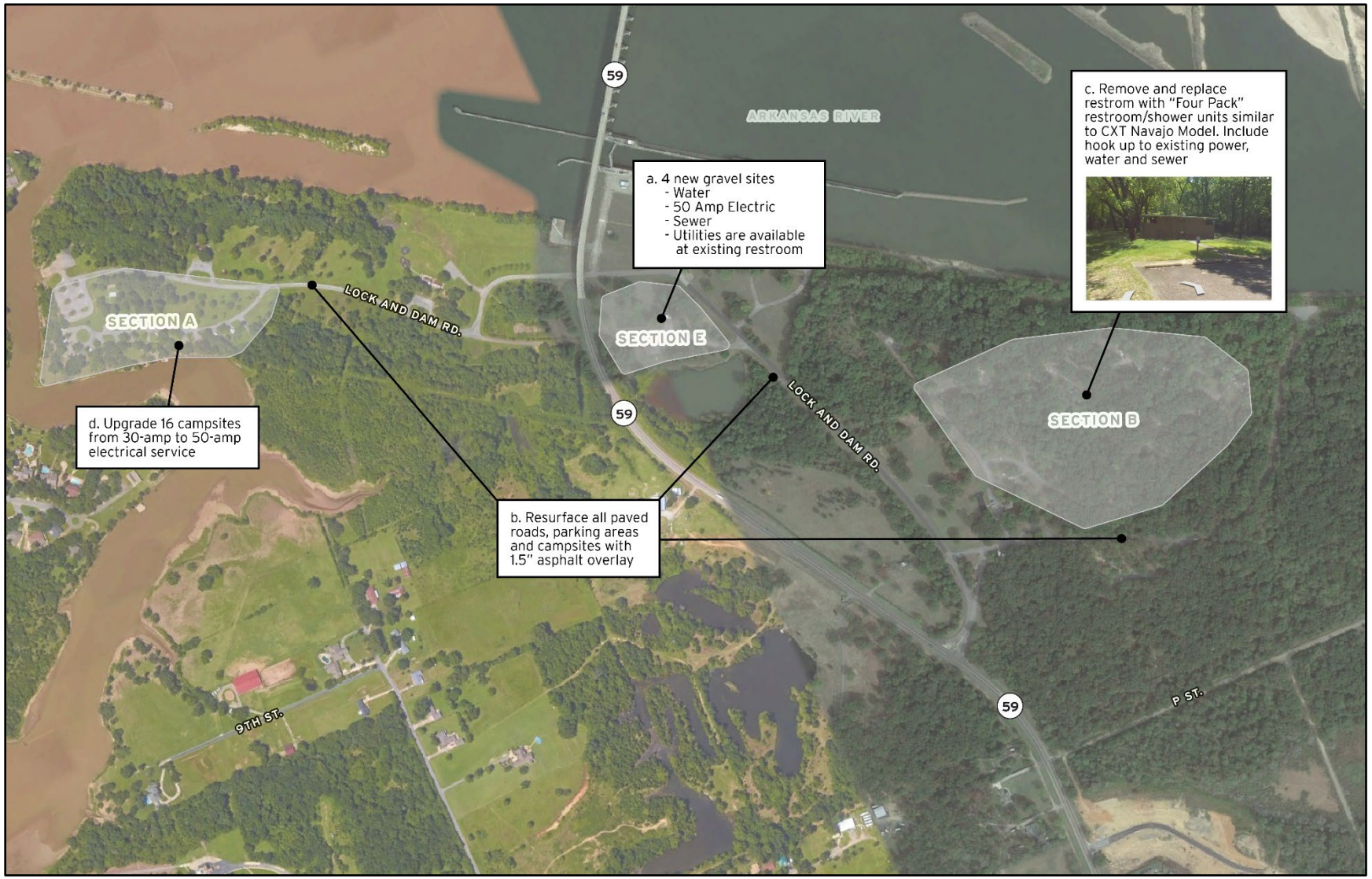
Coordination with the USACE took place on December 2, 2021, to discuss impacts to Springhill Park that were documented in the 1997 FEIS. The 14 measures to minimize harm established in the FEIS were revisited, and potential additional measures needed to minimize harm. This coordination is documented in **Appendix C**.

After the December 2021 meeting, an Individual Section 4(f) evaluation was prepared for Springhill Park that identified additional impacts and mitigation based on the preliminary design. The USACE (correspondence located in **Appendix L**) has requested the following items to mitigate the immediate and future impacts to Springhill Park (**Figure 5-3**):

a. The relocation of four impacted campsites to an area near the E section restroom. These sites will be utilized for park volunteers and should be paved with graveled or concrete living areas. The sites should also be full hookup with water, 50-amp electric service, and sewer. Utilities are available at the nearby E section restroom.
b. Resurface all paved roadways, parking areas, and campsites throughout the park.
c. Destruction, removal, and replacement of the B section restroom. The replacement should be a “Four Pack” of family restroom/shower units. An example of this type of facility is the CXT Navajo model.
d. Upgrade the 16 campsites in A section to 50-amp electric service.

The United States Department of Interior (DOI) Office of Environmental Policy and Compliance reviewed the Springhill Park individual Section 4(f) evaluation. In a letter dated July 19, 2023 (included in **Appendix L**), the DOI concurred with the determination that there is no feasible and prudent avoidance alternative to the Section 4(f) use of Springhill Park.

Figure 5-3: Springhill Park Mitigation Items



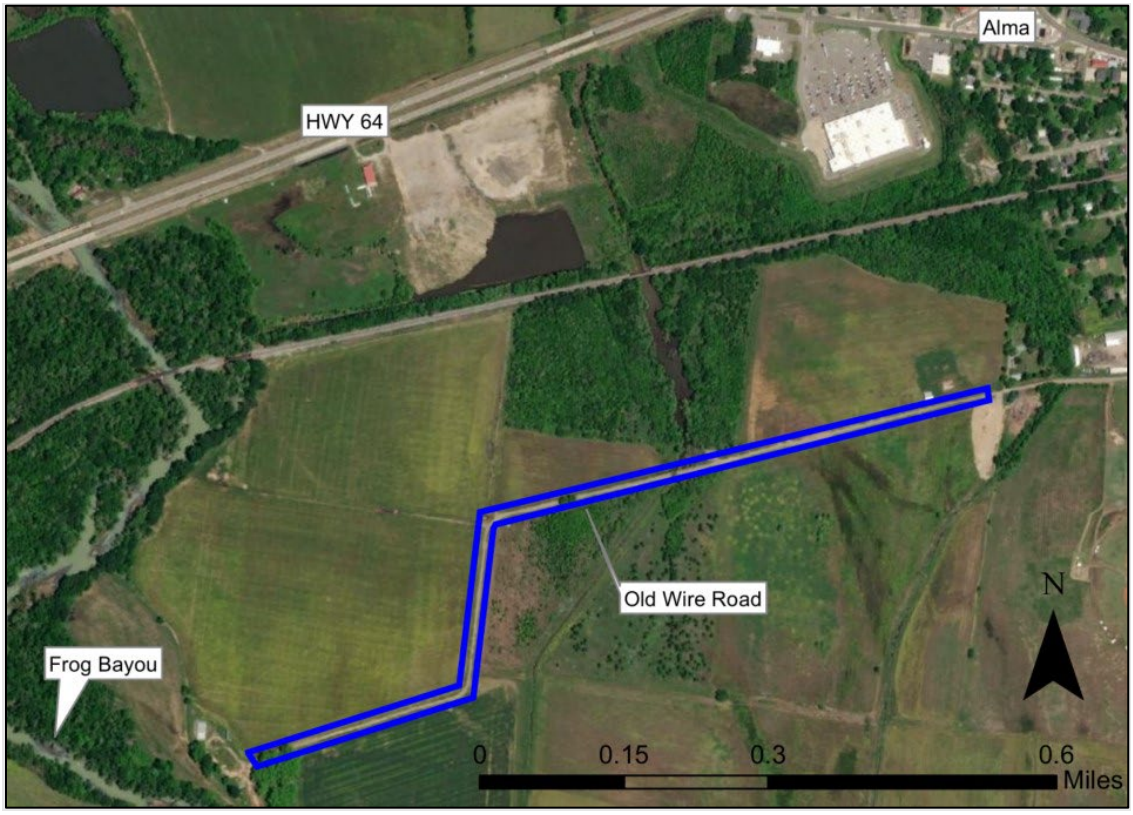
Old Wire Road

In addition to Springhill Park, there is one additional Section 4(f) property impacted by the construction of the proposed project: Old Wire Road. A Section 4(f) analysis was not conducted in the 1997 FEIS for Old Wire Road, as it was not identified until 2018 when ARDOT coordinated with the AHPP during the Alternative Delivery Study. Impacts and mitigation details for Old Wire Road are included in the *Individual Section 4(f) Evaluation for Old Wire Road* (**Appendix D**) and are summarized below.

Old Wire Road (Property 29) is a segment of gravel roadway located west of the town of Alma in Crawford County, Arkansas (**Figure 5-4**), currently used for access to privately owned fields. As previously discussed, Old Wire Road was determined eligible for inclusion in the NRHP under Criterion A for being an early post road and route and Criterion C for its association with a method of road construction in the 19th century. The SHPO concurred with this determination in a letter dated June 21, 2018.

Photographs of existing Old Wire Road are shown in **Figure 5-5** and **Figure 5-6.**

Figure 5-4: Historic Property Boundary of Old Wire Road



Source: Project Team, 2022

Figure 5-5: Photograph - Eastern Section of Old Wire Road

Source: Project Team, Photo taken July 2021.

Figure 5-6: Photograph - Middle Section of Old Wire Road

Source: Project Team, Photo taken July 2021.

The proposed project crosses Old Wire Road. Accordingly, Old Wire Road is proposed to be rerouted approximately 400 feet to the north, would be at grade, and cross under the elevated Interstate 49 main lane.

In December 2021, an AOE determined that construction of the proposed project would result in an adverse effect to the resource. A MOA was prepared to resolve the adverse effect. The AOE and MOA are included in **Appendix D**.

The United States DOI Office of Environmental Policy and Compliance reviewed the Old Wire Road individual Section 4(f) evaluation. In a letter dated July 19, 2023 (included in **Appendix L**), the DOI concurred with the determination that the proposed project would constitute an adverse effect to Old Wire Road under Section 106 of the National Historic Preservation Act and concurred with the determination that there is no feasible and prudent avoidance alternative to the Section 4(f) use of Old Wire Road.

5.5 Would any Section 6(f) resources be impacted?

A Section 6(f) resource is any public outdoor recreational land acquired or improved with funds authorized under the Land and Water Conservation Fund (LWCF) Act of 1965. Facilities that are LWCF funded must be maintained for outdoor recreation in perpetuity. Impacts to Section 6(f) properties require mitigation that includes replacement of at least equal value and recreation utility.

5.5.1 1997 FEIS

Section 6(f) resources were not discussed in the 1997 FEIS.

5.5.2 Re-evaluation

There were no Section 6(f) resources identified that would be directly impacted by the construction of the proposed project. Accordingly, adverse impacts are not anticipated.

5.6 How would air quality be impacted by the project?

Air Quality impacts resulting from the proposed project are detailed in the *Air Quality Technical Report* (**Appendix E**) and are summarized below.

Under the Clean Air Act (CAA) of 1970, the Environmental Protection Agency (EPA) is responsible for protecting and improving air quality nationwide. Regulations have been promulgated by the EPA to implement the CAA [40 CFR § 51 et seq.], including the Federal Transportation Conformity Rule (40 CFR § 93 et. seq.), which requires that transportation projects conform to state-level air quality plans or State Implementation Plans (SIPs). The Arkansas Division of Environmental Quality - Office of Air Quality (DEQ) is responsible for the development of the SIP in Arkansas.

EPA establishes National Ambient Air Quality Standards (NAAQS) to protect public health and to regulate emissions of hazardous air pollutants. The EPA has established NAAQS for six of the most common air pollutants: carbon monoxide (CO), lead (Pb), ground-level ozone (O_3), particulate matter (PM), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2), known as "criteria pollutants". National primary NAAQS are set to protect human health, and secondary NAAQS are to protect public welfare from adverse effects including protection against visibility impairment, or damage to animals, crops, vegetation, or buildings.

Air quality in Arkansas is currently being monitored by the DEQ. Information and data on specific monitoring stations can be found at the EPA Air data site.[4]

5.6.1 1997 FEIS

At the time of the 1997 FEIS, Crawford and Sebastian counties were within an area designated by the EAP to be in "attainment" of all NAAQS. The 1997 FEIS did not include a Mobile Source Air Toxics (MSAT) analysis, nor did it address greenhouse gas (GHG) emissions.

5.6.2 Re-evaluation

Since the 1997 FEIS, attainment status for the project area counties (Crawford and Sebastian) has not changed. Crawford and Sebastian counties are still within an area designated by the EPA to be in "attainment" of all NAAQS; therefore, conformity rules (40 CFR § 93 et. seq.), which requires that transportation projects conform to state-level air quality plans, do not apply. Air quality impacts are not anticipated. Although changes to all the NAAQS have occurred since the FEIS, the changes would not alter the conclusions as stated in the 1997 FEIS.

Mobile Source Air Toxics (MSATs)

In accordance with the latest FHWA MSAT guidance (2016), a qualitative MSAT analysis was completed for the proposed project because it represents low potential for MSAT as the design year (2045) traffic would be less than 140,000 vehicles per day (vpd).

The qualitative MSAT assessment completed for the proposed project concluded that the ambient concentrations of MSAT could be higher under the Build Alternative, compared to the

[4] https://www.epa.gov/outdoor-air-quality-data

No Build Alternative. The localized differences in MSAT concentrations would likely be most pronounced along the new roadway sections. However, the magnitude and the duration of these potential increases cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. On a regional basis, EPA vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, would cause region-wide MSAT levels to be substantially lower than present day.

Greenhouse Gas (GHG)

Pursuant to EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, the Council on Environmental Quality (CEQ) rescinded its 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas (GHG) Emissions and is reviewing, for revision and update, the 2016 Final Guidance for Federal Departments and Agencies on Consideration of GHG Emissions and the Effects of Climate Change in NEPA reviews.

GHGs include carbon dioxide (CO_2), methane (CH_4), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Two of the largest contributors to GHG emissions in the U.S. are transportation and electricity production, although industrial, residential, commercial, and agriculture sectors contribute as well. CO_2 accounts for 81 percent of all U.S. anthropogenic GHG emissions.[5] According to the DEQ, the largest source of anthropogenic CO_2 emissions is the electric power sector followed by the transportation sector. Overall, CO_2 emissions in Arkansas have increased by 0.2 million metric tons between 2008 and 2017. Residential, industrial, and transportation sectors reduced CO_2 emissions in this period. The electric power sector increased emissions.[6]

It is not anticipated that emissions from construction of this proposed project would have any significant impact on air quality in the region.

In conclusion, while the re-evaluation was based on updated guidance and assessed air quality impacts to a greater level of detail compared to the FEIS/ROD, no substantial changes in air quality impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.7 Would the project result in any traffic noise impacts?

Potential traffic noise impacts resulting from construction of the proposed project are detailed in the *Traffic Noise Technical Report* (**Appendix F**) and are summarized below.

5.7.1 1997 FEIS

Potential traffic noise impacts were assessed in the 1997 FEIS. The FEIS traffic noise analysis was prepared in accordance with 23 CFR 772 and included a discussion on potential mitigation measures. Existing background short-term noise measurements were taken adjacent to the U.S. 71 Relocation Project. Traffic noise prediction analyses were performed for existing year 1995

[5] EPA (2018). "Overview of Greenhouse Gases" https://www.epa.gov/ghgemissions/overview-greenhouse-gases.
[6] DEQ Office of Air Quality (2021) "State of the Air Report 2020 " https://www.adeq.state.ar.us/air/state-of-air/pdfs/2020-report-final.pdf

and design year 2020 (Action and No-Action scenarios) using the FHWA approved model, STAMINA 2.0. The FEIS concluded that the Selected Alignment would result in traffic noise impacts under the Action and No-Action scenarios. The 1997 FEIS included a preliminary noise abatement analysis to address receptors that require noise mitigation consideration. The FEIS concluded that some barriers may be determined feasible and/or reasonable when additional design is undertaken, and that a final decision on barriers would be made upon completion of a detailed noise barrier analysis, the final engineering design, and the public involvement process. No decision on noise barriers were made during the 1997 FEIS.

5.7.2 Re-evaluation

As part of this re-evaluation, a detailed traffic noise analysis was prepared in accordance with the ARDOT (FHWA-approved) 2018 *Policy on Highway Traffic Noise Abatement*. The FHWA's approved Traffic Noise Model (TNM) 2.5, was used to determine noise levels at receivers along the project footprint.

Along Interstate 40, where the proposed project would improve the existing interchange, the noise levels were modeled. To verify that the noise levels produced by FHWA's TNM 2.5, traffic was counted at the same time as the short-term noise measurement. The TNM model predicted that noise levels compared reasonably well with the short-term noise measurements. The model was then used to predict existing and future (2045) traffic noise levels.

Along proposed Interstate 49, the existing noise levels were measured. Long-term and short-term noise measurements were taken at seven locations within the project limits.

The noise levels were modeled for the predicted year (2045). A total of 61 receivers were modeled and located at frequently used human activity areas using aerial photography, topographical maps, and field verification. The proposed project was divided into 14 noise study areas (NSA).

Based on the detailed study completed to date, ARDOT has determined that the proposed project would result in traffic noise impacts. There would be a total of 33 impacted receivers. Therefore, traffic noise barriers were analyzed. Noise barriers must be both feasible and reasonable to be deemed likely for construction.

In order for the noise abatement measure to be acoustically feasible, a minimum of 5 dB(A)[7] reduction in design year highway traffic noise levels must be achieved for at least one impacted receiver. Feasibility applies primarily with the acoustical and engineering considerations of the project that determine whether a noise barrier would provide a "substantial" noise reduction. If a barrier cannot meet this criterion, abatement is considered to not be acoustically feasible. Additionally, the noise barrier should be feasible from an engineering perspective. Engineering feasibility takes into account topography, drainage, safety, barrier height, utilities, and access and maintenance needs (which may include right of way considerations). If a barrier poses

[7] dB(A) is the A-weighted decibel or amplification of the different frequencies of the sound to correspond to the way the human ear "hears" these frequencies.

engineering problems, it may be judged as not feasible even if it meets the acoustical feasibility criterion, and it would not be recommended for construction. Acoustically, the best location for barriers is usually either close to the receiver, or close to the noise source, depending on the terrain.

If feasible, then the barriers are assessed for reasonableness. The reasonableness evaluation involves an examination of costs, public support, and whether a certain amount of noise reduction can be achieved. In accordance with the criteria in ARDOT's noise policy, the following three mandatory reasonableness factors must be met for a noise abatement measure to be considered reasonable:

1. Achieve the noise reduction design goal of a minimum of 8 dB(A) reduction in design year highway traffic noise levels for at least one benefitted receiver (design goal criteria).[8]
2. Cost-Effectiveness: If the estimated cost of constructing a noise barrier (including installation and additional necessary construction such as foundations or barrier walls) divided by the number of benefitted receivers [those who would receive a reduction of at least 5 dB(A)] is $36,000 or less per benefitted receiver, a barrier is considered to be cost-effective. For initial considerations, a unit cost of $35 per square foot for reflective barriers, $40 for absorptive barriers, and $50 for barriers on structures is used in this cost-effectiveness calculation.
3. For those barriers found to be reasonable by the cost-effectiveness and design goal criteria discussed above, collect viewpoints from property owners and residents of the benefitted receivers. Two attempts (meetings, mail surveys, or other method) would be made to establish a consensus (greater than 50 percent) of support for or against the proposed noise barriers. If a consensus is reached before the second attempt, the efforts to collect viewpoints is discontinued. If a consensus is not obtained after the second attempt, ARDOT will determine the appropriate abatement measure.

A total of nine noise barriers were analyzed and summarized in **Table 5-2**. These noise barriers are shown in **Figure 5-7**, **Figure 5-8**, **Figure 5-9**, and **Figure 5-10**. One traffic noise barrier would benefit 12 residential receptors. This barrier was initially considered to be feasible and reasonable and was proposed to be located east of the Interstate 40/Interstate 49 interchange, south of Interstate 40 adjacent to the right of way. However, after looking further into the noise barrier from the engineering perspective it was determined not feasible due to conflicts with fiber optic and overhead electric utilities; therefore, the barrier is not proposed. Another alternative for the noise wall was analyzed along the outside shoulder of the eastbound I-40 mainlane. This wall was also initially determined feasible and reasonable using the standard $35 per sqft construction cost. However, it was determined not reasonable taking into consideration the additional atypical construction costs for a safety crash barrier. A safety crash barrier would increase the cost per benefitted receiver to $43,396 which exceeds the cost reasonableness criteria of $36,000 per benefitted receiver. The remaining seven barriers analyzed were not feasible and reasonable.

[8] Reasonableness criteria requires a minimum of 8 dB(A) reduction in design year highway traffic noise for at least one benefited receiver. This is different than the feasibility criteria which requires a minimum of 5 dB(A) reduction in design year highway traffic noise levels for at least one impacted receiver.

Table 5-2 Noise Barrier Analysis Results

Barrier Number[1]	NSA	Location	Feasible	Average Height of Barrier (ft)	Length of Barrier (ft)	Meets Design Goal of 8 dB(A)	Total Cost	Number of Benefitted Receptors	Cost per Benefitted Receptor	Feasible and Reasonable
NB 1-1[1]	2	West of Interstate 49 along bridge over Springhill Park	Yes	12	2,106	No	$1,263,600	4	$315,900	No
NB 1-2[1]	1	East of Interstate 49 along bridge over Springhill Park	Yes	12	2,109	No	$1,265,400	6	$210,900	No
NB 2-1	8	West of Interstate 49 along southbound mainlane	Yes	16	1,100	Yes	$678,790	2	$339,395	No
NB 2-2	8	West of Interstate 49 along right of way	Yes	18	757	No	$494,900	2	$247,450	No
NB 2-3	7	East of Interstate 49 along northbound mainlane	Yes	15	1,199	No	$636,720	2	$318,360	No
NB 2-4	7	East of Interstate 49 along right of way	Yes	13	1,151	Yes	$531,440	3	$177,147	No
NB 3-1	13	North of Interstate 40 along right of way	Yes	18	904	Yes	$569,250	7	$81,360	No
NB 3-2	13	South of Interstate 40 along right of way	Yes	10	936	Yes	$327,600	12	$27,300	No[2]
NB 3-2S	13	South of Interstate 40 along the eastbound mainlane	Yes	16	571	Yes	$433,960	10	$43,396	No[2]

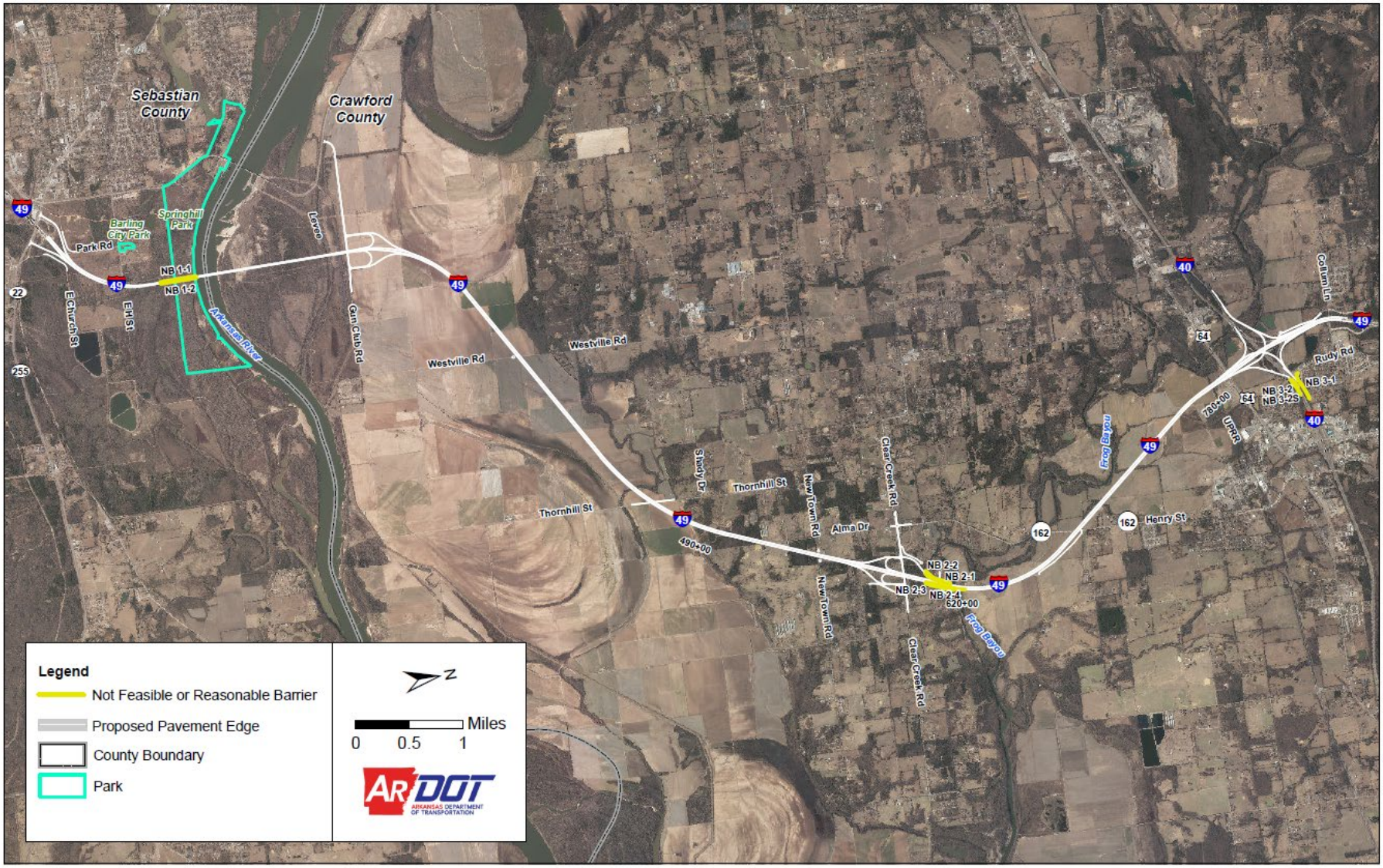
Source: Interstate 49 FEIS Re-evaluation Traffic Noise Study Report (August 2023).

Note:

(1) To analyze noise abatement for NSAs 1 and 2, the area of the impacted park was divided by the average single-family residential lot along the project to determine an equivalent number of receivers.

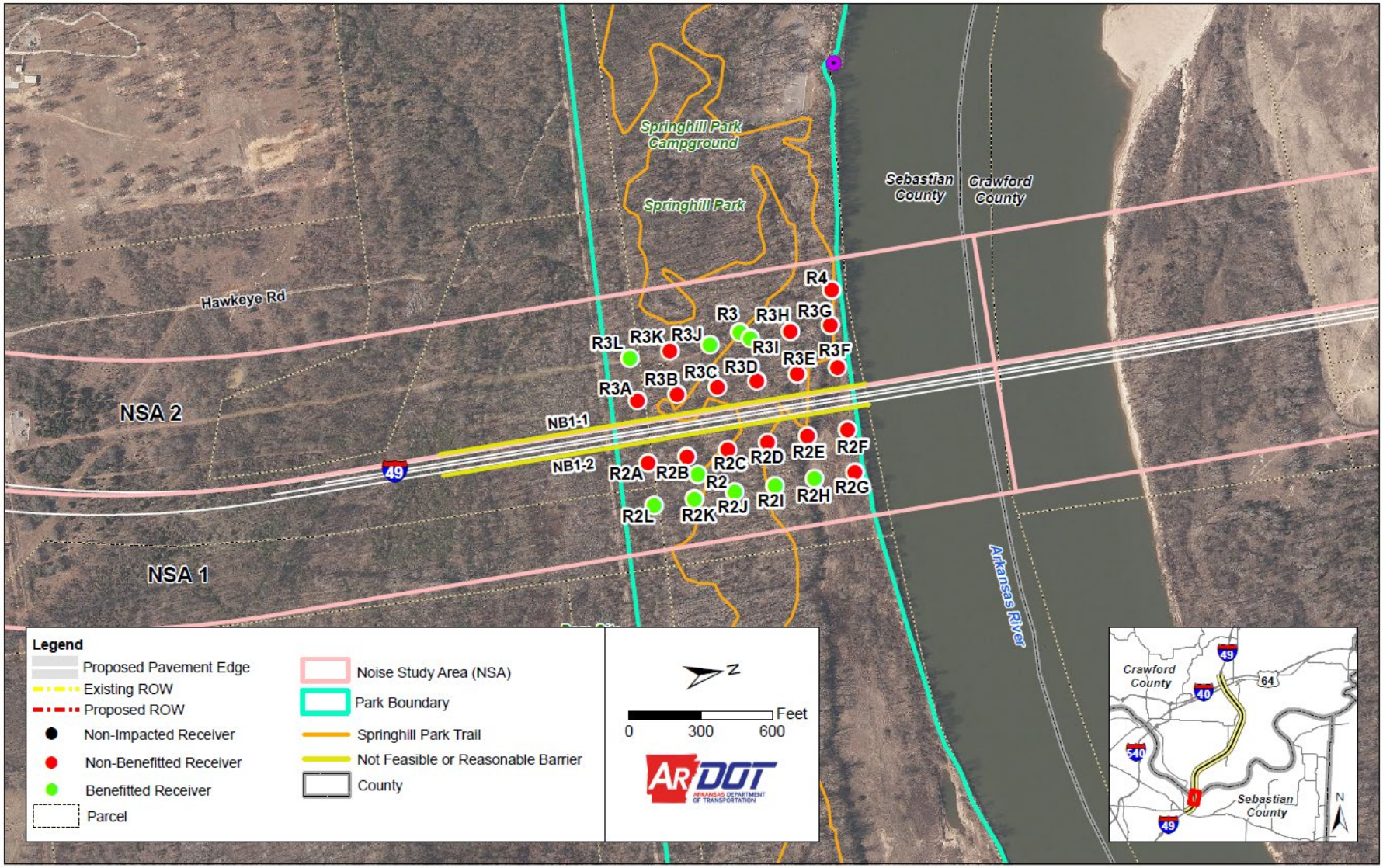
(2) These walls were initially considered feasible and reasonable. However, after further evaluation these were determined not feasible and reasonable due to engineering considerations and cost.

Figure 5-7: Traffic Noise Barriers Overview Map



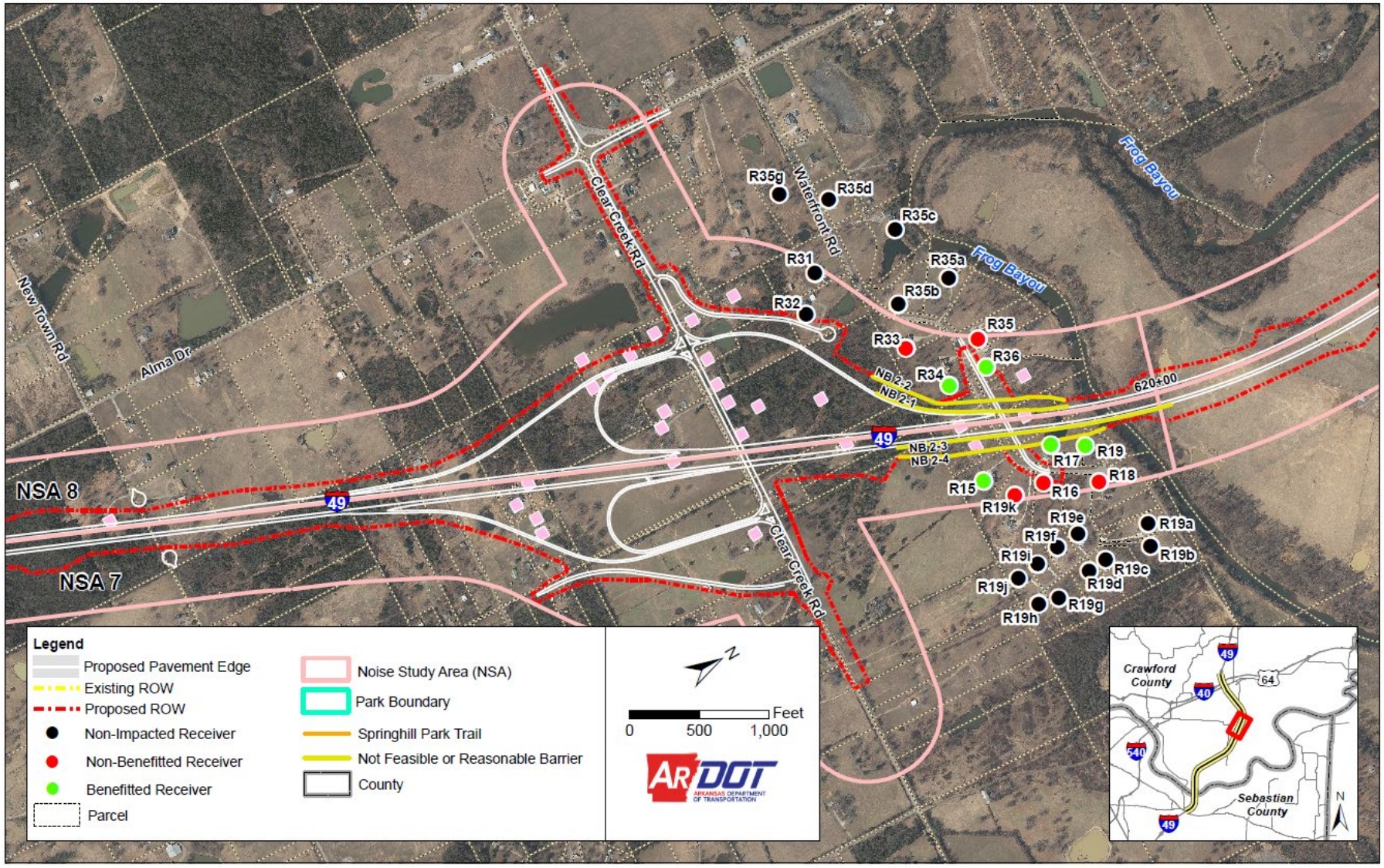
Source: ARDOT 30% Strip Map, January 2022

Figure 5-8: Traffic Noise Barriers (Sheet 1)



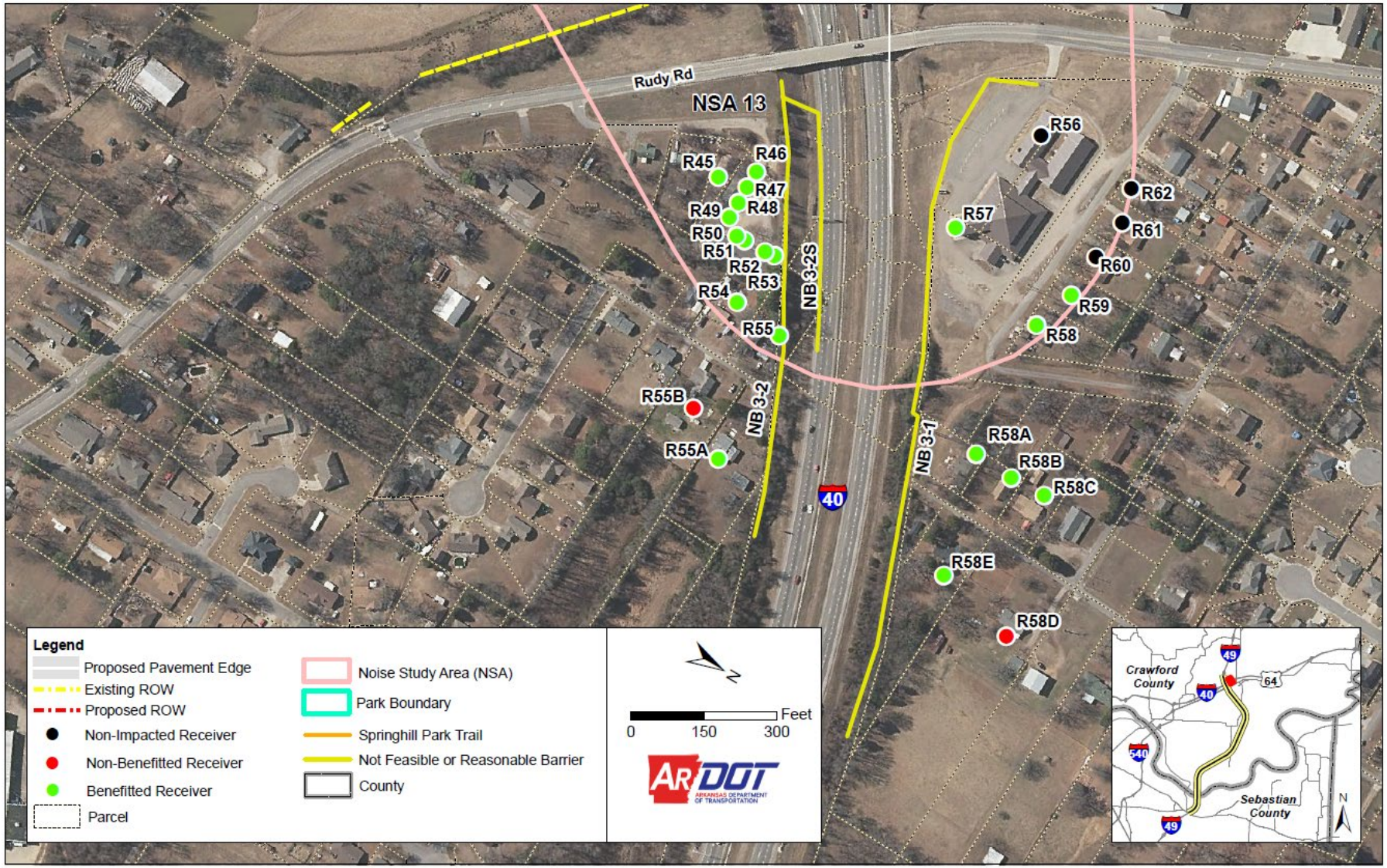
Source: ARDOT 30% Strip Map, January 2022

Figure 5-9: Traffic Noise Barriers (Sheet 2)



Source: ARDOT 30% Strip Map, January 2022

Figure 5-10: Traffic Noise Barriers (Sheet 3)



Source: ARDOT 30% Strip Map, January 2022

In conclusion, while the re-evaluation was based on updated guidance and assessed noise impacts to a greater level of detail compared to the FEIS/ROD, no substantial changes in noise impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.8 How would the project affect views?

Potential visual impacts resulting from the proposed project are detailed in the *Visual Impacts Technical Report* (**Appendix G**) and are summarized below.

5.8.1 1997 FEIS

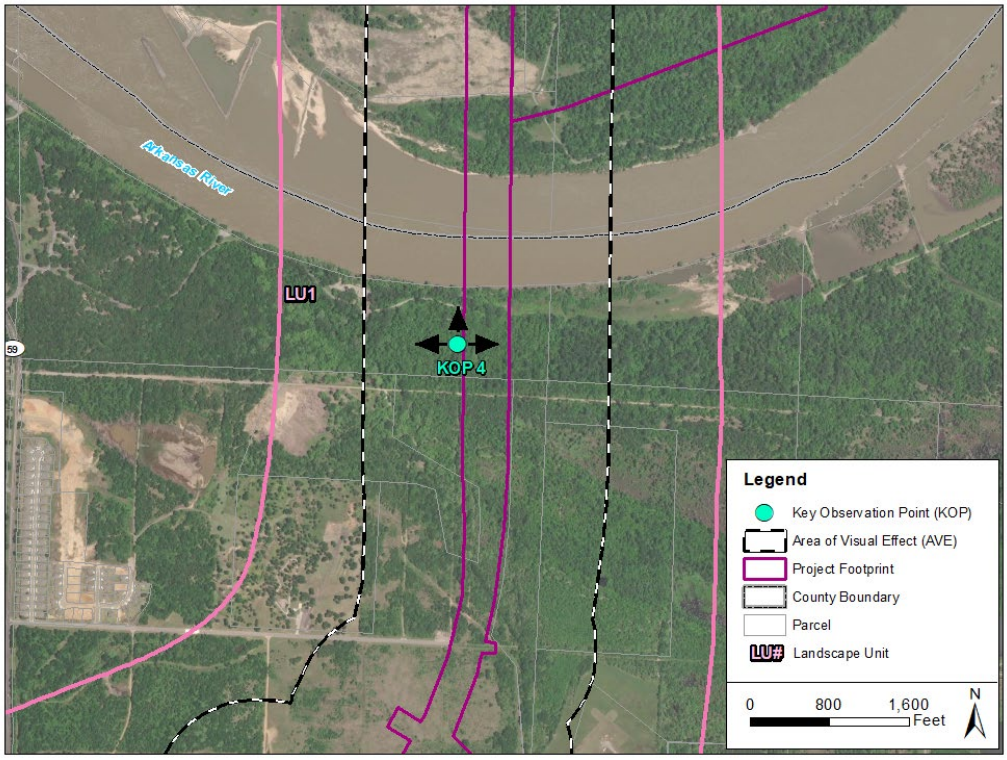
Certain segments of the 125-mile corridor were evaluated in the 1997 FEIS for visual impacts at interchanges and cut slopes in or near scenic areas. Springhill Park was only area within the 14-mile re-evaluation section of Interstate 49 evaluated for visual impacts in the 1997 FEIS. It was determined that the bridge over the park would not be visible from most park facilities due to the dense vegetative cover of most areas of the park, excluding the eastern area of the park, where the bridge would be visible as visitors pass under it and for some distance beyond. The 1997 FEIS also generally states that for the 125-mile corridor, the Selected Alignment would affect the rural setting, and would result in nearby residents having a view of the roadway.

5.8.2 Re-evaluation

FHWA published the *Guidelines for the Visual Impact Assessment of Highway Projects* in January 2015 as an update to the *Visual Impact Assessment for Highway Projects* published in 1981. The visual impacts assessment (VIA) for the proposed project incorporates the 2015 guidance.

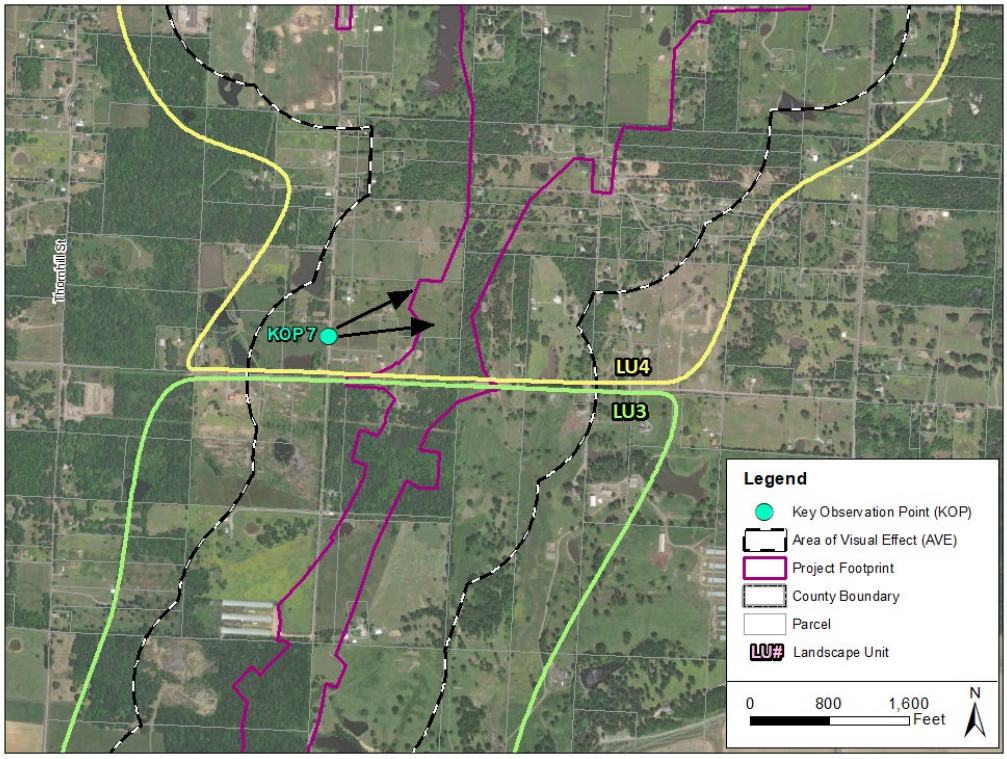
Of the 125-mile corridor assessed in the 1997 FEIS, Springhill Park was the only area evaluated for visual impacts that is also located within the 14-mile segment of the re-evaluation. All other areas are newly evaluated as part of this re-evaluation. In general, visual impacts anticipated from the construction of the proposed project are neutral. The potential for adverse visual impacts were identified at Landscape Unit (LU) 1 Key Observation Point (KOP) 4, LU4 KOP7, LU4 KOP8A and KOP8B, and LU5 KOP9, where the form of the project improvements may interfere with the existing visual harmony, order, and coherence for a limited number of residential viewsheds. These KOPs are shown in **Figure 5-11**, **Figure 5-12**, **Figure 5-13** and **Figure 5-14**.

Figure 5-11: Key Observation Point 4



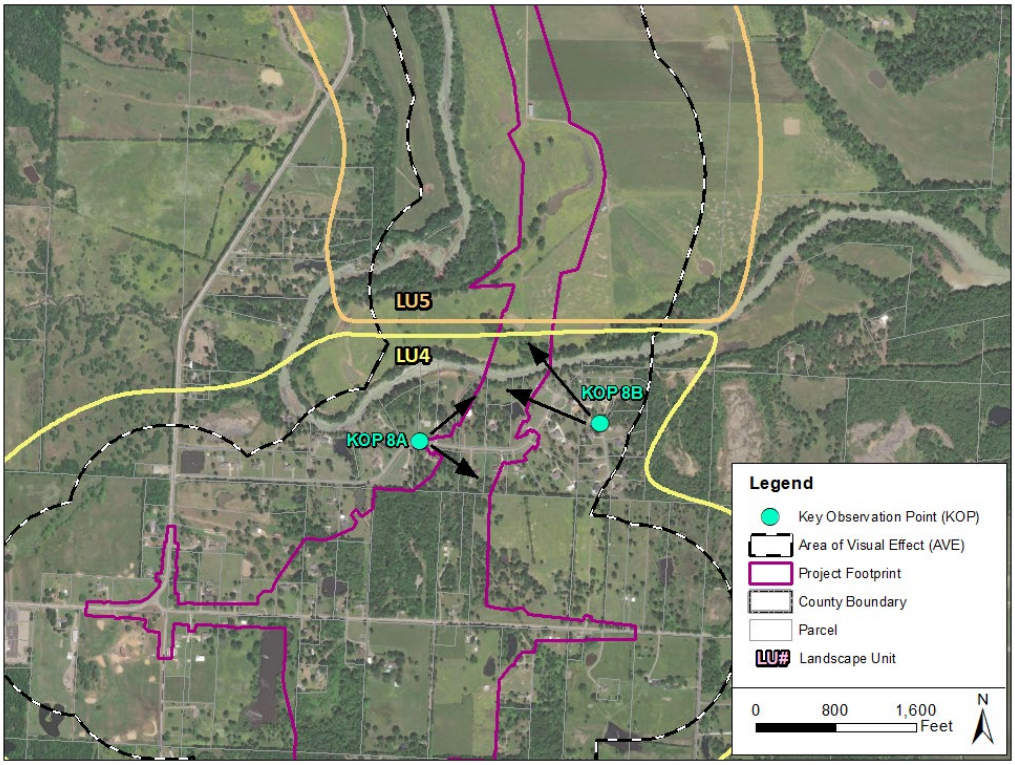
Source: Project Team, 2022

Figure 5-12: Key Observation Point 7



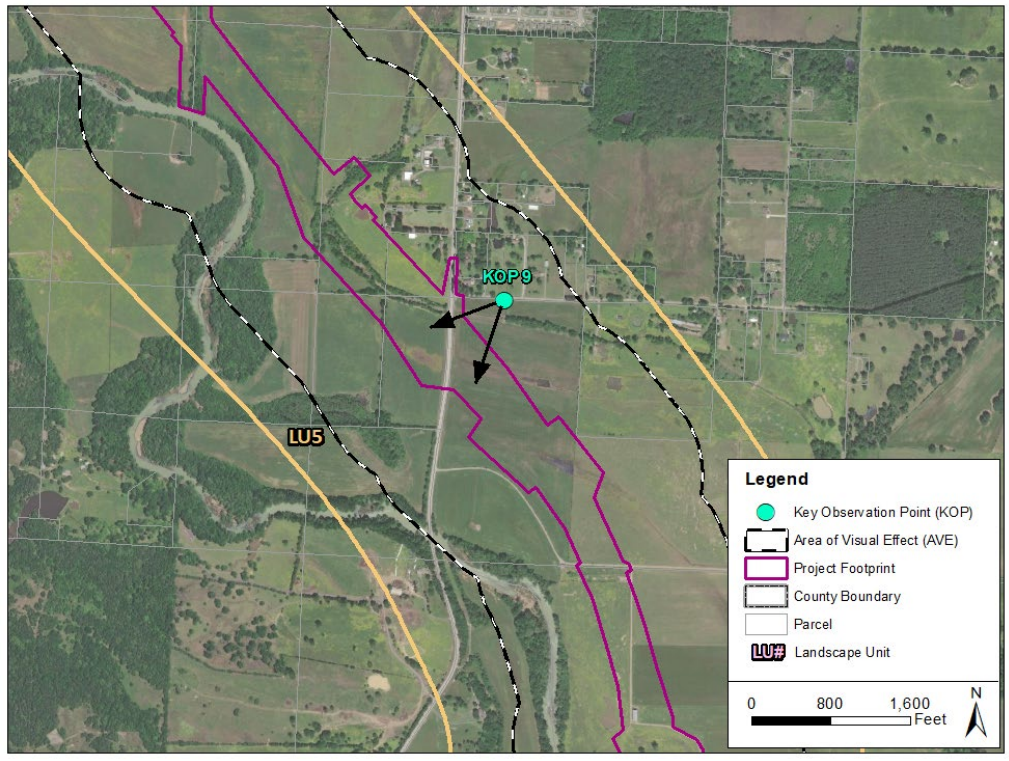
Source: Project Team, 2022

Figure 5-13: Key Observation Point 8A and 8B



Source: Project Team, 2022

Figure 5-14: Key Observation Point 9



Source: Project Team, 2022

As final design efforts move forward and relocations are determined, the VIA can be used to inform where landscape materials may be needed to mitigate potential visual impacts to adjacent residential land uses. With purposeful landscape design, the proposed project can be integrated into the existing visual conditions, with limited adverse visual impacts.

In conclusion, the FEIS/ROD did not analyze visual impacts for the majority of the re-evaluation section of Interstate 49; however, for the area that it did assess for visual impacts (Springhill Park or KOP 4 in the re-evaluation analysis), no substantial changes in visual impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.9 Would the project result in hazardous materials impacts?

Potential hazardous materials impacts are detailed in the *Hazardous Materials Technical Report* (**Appendix H**) and are summarized below.

5.9.1 1997 FEIS

Impacts from hazardous materials were evaluated in the 1997 FEIS. An Initial Site Assessment (ISA) was conducted for the Selected Alignment through contact with the Arkansas Department of Pollution Control and Ecology, U.S. Environmental Protection Agency Region 6, the Environmental Division at the Fort Chaffee Military Reservation, and local county health department officials concerning the location of facilities regulated under the Resource Conservation and Recovery Act (RCRA), Superfund, State leaking and non-leaking underground storage tanks (UST), landfills, and illegal dump sites. The records search indicated 22 RCRA facilities, one Superfund facility, 17 UST facilities, and two illegal dump sites were identified in the 125-mile corridor Selected Alignment.

Of the 22 RCRA facilities, all but three were on Fort Chaffee or the adjacent U.S. Army Reserve Center. The remaining three sites were located in Mena, outside the re-evaluation project footprint. Several UST sites were identified within the vicinity of the re-evaluation project footprint; however, none of the sites were located within the re-evaluation project footprint.

The 1997 FEIS did not identify any properties containing asbestos or abandoned underground storage tanks, or that had previous permit violation problems, past history of handling or storage of hazardous materials, used or generated hazardous materials, or involving other high-risk activities. The Environmental Consequences section of the 1997 FEIS indicated that two potential hazardous materials sites would be impacted within the 125-mile corridor Selected Alignment. Review of the information provided indicates that both sites were outside the re-evaluation project footprint.

Minimal information was provided in the 1997 FEIS regarding natural gas wells. The 1997 FEIS indicated “Natural gas wells are present within the preferred corridor and penetrate lands from S.H. 378 in Scott County to Interstate 40 in Crawford County. These wells vary in depth depending on the geologic formation penetrated. Fourteen gas fields have been identified

within the preferred corridor." The 1997 FEIS further indicated that the 125-mile corridor Selected Alignment would impact four abandoned and two inactive wells; however, the report doesn't specify the locations of the wells relative to the re-evaluation project footprint.

5.9.2 Re-evaluation

No substantial changes have occurred to regulations since the 1997 FEIS.

Regulated Facilities

An updated regulated facility search was conducted for this re-evaluation in accordance with prescribed radii established in the ASTM International E1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.*

Review of regulated facility data shows that minimal impact should be expected from the facilities identified, and locations of these facilities are shown in **Figure 5-15** and **Figure 5-16**. One regulated facility, the Stephens Production – Steward Gillie Smith #1 natural gas wellhead (**Figure 5-16**), was located within the project footprint. This well would require plug and abandonment in accordance with Arkansas Oil and Gas Commission (AOGC) regulations prior to initiation of construction activities. No other identified regulated facilities were located within the project footprint.

Natural Gas Wells

Several natural gas wells and two compressor stations were identified within or immediately adjacent to the project footprint. Wells located within the project footprint that cannot be avoided would require plug and abandonment in accordance with AOGC regulations. This would require coordination between ARDOT and the well operators, who would be responsible for properly plugging and abandoning the wells. Equipment infrastructure (gathering lines and other piping) would also require removal.

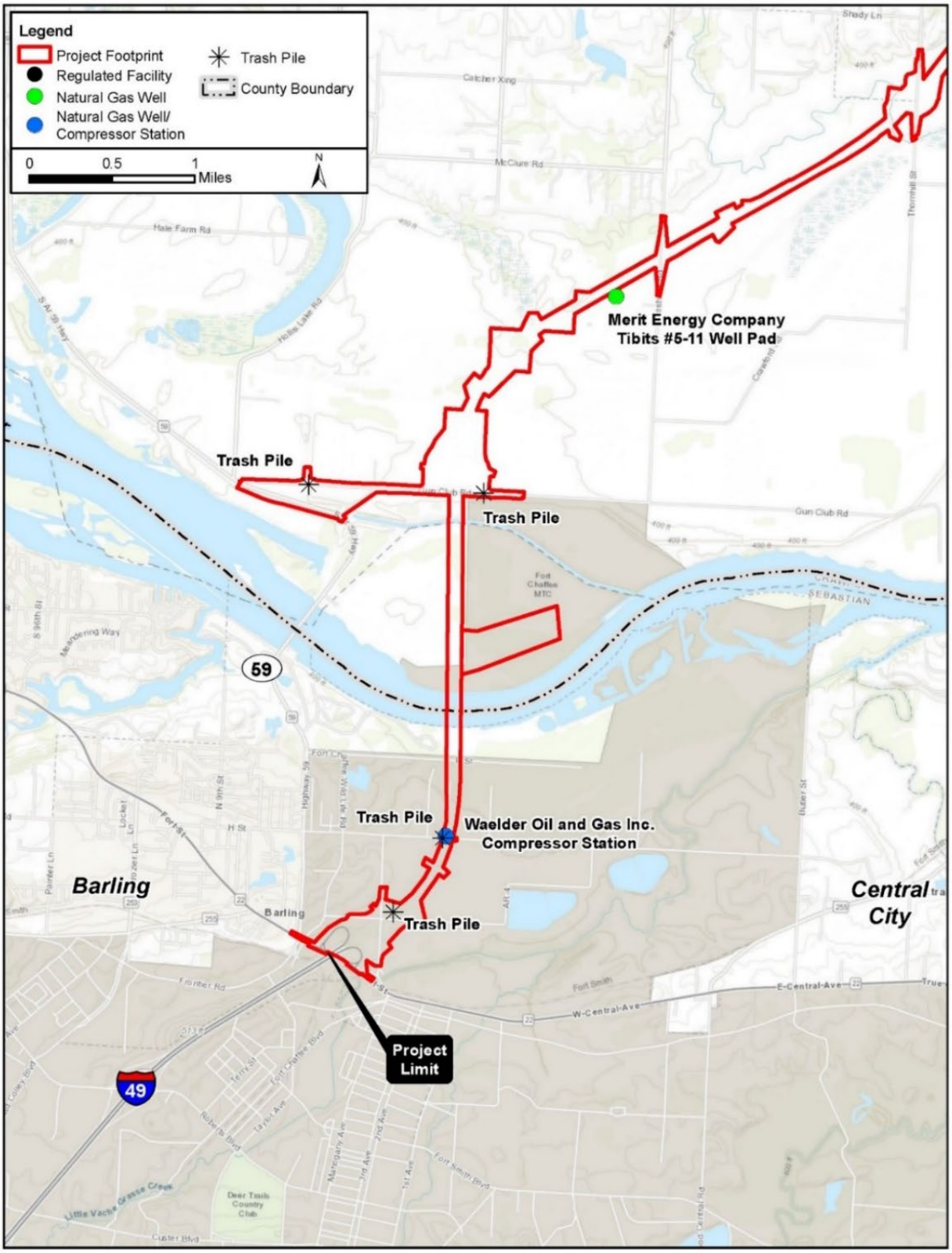
Some oil and herbicide application staining were observed at the Waelder Oil and Gas, Inc. compressor station (**Figure 5-15**). Other oil staining was observed adjacent to wellhead compressors at the Stephens Production Company Newton, Don #1 well pad (**Figure 5-16**) and the Merit Energy Company Tibits #5-11 well pad (**Figure 5-15**). The staining was largely de minimis and is not expected to be impacted. After removal of the equipment, the stained soils should be excavated and disposed of at an appropriate permitted landfill.

Additional Environmental Concerns

Several trash piles were observed in the project footprint as documented in **Figure 5-15**. Materials observed were non-hazardous but would require disposal at an appropriate permitted disposal facility prior to the initiation of construction.

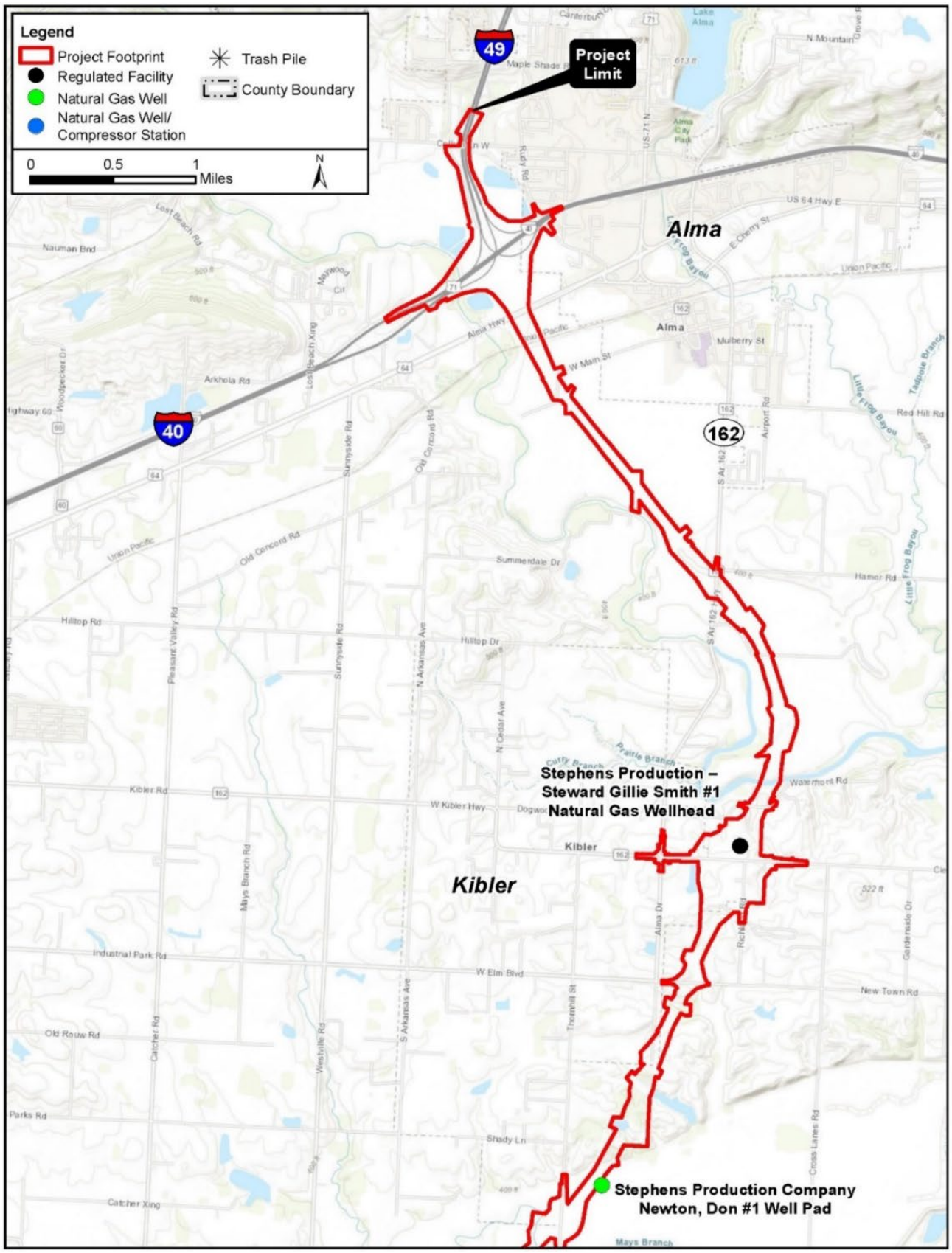
In conclusion, while the re-evaluation assessed impacts from hazardous materials to a greater level of detail compared to the FEIS/ROD, and consequently, additional hazardous materials sites were identified within the project footprint, the overall conclusions from the FEIS/ROD remain valid.

Figure 5-15: Hazardous Materials Sites (Sheet 1)



Source: Environmental Data Resources Report, June 11, 2021 and Field Reconnaissance, June 2021

Figure 5-16: Hazardous Materials Sites (Sheet 2)



Source: Environmental Data Resources Report, June 11, 2021 and Field Reconnaissance, June 2021

5.10 Would any Important Farmland be impacted by the project?

The Farmlands Protection Policy Act (FPPA) of 1984 requires a farmland impact evaluation for applicable, federally funded projects. The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.

5.10.1 1997 FEIS

The 1997 FEIS concluded that there was no practicable build alternative for the construction of the entire 125-mile corridor that would avoid Important Farmland impacts. It was determined that coordination with the NRCS was required through completion of a Farmland Conversion Impact Rating Form (Form AD-1006) for each county impacted. This form was used to evaluate the impact to soils the NRCS has designated as either prime, unique, statewide, or locally important when the FEIS was prepared. A separate form was prepared for each county.

The Important Farmland identified in the FEIS for the Selected Alignment totaled 924.3 acres in Sebastian County and 382.7 acres in Crawford County. In the 1997 FEIS, Part VI of the Farmland Conversion Impact Rating form for Sebastian County was 74 and for Crawford County it was 88. The form uses 10 land evaluation and site assessment factors to assess non-soil related criteria. Example factors include the potential for impact on the local agricultural economy if the land is converted to non-farm use and compatibility with existing agricultural use. An impact rating is determined to evaluate potential adverse impacts of the project on prime, unique, statewide, or locally important soils. The rating (score) is used as an indicator to consider alternative sites if the potential adverse impacts on farmland exceeds the recommended allowable level. Coordination with the USDA-NRCS was completed as the FEIS was prepared.

5.10.2 Re-evaluation

Soils GIS data downloaded from the U.S. Department of Agriculture (USDA) – Natural Resource Conservation Service (NRCS) U.S. Department of Agriculture Geospatial Data Gateway and the Web Soil Survey were utilized to map soils and identify Important Farmland within the project footprint. NRCS-CPA-106 is the Farmland Conversion Impact Rating for Corridor Type Projects and replaced Form AD-1006 since the time of the FEIS. Impacts to these soils were calculated and Form NRCS-CPA-106 has been completed for each county.

Important Farmland consist of Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. Farmland of Statewide Importance is land that does not meet the criteria for prime or unique farmland, but economically produces high yields of crops when treated and managed according to acceptable farming methods. The land could be cropland, pastureland, rangeland, forestland, or other land, but not urban built-up land or water. Land within city limits, even if those areas are undeveloped, are not considered Important Farmland for the purposes of

the FPPA.

The area assessed for Important Farmland in the re-evaluation differed from that assessed in the FEIS. The 1997 FEIS Selected Alignment utilized a typical section with an approximate right of way width of 150 feet and the re-evaluation design overall right of way width varies with a maximum width of approximately 300 feet, except at interchanges where a wider right of way width is needed. The difference in the acreage amounts between the 1997 FEIS and re-evaluation design is mostly attributed to the wider right of way width, inclusion of interchanges, connections to local streets, the additional area north of Interstate 40 that would transition to existing Interstate 49, and a tree removal area north of the Arkansas River to ensure no rise in the 100-year floodplain (see **Section 5.11.2**). The FEIS identified where interchanges may occur but did not calculate the additional right of way needed for these areas and the project limit ended at Interstate 40. In addition the wider right of way width, the FEIS Selected Alignment included the entire corridor in Sebastian County, whereas the re-evaluation only includes the project footprint between Highway 22 and the Arkansas River. As noted above, a smaller area in Crawford County was assessed for the 1997 FEIS Selected Alignment compared to the re-evaluation project footprint, which included a wider right of way, the inclusion of interchanges at Interstate 40 and Highway 162, and connections to local streets.

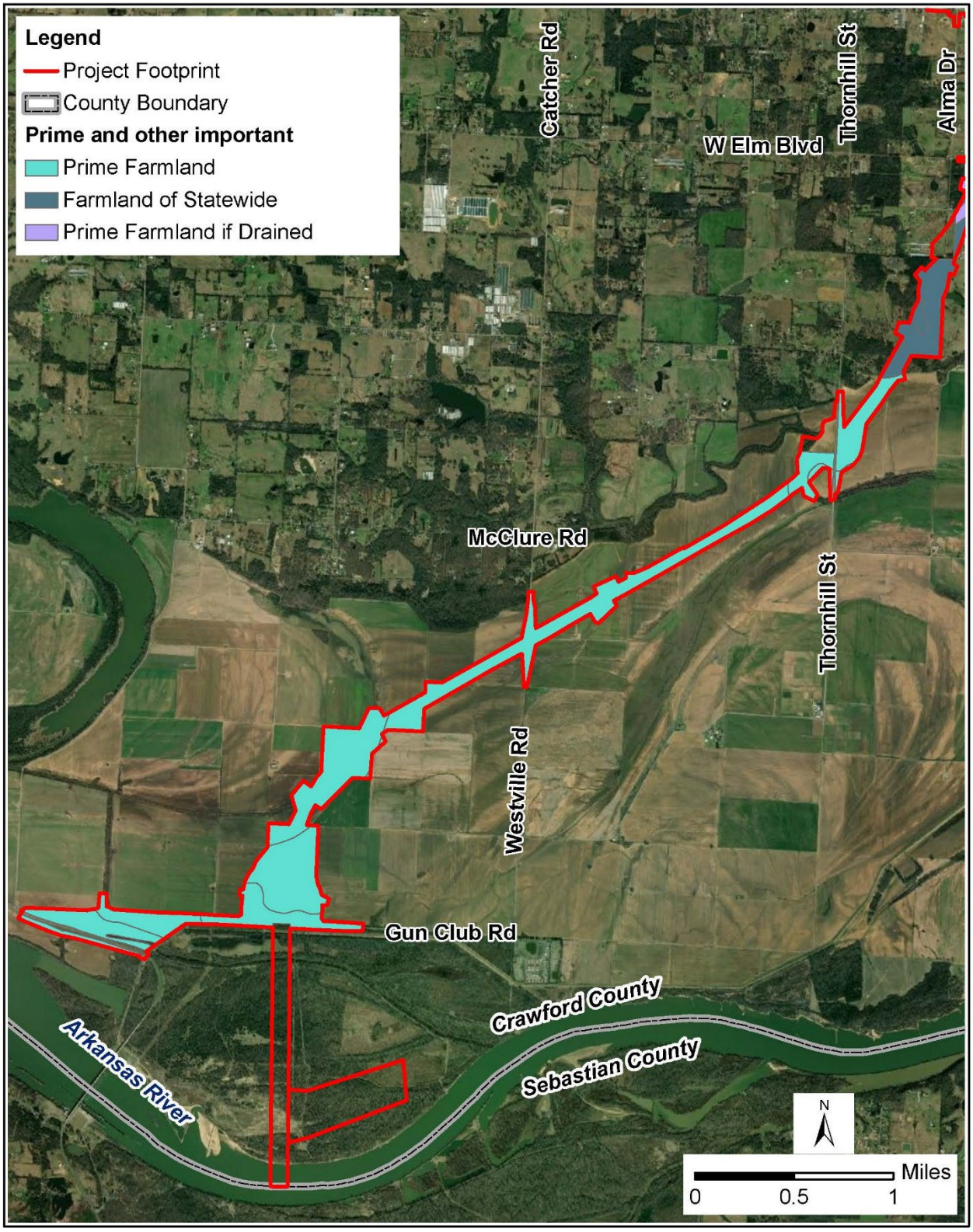
In Sebastian County, the Selected Alignment is located entirely within the city limits of Barling. Therefore, it is considered urban and FPPA does not apply. In Crawford County, there are three ratings for Important Farmland: Prime Farmland, Farmland of Statewide Importance, and Prime Farmland if Drained. Soils listed as Prime Farmland if Drained meet all other criteria for prime farmland, except depth to a seasonally high-water table. The Important Farmlands are shown on **Figure 5-17** and **Figure 5-18**..

For the re-evaluation footprint, the total acreage of Important Farmland for Sebastian County is 97.2 acres and for Crawford County it is 870.38 acres.

As part of this re-evaluation, a separate NRCS-CPA-106 form was completed for Crawford County. The re-evaluation score on Part VI of form NRCS-CPA-106 for Crawford County is 65. Because the score on Part VI for the re-evaluation is greater than 60, coordination with the NRCS is required. Coordination with the NRCS occurred on March 28, 2023. The overall score on CPA-106 is 157. Per the regulations, because the score is less than 160 there is no need to give further consideration for protection and no additional sites need to be evaluated. See **Appendix L** for the complete CPA-106 Form and the USDA Farmland Classification of Soils.

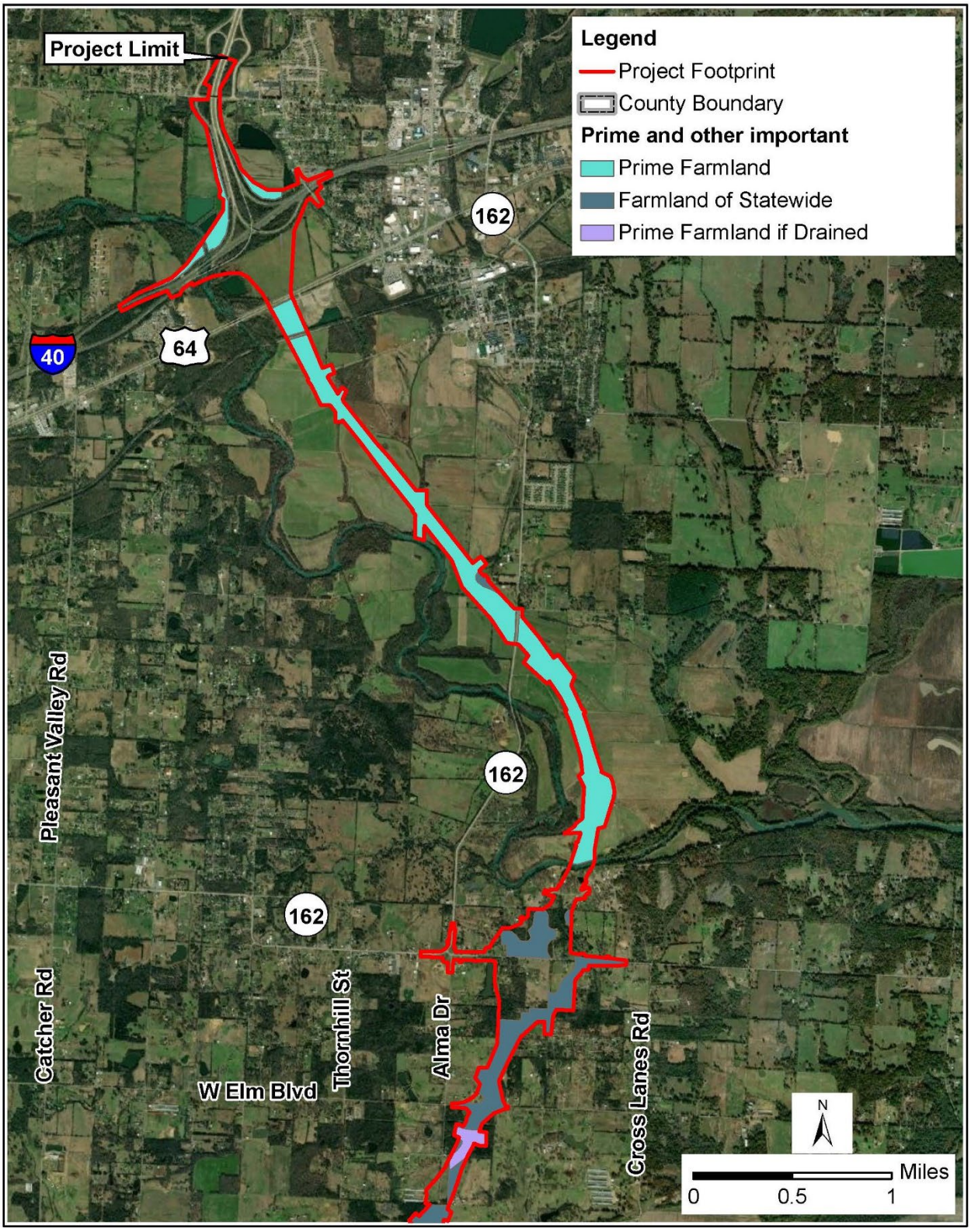
In conclusion, while the re-evaluation assessed Important Farmland impacts to a greater level of detail compared to the FEIS/ROD, and consequently, a greater amount of Important Farmland was identified in the project footprint, the overall conclusions from the FEIS/ROD remain valid.

Figure 5-17: Crawford County Prime Farmland or Farmland of Statewide Importance (Sheet 1)



Sources: USDA Natural Resource Conservation Service (NRCS) U.S. Department of Agriculture Geospatial Data Gateway and the Web Soil Survey

Figure 5-18: Crawford County Prime Farmland or Farmland of Statewide Importance (Sheet 2)



Sources: USDA Natural Resource Conservation Service (NRCS) U.S. Department of Agriculture Geospatial Data Gateway and the Web Soil Survey

5.11 What floodplain impacts are anticipated and how would they be mitigated?

EO 11988 pertains to floodplain management and directs all federal agencies to reduce the risk of losses associated with floods, to minimize the impact of floods on human health and safety, and to preserve the beneficial values of floodplains. Compliance with EO 11988 is required for projects that are federally undertaken, financed, or assisted and that involve a floodplain encroachment, which is an action within the limits of the base floodplain. Where the base floodplain cannot be avoided, special considerations and studies for new facilities and structures are needed.

5.11.1 1997 FEIS

The 1997 FEIS identified Frog Bayou in Crawford County and the Arkansas River and its tributaries in Sebastian and Crawford Counties as the locations with the largest 100-year floodplains and highest potential for impacts. The FEIS Selected Alignment utilized a typical section with an approximate right of way width of 150 feet and identified approximately 260.5 acres of 100-year floodplains.

The 1997 FEIS stated bridges and other structures would be designed and sized to minimize impacts on natural and beneficial floodplain values. The Selected Alignment would not support incompatible use and development of the floodplain. The 1997 FEIS concluded the project will not constitute a significant floodplain encroachment or have a significant risk to property and life. The 1997 FEIS included the commitment that the final project design would be reviewed to confirm that the design is adequate and that potential risk to life and property are minimized, which is addressed as part of this re-evaluation.

5.11.2 Re-evaluation

The overall right of way width of the proposed project varies with a maximum width of approximately 300 feet, except at interchanges where the right of way width would be greater. There are approximately 651.5 acres of 100-year floodplains within the project footprint. The difference in the acreage amounts between the FEIS and project footprint is most likely attributed to the inclusion of interchanges, connections to local streets, the additional area north of Interstate 40 to tie the current proposed project to the existing Interstate 49 section, and a tree removal area north of the Arkansas River. The FEIS identified where interchanges may occur but did not calculate the additional right of way needed for these areas.

The Federal Emergency Management Agency (FEMA) maintains flood insurance rate maps (FIRMs). FEMA's National Flood Hazard Layer (NFHL) Viewer and available GIS data for Crawford and Sebastian counties were reviewed to evaluate the location of any mapped 100-year floodplains in relation to aquatic resources located within the project footprint. Available flood hazard areas downloaded in March 2022 from the Arkansas GIS Office and FEMA FIRM Panels were reviewed to determine flood zones. Approximately 651.5 acres of FEMA 100-year floodplains are located within the project footprint. **Table 5-3** provides FIRM panel information and acreage of the 100-year floodplains within the project footprint and are shown on **Figure 5-19** and **Figure 5-20**.

Table 5-3: Project Footprint FIRM Panels

Location	FIRM Panel	Effective Date	100-Year Floodplain Acreage
At Hwy. 22	05131C0135F	3/2/2012	3.9
Arkansas River (North and South) to Gun Club Rd	05131C0135F 05033C0475J	3/2/2012 12/3/2010	195.9
Westville Rd (West and East)	05033C0395J	12/3/2010	12.8
At Thornhill St and Mays Branch	05033C0425J	12/3/2010	56.7
New Town Rd and Alma Dr Intersection	05033C0425J	12/3/2010	7.0
Frog Bayou North of Waterfront Rd	05033C0425J	12/3/2010	3.7
Frog Bayou from Waterfront Rd to Hwy. 64	05033C0405H	12/3/2010	214.0
Hwy. 64 to Collum Ln W	05033C0405H	12/3/2010	152.9
North of Collum Ln W	05033C0405H	12/3/2010	4.6
Total			**651.5**

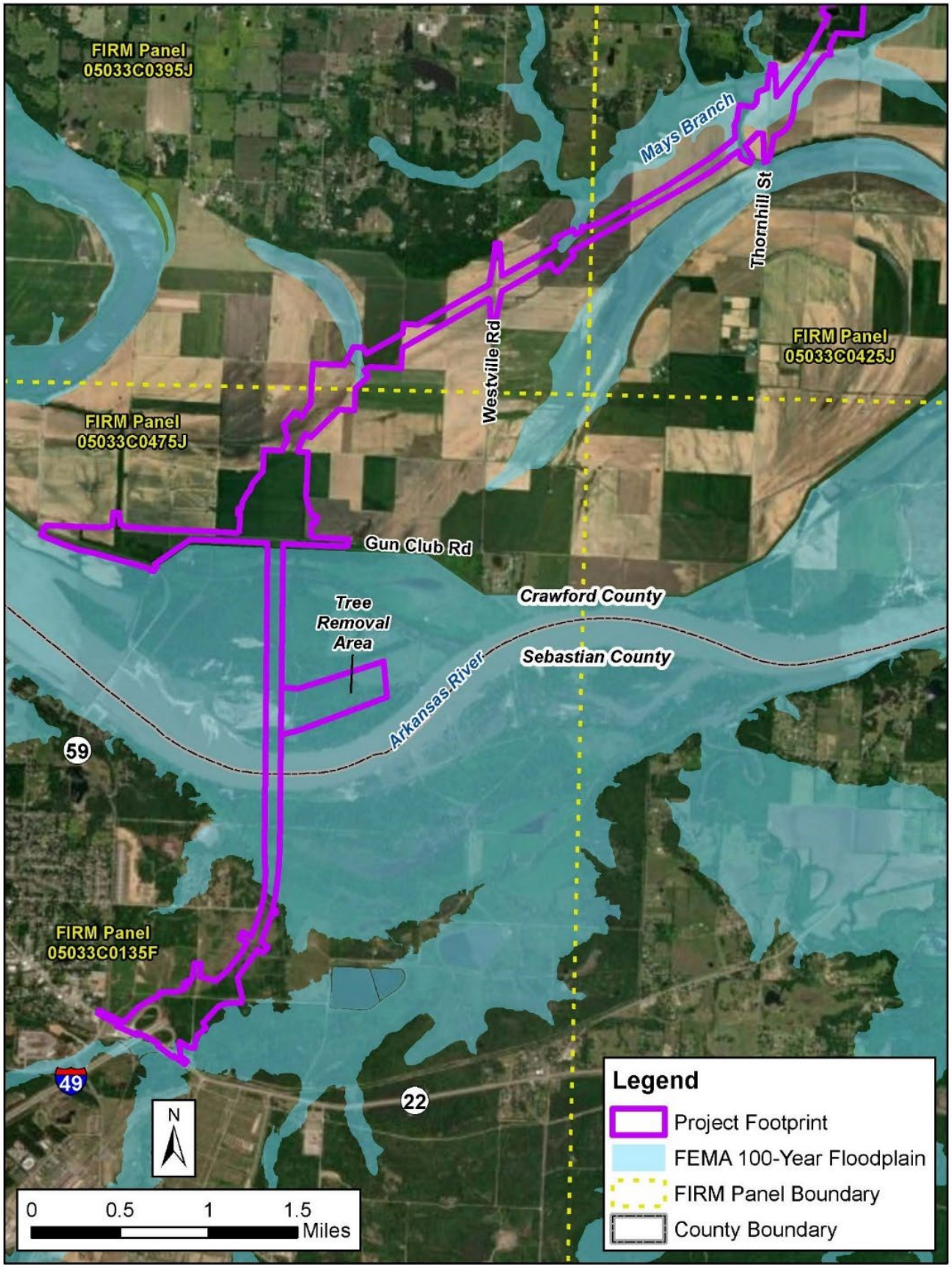
Source: FEMA GIS data for Crawford and Sebastian Counties.

The Arkansas River and its tributaries in Sebastian and Crawford Counties, Frog Bayou in Crawford County, and Mays Branch in Crawford County are the locations with the largest floodplains and highest potential for impacts. A preliminary Hydrologic and Hydraulic (H&H) analysis was completed for the proposed project based on the project alignment as of the 30% Strip Map. Based on this design, H&H analysis does show an increase of the Frog Bayou floodplain of less than one foot north of Waterfront Road and an increase less than one-inch at Highway 64.

To ensure no rise in the 100-year floodplain at the Arkansas River, removal of trees is needed, and a tree removal area has been identified (**Figure 5-19**). This area is owned by Fort Chaffee. Coordination with Fort Chaffee and the USACE through the Section 408 process is ongoing, as is coordination to determine the exact extent of tree clearing necessary.

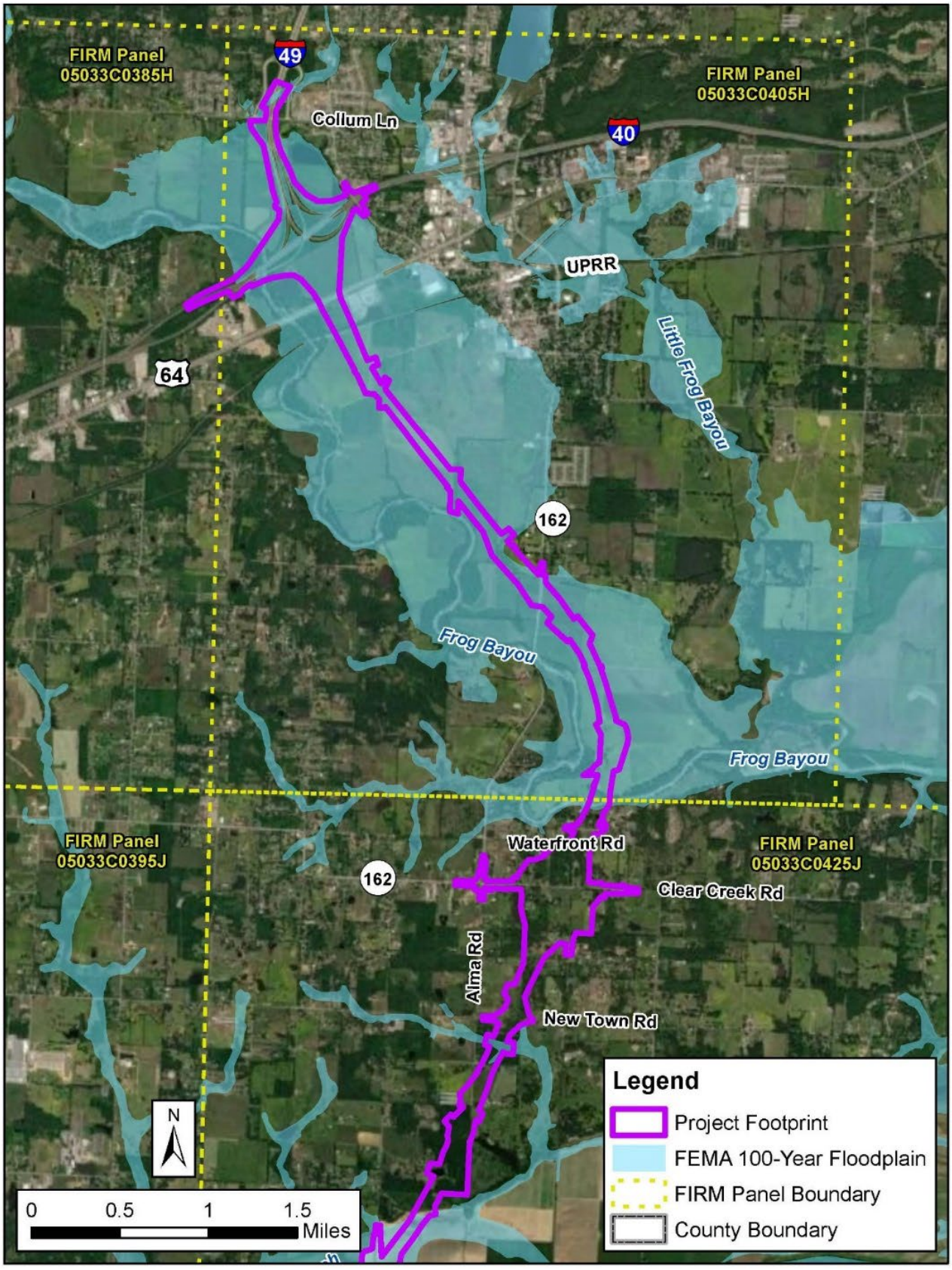
Additional analysis will be conducted as necessary to include design refinements at specific locations to minimize impacts. A final H&H analysis will be completed when the project design is more detailed (approximately 60% complete). Appropriate coordination with local floodplain administrators and FEMA would occur, as needed, as the proposed project advances through more detailed design. The hydraulic design for the proposed project would be in accordance with current FHWA and ARDOT design policies. The proposed project would be in compliance with 23 CFR 650 regarding location and hydraulic design of highway encroachments within the floodplains.

Figure 5-19: FEMA 100-Year Floodplain for Southern Portion of Project Corridor



Source: FEMA GIS data

Figure 5-20: FEMA 100-Year Floodplain for Northern Portion of Project Corridor



Source: FEMA GIS data

In conclusion, while the re-evaluation assessed floodplain impacts to a greater level of detail compared to the FEIS/ROD, and consequently, a larger number of acres of floodplain was identified in the project footprint, the overall conclusions from the FEIS/ROD remain valid.

5.12 How would streams and wetlands be impacted by the project?

5.12.1 1997 FEIS

The 1997 FEIS identified wetland impacts associated with the Selected Alignment. The FEIS did not identify the total acreage of water and wetland features within the 150-foot right of way width of the Selected Alignment. Wetland impacts identified in Section 4.10 and Table 4-12 of the 1997 FEIS consisted of 8.8 acres between Highway 22 and Gun Club Road and 1.5 acres between Gun Club Road and Interstate 40. The FEIS determined a Section 404 Standard (Individual) Permit was required for the proposed project.

The 1997 FEIS did not specify a specific USACE method to calculate stream or wetland mitigation credits. Stream impacts were not quantified as it was anticipated each stream would be bridged and authorized under a Regional General Permit for minor bridge crossings. Wetland mitigation credits were determined at a ratio of 1:1 for herbaceous wetlands and 2:1 for scrub-shrub and forested wetlands based on the wetland functions and values assessment. A total of 43.6 acres of wetland mitigation credits were determined to be needed and potential wetland mitigation sites were being reviewed in the Arkansas River Basin at that time. The 1997 FEIS did not identify any scrub-shrub wetlands within the re-evaluation project footprint.

The 1997 FEIS, in accordance with Section 404(b)(1) guidelines, determined that due to the relative number and spatial distribution patterns of wetland communities, as well as a thorough consideration of other environmental concerns including existing topography, residential communities, and important natural and cultural resources, a practicable alignment that avoids all wetlands was not possible within the Selected Alignment corridor. The wetland impacts were minimized to the greatest extent possible for the Selected Alignment.

5.12.2 Re-evaluation

Field work occurred over various days in June, August, September, and November 2021 and in March, May, and June 2022 to identify and delineate all water and wetland features within the project footprint.

Approximately 43,799 linear feet (36.5 acres) of water features and approximately 45.9 acres of wetland features have been identified in the project footprint. The water features consist of ephemeral streams, intermittent streams, perennial streams, ponds, and lakes. The wetland features consist of emergent and forested wetlands. There were no scrub/shrub wetlands observed within the project footprint. There are three wetland mosaics located between Highway 22 and H Street. The wetland mosaics are areas where wetland and non-wetland components are too closely associated to be easily delineated or mapped separately due to complex microtopography, with repeated small changes in elevation occurring over short distances. The guidance from the Eastern Mountains and Piedmont Regional Supplement to estimate the percentage of wetlands in each of the wetland/non-wetland mosaics was followed.

The mosaics will not be further delineated. **Table 5-4** provides the total number of features, total acreage amounts of each type of feature identified, total linear feet of the streams within the project footprint, and potential impacts. **Figure 5-21**, **Figure 5-22**, **Figure 5-23**, and **Figure 5-24** show the water and wetland features within the project footprint.

Table 5-4: Water and Wetland Features within the Project Footprint

Feature Type	Total Number of Features	Total Delineated Acres	Total Linear Feet	Permanent Fill Impacts (Acres)*	Permanent Fill Impacts (Linear Feet)*
Ephemeral Stream	40	3.0	23,766	2.1	15,014
Intermittent Stream	6	1.9	9,119	0.7	4,006
Perennial Stream	10	21.8	10,914	0.6	1,410
Pond/Lake	25	9.8	N/A	8.8	N/A
Emergent Wetland	14	5.9	N/A	2.3	N/A
Forested Wetland	16	25.0	N/A	18.2	N/A
Forested/Emergent Wetland	8	3.2	N/A	1.4	N/A
Forested Wetland Mosaic	3	11.8	N/A	9.1	N/A
Total	**122**	**82.4**	**43,799**	**43.2**	**20,430**

**Impact calculations based on the approximate 30% strip map design. Wetland impacts include areas that will be filled and/or cleared.*
Source: Project Team, 2021 and 2022

Total wetland impacts are estimated at 31.0 acres. Total stream impacts are estimated at 20,430 linear feet (12.2 acres). Final impacts to water and wetland features will be determined when the detailed project design has advanced (approximately 60% complete). Compensatory mitigation will be provided at an approved mitigation bank that services the area. The goal of compensatory mitigation for impacts to aquatic resources, including wetlands, is the restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters. The functional assessment method used in determining compensatory mitigation requirements for wetlands in the Little Rock District is the Charleston Method. The functional assessment method used in determining compensatory mitigation requirements for streams in the Little Rock District is the Little Rock District Stream Method.

The proposed project is in the service area of four mitigation banks with available mitigation credits. These are the Hartman Bottoms Mitigation Bank, Cadron Creek Mitigation Bank, Dutch Creek Mitigation Bank, and Gum Log Creek Mitigation Bank. It is estimated that approximately 85,134 stream credits and 253 wetland credits would be needed for the proposed project. The USACE Little Rock Stream Method was used to calculate the stream mitigation credits and the Charleston Method, with its Addendum, was used to calculate the wetland mitigation credits. The final mitigation credits would be determined during the Section 404 permitting process and the mitigation banks that would be used would be determined based on their available credits at that time. Construction should be allowed under the terms of a Section 404 Standard (Individual) Permit.

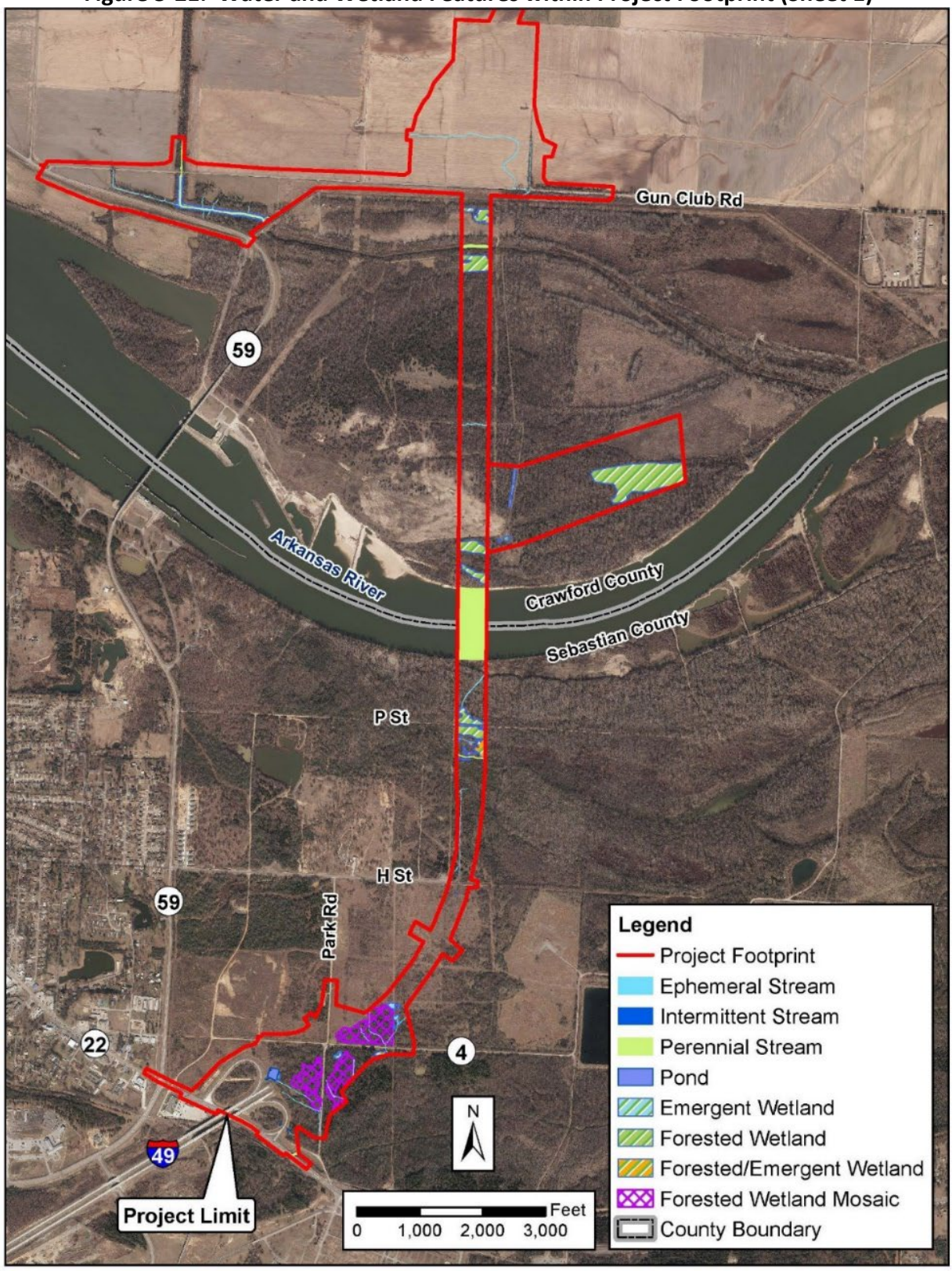
The project footprint studied in this re-evaluation follows the Selected Alignment from the 1997 FEIS; and accordingly, major adjustments to the that alignment are constrained by other resources. A major horizontal alignment shift to avoid the known waters and wetlands in the

project footprint would still result in impacts due to the number and spatial distribution patterns of water features and wetland communities in and adjacent to the Selected Alignment; therefore, it is not possible to completely avoid water and wetland impacts. It would also result in additional impacts to other environmental resources such as cultural resources, noise, displacements, etc. The Selected Alignment was determined after thorough consideration of all environmental concerns including existing topography. Minor refinements were developed as part of the preliminary design during the re-evaluation to further avoid and/or minimize impacts to streams and wetlands, including spanning water and/or wetland features, and minimizing areas cleared within the right of way. Based on the analysis performed in the 1997 FEIS and the minor design adjustments made during the re-evaluation, the project footprint is considered the least environmentally damaging most practicable alternative.

In accordance with Section 404(b)(1) guidelines, wetland impacts were minimized to the greatest extent possible when determining the location of the Selected Alignment. The project will implement all necessary preconstruction and post-construction best management practices (BMPs) and take necessary mitigation measures to assure that impacts to wetlands are minimized to the extent practicable.

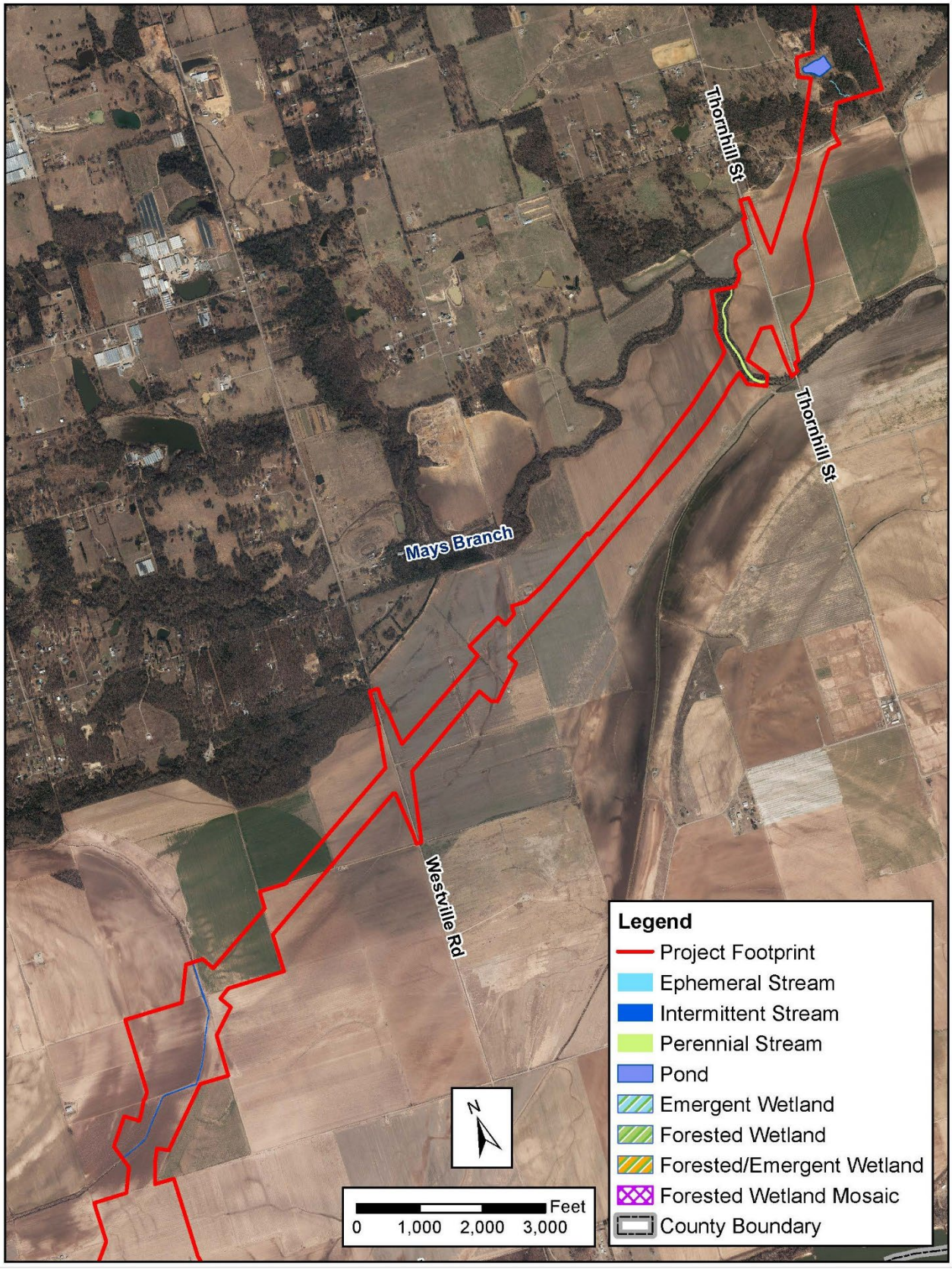
In conclusion, while the re-evaluation assessed stream and wetland impacts to a greater level of detail compared to the FEIS/ROD, and consequently, a larger number of acres of streams and wetlands were identified in the project footprint, the overall conclusions from the FEIS/ROD remain valid.

Figure 5-21: Water and Wetland Features within Project Footprint (Sheet 1)



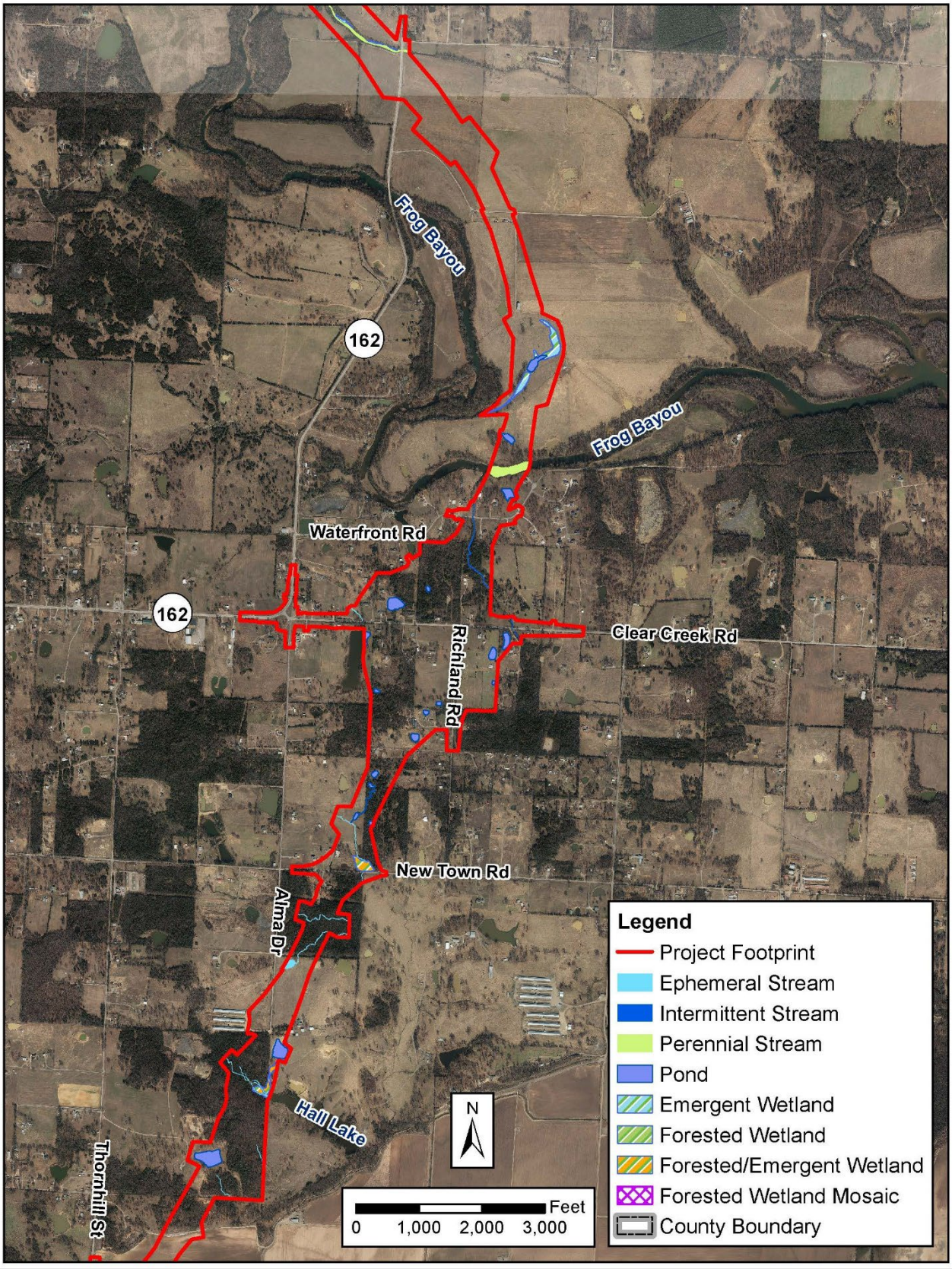
Source: Field Work in June, August, September, and November 2021 and March, May, and June 2022

Figure 5-22: Water and Wetland Features within Project Footprint (Sheet 2)



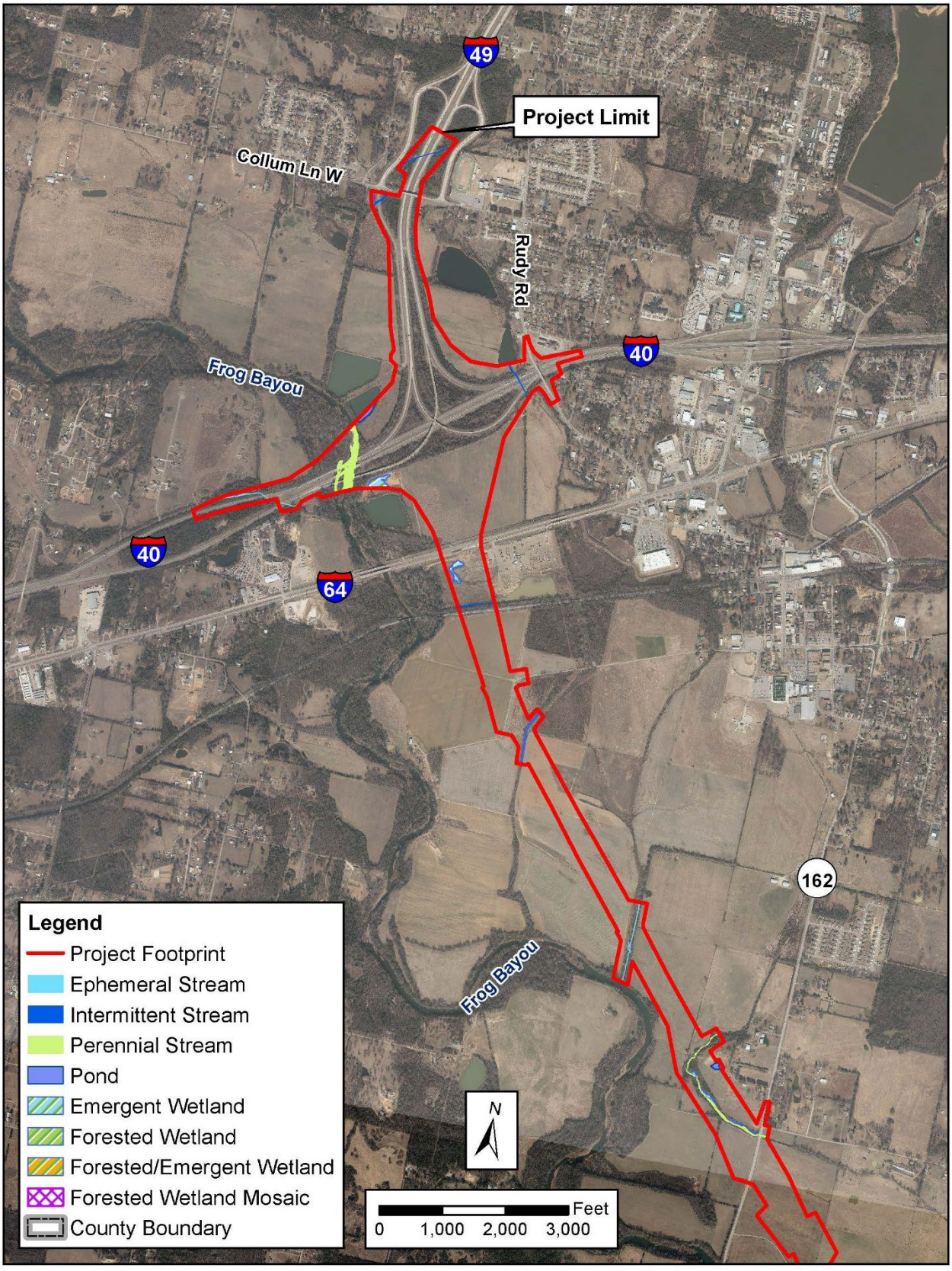
Source: Field Work in June, August, September, and November 2021 and March, May, and June 2022

Figure 5-23: Water and Wetland Features within Project Footprint (Sheet 3)



Source: Field Work in June, August, September, and November 2021 and March, May, and June 2022

Figure 5-24: Water and Wetland Features within Project Footprint (Sheet 4)



Source: Field Work in June, August, September, and November 2021 and March, May, and June 2022

5.13 How would water quality be impacted by the project?

Water quality impacts were assessed for Section 303(d) impaired waters, Section 401/402 compliance, surface water, groundwater, and public water supplies and are summarized below.

5.13.1 Section 303(d)

1997 FEIS

During the preparation of the FEIS, the availability of water quality data specifically within or near the Selected Alignment was extremely limited. No water quality monitoring stations were identified within the Selected Alignment. Only one water quality monitoring station was identified within the Selected Alignment at the confluence of Lee Creek and the Arkansas River at Van Buren, approximately 10.5 miles upstream of the project limits. At that time, the data indicated that on average the river does not meet the state standards for turbidity. The sources of sediment were primarily from sheet and rill erosion associated with agricultural and timber practices.

Re-evaluation

The Arkansas Department of Energy and Environment's EnviroView and AquaView interactive maps were reviewed to compare the 303(d) listed waters in the 1997 FEIS to those currently listed. The latest approved Section 303(d) data for download from the Arkansas GIS Office is from 2018. There are no water quality monitoring stations within the project footprint. There were no Section 303(d) segments listed for Sebastian County or Crawford County in the 2018 approved list. Construction and maintenance projects which require work in a waterbody must have a Short Term Activity Authorization (STAA) from the Arkansas DEQ. The STAA is granted by letter to the Department and authorizes the temporarily exceedance of turbidity standards during in-stream activities such as bridge or culvert construction, channel alterations, debris removal, and maintenance activities. The current source of sediment is primarily from sheet and rill erosion associated with agricultural.

Based on this data, runoff from this proposed project would not discharge directly into a Section 303(d) listed impaired water, or into a stream within five miles upstream of a Section 303(d) listed impaired water.

5.13.2 Section 401

1997 FEIS

The FEIS noted that ARDOT will comply with all requirements of the Clean Water Act (CWA), as amended, for the construction of this proposed highway including; Section 401 Water Quality Certification, Section 402 National Pollutant Discharge Elimination System (NPDES) Permit, and Section 404 Permits for Dredge and Fill Material.

Re-evaluation

The proposed project would result in work in waterbodies and require a USACE Section 404 Standard (Individual) Permit. Section 401 Individual Water Quality Certification (401 Certification) coverage and STAA from the Arkansas DEQ would be required.

As this project requires a Section 404 Standard (Individual) Permit, ARDOT will request individual water quality certification from DEQ as part of the USACE 404 Permit public notice process. ARDOT applies for STAA coverage from DEQ though a Memorandum of Agreement between DEQ and ARDOT. The Resident Engineer ensures the Contractor understands the terms and requirements for protection of water quality.

Section 401 Water Quality Certification requires reasonable assurance that the project be constructed in a manner that would not physically alter a substantial segment of a water body and would not violate DEQ water quality standards. In Arkansas, water quality certification must be issued by the DEQ before the Section 404 Permit is valid.

5.13.3 Section 402

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program (33 U.S.C. 1342), which is administered by the EPA and regulates point source discharges into waters of the U.S. The EPA administers the national program but has delegated this authority within the State of Arkansas to the DEQ. Under this delegated authority, DEQ issues a NPDES Construction Stormwater Permit that is applicable to all construction sites in Arkansas that result in an acre or more of soil disturbance.

1997 FEIS

The FEIS noted that Arkansas State Highway and Transportation Department (renamed ARDOT) will comply with all requirements of the CWA, as amended, for the construction of this proposed highway including Section 402 National Pollutant Discharge Elimination System (NPDES) Permit. It was also determined that the Selected Alignment is a “large construction site”, as defined in the re-evaluation section below.

Re-evaluation

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program (33 U.S.C. 1342), which is administered by the EPA and regulates point source discharges into waters of the U.S. The EPA administers the national program but has delegated this authority within the State of Arkansas to the DEQ. Under this delegated authority, DEQ issues a NPDES Construction Stormwater Permit that is applicable to all construction sites in Arkansas that result in an acre or more of soil disturbance.

As it was determined in the FEIS, the proposed project meets the definition of a “large construction site” which is any construction activity that disturbs or exposes a total of five acres or more. For these sites, a Stormwater Pollution Prevention Plan (SWPPP) must be prepared and submitted to DEQ along with a Notice of Intent (NOI), and additional supporting documentation. When the SWPPP and NOI are deemed complete, DEQ will issue a Notice of Coverage (NOC). A Notice of Termination (NOT) must be submitted to DEQ when the project is completed and stabilized to end permit coverage.

Any activities associated with the proposed project would be implemented, operated, and

maintained using BMPs. These BMPs would be used to control discharge of pollutants from the project site, erosion of disturbed soils, and sedimentation of those soils after disturbance.

5.13.4 Surface Water

The 1997 FEIS identified major tributaries associated with the Arkansas River Basin, Ouachita River, and Red River Basin that were located within the Preferred Corridor. As this re-evaluation is located at the northern segment of the 1997 FEIS corridor, only the Arkansas River Basin is being used for comparison purposes.

1997 FEIS

The 1997 FEIS identified the Arkansas River, Frog Bayou, Little Vache Grasse Creek, Poteau River, Ross Creek, and the Fourche LaFave River in the Arkansas River Basin within the Selected Alignment. The 1997 FEIS did not identify which of these tributaries were located within the Selected Alignment. The FEIS concluded that potential surface water quality impacts during construction would be temporary in nature; however, they would be minimized through site specific erosion and sedimentation control measures at all creek and river crossings and comply with all requirements of the CWA.

Re-evaluation

Of those tributaries identified in the 1997 FEIS, only the Arkansas River, Frog Bayou, and Little Vache Grasse Creek are within the project footprint. In addition to these, other major tributaries include Flat Rock Creek and Mays Branch. A number of water quality monitoring stations are located just outside the project area at Massard Creek (ARK0178D, ARK0178E, ARK0231), Vache Grasse Creek (ARK0232), Flat Rock Creek (ARK0069A, ARK0069B), Arkansas River (ARK0038), and Frog Bayou (ARK0047). Each of these streams met all current water quality standards. As stated in the FEIS, potential surface water quality impacts during construction would be temporary in nature and would be minimized through site specific erosion and sedimentation control measures at all creek and river crossings and comply with all requirements of the CWA. Construction impacts to water quality are discussed in **Section 5.21.2**.

5.13.5 Groundwater

1997 FEIS

The FEIS indicated the Selected Alignment would have minimal impact on groundwater resources.

Re-evaluation

Groundwater in the project footprint is not utilized as a public water source. Any construction from the proposed project occurring below the ground surface would only locally disturb the uppermost soil layer into which rainwater infiltration occurs. The addition of impervious cover, both temporary and permanent, would alter the infiltration rate into the subsurface within the project footprint. Construction could encounter groundwater. The anticipated foundation (cased drilled shafts, driven steel piles, and limited shallow footings) and surface construction procedures limit the potential for groundwater contamination. However, if groundwater is encountered and is suspected of contamination, it will be removed and disposed of through a

variety of dewatering methods in accordance with federal, state, and local regulatory procedures. The proposed project would have minimal impacts to groundwater resources in the project area.

5.13.6 Public Water Supply

1997 FEIS

The FEIS did not identify any sole source aquifers that have been declared within the state of Arkansas. While seven surface water sources were identified in the FEIS, none of those sources were located within the project footprint of the re-evaluation.

Re-evaluation

According to the EPA Map of Sole Source Aquifer Locations, there are no sole source aquifers within the project footprint. Currently, no wellhead protection areas are located within the project footprint and no future plans to establish any are anticipated. According to the City of Fort Smith and City of Alma websites, the surface water sources for the communities within the project footprint are located outside of the project footprint. These consist of Lake Fort Smith and Lee Creek Reservoir for Fort Smith, in Crawford County, and Lake Alma for Kibler and Alma, in Crawford County.

5.14 Are impacts to protected species expected from the project?

Potential impacts to Threatened and Endangered Species resulting from the proposed project are detailed in the *Biological Assessment* (**Appendix I**) and are summarized below. The letter from USFWS citing concurrence on the *Biological Assessment* is included in **Appendix L**.

5.14.1 1997 FEIS

The FEIS identified two federally listed species that may occur within or near the sections of the Selected Alignment for the re-evaluation proposed project: the American burying beetle (*Nicrophorus americanus*) and the bald eagle (*Haliaeetus leucocephalus*). No direct impacts were anticipated to either of these species.

5.14.2 Re-evaluation

Due to the size, complexity, and developing design of this proposed project, multiple regulatory review requests have been submitted within the USFWS ECOS-IPaC system since the spring of 2021 to identify proposed and final designated critical habitat, as well as any threatened, endangered, proposed and candidate species that may occur within and/or may be affected by the project footprint as per section 7I of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.). **Table 5-5** table summarizes the determination of effects for all species listed on the latest USFWS ECOs-IPaC (August 26, 2022; Project Code: 2022-0010163).

Table 5-5: Determination of Potential Effects to Federally Listed Species

Species Name (Common)	Scientific Name	Federal Listing Status	Present In Action Area	Effect Determination			Assumptions Used to Reach Determinations
				NE	NLAA	LAA	
Alligator Snapping Turtle	*Macrochelys temminickii*	Proposed Threatened	Yes		NLAA		Suitable habitat present. Implementation of BMPs would avoid impacts to species.
Gray Bat	*Myotis grisescens*	Endangered	Yes		NLAA		Impacts to foraging habitat only, which BMPs would reduce. Action site is likely more than 10 miles from roost site.
Indiana Bat	*Myotis sodalis*	Endangered	No		NLAA		Species not present, but suitable habitat available.
Northern Long-eared Bat	*Myotis septentrionalis*	Threatened	No		NLAA		Species not present, but suitable habitat available.
Ozark Big-eared Bat	*Corynorhinus townsendii ingens*	Endangered	No		NLAA		Species not present, but suitable habitat available.
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Yes		NLAA		Species is present, and impacts would remove summer-roosting habitat. Tree removal will be restricted to winter clearing while species is absent to prevent incidental take.
Eastern Black Rail	*Laterallus jamaicensis* ssp. *jamaicensis*	Threatened	No		NLAA		Very little suitable habitat and distance to known populations.
Piping Plover	*Charadrius melodus*	Threatened	No		NLAA		Migratory bird that spends little time in the area. Distance to known populations.
Rufa Red Knot	*Calidris canutus rufa*	Threatened	No		NLAA		Migratory bird that spends little, if any, time in the area. Distance to known wintering sites and key staging and stopover areas.
American Burying Beetle	*Nicrophorus americanus*	Threatened	No		NLAA		Negative survey results in area over last decade and distance to known populations.
Monarch Butterfly	*Danaus plexippus*	Candidate	Yes		NLAA		Limited suitable breeding habitat present in project footprint. General nectaring habitat present, but minimization measures to create better monarch habitat would offset loss of current habitat.
Missouri Bladderpod	*Physaria filiformis*	Threatened	No	NE			Lack of habitat and distance to known populations.

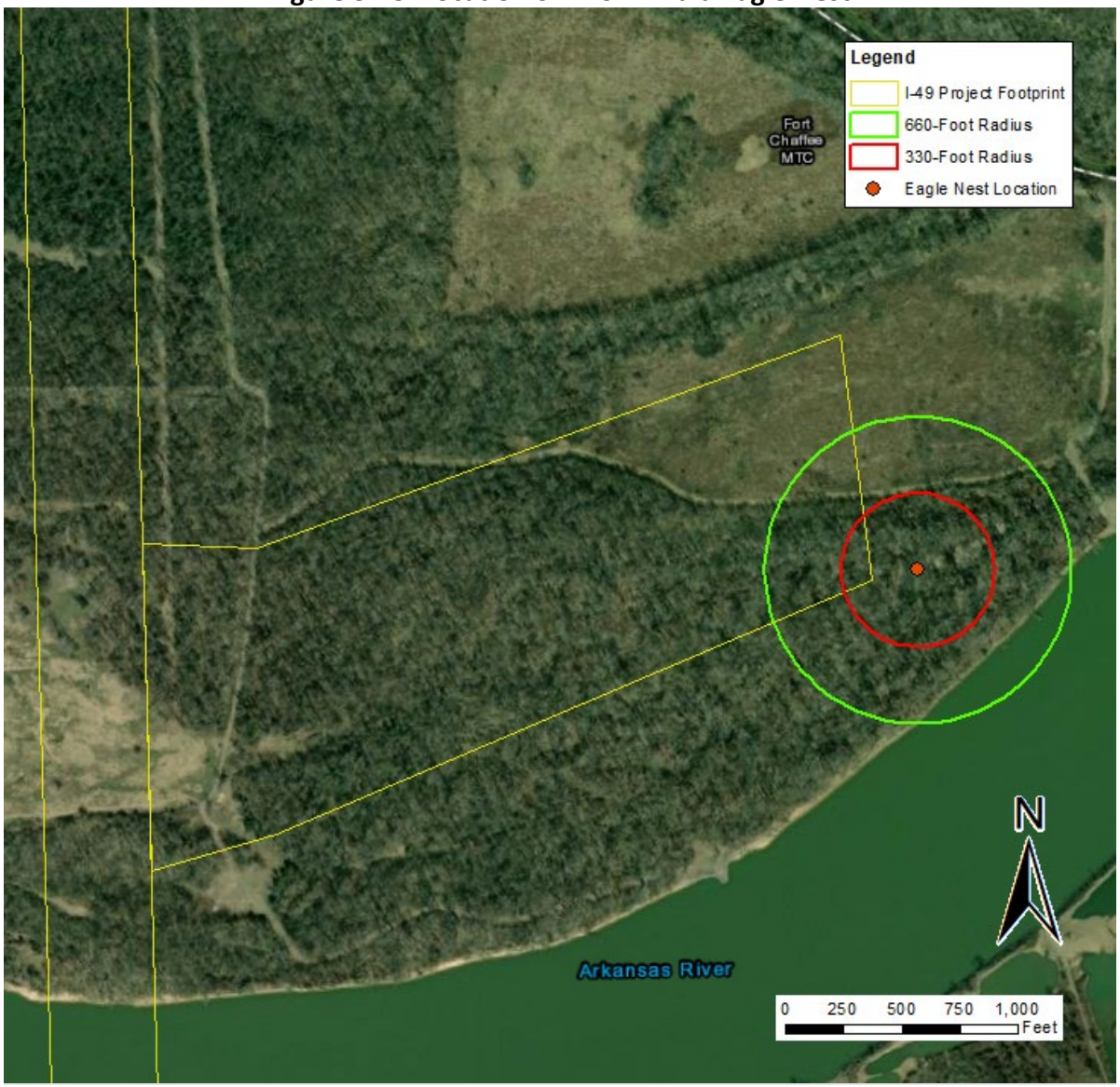
Notes: NE = No Effect; NLAA = May Affect, Not Likely to Adversely Affect; L–A - Likely to Adversely Affect.
Source: USFWS ECOs IPaC results (August 26, 2022; Project Code: 2022-0010163).

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is no longer federally-listed under the ESA, but is still a protected species by the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). One bald

eagle nest is known to occur approximately 200 feet east of the project footprint on Fort Chaffee property along the northern bank of the Arkansas River (**Figure 5-25**). USFWS National Bald Eagle Management Guidelines (2007) prohibit all tree clearing of overstory trees within 330 feet of the nest to maintain a landscape buffer and provide a natural protective barrier around the nest. In addition, vegetation clearing for road construction projects should not be conducted within 660 feet of a bald eagle nest during their breeding season. A small area of forest (0.66 acres) lies within 330 feet of the nest, but this area is within a portion of the project in which trees only need to be thinned, not clear cut, and such thinning would neither remove overstory trees nor occur during the active season while eagles are nesting. There are 4.2 acres of forested habitat within 660 feet of the nest where tree clearing is likely necessary. Commitments for preventing adverse impacts to bald eagles are discussed in **Section 5.22.10**.

Figure 5-25: Location of Known Bald Eagle Nest



Note: Located on Fort Chaffee property on north bank of Arkansas River
Source: Beth Phillis - Fort Chaffee Joint Maneuver Training Center - Environmental Branch, 2022.

Other Migratory Birds

Cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) are small colonial and semi-colonial nesting birds protected by the federal Migratory Bird Treaty Reform Act of 2004 (Pub. L. 108-447, 118 Stat. 2809, 3071-72). Both species commonly use man-made structures for nesting, including bridges and culverts. Other migratory birds, such as eastern phoebe (*Sayornis phoebe*), can also nest in bridges. Existing bridge structures and culverts were surveyed for migratory bird nests. The only species detected was the cliff swallow, in which numerous nests occur on the Interstate 40 bridges crossing Frog Bayou. Commitments for preventing adverse impacts to cliff swallows and other migratory birds are discussed in **Section 5.22.11.**

In conclusion, while the re-evaluation was based on updated guidance and assessed impacts to protected to a greater level of detail compared to the FEIS/ROD, and consequently, a greater number of protected species were identified, the overall conclusions from the FEIS/ROD remain valid.

5.15 Are impacts to wildlife or their habitat expected from the project?

5.15.1 1997 FEIS

The FEIS determined there would be impacts to aquatic and terrestrial communities, primarily from the construction of Interstate 49.

Aquatic community impacts would be limited to the filling of several farm ponds used for cattle production, and increased levels of sedimentation at stream crossing areas during construction. As described previously, increased sedimentation could adversely impact both aquatic invertebrates and fishes and cause temporary habitat degradation for a number of species.

Nine broad terrestrial community types were evaluated within the Selected Alignment and included bottomland hardwood forest, mixed pine/hardwood forests, pasture/old fields, cropland , farm ponds, and suburban land. Specifically, the FEIS identified bottomland hardwood forest, upland hardwood forest, and cropland for Sebastian and Crawford counties. The FEIS determined that no community types would be extensively impacted based on their overall availability within the Selected Alignment.

In addition, the FEIS determined that no terrestrial or aquatic species populations would be eliminated due to construction of the Selected Alignment. Some mortality would likely occur to some individual less mobile species, such as reptiles and amphibians, during initial construction activities. Construction of the Selected Alignment would convert existing habitat communities to early successional grassy or shrubby vegetation commonly associated with highway right of way. Wildlife species that are unable to adapt to the limited right of way environment, could relocate to suitable surrounding habitats.

5.15.2 Re-evaluation

During the summers of 2021 and 2022, vegetation assessment data was collected at 62 different

plots in the project footprint. The plot locations were selected to represent the different vegetation communities observed in aerial imagery and from specific locations identified during site visits. In addition, vegetation data was provided from other project disciplines from their site visits. Each data point was sampled using the following radius plot sizes as recommended for this region for each respective stratum: herbaceous, 5-foot; sapling/shrub, 15-foot; tree, 30-foot; and woody vine, 30-foot (Cox 1990; Barbour et al. 1999). The strata definitions were as follows:

- Tree stratum – consists of woody plants, excluding vines, 3 inches or more in diameter at breast heigh (DBH), regardless of height.
- Sapling/shrub stratum – consists of woody plants, excluding vines, less than 3 inches DBH and greater than or equal to 3.28 feet tall.
- Herb stratum – consists of herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 feet tall.
- Woody vines – consists of all woody vines greater than 3.28 feet in height.

The existing vegetation varied throughout the project footprint and has been classified into eight general habitat categories. These general habitat categories are the following.

- **Agriculture** habitats are areas used for livestock grazing or crops. Dominant species observed included broomsedge bluestem (*Andropogon virginicus*), panic wildgrass (*Dichanthelium oligasanthes*), rosette panicgrass (*Dichanthelium latifolium*), prairie bishop (*Bifora americana*), bermudagrass (*Cynodon dactylon*), beaked panicgrass (*Panicum anceps*), hairy crabgrass (*Digitaria sanguinalis*), mat sandbur (*Cenchrus longispinus*), knotroot bristlegrass (*Setaria parviflora*), rough cocklebur (*Xanthium strumarium*), and barnyardgrass (*Echinochloa crus-galli*), and sawtooth blackberry (*Rubus argutus*). Woody vegetation consisted of American persimmon (*Diospyros virginiana*), possumhaw (*Ilex decidua*), and white ash (*Fraxinus americana*). The area utilized for crops is primarily located between Gun Club Road north to Thornhill Street. Crops observed were soybeans and grass species associated with sod farms.
- **Developed** habitats are areas associated with residential or developed properties and existing roadway right of ways. These areas have been altered in the past and are routinely maintained by mechanical means (mowing) and/or herbicide treatments. Vegetation associated with this habitat type varies and typically consists of primarily herbaceous vegetation with some woody vegetation and may consist of bermudagrass (*Cynodon dactylon*), tussock ryegrass (*Lolium perenne*), and hairy crabgrass.
- **Forested** habitat are areas dominated by mature woody trees and sparse understory. Dominant species observed included green ash (*Fraxinus pennsylvanica*), white ash, eastern redcedar (*Juniperus virginiana*), American sycamore (*Platanus occidentalis*), mockernut hickory (*Carya tomentosa*), silver maple (*Acer saccharinum*), winged elm (*Ulmus alata*), black willow (*Salix nigra*), bitternut hickory (*Carya cordiformis*), honey locust (*Gleditsia triacanthos*), water oak (*Quercus nigra*), common hackberry (*Celtis occidentalis*), pecan (*Carya illinoinensis*), cottonwood (*Populus deltoides*), Chinese privet (*Ligustrum sinense*), and boxelder (*Acer negundo*). Other vegetation included roundleaf greenbrier (*Smilax rotundifolia*), American trumpetvine (*Campsis radicans*), panic wildgrass, Japanese honeysuckle (*Lonicera japonica*), mustang grape (*Vitis mustangensis*), and poison ivy (*Toxicodendron radicans*).

- **Herbaceous** habitats are areas dominated by herbaceous vegetation with no, or very limited, woody vegetation present. Dominant species observed included bermudagrass, common persimmon, eastern gamagrass (*Tripsacum dactyloides*), foxtail fescue (*Vulpia myuros*), Frank's sedge (*Carex frankii*), Japanese honeysuckle, knotroot bristlegrass, possumhaw, purpletop tridens (*Tridens flavus*), rabbitfoot clover (*Trifolium arvense*), rosette panicgrass, sawtooth blackberry, Virginia creeper (*Parthenocissus quinquefolia*), and wrinkleleaf goldenrod (*Solidago rugosa*).
- **Sapling/Shrub** habitats are areas with woody vegetation with a DBH less than 3-inches and greater than or equal to 3.28 feet tall. These are generally the same species as what is found in the forested habitats.
- **Stream** habitats are linear water features that are contained within a defined channel. The streams may be ephemeral, intermittent, or perennial in nature. Vegetation along the edge of these features may consist of various herbaceous and woody species.
- **Open Water** habitats are impoundments and are primarily ponds or small lakes. Many of the features have been excavated in upland areas and are not connected to stream. They rely on overland runoff. Vegetation around the edge of these features may consist of various herbaceous and woody species.
- **Wetland** habitats are areas dominated by hydrophytic vegetation. Areas of emergent wetlands contain no, or very limited, woody vegetation. Dominant species observed in emergent wetlands included various sedge species (*Carex spp.*), false nettle (*Boehmeria cylindrica*), rice cutgrass (*Leersia oryzoides*), dotted smartweed (*Polygonum punctatum*), Japanese stiltgrass (*Microstegium vimineum*), floating primrose-willow (*Ludwigia peploides*), and swamp smartweed (*Polygonum hydropiperoides*). Woody vegetation consisted of boxelder, silver maple, and water oak. Dominant species observed in forested wetland areas included American persimmon, possumhaw, roughleaf dogwood (*Cornus drummondii*), and cottonwood. Dominant herbaceous species consist of Virginia wildrye (*Elymus virginicus*) and true sedges (*Carex sp.*). Dominant vine species consist of muscadine (*Vitis rotundifolia*).

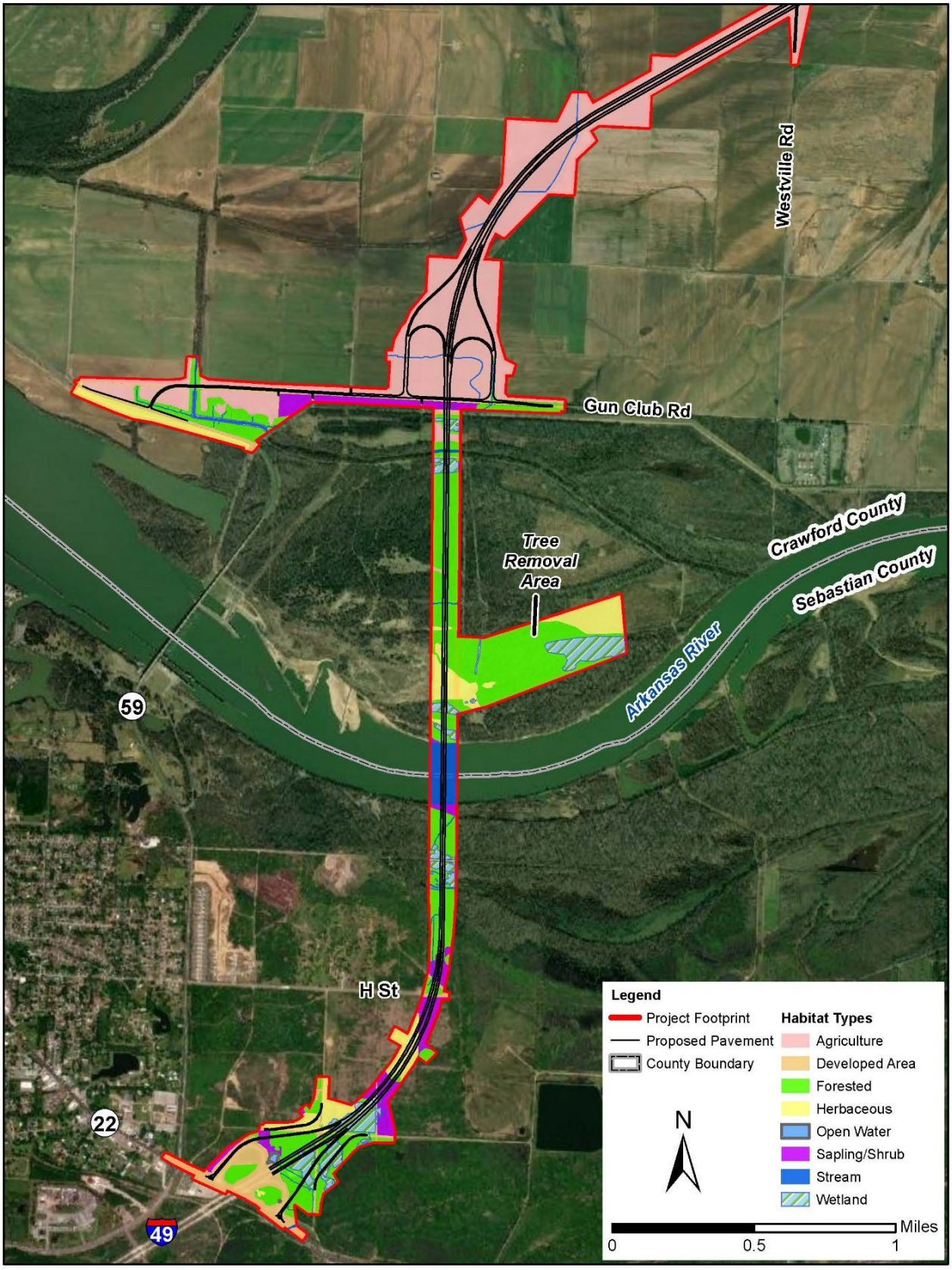
Table 5-6 provides the acreage amounts of the habitat types within the project limits. Figure 5-26, Figure 5-27, and Figure 5-28 show the habitat types within the project footprint.

Table 5-6: Habitat and General Land Use Area Within the Project Footprint

Total Acres	Developed (Acres)	Agriculture (Acres)	Forest (Acres)	Herbaceous (Acres)	Sapling/ Shrub (Acres)	Streams (Acres/Miles)	Open Water Features (Acres)	Wetlands (Acres)
1,546	215.5	712.6	413.3	69.5	56.6	26.7/8.3	5.9	45.9

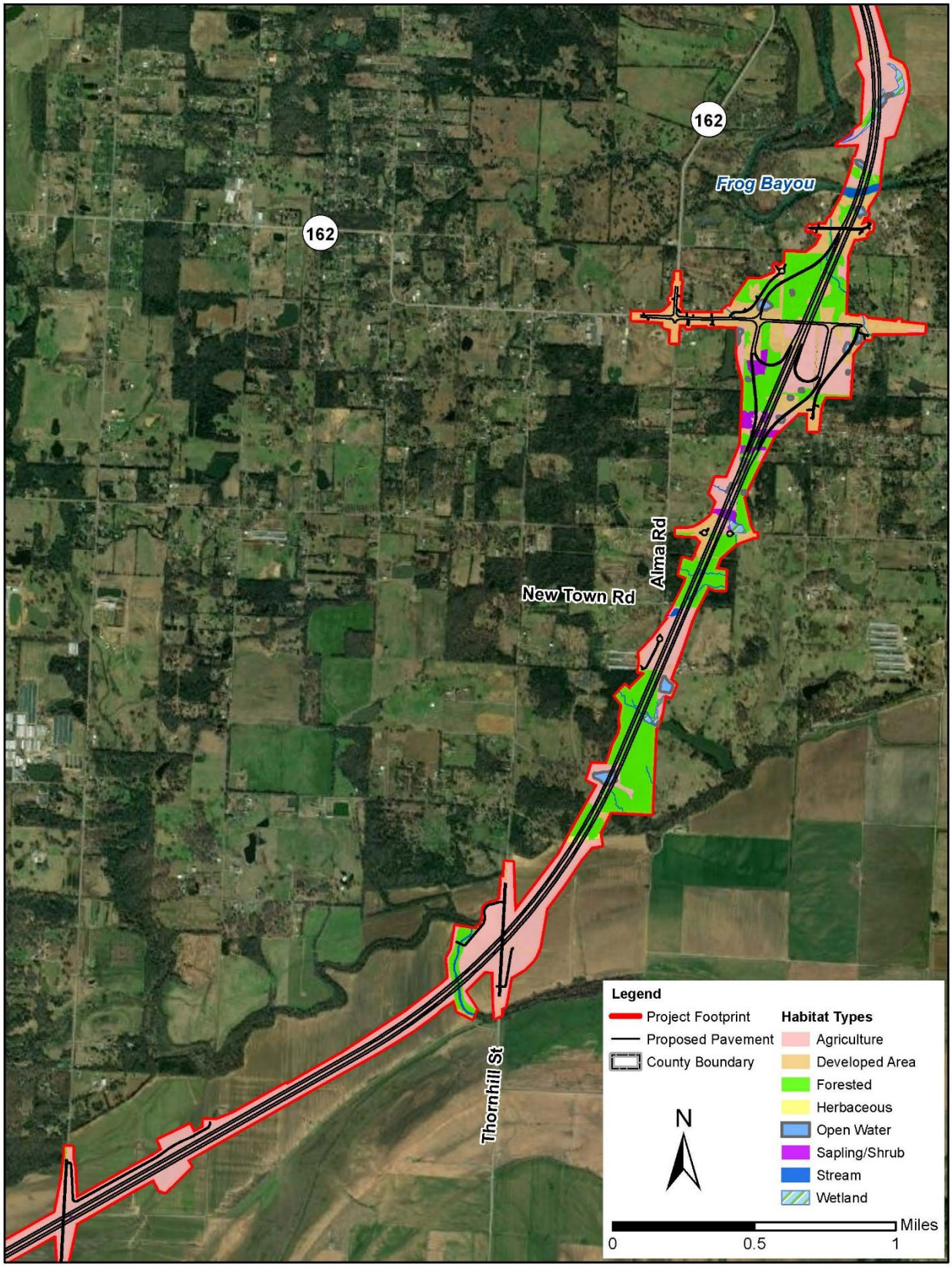
Note: Quantification of streams, open water features, and wetlands provided by other disciplines who conducted wetland delineations in the summer of 2021 and 2022.

Figure 5-26: Habitat Types within the Project Footprint (Sheet 1)



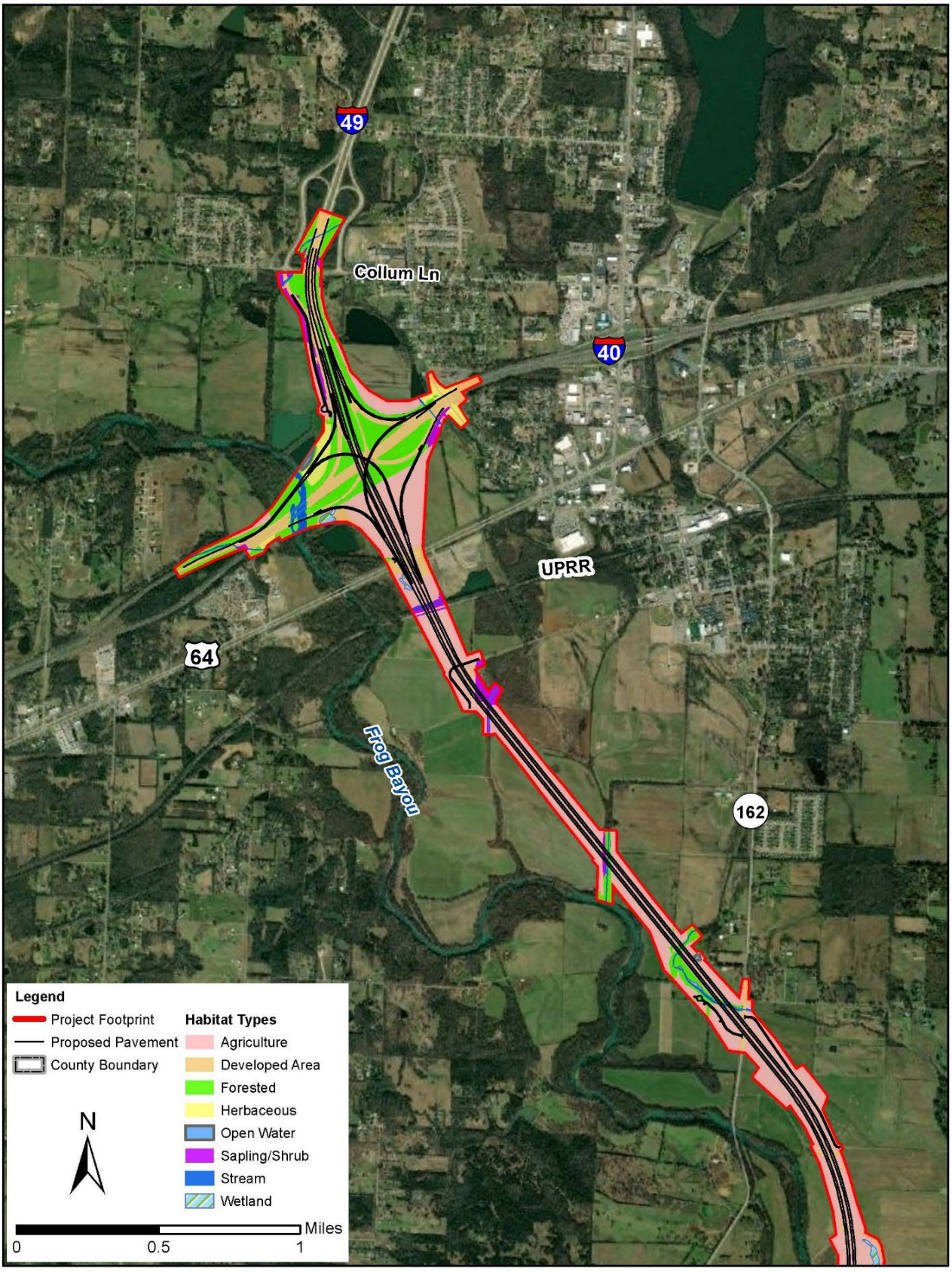
Source: Project Team, Summer 2021 and 2022

Figure 5-27: Habitat Types within the Project Footprint (Sheet 2)



Source: Project Team, Summer 2021 and 2022

Figure 5-28: Habitat Types within the Project Footprint (Sheet 3)



Source: Project Team, Summer 2021 and 2022

Modifications and Impacts

The construction of Interstate 49 would require permanent and temporary impacts to the existing habitats. The following activities would result in permanent and temporary modifications within the project footprint.

- **Bridge Decks** –These are new bridges that would be constructed as part of the proposed project. Due to shading of the bridge decks, it is not known how much of the area under the bridge decks would be revegetated and would allow vegetation to grow after construction is complete.
- **Bridge Clearing** – This is the area that would be cleared outside of the bridge deck for construction activities and long-term maintenance access. It is estimated that an area extending 50 feet parallel to and outside of the bridge deck (on both sides) would be cleared for construction. The area would be revegetated according to ARDOT standards after construction. In the forested areas it is not known how much of the area would be allowed to become reforested.
- **Driveways –**These are existing driveways that would be modified to some extent as part of the project construction. Minimal impacts would occur to existing vegetation adjacent to these locations.
- **Grading/Landscaping** – This the area that would be graded (fill or cut) to form the road base and for drainage. These areas would be cleared of vegetation and then revegetated according to ARDOT standards after construction is complete. Most likely these areas would only contain herbaceous vegetation after construction.
- **New Driveways** – This is the construction of new driveways to provide access to residences and businesses. Some of these may not be paved, but existing vegetation would be removed.
- **New Pavement** –The new pavement extends from edge of shoulder to edge of shoulder to include all areas to be paved.
- **Pavement/Bridge Removal** – These are areas of existing pavement or bridges that would be removed and revegetated.

Water body modifications would be both temporary and permanent in nature. Temporary impacts would result during construction. These impacts would result from temporary crossings constructed to allow construction equipment to cross streams or wetlands within the project footprint. Increased sedimentation during construction may occur and could affect fish and aquatic invertebrates. Any temporary crossing would comply to all applicable Section 404/401/402 permit requirements.

Permanent water body impacts would result from the construction of Interstate 49. These impacts would consist of the placement of bridge columns in larger water bodies such as the Arkansas River and Frog Bayou. Ponds would be filled and culverts would be placed in streams that are not being bridged. At the culvert locations, riprap or other material would be utilized to minimize erosion at the culvert entrance and outfall. Several streams may be re-aligned to flow through constructed drainage ditches through the project footprint before they merge with their existing channels outside of the project footprint.

The removal of existing habitat would result in potential impacts to wildlife. Construction would result in habitat fragmentation and convert existing habitat to herbaceous or sapling/shrub vegetation commonly associated with highway right of way. The wildlife potentially impacted by this project include mammals, birds, insects, mollusks, and fish.

As concluded in the FEIS, some mortality would likely occur to species such as reptiles and amphibians that are less mobile during the initial construction. Wildlife species that are unable to adapt to the limited right of way environment, could relocate to suitable surrounding habitats. A detailed analysis of the threatened and endangered (and candidate) species are included in the Biological Assessment (**Appendix K**).

Table 5-7 provides the acreage amounts of impacts to the habitat types. Not all of the existing habitat within the project footprint would be impacted by the construction activities.

Table 5-7: Potential Impacts to Habitat within the Project Footprint

Impact Type	Habitat Type							
	Agriculture (Acres)	Developed (Acres)	Forested (Acres)	Herbaceous (Acres)	Sapling/ Shrub (Acres)	Stream (Acres)	Open Water (Acres)	Wetland (Acre)
Bridge Clearing	18.03	6.80	15.31	1.98	1.19	0.03	0.00	2.52
Bridge Deck	9.82	5.52	10.49	1.60	0.92	0.04	0.01	2.11
Driveway	0.39	1.17	0.07	0.00	0.00	0.00	0.00	0.00
Grading/ Landscaping	239.39	42.52	79.88	8.81	14.70	2.14	7.49	22.87
New Driveway	4.07	1.46	0.65	0.41	5.98	0.03	0.03	0.29
New Pavement	88.02	28.16	29.95	2.87	0.00	0.55	1.22	3.25
Pavement/Bridge Removal	0.38	5.17	0.01	0.02	0.01	0.01	0.00	0.00
Total	**360.10**	**90.8**	**136.36**	**15.69**	**22.80**	**2.80**	**8.75**	**31.04**

Source: Project Team, 2022

In conclusion, while the re-evaluation assessed wildlife and habitat impacts to a greater level of detail compared to the FEIS/ROD, no substantial changes in wildlife and habitat impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.16 Would any essential fish habitat be impacted by the project?

The Magnuson-Stevens Fishery Conservation Management Act (MSA) applies to projects that are federally funded, located within a county with tidally influenced waters, and affect essential fish habitat (EFH). EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” EFH does not apply to enclosed freshwater habitats.

5.16.1 1997 FEIS

The 1997 FEIS did not address Essential Fish Habitat.

5.16.2 Re-evaluation

The proposed project is not located within a county with tidally influenced waters and would not

impact EFH; therefore, no further action is necessary.

5.17 How would the project comply with invasive species regulation?

EO 13112 on Invasive Species became effective on February 3, 1999. It directs federal agencies to prevent the introduction and control the spread of invasive species. Invasive species are defined by the EO as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health."

5.17.1 1997 FEIS

EO 13112 was not included in the original FEIS as that document was completed in 1997, prior to the effective date of EO 13112.

5.17.2 Re-evaluation

The proposed project is subject to and will comply with federal EO 13112 on Invasive Species for federal properties. During construction, efforts would be made to avoid and minimize the disturbance of soils and existing vegetation within the project footprint. Any area that is disturbed would be revegetated as soon as possible, according to ARDOT specifications. Furthermore, BMPs would be used to prevent and control any encroachment of invasive species. In conclusion, while the re-evaluation of impacts was based on updated guidance, no adverse impacts are anticipated.

5.18 How would the project comply with beneficial landscaping regulation?

The Executive Memorandum (EM) on Environmentally and Economically Beneficial Landscaping, effective April 26, 1994, requires environmentally and economically beneficial landscaping practices to be considered at federal facilities and for federally funded projects.

5.18.1 1997 FEIS

The 1997 FEIS does not specifically address the EM on Environmentally and Economically Beneficial Landscaping.

5.18.2 Re-evaluation

The proposed project is subject to and will comply with the EM by revegetating disturbed areas in accordance with ARDOT specifications. Accordingly, adverse impacts are not anticipated.

5.19 Does the project have any indirect impacts?

Potential indirect impacts resulting from the proposed project are detailed in the *Indirect Impacts Technical Report* (**Appendix J**) and are summarized below.

5.19.1 1997 FEIS

The 1997 FEIS evaluated potential impacts along a 125-mile corridor. Because of the size of this corridor, the analysis of indirect impacts in the 1997 FEIS was necessarily broad.

Per the 1997 FEIS, the Selected Alignment would facilitate new development, including along the 14 miles evaluated in this re-evaluation, which could take several forms:

- Commercial development at interchanges.
- Industrial development in existing industrial parks, or the formation of new industrial parks.
- Single site industrial developments by manufacturing enterprises that locate in the area due to increased access.
- Residential development that may result due to community growth and improved access to nearby job markets.

The 1997 FEIS also stated that the Selected Alignment would be integral to the development of former Fort Chaffee military land, as guided by the Fort Chaffee Redevelopment Authority, and would result in changes to neighborhoods, property values, travel patterns, and local traffic.

5.19.2 Re-evaluation

This re-evaluation focuses on 14 miles of the original 125-mile corridor, thus allowing for a more detailed evaluation of indirect impacts. The indirect impacts analysis follows guidance issued subsequent to the 1997 FEIS including but not limited to FHWA "Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (2003), National Cooperative highway Research Program (NCHRP) Report 466 "Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects" (2002), and the Texas Department of Transportation's (TxDOT) "Guidance: Indirect Impacts Analysis" (2019).

Input from local planners was sought to assist with identifying areas where project-induced growth impacts would likely occur. These planners have first-hand knowledge regarding current and future land use plans, property values, forecasted growth, supply and demand, other market factors affecting the cities and their extra territorial jurisdictions, and applicable public policies that would promote and regulate future development. City planning experts were asked to identify areas where the amount, type (e.g., commercial, residential, industrial, etc.), location, or timing of development would be different because of the proposed project.

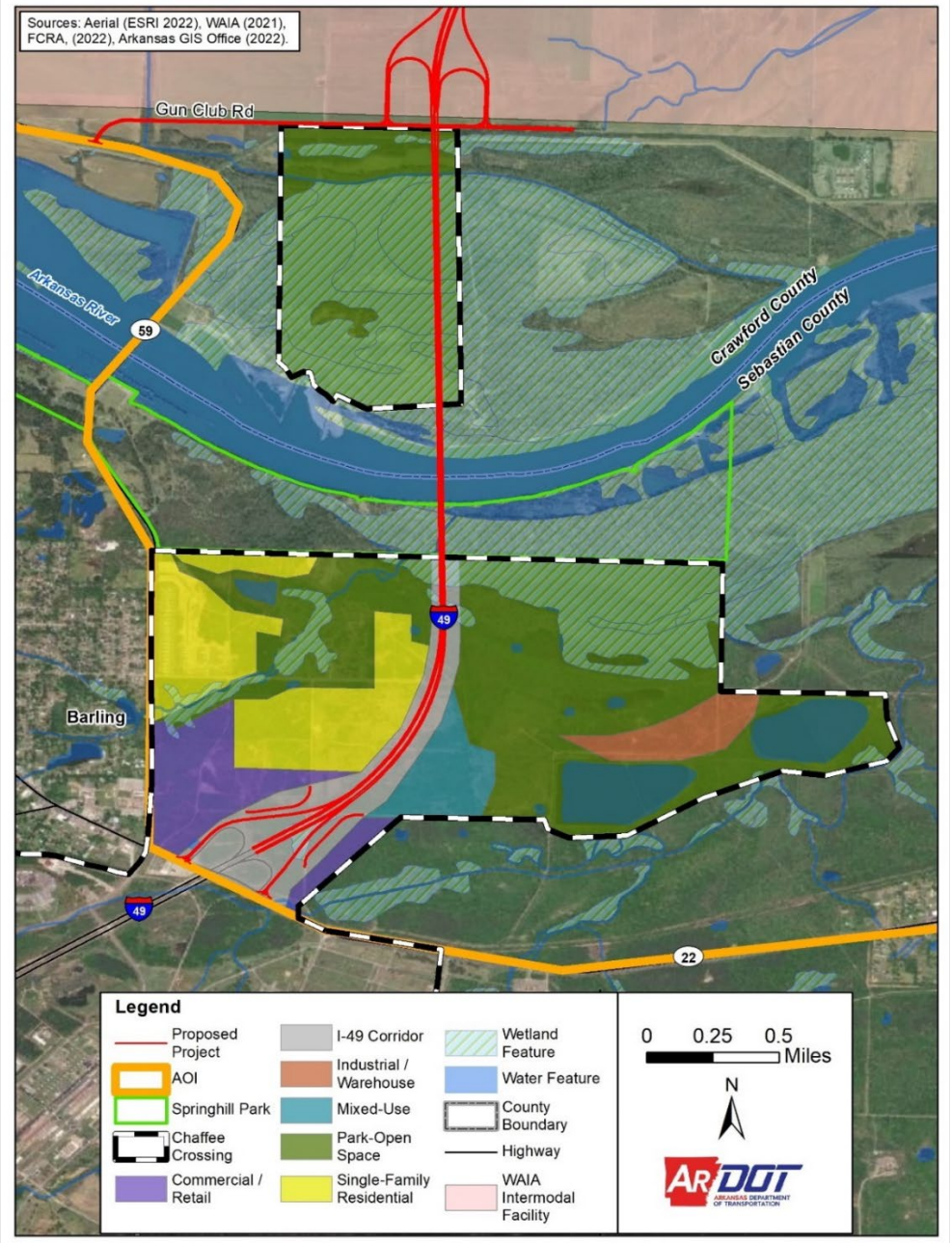
City planners and developers indicated that it would be likely that three areas would be developed or redeveloped following construction of the proposed project: (1) Chaffee Crossing, (2) the Western Arkansas Intermodal Authority (WAIA) development area, and (3) the Cities of Kibler, Alma, and unincorporated areas. The types of development or redevelopment expected for each area identified by the planners are described in **Table 5-8** and shown in **Figure 5-29, Figure 5-30, and Figure 5-31.** Based on these projections, approximately 4,700 acres of predominantly commercial/retail, industrial/warehouse, single-family residential, and mixed-use development would occur within these areas or would be expected to experience an acceleration of development. The total area of project-induced growth reflects approximately 20% of the indirect impacts study area, or Area of Influence (AOI).

Table 5-8: Types of Induced Development by Development Area

Induced Development Areas	Induced Commercial/ Retail (acres)	Induced Industrial/ Warehouse (acres)	Induced Single-Family Residential (Acres)	Induced Mixed-Use (acres)	Total Induced Acres
Barling/Chaffee Crossing	115	50	230	60	455
Kibler/Alma	870	540	860	-	2,270
WAIA Development Area	-	2,000	-	-	2,000
Total Acreage	**985**	**2,590**	**1,090**	**60**	**4,725**

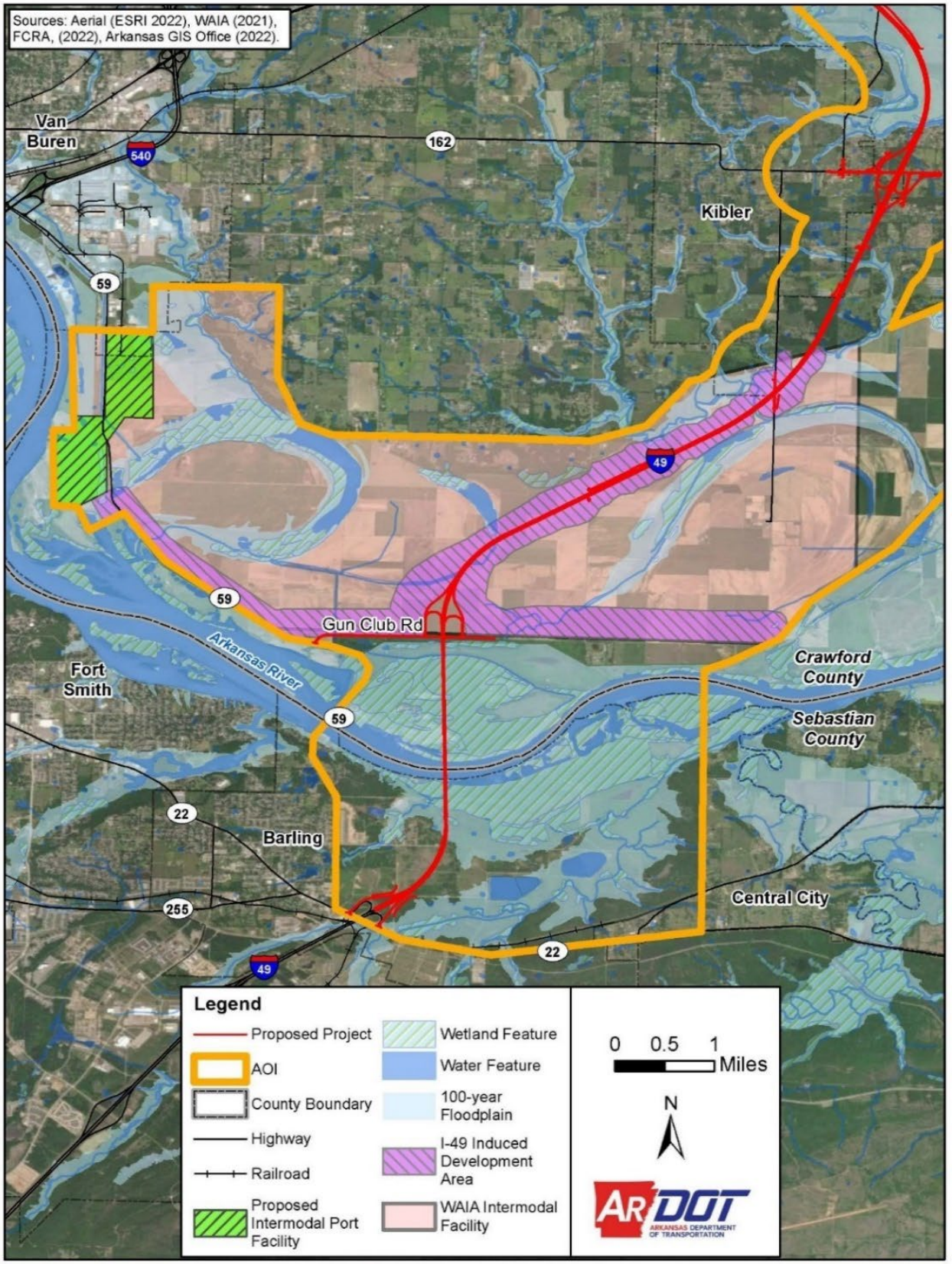
Source: Project Team, 2022

Figure 5-29: Induced Development Areas within the AOI – Chaffee Crossing



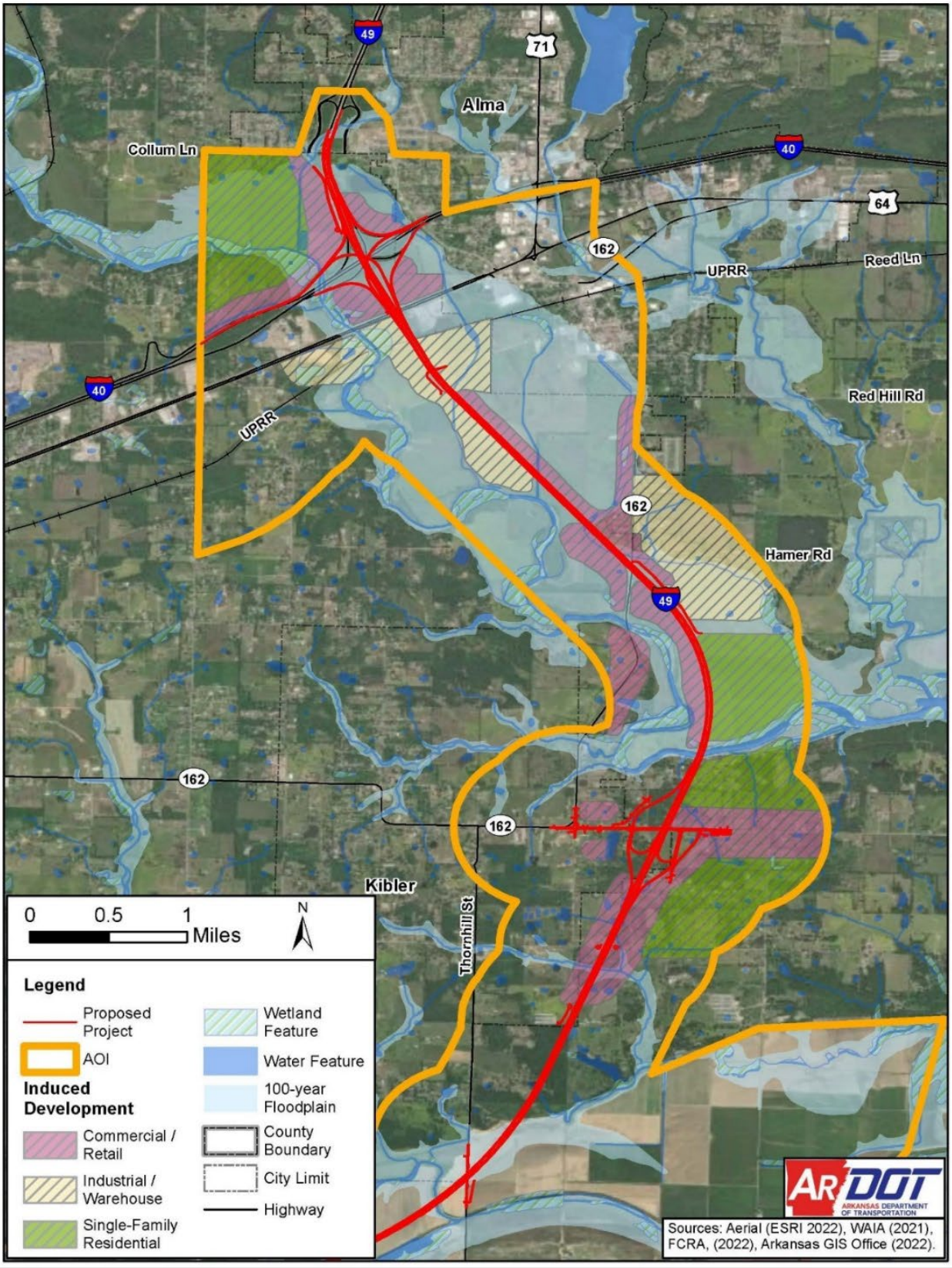
Project Team, 2022

Figure 5-30: Induced Development Areas within the AOI – WAIA Development Area



Project Team, 2022

Figure 5-31: Induced Development Areas within the AOI – Alma and Kibler



Project Team, 2022

Resources subject to potential induced growth impacts include Old Wire Road, floodplains, Waters of the U.S., Important Farmland, and vegetation and wildlife habitat, as detailed in **Appendix J**.

In conclusion, while the re-evaluation was based on updated guidance and assessed indirect impacts to a greater level of detail compared to the FEIS/ROD, no substantial changes in indirect impacts are anticipated compared to those evaluated in the FEIS/ROD.

5.20 Does the project have any cumulative impacts?

Potential cumulative impacts resulting from the proposed project are detailed in the *Cumulative Impacts Technical Report* (**Appendix K**) and are summarized below.

5.20.1 1997 FEIS

The 1997 FEIS identified the Fort Chaffee Redevelopment Area as a reasonably foreseeable action, but resource impacts were not discussed. No other cumulative impacts were discussed for the 125-mile corridor evaluated in the 1997 FEIS.

5.20.2 Re-evaluation

This re-evaluation of cumulative impacts focuses on 14 miles of the original 125-mile corridor. The cumulative impacts technical report also follows guidance issued subsequent to the 1997 FEIS including but not limited to FHWA's *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (2003) and the American Association of State Highway and Transportation Official's (AASHTO) Practitioners Handbook *Assessing Indirect Effects and Cumulative Impacts Under NEPA* (2016), and the Texas Department of Transportation's (TxDOT) *Cumulative Impacts Analysis Guidance* (2019).

Council on Environmental Quality regulations (40 CFR § 1508.7) defines cumulative impacts (i.e., effects) as "the impact on the environment which results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions." The purpose of a cumulative impacts analysis is to view the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. This approach allows the evaluation of the incremental impacts of the proposed project in light of the overall health and abundance of selected resources. The evaluation process for each resource considered may be expressed in shorthand form as follows:

BASELINE CONDITION	+	FUTURE EFFECTS	+	PROJECT IMPACTS	=	CUMULATIVE IMPACTS
(historical and current)		(expected projects)		(direct and indirect)		

All of the resource categories considered in this environmental document are candidates for cumulative impacts analysis. The initial step of the cumulative impacts analysis uses information from the evaluation of direct and indirect impacts in the selection of environmental resources that should be evaluated for cumulative impacts. FHWA guidance states: "If a project will not

cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource."

As documented in various environmental technical memos, it was determined that the proposed project would not have substantial direct or indirect impacts on the following resources and topics of concern; and/or if the resource is in poor or declining health, the project would not have an impact on those resources: archeological resources (covered under the 1997 Programmatic Agreement), water quality, threatened or endangered species, community cohesion, EJ populations, LEP populations, public facilities and services, visual, Section 4(f) properties, air quality, traffic noise, and hazardous materials. The resources warranting a cumulative impacts analysis are historic resources, waters of the U.S., including wetlands, floodplains, vegetation and wildlife habitat, and prime farmland because the potential direct and/or indirect impacts for these resources are considered substantial and/or the resource is considered in poor or declining health with the project impacting that resource. Each resource assessed for cumulative impacts had a resource study area (RSA), or the area within which effects of the proposed project were anticipated to be felt.

Historic Resources - The direct impact of one historic property (Old Wire Road) is not a substantial impact to the overall state of historic resources within the RSA. Considering the minor impact resulting from the proposed project, and assuming ordinances and protection policies remain in place, no substantial cumulative impacts on historic resources within the RSA are anticipated from the proposed project.

Waters of the U.S. - Cumulative impacts to wetlands would account for 1% of the wetlands in the RSA and cumulative impacts to waters would account for 1% of the water features in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative impacts to Waters of the U.S. in the RSA.

Floodplains - Cumulative impacts to floodplains account for 7% of the floodplains in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative impacts to the floodplains in the RSA.

Vegetation and Wildlife Habitat - Cumulative impacts to vegetation and habitat would account for 8% of the vegetation and habitat in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative impacts to vegetation and habitat in the RSA.

Important Farmlands - Cumulative impacts to Important Farmland account for 36% of the prime farmland within the RSA. Given the predominance of prime farmland within the RSA (62%), it is not anticipated that the proposed project would contribute substantial cumulative impacts to the Important Farmland in the RSA. As evaluated in the FEIS, shifting the Selected Alignment to the east or west would still impact Important Farmland. Likewise, it is anticipated that any

induced development and/or reasonably foreseeable developments would still impact Important Farmland.

In conclusion, except for the identification of a reasonably foreseeable action, the FEIS/ROD did not assess cumulative impacts. This re-evaluation of cumulative impacts was based on updated guidance. Substantial adverse impacts are not anticipated.

5.21 Does the project have any construction impacts?

5.21.1 1997 FEIS

The 1997 FEIS stated construction impacts would be considered "short-term" and would include temporary degradation of air, noise, water quality, and temporary disruption of traffic. The FEIS concluded that efforts to minimize construction impacts would be implemented and closely monitored. For example, because the proposed project would occur in close proximity to several residential and commercial establishments, efforts to minimize construction impacts in these areas would be closely monitored.

5.21.2 Re-evaluation

The overall conclusion that the project would result in construction impacts remains applicable. Below are potential construction impacts resulting from the proposed project.

Noise - Noise associated with the construction of the proposed project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

Air Quality – Temporary increases in air pollutant emissions may occur from construction activities. The potential impacts of particulate matter emissions would be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded tucks, and other dust abatement controls, as appropriate. All work would comply with the requirements of the Arkansas Water and Air Pollution Control Act.

Visual - Construction impacts would be temporary in nature but would be visible to most viewer groups. Demolition of some structures would affect visual form of the site, including removal of buildings, trees, and roads. Mature trees or large areas of vegetation may be removed. Staging areas may contain stockpiles of materials, lighting, signage, fences, and presence of large equipment such as cranes, scaffolding, and earthmoving equipment. Additional trucks and equipment would travel to and from the site. The construction site would represent a visual

nuisance for the surrounding viewers; however, it would be temporary and typical of roadway projects where construction is occurring.

If nighttime work occurs, the construction contractor would minimize project-related light and glare, consistent with safety considerations. Portable lights may be operated at the lowest practicable wattage and height would be minimized. Lights would be screened and directed downward toward work activities and away from the night sky and nearby residents. The number of nighttime lights used would be minimized to the extent practicable.

Hazardous Materials – Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal, state, and local regulations per ARDOT Standard Specifications. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment within sensitive areas would be minimized. All construction materials used for the proposed project would be removed as soon as work schedules permit.

Vegetation and Soils – During construction, efforts would be taken to avoid and minimize disturbance of vegetation and soils. All disturbed areas would be revegetated, according to ARDOT Standard Specifications, as soon as it becomes practicable. In accordance with EO 13112 on Invasive Species and the 1999 FHWA guidance on invasive species, all revegetation would, to the extent practicable, use only native species. In addition, BMPs would be used to control and prevent the spread of invasive species.

Water Quality - Potential water quality impacts during construction could include degradation of water quality due to sediment runoff and highway pollutants carried by stormwater. This could result in reduced light penetration into surface water, lowering net primary production of oxygen, and causing an increase in anaerobic environments. Once operational, the highway can bring pollution sources of such as vehicles, roadway maintenance, and herbicide application within the right of way. Potential temporary water quality impacts during construction would be minimized through site specific erosion and sedimentation control measures at all creek and river crossings. Construction could potentially result in some redirection of surface water runoff; however, those impacts would be localized and minimal.

Construction activities within the delineated waters and wetlands identified within the project footprint could cause the destruction or alteration of the site's hydrology, vegetation, and hydric soils. Impacts to the delineated waters and wetlands could impair water quality by influencing varying degrees of one or more of their hydrologic functions. Loss of and/or reduction of waters and wetlands would cause erosion, decreased ability to store storm and flood waters, decreased ability to recharge groundwater, and reduced ability to filter and purify surface water.

Where avoidance of impacts to Waters of the U.S. is not practicable, ARDOT would obtain a Section 404 Standard (Individual) Permit from the USACE Little Rock District prior to initiating construction. ARDOT would comply with all the BMPs and conditions required in the Section 404 permit during construction and operation of the proposed project. All temporary erosion

controls would be in compliance with the DEQ's General Construction Permit and ARDOT Standard Specifications, prior to commencement of construction-related activities. The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials on the project and in the construction staging area as required in the project's SWPPP.

Arkansas River – Navigation impact/closures would be required for setting bridge girders and pier construction. The USCG usually allows for six to eight-hour windows for setting of girders. Time of closures would be impacted by seasons, such as harvest season, when vessels are moving crops. Other impacts would be coordinated with the USCG during construction.

Threatened or Endangered Species –

- Gray bats are an endangered species present within the project footprint. Construction activities may alter foraging patterns and behavior of the gray bat.
- The Monarch Butterfly is a candidate species with breeding area within the project footprint. Conservation measures to ameliorate loss of nectaring habitat from the action of this proposed project could be employed, such as replanting temporarily impacted areas within the construction footprint with milkweed plants and nectaring plants. Artificial disturbances (e.g., brush management or light disking) could be periodically used in maintenance areas of the project footprint to achieve and/or sustain the desired habitat condition of a mid-successional grassland plant community which are important to the monarch butterfly.
- Fort Chaffee Environmental Branch has documented one bald eagle nest located on the northern bank of the Arkansas River, approximately 200 feet east of the project footprint. Construction activities should follow the USFWS National Bald Eagle Management Guidelines, as well as Fort Chaffee regulatory measures, to protect the nest and/or eagles in the action area.
- Other threatened or endangered species include the Indiana bat, northern long-eared bat, and Ozark big-eared bat, which were absent from the project footprint per bat surveys conducted in May - July 2022 by the Project Team; and the eastern black rail, rufa red knot, and Missouri bladderpod, which have no known occurrences in the project footprint.

Archeology - Per the 2021 Programmatic Agreement among FHWA, SHPO, the Advisory Council on Historic Preservation, the Osage Nation, and ARDOT (Programmatic Agreement), if previously unidentified archeological properties, or unanticipated effects, are discovered after ARDOT has completed its review, that portion of the project will stop immediately, in accordance with Section 107.10(c) of AHTD's[9] Standard Specifications for Highway Construction, Edition of 2014. No ground-disturbing activities will occur within a 200-foot radius of the location of that discovery. ARDOT will consult with FHWA, SHPO, the Osage Nation, and other consulting Tribes, as appropriate, to record, document, and evaluate NRHP eligibility of the property and the project's effect on the property, and to design a plan for avoiding, minimizing, or mitigating adverse effects of the eligible property.

[9] AHTD, or the Arkansas Highway Transportation Department, is the former name for ARDOT.

In addition, and per the 2021 Programmatic Agreement, in the event that human remains or objects that would otherwise be considered associated and unassociated funerary objects pursuant to Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during cultural resources investigations, maintenance, construction, or any other ground disturbing activities, they will be handled in accordance with Arkansas Burial Law (Act 753 of 1991, as amended). Work within a 200-foot radius of the discovery will cease immediately and the location will be secured and protected from damage and disturbance. Measures will be taken to ensure site security and the human remains covered with canvas tarp. No remains will be collected or removed until appropriate consultation has taken place and a plan of action has been developed. ARDOT shall immediately notify the Chief Medical Examiner, SHPO, and FHWA. If human remains are determined to be Native American, a plan for their avoidance or recovery shall be generated in consultation with SHPO, the Osage Nation and other consulting Tribes, FHWA, and ARDOT. If human remains are determined to be non-Native American, consultation with SHPO and other appropriate parties will be required to determine a plan of action.

Section 4(f) Old Wire Road – Per the Memorandum of Agreement among FHWA, ARDOT, and the SHPO, no construction would be undertaken on the historic property until fieldwork portions of the required mitigation have been completed.

Section 4(f) Springhill Park – Access to all existing park facilities except Springhill Park Trail would be maintained during construction, as the majority of the park facilities are located west of the project footprint. Access to the trail in the construction zone would only be closed during construction of the proposed bridge to ensure the safety of trail users. Appropriate signage alerting trail users of the closure would be posted. Fencing would be installed for the construction area prior to bridge construction. Signage would also be placed to identify the proposed project, as well as any safety signs required by the USACE. All trees that do not directly interfere with the proposed construction would be avoided. Care and discretion would be used to ensure that trees not removed shall also be avoided or harm would be minimized to the extent possible during the construction operations. It is anticipated that the permanent easement would be large enough for all construction activities. Disturbed areas within the easement would be restored and seeded with native species and per USACE guidelines. All temporary items constructed for bridge erection would be removed in their entirety and would be part of a temporary construction license through the USACE.

Traffic Congestion, Detours, and Safety: A Transportation Management Plan has been developed for this proposed project in accordance with the provisions of the Department's Policy for Work Zone Safety and Mobility for a significant project. Traffic control would include lane shifts to maintain pre-existing number of lanes, lane and shoulder closures, and brief, intermittent traffic stoppages for specific operations such as erecting bridge beams, blasting, and moving equipment. Existing traffic would remain open throughout construction delineated by traffic drums with the exception of the two local service roads which would be closed during construction. The following traffic control measures would be utilized throughout the proposed project's construction: static signing, changeable message signs, arrow panels, longitudinal and lateral buffer space construction pavement markings, channelizing devices, reduced speed

through the work zone, and temporary signals. All traffic control devices would comply with Section 604 (Traffic Control Devices in Construction Zones) of the ARDOT Standard Specifications. A traffic control supervisor and trained flaggers and spotters would be utilized in accordance with Section 603 (Maintenance of Traffic and Temporary Structures) of the ARDOT Standard Specifications. In addition, positive protection devices would be utilized that contain and/or redirect vehicles to prevent intrusions into the work zone, such as temporary precast concrete barrier walls.

5.22 What are the project commitments?

5.22.1 Historic Resources

It was the opinion of FHWA and ARDOT that none of the structures evaluated as part of the Re-evaluation were eligible for the NRHP. SHPO concurred with these findings in a letter dated December 16, 2021 (**Appendix L**). Only one property, Old Wire Road, was determined eligible for inclusion in the NRHP. The re-routing of Old Wire Road and subsequent removal of a portion of the historic alignment would result in an adverse effect to the resource. To mitigate this effect, ARDOT will produce archival documentation for the property that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and AHPP's 2016 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas*. The documentation will utilize the AHPP's Arkansas Resources Form and include color digital photographs. The documentation will also include a written history of the road, its development, early to current use, and the route's significance to the local area. The documentation will be provided for curation to the AHPP, the Arkansas State Library, the Arkansas Studies Institute, the Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas. No construction would be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

5.22.2 Archeological Resources

Following the completion of Phase I archaeological investigations of previously unsurveyed portions of the proposed project between Highway 22 and Interstate 40, and previously recommended Phase II significance testing of two sites, a combined Phase I/II report will provide a record of investigated resources with appropriate NRHP recommendations. Any sites which were recommended for significance testing and/or mitigation from prior survey reporting and from recommendations developed in consultation between ARDOT and the SHPO in approved management summaries will then be conducted and reported in a separate Phase II/III report.

5.22.3 Section 4(f) Springhill Park

Commitments described in the 1997 FEIS remain applicable to the proposed project and are being coordinated with the USACE. **Table 5-9** presents the commitments established in the 1997 FEIS, and how that commitment would be implemented.

Table 5-9: Implementation of 1997 FEIS Springhill Park Section 4(f) Mitigation Measures

1997 FEIS Section 4(f) Mitigative Measure	How the Mitigative Measure Would be Implemented
(1) Four (4) camp sites and water fountain (not in use) would be relocated to another section within Springhill Park and the direction of the USACE to mitigate for potential noise impacts.	The 4 camp sites and water fountain would be relocated at a location to be determined by the USACE.
(2) Access to all existing park facilities would be maintained during all construction phases.	Access to all existing park facilities except Springhill Park Trail would be maintained, as the majority of the park facilities are located west of the project footprint. Springhill Park Trail was constructed subsequent to the FEIS and is discussed in **Section 7.2**.
(3) The park would be entirely bridged so that the only land used in it is for the bridge substructure.	The park would be entirely bridged. There would be a total of 8 bridge bents, with no more than 4 bridge columns per bent for maximum total of 32 bridge columns within Springhill Park.
(4) Signing on the proposed highway directing the public to the park would be provided at the proposed SH 22 interchange or the SH 59 connector interchange north of the river. Signing would be provided from both directions. Signing would also be provided at appropriate state highways.	Signing would be provided in accordance with the USACE's recommended locations.
(5) A closed drainage system would be provided as the bridge crosses the park in order to protect the public from accidental spills.	A closed drainage system would be provided on the bridge over the park.
(6) Screens or other measures to protect the public from objects thrown or falling from the bridge would be provided.	Fencing would be provided on the bridge barriers over the park.
(7) The highway may change the future usage of the park from fishermen to travelers and vacationers. As a result, the USACE must maintain their ability to further develop the park on both sides of the proposed highway. The main paved road through the park which currently ends at the cul-de-sac would be relocated, if necessary, so that it may be extended east of the proposed highway.	The bridge substructure over the park would not impact the existing cul-de-sac.
(8) Any preconstruction activities, such as core borings, must receive prior right of entry approval by the USACE.	Right of entry approval would be obtained from the USACE for all preconstruction activities.
(9) Prior to bridge construction, fencing would be installed to prevent public access to the construction area. A gate would be provided in the fence, preferably near the cul-de-sac for USACE access to the undeveloped area of the park.	Fencing would be installed for the construction area prior to bridge construction. Signage would also be placed to identify the proposed project, as well as any safety signs required by the USACE.
(10) Access to the construction site to be used by construction vehicles, construction workers, materials deliveries and any other construction-related activities would not be through the developed areas of the park. Contractor access roads and work areas would be subject to USACE approval.	Developed areas of the park would be avoided for contractor access. Per USACE approval, contractor access is anticipated from P Street on the south side of the park and from the river on the north side of the park.
(11) The cleared area for the bridge across the park would be minimized.	All trees that do not directly interfere with the proposed construction would be avoided. Care and discretion would be used to ensure that trees not removed shall also be avoided or harm would be minimized to the extent possible during the construction operations.

1997 FEIS Section 4(f) Mitigative Measure	How the Mitigative Measure Would be Implemented
(12) Access for mowing would be of minimal width and gated from the public.	Access for mowing would be of minimal width. Coordination related to mowing access is ongoing with the USACE.
(13) All areas outside of the permanent easement which are disturbed during construction activities would be restored to their previous grades and revegetated with native species. Disturbed areas within the easement would be restored and seeded. Non-suitable materials from substructure excavation would be disposed of outside of the park in accordance with other disposal requirements.	It is anticipated that the permanent easement would be large enough for all construction activities. Disturbed areas within the easement would be restored and seeded with native species and per USACE guidelines.
(14) Any temporary items constructed for bridge erection would be removed in their entirety.	All temporary items constructed for bridge erection would be removed in their entirety and would be part of a temporary construction license through the USACE.

Sources: Section 4(f) Evaluation from FEIS U.S. 71 Relocation Dequeen to Interstate 40 (1997) and Project Team Meeting with the USACE (December 2, 2021)

Since the 1997 FEIS, impacts to Springhill Park Trail were identified. Access to the trail in the construction zone would only be closed during construction of the proposed bridge to ensure the safety of trail users. Appropriate signage alerting trail users of the closure would be posted. In addition, impacts to permanent right-of-way would also be mitigated, as all trees that do not directly interfere with the proposed construction would be avoided and disturbed areas would be restored and seeded with native species per USACE guidance. Access to the park in the construction zone would be maintained for the USACE and fenced construction area signage would be provided.

In addition, the following mitigation measures would also be implemented per the request of the USACE (correspondence located in **Appendix L**):

- The relocation of four impacted campsites to an area near the E section restroom. These sites will be utilized for park volunteers and should be paved with graveled or concrete living areas. The sites should also be full hookup with water, 50-amp electric service, and sewer. Utilities are available at the nearby E section restroom.

e. Resurface all paved roadways, parking areas, and campsites throughout the park.
f. Destruction, removal, and replacement of the B section restroom. The replacement should be a “Four Pack” of family restroom/shower units. An example of this type of facility is the CXT Navajo model.
g. Upgrade the 16 campsites in A section to 50-amp electric service.

All timber to be removed from federal land will be purchased based on a fair market appraisal conducted by the federal land management agency.

5.22.4 Section 4(f) Old Wire Road

Commitments resulting from the impact to Old Wire Road are discussed in **Section 5.22.1**.

5.22.5 Traffic Noise

One noise barrier was determined to be feasible and reasonable and is proposed to be located

along the east of the Interstate 40 and Interstate 49 interchange south of Interstate 40 along the right of way. The final step in determining reasonableness of any abatement system is the solicitation of the viewpoints of the benefitted property owners and residents. If the cost-effectiveness and noise reduction design reasonableness criteria are still met after additional design investigations, then the viewpoints of the benefitted residents and property owners would be sought and considered before final decisions are made.

5.22.6 Hazardous Materials

For areas of observed oil and herbicide application staining, soil sampling and laboratory analysis may be required to characterize the soils for disposal and to evaluate whether impacted soils have been adequately removed. In addition, for areas of observed trash piles, should evidence of hazardous substances be discovered during their removal, soil sampling may be required to evaluate potential impacts, and/or confirm that the area has been appropriately remediated.

5.22.7 Streams and Wetlands

It is estimated that approximately 85,134 stream credits and 253 wetland credits would be needed for the proposed project. Compensatory mitigation will be provided at an approved mitigation bank that services the area. The proposed project is in the service area of the Hartman Bottoms Mitigation Bank, Cadron Creek Mitigation Bank, Dutch Creek Mitigation Bank, and Gum Log Creek Mitigation Bank, all of which have available mitigation credits. The final mitigation credits would be determined during the Section 404 permitting process. The mitigation banks used would be determined based on their available credits at that time. Construction should be allowed under the terms of a Section 404 Standard (Individual) Permit.

5.22.8 Water Quality

As this project requires a Section 404 Standard (Individual) Permit, ARDOT will request individual water quality certification from DEQ as part of the USACE 404 Permit public notice process. The Resident Engineer will ensure the Contractor understands the terms and requirements for protection of water quality.

The proposed project meets the definition of a “large construction site” and a SWPPP must be prepared and submitted to DEQ along with a Notice of Intent (NOI), and additional supporting documentation. When the SWPPP and NOI are deemed complete, DEQ will issue a Notice of Coverage (NOC). A Notice of Termination (NOT) must be submitted to DEQ when the project is completed and stabilized to end permit coverage.

5.22.9 Tree Clearing Area

To ensure no rise in the 100-year floodplain at the Arkansas River, removal of trees is needed, and a tree removal area has been identified (**Figure 5-19**). This area is owned by Fort Chaffee. Coordination with Fort Chaffee and the USACE through the Section 408 process is ongoing, as is coordination to determine the exact extent of tree clearing necessary. All timber to be removed from federal land will be purchased based on a fair market appraisal conducted by the federal land management agency.

5.22.10 Bald Eagle

According to the Arkansas National Heritage Commission (ANHC), a bald eagle element was recorded within a 1-mile radius of the final project footprint, but the type of observation and location was unknown. A bald eagle nest is located on the northern bank of the Arkansas River and lies approximately 200 feet east of the project footprint. USFWS National Bald Eagle Management Guidelines state that vegetation clearing for road construction projects should not be conducted within 660 feet of a bald eagle nest during nesting season, typically designated as October 1st to May 15th in the southeastern region of the United States, unless nest failure and/or abandonment can be documented. The nest has been active in previous years. Additionally, the site was visited on November 7, 2022 and indirect evidence of occupancy was observed in guano piles around the base of the trunk. The National Bald Eagle Management Guidelines prohibit all tree clearing of overstory trees within 330 feet of the nest to maintain a landscape buffer and provide a natural protective barrier around the nest.

Following guidance from the USFWS, Fort Chaffee has established regulatory measures related to the Bald Eagle and military activities that may occur on the property. Fort Chaffee's regulatory measures specify no activity, including off-road vehicles or human entry, is permitted between December 15th to June 30th, the Bald Eagle nesting period used for the state of Arkansas, unless confirmation is obtained that the nest has failed or young have already fledged the nest. However, Bald Eagles may begin nesting prior to this date. For tree clearing that will occur after October 1st but prior to December 15th, the nest will be monitored following the southeastern United States Bald Eagle Monitoring Guidelines to ensure the nest is inactive prior to tree clearing. If eagles have already began nesting prior to December 15th and impacts cannot be avoided during the nesting season, namely due to the overlap in tree removal restrictions for the tricolored bat, an incidental take permit may be obtained in order to remove the trees within the 660-foot buffer area.

5.22.11 Other Migratory Birds

Because the majority of the project footprint is within new right of way, few bridge structures exist within the project footprint. However, the Interstate 49 ramp off of Interstate 40 near Alma is used extensively by cliff swallows. If structures are being used by these birds, any activities that may destroy active nests, eggs, or birds, should only be conducted between September 1 and February 28, when nests are not occupied. If seasonal avoidance cannot be accomplished, exclusion measures that do not result in death or injury, such as netting, should be added to protect the structure from new nest establishment prior to March 1. These avoidance measures would prevent any expected adverse effects on cliff swallows or any other migratory bird.

5.22.12 Threatened or Endangered Species

Per USFWS concurrence presented in **Appendix L**, should any of the following occur, the Arkansas Ecological Services Field Office will be contacted and/or a new IPaC will be assessed if: the scope, timing, duration, or location of the proposed project changes; new information reveals the action may affect listed species or designated critical habitat; and/or a new species is listed or critical habitat designated.

Chapter 6 - Public Involvement

What's in Chapter 6?

Chapter 6 summarizes the results of the additional public meeting and outreach conducted.

6.1 What public involvement took place during the FEIS?

As recorded in the 1997 FEIS, previous public involvement included multiple public meetings and hearings from 1995 to 1997. Those involved in these efforts included the public, local officials, and resource and regulatory agencies. A Notice of Intent officially initiating the project was published in the Federal Register on July 18, 1995.

The 1997 FEIS and associated public involvement encompassed the 125-mile corridor. There were 19 public meetings, 8 local officials' meetings, 18 agency meetings, and 5 public hearings held from 1995 to 1997, as outlined in **Table 6-1**. These recorded public involvement efforts included 6 public meetings, 2 public officials' meetings, and 1 public hearing held within the 14-mile segment of the re-evaluation. The meetings informed all involved communities of the project, discussed the various steps in the study and schedule, and provided opportunity for public comment. Meetings were conducted over a series of months so that appropriate focus could be placed on the southern, middle, and northern reaches of the project. For a given reach, public meetings and local officials meetings were held in conjunction with a field trip with state and federal agencies that followed the meetings. Public meetings were held, and because of their workshop style, could be attended at any time throughout the evening. Further, informational materials were provided to city halls and public libraries throughout the study area for residents to review at their convenience.

Table 6-1: 1995 – 1997 Public Involvement Meetings

Date	Location/Agency Attendees*	Meeting Type
July 11, 1995	DeQueen High School	Public Meeting
July 12, 1995	Mena Middle School	Public Meeting
July 13, 1995	Cook Elementary School, Fort Smith	Public Meeting
July 14, 1995	Waldron Elementary School	Public Meeting
October 4, 1995	Sutton Elementary School	Public Meeting
October 5, 1995	Mena Middle School	Public Meeting
November 14, 1995	Waldron Elementary School	Public Meeting
November 15, 1995	Sutton Elementary School	Public Meeting
November 16, 1995	DeQueen High School	Public Meeting
November 17, 1995	Mena Middle School	Public Meeting
December 18, 1995	Tate Elementary School, Kibler	Public Meeting
February 29, 1996	DeQueen High School	Public Meeting
March 1, 1996	Mena Middle School	Public Meeting
April 4, 1996	Mena Middle School	Public Meeting
April 15, 1996	Waldron Elementary School	Public Meeting
May 20, 1996	Cook Elementary School, Fort Smith	Public Meeting
May 23, 1996	Tate Elementary School, Kibler	Public Meeting

Date	Location/Agency Attendees*	Meeting Type
June 1996	Information provided to Mena City Hall	Public Meeting
August 1996	Information provided to Waldron City Hall	Public Meeting
July 13, 1995	Waldron City Hall	Local Officials Meeting
October 5, 1995	Waldron City Hall	Local Officials Meeting
November 14, 1995	Waldron City Hall	Local Officials Meeting
March 1, 1996	Mena City Hall	Local Officials Meeting
April 18, 1996	Waldron City Hall	Local Officials Meeting
May 21, 1996	Fort Chaffee	Local Officials Meeting
May 21, 1996	Fort Chaffee	Local Officials Meeting
December 3, 1996	Waldron City Hall	Local Officials Meeting
July 10, 1995	Appropriate State and Federal Agencies	Agency Meeting
July 27, 1995	Fort Chaffee	Agency Meeting
August 21, 1995	Arkansas Historic Preservation	Agency Meeting
November 13, 1995	Fort Chaffee and FCRA	Agency Meeting
December 7, 1995	Appropriate State and Federal Agencies	Agency Meeting
December 14, 1995	Corps of Engineers	Agency Meeting
February 6, 1996	Corps of Engineers	Agency Meeting
February 8, 1996	Forest Service	Agency Meeting
February 9, 1996	Corps of Engineers	Agency Meeting
February 27-28, 1996	Appropriate State and Federal Agencies	Agency Meeting* (FT)
April 16-17, 1996	Appropriate State and Federal Agencies	Agency Meeting* (FT)
May 22, 1996	Appropriate State and Federal Agencies	Agency Meeting* (FT)
June 21, 1996	Corps of Engineers & Coast Guard	Agency Meeting
July 12, 1996	Army Reserve	Agency Meeting
July 19, 1996	Forest Service	Agency Meeting
January 23, 1997	Forest Service	Agency Meeting
February 12, 1997	Forest Service	Agency Meeting
February 20, 1997	Forest Service	Agency Meeting
December 2, 1996	DeQueen High School	Public Hearing
December 3, 1996	Mena Middle School	Public Hearing
December 4, 1996	Waldron Elementary School	Public Hearing
December 5, 1996	Cook Elementary School	Public Hearing
December 6, 1996	Tate Elementary School	Public Hearing

*Locations were not reported for the Agency Meetings in the FEIS document; therefore, attendees are recorded in Table 6-1 when referencing agency meetings, rather than meeting locations.

Meetings were publicized through announcements at elementary schools in an effort to involve minorities and reach every segment of the involved population. Dates, locations, and items for the public meetings were widely publicized through numerous additional media, and meeting announcements were sent directly to all persons who attended the previous public meetings.

6.2 What public involvement took place during the Interstate 49 Alternative Delivery Study?

During 2017 and 2018, additional public involvement was conducted to provide updates on an Alternative Delivery Study for Interstate 49 extending from Highway 22 to Interstate 40. These meetings included two stakeholder meetings and one public meeting, as outlined in **Table 6-2**.

Table 6-2: 2017 – 2018 Public Involvement Meetings

Date	Location	Meeting Type
December 5, 2017	Janet Huckabee Nature Center, Fort Smith, AR	Stakeholder Meeting
March 29, 2018	Janet Huckabee Nature Center, Fort Smith, AR	Stakeholder Meeting
April 26, 2018	Sacred Heart of Mary Church, Barling AR	Public Meeting

The meetings were publicized through announcements in local newspapers, including minority newspapers, to reach all populations that may be affected by the proposed project. Dates, locations, and items for the public meetings were publicized through numerous additional media, and meeting announcements were sent directly to all persons who attended the previous public meetings that provided contact information, as well as appropriate public officials.

6.3 What public involvement took place during the Re-evaluation?

Public involvement during the re-evaluation included two periods of public outreach during 2022, detailed as Public Involvement Period 1 and Public Involvement Period 2 in **Table 6-3**. Both periods of public involvement included combined virtual and open-house public meetings and meetings for public officials, as presented in **Table 6-3**. Information presented during Public Involvement Period 1 included the preliminary design (30% strip map), which was available for public inspection and comment. These outreach efforts, along with a synopsis of the public meeting during Public Involvement Period 1, mirror those conducted during Public Involvement Period 2 and can be viewed on the ARDOT website. Once comments were received, the preliminary design was refined by the project team, and presented for additional comment during Public Involvement Period 2.

Informational materials were provided on the ARDOT website during both public involvement periods for those unable to attend the public meetings.

Table 6-3: 2022 Public Involvement Meetings

Public Involvement Period Dates	Location	Meeting Type
Public Involvement Period 1 March 11, 2022 – April 1, 2022	www.ardot.gov	Virtual Public Meeting
March 17, 2022	First Baptist Church Alma	Public Meeting
March 17, 2022	ARDOT District 4 Headquarters	Public Officials Meeting
Public Involvement Period 2 September 23, 2022 – October 14, 2022	www.ardot.gov	Virtual Public Meeting
September 29, 2022	First Baptist Church Alma	Public Meeting
September 29, 2022	First Baptist Church Alma	Public Officials Meeting

Meetings were advertised in the Southwest Times Record newspaper and announced via Public Service Announcements on a Spanish radio station, La Raza 95.7, during each Public Involvement Period. Dates, locations, and items for the March 17, 2022 public meeting and the September 29, 2022 public meeting were publicized through numerous additional media, including the ARDOT website, and meeting announcements were sent directly to all persons who attended the previous public meetings that provided applicable contact information, as well as appropriate public officials and minority ministers for consideration of announcement to their respective audiences and congregations. For Public Involvement Period 1, flyers were mailed to citizens within and adjacent to the project footprint. A direct mailing system was utilized and included residents and businesses within the southern, middle, and northern reaches of the project. For Public Involvement Period 2, approximately 150 flyers were hand-delivered to residents living within and adjacent to the project footprint. Postcards were mailed to residents living within the southern, middle, and northern reaches of project footprint via the direct mailing service, Arkansas Mailing System. Additionally, for each public meeting held during Public Involvement Period 1 and 2, the following materials were translated into Spanish and made available:

- Public meeting website text
- PowerPoint presentation and video
- Project timeline
- Project fact sheet
- Comment form
- Frequently asked questions

Public Involvement Period 2 outreach efforts, along with a synopsis of the public meeting, are included in **Appendix M**.

Chapter 7 - Re-Evaluation Conclusion

What's in Chapter 7?

Chapter 7 presents the conclusion of the re-evaluation.

An FEIS was previously prepared for this project and ROD signed in August 1997. These documents have been reviewed and examined for content, accuracy, and overall scope of work regarding the project. This re-evaluation then examined the current project and the potentially affected environment since the issuance of the ROD. After a thorough review and reconsideration of these documents based on additional environmental studies and approvals, FHWA determines that all previous findings and decisions remain valid and that no new or additional significant impacts would result from the project. Based on this determination, the subject project may continue to proceed.

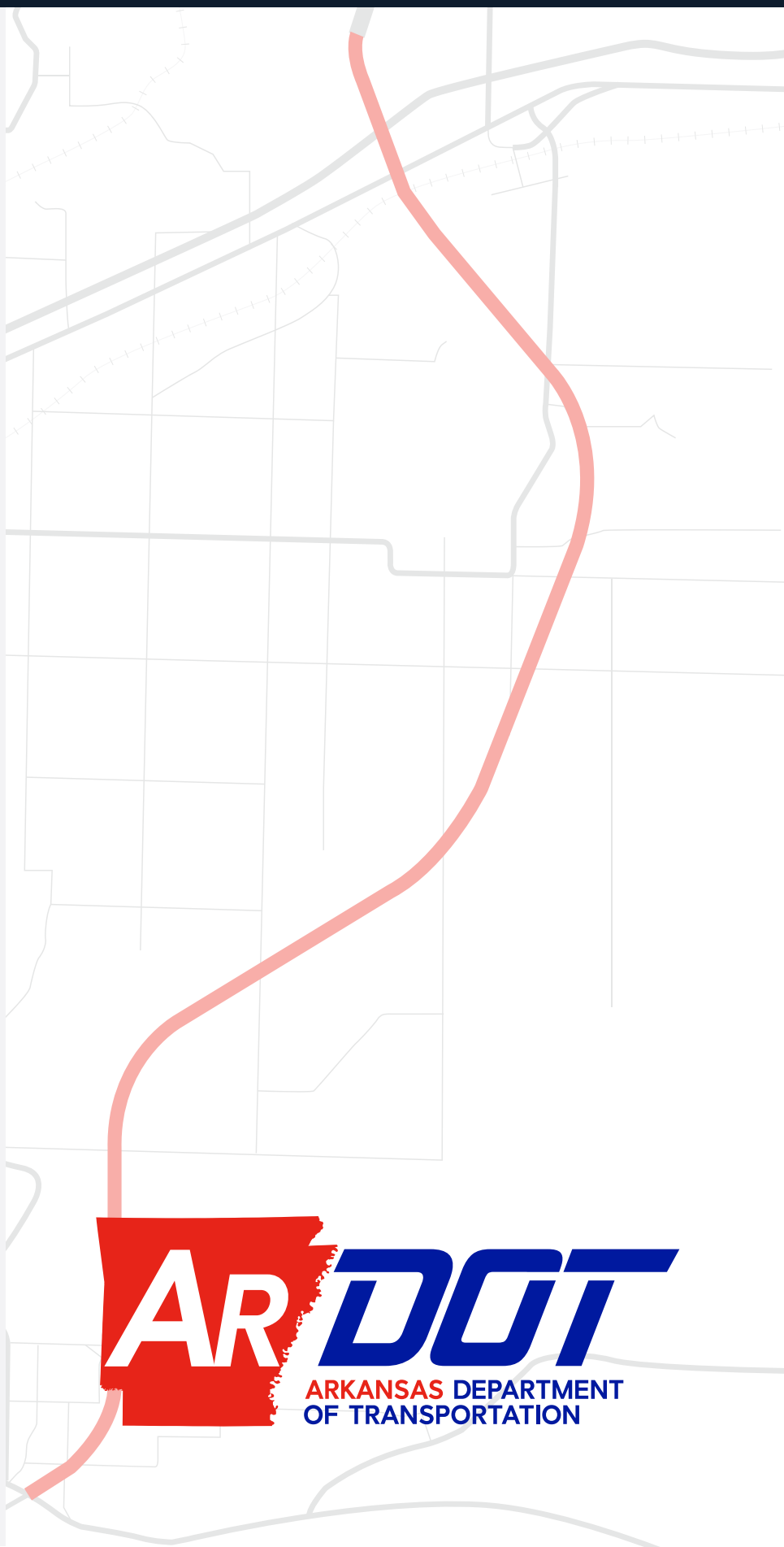
APPROVAL OF THE RE-EVALUATION

Approving Official: Randal Looney Date: November 28, 2023

Randal Looney
Environmental Coordinator
Federal Highway Administration

APPENDIX A

Community Impacts Technical Report



I-49 Community Impacts Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

July 2022
Job 001747

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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Attachment A-3: Potential Relocations Map

1.0 PROJECT BACKGROUND

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a reevaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 13.6 miles. The project location is depicted in **Figure 1-1**.

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed. From Highway 71 to Highway 22, Highway 549 (future Interstate 49) is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40, the existing Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads. North of Collum Lane the existing roadway includes one southbound lane and two northbound lanes which drops down to one lane in each direction north of Fine Way.

Figure 1-1: Project Location Map

2.0 COMMUNITY STUDY AREA

2.1 Study Area Boundaries

The proposed project is a new location roadway located in a relatively rural area. The community study area encompasses the project limits and was established as a 0.5 mile buffer from the centerline of the proposed project. The community study area was developed to include communities potentially impacted by the proposed project, including portions of the cities of Barling, Kibler, and Alma. It encompasses the residences along Clear Creek and Waterfront Roads and residences and businesses along Interstate 40. The study area runs generally in a north/south direction and is located primarily in far north Sebastian County and Crawford County, Arkansas. The community study area is shown in **Attachment A-1**.

2.2 Land Use Patterns

The community study area boundaries encompass approximately 13,474 acres. Topographically, the community study area slopes from the northern project limits south toward the Arkansas River. The majority of the community study area is characterized by a mix of landscape features including an abundance of agricultural land, government-owned land (e.g., Fort Chaffee), pockets of forests, and scattered urban development that is primarily residential. **Table 2-1** presents land use types based on Sebastian and Crawford County Appraisal District data.

Table 2-1: Land Use within the Community Study Area

Land Use Type	Acreage	Percentage of the Study Area
Agriculture Improved	1,810	13.43%
Agriculture Miscellaneous	2,252	16.71%
Agriculture Vacant	5,294	39.29%
Commercial Agriculture	5	0.04%
Commercial Agriculture Improved	46	0.34%
Commercial Improved	145	1.08%
Commercial Miscellaneous	25	0.19%
Mobile Home Park	2	0.02%
Commercial Residential	5	0.04%
Commercial Vacant	44	0.33%
Exempt Burial	2	0.01%
Exempt Commercial	34	0.26%
Exempt Volunteer Fire Department	1	0.01%
Exempt Government	1,598	11.86%
Exempt Religious	41	0.30%
Exempt School	52	0.38%
Exempt	554	4.11%
Public Service	8	0.06%
Residential Building Only	397	2.95%
Residential Improved	825	6.12%
Residential Miscellaneous	49	0.36%
Residential Vacant	286	2.12%
Total Acreage	**13,474**	**100%**

Source: Sebastian (2020) and Crawford (2018) County Appraisal District Land Use Data.

3.0 COMMUNITY FACILITIES

As listed in **Table 3-1**, there are 27 community facilities located within the community study area, including a school, fire departments, a police department, cemeteries, places of worship and parks. Most of these community facilities are not located adjacent to the proposed project, nor would the proposed project impact any of the community facilities, as depicted on **Attachment A-1**.

Table 3-1: Community Facilities within the Community Study Area

Map ID No.	Name of Facility	Type of Facility	Serves a Specific Population?	Adjacent to the Project?	Attachment A-1 Sheet Number
1	Fort Chaffee Maneuver Training Center	Military	Military; local, state and federal agencies	Yes	Sheet 1
2	Barling Cemetery	Cemetery	No	No	Sheet 1
3	First Baptist Church of Barling	Place of Worship	No	No	Sheet 1
4	Barling United Methodist Church	Place of Worship	No	No	Sheet 1
5	Barling Police Department	Police Department	No	No	Sheet 1
6	Barling Fire Department	Fire Department	No	No	Sheet 1
7	Barling Municipal & Sports Complex	Sports Facility	No	No	Sheet 1
8	First Assembly of God – Barling	Place of Worship	No	No	Sheet 1
9	Barling City Park	Park	No	No	Sheet 1
10	Springhill Park	Park	No	Yes	Sheet 1
11	McAllister Cemetery	Cemetery	No	No	Sheet 1
12	Joe Smith Cemetery	Cemetery	No	Yes	Sheet 2
13	Kibler Assembly of God	Place of Worship	No	No	Sheet 2
14	Kibler United Methodist Church	Place of Worship	No	No	Sheet 2
15	Kibler Baptist Church	Place of Worship	No	No	Sheet 2
16	Kibler Police Department	Police Department	No	No	Sheet 2
17	Crawford County Fire District 7	Fire Department	No	No	Sheet 2
18	Pitcock Cemetery	Cemetery	No	Yes	Sheet 3
19	Food Distribution Center – Liberty Fellowship	Food Bank	No	No	Sheet 3
20	H E Porter	Place of Worship	No	No	Sheet 3
21	Old Concord Cemetery	Cemetery	No	No	Sheet 3
22	Grace Church of Alma	Place of Worship	No	No	Sheet 3
23	God's Harvest Pentecostal Tabernacle	Place of Worship	No	No	Sheet 3
24	Alma Fire Department Station 3	Fire Department	No	No	Sheet 3
25	Alma Intermediate School	School	Middle-school aged children	No	Sheet 3
26	Alma Heights Missionary Baptist Church	Place of Worship	No	No	Sheet 3
27	Ridgeline Church	Place of Worship	No	No	Sheet 3

Source: Arkansas GIS Office (2022)

4.0 DEMOGRAPHICS

4.1 Minority Populations

Table 4-1 presents minority population data for the study area. Of the 193 census blocks within the study area, 98 census blocks report a population and the remaining 95 census blocks do not report a population. Of the 98 census blocks reporting a population, 16 census blocks report a minority population equal to or greater than 50 percent of the total population. Of those 16 census blocks, 10 report a total population of 10 persons or less. The remaining six Census blocks are as follows:

- Census tract 204.01, block group 1, block 1000 includes a total population of 14 persons, reporting 50 percent Hispanic or Latino, 29 percent American Indian and Alaska Native, and 14 percent two or more races for a total minority percentage of 93 percent.
- Census tract 204.01, block group 1, block 1011 includes a total population of 13 persons, reporting 54 percent two or more race for a total minority percentage of 54 percent.
- Census tract 204.01, block group 2, block 2007 includes a total population of 19 persons, reporting 32 percent two or more races, 21 percent American Indian and Alaska Native, and 11 percent Hispanic or Latino for a total minority percentage of 63 percent.
- Census tract 206.02, block group 3, block 3028 includes a total population of 37 persons, reporting 35 percent Hispanic or Latino, 14 percent American Indian and Alaska Native, 8 percent two or more races, and 3 percent some other race for a total minority percentage of 59 percent.
- Census tract 206.02, block group 3, block 3035 includes a total population of 14 persons, reporting 36 percent Hispanic or Latino, 21 percent two or more races, and 14 percent Black or African American for a total minority percentage of 71 percent.
- Census traction 13.07, block group 2, block 2061 includes a total population of 19 persons, reporting 21 percent Black or African American, 11 percent American Indian and Alaska Native, five percent two or more races, and 37 percent Hispanic or Latino for a total minority percentage of 74 percent.

Census blocks with a minority population equal to or greater than 50 percent of the total population are shown in **Attachment A-2A**. Overall, the study area has a minority population that is approximately 19 percent of the total population.

Table 4-1: Race and Ethnicity

Census Tract *	Block Group	Block	Total Population	Not Hispanic or Latino							Percent Hispanic or Latino	Total Minority Population	Minority Percentage
				Percent White Alone	Percent Black or African American	Percent American Indian and Alaska Native	Percent Asian	Percent Native Hawaiian and Other Pacific Islander	Percent Some Other Race	Percent Two or More Races			
202.04	2	2045	153	87%	0%	0%	1%	0%	0%	8%	3%	20	13%
202.04	2	2046	18	56%	0%	0%	0%	0%	0%	6%	39%	8	44%
202.04	2	2050	46	76%	0%	0%	0%	0%	0%	11%	13%	11	24%
204.01	1	1000	14	7%	0%	29%	0%	0%	0%	14%	50%	13	93%
204.01	1	1007	16	56%	0%	38%	0%	0%	0%	0%	6%	7	44%
204.01	1	1010	71	83%	0%	0%	0%	0%	0%	6%	11%	12	17%
204.01	1	1011	13	46%	0%	0%	0%	0%	0%	54%	0%	7	54%
204.01	1	1012	32	91%	0%	9%	0%	0%	0%	0%	0%	3	9%
204.01	1	1013	20	70%	0%	15%	0%	0%	10%	0%	5%	6	30%
204.01	2	2001	16	56%	0%	0%	0%	0%	0%	25%	19%	7	44%
204.01	2	2002	29	76%	3%	0%	7%	0%	0%	3%	10%	7	24%
204.01	2	2004	15	93%	0%	0%	0%	0%	0%	0%	7%	1	7%
204.01	2	2005	26	73%	0%	0%	8%	0%	0%	4%	15%	7	27%
204.01	2	2007	19	37%	0%	21%	0%	0%	0%	32%	11%	12	63%
204.01	2	2008	7	14%	0%	0%	14%	0%	0%	14%	57%	6	86%
204.01	2	2012	106	87%	0%	5%	0%	0%	0%	4%	5%	14	13%
204.01	2	2013	34	85%	0%	3%	0%	0%	0%	12%	0%	5	15%
204.01	3	3012	55	76%	2%	0%	0%	0%	0%	15%	7%	13	24%
204.01	3	3017	99	80%	0%	0%	0%	0%	0%	8%	12%	20	20%
204.01	4	4000	182	90%	0%	3%	1%	0%	0%	5%	2%	19	10%
204.01	4	4002	37	57%	32%	0%	0%	0%	0%	5%	5%	16	43%
204.01	4	4003	93	85%	0%	1%	1%	0%	0%	6%	6%	14	15%

Census Tract *	Block Group	Block	Total Population	Not Hispanic or Latino							Percent Hispanic or Latino	Total Minority Population	Minority Percentage
				Percent White Alone	Percent Black or African American	Percent American Indian and Alaska Native	Percent Asian	Percent Native Hawaiian and Other Pacific Islander	Percent Some Other Race	Percent Two or More Races			
204.01	4	4004	82	89%	0%	0%	0%	0%	0%	7%	4%	9	11%
204.01	4	4005	25	52%	0%	0%	0%	0%	8%	8%	32%	12	48%
204.01	4	4006	4	50%	0%	0%	0%	0%	0%	25%	25%	2	50%
204.01	4	4007	26	77%	4%	0%	0%	0%	0%	19%	0%	6	23%
204.01	4	4015	8	38%	0%	13%	25%	0%	0%	13%	13%	5	63%
204.01	4	4016	87	78%	0%	0%	0%	0%	0%	6%	16%	19	22%
204.01	4	4025	95	83%	0%	0%	0%	0%	1%	12%	4%	16	17%
204.01	4	4026	40	60%	0%	0%	23%	0%	0%	8%	10%	16	40%
204.01	4	4027	23	78%	0%	17%	0%	0%	0%	0%	4%	5	22%
204.01	4	4029	3	0%	0%	0%	67%	0%	33%	0%	0%	3	100%
204.01	4	4031	68	79%	1%	1%	0%	0%	0%	18%	0%	14	21%
204.01	4	4032	3	100%	0%	0%	0%	0%	0%	0%	0%	0	0%
204.01	4	4033	29	83%	0%	0%	0%	0%	0%	14%	3%	5	17%
204.01	4	4034	14	93%	0%	0%	7%	0%	0%	0%	0%	1	7%
204.01	4	4035	32	75%	0%	0%	0%	0%	3%	3%	19%	8	25%
204.01	4	4036	40	95%	0%	3%	0%	0%	0%	3%	0%	2	5%
204.01	4	4037	38	92%	5%	0%	0%	0%	0%	0%	3%	3	8%
204.01	4	4038	3	67%	0%	0%	0%	0%	0%	33%	0%	1	33%
204.01	4	4045	12	100%	0%	0%	0%	0%	0%	0%	0%	0	0%
204.01	4	4057	2	50%	0%	0%	0%	0%	50%	0%	0%	1	50%
205.01	1	1024	104	85%	0%	0%	0%	0%	0%	10%	0%	16	15%
206.02	1	1001	43	81%	0%	0%	2%	0%	0%	16%	0%	8	19%
206.02	1	1002	50	100%	0%	0%	0%	0%	0%	0%	0%	0	0%

Census Tract *	Block Group	Block	Total Population	Not Hispanic or Latino							Percent Hispanic or Latino	Total Minority Population	Minority Percentage
				Percent White Alone	Percent Black or African American	Percent American Indian and Alaska Native	Percent Asian	Percent Native Hawaiian and Other Pacific Islander	Percent Some Other Race	Percent Two or More Races			
206.02	1	1003	7	100%	0%	0%	0%	0%	0%	0%	0%	0	0%
206.02	1	1004	47	98%	0%	0%	0%	0%	0%	2%	0%	1	2%
206.02	1	1005	110	86%	0%	0%	2%	0%	0%	12%	0%	15	14%
206.02	1	1007	53	81%	2%	0%	6%	0%	0%	2%	9%	10	19%
206.02	1	1008	181	94%	0%	0%	1%	0%	0%	4%	1%	10	6%
206.02	3	3017	6	83%	0%	0%	0%	0%	0%	17%	0%	1	17%
206.02	3	3020	34	85%	0%	0%	0%	0%	0%	3%	12%	5	15%
206.02	3	3022	79	76%	0%	0%	1%	0%	0%	22%	1%	19	24%
206.02	3	3023	41	85%	2%	0%	0%	0%	0%	7%	5%	6	15%
206.02	3	3024	394	84%	1%	3%	0%	0%	0%	7%	6%	65	16%
206.02	3	3025	61	80%	5%	2%	0%	0%	0%	8%	5%	12	20%
206.02	3	3027	63	67%	8%	0%	0%	0%	0%	24%	2%	21	33%
206.02	3	3028	37	41%	0%	14%	0%	0%	3%	8%	35%	22	59%
206.02	3	3031	26	96%	4%	0%	0%	0%	0%	0%	0%	1	4%
206.02	3	3032	45	71%	16%	4%	0%	0%	0%	9%	0%	13	29%
206.02	3	3033	98	89%	3%	0%	0%	0%	0%	3%	5%	11	11%
206.02	3	3034	113	84%	1%	0%	0%	0%	0%	12%	3%	18	16%
206.02	3	3035	14	29%	14%	0%	0%	0%	0%	21%	36%	10	71%
206.02	3	3036	78	82%	0%	0%	0%	0%	0%	10%	8%	14	18%
206.02	3	3040	110	94%	1%	5%	0%	0%	0%	0%	1%	7	6%
206.02	3	3041	25	76%	4%	0%	0%	0%	4%	16%	0%	6	24%
206.02	3	3042	33	100%	0%	0%	0%	0%	0%	0%	0%	0	0%
206.02	3	3046	82	83%	0%	4%	0%	0%	0%	4%	10%	14	17%

Census Tract *	Block Group	Block	Total Population	Not Hispanic or Latino							Percent Hispanic or Latino	Total Minority Population	Minority Percentage
				Percent White Alone	Percent Black or African American	Percent American Indian and Alaska Native	Percent Asian	Percent Native Hawaiian and Other Pacific Islander	Percent Some Other Race	Percent Two or More Races			
206.02	4	4012	170	92%	1%	2%	0%	0%	0%	4%	1%	13	8%
206.02	4	4013	17	59%	12%	0%	0%	0%	0%	12%	18%	7	41%
206.02	4	4014	68	74%	9%	3%	0%	0%	0%	13%	1%	18	26%
206.02	4	4015	6	83%	0%	0%	0%	0%	0%	0%	17%	1	17%
206.02	5	5022	53	75%	0%	0%	0%	0%	0%	13%	11%	13	25%
206.02	5	5032	50	70%	0%	0%	0%	0%	4%	18%	8%	15	30%
206.02	5	5035	18	78%	0%	0%	0%	0%	0%	11%	11%	4	22%
206.02	5	5039	160	94%	0%	0%	0%	0%	0%	6%	0%	10	6%
206.02	5	5040	1	0%	0%	0%	0%	0%	0%	100%	0%	1	100%
206.02	5	5042	25	60%	8%	8%	0%	0%	0%	16%	8%	10	40%
206.02	5	5043	28	86%	0%	11%	0%	0%	0%	4%	0%	4	14%
206.02	5	5044	44	77%	7%	7%	0%	0%	0%	2%	7%	10	23%
206.02	5	5046	6	33%	0%	17%	17%	0%	0%	17%	17%	4	67%
206.02	5	5048	49	82%	2%	2%	0%	0%	0%	14%	0%	9	18%
206.02	5	6005	27	89%	0%	0%	0%	0%	0%	11%	0%	3	11%
13.07	1	1002	319	79%	4%	2%	0%	0%	1%	6%	7%	67	21%
13.07	1	1008	39	67%	0%	5%	0%	0%	0%	23%	5%	13	33%
13.07	1	1010	36	86%	3%	0%	3%	0%	0%	3%	6%	5	14%
13.07	1	1012	48	77%	4%	6%	4%	0%	0%	2%	6%	11	23%
13.07	2	2061	19	26%	21%	11%	0%	0%	0%	5%	37%	14	74%
13.08	1	1014	10	0%	0%	0%	20%	0%	0%	70%	10%	10	100%
13.08	1	1041	42	76%	0%	0%	0%	0%	0%	12%	12%	10	24%
13.08	1	1045	65	83%	0%	8%	0%	0%	0%	6%	3%	11	17%

Census Tract *	Block Group	Block	Total Population	Not Hispanic or Latino							Percent Hispanic or Latino	Total Minority Population	Minority Percentage
				Percent White Alone	Percent Black or African American	Percent American Indian and Alaska Native	Percent Asian	Percent Native Hawaiian and Other Pacific Islander	Percent Some Other Race	Percent Two or More Races			
13.08	1	1048	40	83%	0%	0%	0%	0%	0%	15%	3%	7	18%
13.08	1	1049	78	83%	3%	1%	0%	0%	0%	12%	1%	13	17%
13.08	1	1054	22	77%	5%	0%	5%	0%	0%	0%	14%	5	23%
13.08	1	1055	60	63%	0%	12%	5%	0%	0%	8%	12%	22	37%
13.08	1	1056	30	63%	0%	0%	0%	0%	0%	0%	37%	11	37%
13.08	1	1061	3	0%	0%	0%	0%	0%	0%	33%	67%	3	100%
102.01	1	1035	3	0%	0%	0%	0%	0%	0%	100%	0%	3	100%
Study Area Total			**5101**									**972**	**19%**

Source: P2, Hispanic or Latino, and not Hispanic or Latino by Race, Census 2020

*Note: * Census tracts 13.08 and 13.07 are 2020 designated Census geographies and are a single Census tract (Census tract 13.02) in 2019 designated Census geographies. Census tract 206.02 is a 2020 designated Census geography and is Census tract 2026 in 2019 designated Census geographies.*

4.2 Low Income Populations

Table 4-2 presents low-income data for the study area. As shown in **Attachment A-2B**, one census block group shows a median household income below the 2022 DHHS poverty level of $27,750. Census tract 204.01, block group 3 has a median household income of $25,556. Median household incomes range from $25,556 to $68,182.

Table 4-2: Low-Income

Census Tract	Block Group	Total Number of Households [1]	Median Income [2]	Percent Below Poverty [3]	2022 DHHS Poverty Threshold for a Family of Four
202.04	2	728	$43,864	11%	$27,750
204.01	1	454	$48,214	9%	
204.01	2	509	$49,566	32%	
204.01	3	596	$25,556	21%	
204.01	4	516	$68,182	10%	
205.01	1	425	$58,054	35%	
206	3	1221	$53,388	13%	
206	4	572	$35,988	22%	
206	5	504	$35,476	15%	
13.02	1	602	$51,974	25%	
13.02	3	2683	$49,649	13%	
101.01	1	704	$55,345	9%	
102.01	2	920	$32,635	8%	

Sources:

[1] B19001 Household Income in the Past 12 Months, 2019 ACS 5-Year Estimates

[2] B1913 Median Household Income in the Past 12 Months, 2019 ACS 5- Year Estimates

[3] B17017 Poverty Status in the Past 12 Months by Household Type by Age of Householder, 2019 ACS 5-Year Estimates

4.3 Limited English Proficiency

Limited English Proficiency (LEP) persons are defined as individuals who speak English less than "very well." Executive Order (EO) 13166 on LEP calls for all agencies to ensure that their federal conducted programs and activities are meaningfully accessible to LEP individuals. Data from the Census Bureau ACS 2019 Five-Year Estimates for the 13 census block groups within the community study area were used to determine the LEP populations for the proposed project.

Table 4-3 includes Limited English Proficiency (LEP) data for the study area. Of the 13 census block groups in the study area, two have a presence of persons who speak English less than "very well". Both Census tract 204.01, block group 2 and Census tract 205.01, block group 1 shows 16 percent of the Spanish speaking population that speak English less than "very well". **Attachment A-2B** shows those Census block groups with LEP populations greater than 5%.

Table 4-3: Limited English Proficiency

Census Tract	Block Group	Total Population 5 Yrs and Over	Languages Spoken by LEP Population				Total LEP	Percent LEP
			Percent Spanish	Percent Indo-European	Percent Asian and Pacific Islander	Percent Other		
202.04	2	1,824	0%	0%	2%	0%	45	2%
204.01	1	1,124	0%	0%	0%	0%	6	1%
204.01	2	1,319	16%	0%	0%	0%	211	16%
204.01	3	1,333	0%	0%	0%	0%	0	0%
204.01	4	1,294	0%	0%	0%	0%	0	0%
205.01	1	1,352	16%	0%	0%	0%	213	16%
206	3	2,893	0%	2%	0%	0%	50	2%
206	4	1,437	1%	0%	0%	0%	11	1%
206	5	884	2%	0%	0%	0%	16	2%
13.02	1	1,385	0%	0%	0%	0%	0	0%
13.02	3	5,885	0%	0%	2%	0%	93	2%
101.01	1	1,680	0%	1%	0%	0%	14	1%
102.01	2	2,170	0%	0%	0%	0%	3	0%

Source: B16004, Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over, 2019 ACS 5-Year Estimates

Public involvement activities included the opportunity to request for language accommodations in advance of the public meeting and translators made available at the public meeting upon request.

4.4 Disability, Gender and Age Demographics

Table 4-4 includes disability, gender, and age demographics for the study area. Approximately 18 percent of the study area population includes individuals reporting a disability. The study area is approximately 47 percent male and 53 percent female; and the largest age demographic for the study area is for individuals aged 35 to 64 years old, at 39 percent.

Table 4-4: Disability, Gender and Age

Disability, Gender and Age Demographics [1]										
Census Tract	Total Civilian Non-Institutionalized Population	Percent with a Disability	Percent Male	Percent Female	Percent Under 5 Years	Percent 5 to 17 Years	Percent 18 to 34 Years	Percent 35 to 64 Years	Percent 65 to 74 Years	Percent 75 and Over
202.04	5,114	23%	42%	58%	4%	14%	19%	39%	11%	13%
204.01	5,453	18%	49%	51%	7%	17%	19%	40%	11%	6%
205.01	4,558	11%	45%	55%	11%	26%	23%	35%	3%	3%
206	9,026	15%	50%	50%	6%	18%	20%	40%	11%	5%
13.02	10,042	16%	44%	56%	6%	17%	29%	37%	7%	5%

Disability, Gender and Age Demographics [1]										
Census Tract	Total Civilian Non-Institutionalized Population	Percent with a Disability	Percent Male	Percent Female	Percent Under 5 Years	Percent 5 to 17 Years	Percent 18 to 34 Years	Percent 35 to 64 Years	Percent 65 to 74 Years	Percent 75 and Over
101.01	5,944	22%	50%	50%	5%	14%	21%	40%	11%	8%
102.01	4,715	21%	50%	50%	3%	19%	15%	41%	11%	10%
Total	**44,852**	**18%**	**47%**	**53%**	**6%**	**18%**	**21%**	**39%**	**9%**	**7%**

Source: S1810, Disability Characteristics, 2019 ACS 5-Year Estimates

4.5 Employment Status

Table 4-5 presents employment status data for the study area. Approximately 60 percent of the study area is in the labor force, while 40 percent is not in the labor force. Of those individuals in the labor force, approximately 96 percent is civilian labor force employed and 4 percent is civilian labor force unemployed.

Table 4-5: Employment Status

Census Tract	Block Group	Total	Percent Not in Labor Force	Percent In Labor Force	In Labor Force		
					Percent Civilian Labor Force Employed	Percent Civilian Labor Force Unemployed	Percent Armed Forces
202.04	2	1,588	62%	38%	94%	6%	0%
204.01	1	937	39%	61%	99%	1%	0%
204.01	2	1,144	42%	58%	96%	4%	0%
204.01	3	1,006	48%	52%	96%	4%	0%
204.01	4	1,105	34%	66%	95%	5%	0%
205.01	1	960	21%	79%	93%	7%	0%
206	3	2,423	37%	63%	100%	0%	0%
206	4	1,230	49%	51%	100%	0%	0%
206	5	827	37%	63%	100%	0%	0%
13.02	1	1,095	42%	58%	90%	10%	0%
13.02	3	5,025	32%	68%	94%	6%	0%
101.01	1	1,478	46%	54%	100%	0%	0%
102.01	2	1,676	45%	55%	94%	4%	2%
Total		**20,494**	**40%**	**60%**	**96%**	**4%**	**0%**

Source: B23035 Employment Status for the Population 16 and Over, 2019 ACS 5-Year Estimates

5.0 PUBLIC INVOLVEMENT

Three meetings have taken place regarding the proposed project including two stakeholder work group meetings and one public meeting.

The first stakeholder meeting was held December 5, 2017 at the Janet Huckabee Nature Center in Fort Smith, Arkansas from 1:00 pm to 3:00 pm. The meeting included a presentation on the history of the study, project timeline, work groups, preliminary design, traffic and safety. The studies for the proposed project were also discussed which include the draft re-evaluation, the toll feasibility study, and the alternative delivery component.

The second stakeholder meeting was held on March 29, 2018 at the Janet Huckabee Nature Center from 2:00 pm to 3:30 pm. The meeting included a presentation of updates made on preliminary engineering plans, the draft re-evaluation and about actions taken to advance the analysis and documentation. Tolling, traffic, revenue modeling continuations were mentioned and an update on the local access evaluation and parameters was provided.

An open house-style public meeting was held at the Sacred Heart of Mary Church, in Barling, Arkansas on April 26, 2018 from 4:00 pm to 7:00 pm. Seven stations provided the public the opportunity to view information and answer questions. The stations were included a sign-in, project location and schedule, environmental, tolling, project schematics, ROW, and comment and involvement. Overall, there were 63 comments received within the comment period from April 26, 2018 to May 11, 2018. Of those, 60 were comment forms received at the meeting and 3 were emailed. A majority supported this section of Interstate 49; 55 out of the 60 comment forms were in favor of the proposed project. The comments received discussed possible design changes, road closures, residential impacts, and potential environmental constraints. Comments also included questions on future land developments, requests for additional entrance and exit ramps, and toll price suggestions (no longer a consideration for the proposed project). Comments and feedback were thoroughly analyzed and taken into consideration.

Future public involvement includes a combined virtual/open-house public meeting at the First Baptist Church Alma on March 17, 2022, from 4:00 pm to 7:00 pm to present the proposed project plans, and a public hearing in the Fall of 2022 to present the findings of the Re-evaluation.

6.0 RELOCATIONS

6.1 Residential Relocations

There would be 21 residential relocations as a result of the implementation of the proposed project and three farm structure relocations. All 21 of the residential relocations are single-family dwelling units, some in small neighborhood settings and many in rural settings. The three farm structure relocations are all located on the same farm within an EJ community (**Attachment A-3**, **Map ID#'s 22, 23 and 24**), but would not result in the relocation of a residence. The three relocated farm structures consist of barn/covered structures for farm equipment and hay. Details of the relocations are shown in **Table 6-1**. Maps showing the location of the relocations are located in **Attachment A-3**.

Table 6-1: Relocations

Map ID	Relocation Type	Located within an EJ Census Geography	Relocation Address [1]	Market Value of Relocation [2]	Attachment A-3 Sheet Number
1	Residential	No	623 New Town Road, Alma AR 72921	$158,300	Sheet 1
2	Residential	No	620 New Town Road, Alma AR 72921	$122,900	Sheet 1
3	Residential	No	600 Richland Road, Alma AR 72921	$124,600	Sheet 1
4	Residential	No	835 Muscadine Lane, Alma, AR 72921	$243,200	Sheet 1
5	Residential	No	918 Muscadine Lane, Alma, AR 72921	$117,500	Sheet 1
6	Residential	No	837 Clear Creek Road, Alma, AR 72921	N/A	Sheet 1
7	Residential	No	819 Clear Creek Road, Alma, AR 72921	$202,300	Sheet 1
8	Residential	No	745 Clear Creek Road, Alma, AR 72921	$171,700	Sheet 1
9	Residential	No	739 Clear Creek Road, Alma, AR 72921	N/A	Sheet 1
10	Residential	No	715 Clear Creek Road, Alma, AR 72921	$106,700	Sheet 1
11	Residential	No	728 Clear Creek Road, Alma, AR 72921	$226,400	Sheet 1
12	Residential	No	810 Clear Creek Road, Alma, AR 72921	$88,000	Sheet 1
13	Residential	No	826 Clear Creek Road, Alma, AR 72921	$239,800	Sheet 1
14	Residential	No	838 Clear Creek Road, Alma, AR 72921	$239,800	Sheet 1
15	Residential	No	1016 Clear Creek Road, Alma, AR 72921	$80,000	Sheet 1
16	Residential	No	1031 Clear Creek Road, Alma, AR 72921	$159,200	Sheet 1
17	Residential	No	1004 Clear Creek Road, Alma, AR 72921	109,300	Sheet 2
18	Residential	No	1129 Waterfront Road, Alma, AR 72921	$370,700	Sheet 2
19	Residential	No	1209 Waterfront Road, Alma, AR 72921	$347,500	Sheet 2
20	Residential	No	1208 Waterfront Road, Alma, AR 72921	$383,300	Sheet 2
21	Residential	No	1128 Waterfront Road, Alma, AR 72921	$206,800	Sheet 2
22	Farm Structure	Yes [3]	3610 Hwy 162, Alma, AR 72921	N/A	Sheet 2
23	Farm Structure	Yes [3]	3610 Hwy 162, Alma, AR 72921	N/A	Sheet 2
24	Farm Structure	Yes [3]	3610 Hwy 162, Alma, AR 72921	N/A	Sheet 2

Source: HNTB, 2022

Notes:

*[1] As shown in **Attachment A-3**, some residential relocations are located within the Kibler City Limits; however, all physical addresses of the residential relocations are Alma, Arkansas.*

[2] Market value determined by Zillow search on 2/18/22.

[3] As shown in Attachment A-3, this farm structures relocation is located within a high minority Census block.

The 21 potential residential relocations associated with the proposed project are single-family homes that range in value from $80,000 to $383,300 with an average value of $194,000. According to a Zillow search performed on February 18, 2022, there are currently 53 single-family homes for sale in the Alma-Van Buren-Kibler area, ranging in price from $46,000 to $1.2M, with

the majority of available properties falling between $150,000 to $250,000. Therefore, there is an adequate number of available replacement homes of comparable type, size, and cost. The farm relocations (**Map ID #'s 22, 23 and 24**) would consist of the relocation of three barn/covered farm equipment structures, all located on the same farm (Boyd Farm). No residential relocations would occur on Boyd Farm.

6.2 Commercial Relocations

No commercial relocations would occur as a result of the implementation of the proposed project.

7.0 ACCESS AND TRAVEL PATTERNS

Due to the rural nature of the study area, the vast majority of people use cars to access destinations in the community study area. Motorists currently utilize small residential streets or farm-to-market roads to access the larger collector-distributor facilities such as Kibler Highway and Highway 59 which then feed in to larger regional and interstate facilities such as Interstate 540, Interstate 40, and Highway 64. These larger facilities provide regional statewide access while the smaller facilities provide access to destinations within the study area. There are limited destinations within the community study area, with most motorists leaving the community study area along Interstate 540, Interstate 40, and Highway 64 to gain access to Alma, Van Buren, Barling, and Fort Smith.

The proposed project would improve access for residents in the community study area as they would have a high-speed highway that would connect them more expeditiously with the surrounding cities of Alma, Van Buren, Barling, Fort Smith, and beyond. As a new location project, Interstate 49 would provide access to previously inaccessible areas within the community study area. The proposed project provides improved interstate access and regional mobility, leading to reduced travel times and lower traffic volumes on the county roads and local residential streets.

Residential developments in the community study area are rural in nature with most residences located on acreage or farms, while the few neighborhoods that do exist are low-density and on large lots. Businesses are few and far between and are predominantly farm and ranch related. In general, most of the residences and businesses within the community study area would not be directly negatively impacted but would gain substantial access to the surrounding cities after Interstate 49 is constructed.

There are 27 community facilities within the community study area consisting primarily of churches, parks, and police/fire stations. Only four of the 27 community facilities are actually adjacent to the proposed project. Motorists would have better access to these four facilities (Fort Chaffee Maneuver Training Center, Springhill Park, Joe Smith Cemetery, and Pitcock Cemetery) after Interstate 49 is constructed. Emergency response times would be reduced in the community study area, as police, fire, and ambulatory services would have better access to the surrounding community.

The vast majority of the land adjacent to the proposed project is farmland or ranch land, with much of that undeveloped. Therefore, substantial amounts of adjacent acreage are available for development. New access afforded to the surrounding farms and ranches as a result of the construction of Interstate 49 would result in shorter travel times for the movement of farm equipment, livestock and trailers. However, some of these farms and ranches would likely be converted to more suburban land uses as access improves for development in the area. Negative impacts to access and/or travel patterns are not anticipated as the proposed project would only increase access and provide additional travel options.

8.0 COMMUNITY COHESION

Community cohesion is a term that refers to an aggregate quality of a residential area. Cohesion is a social attribute that indicates a sense of community, common responsibility, and social interaction within a limited geographic area. It is the degree to which residents have a sense of belonging to their neighborhood or community or a strong attachment to neighbors, groups, and institutions as a continual association over time.

The proposed project would bisect two neighborhoods in the community study area. These include the Waterfront Park neighborhood and the residences along Clear Creek Road. Online aerial imagery was reviewed at the available years of 1994, 2001, 2004, 2006, and 2009. The project corridor was evaluated to determine which communities existed during these specific years. The Waterfront Park neighborhood was established between 2006 to 2009. Although some residences along Clear Creek Road were present in 1994, additional homes were subsequently developed and infilled the vacant land among the existing residences. The proposed project would impact community cohesion to the Waterfront Park neighborhood and the Clear Creek Road neighborhood.

The proposed project would introduce a new visual barrier in the two neighborhoods discussed above. However, access between the bisected communities would remain via added overpasses at Clear Creek Road and Waterfront Road. Access would also be enhanced by the proposed project due to the introduction of a new highway that would reduce travel times to surrounding areas. Travel patterns would also be positively impacted as few motorists would rely on rural and residential roads to reach the surrounding area as they would likely utilize future Interstate 49 instead. Neither of the impacted neighborhoods would experience separation or isolation as a result of the proposed project.

9.0 ENVIRONMENTAL JUSTICE

EO 12898 entitled “Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations” requires each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” As presented in Section 4.0, data from the Census Bureau *ACS 2019 Five-Year Estimates* and the *2020 Census* were used to determine the

EJ populations for the proposed project. The minority populations were determined at the Census block level and the low-income populations were determined at the census block group level, as shown on **Attachments A-2A** and **A-2B**, respectively.

As shown in **Attachment A-3** and included in **Table 6-1**, the proposed project would result in 21 residential relocations. Three additional relocations (**Map ID #'s 22, 23 and 24**) would consist of the relocation of barn/covered farm equipment structures. These three relocations are all located on Boyd Farm in an EJ census geography; however, no residential relocations would occur. Improved access is anticipated from the proposed project as it would provide new highway access to the community study area that was not previously available. Access improvements are proposed along the project limits, in both EJ and non-EJ census geographies.

The proposed project would impact community cohesion along Waterfront Road, just south of Frog Bayou and at Clear Creek Road. However, no community cohesion impacts would occur in EJ census geographies.

No businesses or community facilities would be relocated as a result of the implementation of the proposed project. Accordingly, community services would not be impacted and EJ populations within the community study area would not lose access to those services.

According to the noise impacts analysis conducted for the proposed project, noise impacts would occur within the community study area. However, noise impacts would not occur within EJ census geographies. Additionally, according to the air quality analysis conducted for the proposed project, air quality impacts from project construction and implementation are not anticipated. Therefore, air quality impacts specific to study area EJ populations are also not anticipated.

The communities along the proposed Interstate 49 corridor have not experienced substantial impacts from past transportation projects such as new roadways. The proposed project is a new location highway and all existing transportation facilities within the community study area are rural farm-to-market or local streets. Substantial relocations or barriers separating parts of the community from previous transportation projects have not occurred, so recurring community impacts would not be perpetuated by the proposed project.

The community study area consists of rural and low-density residential on acreage or large lots. No large-scale developments, major infrastructure projects, or industrial facilities have occurred within or adjacent to the community study area.

No minimization or mitigation efforts are proposed to specifically lessen impacts to EJ populations. While the proposed project would result in three relocations within an EJ census geography (barn/covered farm equipment structures only), the remaining 21 relocations are non-EJ, so no disproportionate adverse impacts to EJ populations are anticipated. Based on the information described above, the proposed project would not result in disproportionately high and adverse impacts to EJ populations. The proposed project would result in mobility and access improvements that would equally benefit both EJ and non-EJ populations.

10.0 CONCLUSIONS

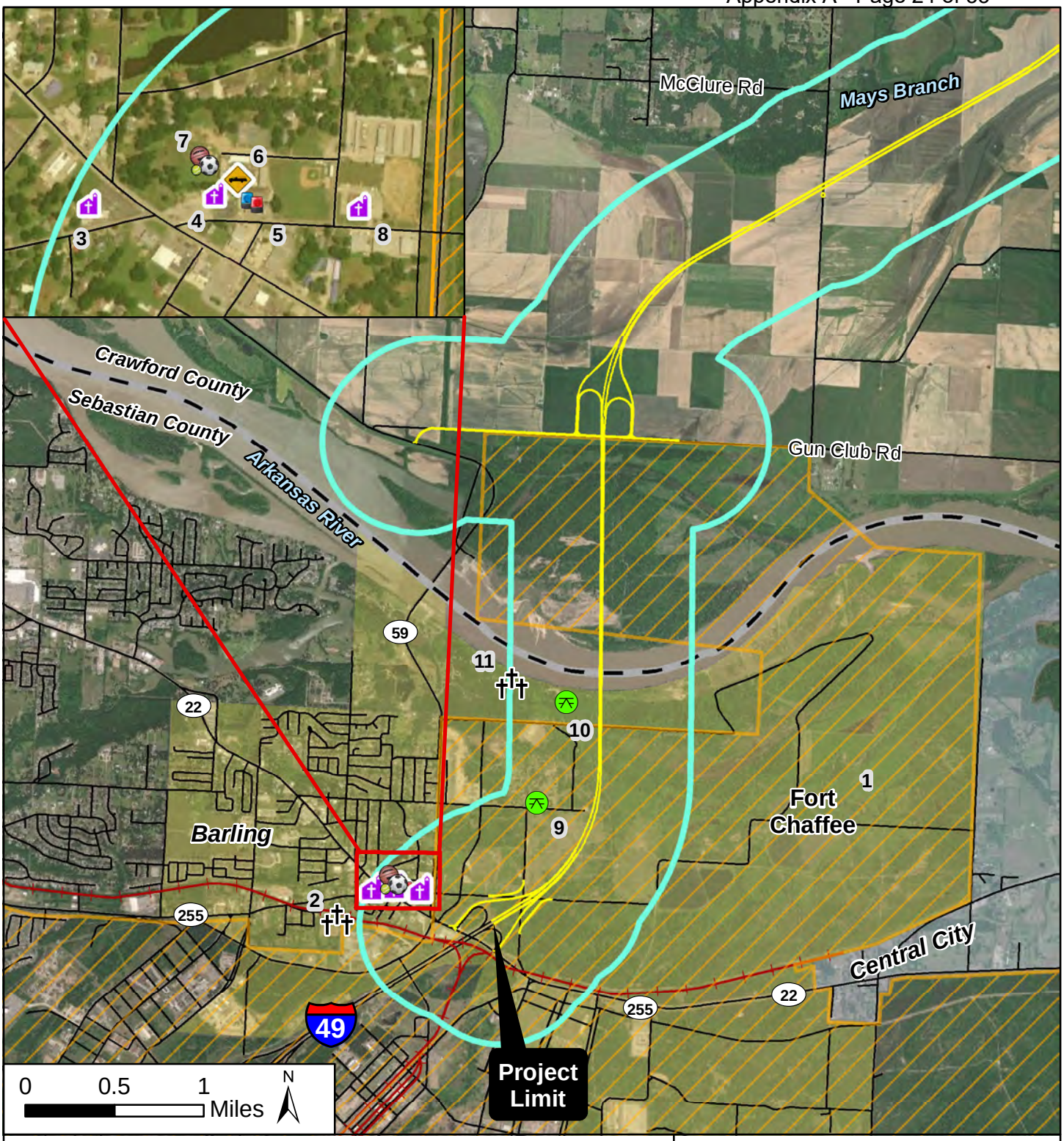
The proposed project would potentially result in both positive and negative impacts within the community study area. The proposed project would result in the relocation of 21 residences and three farm structures. The farm structure relocations (Map ID #'s 22, 23 and 24) are within an EJ census geography (high minority) but would not result in a residential relocation. The remaining 21 relocations are non-EJ, so no disproportionately high adverse impacts to EJ communities are anticipated. For those relocated as a result of the proposed project, the analysis identified numerous existing homes for sale within a reasonable distance of the relocated residents and at similar price points and home sizes.

The proposed project would bisect two neighborhoods in the community study area. These include the Waterfront Park neighborhood and the residences along Clear Creek Road. While implementation of the proposed project would introduce a visual barrier as the facility bisects these neighborhoods, access between the bisected communities will remain intact through overpasses. Moreover, access within the community study area and to the various cities surrounding the study area will be improved as a result of the proposed project. Existing travel patterns will shift from predominantly small rural roads to the new highway facility, which will reduce travel times within and outside of the study area.

LEP populations exist within two of the 13 census block groups contained within the study area. Public involvement activities included the opportunity to request for language accommodations in advance of the public meeting and translators made available at the public meeting upon request. A public meeting is planned for March 17, 2022, and a public hearing for the Fall of 2022. Future public outreach opportunities would continue to make these accommodations available.

There would be no negative impacts to EJ populations within the community study area Moreover, all populations within the community study area, EJ and otherwise, would benefit from improved access and shorter travel times within and outside of the study area. Based on the above discussion and analysis, the proposed project will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23A. No further EJ analysis is required.

Attachment A: Exhibits



Legend

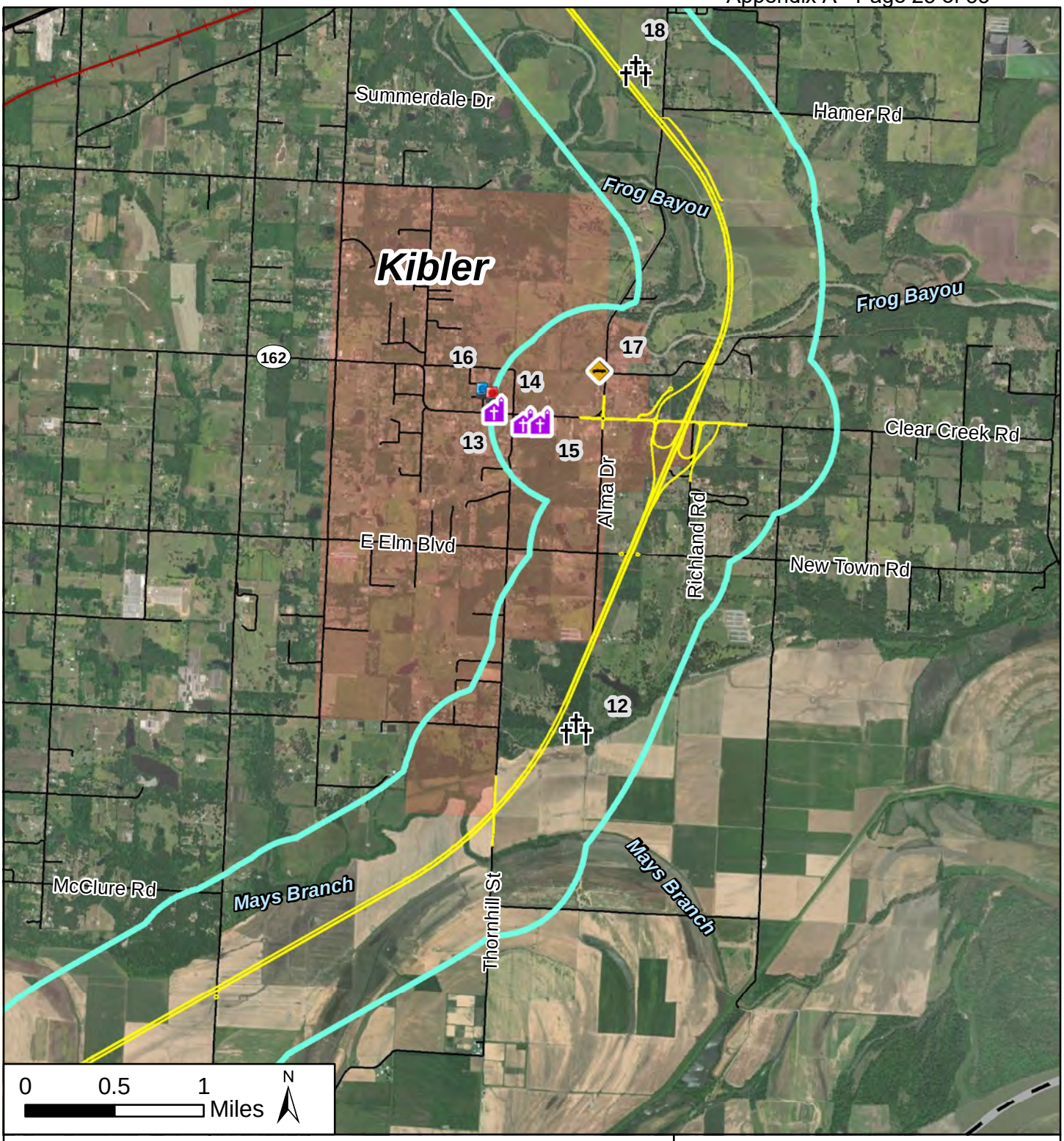
- Proposed Project
- Community Study Area
- Federally Owned Land
- County Boundary
- Railroad
- Road
- Food Bank
- Cemetery
- Park
- Sports Facility
- Place of Worship
- Police Department
- Fire Department
- School

Sources: ESRI, Arkansas GIS Office (2022)

Attachment A-1
COMMUNITY STUDY AREA MAP
(SHEET 1 OF 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

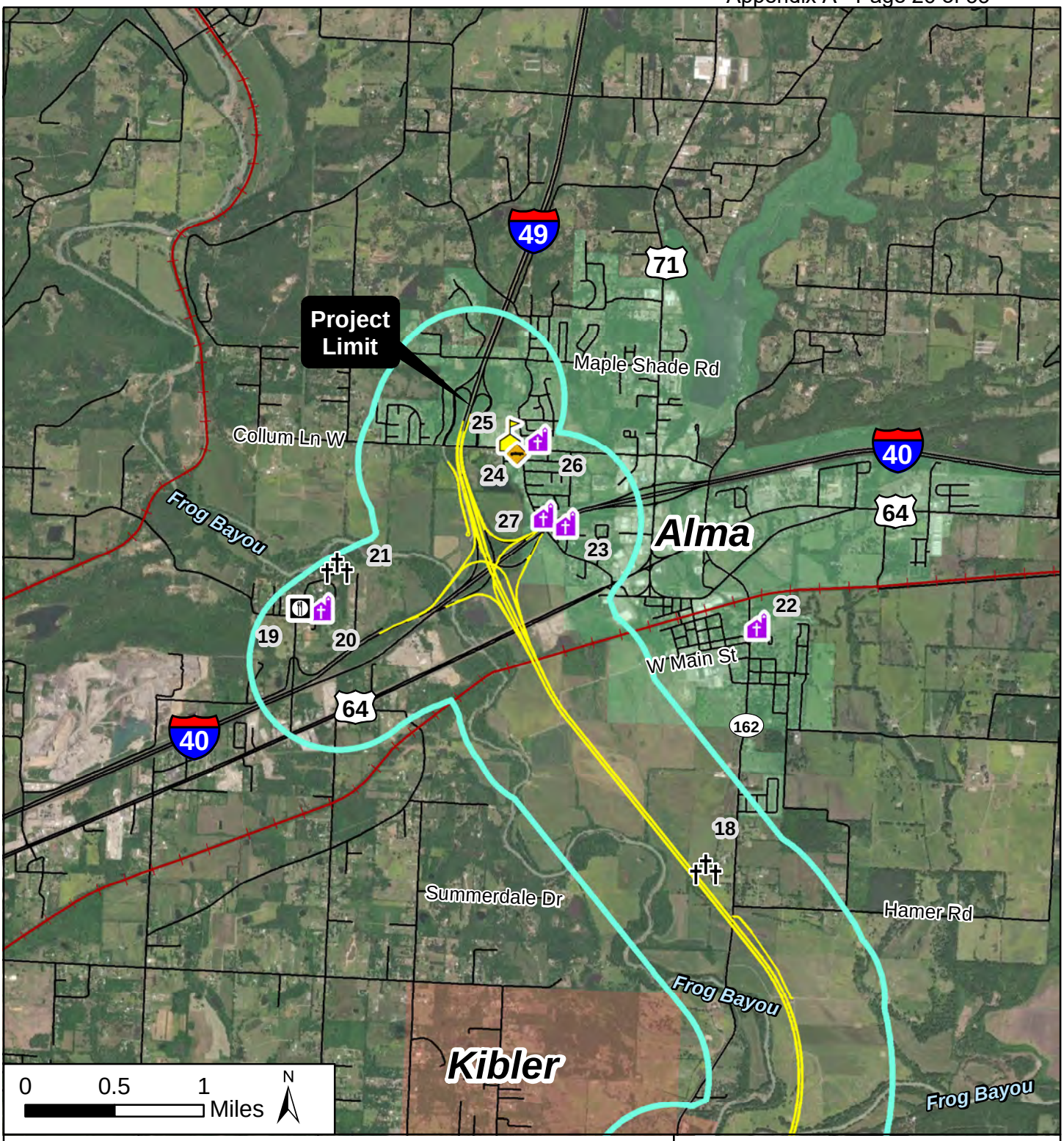
- Proposed Project
- Community Study Area
- Federally Owned Land
- County Boundary
- Railroad
- Road
- Food Bank
- Cemetery
- Park
- Sports Facility
- Place of Worship
- Police Department
- Fire Department
- School

Sources: ESRI, Arkansas GIS Office (2022)

Attachment A-1
COMMUNITY STUDY AREA MAP
(SHEET 2 OF 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

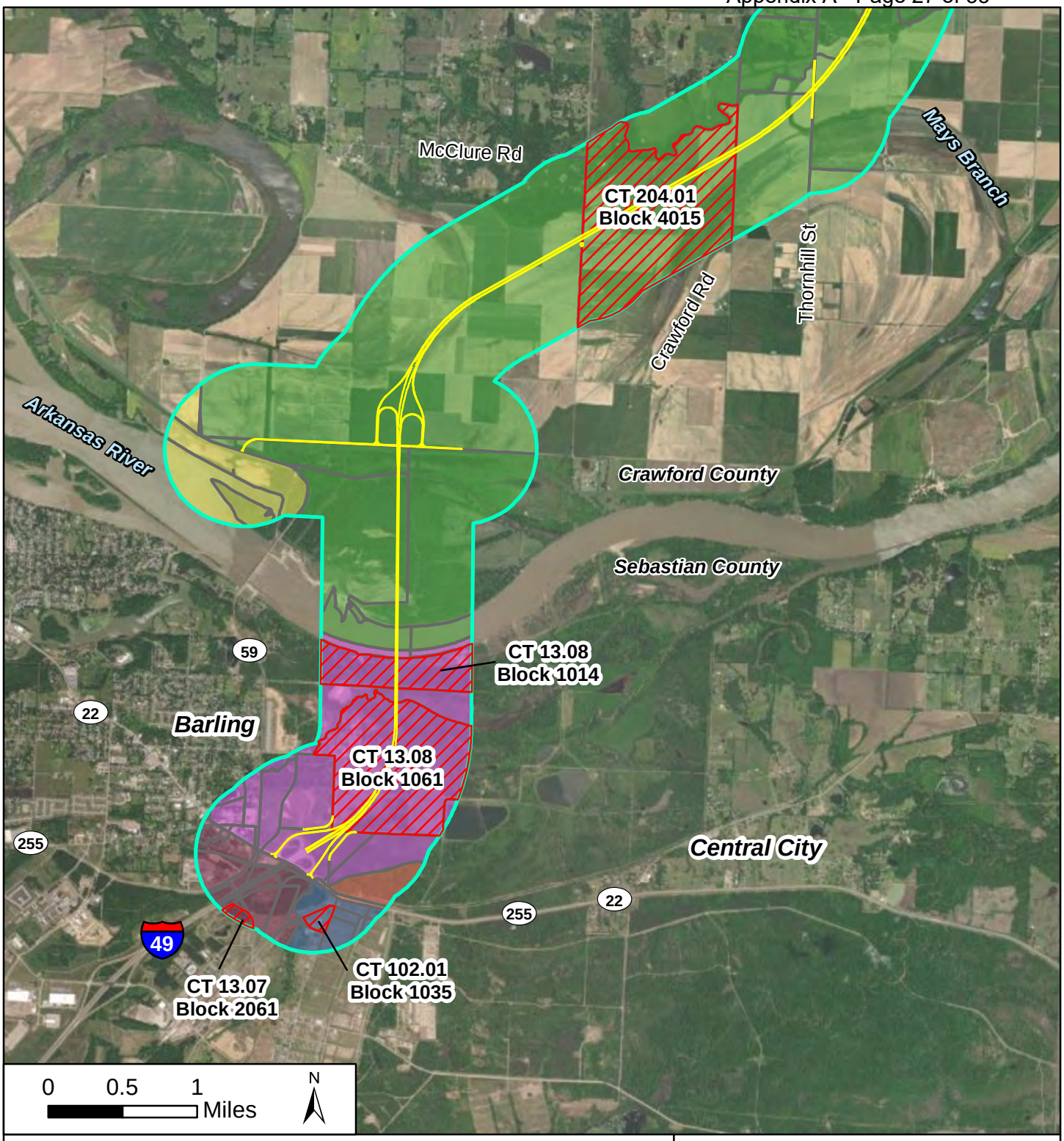
- Proposed Project
- Community Study Area
- Federally Owned Land
- County Boundary
- Railroad
- Road
- Food Bank
- Cemetery
- Park
- Sports Facility
- Place of Worship
- Police Department
- Fire Department
- School

Sources: ESRI, Arkansas GIS Office (2022)

Attachment A-1
COMMUNITY STUDY AREA MAP
(SHEET 3 OF 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

- Proposed Project
- Community Study Area
- Minority Pop > 50%
- Census Block
- CT 13.07
- CT 13.08
- CT 101.01
- CT 102.01
- CT 202.04
- CT 204.01
- CT 205.01
- CT 206.02

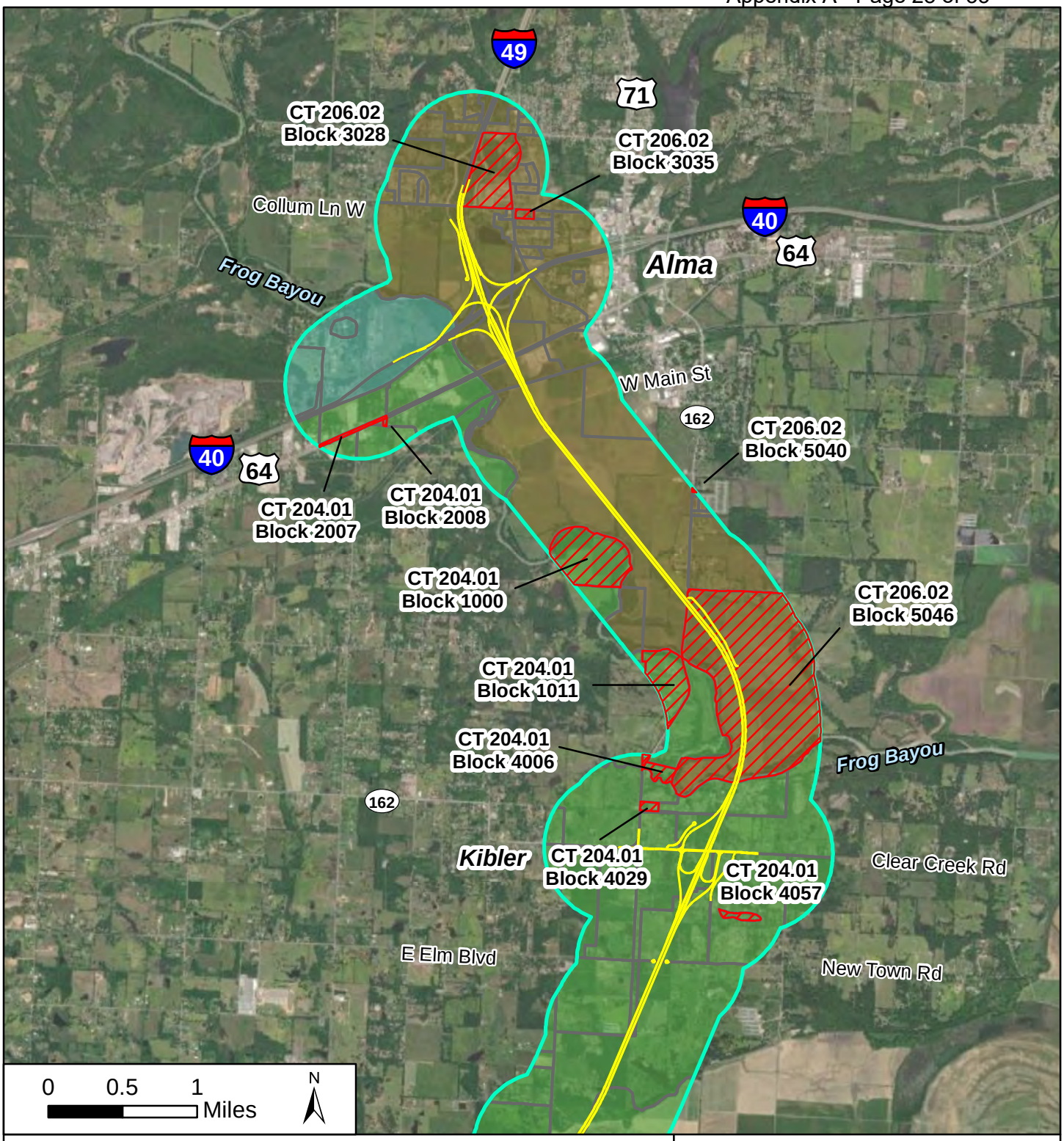
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Sources: ESRI, Arkansas GIS Office (2022), USCB (2020)

Attachment A-2A
MINORITY POPULATIONS
CENSUS GEOGRAPHY MAP
(SHEET 1 OF 2)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

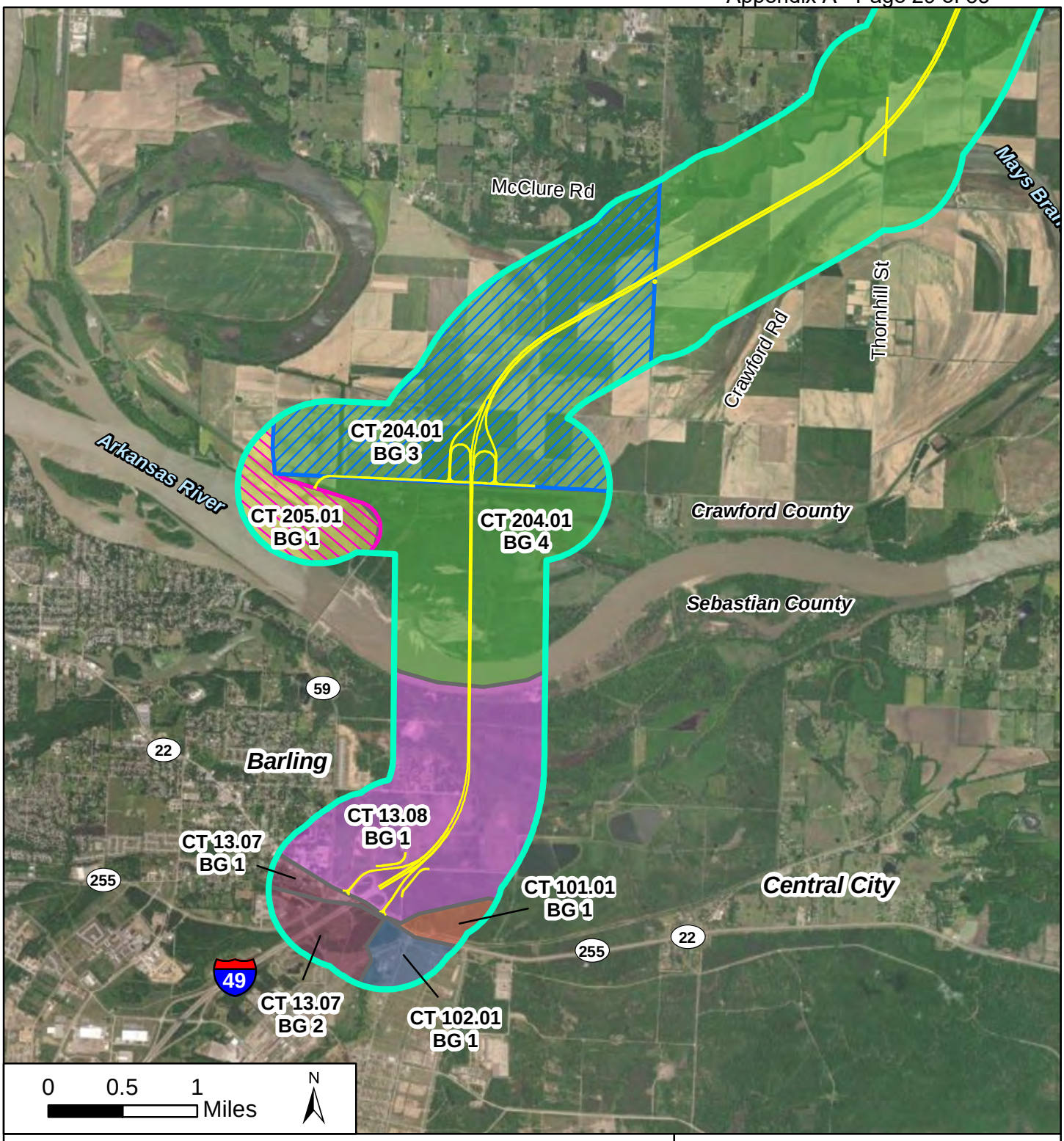
- Proposed Project
- Community Study Area
- Minority Pop > 50%
- Census Block
- CT 13.07
- CT 13.08
- CT 101.01
- CT 102.01
- CT 202.04
- CT 204.01
- CT 205.01
- CT 206.02

Sources: ESRI, Arkansas GIS Office (2022), USCB (2020)

Attachment A-2A
MINORITY POPULATIONS
CENSUS GEOGRAPHY MAP
(SHEET 2 OF 2)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

- Proposed Project
- Community Study Area
- Low Income Population
- LEP > 5%
- Census Block Group
- CT 13.07
- CT 13.08
- CT 101.01
- CT 102.01
- CT 202.04
- CT 204.01
- CT 205.01
- CT 206.02

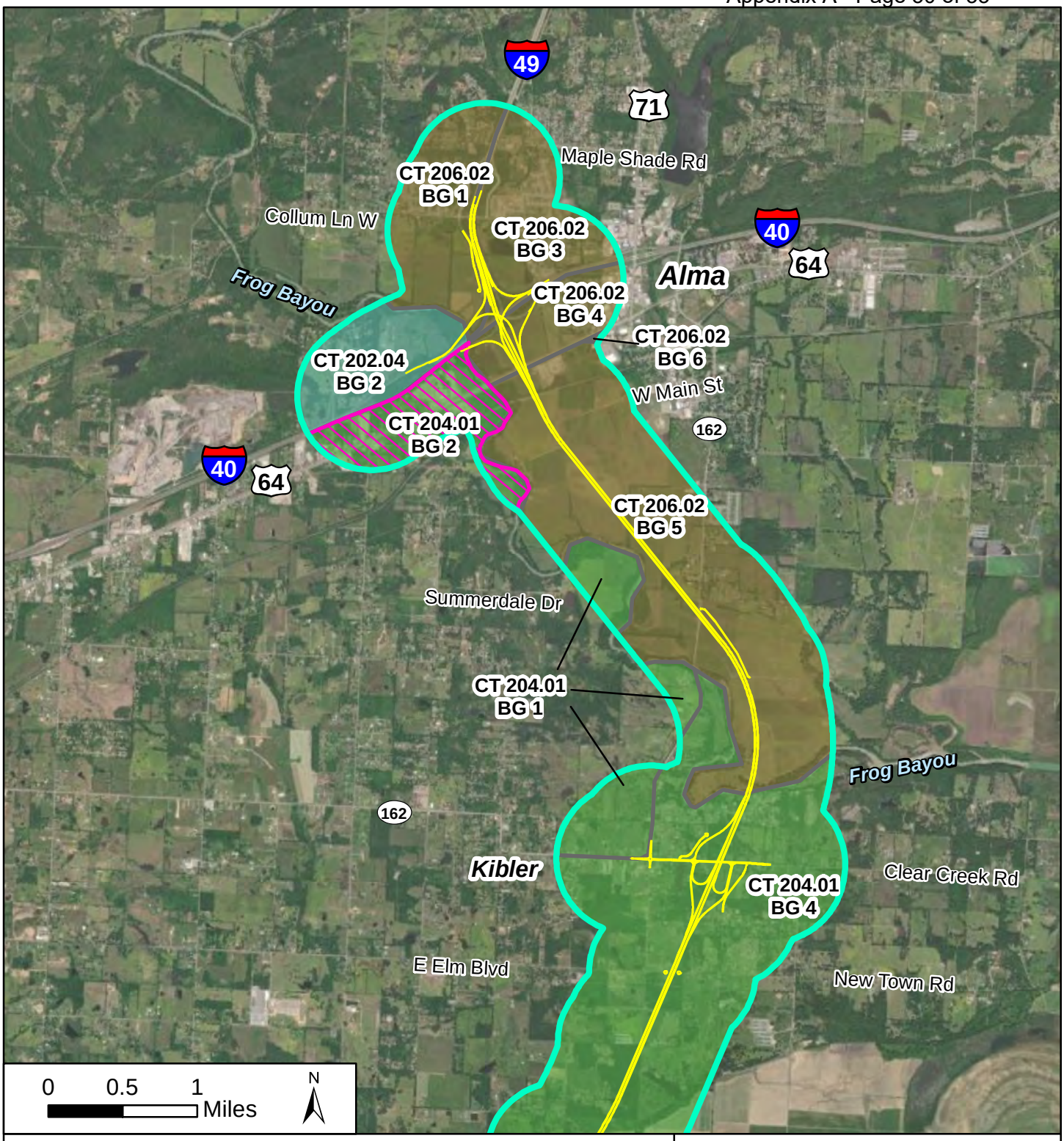
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Sources: ESRI, Arkansas GIS Office (2022), USCB (2020)

Attachment A-2B
LOW INCOME AND LEP
CENSUS GEOGRAPHY MAP
(SHEET 1 OF 2)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford and Sebastian Counties, AR



Legend

- Proposed Project
- Community Study Area
- Low Income Population
- LEP > 5%
- Census Block Group
- CT 13.07
- CT 13.08
- CT 101.01
- CT 102.01
- CT 202.04
- CT 204.01
- CT 205.01
- CT 206.02

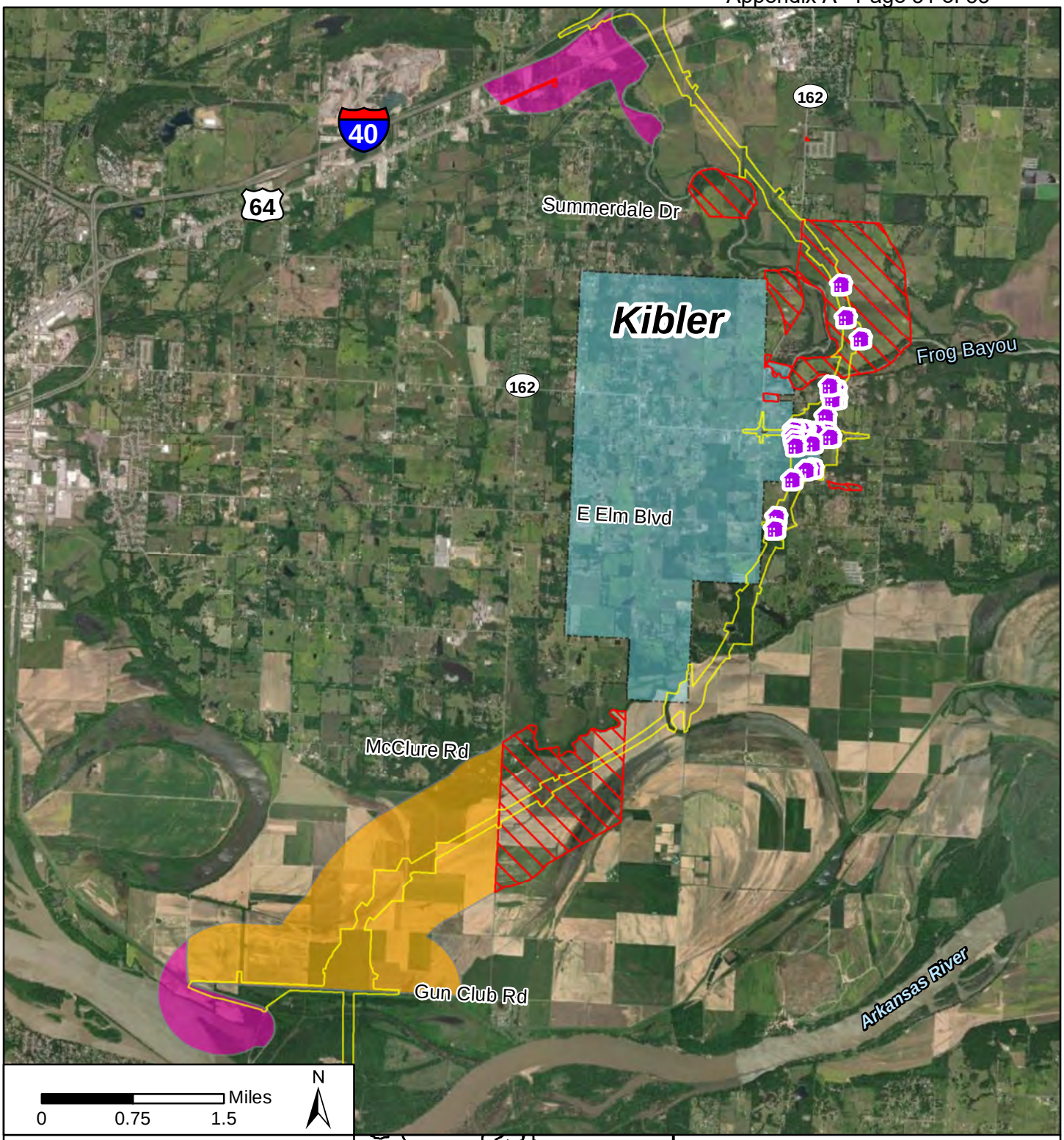
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Sources: ESRI, Arkansas GIS Office (2022), USCB (2020)

Attachment A-2B
LOW INCOME AND LEP
CENSUS GEOGRAPHY MAP
(SHEET 2 OF 2)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

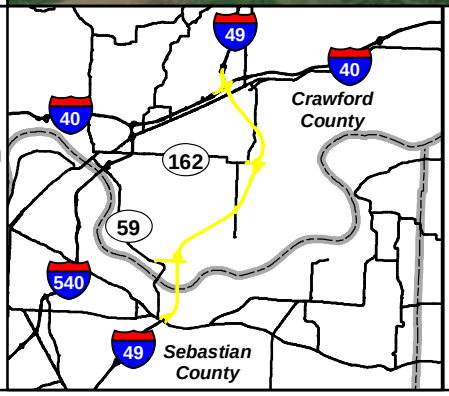
Job 040748
Crawford and Sebastian Counties, AR



Legend

- Residential Relocation
- Right of Way
- Minority Pop > 50%
- Low Income Population
- LEP > 5%
- Kibler City Limits

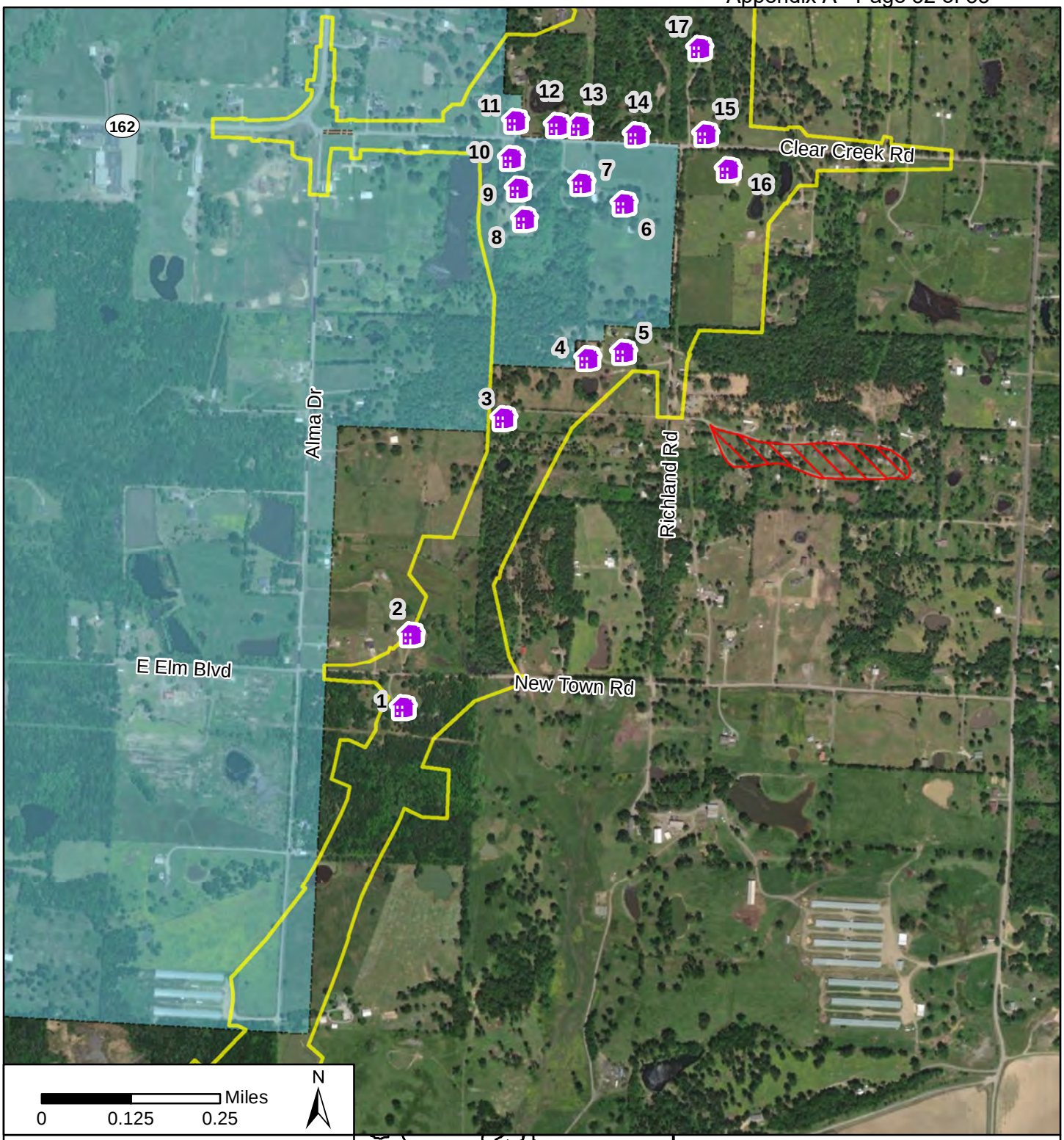
Sources: ESRI, Arkansas GIS Office, Crawford County (Parcels)



Attachment A-3
POTENTIAL RELOCATIONS MAP OVERVIEW
(SHEET 1 of 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

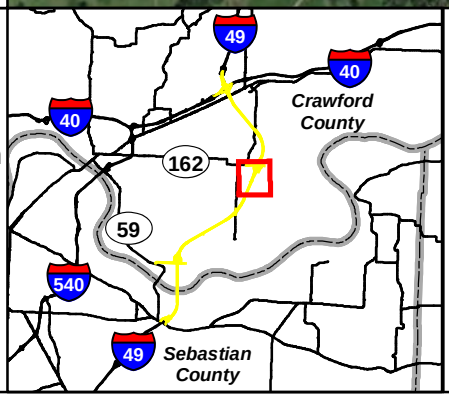
Job 040748
Crawford County, AR



Legend

- Residential Relocation
- Right of Way
- Minority Pop > 50%
- Low Income Population
- LEP > 5%
- Kibler City Limits

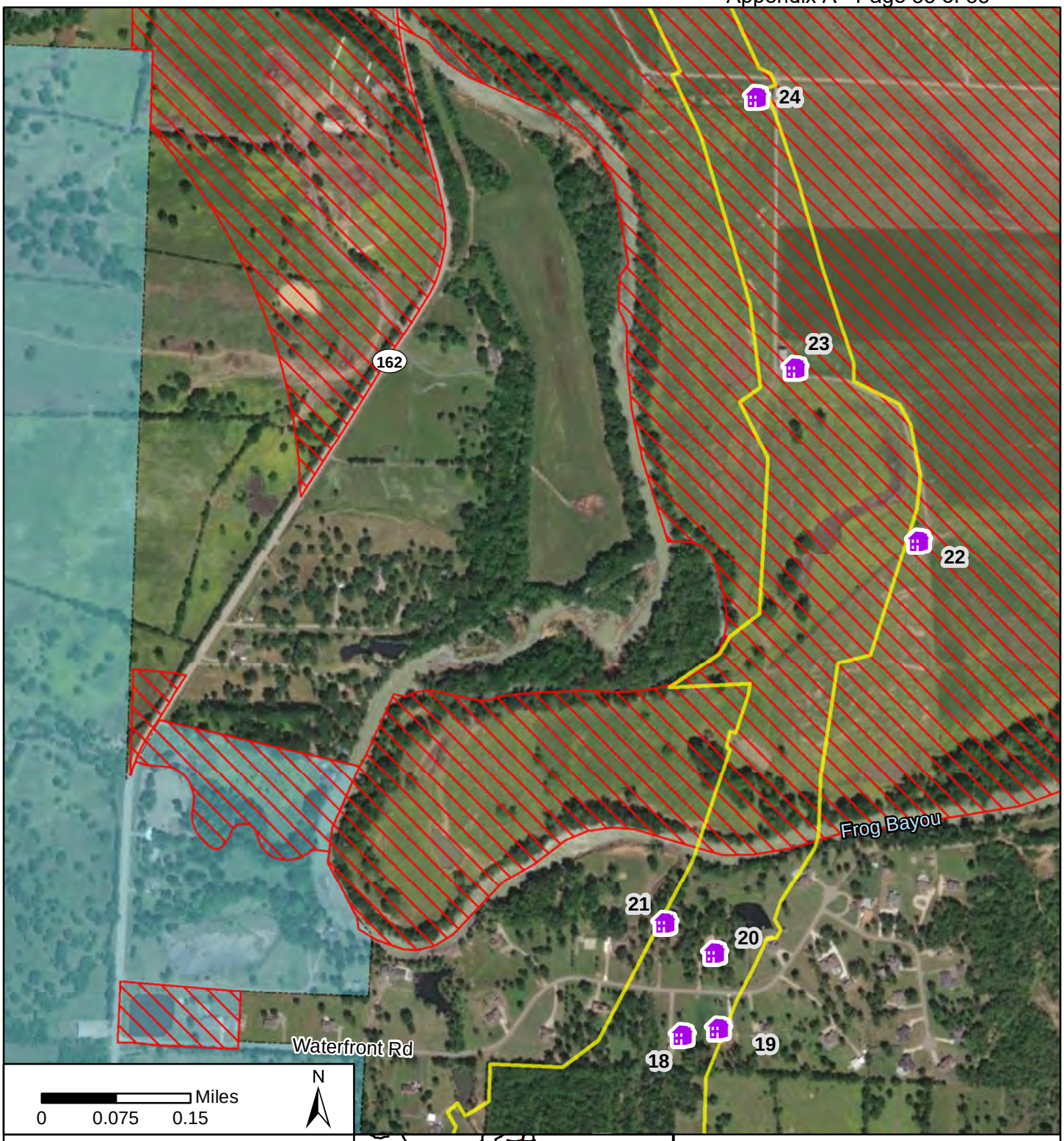
Sources: ESRI, Arkansas GIS Office, Crawford County (Parcels)



Attachment A-3
POTENTIAL RELOCATIONS MAP
(SHEET 2 of 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

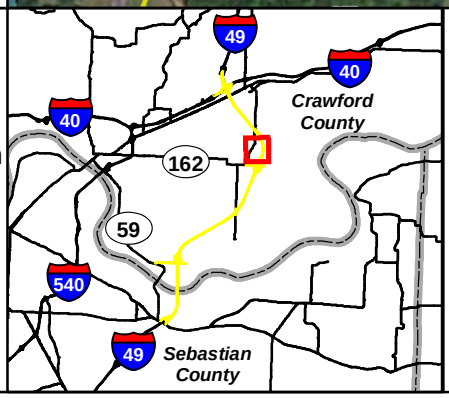
Job 040748
Crawford County, AR



Legend

- Residential Relocation
- Right of Way
- Minority Pop > 50%
- Low Income Population
- LEP > 5%
- Kibler City Limits

Sources: ESRI, Arkansas GIS Office, Crawford County (Parcels)



Attachment A-3
POTENTIAL RELOCATIONS MAP
(SHEET 3 of 3)

I-49 FEIS Re-evaluation
From Hwy. 22 to I-40
Community Impacts Technical Report

Job 040748
Crawford County, AR

APPENDIX B

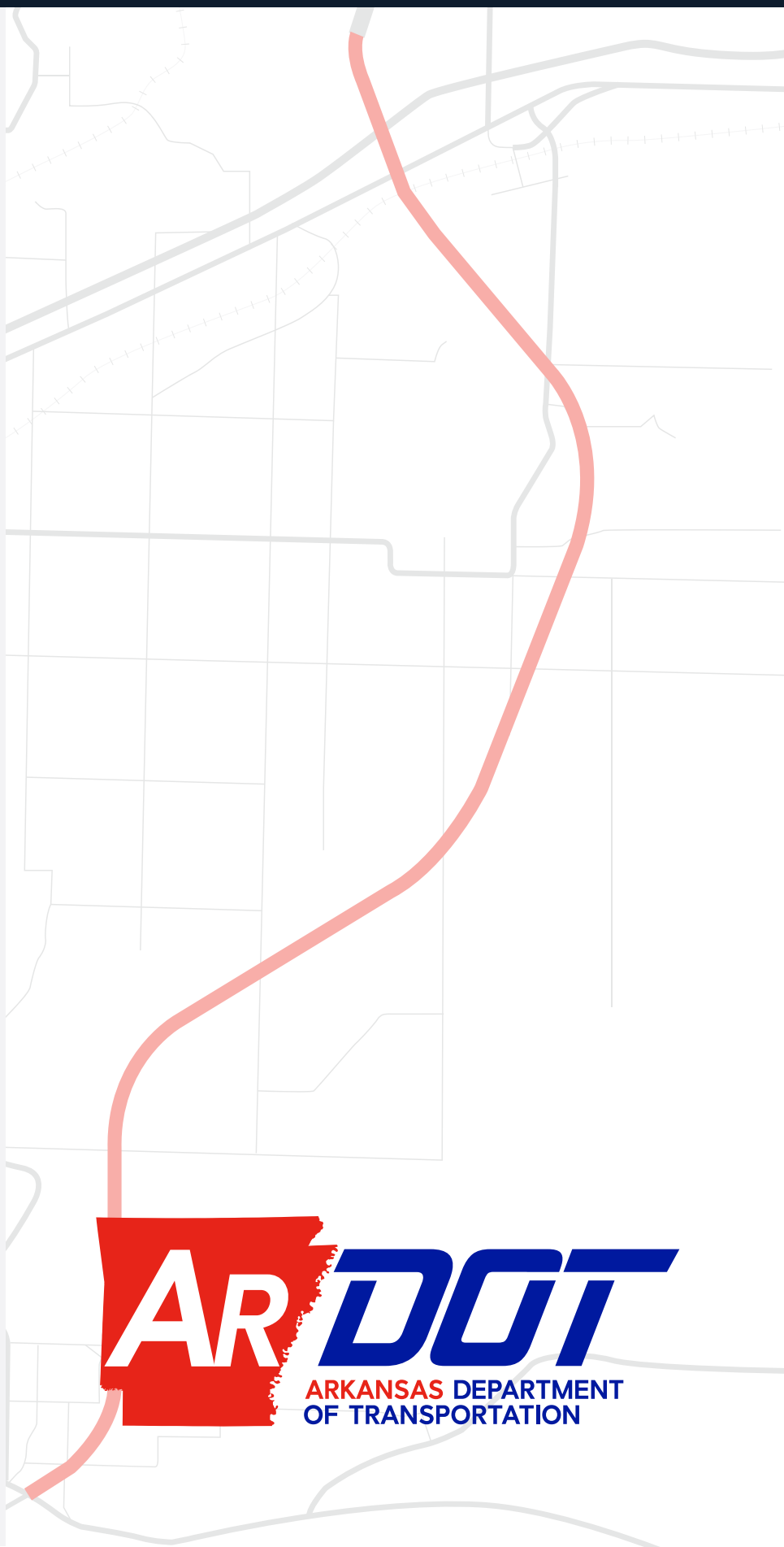
Historic Resources Survey Report

I-49 Historic Resources Survey Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

December 2021
Job 001747



ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 374 Rudy Road (1a), facing north

Property 1 is a residential neighborhood constructed between 1970-1972 and is bounded by Young Street on the south and east, Church Street to the North, and Rudy Road to the west. The neighborhood consists of approximately 21 residences. The majority of the homes are single-story, linear Ranch houses featuring integrated carports, picture windows, and brick exteriors. Common alterations to these homes include carport enclosures, non-historic replacement vinyl windows, non-historic replacement doors, replacement of brick siding

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1026 Young Street (1b), facing north

with non-historic vinyl siding, and non-historic porch support replacements. There is one non-historic home located within the neighborhood at 902 Church Street and one ranch-type duplex located at 1024 Church Street.

As many of the historic houses within the neighborhood have been significantly altered and there is non-historic infill, Property 1 is not a good example of late mid-20th century neighborhood and is not considered eligible under Criterion A for planning and development.

No association with significant persons was found during background research to warrant evaluation under Criterion B.
The majority of the homes within Property 1 feature non-historic alterations and additions, including carport enclosures, replacement windows, and replacement siding. Alterations to these elements have removed historic fabric and altered the design intent of the original builder reducing integrity of materials, design, and workmanship. Therefore, Property 1 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the National Register of Historic Places (NRHP).

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1020 Young Street (1c), facing north

Property 1: 1012 Young Street (1d), facing north

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1002 Young Street (1e), facing north

Property 1: 928 Young Street (1f); facing north

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 939 Young Street (1g), facing north (Source: Google Maps)

Property 1: 910 Young Street (1h), facing northeast (Source: Crawford County Tax Assessor)

Property 1
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 917 Church Street (1i), facing southeast

Property 1: 925 Church Street (1j), facing south (Source: Crawford County Tax Assessor)

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 924 Church Street (1k), facing northwest

Property 1: 1003 Church Street (1l), facing south

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1007 Church Street (1m), facing south (Source: Crawford County Tax Assessor)

Property 1: 1014 Church Street (1n), facing northwest

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1015 Church Street (1o), facing south

Property 1: 1020 Church Street (1p), facing northwest

Property 1

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1023 Church Street (1q), facing south

Property 1: 1024 Church Street (1r), facing northwest

Property 1

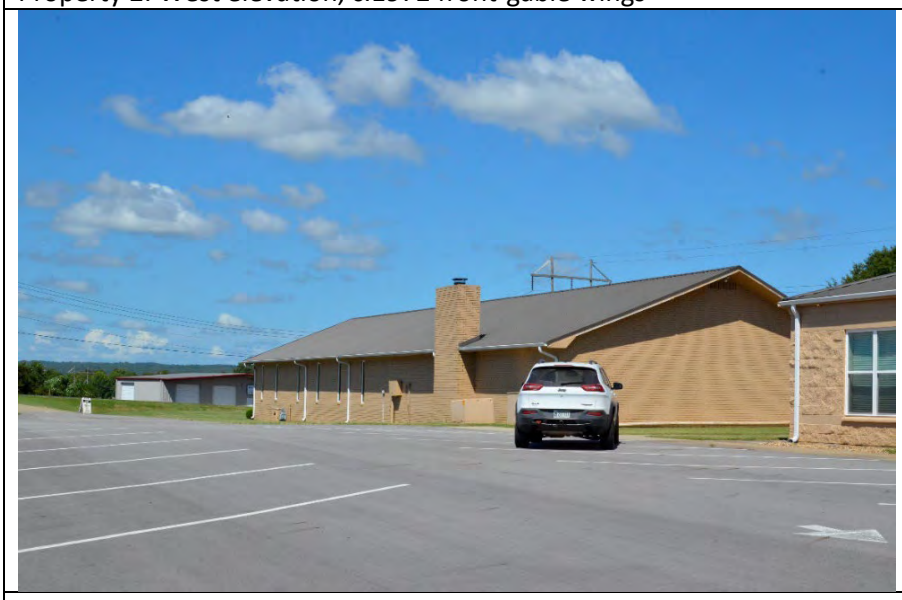
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 1: 1029 Church Street (1s), facing south

Property 1: 1023 Church Street (1t), facing south

Property 2
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 2: West elevation, c.1972 front-gable wings



Property 2: South elevation, c.1972

Property 2 is a mid-century church consisting of two potentially historic front-gable wings and two non-historic additions. The single-story, brick-sided, front-gable wings face west toward Rudy Road, and first appear on historic aerials between 1971 and 1980. The middle portion of the church to the east of the wings was extended in 1994 and the non-historic eastern-most portion of the building (presumably the current sanctuary) was added by 2001. Attempts to contact the property owner regarding the dates of construction for the church were unsuccessful. Observations of materials during the survey did not lend additional information in terms of early versus late 1970s construction. Therefore, for purposes of this report, the gable wing portion of the church is assumed potentially historic with a construction date of c.1972.

The windows on the front-gable wings are non-historic, rectangular, vertical fixed windows. These wings feature original metal doors with a single fixed light. The southernmost wing features a brick exterior slab chimney. The wings and non-historic additions are covered by non-historic metal

Property 2
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 2: South elevation, c.1972 front-gable building and c.2001 addition

Property 2: East elevation, c.2001 addition

roofing. The entire building rests on a slab foundation.

The non-historic additions feature fixed four-paned windows. The central c.1994 addition is sided with vinyl and features metal doors. The later sanctuary addition is sided with a mixture of concrete block and stucco. The entry to the sanctuary features a two-story portico shading metal and glass doors and large, rectangular fixed pane glass windows.

Background research did not reveal any association with significant religious or other historical movements associated with Property 2. Therefore, the property is considered not eligible under Criterion A.

No association with significant persons was found during background research to warrant evaluation under Criterion B.

Property 2 has been significantly altered with multiple, large, non-historic additions. These additions have introduced non-historic materials and altered the original plan and design of the building,

Property 2
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 2: North elevation, c.1994 addition and c.2001 addition

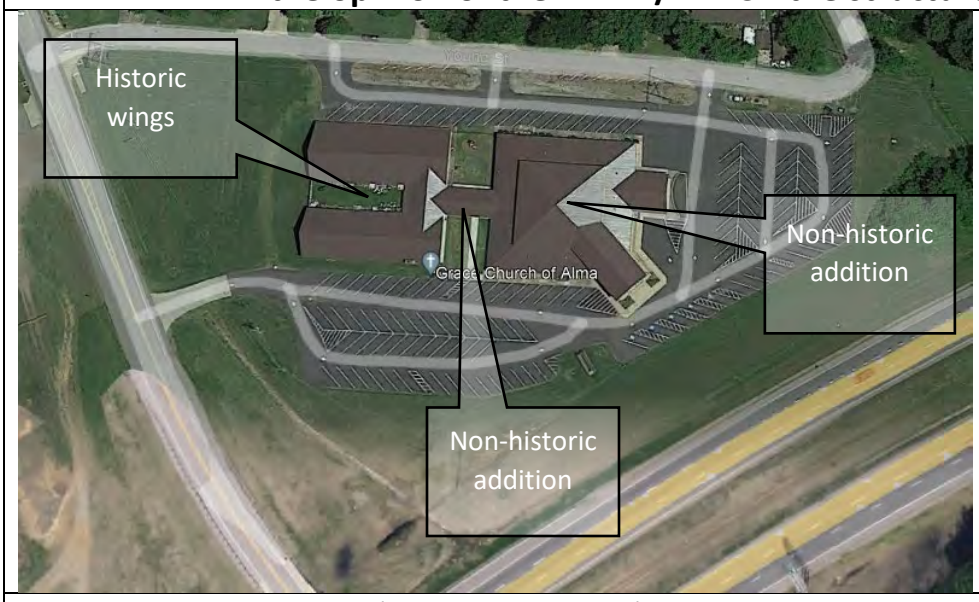
Property 2: North elevation oblique, c.1972 front-gable building

diminishing integrity of materials, design, and workmanship. Therefore, Property 2 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 2

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 2: 2019 aerial image (source: Google Earth)

Property 3
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 3: East approach

Property 3: West approach

Property 3 (ARDOT Bridge No. A3802) spans Frog Bayou on the westbound lane of I-40. According to 2019 ARDOT bridge inspection forms, the bridge was constructed in 1965 and reconstructed in 1989. However, based on historic topographic maps and aerial photographs, it appears the bridge was constructed circa 1967. The bridge was built by an unknown builder. The July 1965 edition of "Arkansas Highways" magazine shows that the portion of I-40 containing the bridge had not been built at this time. This section of I-40 does appear to have been completed by 1967, as evidenced on a historic tourist map.

Property 3 is a concrete stringer bridge with a concrete deck, open steel girders and reinforced concrete abutments, piers, pier caps, pile caps, and railing.

The bridge is approximately 467 feet in length and 50 feet in width and is supported by nine concrete bents.

No association under Criteria A or B was found. The Advisory Council on Historic Preservation's Interstate Highway Exemption (70 FR 11928) applies to the bridge; therefore, the

Property 3
In the opinion of the FHWA/ARDOT the structure is not eligible.

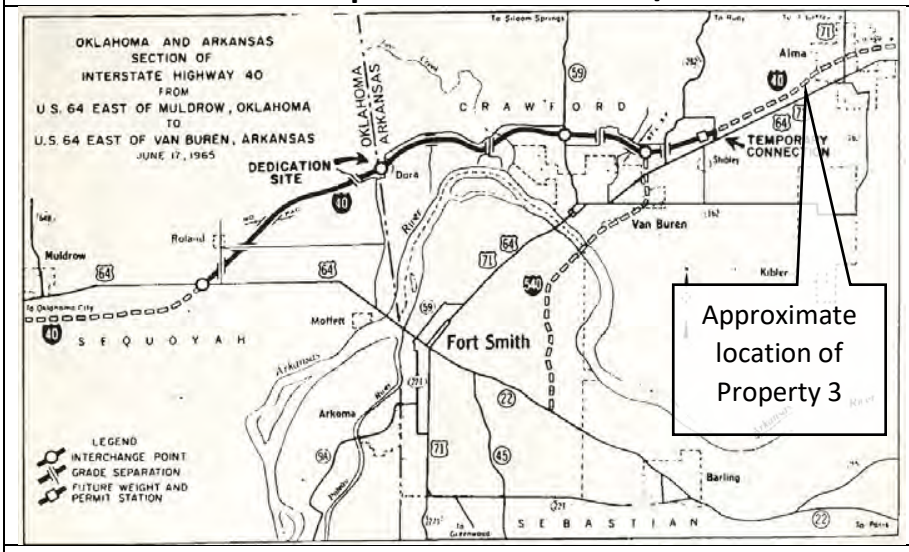
Property 3: North Profile

Property 3: Bridge substructure

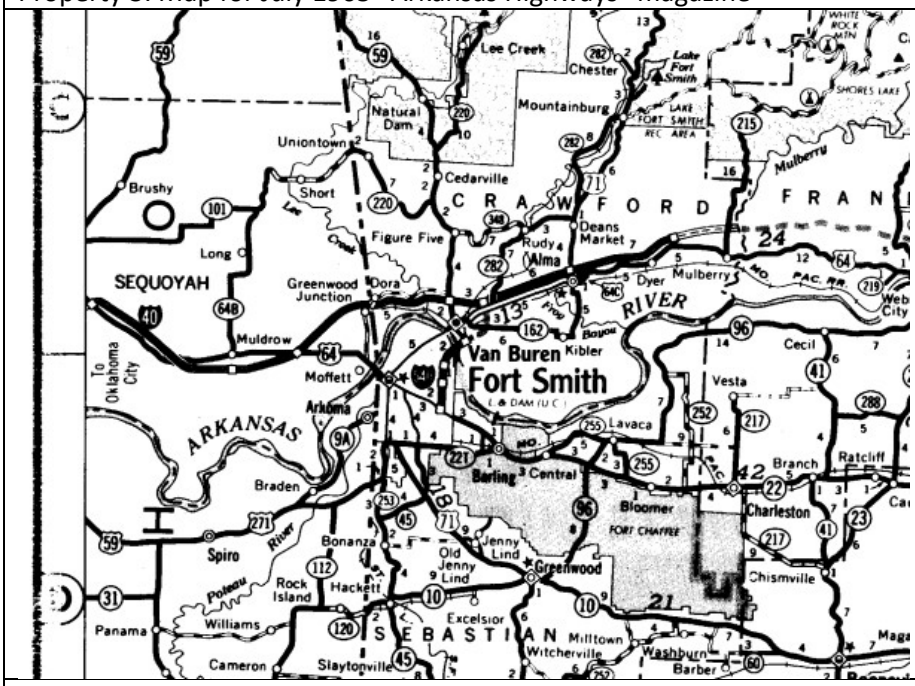
structure is not eligible under Criterion C. ARDOT Bridge No. A3802 is recommended ineligible for inclusion in the NRHP.

Property 3

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 3: Map for July 1965 "Arkansas Highways" magazine



Property 3: Detail of Historic Tourist Map

Property 4
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 4: West approach

Property 4: East approach

Property 4 (ARDOT Bridge No. B3802) spans Frog Bayou on the eastbound lane of I-40. According to 2019 ARDOT bridge inspection forms, the bridge was constructed in 1965 and reconstructed in 1989. However, based on historic topographic maps and aerial photographs, it appears the bridge was constructed circa 1967. The bridge was built by an unknown builder. The July 1965 edition of "Arkansas Highways" magazine shows that the portion of I-40 containing the bridge had not been built at this time. This section of I-40 does appear to have been completed by 1967, as evidenced on a historic tourist map.

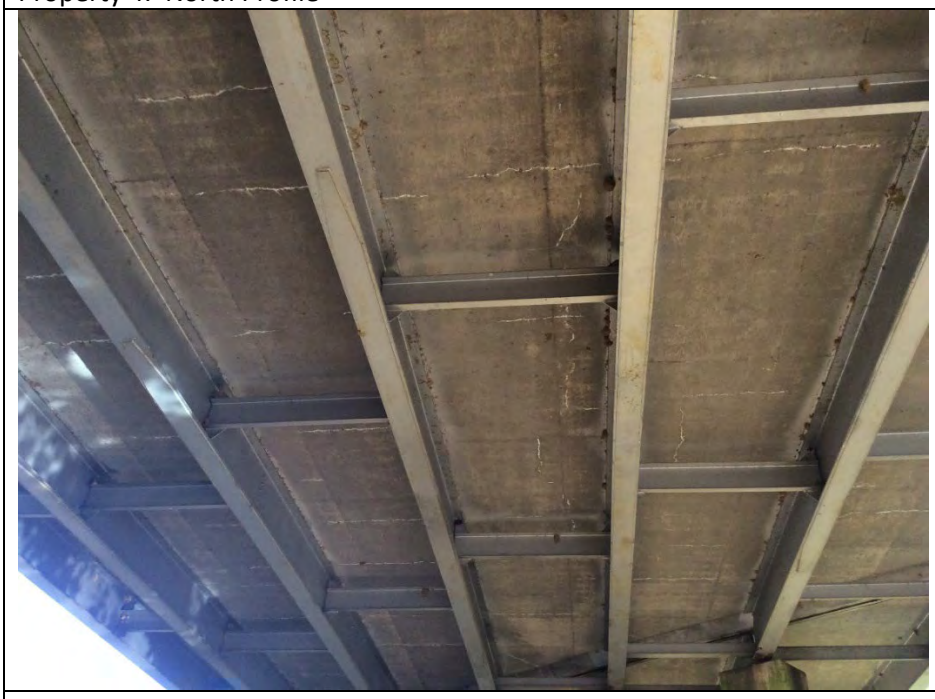
Property 4 is a concrete stringer bridge with a concrete deck, open steel girders and reinforced concrete abutments, piers, pier caps, pile caps, and railing.

The bridge is approximately 467 feet in length and 50 feet in width and is supported by nine concrete bents.

No association under Criteria A or B was found. The Advisory Council on Historic Preservation's Interstate Highway Exemption (70 FR 11928) applies to the bridge; therefore, the structure is not eligible under Criterion C. ARDOT Bridge No. B3802 is recommended ineligible for inclusion in the NRHP.

Property 4
In the opinion of the FHWA/ARDOT the structure is not eligible.

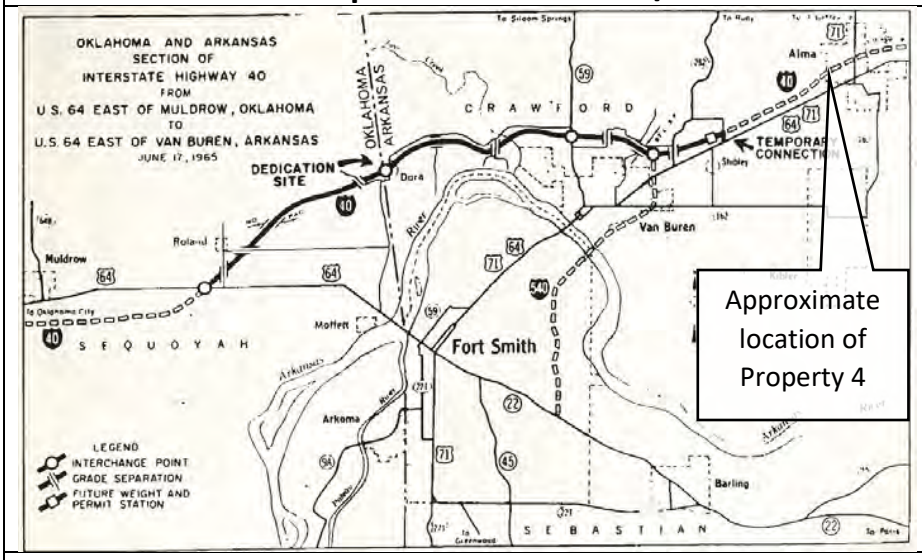
Property 4: North Profile



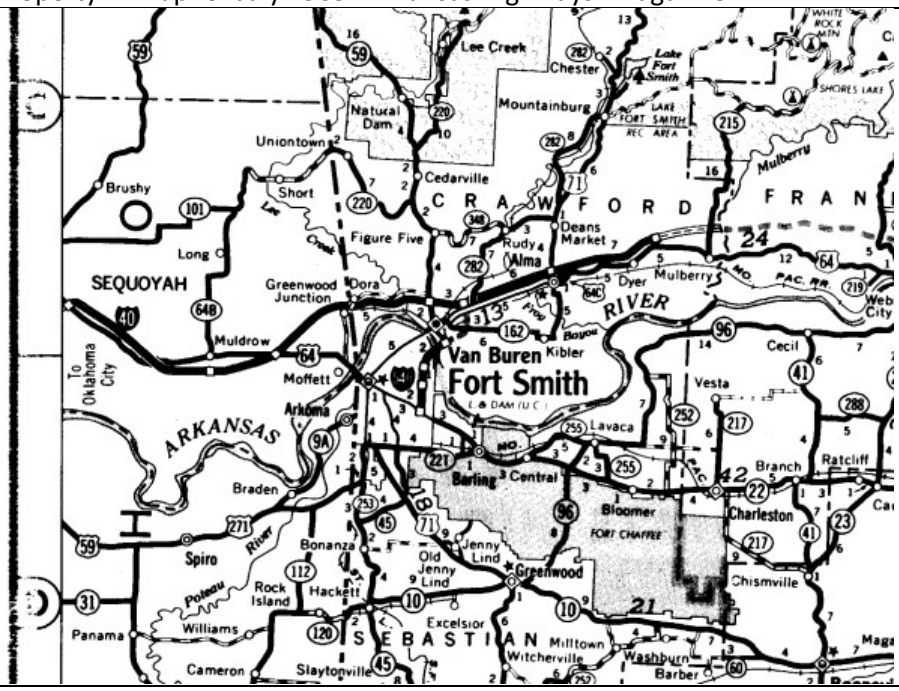
Property 4: Bridge substructure

Property 4

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 4: Map for July 1965 "Arkansas Highways" magazine



Property 4: Detail of Historic Tourist Map

Property 5
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 5: North Profile

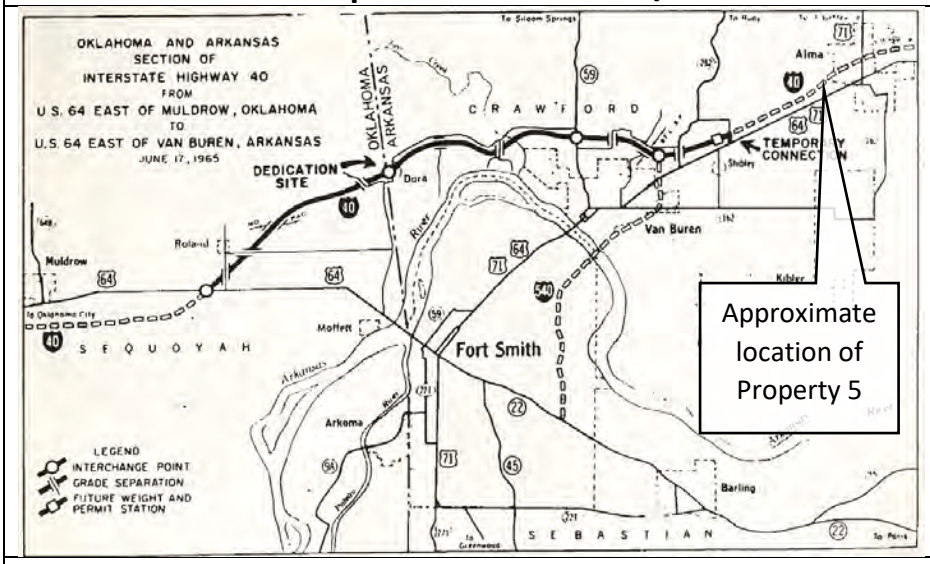
Property 5: West Approach

Property 5 is a concrete culvert located on I-40, 1.6 miles southwest of the junction with US 71. According to 2019 ARDOT bridge inspection forms, the culvert was constructed in 1965 and is identified as structure #X0051. However, based on historic topographic maps and aerial photographs, it appears the culvert was constructed circa 1967. The culvert was built by an unknown builder. The July 1965 edition of "Arkansas Highways" magazine shows that the portion of I-40 containing the culvert had not been built at this time. This section of I-40 does appear to have been completed by 1967, as evidenced on a historic tourist map.

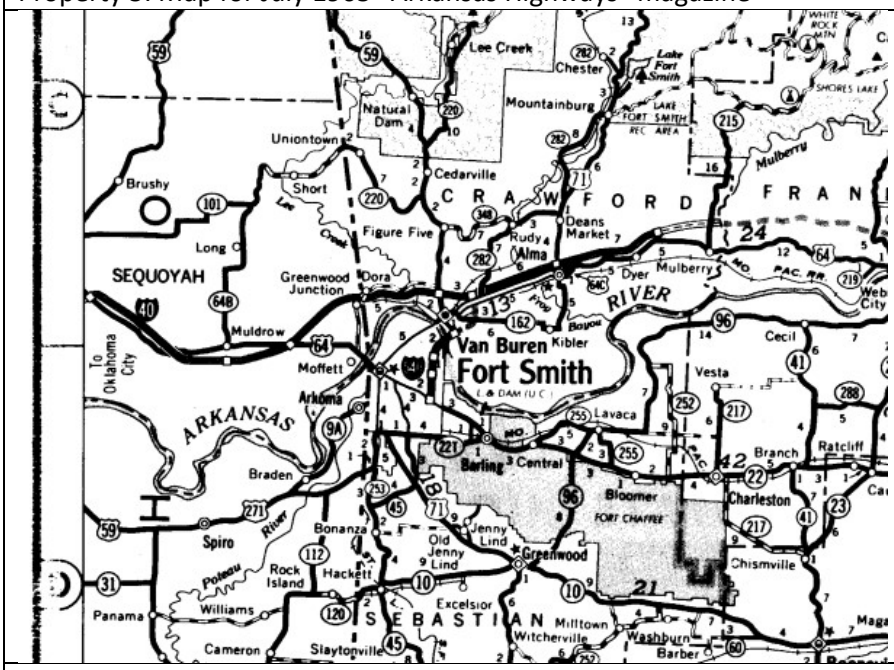
ARDOT structure #X0051 is a concrete culvert constructed circa 1967. No association under Criteria A or B was found. The Advisory Council on Historic Preservation's Interstate Highway Exemption (70 FR 11928) applies to the culvert; therefore, the structure is not eligible under Criterion C. Additionally, it has no aesthetic features, distinctive engineering, exceptional length, and is not one of the earliest versions of the type. It is also one of over 3000 culverts of this type still standing in Arkansas. ARDOT structure #X0051 is recommended ineligible for inclusion in the NRHP.

Property 5

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 5: Map for July 1965 "Arkansas Highways" magazine



Property 5: Detail of Historic Tourist Map

Property 6

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 6: North Profile

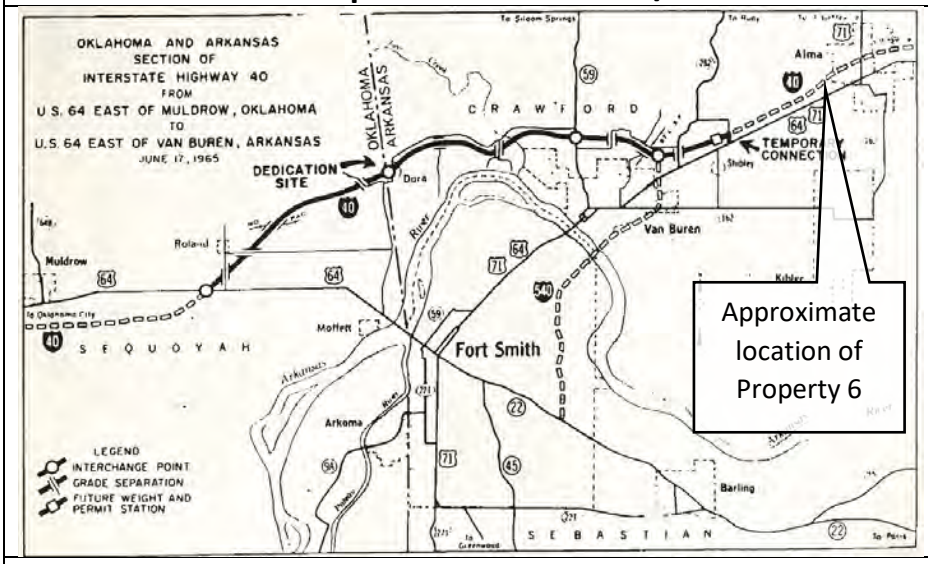
Property 6: East Approach

Property 6 is a concrete culvert located on I-40, 1.6 miles southwest of the junction with US 71. According to 2019 ARDOT bridge inspection forms, the culvert was constructed in 1965 and is identified as structure #X0058. However, based on historic topographic maps and aerial photographs, it appears the culvert was constructed circa 1967. The culvert was built by an unknown builder. The July 1965 edition of "Arkansas Highways" magazine shows that the portion of I-40 containing the culvert had not been built at this time. This section of I-40 does appear to have been completed by 1967, as evidenced on a historic tourist map.

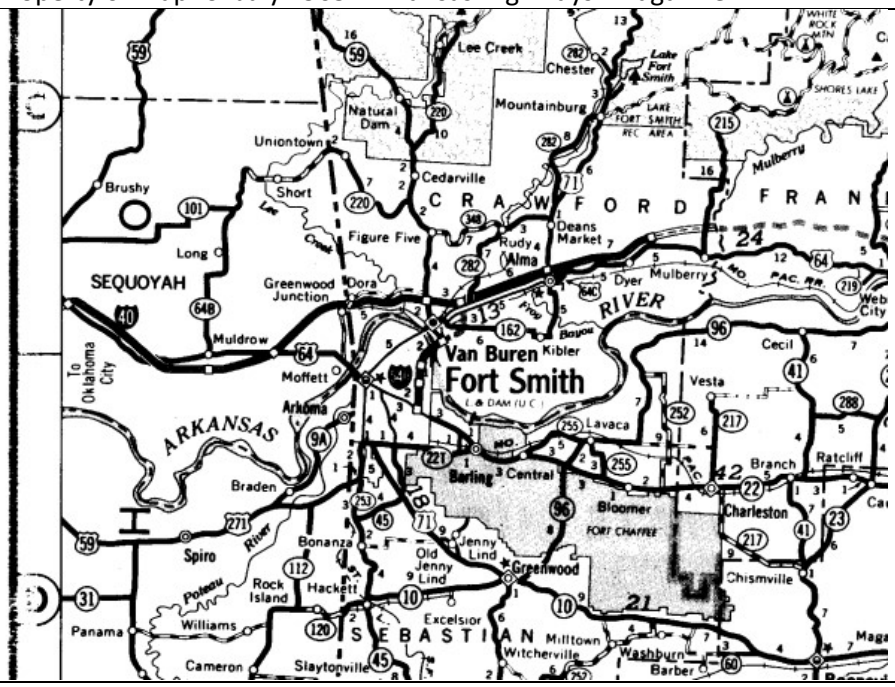
ARDOT structure #X0058 is a concrete culvert constructed circa 1967. No association under Criteria A or B was found. The Advisory Council on Historic Preservation's Interstate Highway Exemption (70 FR 11928) applies to the culvert; therefore, the structure is not eligible under Criterion C. Additionally, it has no aesthetic features, distinctive engineering, exceptional length, and is not one of the earliest versions of the type. It is also one of over 3000 culverts of this type still standing in Arkansas. ARDOT structure #X0058 is

Property 6

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 6: Map for July 1965 "Arkansas Highways" magazine

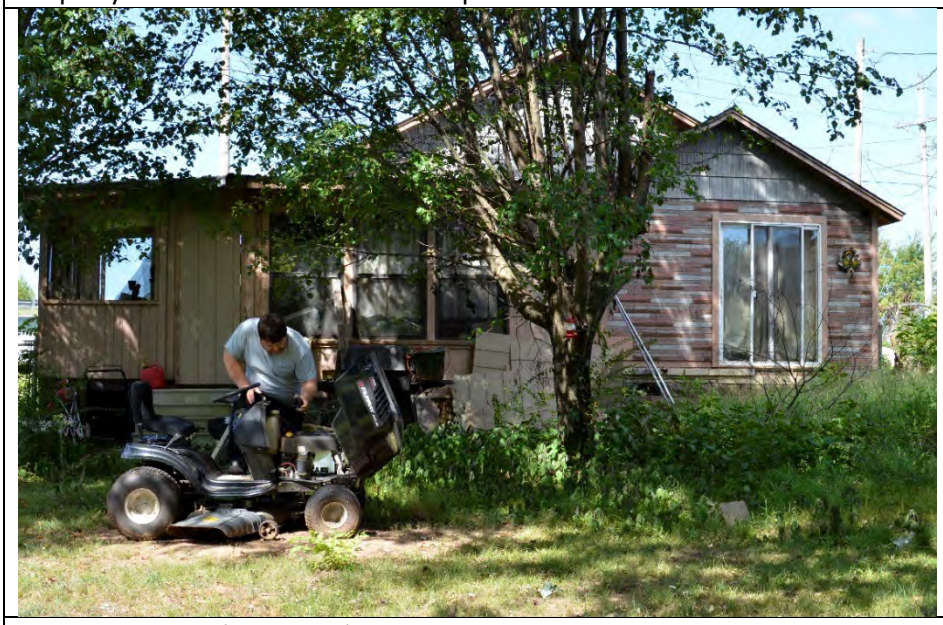


Property 6: Detail of Historic Tourist Map

recommended ineligible for inclusion in the NRHP.

Property 7
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 7: Southwest elevation oblique



Property 7: Rear (northeast) elevation

Property 7 is located at 832 Holt Drive and consists of a front-gable bungalow and one outbuilding (7a). According to the county tax assessor, the house was constructed in 1964. However, survey observations, conversations with the property owner, and review of historic topographic maps revealed a construction date of c.1947 is more accurate.

According to the property owner, the side porch was partially enclosed in 2005 and the back porch was removed in 2015. The owner also stated that they began replacing the historic asphalt shingle siding with T1-11 in 2017. Portions of the historic siding are still visible on the rear and northwest elevations. Based on field observations, it is likely that the original front porch was also enclosed.

The house features historic 2/2 aluminum sash windows, a non-historic panel door, a non-historic shed porch addition on the southeast elevation, and a non-historic rear shed porch addition. The house sits on a Concrete Masonry Unit (CMU) foundation and is covered by an asphalt shingle roof.
No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 7 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	Property 7 has been altered extensively and is no longer a good or representative example of its type. Replacement siding, the removal of the back porch, and the non-historic enclosure of the side porch have resulted in the loss of historic fabric and altered the original design intent of the builder. The alterations have resulted in an overall loss of integrity of materials, workmanship, and design. Therefore, Property 7 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion in the NRHP.

Property 7a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 7a: West elevation, facing east

Property 7a is an outbuilding associated with Property 7 and is located approximately 100 feet to the east of the rear elevation of the house. The county tax assessor does not provide a date of construction for the building. However, based on field observations and historic aerials it appears to have been constructed during the 1970s.

The building features an asphalt shingle side-gable roof. The exterior is clad in plywood and features three fixed single pane windows and a plywood door.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 7a is not representative of a known architectural type or style. Additionally, the building does not have any significant architectural features or designed elements. Therefore, Property 7a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 8
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 8: Front (southwest) elevation

Property 8: Rear (northeast) elevation

Property 8 is a side-gable bungalow located at 824 Holt Drive. According to the county tax assessor, the property was constructed in 1964. However, survey observations, conversations with the property owner, and review of historic topographic maps revealed a construction date of c.1947 is more accurate.

The house is set on a CMU foundation, is clad in wood drop siding, and is covered by an asphalt shingle roof with exposed rafter tails. A partial, front-gable porch is located centrally on the primary (southwest) elevation and has likely been updated with non-historic railing and wood supports. The porch covers a non-historic panel door. Windows consist of 2/2 horizontal sash aluminum windows, 3/1 double-hung sash wood units, and replacement 4/4 double-hung vinyl units. A small, non-historic shed addition is located on the southeast elevation.

A non-historic, prefabricated outbuilding is located immediately to the southeast of the house.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 8 has been altered extensively and is no longer a good or representative example of its type. Replacement windows with non-sympathetic materials, the non-historic shed addition to the southeast elevation, and non-historic

Property 8 In the opinion of the FHWA/ARDOT the structure is not eligible.	
	alterations to the front porch have resulted in the loss of historic fabric and altered the original design intent of the builder. The alterations have resulted in an overall loss of integrity of materials, workmanship, and design. Therefore, Property 8 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion in the NRHP.

Property 9
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 9: Primary (southwest) elevation

Property 9: Rear (northeast) elevation

Property 9 is a side-gable bungalow located at 816 Holt Drive. According to the county tax assessor, the property was constructed in 1964. However, similar to Properties 7 and 8, a construction date of c.1947 is more accurate based on survey observations and review of historic topographic maps.

The house is set on a foundation that is a combination of stone and CMU, is clad in wood siding, and is covered by an asphalt shingle roof with exposed rafter tails. A partial, front-gable porch is located centrally on the primary (southwest) elevation and has likely been updated with non-historic railing and wood supports. The porch covers a non-historic panel door. A historic side-gable addition was observed on the southeast elevation and a small, historic shed porch is located on the rear of the house. This porch covers a historic wood panel door. The windows on the house consist of historic wood 3/1 double-hung sash units.

No association with significant historical events or significant persons was found during background research to warrant evaluation under Criteria A or B.

Property 9 has been altered and is no longer a good or representative example of its type. Changes to the front and back porches and the replacement of the front door with non-historic materials have resulted in the loss of historic fabric and altered the original design intent of the builder. The alterations have resulted in an overall loss of integrity

Property 9 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	of materials, workmanship, and design. Therefore, Property 9 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion in the NRHP.

Property 10

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 10: Historic core (south elevation)

Property 10: Oblique featuring the south and west elevations

Property 10 is located at 219 Ray Lane. The house may have historically been a side-gable bungalow but has been extensively altered and no longer resembles any known academic type or style. The county tax assessor provides a construction date of 1990 for the house; however, based on field observations, and a review of historic topographic maps, a construction date of c. 1947 is more accurate.

The historic core has been heavily altered and rests on a CMU foundation. The entire house is clad in a combination of non-historic vinyl siding and non-historic stone veneer and is covered by an asphalt shingle roof. A partial-width historic front porch is located centrally on the south elevation and features non-historic supports and vinyl shingles in the gable end. Other alterations to the historic core include the replacement of the historic windows with vinyl 6/6 double-hung sash units and the addition of a single, fixed, vinyl multi-pane picture window to the east of the non-historic panel door on the south elevation.

Property 10

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 10: East elevation

Property 10: West elevation, non-historic gable addition

The house has been expanded multiple times and currently features two large gable additions on its north elevation which appear to be non-historic. A non-historic side-gable addition is also apparent on the west elevation.

No association with significant historical events or significant persons was found during background research to warrant evaluation under Criteria A or B.

Property 10 has been altered extensively and is not a good or representative example of known historic house type. The house features multiple large non-historic additions that have obscured the original plan and layout. Additionally, the historic core features a non-historic door, non-historic windows and siding, and non-historic alterations to the front porch. These alterations and additions have resulted in the loss of historic fabric and altered the original design intent of the builder. The alterations have resulted in an overall loss of integrity of materials, workmanship, and design. Therefore, Property 10 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 11
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 11: Photo from Crawford County Tax Assessor website

Property 11: West elevation oblique, facing northeast

Property 11 is located at 102 North Kibler Highway and consists of a house and two outbuildings (11a and 11b). According to tax assessor records, the house was constructed in 1975. Discussions with the property owner and field observations confirmed this date. Access around the property was limited due to owner denying access.

The house is a side-gable, red brick Ranch house featuring Colonial Revival style elements. The historic front porch features wood columns, and there is dentil molding detailing around a historic front door flanked by side lights. The windows around the house consist of double-hung 9/6 and 6/6 non-historic vinyl replacements. Non-historic vinyl siding is also present within the gable ends.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 11 has been altered and is not a good or representative example of a historic house type. Replacement materials include non-historic vinyl siding within the gable ends and replacement of historic windows with non-historic vinyl units. These alterations have resulted in the loss of historic fabric and an overall loss of integrity of materials, workmanship, and design. Therefore, Property 11 is not considered eligible under Criterion C.

Property 11 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	This property is recommended ineligible for inclusion in the NRHP.

Property 11a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 11a: West elevation, facing east

Property 11a is a gabled metal outbuilding associated with Property 11. The outbuilding is set back approximately 275 feet southeast of the residence on the property. Based on historic aerials, this outbuilding was constructed around the same time period as the house, c.1975. Access around the property was limited due to the owner denying access, so photographs were limited.

The building appears to be a front-gable metal garage or barn with metal roofing. The rear (south) elevation features a front-gable portico supported by wood or metal posts. Openings and doors were not visible from the driveway or through aerial photographs.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 11a appears to be a common metal outbuilding that does not have any significant architectural design or features. Therefore, Property 11a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 11b

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 11b: West elevation, facing east

Property 11b is a gabled metal outbuilding associated with Property 11. The outbuilding is set back approximately 130 feet east of the residence on the property. Based on historic aerials, this outbuilding was constructed around the same time period as the house, c.1975. Access around the property was limited due to owner denying access, so photographs were limited.

Property 11b is a rectangular building clad in metal sheeting. The west elevation features two large metal sliding garage doors with a light in the gable end. A small metal door is located to the south of the garage doors. The south elevation contains a single metal garage door. A single interior metal chimney is located within the roof.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 11b appears to be a common metal outbuilding that does not have any significant architectural design or features. Therefore, Property 11b is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 12

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 12: East elevation, facing northwest

Property 12: Façade oblique, facing southwest

Property 12 is located at 51 North Kibler Highway and consists of a house and approximately five outbuildings. According to the tax assessor records, the house was constructed in 1969. Based on field survey and available historic aerials, this date appears to be correct. None of the outbuildings appear to be historic in age and access to the entire property was limited due to no right of entry.

The house is a side-gabled building of no academic type or style. The roof is covered with non-historic metal sheeting and the house is sided in non-historic vinyl siding. The windows consist of 1/1 non-historic vinyl replacement units. A non-historic wood deck is present on the east elevation and a non-historic metal carport is attached to the south elevation.

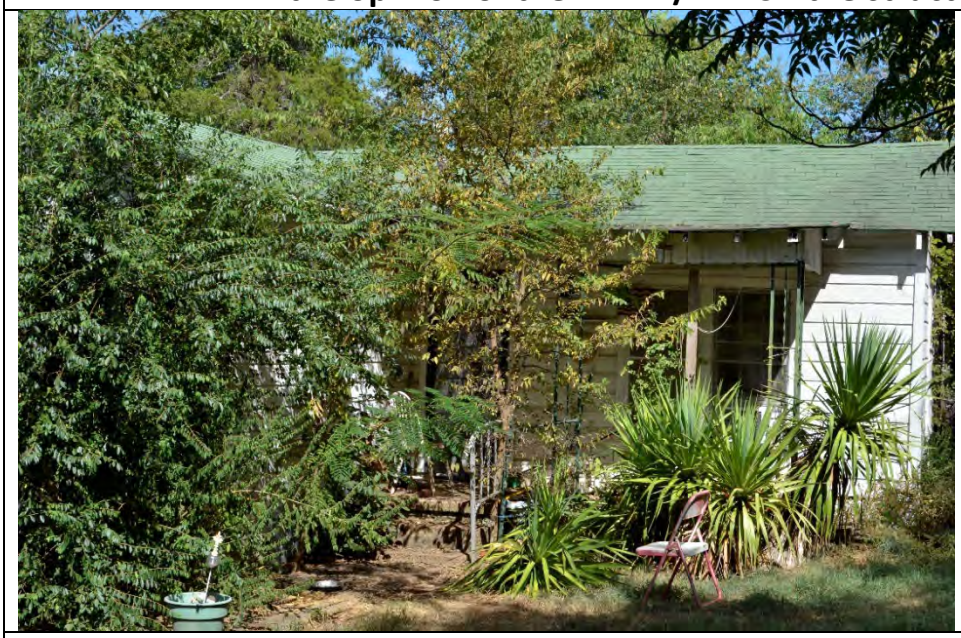
No association with significant historical events or significant persons was found during background research to warrant evaluation under Criteria A or B.

Property 12 has been extensively altered and is not a good or representative example of a known house type. The entire house has been re-sided in non-historic vinyl and all windows have been replaced with non-historic vinyl units. Additionally, the roof has been replaced with non-historic metal and a non-historic deck has been added to the front elevation. These alterations have removed historic fabric and altered the original design intent of the builder, diminishing integrity of materials, workmanship,

Property 12 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	and design. Therefore, Property 12 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion in the NRHP.

Property 13

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 13: West elevation (façade); facing east

Property 13: West elevation oblique, facing northeast

Property 13 is located at 24 North Kibler Highway and consists of a house and one small outbuilding (Property 13a). According to the tax assessor records, the house was constructed in 1962. However, according to the property owner, the house is much older and dates to c.1940. The c. 1940 date appears accurate based on field observations.

Surveyors had difficulty photographing certain elevations of Property 13 due to overgrown vegetation. The vegetation and multiple additions also made it difficult to discern what house type the residence may have been historically. Currently the house is a multi-gabled building resting on a CMU foundation. The roof is covered in asphalt shingles and features exposed rafter tails. The house is sided in historic wood drop siding, and the windows consist of 6/6, 2/2, and 1/1 double-hung wood sashes. The house contains a rear gable addition and a front-gable addition, which both appear to have been added historically. Along the west elevation is a small, integrated shed roof porch supported by decorative metal columns and sheltering a historic wood door. Windows consist of 6/6, 1/1, or 2/2 double-hung wood sashes. Many of the windows have been altered to include air conditioning units. One of the

Property 13

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 13: Rear (east) elevation, facing west

Property 13: North elevation oblique, facing southeast

windows on the south elevation has been covered with plywood. A single interior metal chimney was observed within the roof.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 13 has been altered and is not a good or representative example of a known house type. Two additions, though historic, have enlarged the house and obscured the original building type. Additionally, some windows have been altered or have been enclosed. These alterations and additions have removed historic fabric and altered the original design intent of the builder, diminishing integrity of materials, workmanship, and design. Therefore, Property 13 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 13a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 13a: South elevation, facing north

Property 13a is a shed outbuilding associated with the house on Property 13. Due to vegetation and the size of the outbuilding, it is difficult to locate on historic aerials. However, based on materials, it appears the outbuilding may date to the same time period as the house, c. 1940.

The building was difficult to photograph due to overgrown vegetation but appears to be a small, low gabled storage shed located approximately 20 feet to the southeast of the house. The shed features wood drop siding similar to that found on the residence, a non-historic door, and an opening covered by a corrugated metal sheet.

No association with significant historical events or significant persons was found during background research or discussion with the property owner to warrant evaluation under Criteria A or B.

Property 13a is a small, shed outbuilding that has been altered and does not feature any significant architectural details. Therefore, Property 13a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 14

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 14: North and west elevations, facing south

Property 14: West elevation, facing southeast

Property 14 is located at 427 East Kibler Highway and consists of one barn and one silo (14a). According to historic aerials, a house and outbuilding historically associated with the property have been demolished and were non-extant during the survey. The extant barn (Property 14) likely dates to c.1960 based on historic aerials and the tax assessor date.

The entire property was fenced. Surveyors were not able to access the property so limited photographs were taken from the public right-of-way. The barn appears to be a front-gable structure with a metal roof and metal siding. The west elevation features three large openings, one of which is covered with a non-historic garage door. This elevation also contains what appears to be a metal door with a single light. The south elevation of the barn appears to be in a state of disassembly and is missing its roof.

Although two farm-related outbuildings remain on the property and suggest that Property 14 was historically used for agricultural purposes, very little of the historic farm remains. The historic house has been demolished in addition to at least one historic outbuilding. Additionally, the property no longer appears to be used for agricultural purposes. Overall, the loss of historic buildings and discontinuation of use as a farm have resulted in a loss of integrity of setting, feeling, and

Property 14

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 14: 1971 Aerial photograph (source: Historicaerials.com), north at top

Property 14: 2021 Aerial photograph (source: Google Maps), north at top

association. Therefore, the property is considered not eligible under Criterion A.

No association with significant persons was found during background research to warrant evaluation under Criterion B.

Property 14 has been significantly altered with the loss of the historic house and at least one historic outbuilding. The barn building itself appears to be in a state of disassembly and is missing historic materials. On its own, the barn cannot convey significance in the area of architecture and has lost integrity of materials, design, and workmanship. Therefore, Property 14 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion in the NRHP.

Property 14

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 14a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 14a: North elevation, facing south

Property 14a is a cylindrical metal grain silo located approximately 35 feet east of the barn. Based on materials, the silo likely dates to the same time period as the barn (Property 14), c.1960.

The silo features a conical metal roof and corrugated metal siding. Several metal chutes are centrally located within the body of the tower.

Although two farm-related outbuildings remain on the property and suggest that Property 14a was historically used for agricultural purposes, very little of the historic farm remains. The historic house has been demolished in addition to at least one historic outbuilding. Additionally, the property no longer appears to be used for agricultural purposes. Therefore, the property is considered not eligible under Criterion A.

No association with significant persons was found during background research to warrant evaluation under Criterion B.

Property 14a has been significantly altered with the loss of the historic house and at least one historic outbuilding. On its own, the silo cannot convey significance in the area of architecture. The structure is a common example of this type of silo and does not exhibit any unique or significant architectural features. Therefore, Property 14a is not considered eligible under Criterion C.

Property 14 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	This property is recommended ineligible for inclusion in the NRHP.

Property 15

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 15: South elevation, facing north

Property 15: South elevation oblique, facing northwest

Property 15 is located at 302 East Kibler Highway and consists of a house and several outbuildings. Only one of these outbuildings, a garage, appears to be historic in age (Property 15a). The tax assessor record provides a construction date of 1967 for the house. However, based on field survey observations and historic topographic maps, the house appears to be older, likely c.1945. Access to the rear of the property was not possible due to locked fencing, so photos were limited to the public right-of-way.

In its current form, Property 15 has no academic architectural type or style and has been altered extensively. The house rests on a CMU foundation and features a hipped roof covered with asphalt shingles. The house has been re-sided with non-historic vinyl siding and the south (front) elevation features a hipped-roof porch supported by non-historic fluted columns. All visible windows are non-historic aluminum 1/1 units. A single interior metal chimney is visible within the roof. The house has several non-historic additions including a side-gable wing addition and a garage addition on

Property 15

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 15: South elevation, facing northeast

Property 15: East elevation, facing northwest

the west elevation and what appears to be a rear shed addition on the north elevation.

No association with significant historical events or significant persons was found during background research to warrant evaluation under Criteria A or B.

Property 15 has been altered to the extent that its historic house type is no longer discernible. Several non-historic additions have obscured the original plan and layout of the house. Additionally, non-historic materials have been used to replace the windows, siding, and elements of the front porch. Collectively, these alterations and additions have removed or obscured historic fabric and altered the original design intent of the builder, causing loss of integrity of materials, design, and workmanship. Therefore, Property 15 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 15a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 15a: South elevation, facing north

Property 15a: South elevation detail, facing north

Property 15a is a front-gable garage that is associated with Property 15. The garage likely dates to when the house was constructed (c.1945) based on historic aerials. However, detailed observation of the garage was not possible due to a locked fence.

The garage appears to be a front-gable structure clad in a combination of wood and vinyl siding. Of the two openings visible on the south elevation, one appears to be enclosed. A low gabled metal roof supported by metal poles extends outward from the front-gable, sheltering a boat and various mechanical equipment.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 15a has been altered and is not a good or representative example of a mid-century garage. Portions of the historic wood siding have been covered in vinyl, and one of the historic openings has been enclosed. These alterations have removed or obscured historic fabric and altered the original design intent of the builder, causing loss of integrity of materials, design, and workmanship. Therefore, Property 15a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 16
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 16: North elevation, facing south

Property 16: north elevation of non-historic outbuilding, facing south

Property 16 is located at 307 East Kibler Highway and consists of a house and two outbuildings. The tax assessor records state the house was constructed in 1947, and the two outbuildings were constructed non-historically in 1979. These dates appear correct based on available historic aerial imagery and topographic maps. The property was only accessible from the public right-of-way due to lack of right of entry. Therefore, photographs were limited.

When originally constructed, Property 16 may have been either an American Small House or small Ranch, but because of multiple alterations and additions, the house no longer resembles either type. The house is a one-story, side-gable building set on a CMU foundation, a portion of which appears to be covered by brick veneer. The house is sided in non-historic vinyl and windows are non-historic double-hung 6/6 vinyl units with the exception of two large, non-historic, multi-paned vinyl picture windows on the north elevation. On the historic core of the house, six of the 6/6 double-hung units have been arranged non-historically to form a bay window.

The house has two large additions visible from the public right-of-way, including a large, historic side-gable addition on the east elevation and a non-historic side-gable garage addition on the west elevation. The east addition features an integrated porch supported by non-historic turned

Property 16 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	posts. A single brick chimney is visible where the historic core of the house meets the garage addition on the west elevation. No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B. Property 16 has been heavily altered and is not a good or representative example of a known historic house type. Two large additions have changed the original design and layout of the house. Additionally, all historic windows have been replaced with non-historic vinyl units, and the original siding material has been removed or obscured by non-historic vinyl. Collectively, these alterations and additions demonstrate a loss of integrity of materials, design, and workmanship. Therefore, Property 16 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion on the NRHP.

Property 17

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 17: East elevation, facing west

Property 17: East elevation oblique, facing southwest

Property 17 is located at 630 Richland Road and consists of a house and two historic outbuildings (Properties 17a and 17b). Based on historic aerials, the house was likely constructed c.1971.

Property 17 is a one-story house with a cross-gable roof covered with asphalt shingles. The foundation has been obscured with stone veneer, and the house is sided in historic T1-11 panels. The east (front) elevation features a partial-width, shed roof porch supported by columns covered in stone veneer. The front door appears to be historic. The majority of the windows are non-historic 1/1 double-hung vinyl and fixed, single pane replacements. However, there is a historic 2/2 double-hung wood sash window visible on the south elevation and a historic wood casement window located on the west elevation. A single historic exterior stone chimney is visible on the north elevation.

The west (rear) elevation features multiple shed additions, including a small, shed-roof porch supported by simple wood posts.
No association with significant historical events or persons was

Property 17

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 17: Rear (west) elevation, facing northeast

found during background research to warrant evaluation under Criteria A or B.

Property 17 has been altered and is not a good or representative example of a known historic house type. The rear shed additions have changed the original design and layout of the house. Additionally, most of the windows have been replaced with non-historic fixed-pane or vinyl units. Collectively, these alterations and additions demonstrate a loss of integrity of materials, design, and workmanship. Therefore, Property 17 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 17a
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 17a: East elevation, facing west

Property 17a: 1971 aerial (source: historicaerials.com), north at top

Property 17a is shed outbuilding associated with Property 17. The shed is located approximately 15 feet to the northwest of the house. Based on historic aerials, Property 17a appears to date to the same time period as the house, c.1971.

The shed appears to be a small, wood, front-gable building with a historic wood panel door. The building was heavily obscured by vegetation but appears to be in a state of deterioration.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 17a is not a good or representative example of a known historic type. The shed was heavily obscured by vegetation during field survey and lacks integrity of materials or workmanship based on the methods of construction and remaining materials observed during the field survey. Therefore, Property 17a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 17b
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 17b: East elevation, facing northwest

Property 17b: 1971 aerial (source: historicaerials.com), north at top

Property 17b appears to be a low-gabled building of no historic type associated with Property 17. Based on historic aerials, Property 17b appears to date to the same time period as the house, c.1971.

Property 17b was heavily obscured by vegetation during the field survey. The outbuilding appears to be a low-gabled building covered in plywood with a metal roof. A single metal chimney was observed projecting outwards from the east elevation. Two openings that may have been windows have been covered with plywood. It is unclear how the building was used historically or is currently being utilized.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 17b is not a good or representative example of a known historic type. The shed was heavily obscured by vegetation during field survey and appears to have been altered. Therefore, Property 17b is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 18

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 18: East elevation oblique, facing southwest

Property 18: East elevation oblique, facing northwest

Property 18 is located at 704 Richland Road and consists of a house and one historic outbuilding (Property 18a). The tax assessor provides a date of construction of c.1967 for the house and this appears to be correct based on current aerials and field observations. The backyard of the house was surrounded by a wood fence and the property owner was not available, so access to the rear of the property was not possible.

The house is a one-story, side-gable building set on a CMU foundation representing no academic type or style. The roof is covered in 5v metal sheeting, and the house is clad in wood drop siding. The east (front) elevation features a partial-width front-gable porch supported by non-historic turned wood columns. The front door is non-historic, and the windows are non-historic 6/6 double-hung vinyl units. The house has a non-historic rear shed addition, and it appears that the original cladding in the gable ends has been removed.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 18 is not a good or representative example of a known historic house type and has been altered. The non-historic rear shed addition has changed the original floorplan and design of the house. Additionally, the replacement of historic windows and the front door and the removal of original siding in

Property 18 **In the opinion of the FHWA/ARDOT the structure is not eligible.**	
	the gable ends has resulted in the loss of historic materials. Overall, these changes indicate a loss of integrity of design, materials, and workmanship. Therefore, Property 18 is not considered eligible under Criterion C. This property is recommended ineligible for inclusion on the NRHP.

Property 18a
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 18a: East elevation oblique, facing northwest

Property 18a: East elevation, facing west

Property 18a is a garage that has been converted into a secondary residence. According to the tax assessor record, the garage was constructed in 1974. However, the structure appears on 1971 aerials and based on material observations, was constructed c.1970. The building stands approximately 35 feet to the northwest of the house.

Property 18a is a one-story, side-gable building with no academic type or style. The roof is covered in asphalt shingles, and the building is clad in plywood and wood drop siding (visible on the north elevation only). The windows are non-historic 6/6 double-hung vinyl units, and there is a non-historic door on the east elevation. The south elevation features a small, shed-roof porch which covers a non-historic door. It is unknown when the garage was converted into a secondary residence, but based on materials, this likely occurred non-historically.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 18a

In the opinion of the FHWA/ARDOT the structure is not eligible.

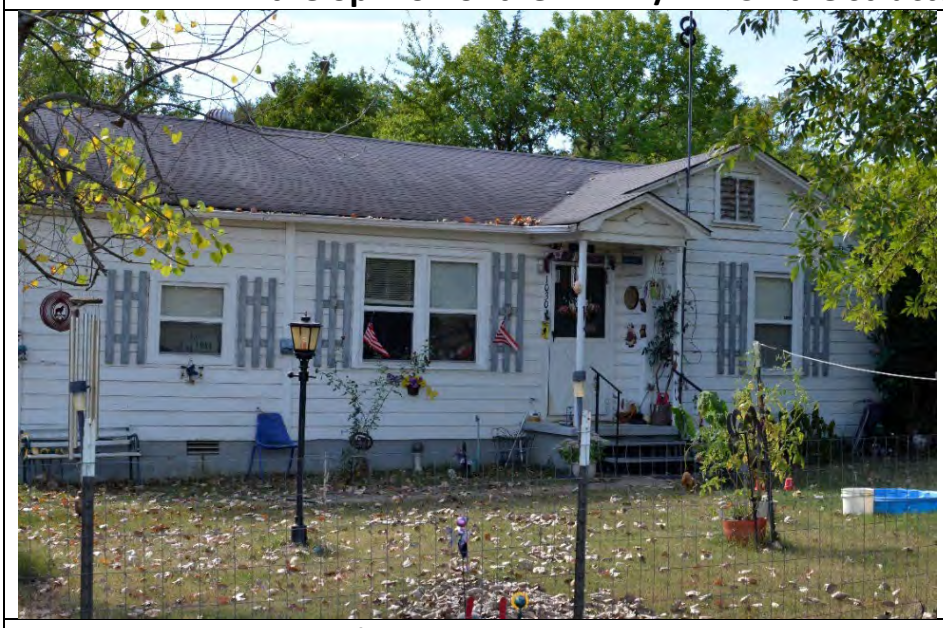
Property 18a: 1971 aerial (source: historicaerials.com), north at top

Property 18a is not a good or representative example of a known historic type and has been altered. Historically known as a garage, the house has been non-historically converted to a secondary residence and no longer resembles its historic form. The only historic material visible is a small portion of original wood drop siding on the north elevation. Overall, the changes to the building indicate a loss of integrity of design, materials, and workmanship. Therefore, Property 18a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 19

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 19: East elevation, facing northwest

Property 19: West elevation, facing east

Property 19 is located at 1030 New Town Road. The tax assessor gives a 1967 construction date for the house. However, the house does not appear on aerials until 1994-2001. Based on field observations, the house is historic and does likely date to c.1967 but appears to have been moved to its current location in the mid-late 1990s or early 2000.

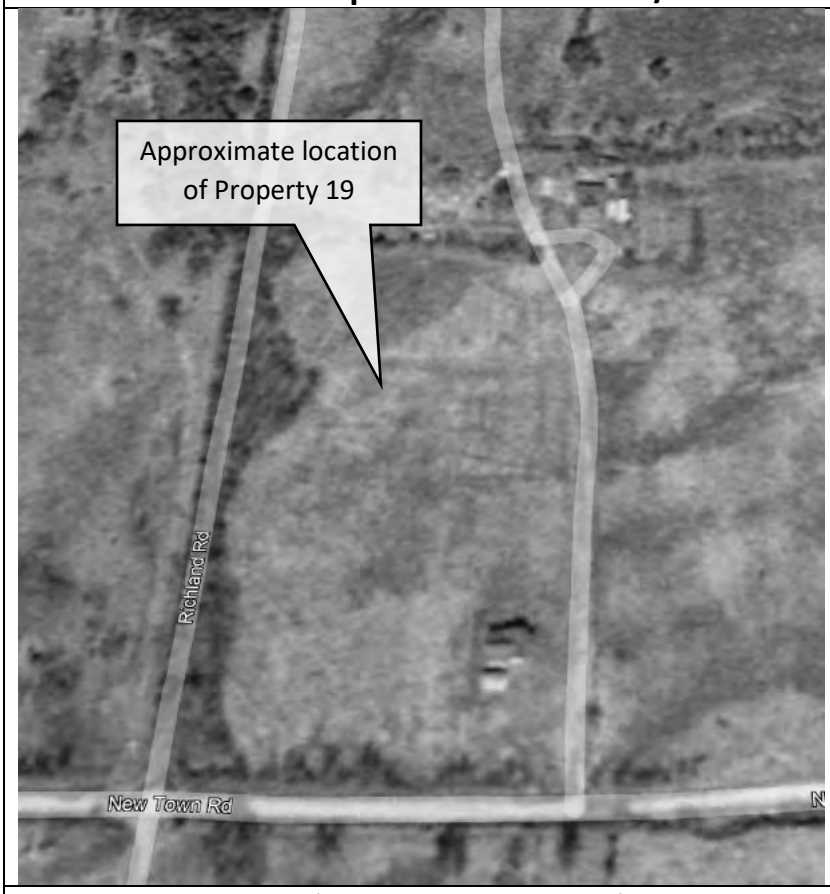
Property 19 is a one-story, cross-gable building set on a CMU foundation. The house is clad in wood clapboard siding and features non-historic 1/1 double-hung vinyl windows. The east elevation features a small, gabled portico supported by turned wood columns with a diamond in the gable end. The front door is non-historic and is covered by a non-historic storm door.

The rear (west) elevation consists of the same windows as the front elevation and has a non-historic door, which is accessed by concrete steps. A short, metal chimney is visible within the roof.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 19

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 19: 1994 aerial (source: Google Earth Pro), north at top

Property 19: 2001 aerial (source: Google Earth Pro), north at top

Property 19 is not a good or representative example of a historic house type and has been altered. All windows and doors have been replaced with non-historic materials, which has resulted in the loss of historic materials and has compromised integrity of design, workmanship, and materials. Additionally, the house has been moved from its original location, which has compromised integrity of location and setting. Therefore, Property 19 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 20

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 20: East elevation oblique, facing northwest

Property 20: North elevation, facing southwest

Property 20 is located at 1020 New Town Road and consists of a single historic house. According to the tax assessor record, the house was built in 1957. Based on construction materials the house was likely constructed earlier, c.1945. Conversations with the owner of Property 19 revealed that Property 20 was moved to its current location at an unknown time. Based on historic aerials, this was likely sometime between 1985 and 1994. The owner of Property 19 informed surveyors the house was vacant, and field observations confirmed that the house was overgrown with vegetation.

The house appears to have been constructed as a side-gable bungalow with a partial-width gabled front porch. A photo on the tax assessor website provides a clearer look at architectural details that were not able to be observed during the field survey due to vegetation.

The house is clad with wood board and batten siding and historic 6/6 double-hung wood windows were observed. A rear shed addition is located off the west (rear elevation). The porch features wood column supports set on wood piers.

Property 20

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 20: South elevation, facing northwest

Property 20: Undated photo from Crawford County Tax Assessor

No association with significant historical events or persons was found during background research or discussion with the neighboring property owner to warrant evaluation under Criteria A or B.

Property 20 is no longer a good or representative example of its historic house type and has been altered. The house has a non-historic addition; additionally, historic materials have been compromised by vegetative overgrowth which have contributed to an overall loss of integrity, materials, and workmanship. Finally, the house has been moved from its original location which has compromised integrity of location and setting. Therefore, Property 20 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 20

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 20: 1980 Aerial (Source: historicaerials.com), north at top

Property 20: 1994 Aerial (Source: Gooogle Earth Pro), north at top

Property 21

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21: Southwest elevation, facing north

Property 21: Southeast elevation oblique, facing northwest

Property 21 is a located at 106 Fort Street and consists of a house, two historic outbuildings (Property 21b and Property 21c), and a historic storm shelter (Property 21a). The house first appears on historic topographic maps in 1947. The house could be older, but no earlier aerial or topographic maps are available to support this assertion. Therefore, based on the available data and field survey observations, a c.1945 date is attributed to Property 21.

It is unclear what type of house Property 21 may have been historically, but the house was likely altered during the mid-20th century into a duplex. The historic core of the house features a side-gabled roof covered in asphalt shingles with exposed rafter tails and includes a full-width integrated front porch on the southwest (front) elevation. The front porch features historic decorative metal supports and shelters two historic wood doors with a single diamond light. The southwest elevation also includes two picture windows consisting of a central fixed window flanked by historic 6/6 double-hung wood sash windows.

Property 21 is clad in non-historic vinyl siding and is set on a CMU foundation. The house features multiple historic

Property 21

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21: Northeast elevation, facing southwest

Property 21: Northwest elevation, facing southeast

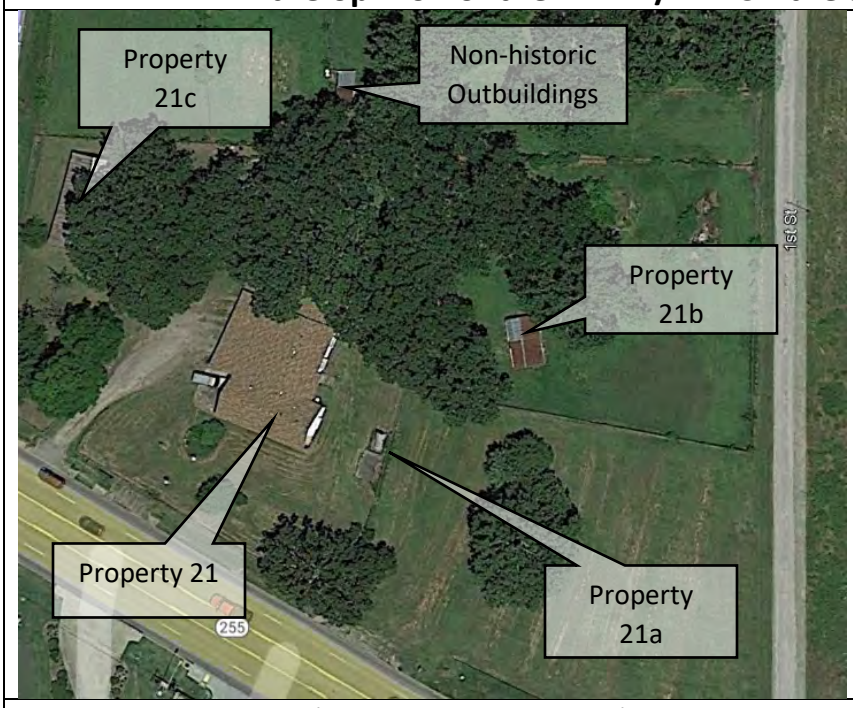
additions including two gable additions on the northeast (rear) elevation. The windows are primarily aluminum awning windows covered by historic metal awnings. The northwest elevation includes an integrated historic carport supported by wood posts and a shed-roof porch supported by metal poles. Wood doors are present on both the northwest and southeast elevations and appear to be historic.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

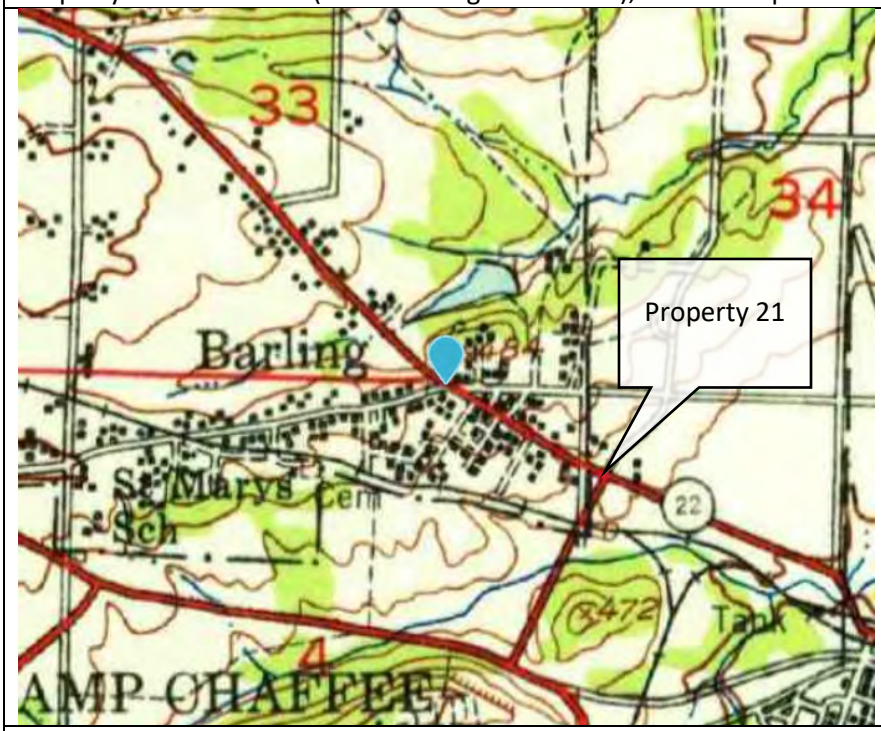
As a result of significant alterations, Property 21 no longer resembles a recognized historic house type. The house was likely turned into a duplex during the mid-20th century and features multiple large additions. Although most additions are historic in age, they have obscured the original design and plan of the building. Additionally, the replacement of historic siding with non-historic vinyl has resulted in the loss of historic fabric. Overall, these alterations and additions have resulted in a loss of integrity, materials, and workmanship. Therefore, Property 21 is not considered eligible under Criterion C.

Property 21

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 21: 2019 aerial (Source: Google Earth Pro), north at top



Property 21: 1947 topographic map (Source: usgs.gov/topoview), north at top

This property is recommended ineligible for inclusion on the NRHP.

Property 21a

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21a: South elevation, facing north

Property 21a: 1971 aerial (Source: historicaerials.com), north at top

Property 21a is a historic storm shelter located approximately 30 feet to the southeast of Property 21. The storm shelter appears on the earliest available historic aerials dating to 1971. The tax assessor record does not provide a construction date so a c.1971 date is attributed to the structure for the purposes of this survey.

The storm shelter includes a concrete pad with a corrugated metal chute extending upwards from the ground.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 21a does not feature any significant architectural features and was designed to be a durable, functional, covering for shelter during a storm. Storm shelters are common in the area and this particular example is not unique on its own merit for its construction or design. Therefore, Property 21a is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 21b
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21b: East elevation, facing west

Property 21b: North elevation oblique, facing southeast

Property 21b is a shed outbuilding associated with Property 21 and is located approximately 100 feet from the house. The shed appears on the earliest available historic aerials dating to 1971. The tax assessor record does not provide a construction date so a c.1971 date is attributed to the structure for the purposes of this survey.

The shed is a front-gable metal building with a non-historic shed addition. The roof is covered in metal sheeting and features exposed rafter tails. The exterior is clad in corrugated metal panels. Both the east and west elevations feature openings that have been cut from the metal panels to create windows and doors. The south elevation features a larger cut-out, which presumably serves to move larger equipment in and out of the building.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 21b is a rudimentary structure constructed for simplicity and utility and does not have any significant architectural features. Therefore, Property 21b is not considered eligible under Criterion C.

Property 21b

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21b: West elevation, facing east

Property 21b: South elevation, facing north

This property is recommended ineligible for inclusion on the NRHP.

Property 21b

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21b: 1971 aerial (Source: historicaerials.com), north at top

Property 21c
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 21c: Southeast elevation oblique facing northwest

Property 21c: Southeast elevation, facing west

Property 21c appears to be a garage or workshop associated with Property 21. The garage is approximately 75 feet to the northwest of the house and is visible in the first available aerial imagery dating to 1971. The tax assessor record does not provide a construction date, so a c.1971 date is attributed to the structure for the purposes of this survey.

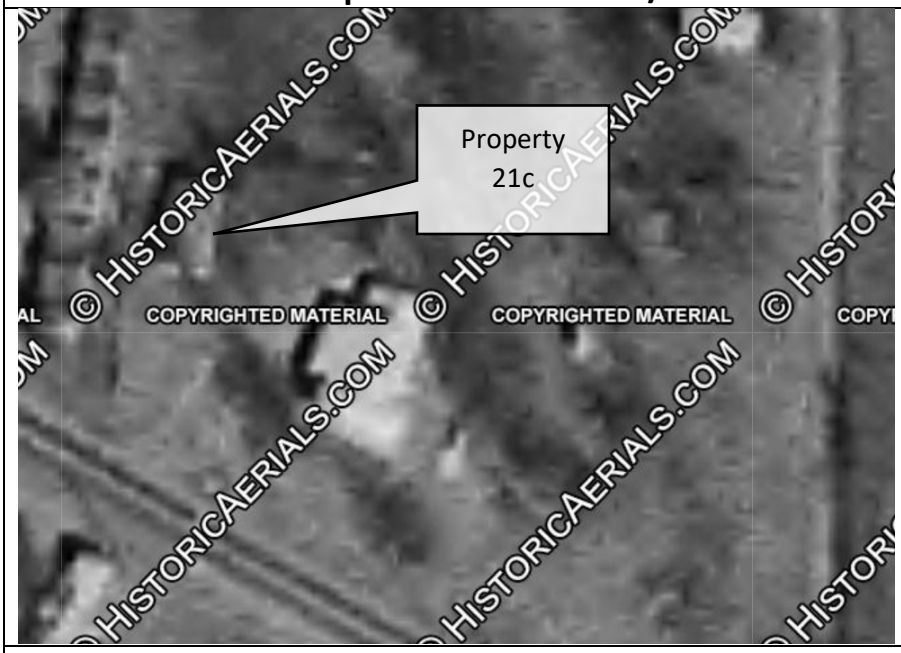
Property 21c is a rectangular, side-gable outbuilding set on a slab foundation. The roof is covered in corrugated metal sheeting and features exposed rafter tails. The building is clad in corrugated metal sheeting and features a non-historic wood door and non-historic metal garage door on the southeast elevation. A single double-hung sash window is located on the southwest and northeast elevations.

No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

Property 21c is not a good or representative example of a type of historic outbuilding and has been altered. The main entrances to the garage, the door and garage door, have

Property 21c

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 21c: 1971 aerial (Source: historicaerials.com), north at top

been replaced with non-historic materials. Additionally, the metal sheeting covering the building appears to be replacement cladding based on the wear and condition of the materials. These alterations have resulted in a loss of materials, design, and workmanship. Therefore, Property 21c is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 22

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 22: East elevation, facing northwest

Property 22: South elevation, facing northwest

Property 22 is located at 108 First Street. The house first appears on historic topographic maps in 1947. The house could be older, but no earlier aerial or topographic maps are available to support this assertion. Therefore, based on the available data and field survey observations, a c.1945 date is attributed to Property 22.

Property 22 is a rectangular building set on a CMU foundation with a side-gable roof and partial-width front-gable porch. The roof is covered in asphalt shingles, and the house is clad in a combination of wood clapboard siding, wood drop siding, and vinyl. The front porch is supported by historic decorative metal supports and shelters a non-historic panel door. The windows on the historic portion of the house consist of aluminum 2/2 double-hung horizontal sash units in paired and single configurations. The house has been altered with a rear gable addition, a small CMU shed addition on the north elevation, and a shed-porch addition on the north elevation. All the additions appear to be historic based on available aerial imagery from 1971. The rear gable

Property 22

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 22: North elevation, facing south

Property 22: Rear (west) elevation, facing east

addition includes a non-historic door and non-historic 1/1 double-hung sash vinyl windows. A metal chimney is visible within the roof on the north elevation.

Alterations and additions to the house make it difficult to discern what type of house Property 22 may have been historically. Based on the evidence of an enclosed second front doorway, either the entry to the house was shifted at some time or the house may have been a duplex.

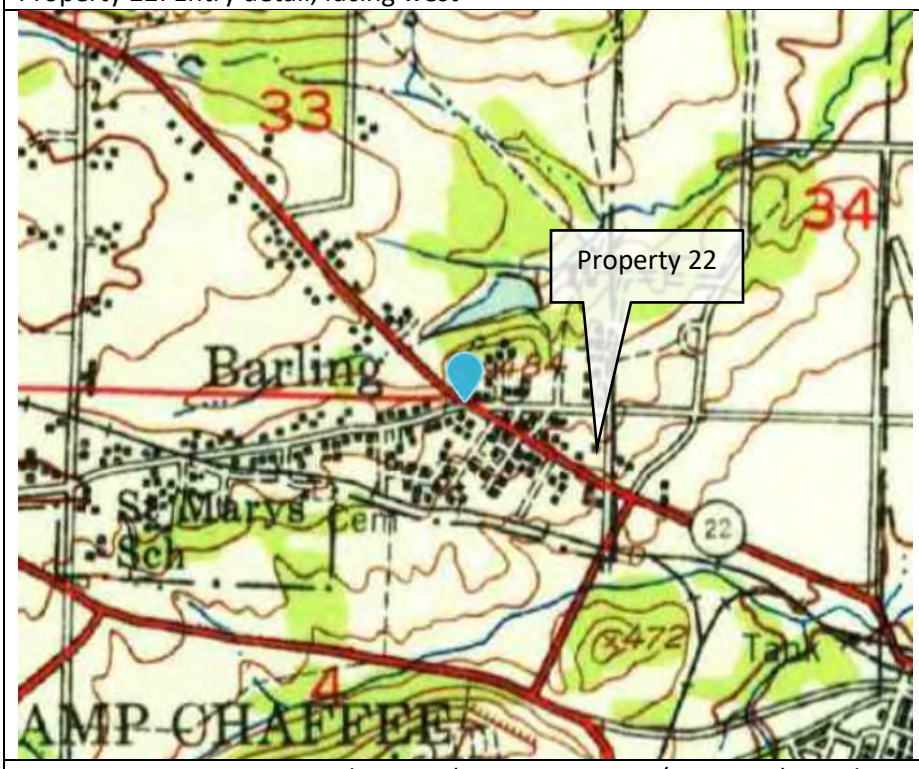
No association with significant historical events or persons was found during background research to warrant evaluation under Criteria A or B.

As a result of significant alterations, Property 22 no longer resembles a recognized historic house type. The house may have been a duplex, but at one point the front door was either relocated or the second entryway enclosed. The house includes other alterations, including multiple additions and non-historic window replacements. Although the additions are historic in age, they have obscured the original design and plan of the building. Additionally, the replacement of original windows, alteration of openings on the façade, and addition of non-historic vinyl siding in places have resulted in a

Property 22

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 22: Entry detail, facing west



Property 22: 1947 topographic map (Source: usgs.gov/topoview), north at top

loss of integrity, materials, and workmanship. Therefore, Property 22 is not considered eligible under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 23

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 23: Intersection with Union Pacific Railroad and Highway 22, facing south

Property 23: Slab bridge (Property 23a), facing northwest

Property 23 is located approximately 200 feet to the northwest of the intersection of Highway 22 and Mahogany Drive and consists of an approximately 920-foot segment of historic roadbed belonging to the former State Highway 22 route. A portion of the road is currently known as Park Road and accesses land owned by Fort Chaffee.

Construction on Highway 22 began in 1927 with paving completed by 1929 (Wilcox). The alignment roughly followed the Butterfield Trail, an old Stagecoach route that went from Dardanelle to Fort Smith. Currently, three segments of Highway 22 are listed on the NRHP, including a segment in Sebastian County known as Mayo Drive (Wilcox, Cothren).

According to the NRHP nomination for the Mayo Drive segment of Highway 22, modifications and improvements to Highway 22 began in the 1960s and 1970s (Wilcox). The beginnings of these improvements are evident on available historic aerials from 1971, with alignment of Highway 22 shifting to the south of Property 23.

Property 23 begins approximately 200 feet to the northwest of the

Property 23

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 23: Historic roadbed, facing west

Property 23: Historic roadbed detail, facing west

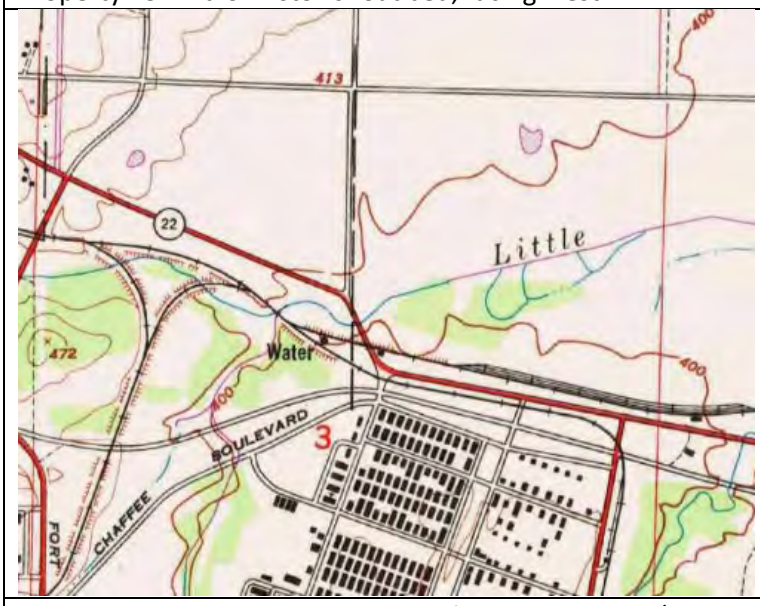
intersection of Highway 22 and Mahogany Drive and intersects the Union Pacific Railroad (formerly the Missouri Pacific Railroad). Approximately 220 feet of the roadway is paved in asphalt and is approximately 15 feet in width with grassed shoulders. The remainder of the road surface appears to consist of an aggregate concrete surface approximately 20 feet in width with no visible shoulders. The northwestern portion of the road is unused and has fallen into disrepair. The pavement is cracked in many places and vegetation is visible within the historic roadbed. The paving terminates abruptly into a grassed area just south of exit 193 off Interstate 49.

Property 23 was evaluated under Criterion A for its association with early transportation and the beginnings of the highway system in Arkansas. Although Highway 22 was an important early transportation route in the state, this portion of that route has been discontinued and no longer fully serves its historical purpose. While the roadbed is still evident on aerials, the road is no longer accessible to the public and a

Property 23

In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 23: End of historic roadbed, facing west



Property 23: 1947 topographic map (source: usgs.gov/topoview), north at top

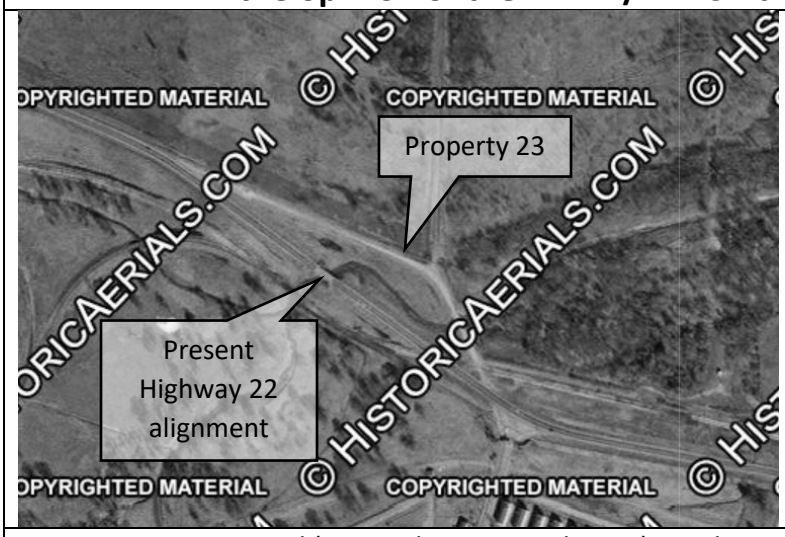
section of the historic pavement has been covered in non-historic asphalt which has resulted in a loss of integrity of feeling and association. Therefore, Property 23 is not considered eligible for the NRHP under Criterion A.

No association with significant persons was found during background research. Therefore, there is no reason to evaluate Property 23 under Criterion B.

Property 23 was evaluated under Criterion C for engineering. This remaining segment of Highway 22 has been altered in places and is deteriorating in others. A portion of the original concrete aggregate paving has been covered in asphalt. The majority of the remaining historic pavement is cracked and becoming overgrown with vegetation. Only a small portion of the road is still in use, serving as an access road to property owned and utilized by Fort Chaffee. As a result of alterations to the original roadbed, Property 23 has lost integrity of design, workmanship, and materials. In comparison to other existing portions of old Highway 22, this segment no longer serves as a good

Property 23

In the opinion of the FHWA/ARDOT the structure is not eligible.



Property 23: 1971 aerial (source: historicaerials.com), north at top

or representative example of a historic highway. Therefore, Property 23 is not considered eligible for the NRHP under Criterion C.

This property is recommended ineligible for inclusion on the NRHP.

Property 23a
In the opinion of the FHWA/ARDOT the structure is not eligible.

Property 23a: North Profile

Property 23a: West Approach

Property 23a (ARDOT Bridge No. 22475) is a bridge associated with a segment of old Highway 22 (now known as Park Road). The InspectX report for this bridge indicates that it was constructed in 1927.

The bridge is a steel stringer bridge that is 65 feet in length and 23.6 feet in width. The bridge features concrete piers and pier caps.

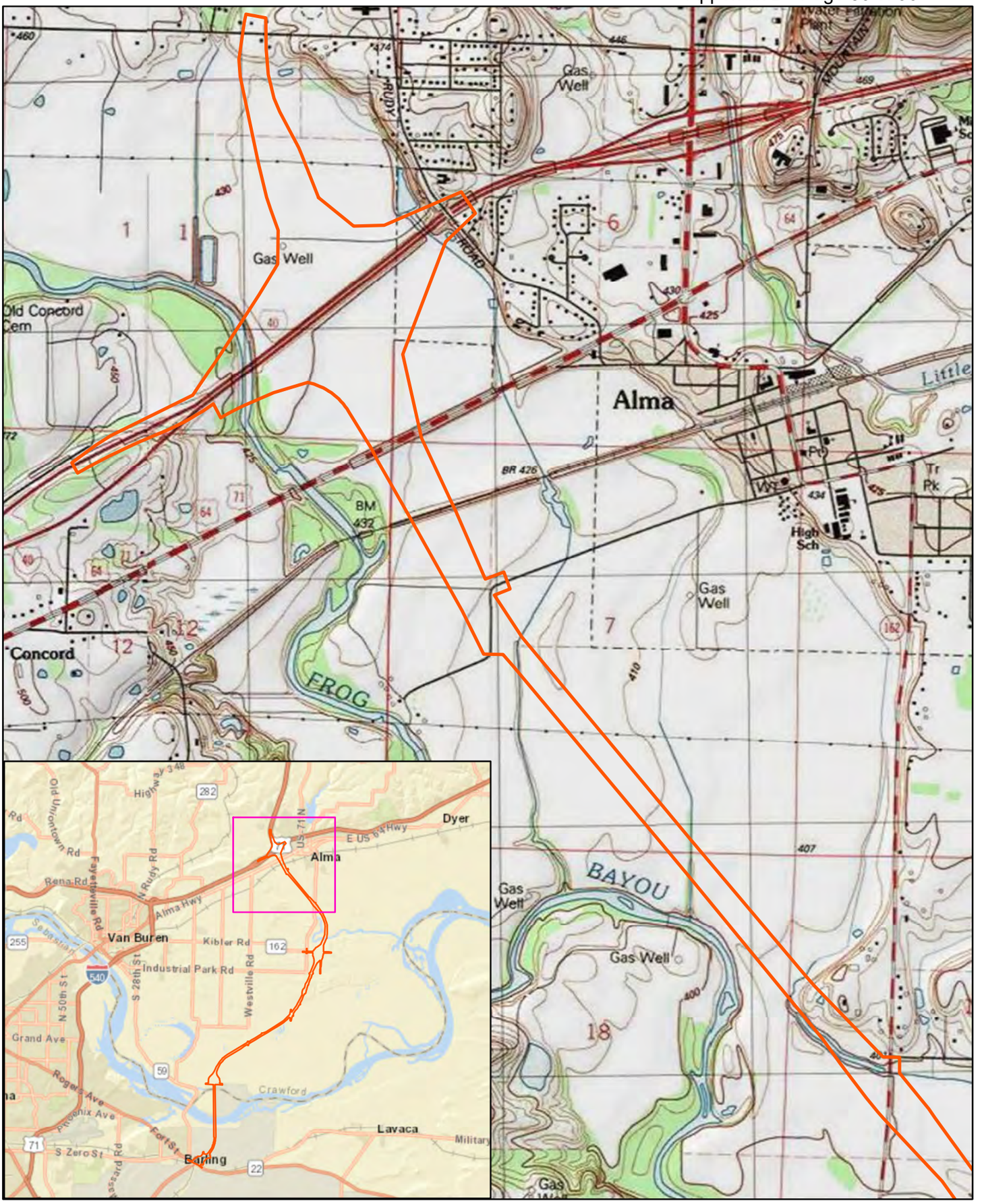
The bridge is associated with Highway 22, an early transportation route in Arkansas. However, this road (and therefore this bridge) no longer retains integrity and cannot convey significance. The route has been discontinued and the remaining segment containing Property 23a no longer retains integrity of feeling and association as a historic highway. Additionally, although the bridge was built during the Arkansas Highway and Transportation Department era (1923-1939), it is not included within that context. Therefore, the bridge is not eligible under Criterion A.

No association with significant persons was found during background research. Therefore, there is no reason to evaluate Property 23a under Criterion B.

Property 23a: East Approach

This bridge is not eligible under Criterion C. It has no aesthetic features, distinctive engineering, or exceptional length, and is not one of the earliest versions of this type. It is also one of over 2,400 bridges of this type still standing in Arkansas.

This property is recommended ineligible for inclusion in the NRHP.



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N

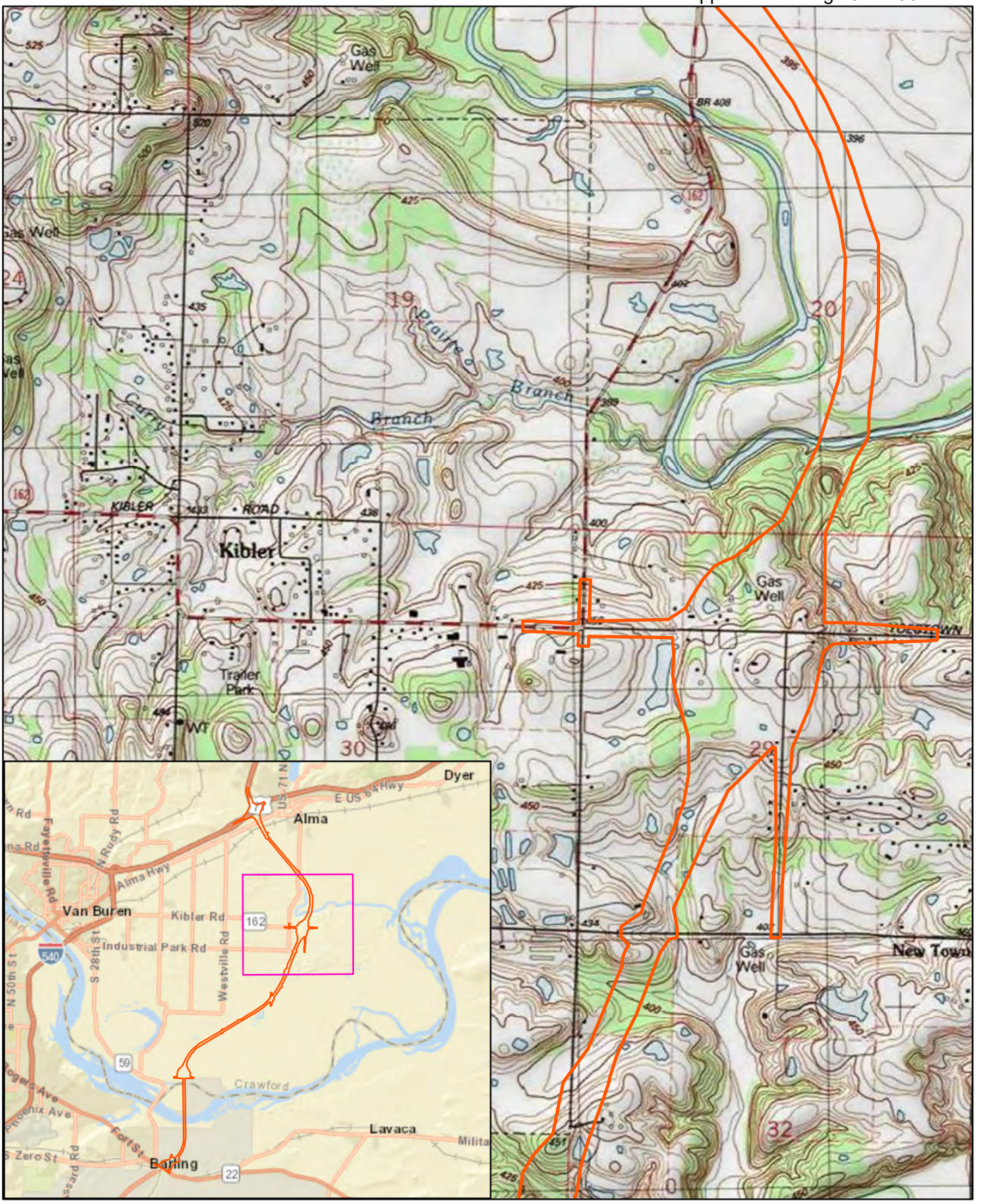
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 1 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1995



Scale: 1:24,000

N

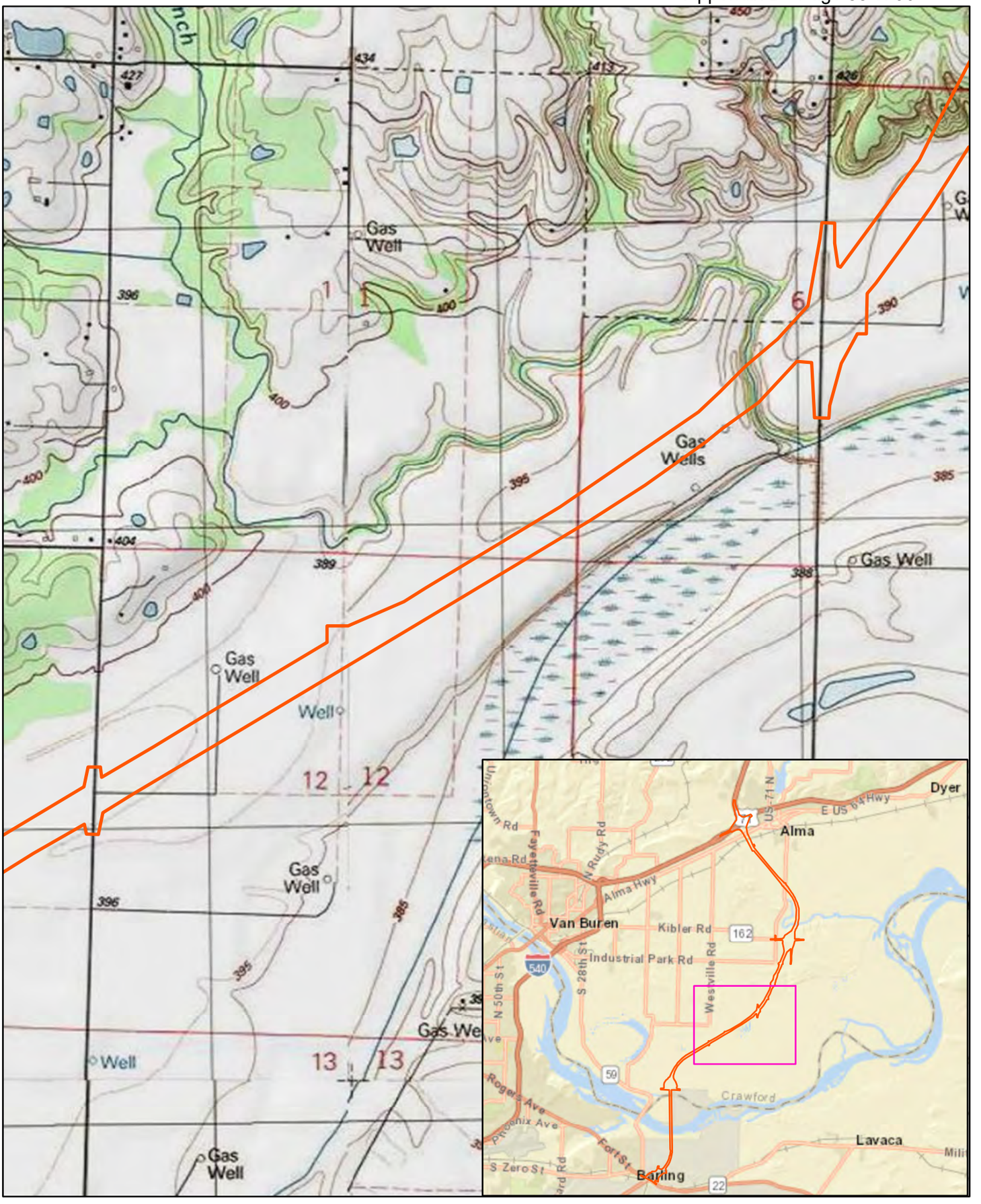
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 2 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987



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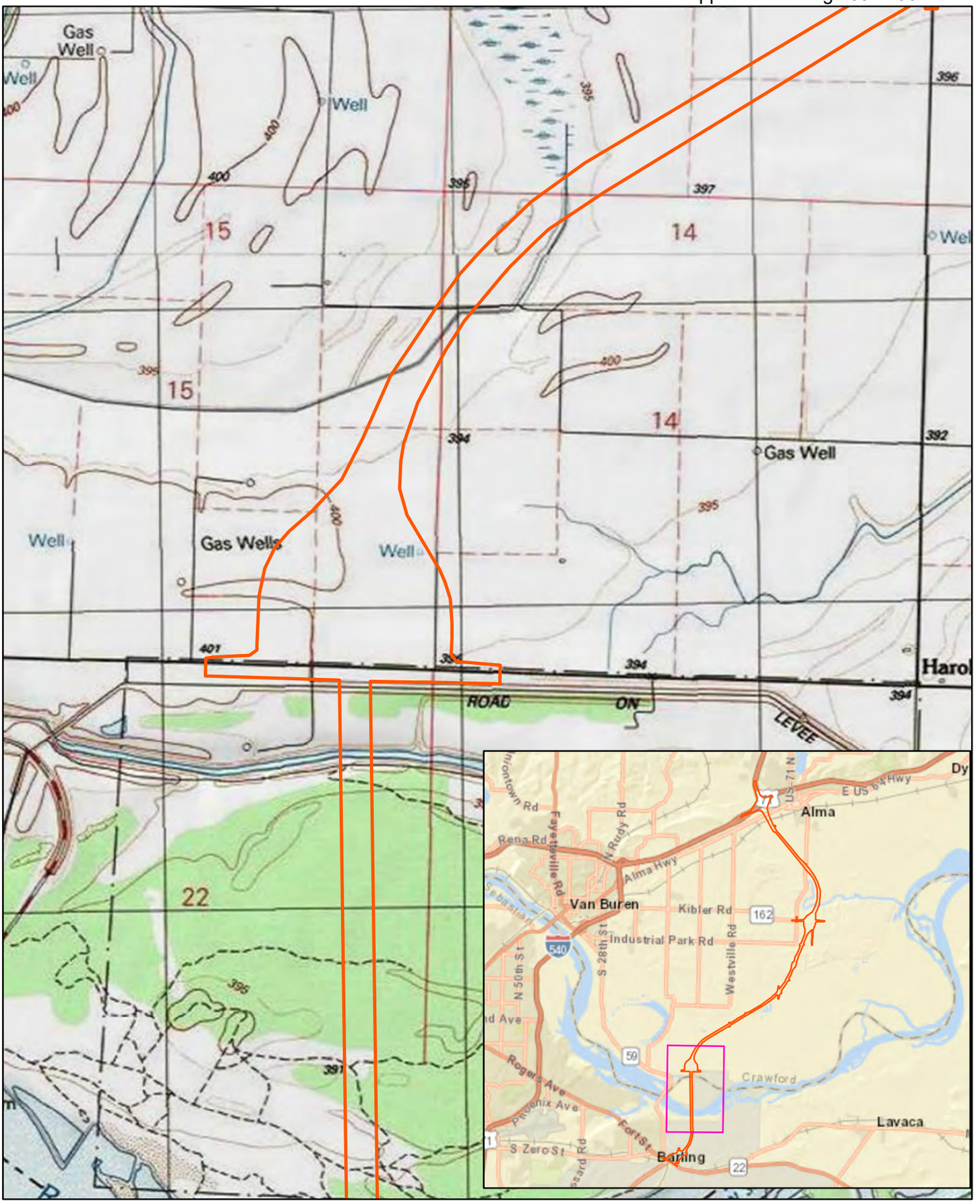
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 3 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987
Barling 1987



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I-49 PROJECT RE-EVALUATION

From SH 22 to I-40

Crawford and Sebastian Counties, Arkansas

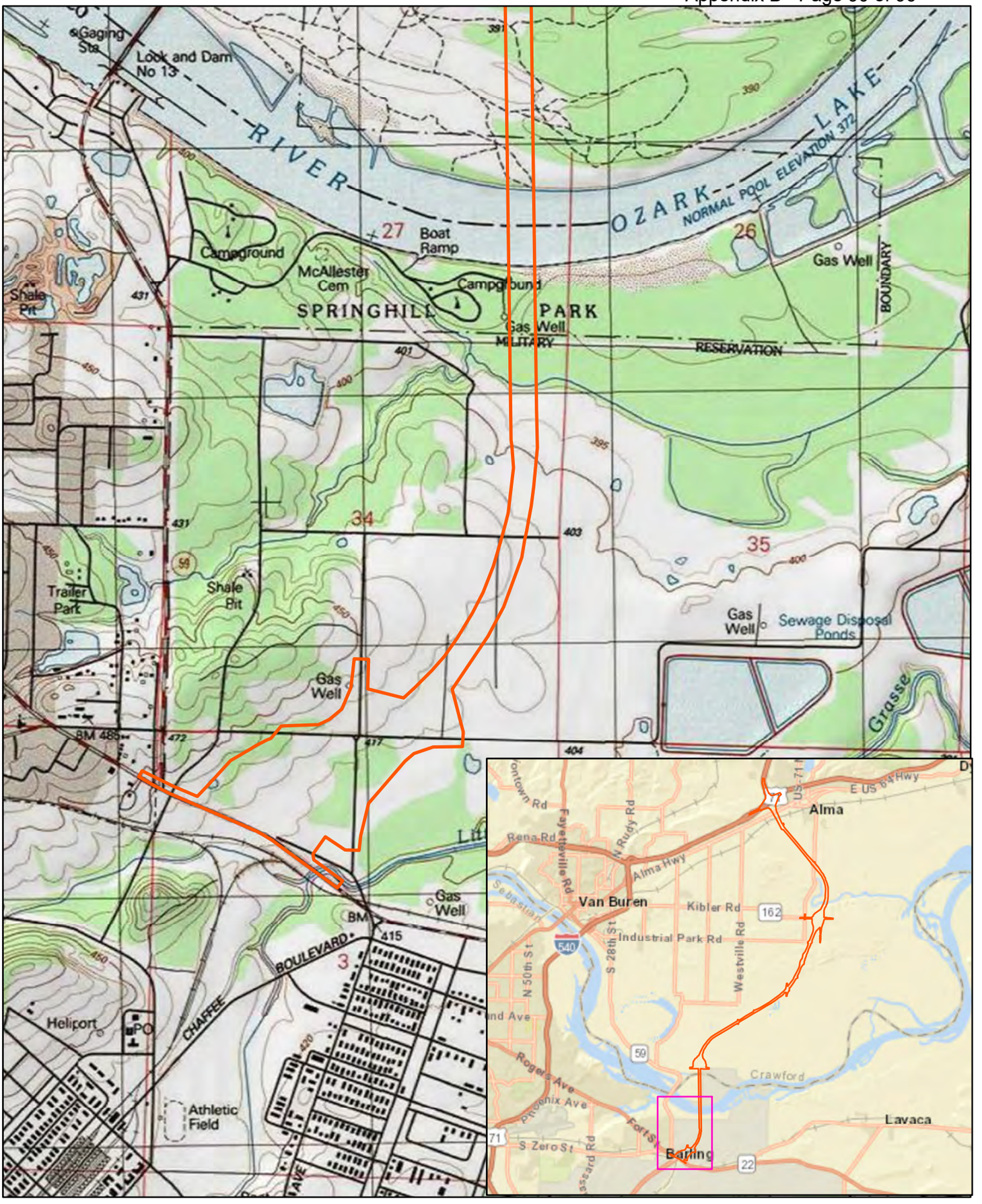
Sheet 4 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987



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I-49 PROJECT RE-EVALUATION

From SH 22 to I-40

Crawford and Sebastian Counties, Arkansas

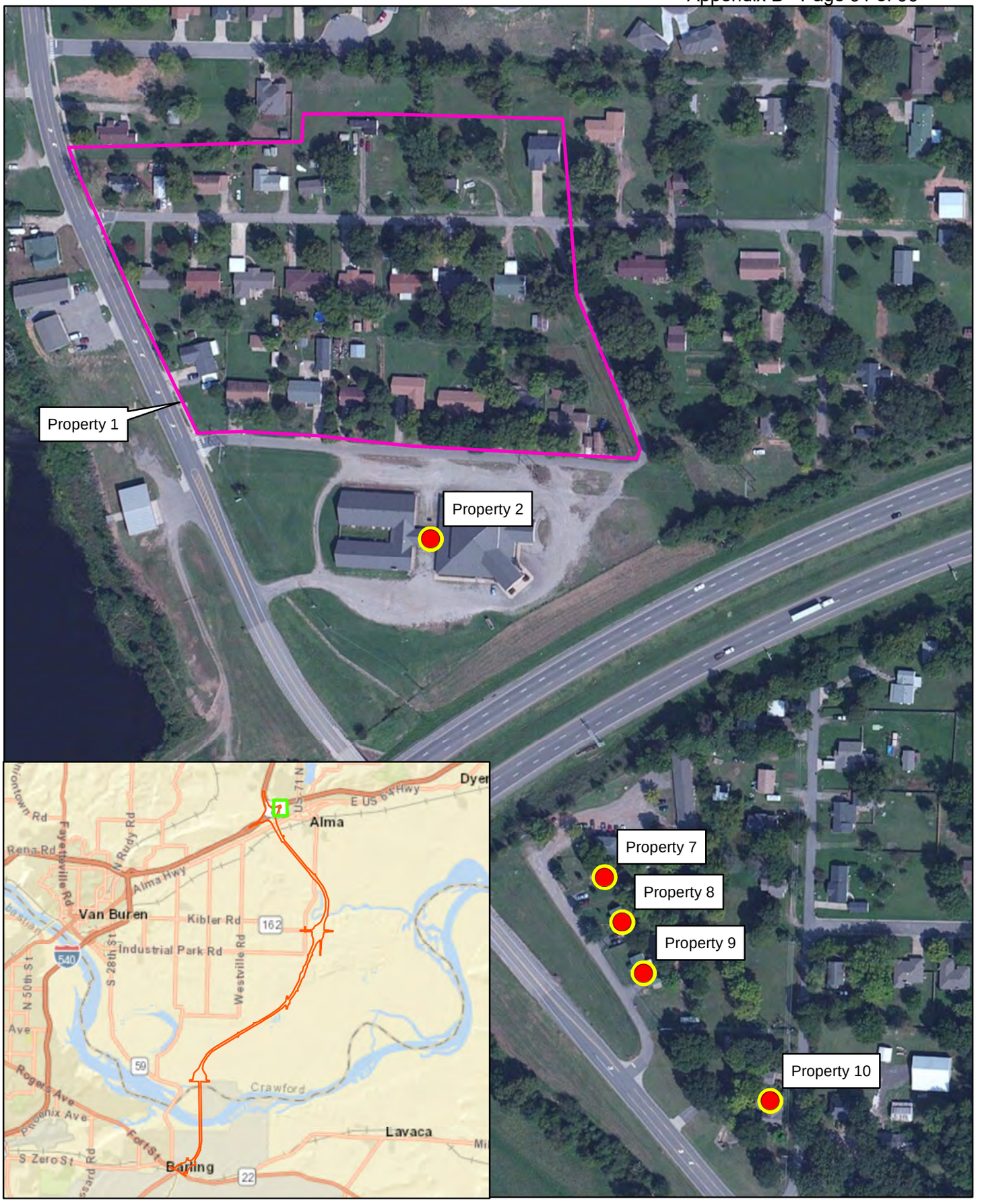
Sheet 5 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Barling 1987



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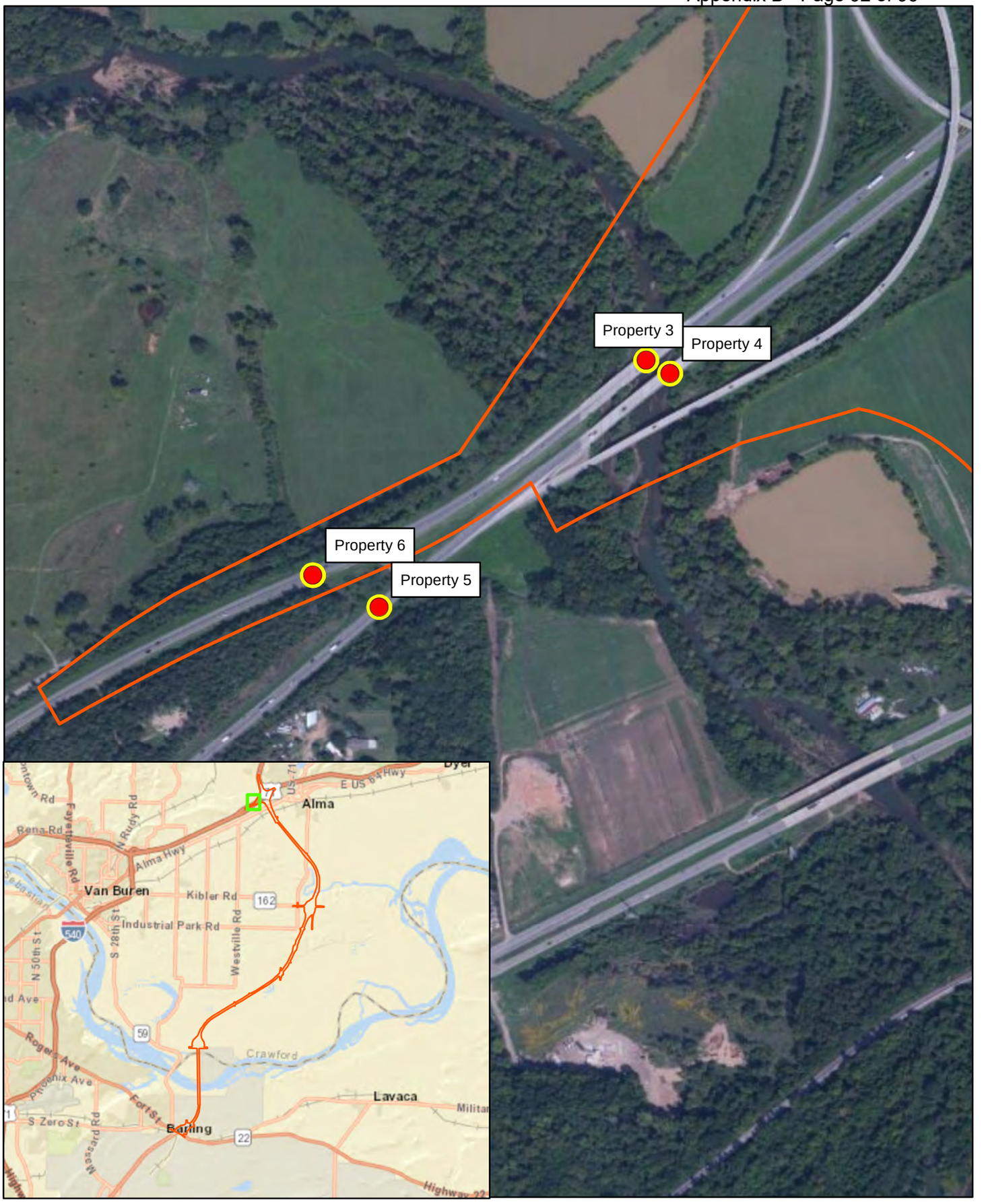
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 1 of 6

Property Locations

Job No. 040748

Property
Property 1

0 215 430 Feet



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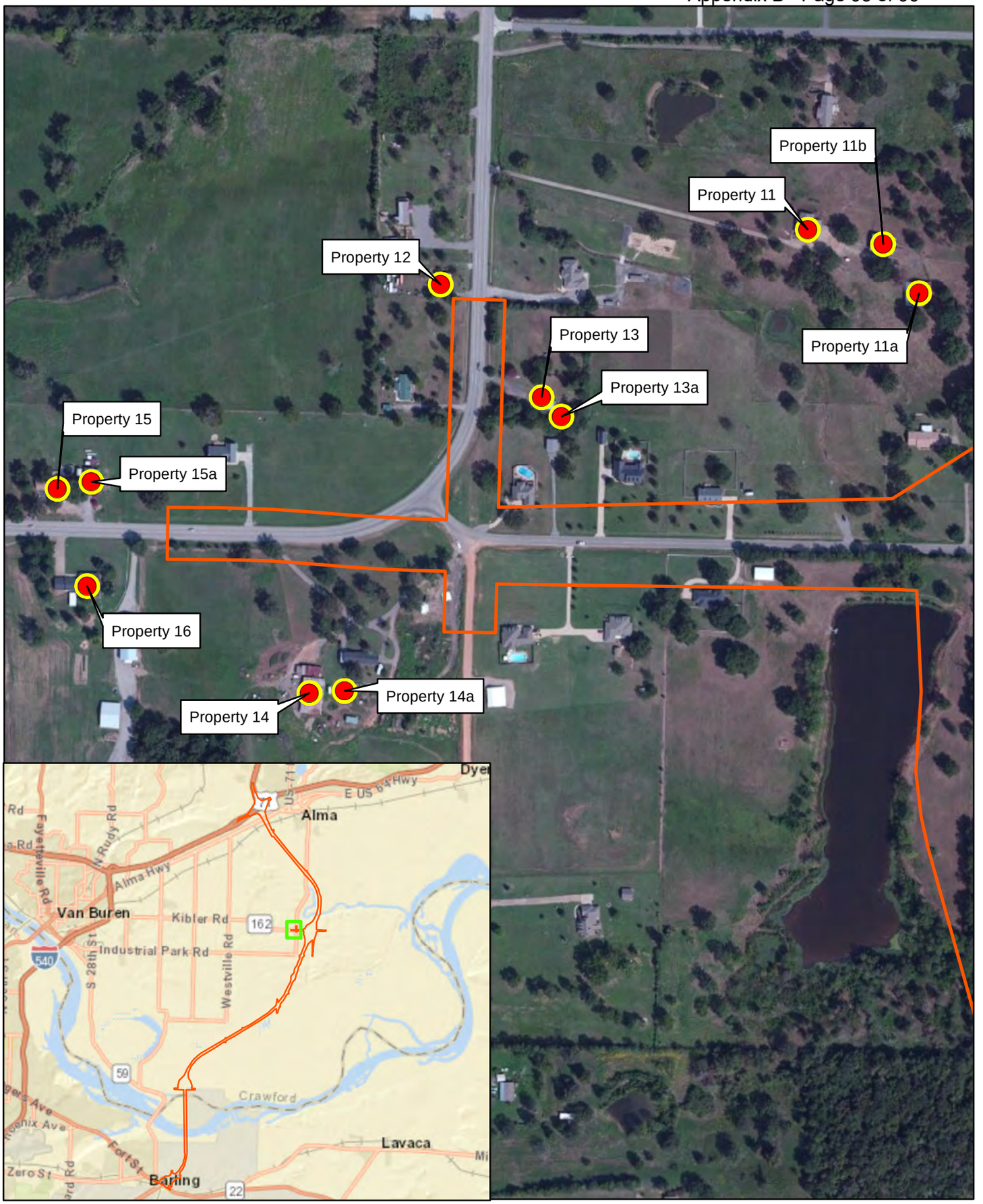
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 2 of 6

Property Locations

Job No. 040748

Property

0 495 990 Feet



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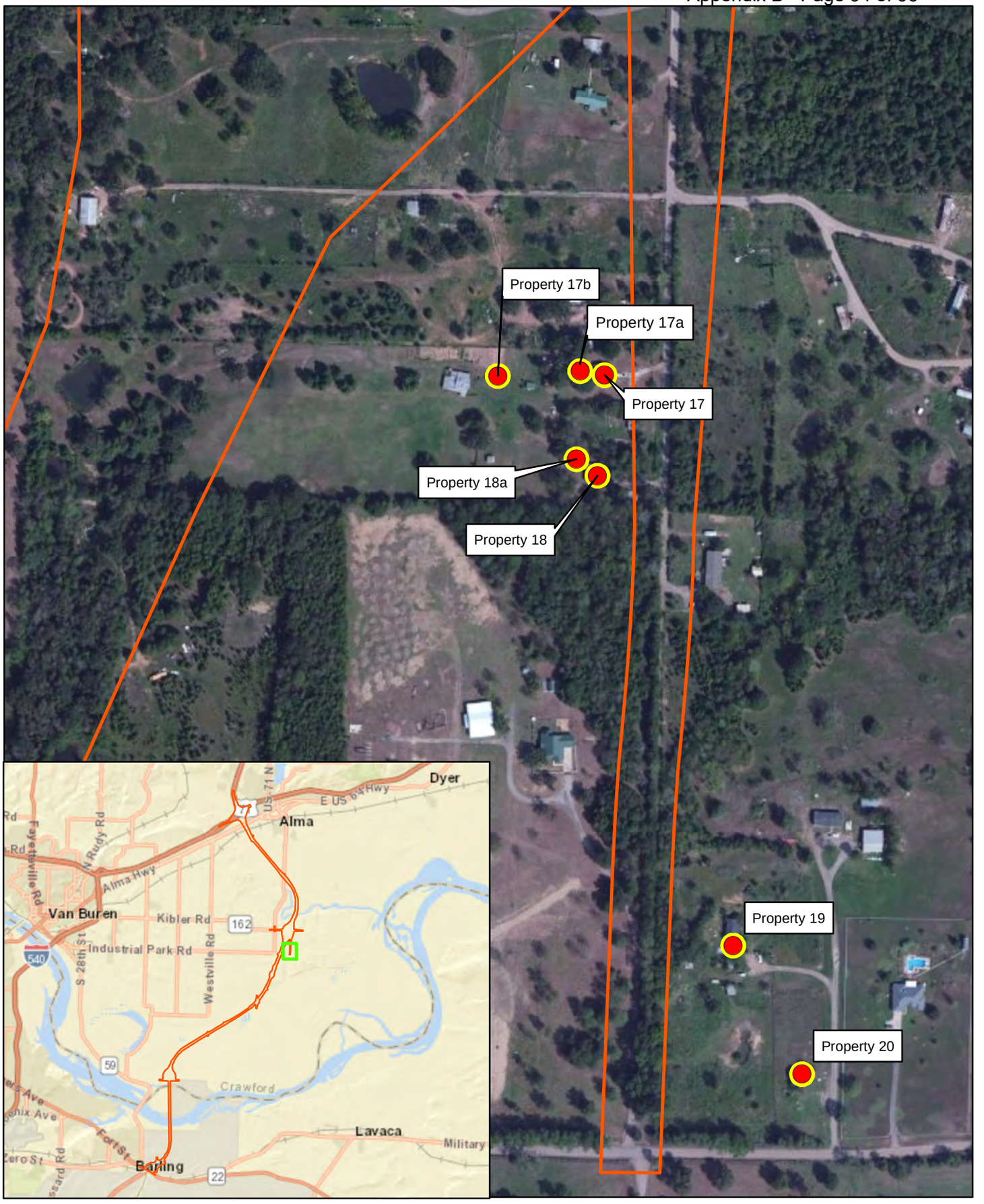
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 3 of 6

Property Locations

Job No. 040748

Property

0 345 690 Feet



I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 4 of 6

N

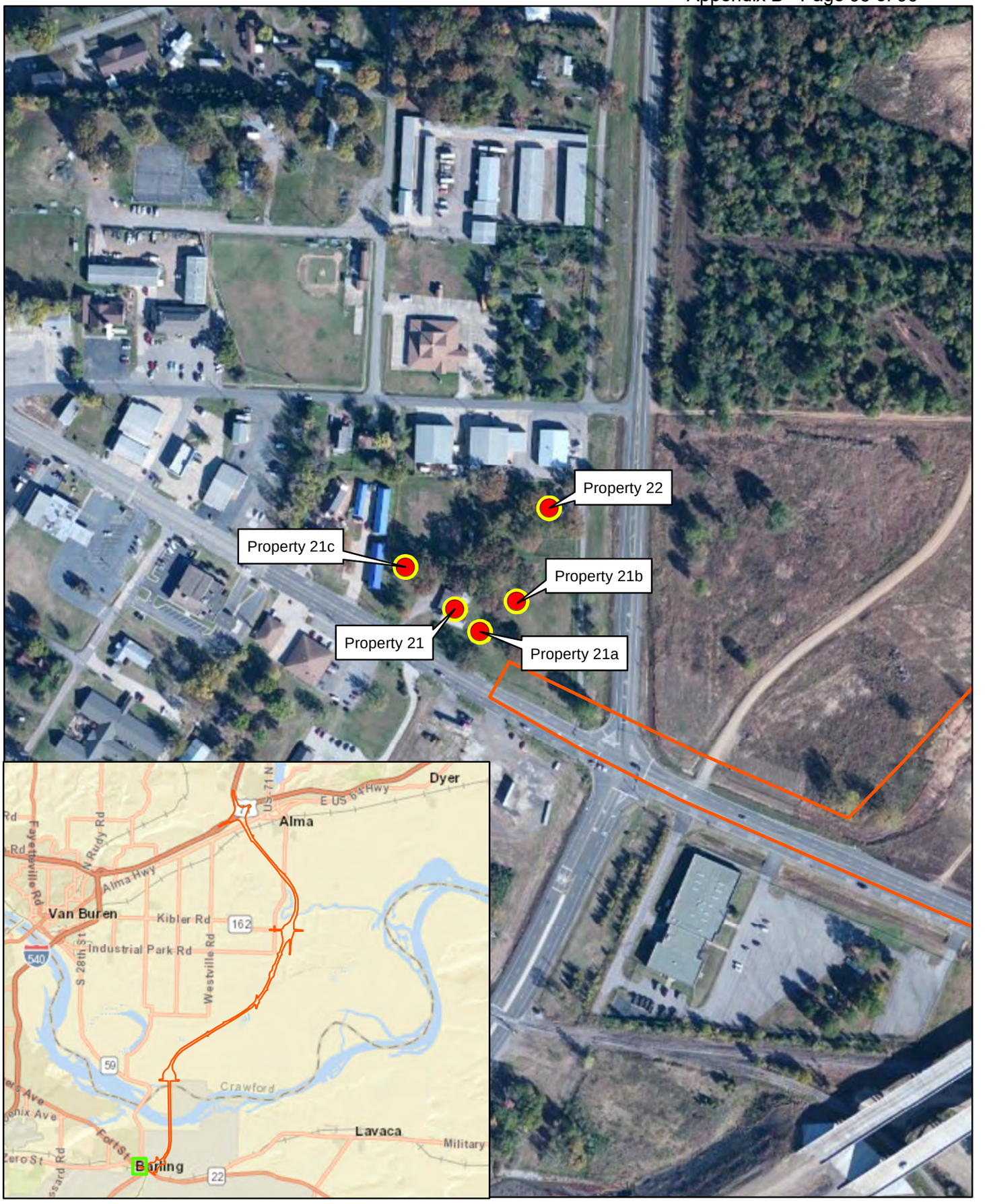
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Property Locations

Job No. 040748

Property

0 270 540 Feet



I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 5 of 6

N

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Property Locations

Job No. 040748

Property

0 275 550 Feet

N

I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 6 of 6

Property

Property Locations

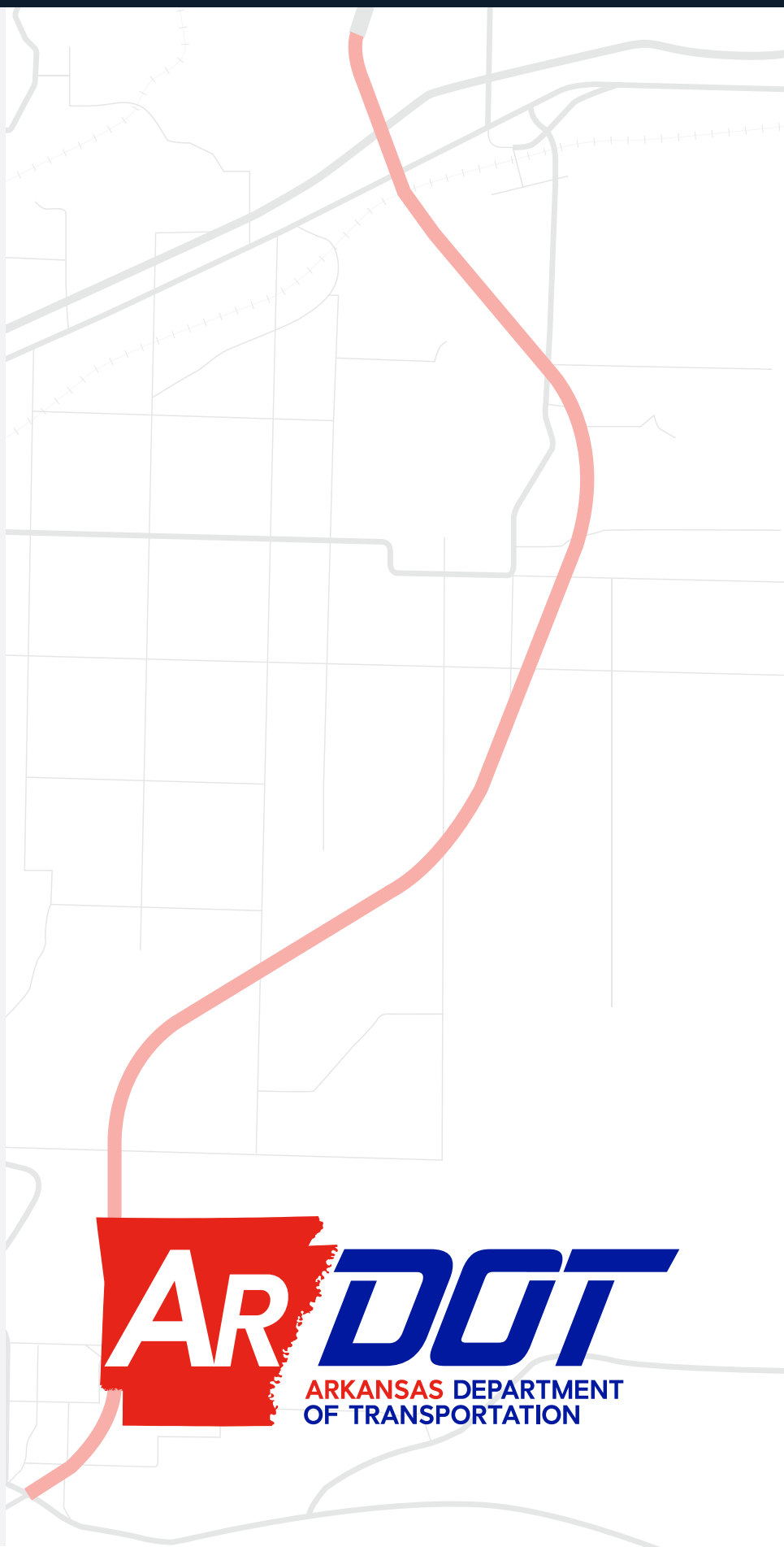
0 140 280 Feet

Job No. 040748

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

APPENDIX C

Individual Section 4(f) for Springhill Park



I-49 Section 4(f) Evaluation Springhill Park

Hwy. 22 – I-40 (Arkansas River)
Crawford and Sebastian Counties, Arkansas

November 2023
Job 001747

Randal Looney

Randal Looney
Environmental Coordinator
Federal Highway Administration

November 28, 2023
Date

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 Introduction

Interstate 49, a new location roadway, is proposed to bridge over Springhill Park, located immediately south of the Arkansas River in Barling, Arkansas and Crawford and Sebastian Counties. Springhill Park is a Section 4(f) property. Use of this Section 4(f) property will occur because land within Springhill Park will be permanently incorporated into the Interstate 49 transportation project. This document presents the Section 4(f) evaluation for impacts to Springhill Park resulting from the construction of Interstate 49.

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Section 4(f) specifies that the Secretary of Transportation may approve a project that requires the use of land from a significant publicly-owned park, recreation area, wildlife or waterfowl refuge, or any historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if the following determinations have been made: (1) there is no feasible and prudent alternative to the use of such land; and (2) all possible planning has been undertaken to minimize harm to the property resulting from such use. These determinations, submitted pursuant to 49 U.S.C. Section 303 and 23 U.S.C. Section 138, are set forth in this Section 4(f) Evaluation. This Draft Individual Section 4(f) evaluation was prepared in accordance with Federal Highway Administration (FHWA) 23 CFR 774 for Section 4(f) compliance.

2.0 Project Information

The proposed project was originally part of a larger environmental study known as the Highway 71 Relocation (DeQueen to Interstate 40). This study extended from Highway 70 in De Queen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of Highway 71 in Arkansas is part of the congressionally designated High Priority Corridor 1, which extends from Shreveport, Louisiana to Kansas City, Missouri. A Final Environmental Impact Statement (FEIS) was prepared for the Highway 71 Relocation project and a Record of Decision (ROD) was issued in December 1997, which environmentally approved the general alignment of a new location, four-lane highway in western Arkansas.

The Interstate 49 corridor has been under construction since the early 1990s with several sections fully constructed. A section from Highway 71 to Highway 22, near White Bluff, which is six miles southwest of Barling, and designated as Highway 549 (future Interstate 49), is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40 in Alma, an existing section of Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads. The current proposed project is a new location roadway that would begin at Highway 22 at the southern project limits and terminate just north of Interstate 40 near Collum Lane at the northern project limits. The project would connect to Highway 549 (future Interstate 49) to the south and existing Interstate 49 to the north.

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a Re-evaluation of the FEIS and refining the alignment for this new location section of Interstate 49. This section, approved in the 1997 ROD, is a critical connection between Highway 22 in Sebastian County and the Interstate 40/Interstate 49 interchange in Crawford County, a distance of approximately 14 miles. The project location is depicted in **Figure 2-1**.

Figure 2-2: Project Location Map

Source: Project Team (2022)

3.0 Purpose and Need

The purpose of the project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve modal connectivity. The proposed project is needed to provide linkage and modal connectivity to the surrounding interstate highway system, including links to both the surrounding Interstate 49 corridor sections already completed and a link to Interstate 40. The proposed project is also needed to address safety issues associated with increasing volumes of vehicular traffic in the Northwest Arkansas region. The proposed Interstate 49 project would provide an alternate route around Fort Smith, Arkansas, for those traveling north/south through the area.

4.0 Description and Significance of Section 4(f) Property

The proposed project would impact property within Springhill Park. Section 4(f) protections are applicable because Springhill Park is a publicly accessible park managed and used for recreational purposes. United States Army Corps of Engineers (USACE) owns and manages Springhill Park is and is the official with jurisdiction over the park. The park encompasses approximately 337 acres and is located at James W. Trimble Lock and Dam on the south bank of the Arkansas River. The sole access point to the park is from State Route 59. The park has been known to experience occasional flooding. Existing facilities provided at the park include picnic areas, a boat launching ramp, camping areas, and a 10-mile mountain bike/hiking trail that was constructed after the FEIS/ROD, all of which are open to the general public. Campsite facilities include fees ranging from $16.00 per night for a tent site to $75.00 per night for a group shelter with electricity. The park closes at 10:00 PM except for campers and fishermen. Average monthly visitation is around 19,000 persons (estimating 2.5 persons per vehicle)[1]. The existing facilities are all located in the western half of the park, upstream of river mile 292.0, with the exception of the boat ramp and the mountain bike/hiking trail, which traverses the majority of the park. The existing facilities are shown in **Figure 4-1.**

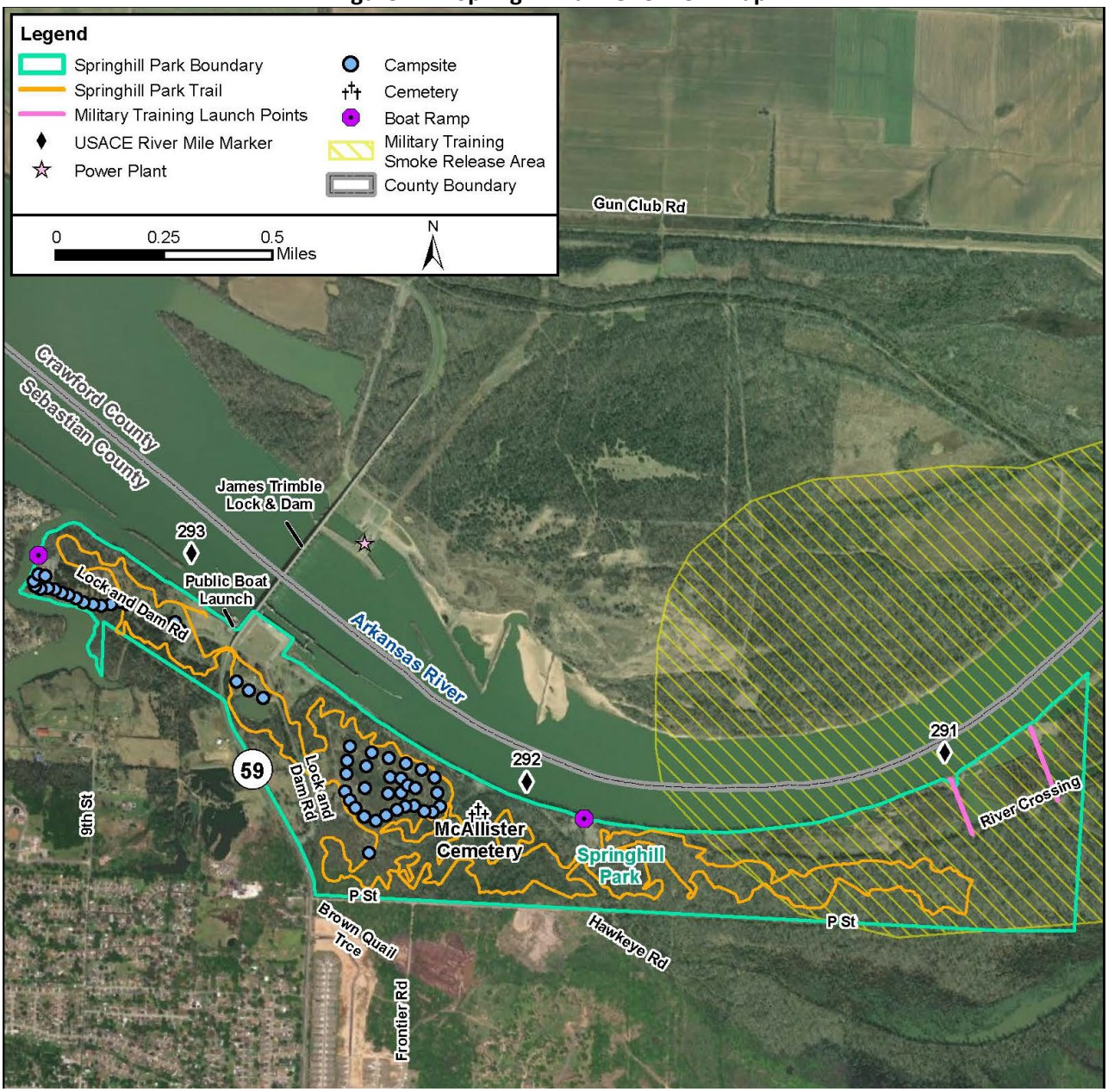
In addition to the above features, the eastern areas of the park are utilized by the Fort Chaffee Military Reservation. Fort Chaffee provides Water Obstacle Training for several segments of the armed forces. Part of the training doctrine includes the release of black smoke. The approximate area of smoke release is shown in **Figure 4-1.** There is no lease agreement or easement in place for the use of the park by Fort Chaffee.

In addition to Springhill Park, there is one additional Section 4(f) property impacted by the proposed project: Old Wire Road. The property owner of Old Wire Road made ARDOT aware of this historic road in 2018. ARDOT documented the historic road and evaluated it for its eligibility in the National Register of Historic Places (NRHP) on June 20, 2018. The Arkansas State Historic Preservation Officer (SHPO) concurred that the historic road was eligible for inclusion in the NRHP under Criterion A for being an early post road and route and under Criterion C for its association with a method of 19th century road construction in a letter dated June 21, 2018. Therefore, a

[1] Information obtained via phone call with Donnie Lindsey, USACE representative for Springhill Park.

Section 4(f) evaluation was not done as part of the 1997 FEIS because the historic property was not known about at that time. Impacts to Old Wire Road resulting from the proposed project are assessed in the Interstate 49 *Section 4(f) Evaluation for Old Wire Road*.

Figure 4-1: Springhill Park Overview Map



Sources: Project Team (2022), Arkansas GIS Office (2022), and USACE (2022)

5.0 Alternatives/Findings

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of Section 4(f) property only if there is no prudent and feasible alternative to using that land. 23 CFR 774.17 defines a feasible and prudent avoidance alternative as follows:

1. A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.
2. An avoidance alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
3. An avoidance alternative is not prudent if it:
    a. Compromises the project so that it is unreasonable given the purpose and need;
    b. Results in unacceptable safety or operational problems;
    c. After reasonable mitigation, still causes:
        i. Severe social, economic, or environmental impacts;
        ii. Severe disruption to established communities;
        iii. Severe environmental justice impacts; or
        iv. Severe impacts to other federally protected resources.
    d. Results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
    e. Causes other unique problems or unusual factors; or
    f. Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

<u>No-Build Alternative</u>

The No-Build Alternative would avoid the use of Springhill Park and would not include the construction of Interstate 49. Although the No-Build Alternative is feasible, it is not a prudent avoidance alternative because it would not meet the project's purpose and need of improving system linkage for a north/south national interstate corridor, accommodating safe travel, and improving modal connectivity and would compromise the project so that it is unreasonable given the purpose and need. A summary of the prudence factors and their applicability to the No-Build Alternative are presented in **Table 5-1**.

Table 5-1: Prudence Applicability to the No-Build Alternative

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	Yes
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	No
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

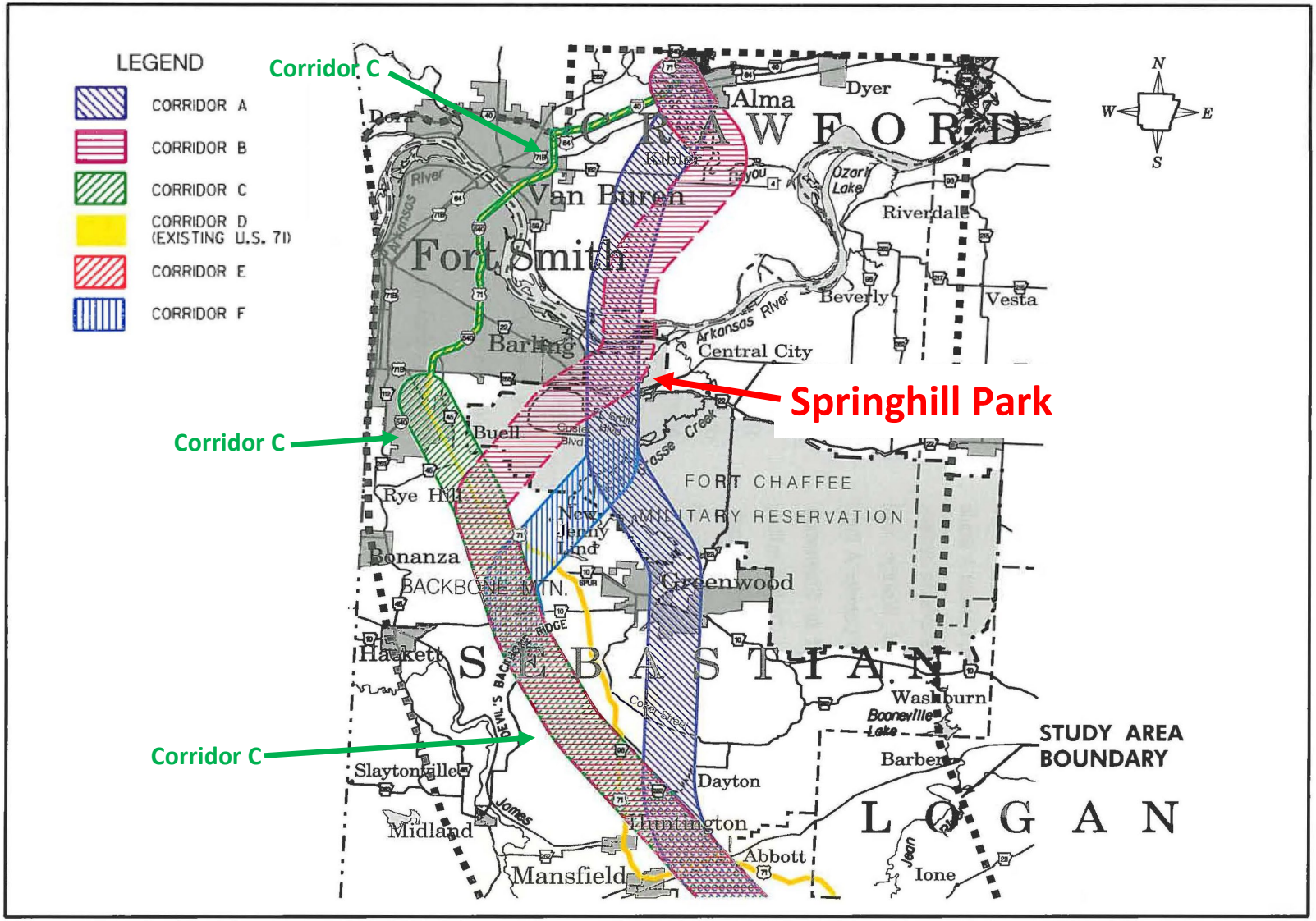
Avoidance Alternative - Corridor C

A corridor feasibility study was conducted prior to the 1997 FEIS. As shown in **Figure 5-1**, six corridors were evaluated. All corridors except one included a crossing of Springhill Park. The corridor that avoided Springhill Park, Corridor C, followed Interstate 540 and Interstate 40 through Fort Smith and Van Buren and would require widening these roadways. While Corridor C is feasible, it was determined that widening Interstate 540 and Interstate 40 would not provide a regional interstate highway with sufficient capacity and a high level of service; and therefore, would not satisfy the purpose and need. Widening would also have been inconsistent with local development plans and project objectives. In order to confirm potential relocation impacts, a field inspection was made of Corridor C from the U.S. Highway 71/Interstate 540 interchange to the Interstate 40/State Highway 540 interchange. The following houses, businesses, and community facilities were identified during field inspection of Corridor C: 582 single family homes, 116 businesses, 57 apartment buildings, three churches, one cemetery, one school, and one state police headquarters. These numbers represented the order of magnitude of the relocations that could result from widening the existing facility. Accordingly, even after reasonable mitigation (e.g., relocation assistance), the density of existing development along Interstate 540 and Interstate 40 would have resulted in severe disruption to established communities and severe social, economic, and environmental impacts. A summary of the prudence factors and their applicability to the Avoidance Alternative – Corridor C are presented in **Table 5-2**.

Table 5-2: Prudence Applicability to the Avoidance Alternative – Corridor C

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	Yes
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	Yes
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

Figure 5-1: Avoidance Alternative – Corridor C



Source: FEIS U.S. 71 Relocation Dequeen to Interstate 40 (1997)

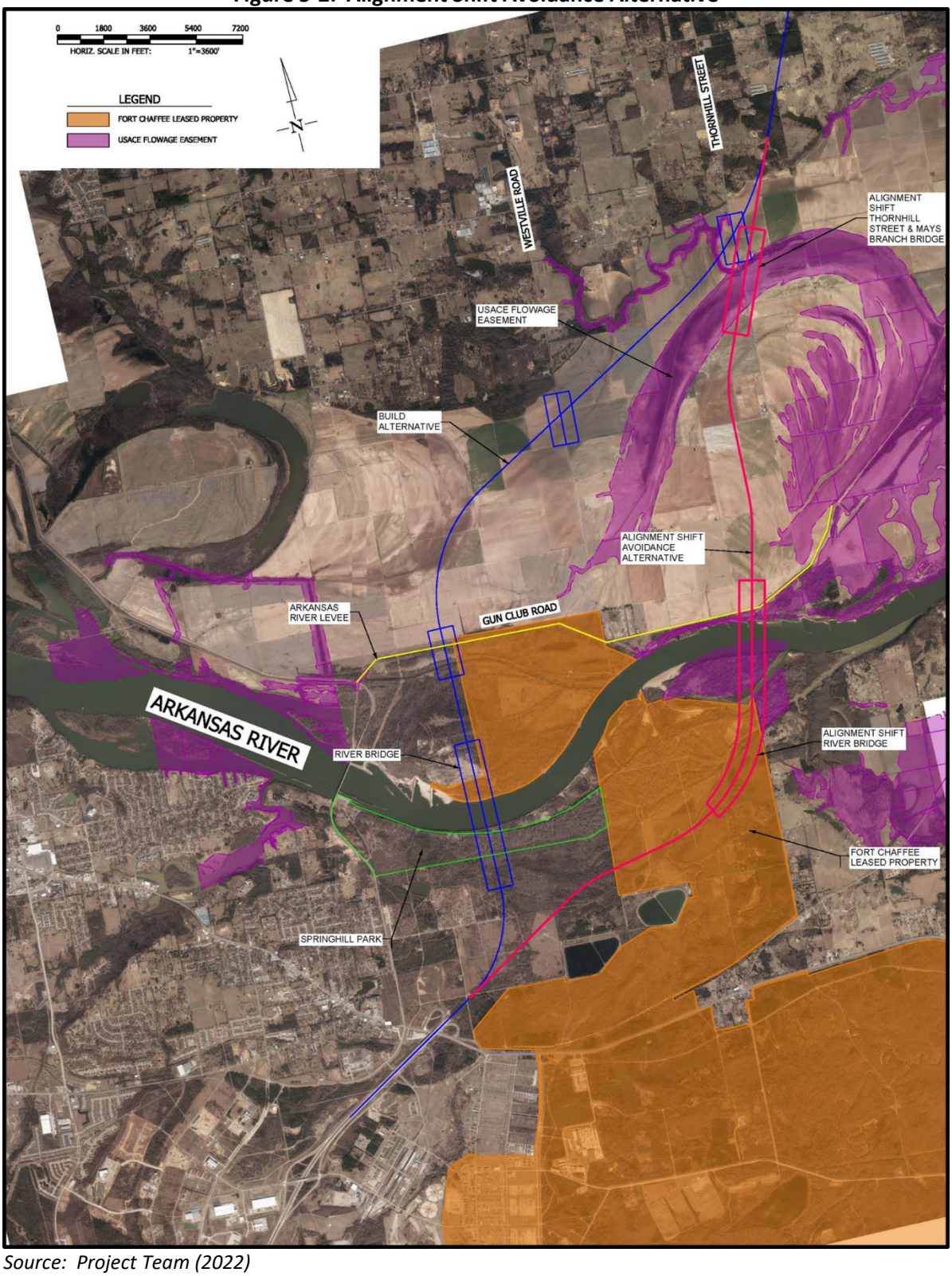
Avoidance Alternative - Alignment Shift

From an alignment standpoint, the location of the river crossing at Springhill Park was selected for its near-perpendicular orientation to both the river and the levee to the north and crosses near the lock and dam at the apex of the river where the river flow conditions would be the most stable. As shown in **Figure 5-2,** due to the river's meander, crossing at a different location further to the east to avoid Springhill Park would result in an undesirable skewed bridge crossing away from the bend apex, and further from the lock and dam, where river conditions including flow and thalweg (line of lowest elevation within a watercourse) are less stable. An alignment shift to the east would also require an additional long bridge to cross the remnant oxbow and large USACE flowage easement and floodplain areas to the north which the proposed build alternative avoids. The alignment shift would also result in impacts to Fort Chaffee property. While an alignment shift would be feasible, even after reasonable mitigation, the alignment shift would result in severe environmental impacts and impacts to other federally protected resources. In addition, a second long bridge to cross the remnant oxbow and USACE flowage easement would be required. Given the above, the alignment shift avoidance alternative would result in additional construction costs of an extraordinary magnitude at $333.4 million, which is approximately $103.9 million more than the Build Alternative. A summary of the prudence factors and their applicability to the Avoidance Alternative – Alignment Shift are presented in **Table 5-3**.

Table 5-3: Prudence Applicability to the Avoidance Alternative – Alignment Shift

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	No
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	Yes
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	Yes
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

Figure 5-2: Alignment Shift Avoidance Alternative



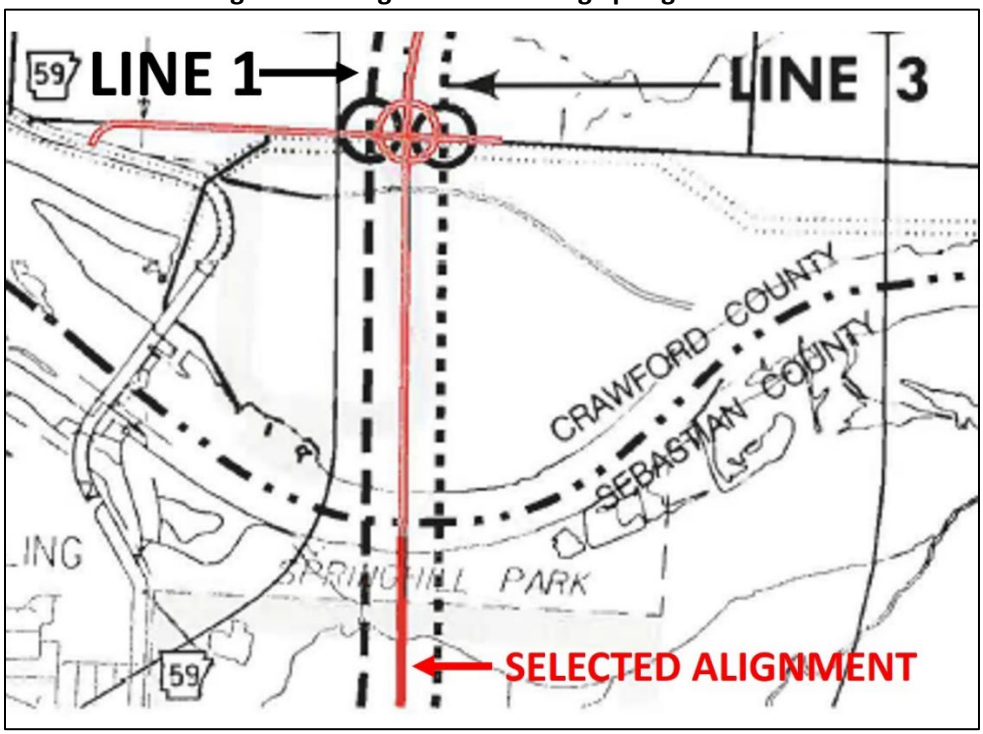
Source: Project Team (2022)

Alignment Study

Subsequent to the corridor analysis, an alignment study was conducted for the identified preferred corridor as part of the 1997 FEIS. The alignment study presented in the 1997 FEIS had three alignment locations within the preferred corridor. These alignments were named Lines 1, 2 and 3. For short distances, one, two or all of the lines could have combined.

As shown in **Figure 5-3**, all lines cross Springhill Park and would entirely span the park with a bridge. All alignments would impact Springhill Park Trail. Line 1 crosses the park farthest to the west and is closer to other existing park facilities. Line 3 crosses the park farthest to the east and is closer to the military training smoke release area and Water Obstacle Training Area. Accordingly, Line 2, which crosses in between Lines 1 and 3, was chosen as the Selected Alignment (Build Alternative) in the area of Springhill Park in the 1997 FEIS.

Figure 5-3: Alignments Crossing Springhill Park

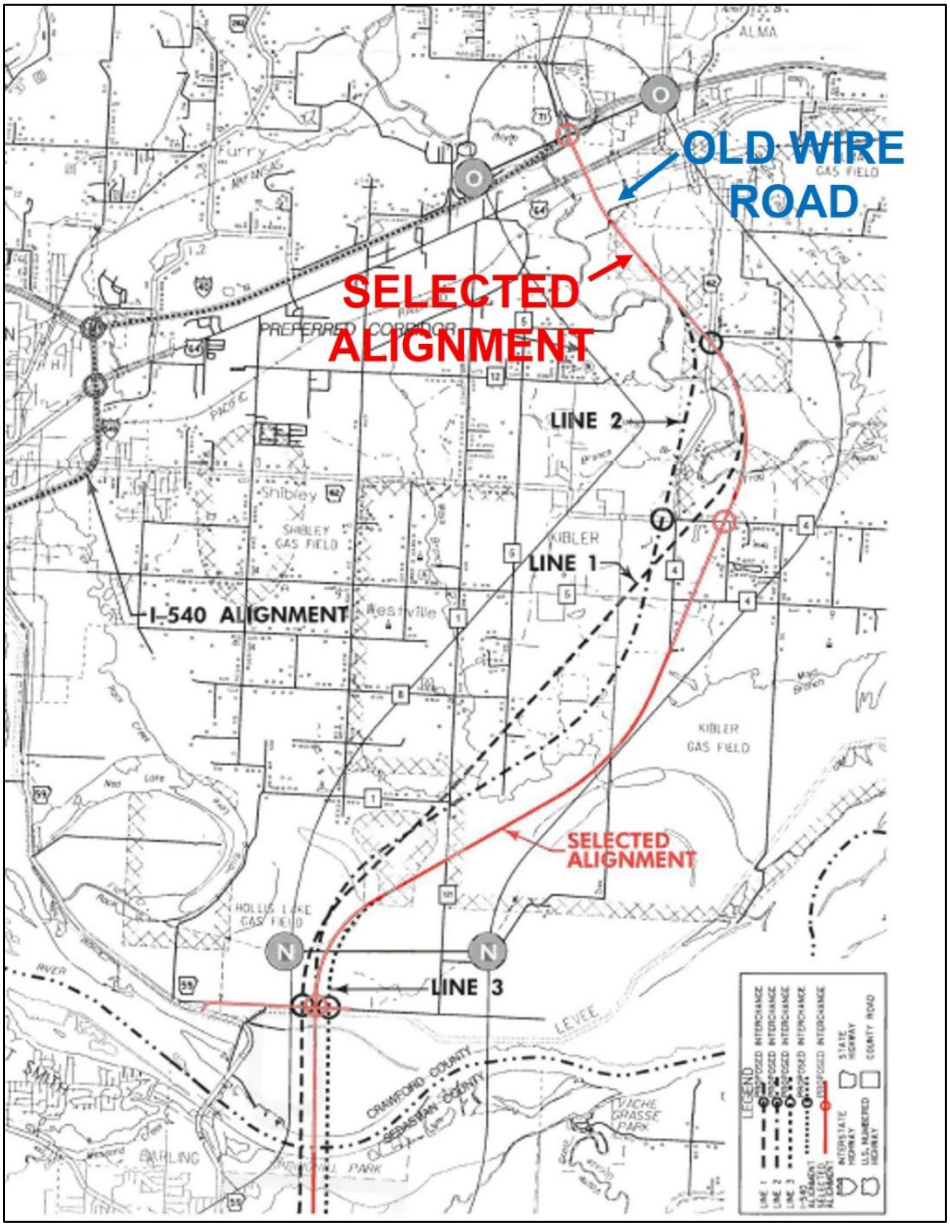


Source: Final Environmental Impact Statement U.S. 71 Relocation Dequeen to Interstate 40, 1997

As previously mentioned, Old Wire Road is an additional Section 4(f) property impacted by the proposed project. Old Wire Road was not eligible for the NRHP at the time of the FEIS and therefore, was not evaluated. Subsequent review of potential impacts to Old Wire Road indicate that all proposed lines would have impacted Old Wire Road at the same location (**Figure 5-4**). This is because the northern terminus of all lines was the existing Interstate 40/Highway 540 interchange. Thus, there are no differences in impacts to Old Wire Road between the lines and where all lines converge in the Selected Alignment.

The sole Build Alternative is the Selected Alignment from the 1997 FEIS in the areas of Spinghill Park and Old Wire Road.

Figure 5-4: Alignment Crossing Old Wire Road



Source: Final Environmental Impact Statement U.S. 71 Relocation Dequeen to Interstate 40, 1997

<u>Build Alternative (Selected Alignment from 1997 FEIS)</u>

The Build Alternative was chosen for its near-perpendicular orientation to both the river and the levee to the north and crosses near the lock and dam at the apex of the river where the conditions would be the most stable. The new Interstate 49 bridge would span approximately 900 feet through Springhill Park and require approximately 10 acres of USACE property, of which approximately six acres would be cleared, resulting in a direct use of Springhill Park, a Section 4(f) resource. The land use involved for the construction of Interstate 49 would include the required substructure of the bridge, which includes seven concrete bents. The bents would include no more than three bridge columns each, for a total of 21 bridge columns located within Springhill Park. Construction of the Build Alternative is considered feasible.

Impacts of the Build Alternative Identified in the 1997 FEIS/ROD

Four camp sites and a water fountain (currently not in use) would be impacted by the project. Remnants were found via field reconnaissance in January 2022 from the abandoned water fountain as well as two of the abandoned campsites (campsites D3 and D4), shown in **Figures 5-5** through **5-8**. The location of the two abandoned campsites and water fountain are shown in **Figure 5-9.**

Figure 5-5: Abandoned Water Fountain with Canopy

Source: Project Team, 2021

Figure 5-6: Abandoned Water Fountain Close Up

Source: Project Team, 2021

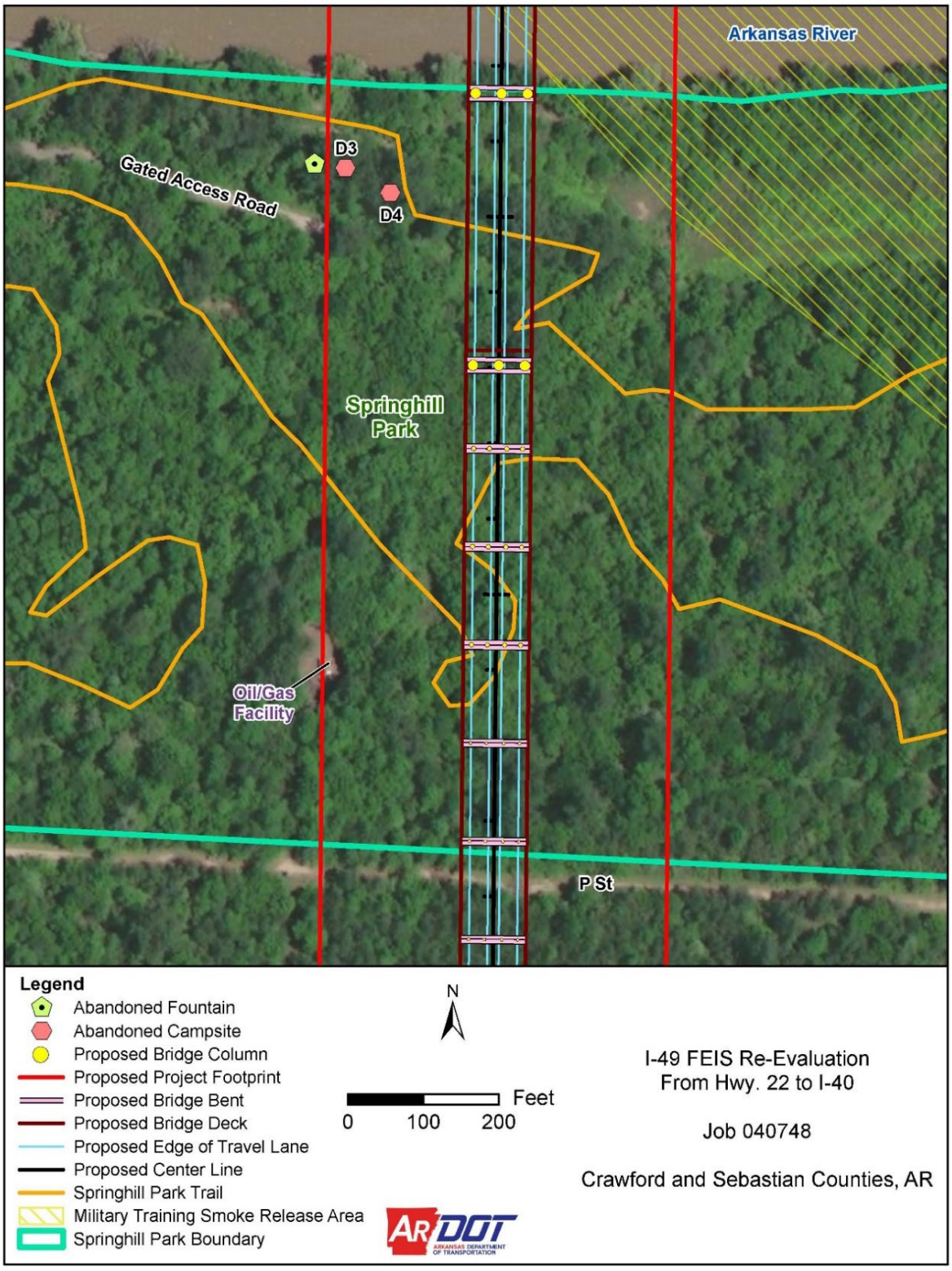
Figure 5-7: Abandoned Campsite D3

Source: Project Team, 2021

Figure 5-8: Abandoned Campsite D4

Source: Project Team, 2021

Figure 5-9: Location of Abandoned Campsites and Water Fountain



Source: Project Team (2022) – Project Alignment and GPS Coordinates of Park Facilities

Impacts to trees and vegetation are also anticipated. Tree and vegetation clearing would be limited to 150-feet east and west of the roadway centerline, for a total width of 300-feet across Springhill Park. Coordination with the USACE occurred on December 2, 2021, where the 14 mitigation commitments presented in the FEIS were discussed. Notes from that coordination meeting with the USACE are included in **Attachment A**. The commitments to meet those mitigation measures are discussed in **Section 7.1**.

Impacts of the Build Alternative Identified Since the 1997 FEIS/ROD

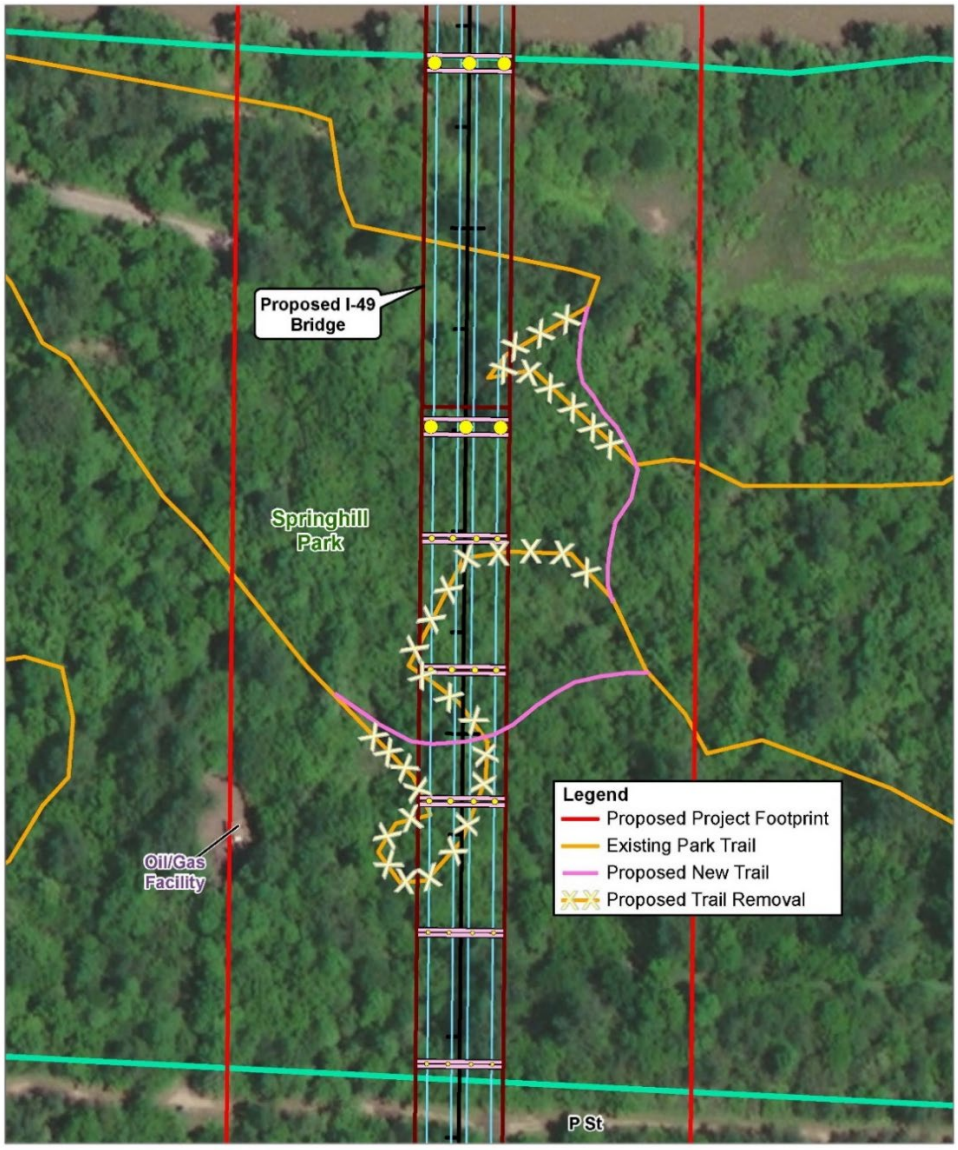
Since the 1997 FEIS/ROD, Springhill Park Trail, a mountain bike/hiking trail, was constructed (Figure 5-10) and would be impacted by the construction of Interstate 49.

Figure 5-10: Springhill Park Trail

Source: Project Team, 2021

Approximately 2,000 feet of the trail is located within the proposed right of way, of which approximately 583 feet is located under the proposed bridge deck. Portions of the trail under the bridge deck would need to be re-routed to avoid the proposed bridge substructure. **Figure 5-11** shows potential locations where the existing trail would be permanently closed and where it would be re-routed after Interstate 49 is constructed. The exact location of permanent closure and new trail connections would be further refined through continued coordination with the USACE.

Figure 5-11: Example Trail Re-Route under Bridge



Source: Project Team (2022)

Regarding visual impacts to the trail, the proposed project will interrupt natural coherence, introducing a large man-made infrastructure project into the foreground of a mountain bike/hike trail, with the bulk/mass of bridge spans shadowing a landscape cleared of vegetation. Concrete columns will be aligned in two rows at consistent repetitive intervals. Clearing activities beyond what would be required to accommodate these elements will be minimized. While the project would disrupt the intactness of the natural landscape composition, users' attention and focus will be fleeting as they pass through the space. Additional information on potential visual impacts is available in the Interstate 49 FEIS Re-evaluation Visual Impacts Technical Report.

Average existing noise levels at Springhill Park near the trail are 47 dB(A). Noise receivers were placed at three locations along the trail within the proposed project footprint. Noise levels in 2045 were anticipated to increase anywhere from 12 to 15 dB(A) over existing noise levels at the

trail, indicating anticipated noise impacts. Noise barriers were analyzed along the bridge over Springhill Park, but were determined not to be feasible and reasonable. Additional information on potential noise impacts is available in the Interstate 49 FEIS Re-evaluation Traffic Noise Study Report.

A summary of the prudence factors and their applicability to the Build Alternative are presented in **Table 5-4**.

Table 5-4: Prudence Applicability to the Build Alternative

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	No
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	No
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

6.0 Section 4(f) Coordination

Section 4(f) consultation requires coordination with the official with jurisdiction over the Section 4(f) property, the Department of the Interior (DOI), and with any federal agency with jurisdiction over the Section 4(f) property. As previously discussed, a Section 4(f) Evaluation was completed for Springhill Park as part of the 1997 FEIS/ROD. At the time, coordination with the official with jurisdiction (USACE) resulted in 14 mitigation measures. Additional coordination with the USACE took place on December 2, 2021, to discuss impacts to Springhill Park resulting from the project alignment, the 14 mitigation and/or minimization measures established in the FEIS/ROD, and any potential additional needed measures to minimize harm. The mitigation measures identified in the FEIS/ROD and subsequent to the FEIS/ROD are discussed in **Sections 7.1** and **7.2**, respectively.

This Section 4(f) Evaluation for Springhill Park was transmitted to the USACE on November 1, 2022. The USACE had no comments except for requesting implementation of the mitigation items noted in the correspondence letter dated January 14, 2022, included in **Attachment B.**

In addition, the Section 4(f) Evaluation for Springhill Park was included as Appendix C of the Re-evaluation, which was distributed for review and comment to the USACE and the Unites States Fish and Wildlife Service (USFWS), both of which served as Cooperating Agencies on the re-evaluation.

7.0 Mitigation and Measures to Minimize Harm

7.1 Mitigation and Minimization Measures Identified in the 1997 FEIS/ROD

In order to minimize harm, Interstate 49 is proposed to be on elevated bridge structure over the entirety of Springhill Park and the alignment crosses the park at its narrowest point. Clearing activities would be limited to 150-feet east and west of the roadway centerline, for a total width of 300-feet across Springhill Park. In addition, all mitigation and minimization measures from the Springhill Park Section 4(f) Evaluation in the FEIS would be met, as outlined in **Table 7-1**.

Table 7-1: Implementation of 1997 FEIS Springhill Park Section 4(f) Mitigation And/or Minimization Measures

1997 FEIS Section 4(f) Mitigative/Minimization Measure	How the Mitigative/Minimization Measure Will be Implemented
(1) Four (4) camp sites and water fountain (not in use) would be relocated to another section within Springhill Park and the direction of the USACE to mitigate for potential noise impacts.	The 4 camp sites and water fountain will be relocated at a location to be determined by the USACE.
(2) Access to all existing park facilities would be maintained during all construction phases.	Access to all existing park facilities except Springhill Park Trail would be maintained, as the majority of the park facilities are located west of the project footprint. Springhill Park Trail was constructed subsequent to the FEIS and is discussed in **Section 7.2**.
(3) The park would be entirely bridged so that the only land used in it is for the bridge substructure.	To minimize harm, the park would be entirely bridged. There would be a total of 8 bridge bents, with no more than 4 bridge columns per bent for maximum total of 32 bridge columns within Springhill Park.
(4) Signing on the proposed highway directing the public to the park would be provided at the proposed SH 22 interchange or the SH 59 connector interchange north of the river. Signing would be provided from both directions. Signing would also be provided at other appropriate state highways.	Signing will be provided in accordance with the USACE's recommended locations.
(5) A closed drainage system would be provided as the bridge crosses the park in order to protect the public from accidental spills.	A closed drainage system would be provided on the bridge over the park.
(6) Screens or other measures to protect the public from objects thrown or falling from the bridge would be provided.	Fencing would be provided on the bridge barriers over the park.
(7) The highway may change the future usage of the park from fishermen to travelers and vacationers. As a result, the USACE must maintain their ability to further develop the park on both sides of the proposed highway. The main paved road through	The bridge substructure over the park would not impact the existing cul-de-sac. Per input from the USACE, have noted that this mitigation element is no longer relevant. ARDOT is committed to coordinating with the USACE on mitigation for

1997 FEIS Section 4(f) Mitigative/Minimization Measure	How the Mitigative/Minimization Measure Will be Implemented
the park which currently ends at the cul-de-sac would be relocated, if necessary, so that it may be extended east of the proposed highway.	impacts to Springhill Park, and these coordination efforts are ongoing.
(8) Any preconstruction activities, such as core borings, must receive prior right of entry approval by the USACE.	Right of entry approval would be obtained from the USACE for all preconstruction activities.
(9) Prior to bridge construction, fencing would be installed to prevent public access to the construction area. A gate would be provided in the fence, preferably near the cul-de-sac for USACE access to the undeveloped area of the park.	Fencing would be installed for the construction area prior to bridge construction. Signage would also be placed to identify the project, as well as any safety signs required by the USACE.
(10) Access to the construction site to be used by construction vehicles, construction workers, materials deliveries and any other construction-related activities would not be through the developed areas of the park. Contractor access roads and work areas would be subject to USACE approval.	Developed areas of the park would be avoided for contractor access. Per USACE approval, contractor access is anticipated from P Street on the south side of the park and from the river on the north side of the park.
(11) The cleared area for the bridge across the park would be minimized.	To minimize harm, clearing activities would be limited to 150-feet east and west of the roadway centerline, for a total width of 300-feet across Springhill Park.
(12) Access for mowing would be of minimal width and gated from the public.	Access for mowing would be within the 300-feet clearing area across Springhill Park and would be gated from the public.
(13) All areas outside of the permanent easement which are disturbed during construction activities would be restored to their previous grades and revegetated with native species. Disturbed areas within the easement would be restored and seeded. Non-suitable materials from substructure excavation would be disposed of outside of the park in accordance with other disposal requirements.	To minimize harm, permanent easement would be limited to 150-feet east and west of the roadway centerline, for a total width of 300-feet across Springhill Park. It is anticipated that the permanent easement would be large enough for all construction activities. Disturbed areas within the easement would be restored and seeded with native species and per USACE guidelines. Non-suitable materials from the substructure excavation would be disposed of outside of the park in accordance with disposal requirements.
(14) Any temporary items constructed for bridge erection would be removed in their entirety.	All temporary items constructed for bridge erection would be removed in their entirety and would be part of a temporary construction license through the USACE.

Sources: Section 4(f) Evaluation from FEIS U.S. 71 Relocation Dequeen to Interstate 40 (1997) and Project Team Meeting with the USACE (December 2, 2021)

7.2 Mitigation and Minimization Measures Identified Since the 1997 FEIS/ROD

To minimize harm, the project's design was advanced such that the proposed 80-foot roadway median was reduced to bring the northbound and southbound lanes together to cross the park with a single bridge rather than two separate bridges, which reduced the total width crossing the park. In addition to minimize harm, the number of columns per bridge bent were minimized from four to three and conduits will be installed on the bridge so that in the future, cables can be installed from the bridge deck with aerial inspection access equipment instead of from the park grounds.

Likewise to minimize harm, tree and vegetation clearing would be limited to 150-feet east and west of the roadway centerline in Springhill Park. Disturbed areas would be restored and seeded with native species per USACE guidance. Access to the park in the construction zone would be maintained for the USACE and fenced construction area signage would be provided.

Since the FEIS/ROD, impacts to Springhill Park Trail were identified as described in **Section 5.2**. As shown in **Figure 5-11**, portions of the trail under the bridge deck would need to be re-routed to avoid the proposed bridge substructure. Access to the trail in the construction zone would only be closed during construction of the proposed bridge to ensure the safety of trail users. Appropriate signage alerting trail users of the closure would be posted.

7.3 USACE Requested Mitigation as of January 2022

The USACE (correspondence located in **Attachment B**) has requested the following items to mitigate the immediate and future impacts to Springhill Park (**Figure 7-1**):

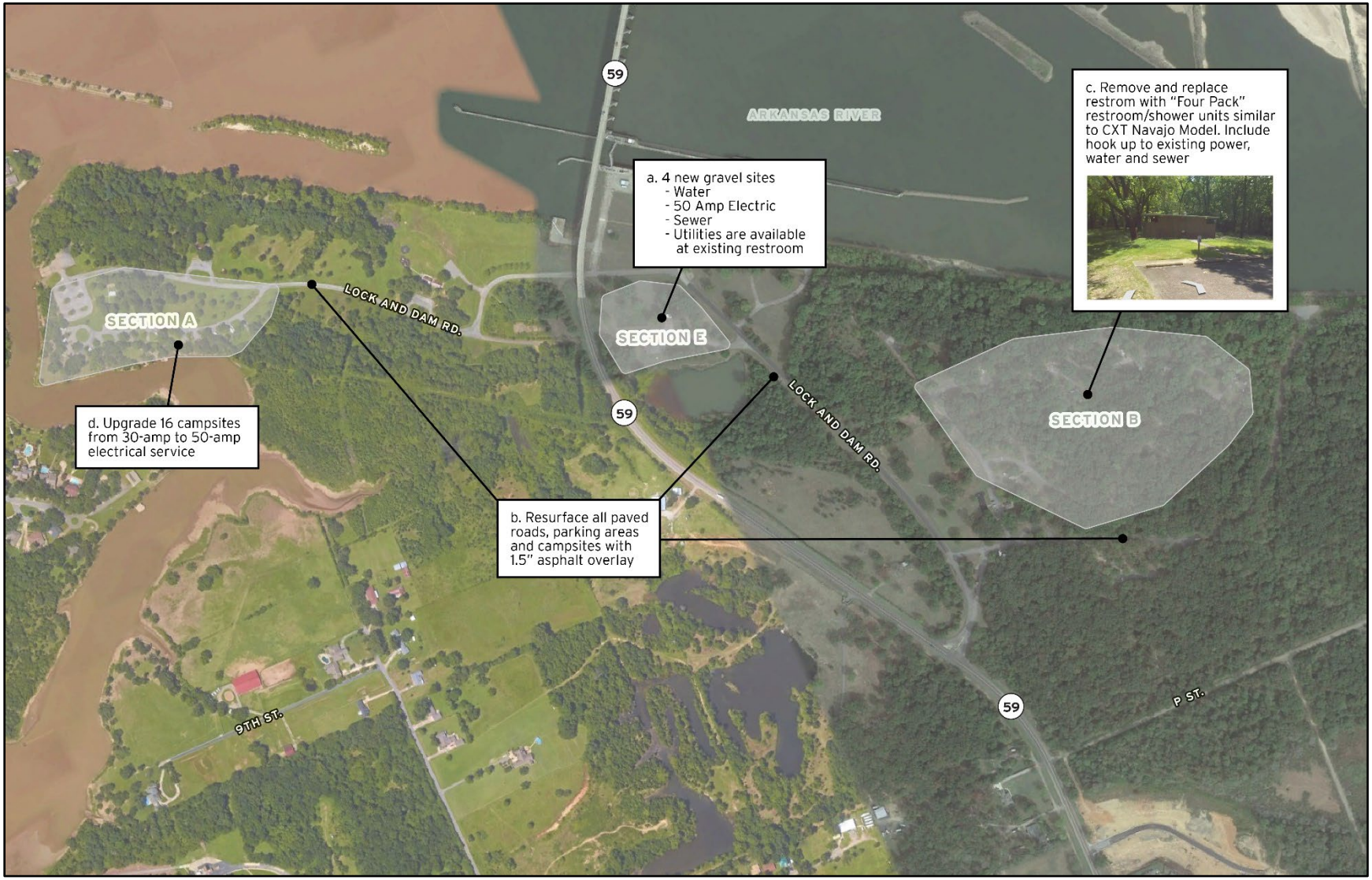
a. Relocate four impacted campsites to an area near the E section restroom. These sites will be utilized for park volunteers and should be paved with graveled or concrete living areas. The sites should also be full hookup with water, 50-amp electric service, and sewer. Utilities are available at the nearby E section restroom.

b. Resurface all paved roadways, parking areas, and campsites throughout the park.

c. Destruct, remove, and replace the B section restroom. The replacement should be a "Four Pack" of family restroom/shower units. An example of this type of facility is the CXT Navajo model.

d. Upgrade the 16 campsites in A section to 50-amp electric service.

Figure 7-1: Springhill Park Mitigation Items



8.0 Summary

Table 8-1 contains a summary of the analysis and decision-making information included in this evaluation. Avoidance alternatives were evaluated using the criteria outlined in 23 CFR 774.17. Based on this evaluation, there is no feasible and prudent avoidance alternative to avoid the use of land from the Section 4(f) property.

Table 8-1: Section 4(f) Alternative Analysis Summary

	No-Build	Avoidance Alternative Corridor C	Avoidance Alternative Alignment Shift	Build Alternative
Feasible	Yes	Yes	Yes	Yes
Prudent	No	No	No	Yes
Uses Section 4(f) Property	No	No	No	Yes
Harm to Section 4(f) Property (With Mitigation)	None	None	None	Impacts Section 4(f) Property
Impact Comparison	None	Does not meet purpose and need; Impacts to 582 single family homes, 116 business, 57 apartment buildings, 3 churches, 1 cemetery, 1 school, 1 state police headquarters; severe disruption to established communities; severe social, economic and environmental impacts. Cost estimate not generated because does not meet the project's purpose and need.	Undesirable skewed bridge crossing where river conditions are less stable; Requires an additional long bridge to cross the remnant oxbow and USACE flowage easement; severe environmental impacts; impacts to other federally protected resources; construction costs of an extraordinary magnitude (approximately $103.9 million more than the Build Alternative).	No relocations. Impacts to four abandoned campsites and water fountain. Re-routing of hike/bike trail. Noise impacts anticipated (12 to 15 dB(A) increase over 47 dB(A) existing noise level) at the hike/bike trail, but noise barriers determined not feasible and reasonable. Visual impacts anticipated with the introduction of an infrastructure project into the foreground of a mountain bike/hike trail, with the bulk of bridge spans shadowing a landscape cleared of vegetation. Clearing activities beyond what would be required to accommodate the bridge columns will be minimized and users' attention and focus will be fleeting as they pass through the space.

Sources: FEIS U.S. 71 Relocation Dequeen to Interstate 40 (1997) and Project Team (2022)

9.0 Least Overall Harm Analysis and Concluding Statement

Section 4(f) requires that when there are no "prudent and feasible" avoidance alternatives to the "use" of Section 4(f) properties, and multiple Build Alternatives are being evaluated, the lead federal agency must choose from the remaining Build Alternatives that use the Section 4(f) property and select the alternative that causes the "least overall harm" in light of the statute's preservation purpose. The least overall harm is determined by balancing the following seven factors, as specified in 23 CFR §774.3(c):

1. Ability to mitigate adverse impacts on each Section 4(f) property, including any measures that result in benefits to the property
2. Relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection
3. Relative significance of each Section 4(f) property
4. Views of the official(s) with jurisdiction over each Section 4(f) property
5. Degree to which each alternative meets the purpose and need for the project
6. The magnitude of any adverse impacts on resources not protected by Section 4(f) (after reasonable mitigation)
7. Substantial differences in cost among the project alternatives

The first four factors relate to the net harm that each project alternative would cause to the Section 4(f) property, and the remining three factors take into account concerns with the project alternatives that are not specific to the Section 4(f).

As discussed in **Section 5**, avoidance alternatives were considered that would avoid impacts to Springhill Park; however, they would either compromise the project in light of its stated purpose and need or they did not meet the criteria for a prudent and feasible avoidance alternative. The Corridor C avoidance alternative compromises the project so that it is unreasonable given the purpose and need. In addition, even after reasonable mitigation, Corridor C still results in in severe disruption to established communities and severe social, economic, and environmental impacts. The Alignment Shift avoidance alternative, even after reasonable mitigation, would result in severe environmental impacts and impacts to other federally protected resources. It would also result in additional construction costs of an extraordinary magnitude.

Three alignments were evaluated in the 1997 FEIS within the preferred corridor; all would impact the two Section 4(f) properties in the study area - Springhill Park and Old Wire Road. The Selected Alignment was chosen because it had the fewest potential impacts to Springhill Park. Although Old Wire Road was not eligible for inclusion in the NRHP at the time of the FEIS and thus not evaluated, subsequent review of the three alignments indicated all would impact Old Wire Road at the same location. Thus, where all three lines converge is the Selected Alignment. The sole Build Alternative is the Selected Alignment from the 1997 FEIS in the areas of Spinghill Park and Old Wire Road.

Multiple alignments within the preferred corridor were evaluated in the 1997 FEIS and one Selected Alignment (Build Alternative) was chosen. Accordingly, only one Build Alternative is

under consideration in the FEIS Re-evaluation and this Section 4(f) Evaluation. Section 3.3.3.2 of the FHWA *Section 4(f) Policy Paper* states that the least harm alternative analysis is required when multiple alternatives that use a Section 4(f) property remain under consideration. For the proposed project, there is only the Build Alternative; therefore, a least harm alternative analysis is not required.

Attachment A: USACE Coordination Meeting Notes

USACE Real Estate Comments

Meeting Attendees:

USACE: Johnny McLean, Richard Riggs, Joel Epperson, Robert Ahlert, Jonathan Kirkpatrick, Kimberly Rea, Miles Malone, Scotty Ashlock, Madelyn Coats

ARDOT:, Kayti Ewing, Susan Staffeld

HNTB: Josiah Belveal, April English, Jennifer Halstead, Scott Inglish, Jim Kinder, Ramiro Garcia

Mitigative Measure	Notes
1. The four camp sites and water fountain (currently not in use) will be relocated to another section within Springhill Park at the Corp's direction to mitigate for potential noise impacts.	Do these still need to be relocated and if so, where? USACE: Yes, these will need to be relocated. Impacts to permanent right-of-way would also need to be mitigated. There are bicycle trails in the area that would be impacted which were not there at the time of the 1997 FEIS. Question as to whether ARDOT was previously granted an easement in Springhill Park. **Action Item: Kim Rea with USACE Real Estate will conduct a site visit next week.** **Action Item: Kim Rea and Madelyn Coats to investigate if a lease agreement exists and will get back with the Team.** **Real Estate team met with Operations team onsite on Monday, December 6th. There will be significant impacts to habitat and mountain bike trail. See attached maps that show where there**

Mitigative Measure	Notes
	are existing agreements. All areas are not covered by existing agreements. See attached email traffic for additional information. Also, any use of USACE lands for staging/lay down will require a temporary construction license.
2. Access to all existing park facilities will be maintained during all construction phases.	The 4f document states all facilities are west of MP 292. Access to these facilities west of the I-49 alignment will not be impacted by construction. P Street along the south side of the park is currently gated and closed to public access. It will be permanently closed at the ROW line in the proposed condition. We anticipate P Street will be an access point by the contractor to construct the bridge. Kim Rea: Unless there is a reason/need for a permanent fence, would recommend no fence. If USACE loses useable area that would have to be mitigated. **Real Estate teams review and discussion with site staff is not in favor of installing a fence. Other locations with similar bridges crossing USACE parks do not have permanent fences. This project will already have significant impact on recreation area and preventing the public from accessing this land does not make sense and with the safety fence on top of the bridge is not needed.**
3. The park will be entirely bridged so that the only land used in it is for the bridge substructure.	Yes, the park will be entirely bridged. See Exhibit A. Our preliminary plan shows six (6) sets of piers within the park boundary.

Mitigative Measure	Notes
	Real Estate: Kim heard that there has been a request to change the bridge design. If this change is approved will that change the impact to the park lands?
4. Signing on the proposed highway directing the public to the park will be provided at the proposed S.H. 22 interchange or the S.H. 59 connector interchange north of the river. Signing will be provided from both directions. The S.H. 59 interchange is the Corps' preferred signing location. Signing will also be provided at appropriate state highways, either S.H. 22 or S.H 59.	Signing will be provided. We will work with the USACE to determine best location for signing. **Real Estate: I assume in the state of Arkansas that directional signage must meet the State requirements. Is that accurate? Some state DOTs allow use of Corps sign standards but some do not so just wanted to check.**
5. A closed drainage system will be provided as the bridge crosses the park in order to protect the public from accidental spills.	Yes. A closed drainage system can be provided on the bridge over the park.
6. Screens or other measures to protect the public from objects thrown or falling from the bridge will be provided.	Fencing can be provided on the bridge barriers over the park. The Example below is from SH 59 over the Trimble Lock.

Mitigative Measure	Notes
	USACE: It would most likely be bicyclists and USACE personnel accessing under the bridge; however, it is public property, so people do have the right to access. As such, protective fencing would be a good idea. **Real Estate: After site visit, discussions with the Ops team onsite, the desire to not have a fence in the park, we definitely want to see bridge barriers on the bridge.**
7. The highway may change the future usage of the park from fishermen to travelers and vacationers. As a result, the Corps must maintain their ability to further develop the park on both sides of the proposed highway. The main paved road through the park which currently ends at the cul-de-sac will be relocated, if necessary, so that it may be extended east of the proposed highway.	The substructure has been positioned to avoid impacting the existing cul-de-sac at Sta 179+25. The existing paved road can be extended to the east of the proposed highway. The proposed vertical clearance at this location is about 40 feet. USACE: Future development would likely only be to extend the trail system; maybe some unimproved camping. Will want to leave access to that cul-de-sac because will need for vegetative maintenance and to maintain the trails. **Real Estate: It appears that this access concern has been addressed but want to reiterate that access has to be maintained. So in the event that anything changes with design, etc. this access requirement will remain.**
8. Any preconstruction activities, such as core borings, must receive prior right-of-entry approval by the Corps.	Working with the USACE now for approval to drill borings. Submitted to ARDOT on 9/24/21. Received comments and resubmitted to ARDOT on 11/18/21 with Form 299. Approval to drill borings is pending.

Mitigative Measure	Notes
	ARDOT: Must wait for cultural resources clearance before the project team can drill borings. This includes the archeological management summary for each site to determine if drill borings would impact those archeological sites. USACE: USACE archeologists think that the management summary may need to be completed for all archeological sites along the project to go to SHPO. The project team will be ready to do borings on USACE property in 2 weeks; otherwise will need to demobilize. **Action Item: Kayti Ewing with ARDOT to reach out to Kristina Boykin (Cultural Resources, ARDOT) to see if we can expedite the management summary for the USACE property only.** **Action Item: Johnny McLean to talk to Randal Looney to find out if 1) the project team can drill in river without management summary clearance and 2) if we can expedite the management summary for USACE property only.** **Real Estate: Any borings on USACE property will require a license and ARPA permit. RE can expedite our parts of these items when we are ready but we have to follow the timelines for cultural.**
9. Prior to bridge construction, fencing will be installed to prevent public access to the construction area. A gate would be provided in the fence, preferably near the cul-de-sac for Corps access to the undeveloped area of the park.	Temporary fence can be provided to prevent public access to the construction area. A gate will be provided for USACE access to undeveloped area of the park.

Mitigative Measure	Notes
	Does this fence need to be chain link and is 6' tall sufficient? The desire for potential permanent fencing would be a discussion with ARDOT that would occur later during preliminary bridge design. **Real Estate: In addition to a fenced construction area signage should also be placed to identify the project and any safety signs required. Operations should have more information on signs required during construction. Also strongly recommend a good public communications plan and use of social media to provide status updates.**
10. Access to the construction site to be used by construction vehicles, construction workers, materials deliveries and any other construction related activities will not be through the developed areas of the park. Contractor access roads and work areas will be subject to Corps approval.	We anticipate contractor access will be from P Street on the south and from the River on the north. **Real Estate: All requirements of this nature will be addressed in temporary construction license if there is a need to use USACE land or roads for this purpose.**
11. The cleared area for the bridge across the park will be minimized.	We are working with the ARDOT Bridge Section to determine amount of tree clearing required for construction and maintenance of the bridge. Kim Rea: Any Corps areas used for laydown will have to be covered under a temporary construction license from Real Estate. Three things need to occur: 1. Understand the easement issue outlined in Mitigative Measure #1 above **Real Estate: The attached maps and email chain should help with identification of what areas need additional real estate agreements.**

Mitigative Measure	Notes
	2. Understand what portion of the easement is to be used for construction activities **Real Estate: When will we know what specific areas will be needed? A lot of these items cannot adequately be addressed without more information. I alluded to this on our conference call.** 3. USACE issues a temporary construction license **Action Item: Kim Rea to provide ARDOT with the requirements for working on USACE easement (e.g., no materials can be removed from the USACE site).** **Real Estate: After the site visit it is apparent that the impacts to the habitat could be significant. I recommended to the Operations team that it would be beneficial for them to work up a short statement about impacts and their requests for mitigation.**
12. Access for mowing will be of minimal width and gated from the public.	The ARDOT access for mowing will be determined by ARDOT maintenance. They may use P Street, but they may also desire access from the Park Access Road. See possible permanent fence layout on Exhibit A. **Real Estate: This is mowing during construction? If so then accessing using park would be part of the temp construction license.**

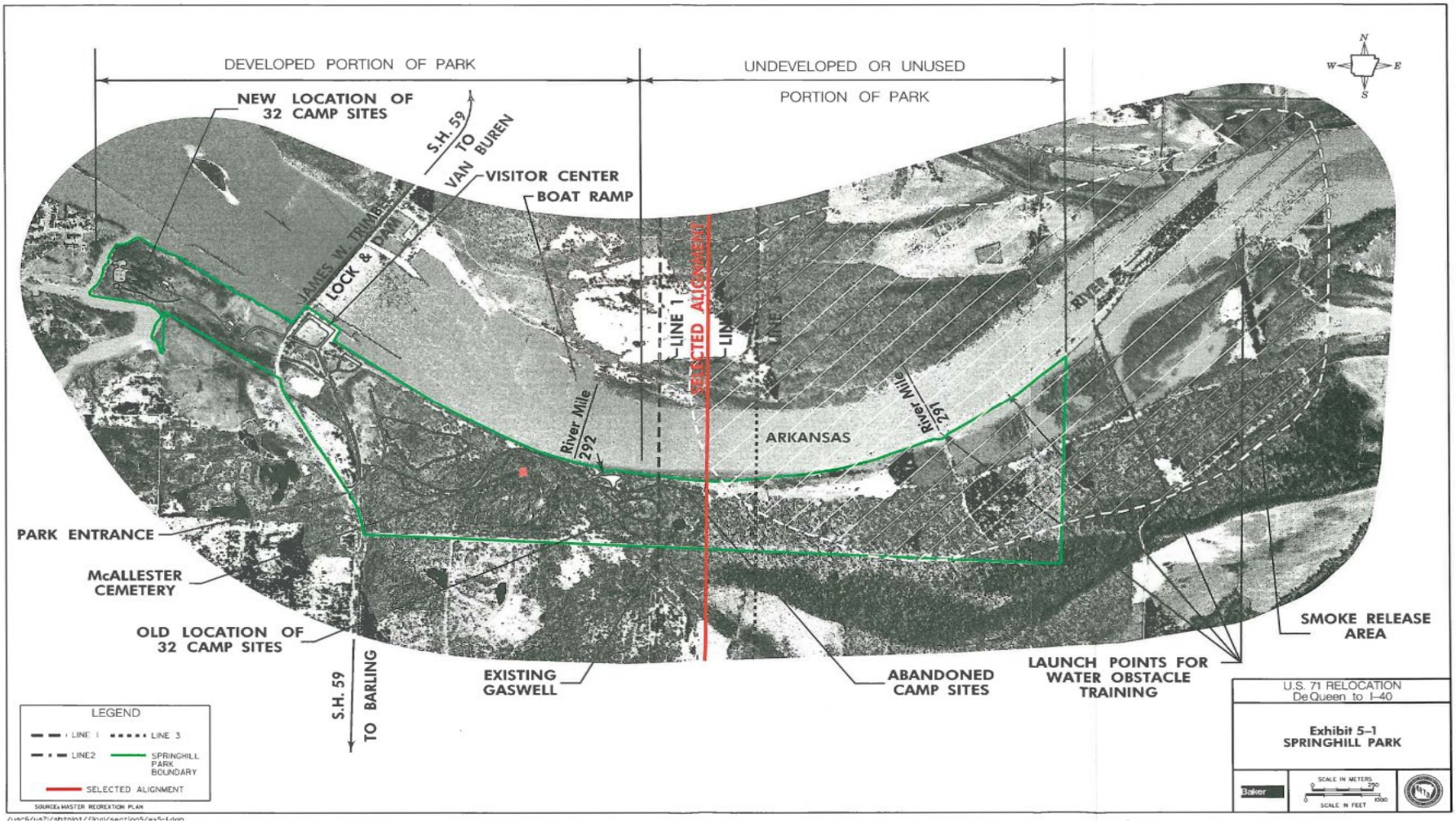
Mitigative Measure	Notes
13. All areas outside of the permanent easement which are disturbed during construction activities will be restored to their previous grades and revegetated with native species. Disturbed areas within the easement will be restored and seeded. Non-suitable materials from substructure excavation will be disposed of outside of the park in accordance with other disposal requirements.	We anticipate the permanent easement will be large enough for all construction activities. **Real Estate: Permanent easement does not take the place of temporary construction license. Any construction work that takes place on USACE lands will require a separate temp construction license.** Disturbed areas within the easement will be restored and seeded. Does the USACE recommend specific seed mixture? Non-suitable materials from substructure excavation will be disposed of outside of the park. USACE: Request invasive species not planted. ARDOT: Only plant native species on federal property. USACE: Need to understand permanent impacts – loss of the camping area, loss of timber, impacts to flowage easements. Acreage for park area (entire project footprint): 10.7 acres. **Action Item: HNTB to send GIS files of flowage easements and area of Springhill Park within the project footprint to Richard Riggs and Johnny McLean.** **Real Estate: Discussed onsite with Operations team the need to put requested mitigation items in writing.**

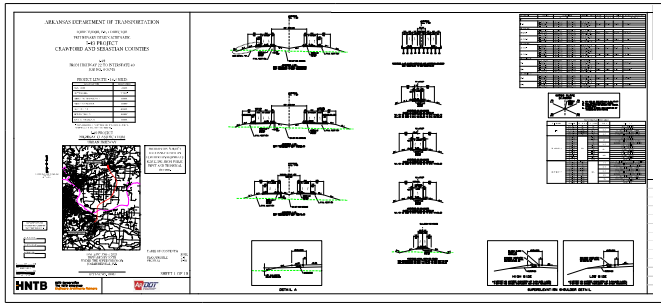
Mitigative Measure	Notes
14. Any temporary items constructed for bridge erection will be removed in their entirety.	OK **Real Estate: Again if within USACE boundaries will be part of temp construction license.**

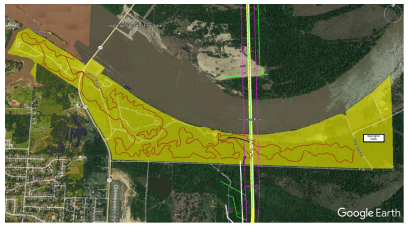
Action Items Summary:

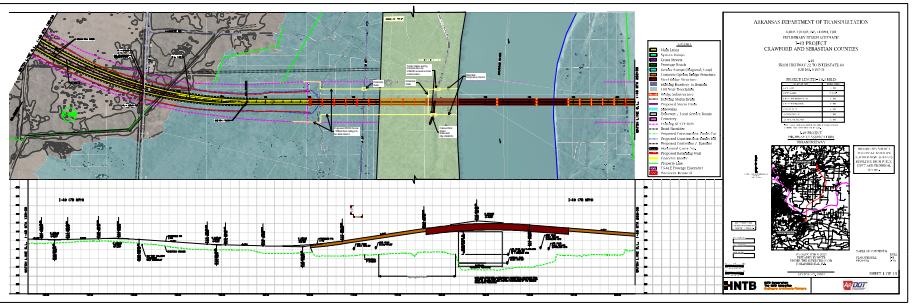
- Kim Rea with USACE Real Estate will conduct a site visit next week. **Conducted with Operations team on December 6, 2021.**
- Kim Rea and Madelyn Coats to investigate if a lease agreement exists and will get back with the Team. **See attached. We are working to provide specifics but there are areas that are not currently covered. In addition, if an area is covered it still may require a temporary construction license depending on how agreements are written.**
- Kayti Ewing with ARDOT to reach out to Kristina Boykin (Cultural Resources, ARDOT) to see if we can expedite the management summary for the USACE property only.
- Johnny McLean to talk to Randal Looney to find out if 1) the project team can drill in river without management summary clearance and 2) if we can expedite the management summary for USACE property only.
- Kim Rea to provide ARDOT with the requirements for working on USACE easement (e.g., no materials can be removed from the USACE site). **Working this. May need to have a brief meeting with smaller team to ensure we have full understanding of needs and work that will be happening at specific locations. It is hard to determine some requirements with so many unknowns still.**
- HNTB to send GIS files of flowage easements and area of Springhill Park within the project footprint to Richard Riggs and Johnny McLean.

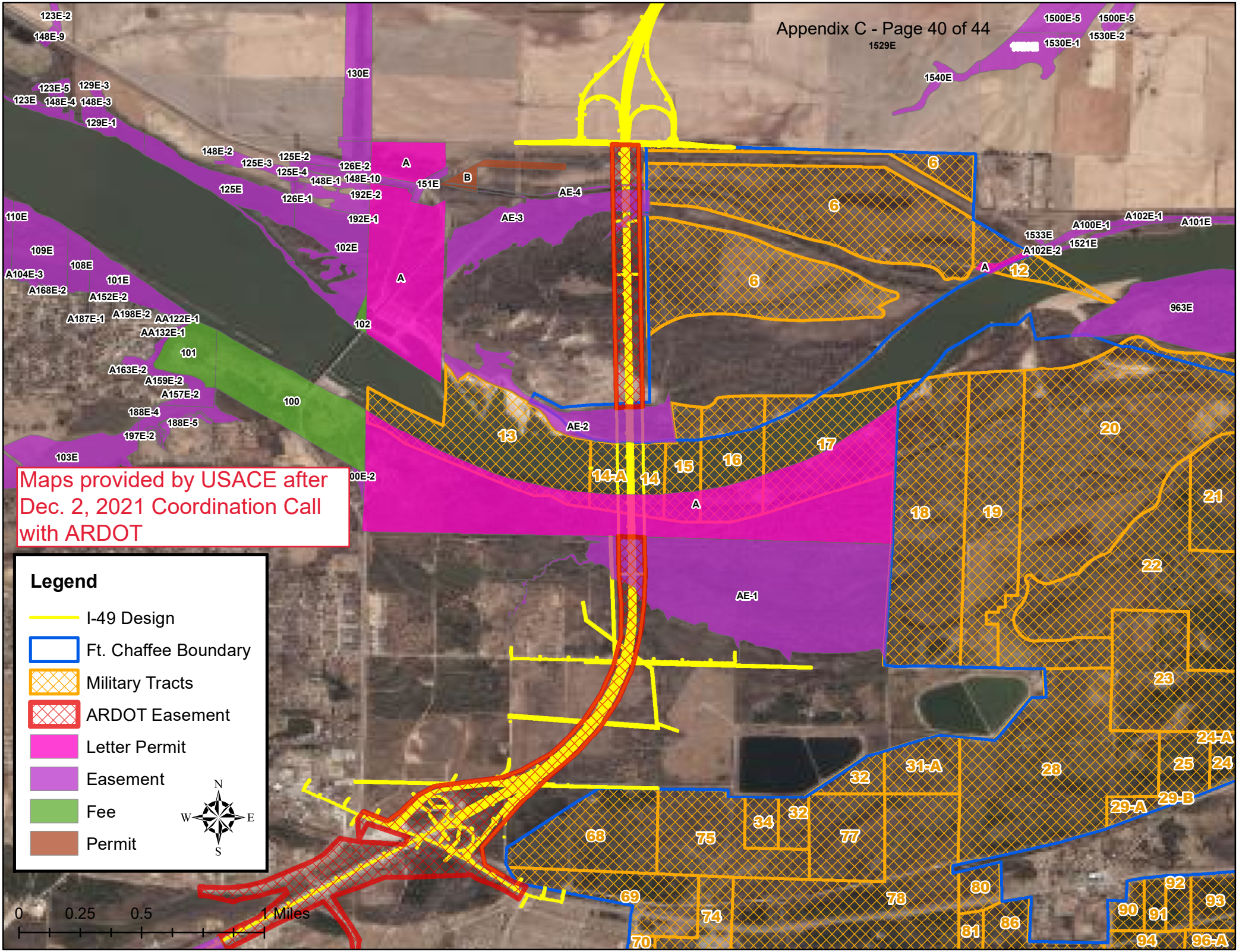
Exhibit 5-1 From 1997 FEIS Section 4(f)






Google Earth




Maps provided by USACE after Dec. 2, 2021 Coordination Call with ARDOT
Legend
I-49 Design
Ft. Chaffee Boundary
Military Tracts
ARDOT Easement
Letter Permit
Easement
Fee
Permit
N
W
E
S
0
0.25
0.5
1 Miles
123E-2
148E-9
123E-5
129E-3
123E
148E-4
148E-3
129E-1
130E
148E-2
125E-3
125E-2
125E-4
126E-2
148E-1
148E-10
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108E
A104E-3
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A168E-2
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AA122E-1
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A159E-2
A157E-2
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197E-2
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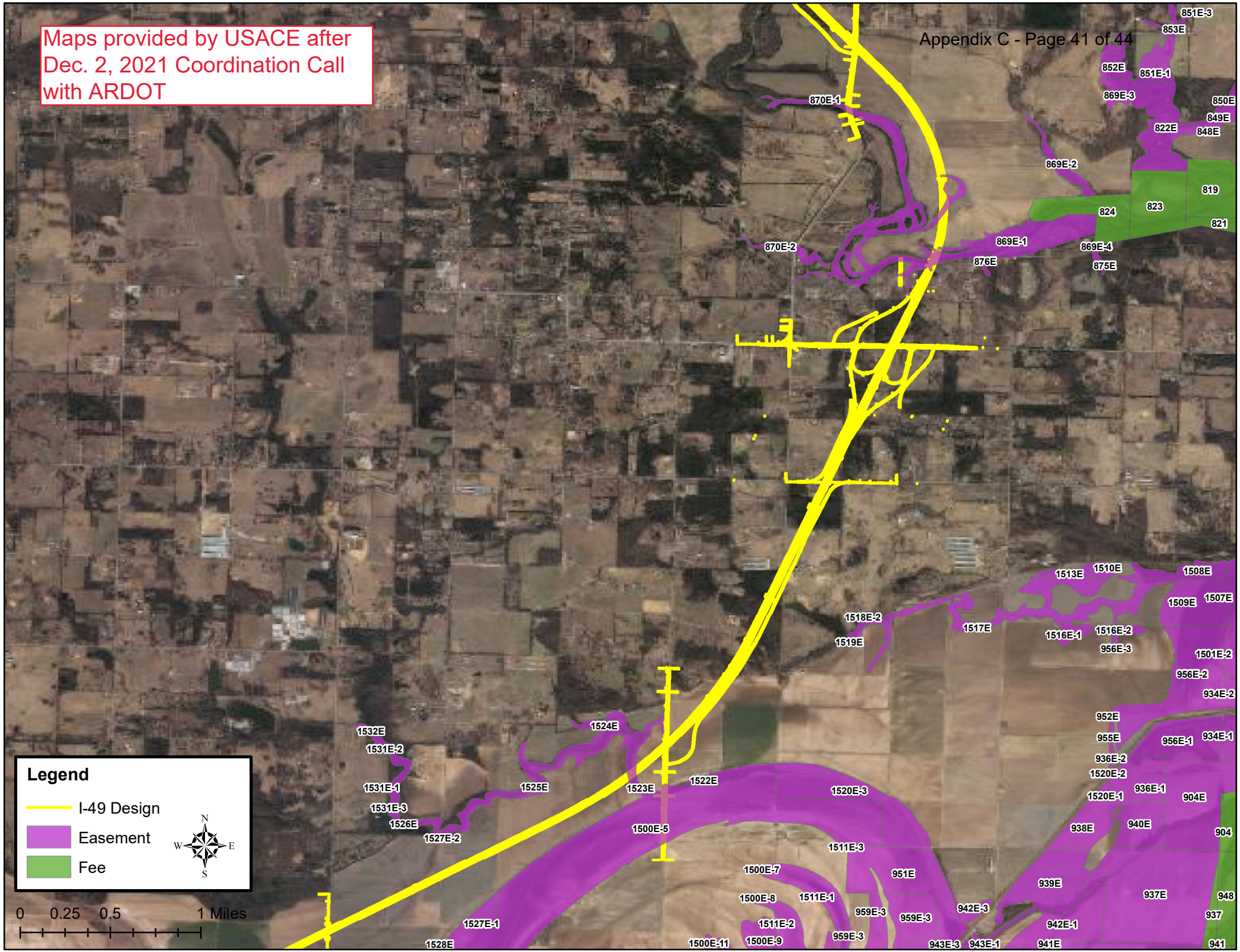
Maps provided by USACE after Dec. 2, 2021 Coordination Call with ARDOT



Attachment B: USACE Correspondence

CESWL-OP-KR 14 January 2022
Ashlock/1741

MEMORANDUM THRU Ch, Operations Technical Support Branch (ATTN: Sam Gramlich)

Ch, Operations Division

Ch, Regulatory Division

FOR Ch, Real Estate Division

SUBJECT: Mitigation Recommendations for Arkansas Department of Transportation's (ARDOT) Request to Construct I-49 Corridor in Springhill Park, James W. Trimble Lock and Dam Project

1. On January 6, 2022, Russellville Site Office staff conducted an on-site meeting at the proposed right-of-way location. Upon surveying the area, Project Staff recommends that ARDOT provide the following items to mitigate the immediate and future negative impacts to natural resources and recreation features within Springhill Park:

a. The relocation of four impacted campsites to an area near the E section restroom. These sites will be utilized for park volunteers and should be paved with graveled or concrete living areas. The sites should also be full hookup with water, 50-amp electric service, and sewer. Utilities are available at the nearby E section restroom.

b. Resurface all paved roadways, parking areas, and campsites throughout the park.

c. Destruction, removal, and replacement of the B section restroom. The replacement should be a "Four Pack" of family restroom/shower units. An example of this type of facility is the CXT Navajo model.

d. Upgrade the 16 campsites in A section to 50-amp electric service.

2. MKARNS Project extends 308 river miles along the Arkansas River. Springhill Park is designated as a high-density recreation area in the MKARNS Masterplan and is one of Project's premier parks. Out of 74 parks on the MKARNS project, Springhill Park historically ranks in the top three for revenue and is only outcompeted by parks which have two – three times the number of campsites. The I-49 Project, plus the proximity to the third highest populous in Arkansas, will increase public use and put additional strain on already aging park infrastructure that struggles to meet current demand. These recommended upgrades would allow for mitigation for the negative impacts to land and park use due to the construction of the I-49 bridge. These negative impacts will be the annual utilization of 10-acres of land, that will be cleared of all existing vegetation, including the mature timber. Second, the increase of sound pollution projected from the estimated 40-feet tall bridge. Third, the bridge construction will also cause the dissection of the park, which will divide the park's land and impact an additional 100 acres east of the bridge.

CESWL-OP-KR
SUBJECT: Mitigation Recommendations for Arkansas Department of Transportation's (ARDOT) Request to Construct I-49 Corridor in Springhill Park, James W. Trimble Lock and Dam Project

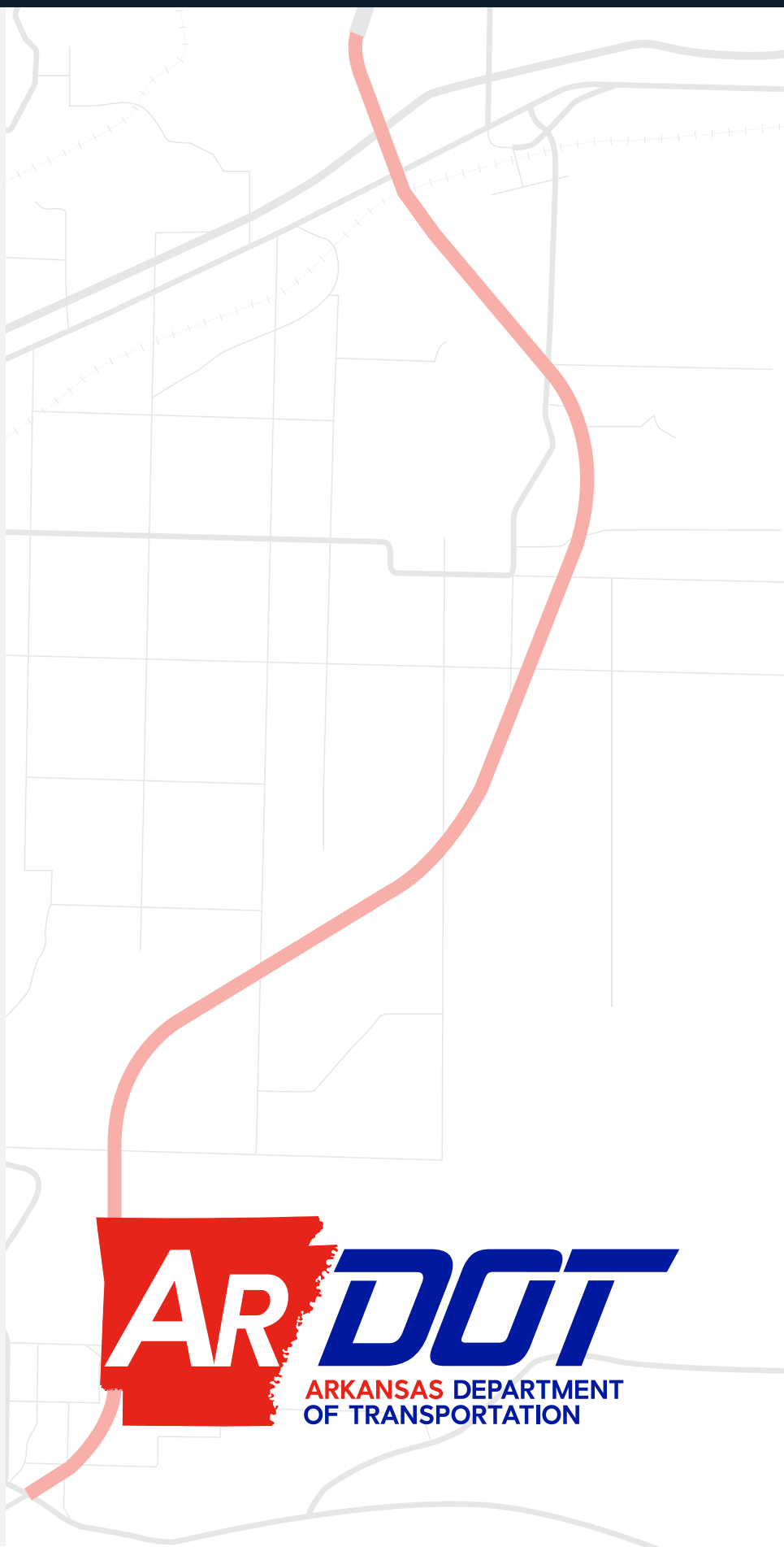
Finally, the impacts to those members of the public, who enjoy day-use actives, including hiking and bike trail use. These individuals will be impacted directly inside the 10 acres as well as in the 100 acres east of the bridge.

3. For further information, you may contact Scotty Ashlock at 501-340-1741 or Lee Kirkpatrick at 501-324-6978.

ROBERT M. AHLERT
Russellville Site Manager

APPENDIX D

Individual Section 4(f) for Old Wire Road



I-49 Section 4(f) Evaluation
Old Wire Road

Hwy. 22 – I-40 (Arkansas River)
Crawford and Sebastian Counties, Arkansas

November 2023
Job 001747

Randal Looney

Randal Looney
Environmental Coordinator
Federal Highway Administration

November 28, 2023
Date

ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 Introduction

Interstate 49, a new location roadway, is proposed to impact Old Wire Road, located south of Interstate 40 in Crawford County, Arkansas. Old Wire Road is a Section 4(f) property. Use of this Section 4(f) property will occur because portions of Old Wire Road will be permanently incorporated into the Interstate 49 transportation project. This document presents the Section 4(f) evaluation for impacts to Old Wire Road resulting from the construction of Interstate 49.

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Section 4(f) specifies that the Secretary of Transportation may approve a project that requires the use of land from a significant publicly-owned park, recreation area, wildlife or waterfowl refuge, or any historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if the following determinations have been made: (1) there is no feasible and prudent alternative to the use of such land; and (2) all possible planning has been undertaken to minimize harm to the property resulting from such use. These determinations, submitted pursuant to 49 U.S.C. Section 303 and 23 U.S.C. Section 138, are set forth in this Section 4(f) Evaluation. This Draft Individual Section 4(f) evaluation was prepared in accordance with Federal Highway Administration (FHWA) 23 CFR 774 for Section 4(f) compliance.

2.0 Project Information

The proposed project was originally part of a larger environmental study known as the Highway 71 Relocation (DeQueen to Interstate (I)-40). This study extended from Highway 70 in De Queen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of Highway 71 in Arkansas is part of the Congressionally designated High Priority Corridor 1, which extends from Shreveport, Louisiana to Kansas City, Missouri. A Final Environmental Impact Statement (FEIS) was prepared for the Highway 71 Relocation project and a Record of Decision (ROD) was issued in December 1997, which environmentally approved the general alignment of a new location, four-lane highway in western Arkansas.

The Interstate 49 corridor has been under construction since the early 1990s with several sections fully completed. A section from Highway 71 to Highway 22, near White Bluff, which is six miles southwest of Barling, and designated as Highway 549 (future Interstate 49), is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40 in Alma, an existing section of Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads. The current proposed project is a new location roadway that would begin at Highway 22 at the south project limits and terminate at Interstate 40 near Collum Lane at the north project limits. The project would connect to Highway 549 (future Interstate 49) to the south and existing Interstate 49 to the north.

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing this Re-evaluation of the FEIS and refining the alignment for a new section of Interstate 49. The new section, approved in the 1997 ROD, is a critical connection between Highway 22 in Sebastian County and the Interstate 40/Interstate 49 interchange in Crawford County, a distance of approximately 14 miles. The project location is depicted in **Figure 2-1**.

Figure 2-1: Project Location Map

Source: Project Team (2022)

3.0 Purpose and Need

The purpose of the project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve modal connectivity. The proposed project is needed to provide linkage and modal connectivity to the surrounding interstate highway system, including links to both the surrounding Interstate 49 corridor sections already completed and a link to Interstate 40. The proposed project is also needed to address safety issues associated with increasing volumes of vehicular traffic in the Northwest Arkansas region. The proposed Interstate 49 project would provide an alternate route around Fort Smith, Arkansas, for those traveling north/south through the area.

4.0 Description and Significance of Section 4(f) Property

The Old Wire Road (Property 29) is a segment of gravel roadway located west of the town of Alma in Crawford County, Arkansas (**Figure 4-1**). The road was originally constructed and depicted as a "4 Horse Mail Post Coach Road" on maps dating to 1839 (**Figure 4-2**). According to the Addendum Report produced in 2018[1], the roadway is approximately 0.96 miles in length and "terminates to the east at the paved portion that becomes West Main Street and to the west before Frog Bayou. The old road continued west to Van Buren over the bayou. The road continued east through present-day Alma and through Ozark and Clarksville, ultimately connecting Van Buren and Little Rock." Currently, the road is only used for access to privately owned fields.

The road averages between 12 to 15 feet wide with no visible shoulders. While the original road likely consisted of dirt, it is currently covered in river gravel. Per the addendum report description, the existing segment generally follows the same route as shown in mid-to-late nineteenth century maps. Until the early 20th century, a Triple Bowstring Bridge was located where the road intersected Frog Bayou (**Figure 4-4**). However, with the construction of Highway 64 in the late 1910s, the bridge was removed, and the bayou was forded because the stagecoach route was less frequently traveled. By the 1940s, the road was no longer in operation and is known today by the locals as "Old Wire Road" or "Stagecoach Road." While only a portion of the old road exists today, it remains an important, intact example of an early post road. Photographs of existing Old Wire Road are shown in **Figures 4-4** through **4-6.**

The property owner of Old Wire Road made ARDOT aware of this historic road in 2018. ARDOT documented the historic road and evaluated it for its eligibility in the National Register of Historic Places (NRHP) on June 20, 2018. The Arkansas State Historic Preservation Officer concurred that the historic road was eligible for inclusion in the NRHP under Criterion A for being an early post road and route and under Criterion C for its association with a method of 19th century road construction in a letter dated June 21, 2018. Therefore, a Section 4(f) evaluation was not done as part of the 1997 FEIS because the historic property was not known about at that time.

[1] *Job Number 040748 Historic Resource Survey Addendum Report, June 2018.*

Figure 4-1: Historic Property Boundary of Old Wire Road

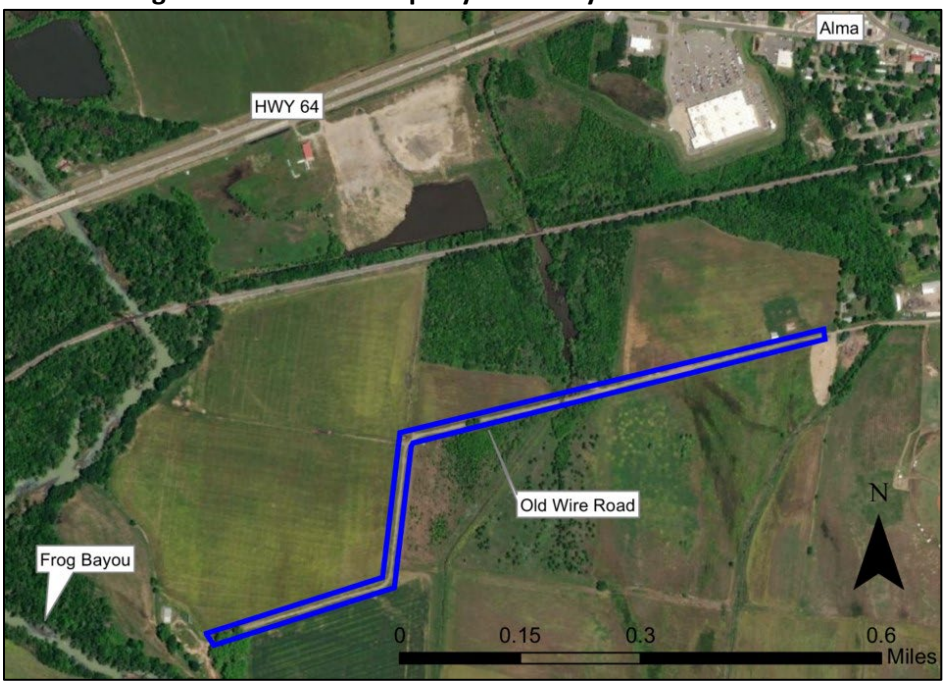
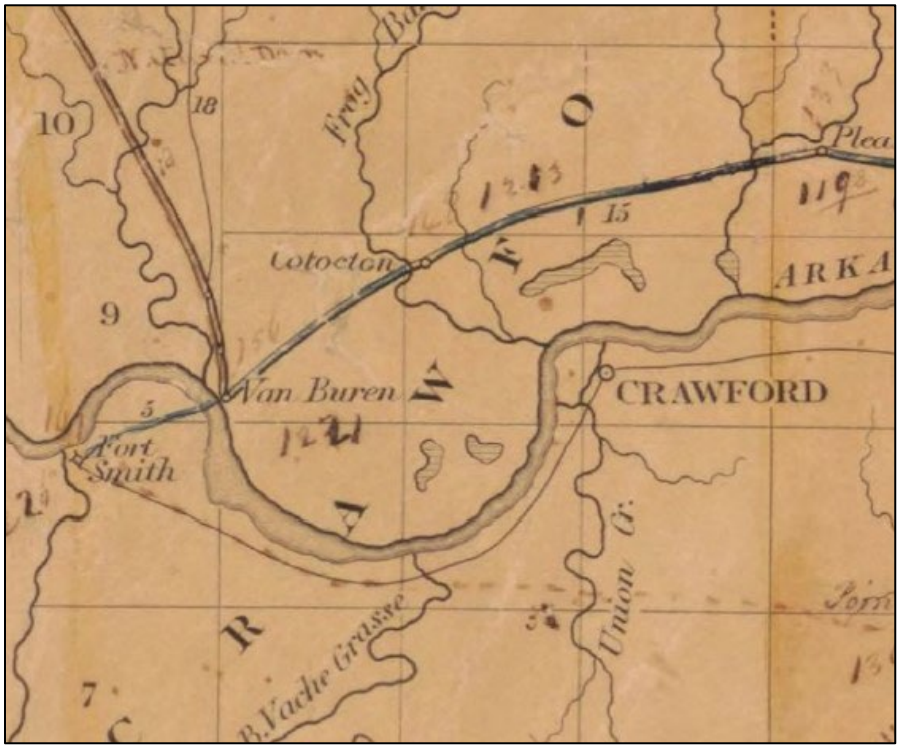


Figure 4-2: 1839 Map of Mississippi, Louisiana & Arkansas Exhibiting the Post Offices, Post Roads, Canals and Rail Roads.



Source: Library of Congress, online. https//www.loc.gov/resource/g3935.ct007117/ Accessed November 2021.

Figure 4-3: 1890 Fort Smith Quadrangle Map (Surveyed 1887)

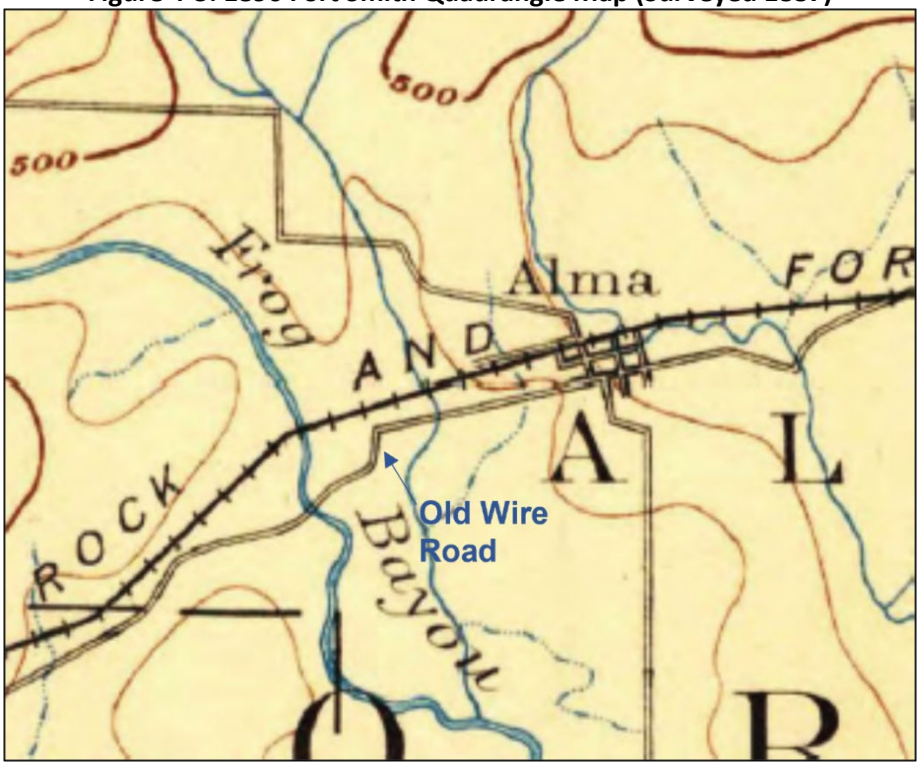


Figure 4-4: Western Portion of Road Segment, Camera Facing East

Figure 4-5: Eastern Portion of Road Segment, Camera Facing West

Figure 4-6: Middle Portion of Road Segment, Camera Facing North

In addition to Old Wire Road, there is one additional Section 4(f) property impacted by the proposed project: Springhill Park. Section 4(f) protections are applicable because Springhill Park is a publicly accessible park managed and used for recreational purposes. Springhill Park is owned and managed by the United States Army Corps of Engineers (USACE), as such USACE is the official with jurisdiction.

5.0 Alternatives/Findings

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of Section 4(f) property only if there is no prudent and feasible alternative to using that land. 23 CFR 774.17 defines a feasible and prudent avoidance alternative as follows:

1. A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.
2. An avoidance alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
3. An avoidance alternative is not prudent if it:
    a. Compromises the project so that it is unreasonable given the purpose and need;
    b. Results in unacceptable safety or operational problems;
    c. After reasonable mitigation, still causes:
        i. Severe social, economic, or environmental impacts;
        ii. Severe disruption to established communities;
        iii. Severe environmental justice impacts; or
        iv. Severe impacts to other federally protected resources.
    d. Results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
    e. Causes other unique problems or unusual factors; or
    f. Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

<u>No-Build Alternative</u>

The No-Build Alternative would leave Old Wire Road as it exists and would not include the construction of Interstate 49. Although the No-Build Alternative is feasible, it is not prudent because it would not meet the project's purpose and need of improving system linkage for a north/south national interstate corridor, accommodating safe travel, and improving modal connectivity. A summary of the prudence factors and their applicability to the No-Build Alternative are presented in **Table 5-1**.

Table 5-1: Prudence Applicability to the No-Build Alternative

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	Yes
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	No
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

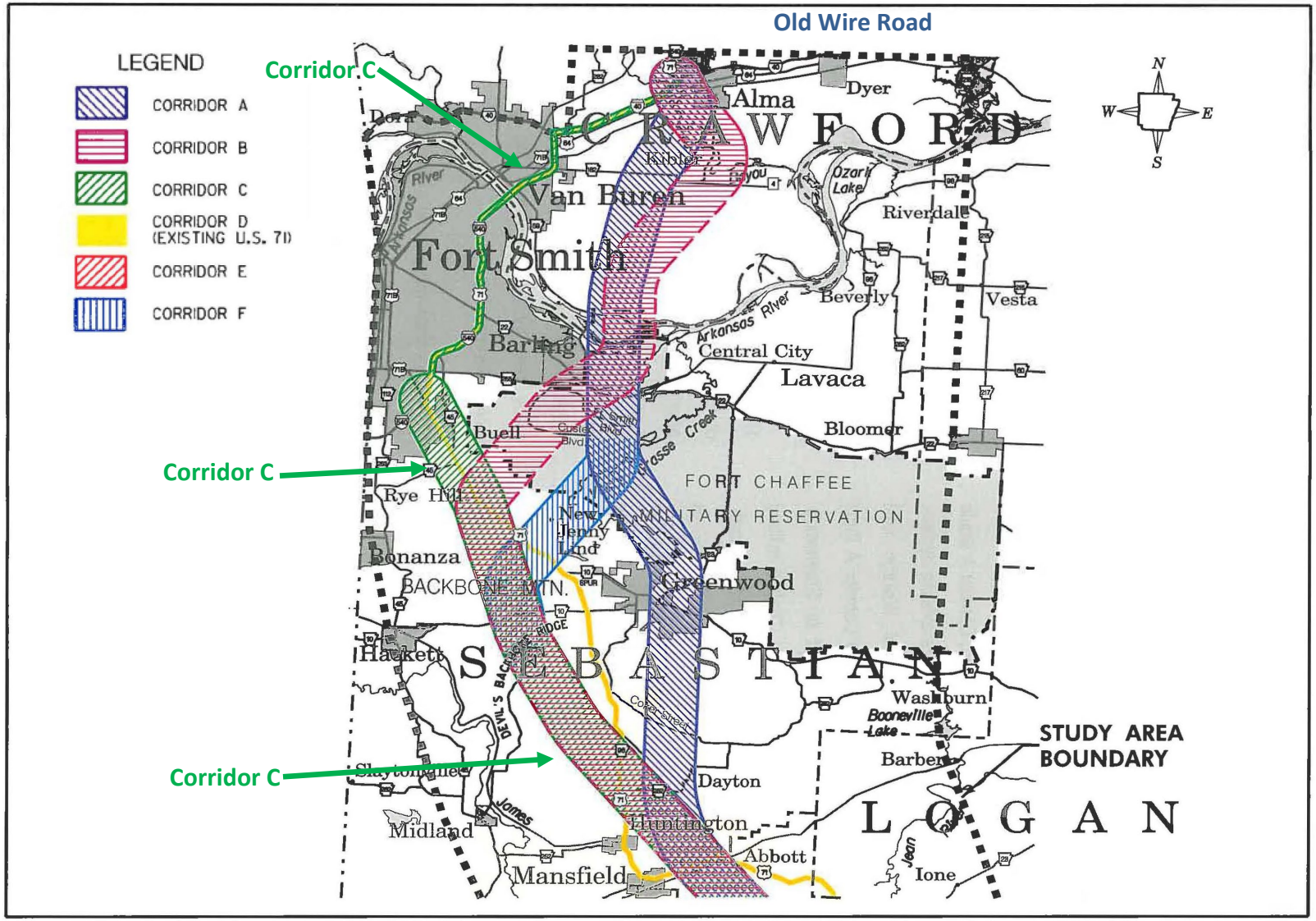
Avoidance Alternative - Corridor C

A corridor feasibility study was conducted prior to the 1997 FEIS. As shown in **Figure 5-1**, six corridors were evaluated. All corridors except one included a crossing of Old Wire Road. The corridor that avoided Old Wire Road, Corridor C, followed Interstate 540 and Interstate 40 through Fort Smith and Van Buren and would require widening these roadways. While Corridor C is feasible, it was determined that widening Interstate 540 and Interstate 40 would not provide a regional interstate highway with sufficient capacity and a high level of service; and therefore, would not satisfy the project purpose and need. Widening would also have been inconsistent with local development plans and project objectives. In order to confirm potential relocation impacts, a field inspection was made of Corridor C from the U.S. Highway 71/Interstate 540 interchange to the Interstate 40/State Highway 540 interchange. The following houses, businesses, and community facilities were identified during field inspection of Corridor C: 582 single family homes, 116 businesses, 57 apartment buildings, three churches, one cemetery, one school, and one state police headquarters. These numbers represented the order of magnitude of the relocations that could result from widening the existing facility. Accordingly, even after reasonable mitigation (e.g., relocation assistance), the density of existing development along Interstate 540 and Interstate 40 would have resulted in severe disruption to established communities and severe social, economic, and environmental impacts. A cost analysis was not completed for Corridor C as it does not meet the purpose and need of the project. A summary of the prudence factors and their applicability to the Avoidance Alternative – Corridor C are presented in **Table 5-2**.

Table 5-2: Prudence Applicability to Avoidance Alternative – Corridor C

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	Yes
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	Yes
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

Figure 5-1: Avoidance Alternative - Corridor C



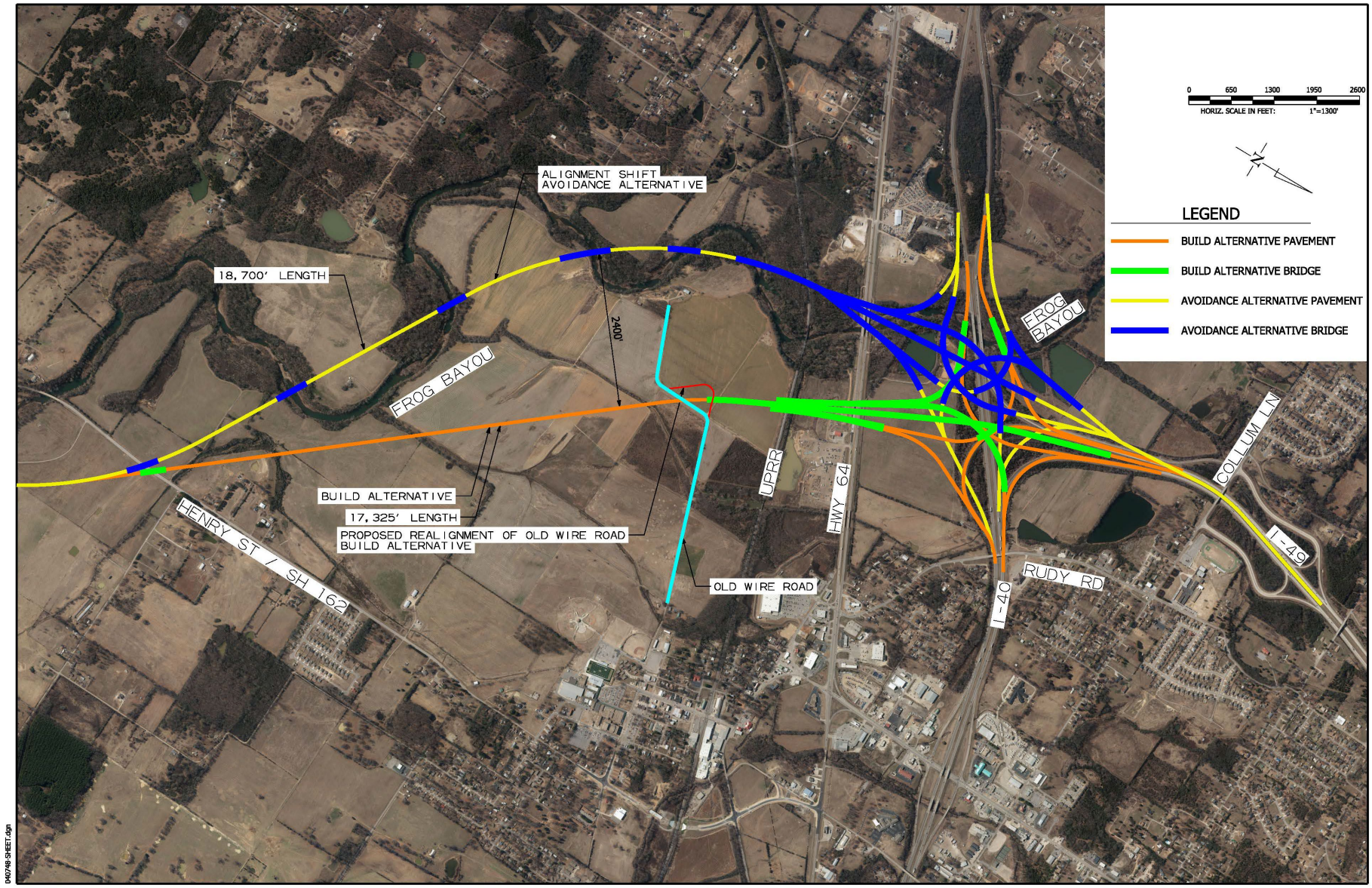
Avoidance Alternative - Alignment Shift

This alternative would shift the alignment to the west beginning at Henry Street/State Highway 162 and proceed northwesterly until turning back to the north to merge with the existing Interstate 49 at the Interstate 49/Interstate 40 interchange. As shown in **Figure 5-2**, this avoidance alternative would result in crossing Frog Bayou at five different locations. It would require significant modifications to the existing Interstate 49/Interstate 40 interchange requiring reconstruction of the existing direct connectors and bridged ramps. It would also shift the Interstate 49/Interstate 40 interchange from its existing location to the west over Frog Bayou. This shift of the interchange would not only result in more crossings of Frog Bayou, but also impact a pond not previously impacted. Frog Bayou contains a mature wooded riparian corridor that would be cleared at each crossing of the alternative otherwise not required by the Build Alternative. The tree clearing would be a removal of wildlife habitat for resident wildlife and for migratory birds, including potential habitat for the four federally listed threatened or endangered bat species in the county (Indiana bat, northern long-eared bat, gray bat, and the Ozark big-eared bat). The alignment shift would result in additional impacts to waters of the U.S., including wetlands, not crossed by the Build Alternative, thereby resulting in increased Section 404 impacts and an increase of Section 404 mitigation to compensate for these impacts. Frog Bayou is a major waterway in this area and water levels fluctuate greatly. The increased number of bridge crossings may impact the existing 100-year floodplain along Frog Bayou resulting in potential flooding issues upstream or additional mitigation to minimize the impacts. In addition, with multiple additional bridge crossings, the alignment shift avoidance alternative could result in adverse impacts to water quality from storm water runoff from the bridge decks into Frog Bayou. While an alignment shift is feasible, even after reasonable mitigation, the alignment shift would result in severe environmental impacts. It would also result in construction cost of an extraordinary magnitude at $288.9 million, which is approximately $43.8 million more than the Build Alternative. A summary of the prudence factors and their applicability to the Avoidance Alternative – Alignment Shift are presented in **Table 5-3**.

Table 5-3: Prudence Applicability to the Avoidance Alternative – Alignment Shift

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	No
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	Yes
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	Yes
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

Figure 5-2: Alignment Shift Avoidance Alternative

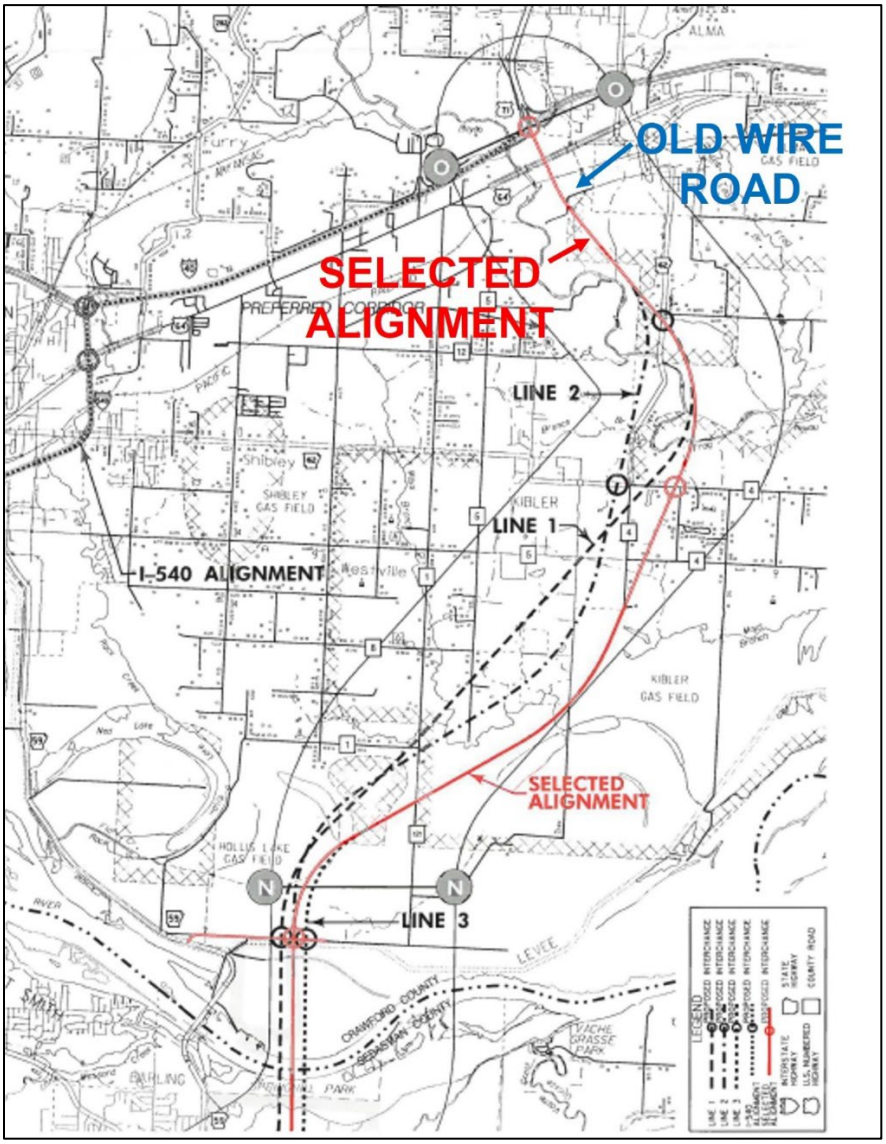


Alignment Study

Subsequent to the corridor analysis, an alignment study was conducted for the identified preferred corridor as part of the 1997 FEIS. The alignment study presented in the 1997 FEIS had three alignment locations within the preferred corridor. These alignments were named Lines 1, 2 and 3. For short distances, one, two or all of the lines could have combined (**Figure 5-3**).

As previously mentioned, Old Wire Road was not listed on the NRHP at the time of the FEIS and therefore, was not evaluated. Subsequent review of potential impacts to Old Wire Road indicate that all lines were proposed to impact Old Wire Road at the same location. This is because the northern terminus of all lines was the existing Interstate 40/Highway 540 interchange. Thus, there are no differences in impacts to Old Wire Road between the lines and where all lines converge in the Selected Alignment.

Figure 5-3: Alignment Crossing Old Wire Road

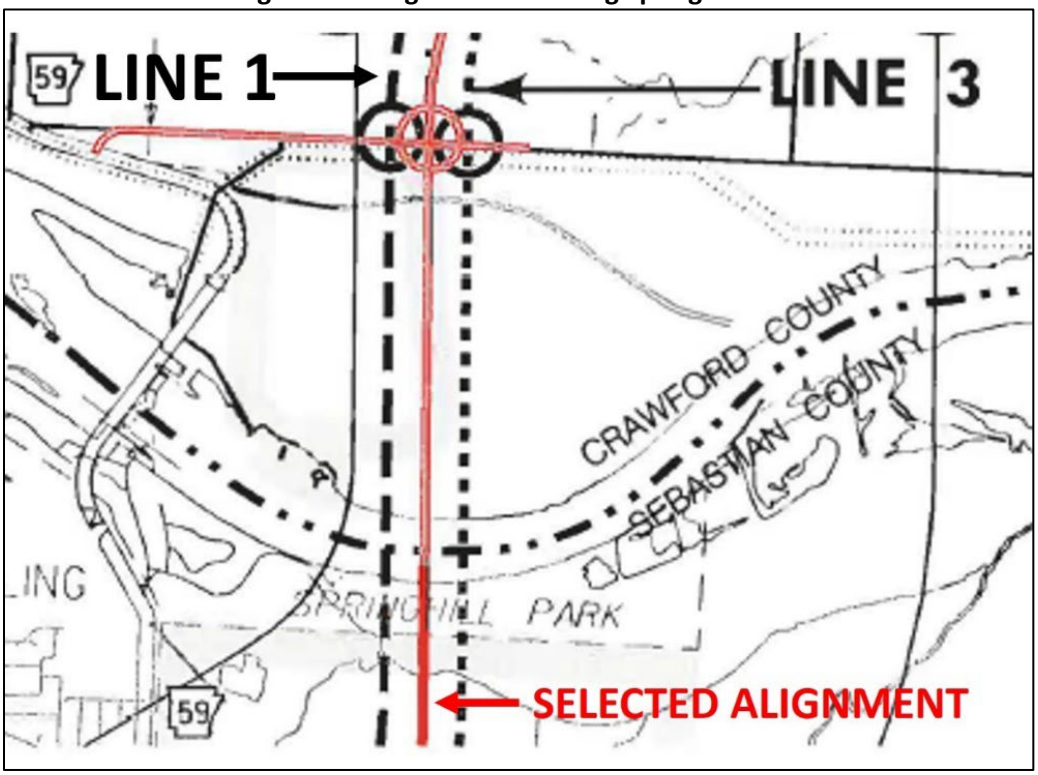


Source: Final Environmental Impact Statement U.S. 71 Relocation Dequeen to Interstate 40, 1997

As previously mentioned, Springhill Park is an additional Section 4(f) property impacted by the proposed project. As shown in **Figure 5-4**, all lines cross Springhill Park and would entirely span the park with a bridge. All alignments would impact Springhill Park Trail. Line 1 crosses the park farthest to the west and is closer to other existing park facilities. Line 3 crosses the park farthest to the east and is closer to the military training smoke release area and Water Obstacle Training Area. Accordingly, Line 2, which crosses in between Lines 1 and 3, was chosen as the Selected Alignment (Build Alternative) in the area of Springhill Park in the 1997 FEIS.

The sole Build Alternative is the Selected Alignment from the 1997 FEIS in the areas of Old Wire Road and Spinghill Park.

Figure 5-4: Alignments Crossing Springhill Park



Source: Final Environmental Impact Statement U.S. 71 Relocation Dequeen to Interstate 40, 1997

Build Alternative (Selected Alignment from the 1997 FEIS)

The proposed project would cross Old Wire Road one-half mile from the intersection with West Main Street. Current plans show 1,396 feet of Old Wire Road being rerouted approximately 400 feet to the north and 982 feet of the old road being removed to allow for main lanes (**Figure 5-5**). Existing Old Wire Road in this location is 12-foot wide. The rerouted road would be 16 feet wide. The rerouted road would be at grade and cross under the mainline Interstate 49 bridge. The vertical clearance between the rerouted roadway and the bottom of the Interstate 49 bridge would be approximately 19 feet. Construction of the Build Alternative is considered feasible. Vegetation surrounding the road consists primarily of historic fields that would also be impacted by construction of the project. Based on the current design, visual and direct impacts to Old Wire Road are anticipated. From Henry Street/State Highway 162 to the Interstate 40 interchange,

the Build Alternative would cross four tributaries of Frog Bayou, but would not cross the larger Frog Bayou itself. It would require some minor areas of tree clearing, but not to the extent of the alignment shift avoidance alternative (**Figure 5-2**).

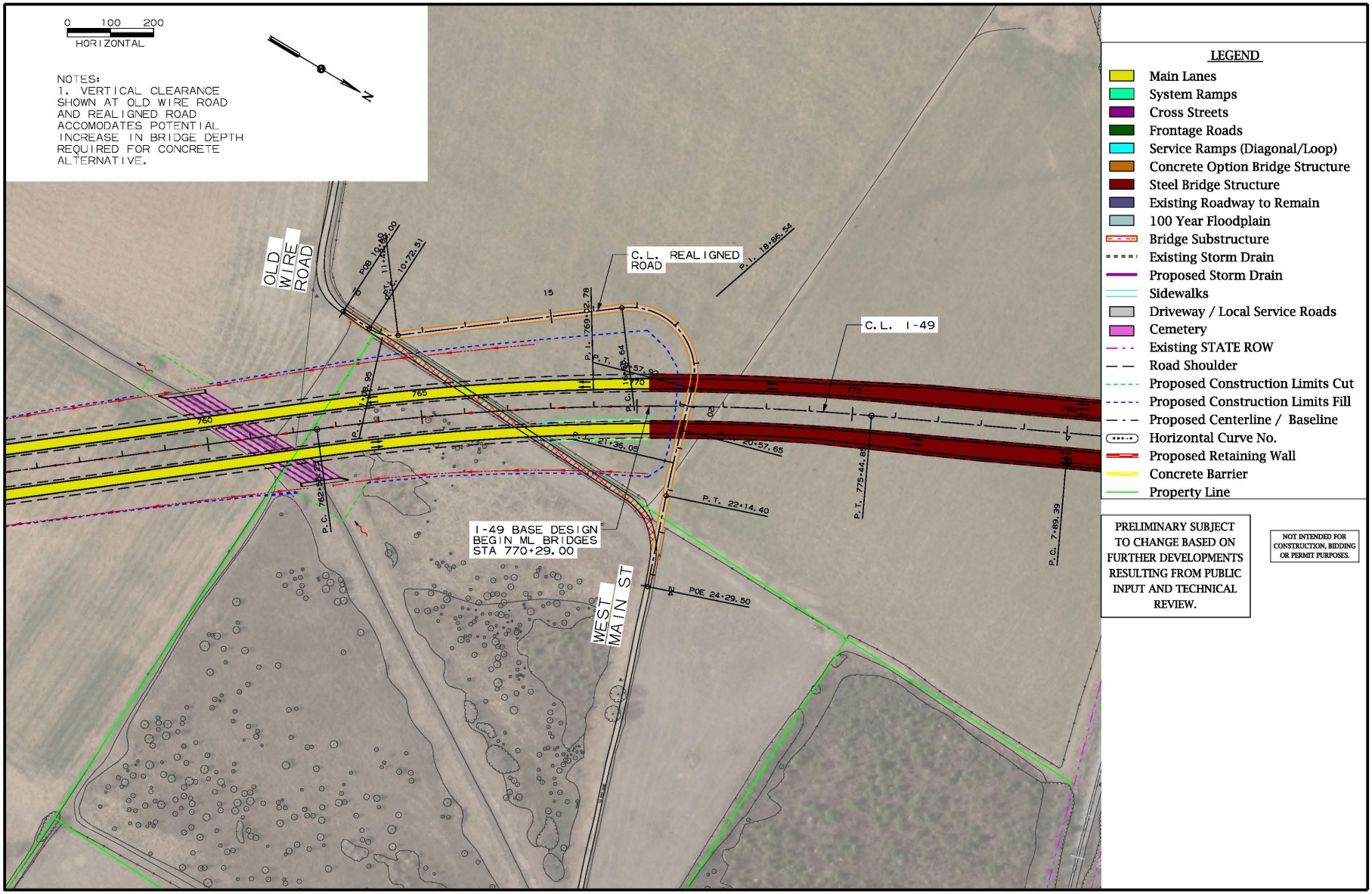
In December 2021, an Assessment of Effects (AOE) was prepared and it was determined that Build Alternative would result in an adverse effect to the resource. A Memorandum of Agreement (MOA) is being prepared to resolve the adverse effect. The AOE and MOA are included in **Attachment A**.

A summary of the prudence factors and their applicability to the Build Alternative are presented in **Table 5-4**.

Table 5-4: Prudence Applicability to the Build Alternative

Prudence Factor	Applicability
Compromises the project so that it is unreasonable given the purpose and need	No
Results in unacceptable safety or operational problems	No
After reasonable mitigation, still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe environmental justice impacts; or severe impacts to other federally protected resources	No
Results in additional construction, maintenance, or operational costs of an extraordinary magnitude	No
Causes other unique problems or unusual factors	No
Involves multiple factors listed above that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude	No

Figure 5-5: Proposed Re-routing of Old Wire Road



6.0 Coordination

After the identification of Old Wire Road as eligible for inclusion in the NRHP, ARDOT developed a MOA with FHWA and SHPO. FHWA conducted coordination with Indian Tribes on this undertaking and will continue to do so for its duration. The Tribes consulted include the Osage Nation, United Keetoowah Band of Cherokee Indians in Oklahoma, Quapaw Nation, Cherokee Nation, Shawnee Tribe, Caddo Nation, Muscogee (Creek) Nation of Oklahoma, and the Choctaw Nation of Oklahoma, for religious or cultural sites and properties in the immediate area of the proposed project. Tribal coordination letters and responses are included in **Attachment B**.

The Section 4(f) Evaluation for Old Wire Road was transmitted to the official with jurisdiction (SHPO) on September 14, 2023, and SHPO responded on September 21, 2023 with no comments. The SHPO coordination letter is included in **Attachment C**. In addition, the Section 4(f) Evaluation for Old Wire Road was included as Appendix C of the Re-evaluation, which was distributed for review and comment to the United States Army Corps of Engineers (USACE) and the Unites States Fish and Wildlife Service (USFWS), both of which served as Cooperating Agencies on the re-evaluation. All coordination included the presentation of avoidance alternatives, property impacts, and mitigation measures.

7.0 Mitigation and Measures to Minimize Harm

In order to minimize harm, Old Wire Road will be realigned instead of being completely cut off. In addition to minimizing harm, the new Interstate 49 alignment was designed to minimize the length of existing Old Wire Road that would be abandoned and replaced with the realigned road.

To resolve the adverse effect determination, a MOA was prepared and proposed the following mitigation:

- Archival documentation for the property that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and the AHPP's 2016 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas*
    - Documentation will utilize the AHPP's Arkansas Resources Form and include color digital photographs
- A written history of the road, including its development, early to current use, and the route's significance to the local area will be prepared
- Documentation will be provided for curation to the AHPP, the Arkansas State Library, the Arkansas Studies Institute, the Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas
- No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

The final MOA will be filed with SHPO once signed by FHWA, ARDOT, and SHPO.

As set forth in 23 CFR §774.11(f), Section 4(f) applies to all archeological sites on or eligible for inclusion on the NRHP, including those discovered during construction. Per the 2021 Programmatic Agreement among FHWA, SHPO, the Advisory Council on Historic Preservation, the Osage Nation, and ARDOT (Programmatic Agreement), if previously unidentified archeological properties, or unanticipated effects, are discovered after ARDOT has completed its review, that portion of the project will stop immediately, in accordance with Section 107.10(c) of AHTD's[2] Standard Specifications for Highway Construction, Edition of 2014. No ground-disturbing activities will occur within a 200-foot radius of the location of that discovery. ARDOT will consult with FHWA, SHPO, the Osage Nation, and other consulting Tribes, as appropriate, to record, document, and evaluate NRHP eligibility of the property and the project's effect on the property, and to design a plan for avoiding, minimizing, or mitigating adverse effects of the eligible property.

8.0 Summary

Table 8-1 contains a summary of the analysis and decision-making information included in this evaluation. The Avoidance alternative was evaluated using the criteria outlined in 23 CFR 774.17. Based on this evaluation, there is no feasible and prudent avoidance alternative to avoid the use of land from the Section 4(f) property.

[2] AHTD, or the Arkansas Highway Transportation Department, is the former name for ARDOT.

Table 8-1: Section 4(f) Alternative Analysis Summary

	No-Build	Corridor C	Alignment Shift	Build Alternative
Feasible	Yes	Yes	Yes	Yes
Prudent	No	No	No	Yes
Uses Section 4(f) Property	No	No	No	Yes
Harm to Section 4(f) Property (With Mitigation)	None	None	None	Impacts Section 4(f) Property*
Impact Comparison**	None	Impacts to: 582 single family homes, 116 business, 57 apartment buildings, 3 churches, 1 cemetery, 1 school, 1 state police headquarters; severe disruption to established communities; severe social, economic and environmental impacts. Cost estimate not generated because does not meet the project's purpose and need.	Five crossings of Frog Bayou in the area of the avoidance alternative; significant modifications to the existing Interstate 40 interchange; tree clearing resulting in removal of wildlife habitat resident wildlife, migratory birds, and threatened or endangered bat species; impacts to waters of the U.S., including wetlands; increased Section 404 impacts and mitigation; impacts to floodplains; impacts to water quality; construction costs of an extraordinary magnitude (approximately $43.8 million more than the Build Alternative)	Four crossings of tributaries of Frog Bayou; minor areas of tree clearing compared to the alignment shift avoidance alternative; visual and direct impacts to Old Wire Road.

*This alternative yielded a determination that any adverse effect will be mitigated by the implementation of the Memorandum of Agreement among the FHWA, SHPO, and ARDOT.
**These estimates represent only that portion of the project that would change to avoid the Section 4(f) property. The Alignment Shift avoidance alternative includes the construction cost.

9.0 Least Overall Harm Analysis and Concluding Statement

Section 4(f) requires that when there are no "prudent and feasible" avoidance alternatives to the "use" of Section 4(f) properties, and multiple Build Alternatives are being evaluated, the lead federal agency must choose from the remaining Build Alternatives that use the Section 4(f) property and select the alternative that causes the "least overall harm" in light of the statute's preservation purpose. The least overall harm is determined by balancing the following seven factors, as specified in 23 CFR § 774.3(c):

1. Ability to mitigate adverse impacts on each Section 4(f) property, including any measures that result in benefits to the property
2. Relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection

3. Relative significance of each Section 4(f) property
4. Views of the official(s) with jurisdiction over each Section 4(f) property
5. Degree to which each alternative meets the purpose and need for the project
6. The magnitude of any adverse impacts on resources not protected by Section 4(f) (after reasonable mitigation)
7. Substantial differences in cost among the project alternatives

The first four factors relate to the net harm that each project alternative would cause to the Section 4(f) property, and the remining three factors take into account concerns with the project alternatives that are not specific to the Section 4(f).

As discussed in **Section 5**, avoidance alternatives were considered that would avoid impacts to Old Wire Road; however, they would either compromise the project in light of its stated purpose and need or they did not meet the criteria for a prudent and feasible avoidance alternative. The Corridor C avoidance alternative compromises the project so that it is unreasonable given the purpose and need. In addition, even after reasonable mitigation, Corridor C still results in in severe disruption to established communities and severe social, economic, and environmental impacts. The Alignment Shift avoidance alternative, even after reasonable mitigation, would result in severe environmental impacts and impacts to other federally protected resources. It would also result in additional construction costs of an extraordinary magnitude.

Three alignments were evaluated in the 1997 FEIS within the preferred corridor; all would impact the two Section 4(f) properties in the study area Old Wire Road and Springhill Park. The Selected Alignment was chosen because it had the fewest potential impacts to Springhill Park. Although Old Wire Road was not eligible for inclusion in the NRHP at the time of the FEIS and thus not evaluated, subsequent review of the three alignments indicated all were proposed to impact Old Wire Road at the same location. Thus, where all three lines converge is the Selected Alignment. The sole Build Alternative is the Selected Alignment from the 1997 FEIS in the areas of Old Wire Road and Springhill Park.

Multiple alignments within the preferred corridor were evaluated in the 1997 FEIS and one Selected Alignment (Build Alternative) was chosen. Accordingly, only one Build Alternative is under consideration in the FEIS Re-evaluation and this Section 4(f) Evaluation. Section 3.3.3.2 of the FHWA *Section 4(f) Policy Paper* states that the least harm alternative analysis is required when multiple alternatives that use a Section 4(f) property remain under consideration. For the proposed project, there is only the Build Alternative; therefore, a least harm alternative analysis is not required.

ATTACHMENT A: ASSESSMENT OF EFFECTS AND MEMORANDUM OF AGREEMENT

ARKANSAS DEPARTMENT OF TRANSPORTATION
ArDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

January 5, 2022

Secretary Stacy Hurst
Arkansas Historic Preservation Program
1100 North Street
Little Rock, Arkansas 72201

RE: Job 040748
Hwy. 22 – I-40 (Arkansas River) (F)
Sebastian & Crawford Counties

Dear Secretary Hurst:

Please find enclosed an Assessment of Effects (AOE) concerning Old Wire Road (AHPP Tracking Number 100314). One historic property will be adversely affected as a result of this undertaking. As such, a Memorandum of Agreement (MOA) is included in Attachment B for your review for the above referenced project. If the format and language are agreeable, please sign and return the attached copy. A final copy will be sent to your office when all participants have signed the document. If you have any questions about the project, please contact Kristina Boykin of my staff at (501) 569-2079.

Sincerely,

for John Fleming
Division Head
Environmental Division

Enclosure
AOE, MOA

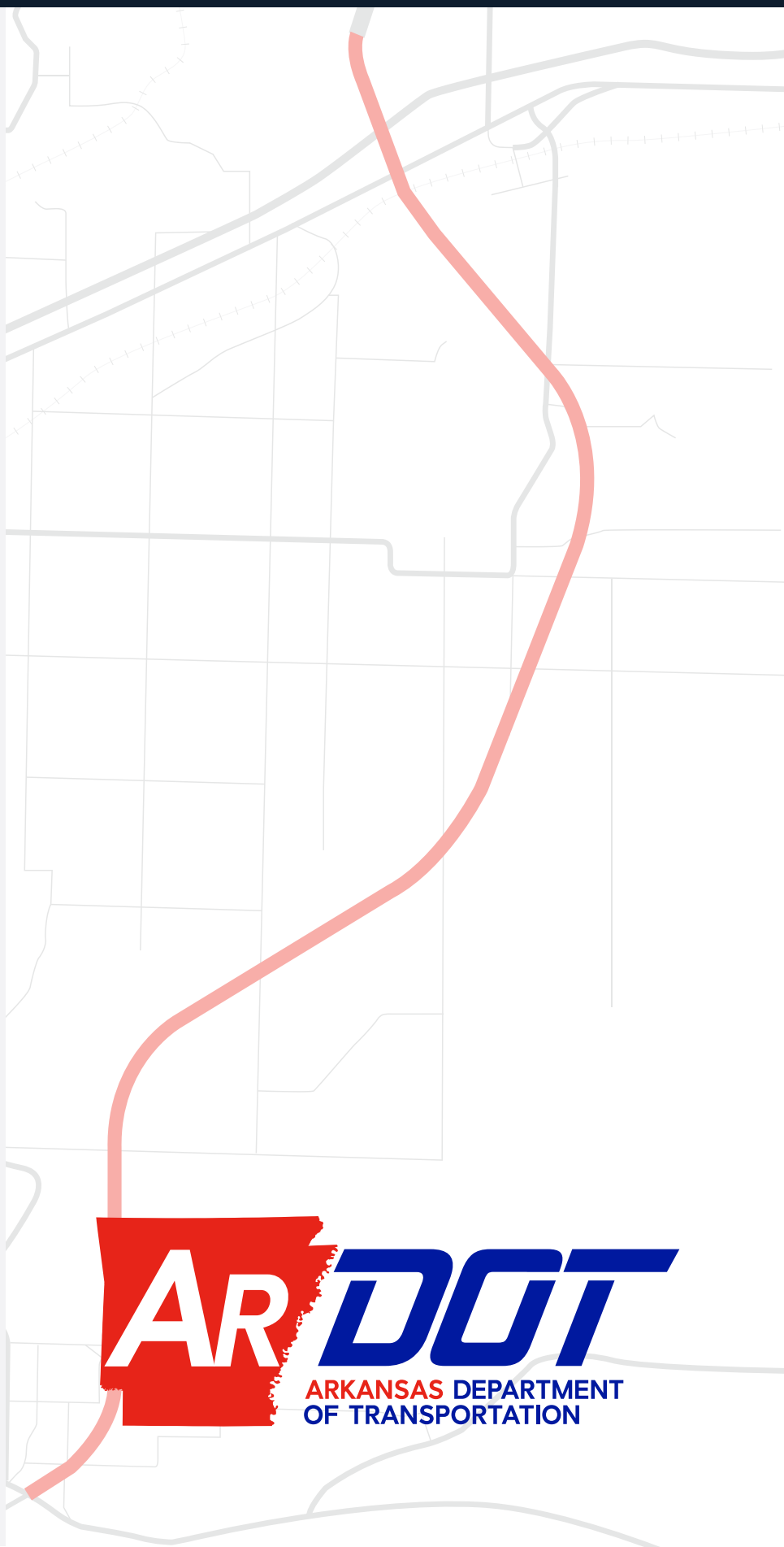
JF:KB:SL:em

I-49 Assessment of Effects for Old Wire Road

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

December 2021
Job No. 001747



ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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ATTACHMENTS

Attachment A: Plan Sheet

1.0 PROPERTY DESCRIPTION

The Old Wire Road (Property 29) is a segment of gravel roadway located west of the town of Alma in Crawford County, Arkansas. The road was originally constructed and depicted as a "4 Horse Mail Post Coach Road" on maps dating to 1839. According to the Addendum Report produced in 2018, the roadway is approximately 0.96 miles in length and "terminates to the east at the paved portion that becomes West Main Street and to the west before Frog Bayou. The old road continued west to Van Buren over the bayou. The road continued east through present-day Alma and through Ozark and Clarksville, ultimately connecting Van Buren and Little Rock." Currently, the road is only used for access to privately owned fields.

The road is approximately 15 feet wide with no visible shoulders. While the original road likely consisted of dirt, it is currently covered in river gravel. Per the addendum report description, the existing segment generally follows the same route as shown in mid-to-late nineteenth century maps. Until the early 20th century, a Triple Bowstring Bridge was located where the road intersected Frog Bayou. However, with the construction of Highway 64 in the late 1910s, the bridge was removed, and the bayou was forded because the stagecoach route was less frequently traveled. By the 1940s, the road was no longer in operation and is known today by the locals as "Old Wire Road" or "Stagecoach Road."[1] While only a portion of the old road exists today, it remains an important, intact example of an early post road.

[1] Job Number 04078 Historic Resource Survey Addendum Report, June 2018.

Figure 1-1: 1839 Map (Source: https://www.loc.gov/resource/g3935.ct007117/)

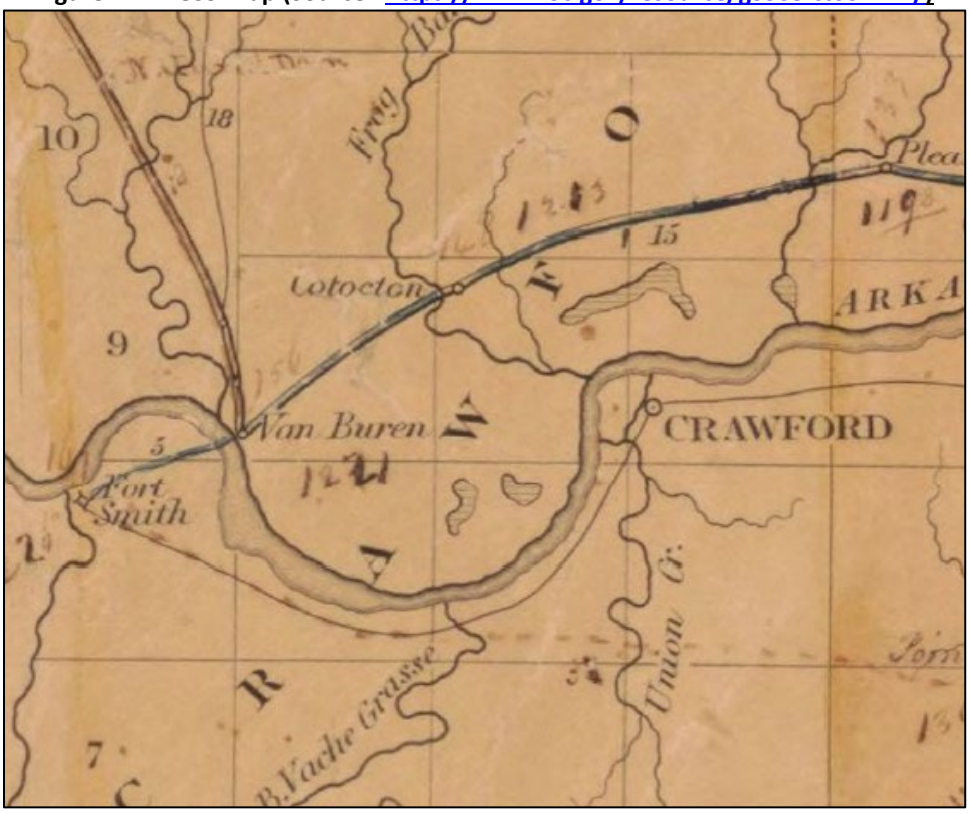
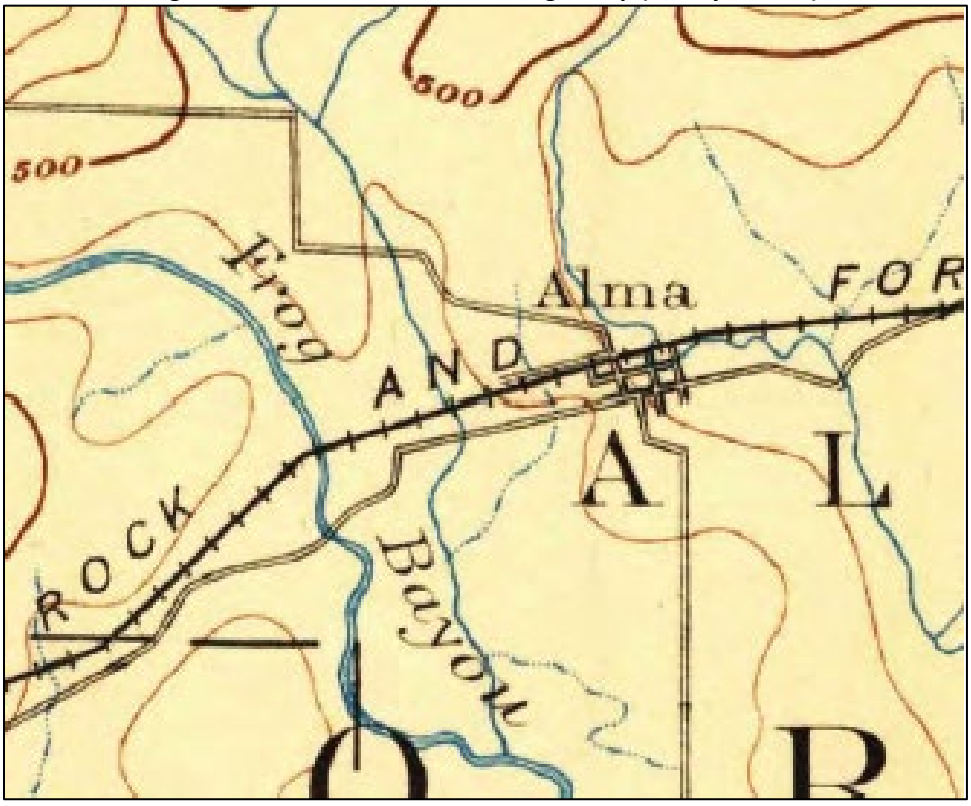


Figure 1-2: 1890 Fort Smit Quadrangle Map (Surveyed 1887)



2.0 FIELDWORK

Field surveys were conducted in Spring 2018 and Summer 2021. The length of the road was driven and documented with photographs. Based on field observations and depictions on historic maps, the proposed National Register Boundary consists of the remaining 0.96 miles of road where the road terminates to the east at West Main Street and the west at Frog Bayou.

Figure 2-1: Western Portion of Road Segment, Camera Facing East

Figure 2-2: Eastern Portion of Road Segment, Camera Facing West

Figure 2-3: Middle Portion of Road Segment, Camera Facing North

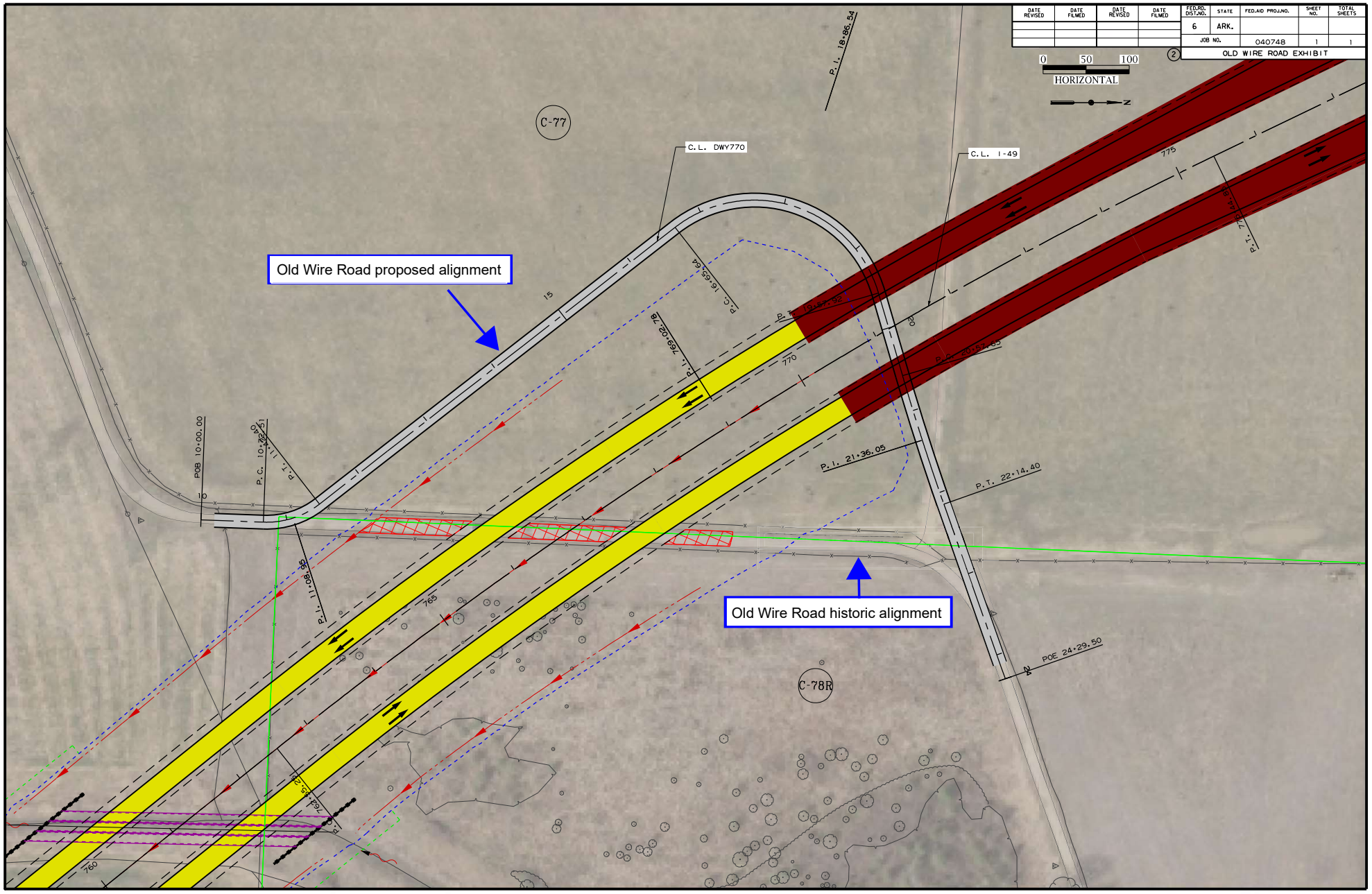
3.0 ANTICIPATED IMPACTS

The proposed new location interstate will cross Old Wire Road one half mile from the intersection with West Main Street. Current plans (**Attachment A**) show a portion of Old Wire Road being re-routed and a portion of the old road being removed to allow for main lanes. Vegetation surrounding the road consists primarily of historic fields that would also be impacted by construction of the project. Based on the current design, visual and direct impacts to the Old Wire Road are anticipated.

4.0 RECOMMENDATIONS

The re-routing of Old Wire Road and subsequent removal of a portion of the historic alignment will result in an adverse effect to the resource. To mitigate this effect, ARDOT will produce archival documentation for the property that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and the Arkansas Historic Preservation Program's (AHPP) 2016 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas*. The documentation will utilize the AHPP's Arkansas Resources Form and include color digital photographs. The documentation will also include a written history of the road, its development, early to current use, and the route's significance to the local area. The documentation will be provided for curation to the AHPP, the Arkansas State Library, the Arkansas Studies Institute, the Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

ATTACHMENT A: PLAN SHEET


DATE REVISED
DATE FILMED
DATE REVISED
DATE FILMED
FED.RD. DIST.NO.
STATE
FED.AID PROJ.NO.
SHEET NO.
TOTAL SHEETS
6
ARK.
JOB NO.
040748
1
1
OLD WIRE ROAD EXHIBIT
0
50
100
HORIZONTAL
N
C-77
C.L. DWY770
C.L. I-49
P.I. 18+86.54
Old Wire Road proposed alignment
Old Wire Road historic alignment
P.I. 21+36.05
P.T. 22+14.40
POE 24+29.50
POB 10+00.00
P.I. 11+08.95
C-78R
775
770
765
760

ATTACHMENT B: MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL HIGHWAY ADMINISTRATION,
THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER
AND THE ARKANSAS DEPARTMENT OF TRANSPORTATION
REGARDING
ARDOT JOB 040748
INTERSTATE 49
CRAWFORD COUNTY, ARKANSAS
OLD WIRE ROAD

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT) wish to construct a new interstate in Crawford County, and a portion of the Old Wire Road will be demolished and re-routed as part of completing ARDOT Job 040748; and

WHEREAS, the Old Wire Road is a historic property determined eligible for inclusion in the National Register of Historic Places (NRHP) through consultation with the State Historic Preservation Officer (SHPO); and

WHEREAS, through the Section 4(f) Evaluation process, the FHWA has determined that no feasible and prudent alternative to the demolition of the historic road exists; and

WHEREAS, the FHWA and ARDOT have determined that this undertaking will have an adverse effect on a historic property and in accordance with the 36 Code of Federal Regulation (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended [54 United States Code (USC) 306108], must address this effect; and

WHEREAS, the identification, evaluation, and eligibility determination of the Old Wire Road complied with all applicable stipulations as defined in the 1997 Programmatic Agreement; and

WHEREAS, the definitions set forth in 36 CFR § 800.16 are applicable throughout this Memorandum of Agreement (MOA); and

WHEREAS, the FHWA has consulted with the Osage Nation, United Keetoowah Band of Cherokee Indians in Oklahoma, Quapaw Nation, Cherokee Nation, Shawnee Tribe, Caddo Nation, Muscogee (Creek) Nation of Oklahoma, and the Choctaw Nation of Oklahoma, for which the Old Wire Road or sites and properties in the immediate area might have religious and cultural significance; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), the FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii).

NOW THEREFORE, the FHWA, the SHPO, and ARDOT agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the Old Wire Road.

STIPULATIONS

The FHWA, through ARDOT, shall ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTY

A. ARDOT will produce archival documentation for the property that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and the Arkansas Historic Preservation Program's (AHPP) 2016 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas.*

B. Documentation for the property will include the AHPP's Arkansas Architectural Resources Form and color digital photographs. Accompanying document will include historic maps, a written history of the Old Wire Road, including its development, early to current use, and the route's significance to the local area.

C. The documentation will be provided for curation to the AHPP, the Arkansas State Library, the Arkansas Studies Institute, the Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas.

D. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

E. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease and procedures shall follow those as outlined in Stipulation XII of the *Programmatic Agreement Among the FHWA, the SHPO, the ACHP, the Osage Nation, and ARDOT Regarding Section 106 Implementation for Federal-Aid Transportation Projects.* The treatment of human remains shall follow the guidelines developed for the *Arkansas Burial Law* (Act 753 of 1991, as amended) and the ACHP's *Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects* published February 23, 2007. As such, a permit will be obtained from the AHPP prior to exaction of any remains.

III. DURATION

This MOA will expire if its terms are not carried out within ten (10) years from the date of its execution. Prior to such time, the FHWA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VIII below.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities pursuant to this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (36 CFR Part 61).

V. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR § 800.13, if cultural material is discovered during implementation of the project, then procedures shall follow those as outlined in Stipulation XI of the *Programmatic Agreement Among the FHWA, the SHPO, the ACHP, the Osage Nation, and ARDOT Regarding Section 106 Implementation for Federal-Aid Transportation Projects.*

VI. DISPUTE RESOLUTION

Should the SHPO or any consulting party to this MOA object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the ACHP pursuant to 36 CFR § 800.7. Any ACHP comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR § 800.6(b)(2) with reference only to the subject of the dispute; the FHWA's responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

VIII. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR § 800.6. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

IX. TERMINATING THE MEMORANDUM OF AGREEMENT

If any signatory to this MOA determines that its terms of this MOA will not or cannot be carried out, that party shall immediately consult with other signatories to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories. In the event of termination, the FHWA shall comply with 36 CFR § 800.4 through 800.6 with regard to the undertaking covered by this MOA.

X. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event that the FHWA does not carry out the terms of this MOA, the FHWA shall comply with 36 CFR § 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution of this MOA and implementation of its terms evidences that the FHWA and ARDOT have taken into account the effect of the undertaking on the historic property and have fulfilled its Section 106 responsibilities under the NHPA of 1966, as amended.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Vivien N. Hoang, P.E.
Arkansas Division Administrator

11/28/2023
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Scott Kaufman

11-27-23

Director Scott Kaufman
Arkansas State Historic Preservation Officer

Date

Signatory

ARKANSAS DEPARTMENT OF TRANSPORTATION

Lorie H. Tudor

11/13/23

Lorie H. Tudor, P.E.
Director

Date

ATTACHMENT B: TRIBAL COORDINATION LETTERS/RESPONSES

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

March 28, 2018

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Everett Bandy
Tribal Historic Preservation Officer
Quapaw Tribe of Oklahoma
Post Office Box 765
Quapaw, Oklahoma 74363

Dear Mr. Bandy:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Quapaw Tribe of Oklahoma regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

March 28, 2018

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
Post Office Box 779
Pawhuska, Oklahoma 74056

Dear Dr. Hunter:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Osage Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

March 28, 2018

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Ms. Sheila Bird
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians
Post Office Box 746
Tahlequah, Oklahoma 74465

Dear Ms. Bird:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the United Keetoowah Band of Cherokee Indians regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Band.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

March 28, 2018

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Ian Thompson
Tribal Historic Preservation Officer &
NAGRPA Program Coordinator
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702-1210

Dear Dr. Thompson:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Choctaw Nation of Oklahoma regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

March 28, 2018

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Ms. Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation of Oklahoma
Post Office Box 948
Tahlequah, OK 74465

Dear Ms. Toombs:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Cherokee Nation of Oklahoma regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

March 28, 2018

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Phil Cross
Tribal Historic Preservation Officer
Caddo Nation
Post Office Box 487
Binger, Oklahoma 73009

Dear Mr. Cross:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Caddo Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

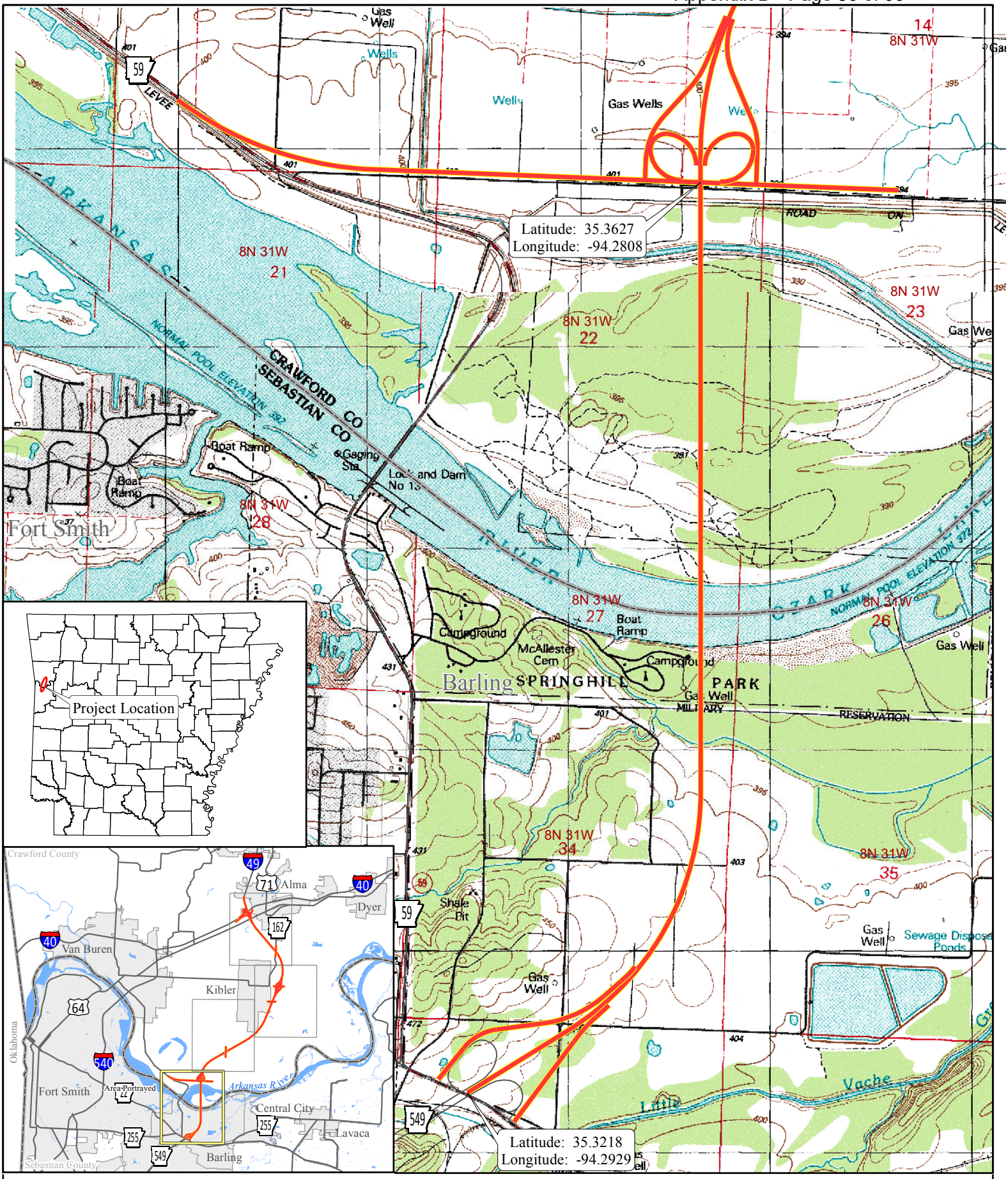
The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location maps). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); and three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure



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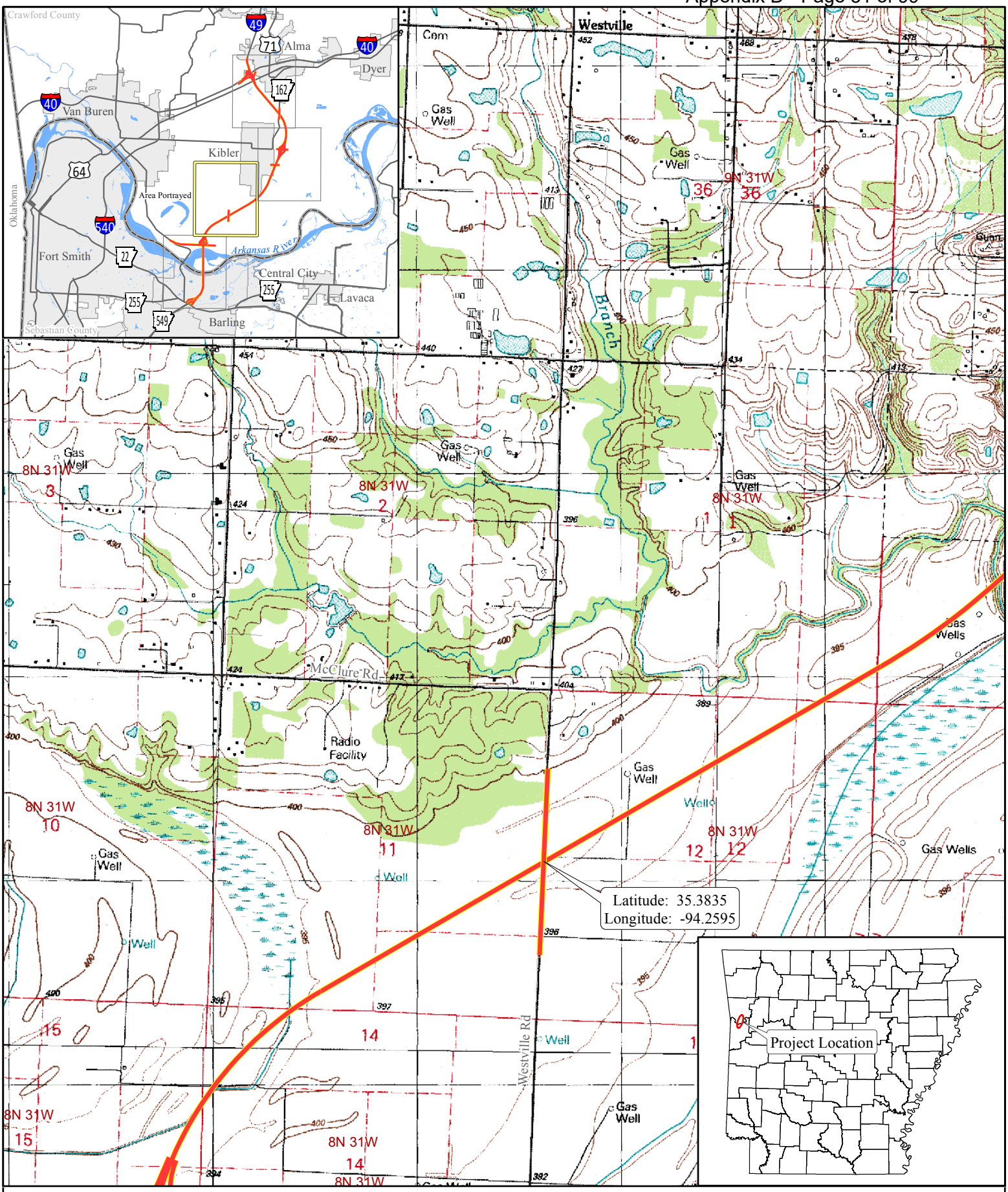
Scale - 1:24,000

ARDOT - Environmental GIS - Hopkins
March 22, 2018

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 1 of 4.

Project Location

USGS Topographic Map:
Barling 1995



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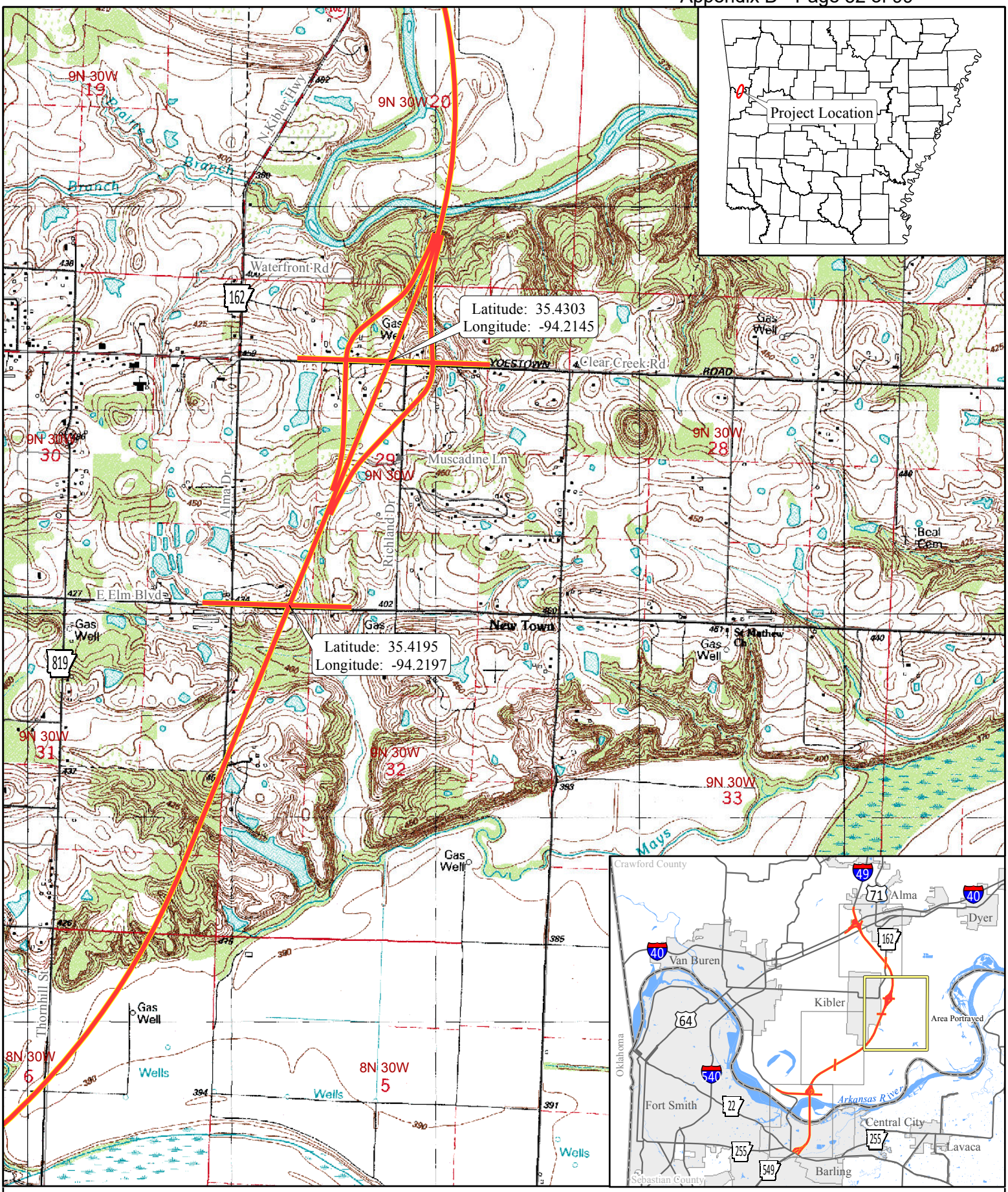
ARDOT - Environmental GIS - Hopkins
March 22, 2018

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 2 of 4.

Project Location

USGS Topographic Maps:
Alma 1995; Barling 1995; Van Buren 1995



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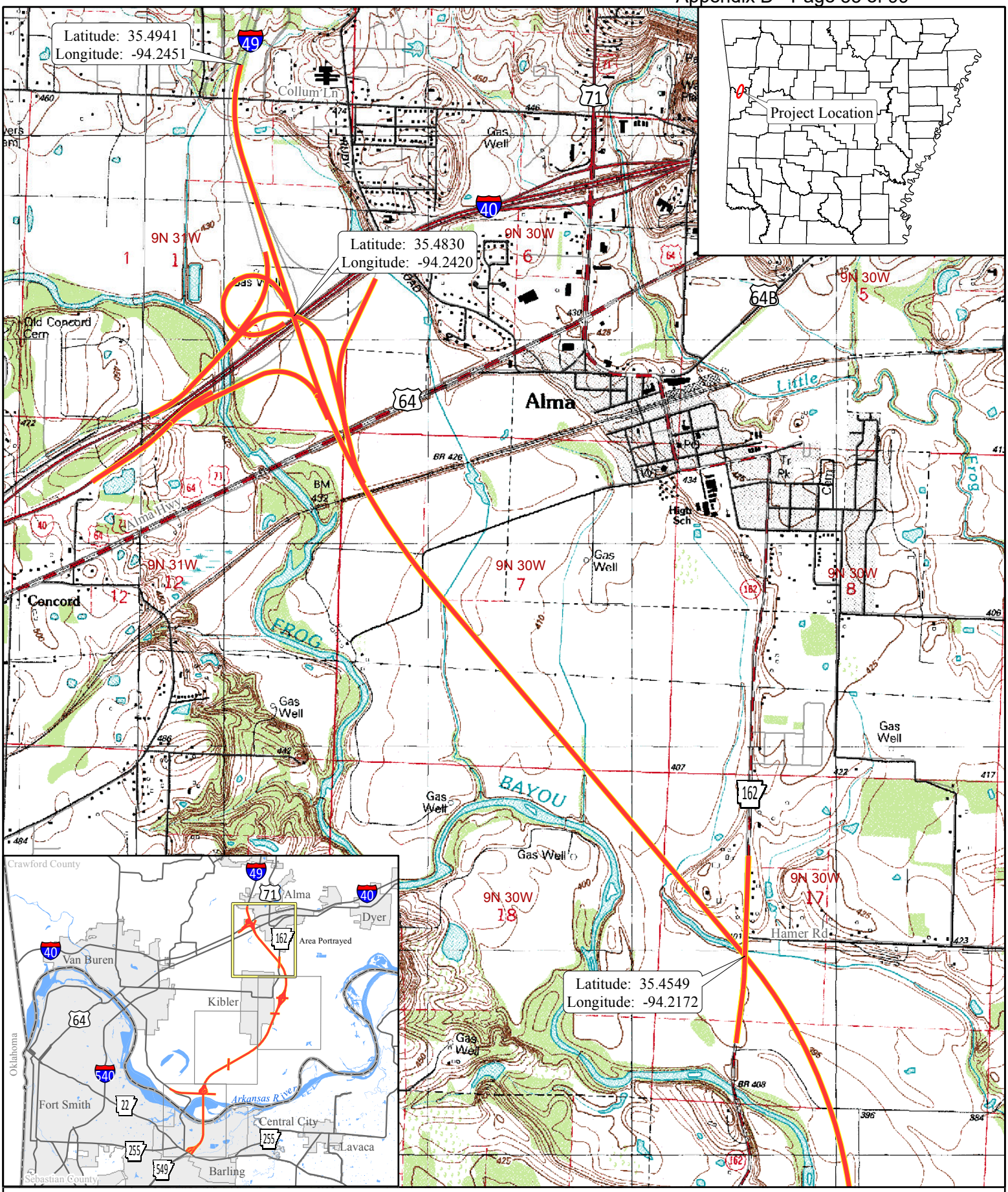
Scale - 1:24,000

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 3 of 4.

Project Location

ARDOT - Environmental GIS - Hopkins
March 22, 2018

USGS Topographic Map:
Alma 1995



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Scale - 1:24,000

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 4 of 4.

Project Location

ARDOT - Environmental GIS - Hopkins
March 22, 2018

USGS Topographic Maps:
Alma 1995; Van Buren 1995

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 7, 2020

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Ms. Tonya Tipton
Tribal Historic Preservation Officer
Shawnee Tribe
P.O. Box 189
Miami, OK 74355

Dear Mrs. Tipton:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Shawnee Tribe regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location map). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 7, 2020

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Ms. Corain Lowe-Zepeda
Tribal Historic Preservation Officer
Muscogee (Creek) Nation
P. O. Box 580
Okmulgee, OK 74447

Dear Ms. Lowe-Zepeda:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Muscogee Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Department of Transportation (ARDOT) plans to purchase right-of-way and reassess the environmental impacts for the construction of the future I-49 corridor from Highway 22 in Sebastian County to Interstate 40 in Crawford County (see project location map). The current job has been broken out from the preliminary job 001747. To date, the cultural resources reassessment has been conducted and three sites (3CW871, 3CW1095, and 3CW1166) require additional Phase I work; three sites (3CW868, 3CW880, and 3CW900) require Phase II testing to determine their eligibility to the National Register of Historic Places (NRHP); three sites (3CW864/3CW865, 3CW882, and 3CW894) have been determined eligible to the NRHP and require Phase III mitigation. In addition, an estimated 830 acres were not previously surveyed under the preliminary job 001747 and require a Phase I cultural resources survey to identify if any new sites are within the proposed project area.

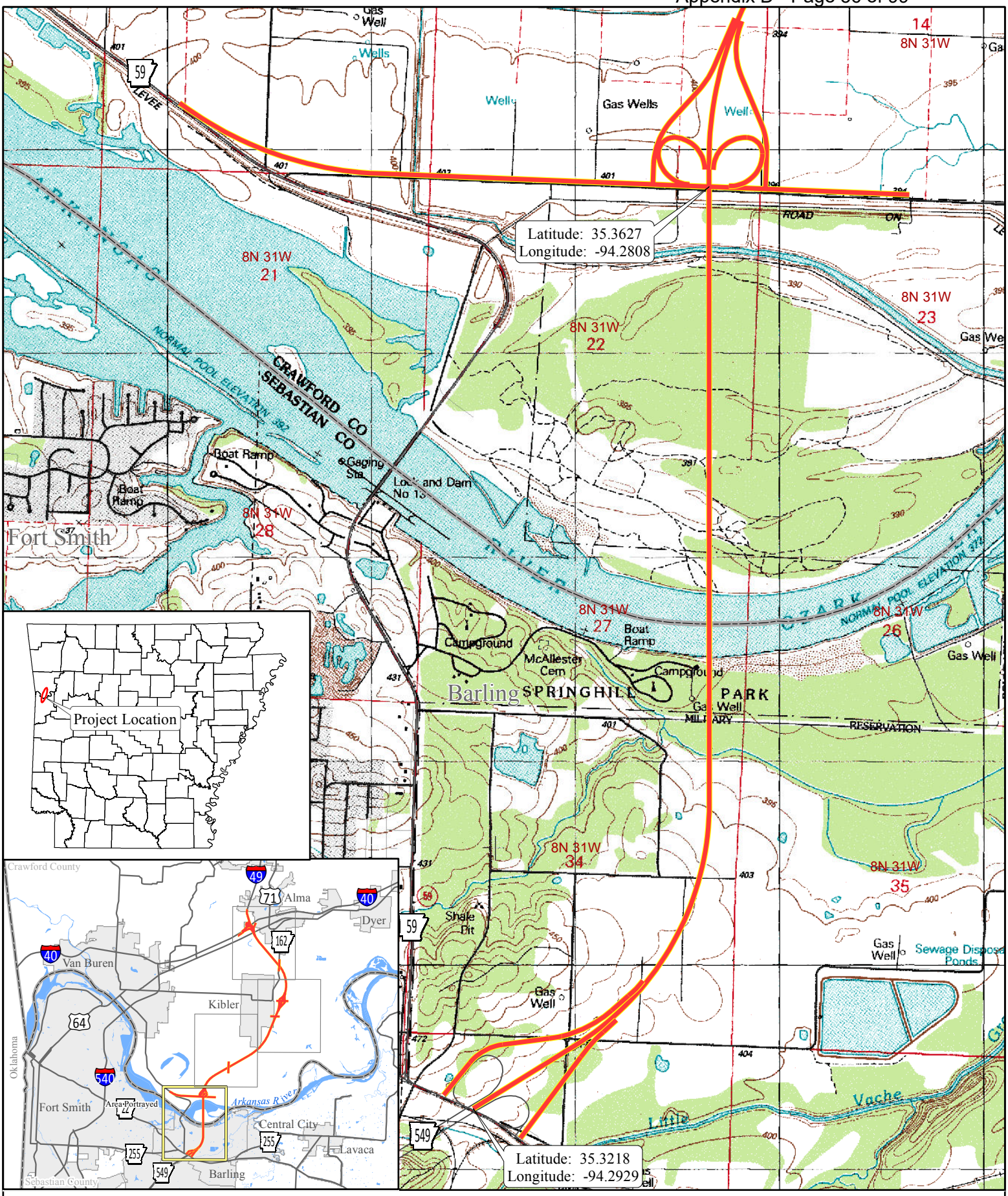
Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Nation. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure



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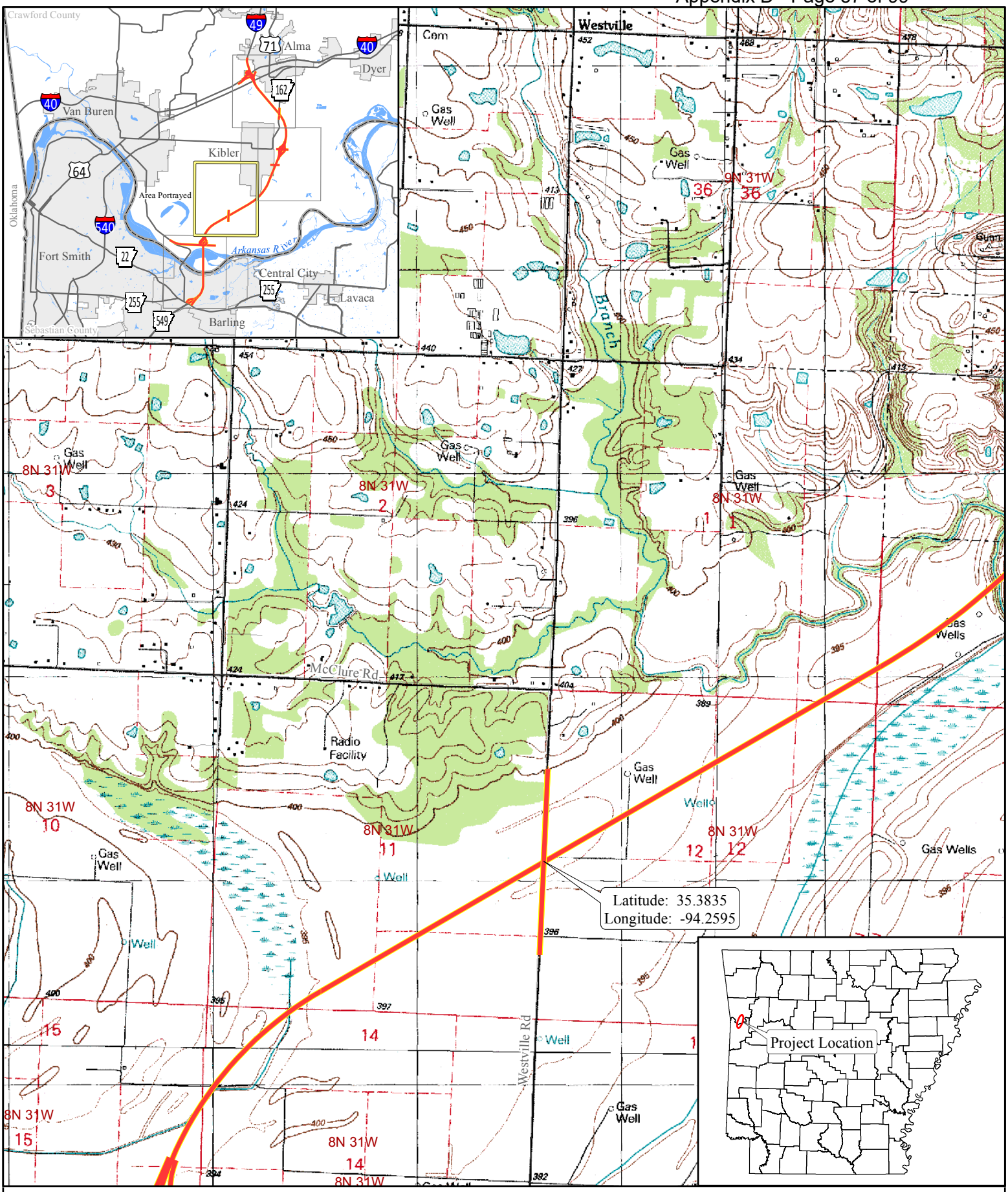
Scale - 1:24,000

ARDOT - Environmental GIS - Hopkins
March 22, 2018

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 1 of 4.

Project Location

USGS Topographic Map:
Barling 1995



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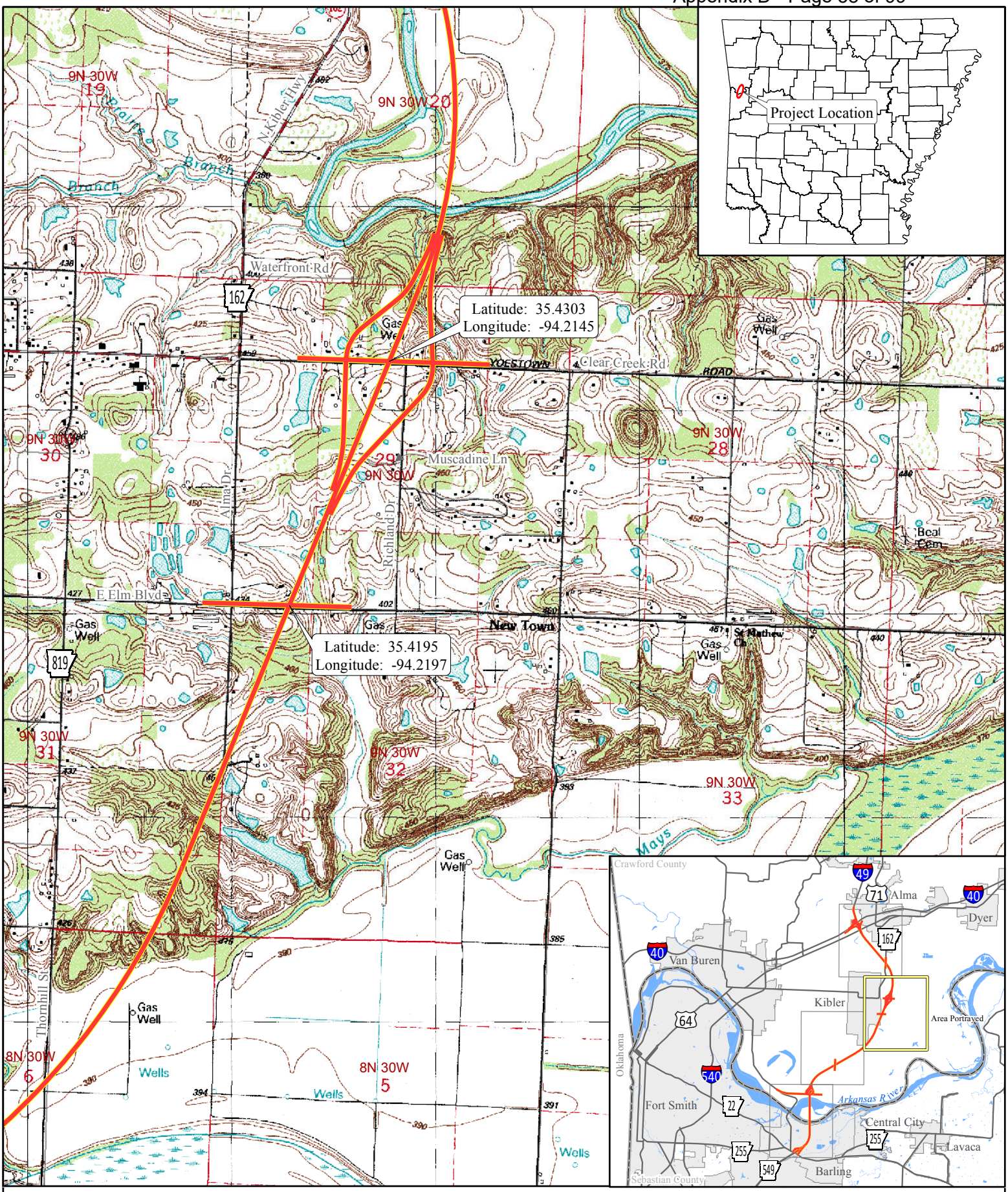
ARDOT - Environmental GIS - Hopkins
March 22, 2018

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 2 of 4.

Project Location

USGS Topographic Maps:
Alma 1995; Barling 1995; Van Buren 1995



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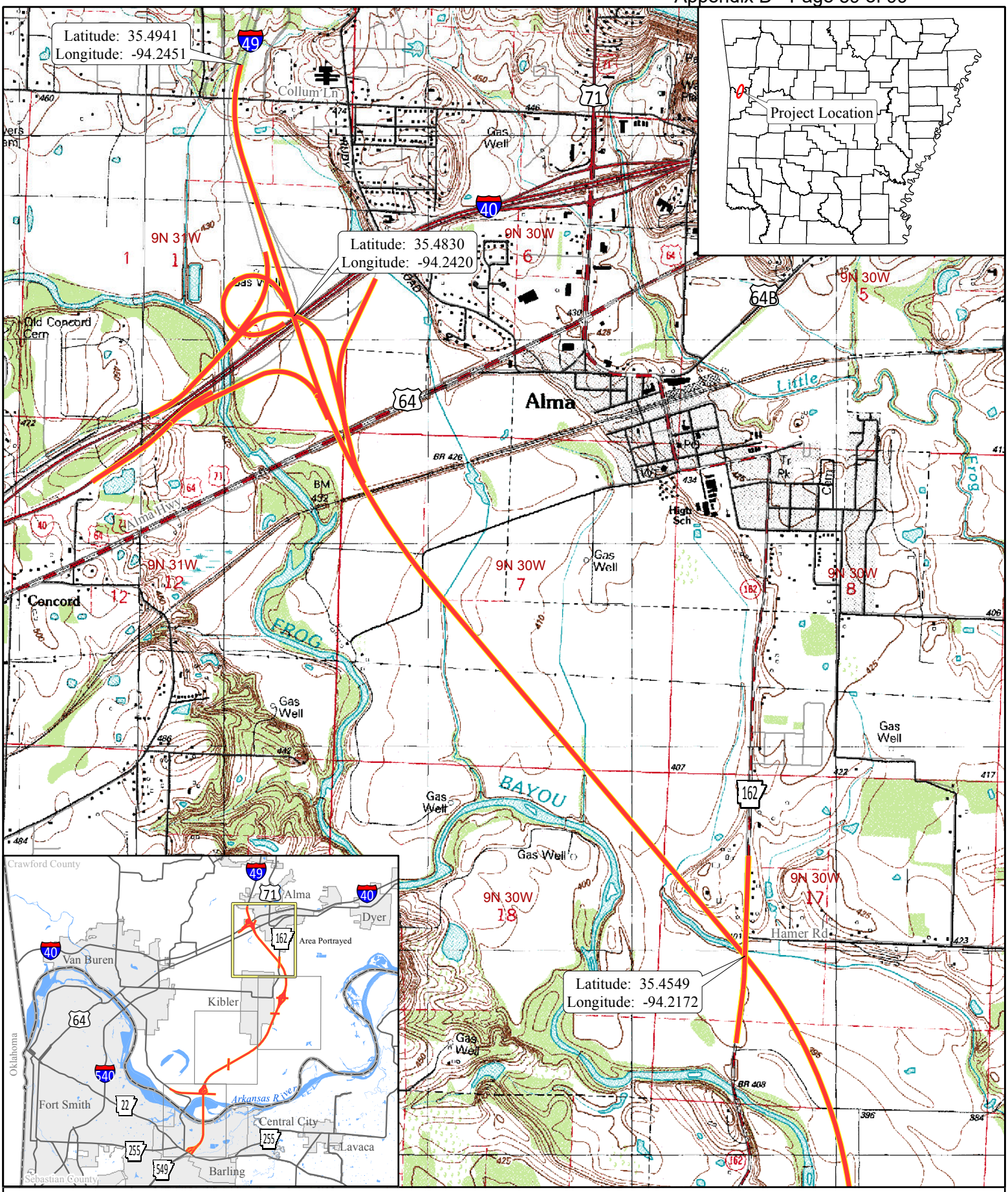
Scale - 1:24,000

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 3 of 4.

Project Location

ARDOT - Environmental GIS - Hopkins
March 22, 2018

USGS Topographic Map:
Alma 1995



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Scale - 1:24,000

Job 040748.
Hwy. 22 - I-40
(Arkansas River) (I-49)
Sebastian & Crawford Counties.
Sheet 4 of 4.

Project Location

ARDOT - Environmental GIS - Hopkins
March 22, 2018

USGS Topographic Maps:
Alma 1995; Van Buren 1995

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

May 10, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Ian Thompson
Tribal Historic Preservation Officer &
NAGPRA Program Coordinator
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702

Dear Dr. Thompson:

As part of continuing consultation, we have enclosed for your review a Management Summary for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

May 10, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation, we have enclosed for your review a Management Summary for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

May 10, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Jonathan Rohrer
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Rohrer:

As part of continuing consultation, we have enclosed for your review a Management Summary for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

ARKANSAS DEPARTMENT OF TRANSPORTATION
ArDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

May 6, 2022

Secretary Stacy Hurst
Arkansas Historic Preservation Program
1100 North Street
Little Rock, AR 72201

RE: Job 040748
Hwy. 22 – I-40 (Arkansas River) (F)
Sebastian & Crawford Counties

Dear Secretary Hurst:

Enclosed for your review is a Management Summary by HNTB for the above referenced project (AHPP Tracking Number 100314.02). ArDOT concurs with eligibility determinations and recommendations presented in this Management Summary that complies with the project's 1997 Programmatic Agreement under Job 001747. Please review for concurrence with the findings. If you have any questions or require additional information, please contact Kristina Boykin of my staff at (501) 569-2079.

Sincerely,

John Fleming
Division Head
Environmental Division

Enclosure
Management Summary

JF:KB:em

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 17, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (F)
Sebastian & Crawford Counties, Arkansas
HDA-AR

Dr. Andrea A. Hunter
Tribal Historic Preservation Officer
The Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation, we have enclosed for your review the Memorandum of Agreement regarding the treatment of Old Wire Road for the above noted job. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Ian Thompson
Tribal Historic Preservation Officer &
NAGPRA Program Coordinator
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702

Dear Dr. Thompson:

As part of continuing consultation, we have enclosed for your review a Management Summary Addendum for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Jonathan Rohrer
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Rohrer:

As part of continuing consultation, we have enclosed for your review a Management Summary Addendum for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2022

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation, we have enclosed for your review a Management Summary Addendum for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

February 27, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40
(Arkansas River) P.E.
Crawford & Sebastian Counties
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
627 Grandview Avenue
Pawhuska, OK 74056

Dear Dr. Hunter:

The following information addresses your correspondence dated April 8, 2022, and May 25, 2022, for the above referenced job with the following summary information and table.

Presently, the archeology consultant is preparing the Phase I/ II combined report, which will be sent for your review. Any subsequent reports done for this project corridor, such as additional Phase I work necessitated by design changes, outside of the previously surveyed Area of Potential Effect (APE), shall include the appropriate site assessment and shall be submitted to your office for review.

The current proposal details that four sites (3CW882, 3CW1354, 3CW1356, and 3CW1357) are along or near Frog Bayou. ARDOT recommended moving forward with data recovery at these four sites and utilizing a staged approach with systematic sampling of trenches, block excavation, and stripping, similar to the approach for job 090069 (see enclosed letter). The proposal also relays conducting standard Phase III data recovery on sites 3CW894 and 3CW900 (see enclosed letter). Upon preliminary data analysis for the Management Summary, site 3CW900 was previously thought to be eligible for inclusion in the National Register of Historic Places (NRHP). Further examination and comparison of site data led to the determination that the site is not eligible. This site analysis and NRHP determination shall be submitted in the Phase I/Phase II report to the State Historic Preservation Officer (SHPO) for concurrence.

Regardless of the data recovery methodology, a Treatment Plan will be prepared for all applicable sites, which will be adversely affected by this undertaking in accordance with Stipulation III of the 1997 Programmatic Agreement. This documentation shall be submitted to the Osage Nation for your review.

Currently, no construction dates are firmly established for jobs 040901, 040902, 040903, and 040904 that were broken out from the preliminary job 040748. Prior to the construction letting, the appropriate Special Provisions shall be included in the construction contracts and are as follows:

- Archeological Monitoring Special Provision (conducted by SOI-qualified archeologist)
  - site 3CW864/865 (job 040901)
  - site 3CW895 (job 040902)

- Restraining Conditions Special Provision (sites that extend outside of the current project)
  - sites 3CW17, 3CW880, 3CW882 (job 040903)
  - sites 3CW154, 3CW896, and 3CW897 (job 040902)
  - site 3CW866 (jobs 040901/040902)

Because of the scale of jobs 040901, 040902, and 040903, Off-site Locations (OSL) Special Provision shall be done that requires the contractor to hire a SOI-qualified archeologist to survey any proposed OSLs and submit the findings to the SHPO. ARDOT's Environmental Division should get the proposed OSLs for initial location review and submit those to your office for review per the *Memorandum of Agreement between ARDOT and the Osage Nation regarding the review of Proposed Off-Site Locations.* Therefore, any previously recorded sites shall be considered and addressed as part of the OSL process for avoidance of those resources.

If you have any questions, comments, or need additional information or any comments remain unanswered, please contact me at (501) 324-6430 or at randal.looney@dot.gov.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure
SHPO Letter

Site Number	NRHP	Project Location	Action
3CW17	Eligible	Outside of APE	Restraining Condition Special Provision
3CW154	Eligible	Outside of APE	Restraining Condition Special Provision
3CW864/865	Eligible	Within APE	Archeological Monitoring Special Provision
3CW866	Not Eligible	Within/Outside APE	Restraining Condition Special Provision for site extension outside of APE
3CW868	Not Eligible	Within APE	No further work
3CW880	Undetermined	Within/Outside APE	Restraining Condition Special Provision for site extension outside of APE
3CW882	Eligible	Within APE	Treatment Plan for Staged Approach Data Recovery and Restraining Condition Special Provision for cemetery outside of APE
3CW894	Eligible	Within APE	Treatment Plan for Standard Data Recovery
3CW895	Not Eligible	Within APE	Archeological Monitoring Special Provision
3CW896	Undetermined	Outside of APE	Restraining Condition Special Provision
3CW897	Eligible	Outside of APE	Restraining Condition Special Provision
3CW900	Eligible	Within APE	Is now evaluated as Not Eligible and shall be included in the Phase I/II Report
3CW1354 (FS9)	Undetermined	Within APE	Treatment Plan for Staged Approach Data Recovery
3CW1356 (FS12)	Undetermined	Within APE	Treatment Plan for Staged Approach Data Recovery
3CW1357 (FS14)	Undetermined	Within APE	Treatment Plan for Staged Approach Data Recovery

ARKANSAS DEPARTMENT OF TRANSPORTATION
ARDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

May 23, 2022

Secretary Stacy Hurst
Arkansas Historic Preservation Program
1100 North Street
Little Rock, AR 72201

RE: Job 040748
Hwy. 22 – I-40 (Arkansas River) (F)
Sebastian & Crawford Counties

Dear Secretary Hurst:

The Management Summary listed temporary site designations for the above referenced project (AHPP Tracking Number 100314.05). To replace the temporary numbers, the assigned state site numbers are as follows:

FS-1: 3CW1347	FS-10: 3CW1355
FS-2: 3CW1348	FS-12: 3CW1356
FS-3: 3CW1349	FS-14: 3CW1357
FS-4: 3CW1350	FS-16: 3CW1358
FS-5: 3CW1351	FS-19: 3CW1359
FS-7: 3CW1352	FS-21: 3CW1360
FS-8: 3CW1353	FS-27: 3CW1361
FS-9: 3CW1354	FS-18: 3CW1362

Of the sites listed above, thirteen sites were determined not eligible for inclusion in the National Register of Historic Places (NRHP). Three of these sixteen sites - 3CW1354, 3CW1356 (southern portion), and 3CW1357 - are undetermined in their NRHP eligibility. Previous work done at sites 3CW882, 3CW894, and 3CW900 evaluated them as eligible for inclusion in the NRHP. Of these six sites that are either NRHP eligible or undetermined, four are located along or near Frog Bayou: 3CW882, 3CW1354, 3CW1356 (southern portion), and 3CW1357. ARDOT recommends moving forward with data recovery at these four sites and utilizing a staged approach with systematic sampling of trenches, block excavation, and stripping. The quantity of work done at each site would be guided by the findings at each stage and in relation to results at the other nearby sites.

This staged approach provides a methodology for gathering data related to the environmental setting and revealing features without the repetitive results from numerous test units and lithic artifacts. The other two sites (3CW894 and 3CW900) would proceed with the standard sample size associated with Phase III data recovery.

Please review for concurrence with the staged approach at sites 3CW882, 3CW1354, 3CW1356 (southern portion), and 3CW1357. If you have any questions or require additional information, please contact Kristina Boykin of my staff at (501) 569-2079.

Sincerely,

for John Fleming
Division Head
Environmental Division

JF:KB:em

ARKANSAS HERITAGE

Asa Hutchinson
Governor
Stacy Hurst
Secretary

June 07, 2022

Mr. John Fleming
Division Head
Environmental Division
Arkansas Department of Transportation
P.O. Box 2261
Little Rock, AR 72203-2261

RE: Sebastian and Crawford Counties: General
Section 106 Review: FHwA
Project Undertaking: Hwy. 22 – I-40 (Arkansas River) (F)
ARDOT Job Number: 040748
AHPP Tracking Number: 100314.06

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed proposed undertaking for a staged approach to the testing and data recovery of four sites in Crawford County (3CW0882, 3CW1354, 3CW1356, and 3CW1357) that are undetermined or eligible for inclusion in the National Register of Historic Places (NRHP). The approach would include sampling of trenches, block excavation, and stripping at the four sites. Standard Phase III data recovery will occur at two other sites (3CW0894 and 3CW0900), which are eligible for the NRHP.

The AHPP concurs with this staged approach proposal for sites 3CW0882, 3CW1354, 3CW1356 and 3CW1357, as well as the standard data recovery plan for sites 3CW0894 and 3CW0900. We also appreciated the receipt of the assigned state site numbers for the 16 sites mentioned in the letter. We look forward to reviewing the cultural resources report once the data recovery is complete.

Thank you for the opportunity to review this undertaking. If you have any questions, please contact Jessica Cogburn at 501-324-9357 or email jessica.cogburn@arkansas.gov.

Sincerely,
Jessica H. Cogburn
Digitally signed by Jessica H. Cogburn
Date: 2022.06.07 12:09:56 -05'00'
for
Scott Kaufman
Director, AHPP

cc: Mr. Randal Looney, Federal Highway Administration
Dr. Melissa Zabecki, Arkansas Archeological Survey

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Today

Osage Consultation
FHWA, Hwy. 22 - I-40 (Arkans... 9:20 AM
Please see attached.

Hughes, Milton A.
040924 NA Consultation 9:09 AM
Please see attached.

Keetoowah Cherokee
FHWA, Rock Creek Strs. & Ap... 9:01 AM
Please see attached.
keetoowahout0...

FHWA, Hwy. 22 - I-40 (Arkansas River) P.E., ARDOT 040748

1

MA Marquez, Esmeralda A.

To: Osage Consultation <s106@osagenation-nsn.g Mon 2/27/2023 9:20 AM
Cc: Deseray Helton <deseray.helton@osagenation-

naout040748.pdf
659 KB

Please see attached.

Reply Reply all Forward

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Ian Thompson
Tribal Historic Preservation Officer &
NAGPRA Program Coordinator
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702

Dear Dr. Thompson:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Jonathan Rohrer
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Rohrer:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Everett Bandy
Tribal Historic Preservation Officer
Quapaw Nation
P. O. Box 765
Quapaw, OK 74363-0765

Dear Mr. Bandy:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Mr. Acee Watt
Tribal Historic Preservation Officer
United Keetoowah Band of
Cherokee Indians in Oklahoma
P.O. Box 746
Tahlequah, OK 74465

Dear Mr. Watt:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

August 24, 2023

In Reply Refer To:
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (S)
Sebastian & Crawford Counties
HDA-AR

Ms. Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation
P.O. Box 948
Tahlequah, OK 74465

Dear Ms. Toombs:

As part of continuing consultation, we have enclosed for your review the Phase I/II Report for the above noted job. A copy has also been submitted to the SHPO for concurrent review. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

QUAPAW TRIBE OF OKLAHOMA

P.O. Box 765
Quapaw, OK 74363-0765

(918) 542-1853
FAX (918) 542-4694

RECEIVED
ARDOT
APR 23 2018
ENVIRONMENTAL
DIVISION

April 20, 2018

Arkansas State Highway And
Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Re: ArDOT Job 040748 Hwy. 22 – I-40 (Arkansas River) (S) Sebastian County, Arkansas.

To whom it may concern,

The Quapaw Tribe Historic Preservation Office has received and reviewed the information provided for the proposed ArDOT Job 040748 Hwy. 22 – I-40 (Arkansas River) (S) Sebastian County, Arkansas. and concurs with your recommendations for this project to conduct a cultural resources survey.

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d) (6) (A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Quapaw Tribe has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, or the Native American Graves Protection and Repatriation Act. If however, artifacts or human remains are discovered during project construction, we ask that work cease immediately and that you contact the Quapaw Tribe Historic Preservation Office.

Should you have any questions or need any additional information, please feel free to contact me at the number listed below. Thank you for consulting with the Quapaw Tribe on this matter.

Sincerely,

Everett Bandy

Tribal Historic Preservation Office
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363
(w) 918-238-3100

Brown, Caitlin M.

From: Looney, Randal
Sent: Monday, May 07, 2018 4:22 PM
To: Wilks, Diana
Subject: FW: ArDOT Job040748 Hwy.22- I-40 (Arkansas River)(S) Sebastian & Crawford Counties HDA-AR

From: Lindsey Bilyeu [mailto:lbilyeu@choctawnation.com]
Sent: Monday, May 07, 2018 4:07 PM
To: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Subject: RE: ArDOT Job040748 Hwy.22- I-40 (Arkansas River)(S) Sebastian & Crawford Counties HDA-AR

Mr. Looney,

The Choctaw Nation of Oklahoma thanks the FHWA, Arkansas Division, for the correspondence regarding the above referenced project. Sebastian and Crawford Co.'s, AR lie in our area of historic interest. The Choctaw Nation Historic Preservation Department requests a copy of the cultural resources survey.

If you have any questions, please contact me.

Thank you,

Lindsey D. Bilyeu, MS
Senior Compliance Review Officer
Historic Preservation Department
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702
580-924-8280 ext. 2631

Choctaw Nation
Faith•Family•Culture

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Osage Nation Historic Preservation Office

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Date: **April 8, 2022** **File: 2122-5653AR-3**

RE: **AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas**

Arkansas Department of Transportation
Kristina Boykin
10324 Interstate 30
Little Rock, AR 72209

Dear Mrs. Boykin,

The Osage Nation has received notification and accompanying information for the proposed project listed as AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas.

The Osage Nation Historic Preservation Office agree that intensive Phase I survey is recommended for all remaining properties not accessed by SPEARS (1998) or Baker (1999) and are of the understanding that a contractor hired by ArDOT is currently conducting Phase I surveys on areas that were not previously surveyed by SPEARS and Baker. The Osage Nation requests copies of these Phase I surveys for review and comment upon their completion.

The Osage Nation requests copies of the Phase II CRS for Sites 3CW868 and 3CW900 for review and comment.

The Osage Nation requests copies of the Phase III CRS's for Sites 3CW882, 3CW894, 3CW864/865 for review and comment.

The Osage Nation requests avoidance of Eligible Site 3CW17 with no staging, parking, or other construction work in the site area to the west of the current alignment.

The Osage Nation is in agreement with Baker (1999) that monitoring in the area of 3CW895 during construction is warranted even though the site is recommended Not Eligible for the National Register of Historic Places as there is the possibility for deeply buried cultural deposits not found in past surveys.

According to Baker (1996) Site 3CW896 (site is located approx. 250m west of the proposed ROW however, if any part of the terrace area is planned to be used as a staging area, or if the area is proposed to be cleared for access (which would further disturb the site), avoidance or Phase II testing is recommended;

The Osage Nation requests confirmation that 3CW154 and 3CW896 are not within the APE or portions within the APE have been determined "Not Eligible"

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates reviewing and commenting on the requested survey reports and management summaries for the proposed AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas.**

OSAGE NATION HISTORIC PRESERVATION OFFICE
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Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Deseray Helton

Deseray Helton
Archaeologist

Osage Nation Historic Preservation Office

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Date: **May 25, 2022** **File: 2122-5653AR-3**

RE: **AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas**

Arkansas Department of Transportation
Randal Looney
c/o Kristina Boykin
10324 Interstate 30
Little Rock, AR 72209

Dear Mr. Looney,

The Osage Nation has received notification and accompanying information for the proposed project listed as AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas in the form of a Management Summary conducted by HNTB Corporation (HNTB).

The Osage Nation is in agreement with HNTB's determination for Site 3CW868 in that the site lacks integrity and further investigation would not result in the recovery of significant data.

The Osage Nation is in agreement with HNTB's determination that Site 3CW900 is eligible for the National Register of Historic Places and should be avoided by all project activities. However, if the site cannot be avoided, mitigation is recommended in the form of Phase III data recovery.

The Osage Nation is in agreement with HNTB's determination regarding Site 3CW154 (FS-22N) that should the project limits change, additional testing would be necessary to assess the NRHP-eligibility of the unknown portions of the site for intact middens or buried features.

The Osage Nation is in agreement with HNTB that Site 3CW864/865 is eligible for the NRHP and monitoring should be conducted by an SOI-Qualified archaeologist as there is a high probability that intact deposits remain under the levee.

The Osage Nation is in agreement with HNTB that Site 3CW897 (FS-22S) is eligible for the NRHP and both the prehistoric and cemetery components of Site 3CW897 (FS-22S) should be avoided. However, if the site cannot be avoided, further investigation of the prehistoric component, consisting of Phase II testing is necessary. The Osage Nation is also in agreement with the avoidance of the cemetery with monitoring for evidence of headstones, grave shafts, or burials if any ground disturbing activities occur near the landform.

The Osage Nation recommends that should project limits change, additional testing would be necessary to assess the NRHP-eligibility of the unknown portions of Sites 3CW880, 3CW866, FS2, FS3, FS5, FS10, FA16, and FS27.

The Osage Nation is in agreement with HNTB's recommendation that for newly identified Sites FS9, FS12, and FS14 their eligibility for the NRHP is undetermined and avoidance is recommended. However, if the sites cannot be avoided, Phase II testing is recommended to determine the sites eligibility.

The Osage Nation maintains its previous requests from our response letter dated April 8th, 2022 restated below that remain unanswered by the Management Summary and subsequent survey work conducted by HNTB in regards to AHTD ArDOT Job 040748.

The Osage Nation requests copies of the Phase III CRS's for Sites 3CW882 and 3CW894 for review and comment.

The Osage Nation requests avoidance of Eligible Site 3CW17 with no staging, parking, or other construction work in the site area to the west of the current alignment.

The Osage Nation is in agreement with Baker (1999) that monitoring in the area of 3CW895 during construction is warranted even though the site is recommended Not Eligible for the National Register of Historic Places as there is the possibility for deeply buried cultural deposits not found in past surveys.

According to Baker (1996) Site 3CW896 (site is located approx. 250m west of the proposed ROW however, if any part of the terrace area is planned to be used as a staging area, or if the area is proposed to be cleared for access (which would further disturb the site), avoidance or Phase II testing is recommended;

The Osage Nation requests confirmation that 3CW896 is not within the APE or portions within the APE have been determined "Not Eligible"

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates reviewing and commenting on future project updates, including ongoing cultural resource surveys and management summaries, for the proposed AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Deseray Helton

Deseray Helton
Archaeologist

FW: Hwy 22 - I-40 (Arkansas River) Project: ARDOT Job 040748

Boykin, Kristina <Kristina.Boykin@ardot.gov>
Thu 6/2/2022 6:54 AM
To: Marquez, Esmeralda A. <Esmeralda.Marquez@ardot.gov>

From: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Sent: Wednesday, June 1, 2022 2:58 PM
To: Boykin, Kristina <Kristina.Boykin@ardot.gov>
Subject: FW: Hwy 22 - I-40 (Arkansas River) Project: ARDOT Job 040748

CAUTION: This email originated from outside of ARDOT. Do not click links or open attachments unless you recognize the sender and know the content is safe.

FYI

From: Jonathan Rohrer <jrohrer@mycaddonation.com>
Sent: Wednesday, June 1, 2022 2:56 PM
To: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Subject: Hwy 22 - I-40 (Arkansas River) Project: ARDOT Job 040748

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Randal,

Thank you for your submission of the Management Summary for the above noted project.

Upon review, I would like to formally object to the Summary's recommendations for treatment of sites that are deemed "eligible for inclusion in the NRHP." The Summary, at numerous points, recommends that for such sites, "[a]voidance of the site is recommended; however, if the site cannot be avoided, mitigation is recommended in the form of Phase III data recovery."

The Caddo Nation does not consent to any Phase III data recovery of the Nation's cultural resources for purposes of mitigation, and would propose that sites deemed eligible for inclusion in the NRHP be avoided altogether. Furthermore, if avoidance is in fact impossible, the Caddo Nation recommends that, pursuant to the legislative intent of the NHPA, the project be modified so as to provide for adequate avoidance of the sites in question.

Feel free to contact me at 405-658-9428 to discuss these matters.

Best regards,

Jonathan

--

Jonathan M. Rohrer
Tribal Historic Preservation Officer

Caddo Nation
P.O. Box 487
Binger, OK 73009
t: (405)656-0970 Ext. 2070
e: jrohrer@mycaddonation.com

www.mycaddonation.com

FW: Hwy. 22 - I-40 (Arkansas River) Management Summary Addendum - 040748

Boykin, Kristina <Kristina.Boykin@ardot.gov>
Mon 1/30/2023 7:24 AM
To: Marquez, Esmeralda A. <Esmeralda.Marquez@ardot.gov>

From: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Sent: Monday, January 30, 2023 7:23 AM
To: Boykin, Kristina <Kristina.Boykin@ardot.gov>
Subject: FW: Hwy. 22 - I-40 (Arkansas River) Management Summary Addendum - 040748

CAUTION: This email originated from outside of ARDOT. Do not click links or open attachments unless you recognize the sender and know the content is safe.

fyi

From: Jonathan Rohrer <noreply@jotform.com>
Sent: Thursday, January 26, 2023 1:16 PM
To: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Subject: Hwy. 22 - I-40 (Arkansas River) Management Summary Addendum - 040748

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Randal,

Thank you for your report, received on 01-26-2023. The Caddo Nation of Oklahoma appreciates your willingness to conduct proper consultation, pursuant to Section 106 of the National Historic Preservation Act. At this time the Caddo Nation has no additional information to add. However, in the event that any projects may be proposed in the subject area, we would need to be notified as soon as possible.

Should you have any questions or concerns regarding our response please feel free to contact our office.

Best regards,

Jonathan

Jonathan M. Rohrer
Tribal Historic Preservation Officer

Caddo Nation
P.O. Box 487
Binger, OK 73009
t: (405)656-0970 Ext. 2070
e: jrohrer@mycaddonation.com

www.mycaddonation.com

Osage Nation Historic Preservation Office

WA[A[E KOSY KY]EA

Date: February 16, 2023

Arkansas Division, FHWA
Randal Looney
10324 Interstate 30
Little Rock, AR 72209

RE: AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas, Old Wire Road MOA

SENT VIA EMAIL

Dear Mr. Looney,

The Osage Nation has received and reviewed the Memorandum of Agreement regarding the treatment of Old Wire Road for the proposed project listed as AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas. **The Osage Nation Historic Preservation Office, given the context of the project and the inclusion in the MOA for Old Wire Road to follow the procedures of the ArDOT Section 106 Implementation for Federal-Aid Transportation Projects Programmatic Agreement, does not have any further comments regarding the Memorandum of Agreement regarding the treatment of portions of Old Wire Road to be impacted by the proposed project.**

The Osage Nation's comments and concerns noted in the formal response letter sent in May of 2022 remains. A copy of that signed letter has been attached to this email correspondence for reference.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates ongoing consultation regarding Osage Nation comments and concerns noted in the May 25, 2022 formal response letter for the proposed AHTD, ARDOT# 101127, Hwy. 168 Str. & Apprs. (S), Greene County, Arkansas.**

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter

Colleen A. Bell, MA, RPA
Deputy Tribal Historic Preservation Officer

Deseray Helton, MA
Archaeologist

CC: Colleen A. Bell, Deputy Tribal Historic Preservation Officer, Osage Nation
Sarah O'Donnell, NAGPRA Coordinator, Osage Nation
Kristina Boykin, Section Head - Cultural Resources, Arkansas Department of Transportation

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

Osage Nation Historic Preservation Office

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Date: April 17, 2023

Arkansas Division, FHWA
Randal Looney
10324 Interstate 30
Little Rock, AR 72209

RE: AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas

Sent via email

Dear Mr. Looney,

The Osage Nation received on February 27, 2023 a correspondence addressing letters sent by our office on April 8, 2022 and May 25, 2022 regarding the proposed project listed as AHTD ArDOT Job 040748 Hwy. 22 - I-40 (Arkansas River) (S) in Sebastian and Crawford Counties, Arkansas.

The Osage Nation acknowledges that the archeology consultant is preparing the Phase I/II combined report. **The Osage Nation awaits receipt of the finalized report for review and comment.**

The Osage Nation appreciates and looks forward to ongoing consultation, if additional Phase I work is necessitated by design changes, outside of the previously surveyed APE.

The Osage Nation acknowledges the need for and awaits receipt of a Treatment Plan for data recovery at 3CW882, 33CW894, 3CW1354, 3CW1356, and 3CW1357 for review and comment.

According to the February 27, 2023 correspondence ArDOT Job 040748 has subsequently been broken down into four new separate projects (040901, 040902, 040903, and 040904) with no construction dates firmly established. **The Osage Nation requests in future correspondences for these now separate projects that the previous ArDOT Job 040748 be included in notification materials so that our office can appropriately organize project materials.**

The Osage Nation acknowledges and appreciates the inclusion of the following Special Provisions in the construction contacts for projects 040901, 040902, 040903, 040904.

- Archeological Monitoring Special Provision (conducted by SOI-qualified archeologist)
    - site 3CW864/865 (job 040901)
    - site 3CW895 (job 040902)

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

- Restraining Conditions Special Provision (sites that extend outside of the current project)
  - sites 3CW17, 3CW880, 3CW882 (job 040903)
  - sites 3CW154, 3CW896, and 3CW897 (job 040902)
  - site 3CW866 (jobs 040901/040902)

- Off-site Locations (OSLs) Special Provision (040901, 040902, 040903, and 040904)
  - Requires the contractor to hire a SOI-qualified archeologist to survey any proposed OSLs and submit the finding to SHPO.
  - ArDOT's Environmental Division receives these OSLs for initial location review and then will submit the OSL's to the ONHPO for review per the MOA.
    - Per the MOA, any previously recorded sites shall be considered and addressed as part of the OSL process for avoidance of those resources.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates ongoing consultation for the proposed AHTD, ARDOT# 101127, Hwy. 168 Str. & Apprs. (S), Greene County, Arkansas.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

Deseray Helton, MA
Archaeologist

CC: Colleen A. Bell, Deputy Tribal Historic Preservation Officer, Osage Nation
Sarah O'Donnell, NAGPRA Coordinator, Osage Nation
Kristina Boykin, Section Head - Cultural Resources, Arkansas Department of Transportation

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

FW: Phase I Archaeological Survey and Phase II Investigation for the Interstate 49 Project from State Highway 22 in Sebastian County to the Interstate 40/Interstate $9 Interchange in Crawford County, Arkansas - ArDOT Job 040748

Boykin, Kristina U. <Kristina.Boykin@ardot.gov>

Tue 8/29/2023 12:43 PM

To:Marquez, Esmeralda A. <Esmeralda.Marquez@ardot.gov>

From: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Sent: Tuesday, August 29, 2023 12:40 PM
To: Boykin, Kristina U. <Kristina.Boykin@ardot.gov>
Subject: FW: Phase I Archaeological Survey and Phase II Investigation for the Interstate 49 Project from State Highway 22 in Sebastian County to the Interstate 40/Interstate $9 Interchange in Crawford County, Arkansas - ArDOT Job 040748

CAUTION: This email originated from outside of ARDOT. Do not click links or open attachments unless you recognize the sender and know the content is safe.

FYI

From: Jonathan Rohrer <noreply@jotform.com>
Sent: Tuesday, August 29, 2023 10:54 AM
To: Looney, Randal (FHWA) <Randal.Looney@dot.gov>
Subject: Phase I Archaeological Survey and Phase II Investigation for the Interstate 49 Project from State Highway 22 in Sebastian County to the Interstate 40/Interstate $9 Interchange in Crawford County, Arkansas - ArDOT Job 040748

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Randal,

Thank you for your report, received on 08-28-2023. The Caddo Nation of Oklahoma appreciates your willingness to conduct proper consultation, pursuant to Section 106 of the National Historic Preservation Act. At this time the Caddo Nation has no additional information to add. However, in the event that any projects may be proposed in the subject area, we would need to be notified as soon as possible.

Should you have any questions or concerns regarding our response please feel free to contact our office.

Best regards,

Jonathan

Jonathan M. Rohrer
Tribal Historic Preservation Officer

Caddo Nation
P.O. Box 487
Binger, OK 73009
t: (405)656-0970 Ext. 2070
e: jrohrer@mycaddonation.com

www.mycaddonation.com

ATTACHMENT C: SHPO COORDINATION

Sarah Huckabee Sanders
Governor
Shea Lewis
Secretary

ARKANSAS HERITAGE

September 21, 2023

Mr. John Fleming
Division Head
Environmental Division
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, AR 72203-2261

RE: Sebastian and Crawford Counties: General
Section 106 Review: FHWA
Proposed Undertaking: Hwy. 22 – I-40 (Arkansas River) (F)
Cultural Resources Survey Report: *I-49 Draft Individual Section 4(f) Evaluation Old Wire Road*
ArDOT Job Number: 040748
AHPP Tracking Number: 100314.11

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) has reviewed the Section 4(f) evaluation for the above-referenced undertaking in Sebastian and Crawford Counties. The project proposes to construct a new section of Interstate 49 between Highway 22 in Sebastian County and Interstate 40 in Crawford County for a total of 14 miles. The construction of a new bridge over the Arkansas River is also proposed. The total area of potential effect (APE) consisted of 705 acres of proposed preferred alignment, additional right-of-way and noncontiguous parcels.

The Section 4(f) property in question is the Old Wire Road located west of Alma in Crawford County. The gravel road was constructed sometime in the 1830s and has been depicted as a "4 Horse Mail Post Coach Road". At the time this project was being originally proposed, the road was not included in the National Register of Historic Places (NRHP_. However, in 2018, the Arkansas State Historic Preservation Office (SHPO) concurred with a recommendation that the road be considered eligible. Unfortunately, this property falls under Section 4(f) because there is no feasible alternative other than to use a portion of the property. Multiple options for the least adverse effect were considered, and it has been recommended that the proposed project cross Old Wire Road one-half mile from the intersection with West Main Street. This will be an adverse effect to the property and an Assessment of Effects (AOE) and Memorandum of Agreement (MOA) are being prepared to resolve the adverse effect.

AHPP Tracking Number 100314.11

Based on the provided information, the AHPP concurs with the findings of this Section 4(f) evaluation. We look forward to reviewing the AOE and MOA resubmissions for review.

Thank you for the opportunity to review this submission. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Jessica Cogburn of my staff at 501-324-9357 or email jessica.cogburn@arkansas.gov.

Sincerely,
Jessica H. Cogburn
Digitally signed by Jessica H. Cogburn
Date: 2023.09.21 09:30:50 -05'00'
for
Scott Kaufman
State Historic Preservation Officer and Director, AHPP

cc: Randal Looney, Federal Highway Administration
Dr. Melissa Zabecki, Arkansas Archeological Survey

APPENDIX E

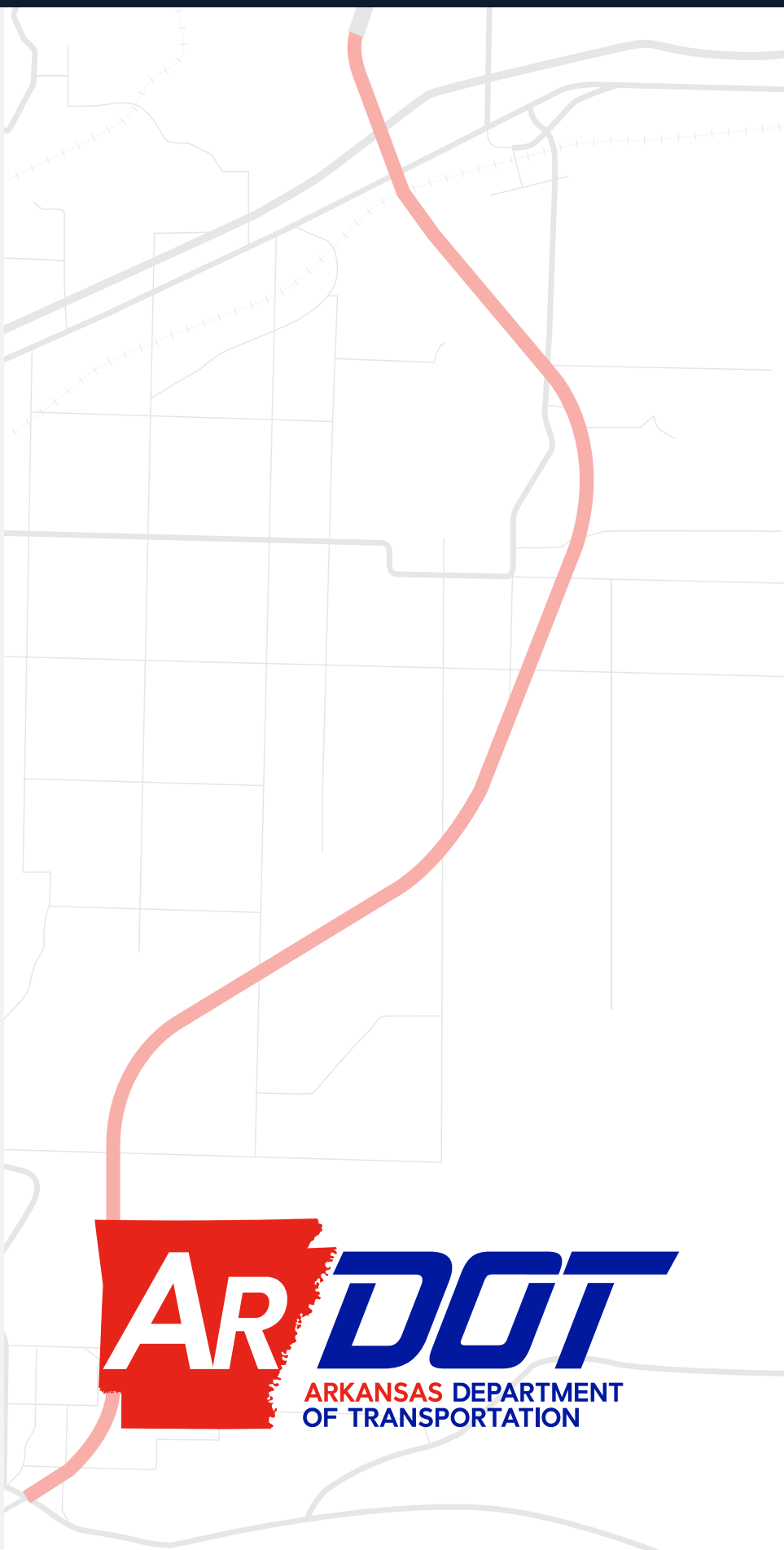
Air Quality Technical Report

I-49 Air Quality Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

December 2021
Job 001747



ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 PROJECT DESCRIPTION

1.1 Introduction

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 14 miles. The project location is depicted in **Figure 1-1**

Figure 1-1: Project Location Map.

Source: Project Team, 2022

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 corridor extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed (**Figure 1-2**). From Highway 71 to Highway 22 and north of Interstate 40, the corridor currently consists of a median-separated highway with two main lanes in each direction and no frontage roads. North of I-40 the existing roadway includes two southbound lane and two northbound lanes.

Figure 1-2: Overview Map

Source: Project Team, 2022

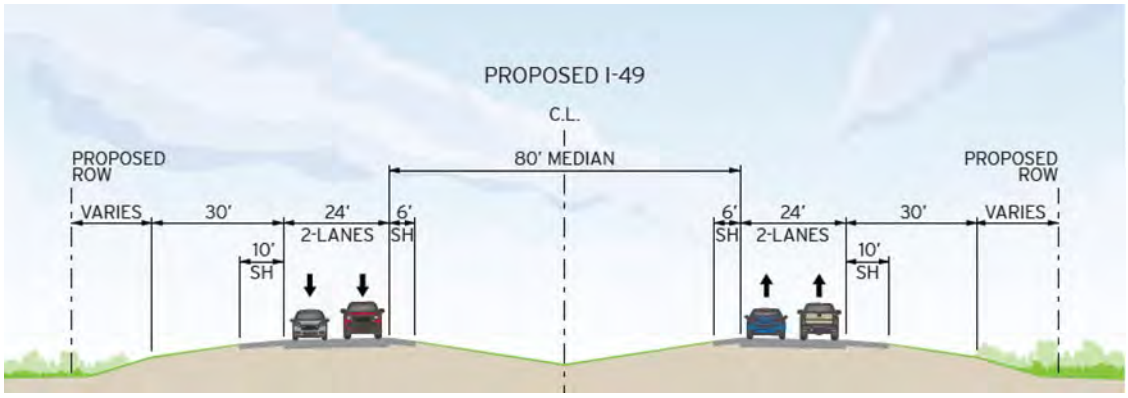
1.2 Existing Facility

The proposed project consists of a new location highway in a predominantly rural area. Existing roadways in the study area are rural farm-to-market roadways and neighborhood streets, aside from the two termini, Highway 22 and Interstate 40.

1.3 Proposed Facility

The proposed project would generally follow the Selected Alignment from the 1997 FEIS. The proposed typical section would consist of four 12-foot wide travel lanes (two in each direction), an approximately 80-foot wide median between the inside edges of travel lanes, and 6-foot wide inside and 10-foot wide outside shoulders, as shown in **Figure 1-3**. The overall right of way width would vary to a maximum width of approximately 288 feet, except at interchanges, where the right of way width would be greater. The majority of the right of way through the Fort Chaffee area was previously deeded to the Arkansas Highway Commission from the United States Department of the Army.

Figure 1-3: Interstate 49 Typical Section



Source: Project Team, 2022

Interchanges are proposed with slip/loop ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade-separated intersections without ramps to maintain local access are proposed for Thornhill Street, Highway 162 (Henry Street), the Union Pacific Railroad (UPRR), Westville Road, Waterfront Road, and Highway 64. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements were extended west to Highway 162 to allow for increased access and mobility to Highway 62.

Under the No Build Alternative, the improvements outlined above would not be constructed.

2.0 REGULATORY CONTEXT

Under the Clean Air Act (CAA) of 1970, the Environmental Protection Agency (EPA) is responsible for protecting and improving air quality nationwide. Regulations have been promulgated by the EPA to implement the CAA [40 Code of Federal Regulations (CFR) § 51 et seq.], including the Federal Transportation Conformity Rule (40 CFR § 93 et. seq.), which requires that transportation

projects conform to state-level air quality plans or State Implementation Plans (SIPs). The Division of Environmental Quality Office of Air Quality (DEQ) is responsible for the development of the SIP in Arkansas.

2.1 Criteria Pollutants and National Ambient Air Quality Standards

EPA establishes National Ambient Air Quality Standards (NAAQS) to protect public health and to regulate emissions of hazardous air pollutants. EPA has established NAAQS for six of the most common air pollutants: carbon monoxide (CO), lead (Pb), ground-level ozone (O_3), particulate matter (PM), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2), known as "criteria pollutants". National primary NAAQS are set to protect human health, and secondary NAAQS are to protect public welfare from adverse effects including protection against visibility impairment, or damage to animals, crops, vegetation, or buildings. The primary and secondary standards have changed for most of the criteria pollutants since the 1997 FEIS. **Table 2-1** lists the current NAAQS.

Table 2-1: National Ambient Air Quality Standards

Pollutant	Primary Standards	Average Times[1]	Secondary Standards
CO	9 ppm (10 mg/m^3)	8-hour[2]	None
	35 ppm (40 mg/m^3)	1-hour[2]	None
Pb	0.15 µg/m^3	Rolling 3-Month Average	Same as Primary
NO_2	100 ppb (0.100 ppm)	1-hour[3]	None
	53 ppb (0.053 ppm)	Annual (Arithmetic Mean)	Same as Primary
PM_{10}	150 µg/m^3	24-hour[4]	Same as Primary
$PM_{2.5}$	12 µg/m^3	Annual[5]	15 µg/m^3
	35 µg/m^3	24-hour[3]	Same as Primary
O_3	0.070 ppm	8-hour[6]	Same as Primary
SO_2	75 ppb (0.075 ppm)	1-hour[7]	None
	None	3-hour[2]	0.5 ppm (1300 µg/m^3)

Source: EPA (2021).

Notes:

1. *The time period for which compliance with the standard is measured*
2. *Not to exceed more than once a year*
3. *98th percentile, averaged over 3 years*
4. *Not to be exceeded more than once per year on average over 3 years*
5. *Annual mean, averaged over 3 years*
6. *The 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm*
7. *99th percentile of 1-hour daily maximum concentrations, averaged over 3 years*

Air quality in Arkansas is currently being monitored by the DEQ. Information and data on specific monitoring stations can be found at the EPA Air data site.[1]

2.2 Attainment Status

Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for a NAAQS is designated to be in "nonattainment". Any area that meets or is cleaner than the national primary or secondary ambient air quality standard for a NAAQS is designated to be in "attainment or

[1] https://www.epa.gov/outdoor-air-quality-data

unclassifiable".

Transportation conformity is a requirement of the CAA to ensure that air quality in nonattainment and maintenance areas for transportation-related NAAQS is not negatively impacted by federal funding and approval of transportation activities. Transportation conformity rules require an affected area to conduct an analysis to estimate emissions for the pollutant(s) under which the area is in nonattainment or maintenance that are expected to result from the area's transportation system.

Since the 1997 FEIS, attainment status for the project area counties (Crawford and Sebastian) has not changed. Crawford and Sebastian counties are in attainment of all NAAQS; therefore, conformity rules do not apply to the proposed project. Although changes to all the NAAQS have occurred since the FEIS, the changes would not alter the conclusions as stated in the 1997 FEIS.

2.3 Mobile Source Air Toxics

In December 2012, FHWA issued updated guidance for the analysis of Mobile Source Air Toxics (MSATs) in the National Environmental Policy Act (NEPA) process for highway projects (Interim Guidance Update on Air Toxic Analysis in NEPA Documents). On October 18, 2016, FHWA released a memorandum updating the 2012 interim guidance due to changes in the emissions model required for conducting emissions analysis (Updated Interim Guidance on Mobile Source Air Toxics Analysis in NEPA Documents).

The 1997 FEIS did not include an MSAT analysis. In accordance with the latest FHWA MSAT guidance, a qualitative MSAT analysis was completed for the proposed project because it represents low potential for MSAT as the design year (2045) traffic would be less than 140,000 vehicles per day (vpd).

2.4 Greenhouse Gases

Pursuant to Executive Order (E.O.) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, the Council on Environmental Quality (CEQ) rescinded its 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas (GHG) Emissions and is reviewing, for revision and update, the 2016 Final Guidance for Federal Departments and Agencies on Consideration of GHG Emissions and the Effects of Climate Change in NEPA reviews. The 1997 FEIS did not address GHGs.

3.0 PROJECT PLANNING AND FUNDING

The proposed project is consistent with the Frontier Metropolitan Planning Organization (MPO) Metropolitan Transportation Plan (*Together: Frontier 2045*) and associated four-year Transportation Improvement Program (TIP) (2021-2024 TIP). The National Highway Performance Program provides funding for construction and maintenance projects located on the newly expanded National Highway System, which includes the entire Interstate system and all other highways classified as principal arterials.

4.0 AIR QUALITY ANALYSES

4.1 Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas emitted from combustion processes. CO is primarily a byproduct of incomplete combustion of fuels such as gasoline, natural gas, oil, coal, and wood. CO emissions in Arkansas come primarily from fires, mobile sources, and biogenics.[2] Arkansas's CO monitor is located in Pulaski County. According to the State of the Air in Arkansas Report (2016 Retrospective), over the 10-year period between 2005 and 2015, CO concentrations have declined by more than 50 percent. CO concentrations in Arkansas remained well below the level of the 1-hour and 8-hour CO NAAQS throughout the ten-year period.

Potential air quality impacts from the proposed project were assessed in the 1997 FEIS and included a microscale analysis to predict CO concentrations in 1995 (existing year), Action and No-Action conditions for 2005 (opening year), and 2020 (design year). The analysis concluded that there would be no exceedances of either the 1-hr or 8-hr CO NAAQS for neither the Action nor No-Action scenarios.

The proposed 4-lane facility would open by 2045. The average annual daily traffic (AADT) for the design year 2045 is estimated to be 21,000 vpd. The previous analyses as well as the CO concentrations trends during the 2005 and 2015 ten-year period demonstrate that it is unlikely that the CO standard would ever be exceeded as a result of the proposed project; therefore, a CO analysis was not required.

Since the 1997 FEIS, attainment status for the project area counties (Crawford and Sebastian) remains the same. Crawford and Sebastian counties are in attainment of all NAAQS which is an area where the SIP does not contain any transportation control measures; therefore, conformity rules (23 CFR 770) do not apply. No mesoscale analysis is necessary.

4.2 Mobile Source Air Toxics

4.2.1 Background

Controlling air toxic emissions became a national priority with the passage of the CAA Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS)[3]. In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard

[2] 2014 National Emissions Inventory version 1 [DEQ Office of Air Quality (2021) "State of the Air Report 2020" https://www.adeq.state.ar.us/air/state-of-air/pdfs/2020-report-final.pdf]

[3] http://w w w.epa.gov/iris/

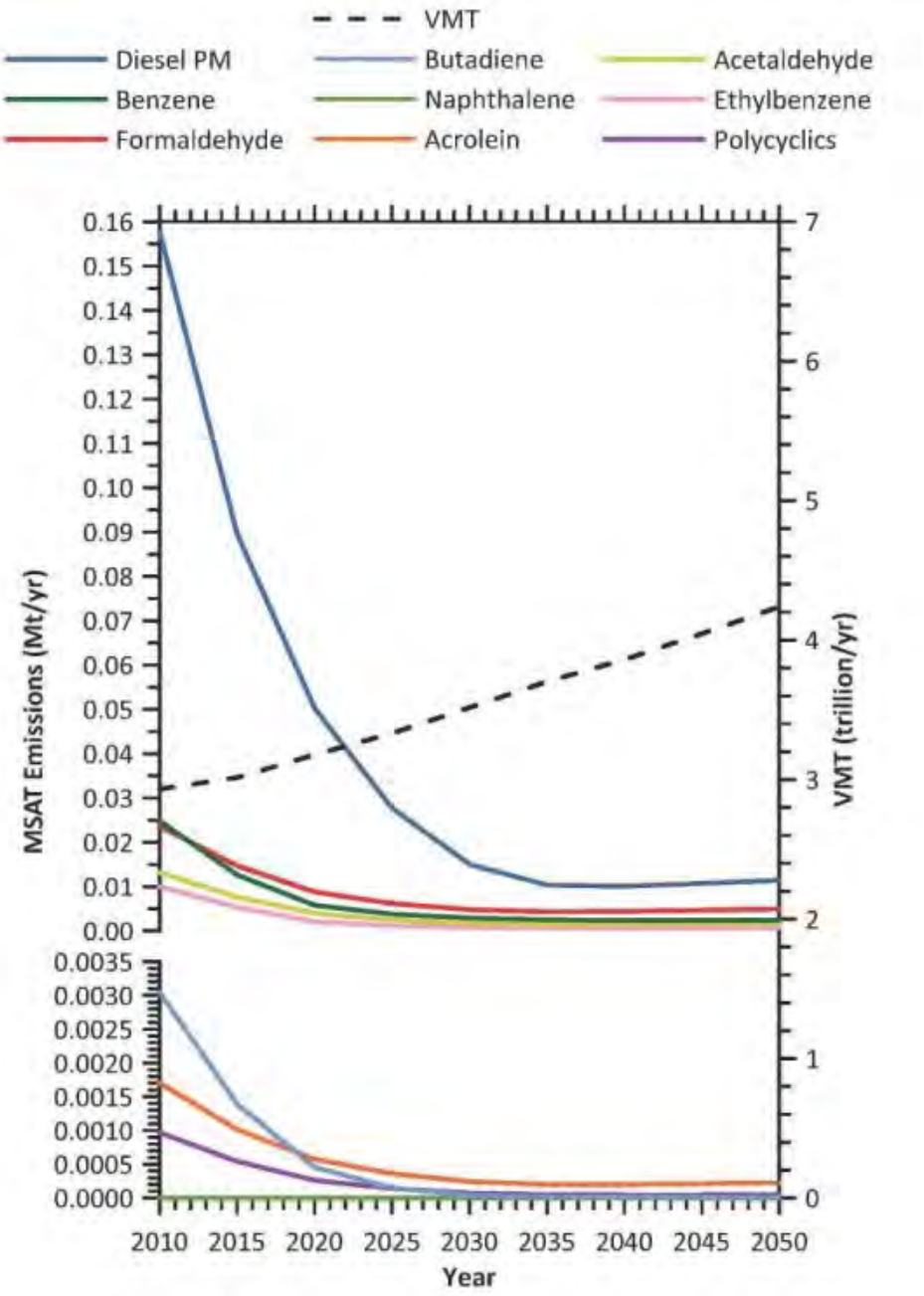
contributors from the 2011 National Air Toxics Assessment (NATA)[4] . These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

4.2.2 Motor Vehicle Emissions Simulator

According to EPA, Motor Vehicle Emissions Simulator (MOVES) 2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty GHG regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty GHG regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide[5], EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014. Using EPA's MOVES2014a model, as shown in **Figure 4-1**, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

[4] https://w ww.epa.gov/national-air-toxics-assessment
[5] https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NNR0.txt

Figure 4-1: FHWA Projected National MSAT Emission Trends 2010-2050 For Vehicles Operating on Roadways Using EPA's MOVES2014a Model



Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.
Note: Trends for specific locations may be different, depending on locally derived information representing VMT, vehicle speeds, vehicle mix, fuels, emission control programs, meteorological, and other factors.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b,

consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

4.2.3 MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

4.2.4 Project Specific MSAT Information

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives[6] .

The VMT estimated for the Build Alternative (Selected Alignment) is slightly higher than that for the No Build Alternative because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the new roadway sections that would be built from Highway 22 and Interstate 40. However, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region- wide MSAT levels to be significantly lower than today.

4.2.5 Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA’s view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by

[6] https://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm

the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action. Consistent with 40 CFR 1502[7] (regarding incomplete and unavailable information), FHWA does not conduct MSAT health impacts for the reasons described below.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSATs. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSATs, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.[8] Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations[9] or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the

[7] Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 2016 - http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

[8] https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

[9] HEI Special Report 16, https://w ww.healtheffects.org/publication/mobile-source-air-toxics-critical-review - literatureexposure-and-health-effects

various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI25[10]. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk[11]."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable[12].

4.3 Greenhouse Gases

As directed in President Biden's Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (January 20, 2021), regarding reduction of GHGs, the EPA is considering rulemaking proposals to address the U.S. largest sources of both climate- and health-harming pollution, such as the transportation, oil and natural gas, and power sectors.

GHGs include carbon dioxide (CO_2), methane (CH_4), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Two of the largest contributors to GHG emissions in the U.S. are transportation and electricity production, although industrial, residential, commercial, and agriculture sectors contribute as well. CO_2 accounts for 81 percent of all U.S. anthropogenic GHG emissions.[13]

[10] Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review - literatureexposure-and-health-effects
[11] EPA IRIS database, Diesel Engine Exhaust, Section II.C. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642_summary.pdf
[12] https://w ww.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf
[13] EPA (2018). "Overview of Greenhouse Gases" https://www.epa.gov/ghgemissions/overview-greenhouse-gases.

According to the DEQ, the largest source of anthropogenic CO_2 emissions is the electric power sector followed by the transportation sector. Overall, CO_2 emissions in Arkansas have increased by 0.2 million metric tons between 2008 and 2017. Residential, industrial, and transportation sectors reduced CO_2 emissions in this period. The electric power sector increased emissions.[14]

5.0 CONSTRUCTION IMPACTS

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles. During construction, the selected project contractor will minimize air quality impacts through a combination of fugitive dust control [i.e., minimization of exposed erodible earth area, stabilization of exposed earth, periodic application of stabilizing agents (e.g., water), covering or stabilizing stockpiled material, and use of covered haul trucks], equipment maintenance, and compliance with state and local regulations.

Considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, and compliance with applicable regulatory requirements, it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

6.0 CONCLUSION

Since the 1997 FEIS, attainment status for the project area counties (Crawford and Sebastian) has not changed. Crawford and Sebastian counties are still within an area designated by the EPA to be in “attainment” of all NAAQS; therefore, conformity rules (40 CFR § 93 et. seq.), which requires that transportation projects conform to state-level air quality plans, do not apply. Air quality impacts are not anticipated.

The qualitative MSAT assessment completed for the proposed project concluded that although the magnitude and the duration of potential MSAT increases under the Build Alternative (Selected Alignnment), compared to the No Build Alternative, cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

It is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

[14] DEQ Office of Air Quality (2021) “State of the Air Report 2020 ” https://www.adeq.state.ar.us/air/state-of-air/pdfs/2020-report-final.pdf

APPENDIX F

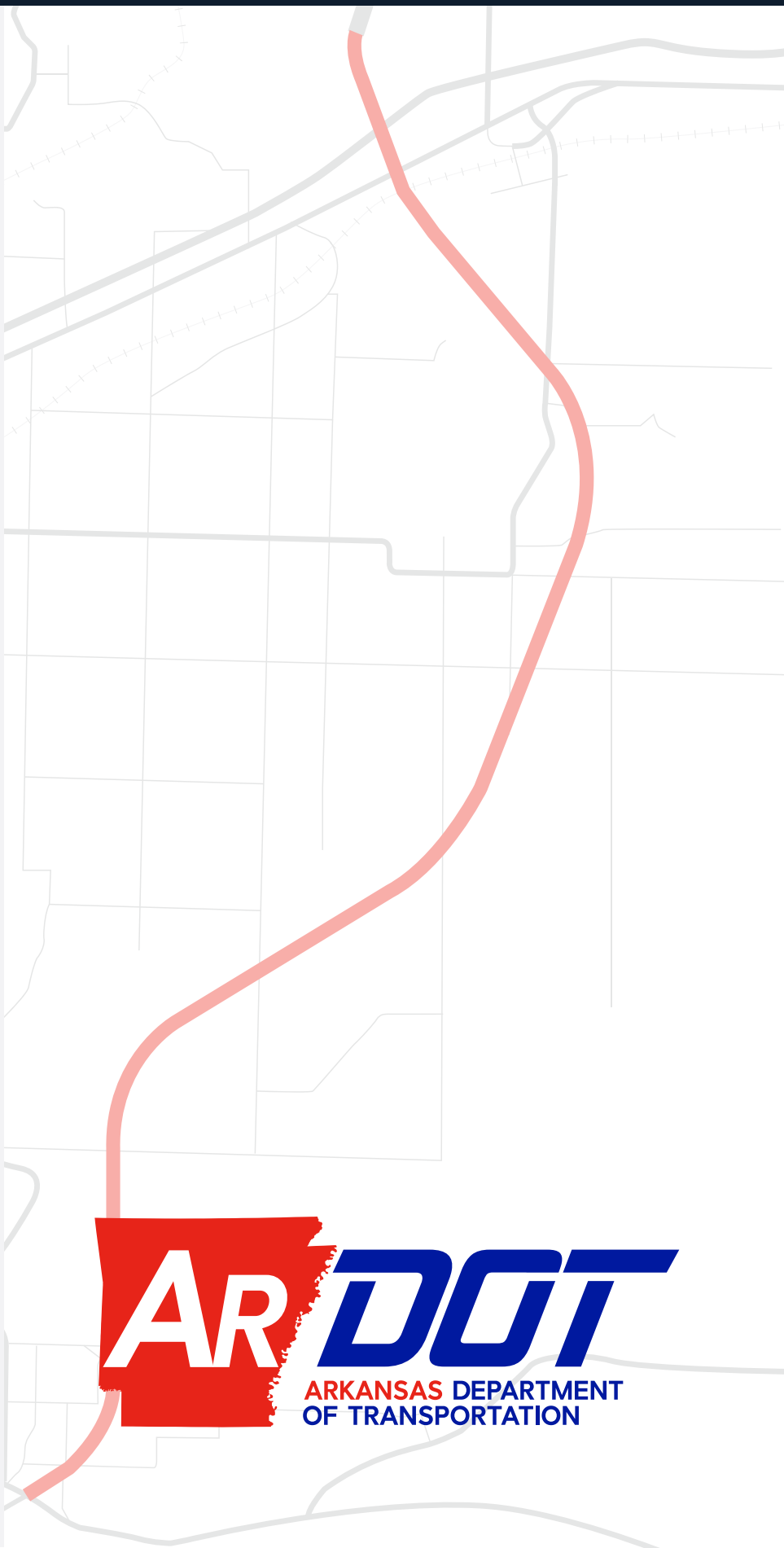
Traffic Noise Technical Report

I-49 Traffic Noise Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

August 2023
Job 040748



ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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Attachment A: Exhibits
- Attachment A-1: Noise Study Areas Map
- Attachment A-2: Traffic Noise Receiver Location Map
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Attachment B: Peak Hour Traffic Data, Field Data Sheets, Site Photographs, and Sound Level Calibration Certificates

1.0 INTRODUCTION

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a reevaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 13.6 miles. The project location is depicted in **Figure 1-1**.

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The Interstate 49 corridor extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed. From Highway 71 to Highway 22, Highway 549 (future Interstate 49) is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40, the existing Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads. North of Collum Lane the existing roadway includes one southbound lane and two northbound lanes which drops down to one lane in each direction north of Fine Way.

This report documents the results of the traffic noise analysis to determine the potential noise impacts of the proposed project.

Figure 1-1: Project Location Map

1.1 Refined Alignment

The proposed project consists of four-lanes (two lanes in each direction) separated by a median. Since the 1997 FEIS, the approved general alignment has been refined. The traffic noise analysis for this re-evaluation modeled the project alignment as of January 2022 which corresponds to the 30% Strip Map.

Interchanges are proposed with slip/loop ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade separated intersections without ramps, are proposed for Thornhill Street, Highway 162 (Henry Street), Union Pacific Railroad (UPRR), and Highway 64 to maintain local access. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements were extended west to Highway 162 to allow for increased access and mobility to Interstate 49. The proposed improvements are illustrated in **Attachment A-2**.

1.2 Land Use

Since the 1997 FEIS, additional residential development has occurred along the project. Increased residential development began in the late 1990s into the early 2000s. The existing land use includes properties with improvements but is predominantly composed of vacant undeveloped agricultural properties. The primary land uses along the project consist of agricultural, residential, and government property types, and parkland (Springhill Park).

1.3 Regulatory Context

The traffic noise analysis completed as part of the 1997 FEIS was prepared in accordance with 23 Code of Federal Regulations (CFR) 772. In July of 2010, the FHWA regulations were amended. Since then, ARDOT has developed several versions of the "Policy on Highway Traffic Noise Abatement" (ARDOT's Noise Policy) with September 13, 2018 being the latest version. The policy complies with the FHWA noise standards as outlined in the 23 CFR 772 (Procedures for Abatement of Highway Traffic Noise and Construction Noise). The traffic noise analysis in this re-evaluation complies with 23 CRF 772 and ARDOT's Noise Policy.

1.4 Traffic Noise Model

The noise analysis in the 1997 FEIS was completed using the FHWA approved traffic noise model, STAMINA 2.0. Since then, FHWA developed a traffic noise model (TNM), which is consistent with the FHWA traffic noise analysis methodologies. To comply with 23 CFR, Part 772.17, the traffic noise model used for this re-evaluation was TNM 2.5.

1.5 Analysis Years

The noise analysis in the 1997 FEIS was completed for scenario years 1995 (existing) and 2020 (predicted). The traffic noise analysis for this re-evaluation was completed for scenario years 2021 (existing) and 2045 (predicted).

1.6 Traffic Data

The traffic data used in the 1997 FEIS was for analysis years 1995 and 2020. The traffic for this re-evaluation corresponded to analysis years 2021 and 2045, for existing and predicted scenarios, respectively.

2.0 NOISE ANALYSIS OVERVIEW

This report documents the results of a traffic noise analysis completed due to refinement of the alignment, land use, regulations, noise model, and traffic data for analysis years (2021 and 2045) since the 1997 FEIS. The study conforms with Federal Regulations and guidance and the National Environmental Policy Act (NEPA). The noise analysis represents the existing and future acoustical environment at the various receptors located within project limits.

2.1 Basic Noise Information

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels [dB(A)]. A sound level represents the level of the rapid air pressure fluctuations caused by sources such as traffic that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear. The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies.

Generally, when the sound level exceeds the mid-60 dB(A) range, outdoor conversation in normal tones at a distance of 3 feet (ft) becomes difficult. A 9-10 dB(A) increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dB(A) reduction is judged to be half as loud. Doubling the number of sources (i.e., vehicles) will increase the hourly equivalent sound level by approximately 3 dB(A), which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.[1]

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (Leq). The Leq is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time period. The Leq averages the louder and quieter moments but gives much more weight to the louder moments in the averaging. For traffic noise assessment purposes, Leq is typically evaluated over the worst 1-hour period and is written as Leq(h).

The term insertion loss (IL) is generally used to describe the reduction in Leq(h) at a location after a noise barrier is constructed. For example, if the Leq(h) at a residence before a barrier is constructed is 75 dB(A) and the Leq(h) after a barrier constructed is 65 dB(A), then the insertion loss would be 10 dB(A).

[1] "*Policy on Highway Traffic Noise Abatement",* Arkansas State Highway and Transportation Department, 2018, page 23 of 38.

Highway noise sources have been divided into five types of vehicles; automobiles, medium trucks, heavy trucks, Buses and Motorcycles. Each vehicle type is defined as follows[2]:

- Automobiles – all vehicles with two axles and four tires, includes passenger vehicles and light trucks, less than 10,000 pounds.
- Medium trucks – all vehicles having two axles and six tires, vehicle weight between 10,000 and 26,000 pounds.
- Heavy trucks – all vehicles having three or more axles, vehicle weight greater than 26,000 pounds.
- Buses – all vehicles designed to carry more than nine passengers.
- Motorcycles – all vehicles with two or three tires and an open-air driver/passenger compartment.

Noise levels produced by highway vehicles can be attributed to three major categories:

- Running gear and accessories (tires, drive train, fan and other auxiliary equipment)
- Engine (intake and exhaust noise, radiation from engine casing)
- Aerodynamic and body noise

Tire sound levels increase with vehicle speed but also depend upon road surface, vehicle weight, tread design and wear. Change in any of these can vary noise levels. At lower speeds, especially in trucks and buses, the dominant noise source is the engine and related accessories.

2.2 Traffic Noise Modeling and Analysis

A traffic noise analysis for the proposed project was completed in accordance with 23 CRF 772 and the FHWA approved ARDOT's Noise Policy. The study followed a methodology coordinated and approved by ARDOT in December of 2021. The modeling scenarios were 1. Existing (2021) and 2. Predicted (2045). The existing noise levels were determined by both noise measurements and modeling; and the predicted noise levels for the proposed action were modeled using the FHWA approved TNM 2.5. Tasks to evaluate the No-Action were determined not necessary because this project, except for the interchange improvements, is new location. The traffic noise analysis included the following steps:

1. Identification of noise-sensitive areas and associated receptors [discrete or representative locations in a noise study area (NSA) for the land uses listed in 23 CFR 772 (**Table 2-1**)], within 500 ft of the project limits;

[2] G.S. Anderson, C.S.Y. Lee, G.G. Fleming and C. Menge, "FHWA Traffic Noise Model®, Version 1.0 User's Guide", Federal Highway Administration, January 1998, p.60.

Table 2-1: Noise Abatement Criteria Hourly A-Weighted Sound Level-Decibels [Leq(h), dB(A)]

Activity Category	Activity Criteria[1] Leq(h), dB(A)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f)[4] sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D, or F.
F	--	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G[3]	--	--	Undeveloped lands that are not permitted.

1 The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement.
2 Includes undeveloped lands that have been permitted for this Activity Category.
3 Indicates no building permits on or before the date of public knowledge.
4 Section 4(f) property means publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, as initially defined in Section 4(f) of the Department of Transportation Act of 1966 and addressed in 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites [Section 4(f)].

Source: ARDOT's Noise Policy (September 27, 2018).

2. Determination of existing noise levels at selected receptors to characterize the existing noise environment in the project area;
3. Determination of future "build" noise levels at representative receivers[3];
4. Determination of traffic noise impacts;
5. Evaluation of noise abatement for impacted areas;
6. Discussion of construction noise;
7. Coordination with local officials, including modeling of distance-based future "build" noise levels out to 66 and 71 dB(A) for undeveloped activity category G lands; and

[3] Receivers may represent more than one "receptor." Refer to **Table 6-1** for number of receptors represented by each receiver.

8. Documentation of findings in the traffic noise study report and summarize in a statement to be used in the environmental document.

The process included the following:

- Identification of existing and proposed land uses adjacent to the project;
- Determination of existing noise levels either:
    - through modeling, or
    - noise measurements with concurrent classification counts of vehicles passing the noise monitoring site;
- Validation of the existing model through comparison between measured and modeled levels;
- Modeling of future design year traffic noise levels which will yield the worst hourly traffic noise on a regular basis (design hour noise levels);
- Identification of locations that would be exposed to a noise impact based upon the noise abatement criteria (NAC) as presented in **Table 2-1**;
- Modeling of noise abatement measures to mitigate the predicted design year traffic noise impacts; and
- Modeling with FHWA's TNM 2.5.

The following parameters were used in the model to calculate an hourly L_{eq} at a specific receiver location:

- Distance between roadway and receiver;
- Relative elevations of roadway and receiver;
- Hourly traffic volume in light-duty (two axles, four tires), medium-duty (two axles, six tires), and heavy-duty (three or more axles) vehicles;
- Vehicle speed;
- Ground absorption; and
- Topographic features, including retaining walls and berms.

The NAC, as listed in **Table 2-1**, establishes the criteria for various land uses. These criteria were used to determine whether the proposed project would result in a traffic noise impact.

Traffic noise impacts may occur when either the predicted noise level at a receiver approaches, equals, or exceeds the NAC (absolute criterion) or when there is a substantial increase in noise (relative criterion) as a result of the project. Approach is defined by ARDOT to be the 1-hour equivalent sound levels [Leq(h)] that are 1 dB(A) below the NAC. Substantial occurs when design year noise level is predicted to increase 10 dB(A) or more above the existing noise level for categories A-E. In accordance with the ARDOT noise policy, traffic noise abatement measures are to be considered when traffic noise impacts have been identified under either the absolute or relative criterion.

2.3 Noise Barrier Evaluation Requirements

Noise abatement will be evaluated for Type I Projects, when highway traffic noise impacts are predicted for Activity Categories A-E. Abatement needs to be studied first for "feasibility" and, if feasible, for "reasonableness." Noise barriers must be both feasible and reasonable to be deemed likely for construction.

In order for the noise abatement measure to be acoustically feasible, a minimum of 5 dB(A) reduction in design year highway traffic noise levels must be achieved for at least one impacted receiver. Feasibility applies primarily with the acoustical and engineering considerations of the project that determine whether a noise barrier would provide a "substantial" noise reduction. If a barrier cannot meet this criterion, abatement is considered to not be acoustically feasible. Additionally, the noise barrier should be feasible from an engineering perspective. Engineering feasibility takes into account topography, drainage, safety, barrier height, utilities and access and maintenance needs (which may include right-of-way considerations). If a barrier poses engineering problems, it may be judged as not feasible even if it meets the acoustical feasibility criterion, and it would not be recommended for construction. Acoustically, the best location for barriers is usually either close to the receiver, or close to the noise source, depending on the terrain.

If feasible, then the barriers are assessed for reasonableness. The reasonableness evaluation involves an examination of costs, public support, and whether a certain amount of noise reduction can be achieved. In accordance with the criteria in ARDOT's noise policy, the following three mandatory reasonableness factors must be met for a noise abatement measure to be considered reasonable:

1. Achieve the noise reduction design goal of a minimum of 8 dB(A) reduction in design year highway traffic noise levels for at least one benefitted receiver (design goal criteria).
2. Cost-Effectiveness: If the estimated cost of constructing a noise barrier (including installation and additional necessary construction such as foundations or barrier walls) divided by the number of benefitted receivers [those who would receive a reduction of at least 5 dB(A)] is $36,000 or less per benefitted receiver, a barrier is considered to be cost-effective. For initial considerations, a unit cost of $35 per square foot for reflective barriers, $40 for absorptive barriers and $50 for barriers on structures is used in this cost-effectiveness calculation.
3. For those barriers found to be reasonable by the cost-effectiveness and design goal criteria discussed above, collect viewpoints from property owners and residents of the benefitted receivers. Two attempts (meetings, mail surveys, or other method) would be made to establish a consensus (greater than 50 percent) of support for or against the proposed noise barriers. If a consensus is reached before the second attempt, the efforts to collect viewpoints is discontinued. If a consensus is not obtained after the second attempt, ARDOT will determine the appropriate abatement measure.

3.0 Identification of Noise Study Areas and Receivers

3.1 Noise Study Areas (NSAs)

The 1997 FEIS, aerial photography and field reviews were used to determine the project limits and noise study areas (NSAs) for this re-evaluation. The 14 NSAs as listed and described in **Table 3-1** were determined based on ARDOT's 2018 noise policy. Per this policy, NSAs typically extend 500 ft on either side of the proposed project. The NSAs for the proposed project include Barling City Park, Springhill Park, and the Waterfront Park residential subdivision. **Attachment A-1: Noise Study Areas Map** displays the NSAs defined for the project.

Table 3-2: Noise Study Area Descriptions

NSA No.	Description
1	NSA 1 is located along northbound (NB) Interstate 49 from Fort Street/SH 22 to the Arkansas River. This NSA extends out 500 ft from the proposed edge of shoulder. Springhill Park parallels the Arkansas River and is owned by the Federal Government. The remaining land is undeveloped and is owned or was recently owned by Fort Chafee Redevelopment Trust. Marketing literature shows that the land along NB Interstate 49 is planned for mixed use (residential/commercial/office) and for commercial/office. The status of building permits will be investigated as some parcels have been purchased from the Trust.
2	NSA 2 is located along southbound (SB) Interstate 49 from Fort Street/SH 22 to the Arkansas River. This NSA extends out 500 ft from the proposed edge of shoulder. Springhill Park parallels the river and is owned by the Federal Government. The remaining land is undeveloped and is owned or was recently owned by Fort Chafee Redevelopment Trust. Marketing literature shows the land along SB Interstate 49 planned for single-family residential and for commercial/office. The status of building permits will be investigated as some parcels have been purchased from the Trust. Although Barling Park, a city park, is outside this NSA limits, a receiver was modeled at the playground for informational purposes.
3	NSA 3 is located along NB Interstate 49 beginning north of the Arkansas River and extending to the levee, at the south side of Gun Club Road. This NSA extends out 500 ft from the proposed edge of shoulder. The land in this area is primarily forested and owned by the Federal Government. It is not included in the marketing literature for Fort Chafee Redevelopment Trust.
4	NSA 4 is located along SB Interstate 49, north of the Arkansas River to the levee, at the south side of Gun Club Road. This NSA extends out 500 ft from the proposed edge of shoulder. The land in this area is either forested or cleared. The land is primarily owned by the Federal Government. It is not included in the marketing literature for Fort Chafee Redevelopment Trust.
5	NSA 5 is located along NB Interstate 49, from Gun Club Road to STA 490+00 (due east of Shady Drive at Thornhill Street). This NSA extends out 500 ft from the proposed edge of shoulder. The land use in this area is almost exclusively agricultural.
6	NSA 6 is located along SB Interstate 49, from Gun Club Road to STA 490+00 (due east of Shady Drive at Thornhill Street). This NSA extends out 500 feet from the proposed edge of shoulder. The land use in this area is almost exclusively agricultural.

NSA No.	Description
7	NSA 7 is located along NB Interstate 49 from STA 490+00 (due east of Shady Drive at Thornhill Street) to STA 620+00, just north of Frog Creek. This NSA extends out 500 ft from the proposed edge of shoulder. This NSA contains a mix of land uses and includes clusters of single-family residences along Alma Drive, New Town Road, Clear Creek Road, and Waterfront Road. Other areas are agricultural with some forested drainage ways.
8	NSA 8 is located along SB Interstate 49 from STA 490+00 (due east of Shady Drive at Thornhill Street) to STA 620+00, just north of Frog Creek. This NSA extends out 500 ft from the proposed edge of shoulder. NSA 8 contains a mix of land uses and includes clusters of single-family residential along Alma Drive, New Town Road, Clear Creek Road, and Waterfront Road. Other areas are agricultural with some forested drainage ways.
9	NSA 9 is located along NB Interstate 49 from STA 620+00, just north of Frog Creek to STA 780+00, approximately 300 ft south of the Union Pacific Railroad (UPRR). This NSA extends out 500 ft from the proposed edge of shoulder. The land use in this area is almost exclusively agricultural. There is a small area of single-family residential at Henry Street/SH 162 in the NSA.
10	NSA 10 is located along SB Interstate 49 from STA 620+00, just north of Frog Creek to STA 780+00, approximately 300 ft south of the UPRR. This NSA extends out 500 ft from the proposed edge of shoulder. The land use in this area is almost exclusively agricultural.
11	NSA 11 is located along NB Interstate 49 from STA 780+00, approximately 300 ft south of the UPRR ending at STA 857+00, approximately 600 feet north of Collum Lane. This NSA extends out 500 feet from the proposed edge of shoulder. There are commercial uses along US Highway 64 including a fireworks store and a construction company yard. The NSA also includes the interchange of Interstate 49 with Interstate 40. The other areas in the NSA are agricultural with a single-family residence at Collum Lane. The athletic field for Alma Intermediate School is located just east of the NSA.
12	NSA 12 is located along SB Interstate 49 from STA 780+00, approximately 300 ft south of the UPRR ending at STA 857+00, approximately 600 ft north of Collum Lane. The NSA extends out 500 ft from the proposed edge of shoulder. The NSA also includes the interchange of Interstate 49 with Interstate 40. The other areas in the NSA are agricultural with a single-family residence at Maple Valley Road.
13	NSA 13 includes uses along Interstate 40, east of the interchange with Interstate 49. Changes to Interstate 40 will be limited to the area near the interchange. The NSA extends out 500 ft from the proposed edge of the east-bound (EB) and west-bound (WB) shoulders. There is a mix of single-family residences, apartments, and a church. Receivers within this NSA include single-family residences, apartments, a receiver at the interior of the church, and a receiver at the front of the church (outdoor). Additional receivers were located beyond the typical 500 ft NSA boundary to evaluate the impact caused by changes in traffic volumes on Interstate 40 resulting from the proposed project.
14	NSA 14 includes the area along Interstate 40, west of the interchange with Interstate 49. The NSA extends out 500 ft from the proposed edge of the EB and WB shoulders. Changes to Interstate 40 will be limited to the area near the interchange. There are single-family residences in this area, but receivers would be located outside of the NSA. A large truck yard is located south of EB Interstate 40.

Source: Interstate 49 FEIS Re-evaluation Traffic Noise Methodology Memorandum (November 2021).

3.2 Receivers

A total of 61 modeling receivers within the NSAs were located at frequently used human activity areas using aerial photography, topographical maps and field verification (**Attachment A-2: Traffic Noise Receiver Location Map**). For single-family residences, that area was the front or back yard. For multi-family (apartments), the receivers were located at the balconies or porches. For parks and churches, receivers were modeled at the common use areas. A TNM receiver could represent more than one receptor, such as several adjacent single-family residences or condominium balconies/porches, or the common use area for an apartment building. The modeling receivers were verified during a field visit which took place on November 15 through 17, 2021.

4.0 Noise Measurements

Existing noise level measurements were conducted November 15-17, 2021. Field measurements were taken at five short-term (ST) sites and two at long-term (LT) sites, at representative locations along the project. Three 15-minute readings were taken at the ST sites while two 24-hr readings were taken at each of the LT sites. These measurements were made in accordance with FHWA and ARDOT guidelines using Brüel & Kjær Sound Level Meter Type 2240 and a Larson Davis SoundExpert LxT sound level meter. Traffic classification counts were taken concurrently with the noise measurements. The data collected at the ST sites is presented in **Table 4-1**. During the field measurements, the skies were clear, the temperature was 75 degrees Fahrenheit and the wind speed varied from 5 to 10 mph from the southwest. The noise measurement sites, ST-1 through ST-5, along with the two long-term (LT) sites, LT-1 and LT-2, are shown in **Attachment A-2: Traffic Noise Receiver Location Map**. The field data sheets, site photographs, and the sound level analyzer laboratory calibration certificates are included in **Attachment B** of this report.

Table 4-1: Measured Existing Noise Levels (dB(A))

Field Site	NSA	Site Description	Date	Start Time	Noise Level, dB(A) L_{eq}(1h)	Average dB(A) Leq(1h)	Receivers Represented
ST-1	2	Springhill Park (Trail)	11/15/21	3:22 pm	47.5	46.7	R1-R4
				3:39 pm	47.7		
				3:55 pm	44.9		
ST-2	8	Residence at 623 New Town Road	11/16/21	8:29 am	51.5	49.7	R5-R9 & R20-R23
				8:47 am	52.1		
				9:05 am	45.6		
ST-3	8	Residence at 600 Clear Creek Road	11/16/21	9:52 am	59.7	57.3	R14 & R25-R29
				10:08 am	55.9		
				10:25 am	56.3		
ST-4	9	Residence along Hwy 162	11/16/21	2:30 pm	65.4	64.7	R40
				2:46 pm	62.6		
				3:01 pm	66.2		
ST-5	11	Collum Road, within ARDOT ROW	11/16/21	12:08 pm	66.1	66.1	R41-R42
				12:25 pm	66.1		
				12:40 pm	66.2		
LT-1	7	1330 Waterfront Road	11/16/21 to 11/17/21	2:30 pm	46.2	46.2	R15-R19 & R30-R37
LT-2	13	330 Rudy Road	11/16/21 to 11/17/21	1:53 pm	72.4	72.4	R43-R62

Source: Project Team (November 2021).

The two LT sites were evaluated to serve as a basis for comparison for the noise modeling levels. One LT site is in proximity to existing roadway traffic; the other was selected at a location not influenced by roadway traffic noise. LT measurements occurred on a weekday, over a 24-hour period.

4.1 Model Validation

ARDOT policy requires validation of TNM. Validation involves taking three 15 minute noise measurements at selected points near the existing roadway while making simultaneous vehicle classification counts of the traffic and estimating travel speed. The traffic collected along with the speeds, are then entered into a TNM model of the existing road configuration. The modeled levels are compared to the measured levels, and if at least two out of the three modeled levels are within $\pm$3 dB(A) of the measured levels, the model is determined to be validated.[4]

TNM 2.5 was used to validate the predicted noise levels through comparison of the measured and modeled noise levels. Traffic was counted and classified concurrently during the noise measurement by vehicle type: cars, medium trucks, and heavy trucks. Traffic classification counts

[4] "*Policy on Highway Traffic Noise Abatement",* Arkansas State Highway and Transportation Department, 2018, page 21 of 37.

were taken concurrently with the noise measurements at one validation site (V1). The location of the validation site is shown in **Attachment B**.

The traffic data and speeds collected during the field measurements sites were used in the existing roadway TNM model. The noise measurements and modeled levels are listed in **Table 4-2.** As shown in **Table 4-2**, all predicted levels were within 0 to ±3 dB of the measured levels. Therefore, the model is considered to be validated.

Table 4-2: Model Validation Results

Site No.	Noise Level, dB(A) L_{eq}(1h)		Difference in Noise Levels, dB(A) L_{eq}(1h) (Modeled Minus Measured)	Validated
	Measured	Modeled		
V1	73.3	73.5	-0.2	Yes
	73.1	73.4	-0.3	Yes
	73.4	73.6	-0.2	Yes

Source: Project Team (January 2022).

5.0 Determination of Existing and Predicted Noise Levels

The FHWA approved noise model, TNM 2.5, was used to determine noise levels at receivers representing the NAC along the proposed project. The noise levels for the existing year (2021) were both modeled and measured. Along Interstate 40, where the project would be improving the existing interchange, the noise levels were modeled. Along the new location section, the existing noise levels were measured. The predicted noise levels were modeled for the predicted year (2045) for the entire project.

Traffic data developed as part of the interchange justification report (IJR) for the proposed project was used in the noise modeling. Peak morning and afternoon traffic data, including truck percentages, were developed for the modeling scenarios. The Build Alternative that was modeled in the noise analysis consisted of four-lanes (two lanes in each direction) separated by a median and the Interstate 40 and Interstate 49 interchange improvements which consist of shifting and adding direct connectors from northbound and southbound Interstate 49 to eastbound and westbound Interstate 40. The traffic diagrams are included in **Attachment B**.

For multiple-lane roadways, each travel lane was modeled as a separate TNM “roadway,” with the traffic divided evenly across all lanes in the same direction. The modeled speeds varied for Existing and Build Scenarios.

Large buildings were modeled as noise barriers to properly account for the shielding of the traffic noise that they provide to the receptor. In addition, the solid concrete parapets along certain roadway sections were modeled as barriers. Significant terrain features were also modeled such as the Arkansas River, which was included as a water “ground” feature. The default ground surface of lawn grass was used, with any large areas of paved ground specifically modeled as

pavement.

6.0 Impact Determination Analysis

An impact assessment was completed for the Build Alternative for each NSA based on the criteria described in **Section 2.2**. The impact determination analysis was based on existing and predicted traffic noise levels estimated at the receivers listed in **Table 6-1** and shown on **Attachment A-2**. These receivers represent the land use activity areas within the NSAs adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement.

Table 6-1: Existing and Predicted Noise Levels, dB(A), Leq(1h)

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
N/A[1]	R1	Barling City Park	Playground	C	67	1	46	48	+2	No	No	No
NSA 1	R2	Springhill Park Trail	Trail	C	67	1	46	61	+15	No	Yes	Yes
NSA 2	R3	Springhill Park Trail	Trail	C	67	1	46	59	+13	No	Yes	Yes
	R4	Springhill Park Trail	Trail	C	67	1	46	58	+12	No	Yes	Yes
NSA 7	R5	1429 Alma Dr.	Single-Family Residential	B	67	1	49	66	+17	Yes	Yes	Yes
	R6	810 New Town Rd.	Single-Family Residential	B	67	1	49	58	+9	No	No	No
	R7	544 Richland Dr.	Single-Family Residential	B	67	1	49	58	+9	No	No	No
	R8	525 Richland Dr.	Single-Family Residential	B	67	1	49	57	+8	No	No	No
	R9	510 Richland Dr.	Single-Family Residential	B	67	1	49	66	+17	Yes	Yes	Yes
	R14	1016 Clear Creek Rd.	Single-Family Residential	B	67	1	57	63	+6	No	No	No
	R15	1227 Waterfront Rd.	Single-Family Residential	B	67	1	46	59	+13	No	Yes	Yes
	R16	1317 Waterfront Rd.	Single-Family Residential-Under Construction	B	67	1	46	59	+13	No	Yes	Yes
	R17	1300 Waterfront Rd.	Single-Family Residential	B	67	1	46	65	+19	No	Yes	Yes
	R18	1331 Waterfront Rd.	Single-Family Residential	B	67	1	46	59	+13	No	Yes	Yes

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
	R19	1330 Waterfront Rd.	Single-Family Residential	B	67	1	46	64	+18	No	Yes	Yes
	R19a	230 Waterfront Rd	Single-Family Residential	B	67	1	46	54	+8	No	No	No
	R19b	224 Waterfront Rd	Single-Family Residential	B	67	1	46	52	+6	No	No	No
	R19c	218 Waterfront Rd	Single-Family Residential	B	67	1	46	52	+6	No	No	No
	R19d	200 Waterfront Rd	Single-Family Residential	B	67	1	46	51	+5	No	No	No
	R19e	217 Waterfront Rd	Single-Family Residential	B	67	1	46	54	+8	No	No	No
	R19f	127 Waterfront Rd	Single-Family Residential	B	67	1	46	53	+7	No	No	No
	R19g	114 Waterfront Rd	Single-Family Residential	B	67	1	46	50	+4	No	No	No
	R19h	100 Waterfront Rd	Single-Family Residential	B	67	1	46	50	+4	No	No	No
	R19i	115 Waterfront Rd	Single-Family Residential	B	67	1	46	52	+6	No	No	No
	R19j	101 Waterfront Rd	Single-Family Residential	B	67	1	46	51	+5	No	No	No
	R19k	1237 Waterfront Rd	Single-Family Residential	B	67	1	46	57	+11	No	Yes	Yes
NSA 8	R20	1221 Alma Dr.	Single-Family Residential	B	67	1	49	65	+16	No	Yes	Yes
	R21	1203 Alma Dr.	Single-Family Residential	B	67	1	49	63	+14	No	Yes	Yes

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
	R22	616 Newtown Rd.	Single-Family Residential	B	67	1	49	60	+11	No	Yes	Yes
	R23	620 Newtown Rd.	Single-Family Residential	B	67	1	49	66	+17	Yes	Yes	Yes
	R25	515 Clear Creek Rd.	Single-Family Residential	B	67	1	57	58	+1	No	No	No
	R26	535 Clear Creek Rd.	Single-Family Residential	B	67	1	57	60	+3	No	No	No
	R27	615 Clear Creek Rd.	Single-Family Residential	B	67	1	57	62	+5	No	No	No
	R28	538 Clear Creek Rd.	Single-Family Residential	B	67	1	57	60	+3	No	No	No
	R29	600 Clear Creek Rd.	Single-Family Residential	B	67	1	57	65	+8	No	No	No
	R30	708 Clear Creek Rd.	Single-Family Residential	B	67	1	46	55	+9	No	No	No
	R31	829 Waterfront Rd.	Single-Family Residential	B	67	1	46	48	+2	No	No	No
	R32	832 Clear Creek Rd.	Single-Family Residential	B	67	1	46	50	+4	No	No	No
	R33	921 Waterfront Rd.	Single-Family Residential	B	67	1	46	58	+12	No	Yes	Yes
	R34	1109 Waterfront Rd.	Single-Family Residential	B	67	1	46	61	+15	No	Yes	Yes
	R35	1032 Waterfront Rd.	Single-Family Residential-Vacant-Slab Only	B	67	1	46	56	+10	No	Yes	Yes

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
	R35a	1004 Waterfront Rd.	Single-Family Residential	B	67	1	46	52	+6	No	No	No
	R35b	904 Waterfront Rd.	Single-Family Residential	B	67	1	46	51	+5	No	No	No
	R35c	814 Waterfront Rd.	Single-Family Residential	B	67	1	46	47	+1	No	No	No
	R35d	718 Waterfront Rd.	Single-Family Residential	B	67	1	46	46	0	No	No	No
	R35g	128 N Kibler Hwy	Single-Family Residential	B	67	1	46	47	+1	No	No	No
	R36	1108 Waterfront Rd.	Single-Family Residential	B	67	1	46	55	+9	No	No	No
	R37	1128 Waterfront Rd.	Single-Family Residential	B	67	1	46	58	+12	No	Yes	Yes
NSA 9	R40	2825 S. Hwy. 162	Single-Family Residential	B	67	1	64	64	0	No	No	No
NSA 11	R41	1525 Collum Ln.	Single-Family Residential	B	67	1	68	74	+6	Yes	No	Yes
NSA 12	R42	724 Maple Valley Rd.	Single-Family Residential	B	67	1	63	66	+3	Yes	No	Yes
NSA 13	R43	816 Holt Dr.	Single-Family Residential	B	67	1	59	62	+3	No	No	No
	R44	824 Holt Dr.	Single-Family Residential	B	67	1	61	63	+2	No	No	No
	R45	832 Holt Dr.	Single-Family Residential	B	67	1	66	68	+2	Yes	No	Yes
	R46	852 Holt Dr.	Apartment	B	67	1	69	71	+2	Yes	No	Yes
	R47	852 Holt Dr.	Apartment	B	67	1	69	71	+2	Yes	No	Yes

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
	R48	852 Holt Dr.	Apartment	B	67	1	68	70	+2	Yes	No	Yes
	R49	852 Holt Dr.	Apartment	B	67	1	68	70	+2	Yes	No	Yes
	R50	852 Holt Dr.	Apartment	B	67	1	69	71	+2	Yes	No	Yes
	R51	852 Holt Dr.	Apartment	B	67	1	69	71	+2	Yes	No	Yes
	R52	852 Holt Dr.	Apartment	B	67	1	72	75	+3	Yes	No	Yes
	R53	852 Holt Dr.	Apartment	B	67	1	72	75	+3	Yes	No	Yes
	R54	265 Ray Ln.	Single-Family Residential	B	67	1	69	71	+2	Yes	No	Yes
	R55	273 Ray Ln.	Single-Family Residential	B	67	1	71	74	+3	Yes	No	Yes
	R56	330 Rudy Rd.	Ridgeline Church (Interior)	D	52	1	47	49	+2	No	No	No
	R57	330 Rudy Rd.	Ridgeline Church (Front door)	C	67	1	72	74	+2	Yes	No	Yes
	R58	910 Young St.	Single-Family Residential	B	67	1	63	65	+2	No	No	No
	R59	916 Young St.	Single-Family Residential	B	67	1	61	63	+2	No	No	No
	R60	928 Young St.	Single-Family Residential	B	67	1	59	61	+2	No	No	No
	R61	1002 Young St.	Single-Family Residential	B	67	1	57	60	+3	No	No	No

NSA	Receiver ID	Location	Noise Abatement Criteria (NAC)			Number of Receptors	Noise Levels [Leq(h)]			Absolute Criterion Impact (Approaches, Equals, or Exceeds the NAC) (Yes/No)	Relative Criterion Impact (Substantial or More than 10 dB(A) over Existing) (Yes/No)	Impact (Yes/No)
			Description	NAC Category	Criteria Leq(h)		Existing (2021)	Predicted (2045)	Change (+/-)			
	R62	1008 Young St.	Single-Family Residential	B	67	1	56	59	+3	No	No	No
N/A[2]	R55A	276 Ray Ln.	Single-Family Residential	B	67	1	69	72	+3	Yes	No	Yes
	R55B	268 Ray Ln.	Single-Family Residential	B	67	1	67	70	+3	Yes	No	Yes
	R58A	301 Ray Ln. N.	Single-Family Residential	B	67	1	68	70	+2	Yes	No	Yes
	R58B	311 Ray Ln. N.	Single-Family Residential	B	67	1	65	67	+2	Yes	No	Yes
	R58C	321 Ray Ln. N.	Single-Family Residential	B	67	1	63	66	+3	Yes	No	Yes
	R58D	326 Ray Ln. N.	Single-Family Residential	B	67	1	65	68	+3	Yes	No	Yes
	R58E	306 Ray Ln. N.	Single-Family Residential	B	67	1	70	72	+2	Yes	No	Yes

Source: Project Team (February 2022).

Notes: (1) Receiver outside of the project NSAs; however, it is included for informational purposes only because it is a nearby city park.

(2) Receivers used for NSA 13 Barrier Analysis.

6.1 Summary of Impacts

As indicated in **Table 6-1**, the proposed project would result in a traffic noise impact. Typically, new location projects show that increases over existing levels are well above the ARDOT criterion of a substantial increase of 10 or more dB(A) because noise is low under the existing condition. **Table 6-2** summarizes the predicted impacts in each NSA for the Build Alternative. The impacts are then described in detail in the sections that follow.

Table 6-2: Summary of Noise Impacts (Year 2045)

NSA	NAC and Design Year Noise levels, Leq(h) dB(A)	Increase over Existing Sound Levels, dB(A)	Impacts Based on NAC? Yes/No	Impacts Based on Substantial Increase? Yes/No	Number and Type of Impacted Receptors
N/A	NAC C, C: 48	2	No	No	0
1	NAC C, C: 61	15	No	Yes	One Springhill Park trail
2	NAC C, C: 58-59	12 to 13	No	Yes	Two Springhill Park trails
3-6	NAC G				
7	NAC B, B: 50-66	4 to 19	Yes	Yes	Eight single-family residences
8	NAC B, B: 46-66	0 to 17	Yes	Yes	Eight single-family residences
9	NAC B, B: 64	0	No	No	0
10	NAC G				
11	NAC B, B: 74	6	Yes	No	One single-family residence
12	NAC B, B: 66	3	Yes	No	One single-family residence
13	NAC B, C, D; B: 59-75; C: 74; D: 49	2-3	Yes	No	Eight apartment units, three single-family residences, one church (exterior/front door)
14	NAC G				
Traffic Noise Impacts (Year 2045)					**33 Total Impacted Receptors**

Source: Project Team (February 2022).
N/A: This receiver representing the Barling City Park is outside of the project NSAs; however, it was included for informational purposes only because it is a nearby city park.

As shown in **Table 6-2**, there would be a total of 33 impacted receptors for the Build Alternative. Regarding the Activity Categories of these 33 impacted receptors, there would be a total of 29 impacted Activity Category B sites (residential) and 4 impacted Activity Category C sites (church, parks/trails). NSA 13 has the most impacts and includes 11 residential impacts, and the exterior area for a church. NSA 1 has one park impact; NSA 2 has two mountain bike trail impacts; NSAs 7

and 8 each include eight impacts at single-family residences, respectively; NSA 9 does not have any impacted receptors; NSAs 11 and 12 have one impact at a single-family residence each; and NSA 13 has eight impacts at apartment units, three impacts at single-family residences, and one impact at the exterior area of a church. NSAs 3 through 6, NSA 10, and NSA 14 do not contain receivers or receptors; because they are categorized as undeveloped lands that are not permitted (NAC G). However, setback distances were identified for these NSAs to assist local planning authorities in developing land use controls to prevent incompatible land use due to traffic noise as discussed in **Section 9.0**.

The noise levels and location of individual receivers within each NSA are included in **Table 6-1** and illustrated in **Attachment A-2**, respectively**.**

6.2 Noise Study Area 1

There is one representative noise receiver within NSA 1 to represent NAC C. The NAC C receiver within NSA 1 represents the Springhill Park trail. The existing noise level at this receiver is 46 dB(A). **Table 6-1** contains the 1-hour equivalent sound levels for the existing scenario and location of the TNM receivers within NSA 1. The predicted sound level in NSA 1 is 61 dB(A). The future sound level increase over the existing level is 15 dB(A), which exceeds the 10 dB(A) ARDOT relative criterion.

6.3 Noise Study Area 2

There are a total of two representative noise receivers within NSA 2 to represent NAC C. The NAC C receivers within NSA 2 represent two Springhill Park trails. The existing noise level at these receivers is 46 dB(A). The predicted sound levels in NSA 2 would range between 58 and 59 dB(A). Future sound level increases over the existing levels range between 12 and 13 dB(A), which exceed the 10 dB(A) ARDOT relative criterion.

6.4 Noise Study Area 3

There are no representative noise receivers within NSA 3.

6.5 Noise Study Area 4

There are no representative noise receivers within NSA 4.

6.6 Noise Study Area 5

There are no representative noise receivers within NSA 5.

6.7 Noise Study Area 6

There are no representative noise receivers within NSA 6.

6.8 Noise Study Area 7

There are a total of 22 representative noise receivers within NSA 7 that represent NAC B. The NAC B receivers within NSA 7 represent single-family residential land uses within the Waterfront

Subdivision on the east side of the proposed project. The existing noise levels range from 46 to 57 dB(A). The predicted sound levels in NSA 7 would range between 50 and 66 dB(A). These sound levels approach, equal, or exceed the NAC for activity category B at eight receivers. Future substantial sound level increases over the existing levels ranging up to a maximum of 19 dB(A) would occur at eight receivers, which exceed the 10 dB(A) ARDOT relative criterion.

6.9 Noise Study Area 8

There are a total of 21 representative noise receivers within NSA 8 that represent NAC B. The NAC B receivers within NSA 8 represent single-family residential land uses within the Waterfront Subdivision, on the west side of the proposed project. The existing noise levels range from 46 to 57 dB(A). The predicted sound levels in NSA 8 would range between 46 and 66 dB(A). These sound levels approach, equal, or exceed the NAC for activity category B at one receiver. Future substantial sound level increases over the existing levels ranging up to a maximum of 17 dB(A) would occur at eight receivers, which exceed the 10 dB(A) ARDOT relative criterion.

6.10 Noise Study Area 9

There is one representative noise receiver within NSA 9 that represents NAC B. The NAC B receiver within NSA 9 represents an isolated single-family residential land use. The existing noise level at this receiver is 64 dB(A). The predicted sound levels in NSA 9 would be 64 dB(A). This sound level does not approach, equal, or exceed the NAC for activity category B. The predicted noise level would result in no change when compared to the existing level. Future sound levels would not exceed the 10 dB(A) ARDOT relative criterion.

6.11 Noise Study Area 10

There are no representative noise receivers within NSA 10.

6.12 Noise Study Area 11

There is one representative noise receiver within NSA 11 to represent NAC B. The NAC B receiver within NSA 11 represents a single-family residence. The existing noise level at this receiver is 68 dB(A). The predicted sound level in NSA 11 would be 74 dB(A). This sound level exceeds the NAC for activity category B. The predicted sound level increase over the existing level is 6 dB(A), which does not exceed the 10 dB(A) ARDOT relative criterion.

6.13 Noise Study Area 12

There is one representative noise receiver within NSA 12 to represent NAC B. The NAC B receiver within NSA 12 represents a single-family residence. The existing noise level at this receiver is 63 dB(A). The predicted sound level in NSA 12 would be 66 dB(A). This sound level approaches the NAC for activity category B. The predicted sound level increase over the existing level is 3 dB(A), which does not exceed the 10 dB(A) ARDOT relative criterion.

6.14 Noise Study Area 13

There are a total of 20 representative noise receivers within NSA 13 of which 18 receivers represent NAC B, one represents NAC C, and one represents NAC D. The NAC B receivers within NSA 13 represent multi-family and single-family residential land uses; the NAC C and D receivers represent Ridgeline Church (interior and exterior activity areas). Existing peak hour (2021) noise levels range from 47 to 72 dB(A). The predicted sound levels in NSA 13 would range between 49 and 75 dB(A). These sound levels approach, equal, or exceed the NAC for activity categories B at 11 residential receivers (eight apartment units and three single-family residences) and at the outdoor activity area for the church (NAC C). Future sound level increases over the existing levels range between 2-3 dB(A). Such increases are due to the fact that these receivers are located along an existing major highway (Interstate 40). None of the receptors would experience future sound level increases exceeding the 10 dB(A) ARDOT criterion.

Additional NAC B receivers (R55A, R55B, and R58A through R58E) representing residential land uses were located outside of the boundaries of NSA 13 to determine if impacts would occur beyond project limits. Modeling results indicate that the existing noise levels would range from 63 dBA(A) to 70 dBA(A) and that future sound levels would range from 66 dB(A) to 72 dB(A). Future sound level increases over existing levels range from 2-3 dB(A). These impacts may be caused by changes in traffic volumes due to traffic diversion or generation resulting from the proposed project. None of the receptors would experience future sound level increases exceeding the 10 dB(A) ARDOT criterion.

6.15 Noise Study Area 14

There are no representative noise receivers within NSA 14.

7.0 Noise Abatement Evaluation

7.1 Statement of Likelihood of Abatement

Based on the studies completed to date, ARDOT has determined that the Build Alternative would result in traffic noise impacts. **Table 7-1** lists the noise barriers analyzed, including those determined to be feasible and reasonable. The cost of the barriers was based on $35.00/sq ft for ground mounted noise barriers and $50.00/sq ft for noise barriers on retaining walls and bridges. The location of the noise barriers is illustrated in **Attachment A-3**.

Table 7-1: Noise Barrier Analysis Results

Barrier Number[(1)]	NSA	Location	Feasible	Average Height of Barrier (ft)	Length of Barrier (ft)	Meets Design Goal of 8 dB(A)	Total Cost	Number of Benefitted Receptors	Cost per Benefitted Receptor	Feasible and Reasonable
NB 1-1[(1)]	2	West of I-49 along bridge over Springhill Park	Yes	12	2,106	No	$1,263,600	4	$315,900	No
NB 1-2[(1)]	1	East of I-49 along bridge over Springhill Park	Yes	12	2,109	No	$1,265,400	6	$210,900	No
NB 2-1	8	West of I-49 along southbound mainlane	Yes	16	1,100	Yes	$678,790	2	$339,395	No
NB 2-2	8	West of I-49 along ROW	Yes	18	757	No	$494,900	2	$247,450	No
NB 2-3	7	East of I-49 along northbound mainlane	Yes	15	1,199	No	$636,720	2	$318,360	No
NB 2-4	7	East of I-49 along ROW	Yes	13	1,151	Yes	$531,440	3	$177,147	No
NB 3-1	13	North of I-40 along ROW	Yes	18	904	Yes	$569,250	7	$81,360	No
NB 3-2	13	South of I-40 along ROW	Yes	10	936	Yes	$327,600	12	$27,300	No[(2)]
NB 3-2S	13	South of I-40 along the eastbound mainlane	Yes	16	571	Yes	$433,960	10	$43,396	No[(2)]

Source: Project Team (May 2022).

Note:

(1) To analyze noise abatement for NSAs 1 and 2, the area of the impacted park was divided by the average single-family residential lot along the project to determine an equivalent number of receivers.

(2) These walls would not be reasonable due to utility conflicts and atypical costs of safety crash barriers. Please refer to more detailed explanation below.

Noise barriers in the form of noise walls are the most commonly used noise abatement measures and were considered for this project. Noise barriers were evaluated for the impacted receptor locations. Noise barriers would not be feasible and reasonable for the following impacted receptors, and therefore, are not proposed for incorporation into the project:

R3 through **R4** – These receptors represent 14 receivers within Springhill Park in NSA 2. The area of impacted park land was divided by the average single-family residential lot along the project to determine an equivalent number of receivers. A continuous noise barrier along the proposed southbound I-49 bridge over Springhill Park (**NB 1-1**) 12 ft tall and 2,106 ft long would reduce traffic noise levels by at least 5 dB(A) but would not achieve the design goal reduction of 8 dB(A). Therefore, this barrier was determined unreasonable and is not proposed.

R2 – This receptor represents 13 receivers within Springhill Park in NSA 1. The area of impacted park land was divided by the average single-family residential lot along the project to determine an equivalent number of receivers. A continuous noise barrier along the proposed northbound I-49 bridge over Springhill Park (**NB 1-2**) 12 ft tall and 2,109 ft long would reduce traffic noise levels by at least 5 dB(A) but would not achieve the design goal reduction of 8 dB(A). Therefore, this barrier was determined unreasonable and is not proposed.

R31 through **R36** – These receivers represent 12 single-family residences within NSA 8. A continuous noise barrier along the proposed southbound I-49 mainlane (**NB 2-1**) at 16 ft tall and 1,100 ft long would traffic noise levels by reduce at least 5 dB(A) and would achieve the design goal reduction of 8 dB(A), but the cost of $339,395 per benefitted receiver, exceeds the reasonableness criteria of $36,000 per benefitted receiver. Therefore, this barrier was determined unreasonable and is not proposed.

R31 through **R36** – These receivers represent 12 single-family residences in NSA 8. A continuous noise barrier along the proposed ROW (**NB 2-2**) 18 ft tall and 710 ft long would reduce traffic noise levels by at least 5 dB(A) but would not achieve the design goal reduction of 8 dB(A). Therefore, this barrier was determined unreasonable and is not proposed.

R15 through **R19K** – These receivers represent 16 single-family residences in NSA 7. A continuous noise barrier along the proposed northbound I-49 mainlane (**NB 2-3**) at 15 ft tall and 1,199 ft long would reduce traffic noise levels by at least 5 dB(A) but would not achieve the design goal reduction of 8 dB(A). Therefore, this barrier was determined unreasonable and is not proposed.

R15 through **R19K** – These receivers represent 16 single-family residences in NSA 7. A continuous noise barrier along the proposed ROW (**NB 2-4**) 13 ft tall and 1,151 ft long would reduce traffic noise levels by at least 5 dB(A) and achieve the design goal reduction of 8 dB(A), but the cost of $177,147 per benefitted receiver, exceeds the reasonableness criteria of $36,000 per benefitted receiver. Therefore, this barrier was determined unreasonable and is not proposed.

R57 through **R62** – These receivers represent 10 single-family residences and 1 place of worship in NSA 13. A continuous noise barrier along the existing ROW (**NB 3-1**) 18 ft tall and 904 ft long

would reduce traffic noise levels by at least 5 dB(A) and achieve the design goal reduction of 8 dB(A), but the cost of $81,360 per benefitted receiver, exceeds the reasonableness criteria of $36,000 per benefitted receiver. Therefore, this barrier was determined unreasonable and is not proposed.

R44 through **R55B** – These receivers represent 8 apartment units and 6 single-family residences in NSA 13. A noise barrier along the existing ROW (**NB 3-2**), was initially determined feasible and reasonable using the standard $35 per sqft construction cost. However, after looking further into the noise barrier from the engineering perspective it was determined not feasible due to conflicts with fiber optic and overhead electric utilities; therefore, the barrier is not proposed.

R44 through **R55** – These receivers represent 8 apartment units and 3 single-family residences in NSA 13. A noise barrier along the outside shoulder of the eastbound I-40 mainlane (**NB 3-2S**), was initially determined feasible and reasonable using the standard $35 per sqft construction cost. However, it was determined not reasonable taking into consideration the additional atypical construction costs for a safety crash barrier. A safety crash barrier would increase the cost per benefitted receiver to $43,396 which exceeds the cost reasonableness criteria of $36,000 per benefitted receiver; therefore, the barrier is not proposed.

This study provides details for all considered and proposed noise abatement measures for inclusion in the NEPA document. Design of noise abatement measures was based on the preliminary noise abatement design developed during the noise analysis and re-evaluated during the project's final design.

8.0 Mitigation of Construction Noise

General construction noise increases for people living or working near the project can be expected from land clearing, earth moving, and paving operations. However, the noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise regulation and ARDOT's noise policy. Construction procedures will be governed by ARDOT's Standard Specifications for Highway Construction. All construction equipment will be operated and maintained in good condition.

9.0 Coordination with Local Officials

Areas of undeveloped lands are located along the project. These NAC Category G lands were not developed at the time of this traffic noise analysis and not permitted for development. The project includes travel lanes at grade, on-fill/structure and in cut along a rolling terrain. The table below presents a range of distances from the nearest edge of travel lane to the design year noise levels of 71 and 66 dBA. The 71 and 66 dBA values represent the approach noise levels for NAC E, C and B. Future developments within these setbacks would have noise levels that are greater than 71 or 66 dBA. The setback distances were identified to assist local planning authorities in developing land use controls to prevent incompatible land use due to traffic noise. Given the alignment and topography of project, it is recommended that future developments proposed be

modeled with accurate survey data to avoid creating incompatible land uses based on highway noise.

ARDOT encourages local communities and developers to practice noise compatibility planning in order to avoid future noise impacts. Two guidance documents on noise compatible land use planning are available from FHWA: "The Audible Landscape: A Manual for Highway Noise and Land Use" and "Entering the Quiet Zone: Noise Compatible Land Use Planning." The table below shows the estimated distance from nearest edge of travel lane in feet for the 66 dB(A) and 71 dB(A) for each NSA. For those setbacks that would fall within 100 feet, it can be assumed that the minimum setback distance would be at the ROW line. The undeveloped areas identified were based on building permit research and field verification conducted in mid-November 2021. Permit research was conducted using the best available online data from the City of Fort Smith, City of Barling and City of Alma as of January 21, 2022. This research was based on available online information from the City of Fort Smith, Chaffee Crossing, City of Barling and City of Alma online permit services.

Table 9-1: Design Year (2045) Predicted 1-Hour Equivalent Sound Levels Setback Distance for Undeveloped Areas

NSA	71 dBA	66 dBA
1	At ROW line	175 ft
2	At ROW line	225 ft
3	At ROW line	300 ft
4	At ROW line	200 ft
5	At ROW line	200 ft
6	At ROW line	200 ft
7	At ROW line	200 ft
8	At ROW line	175 ft
9	At ROW line	100 ft
10	At ROW line	125 ft
11	175 ft	350 ft
12	At ROW line	150 ft
13	At ROW line	At ROW line
14	At ROW line	200 FT

Source: Project Team (February 2022).

ATTACHMENT A: EXHIBITS

Legend

- I-49 Proposed Location
- County Boundary

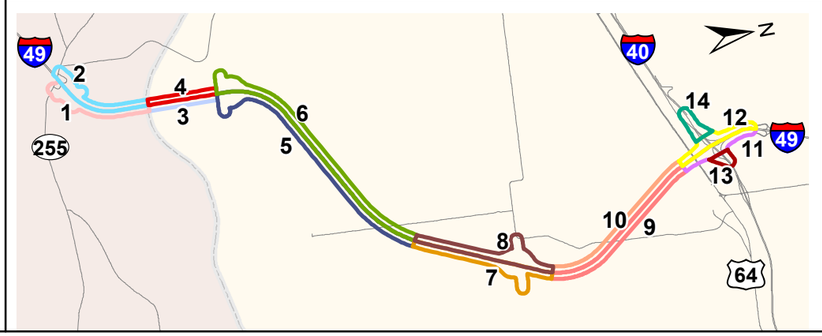
Noise Study Area

- NSA 1
- NSA 2
- NSA 3
- NSA 4
- NSA 5
- NSA 6
- NSA 7
- NSA 8
- NSA 9
- NSA 10
- NSA 11
- NSA 12
- NSA 13
- NSA 14

N

0 0.5 1 Miles

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

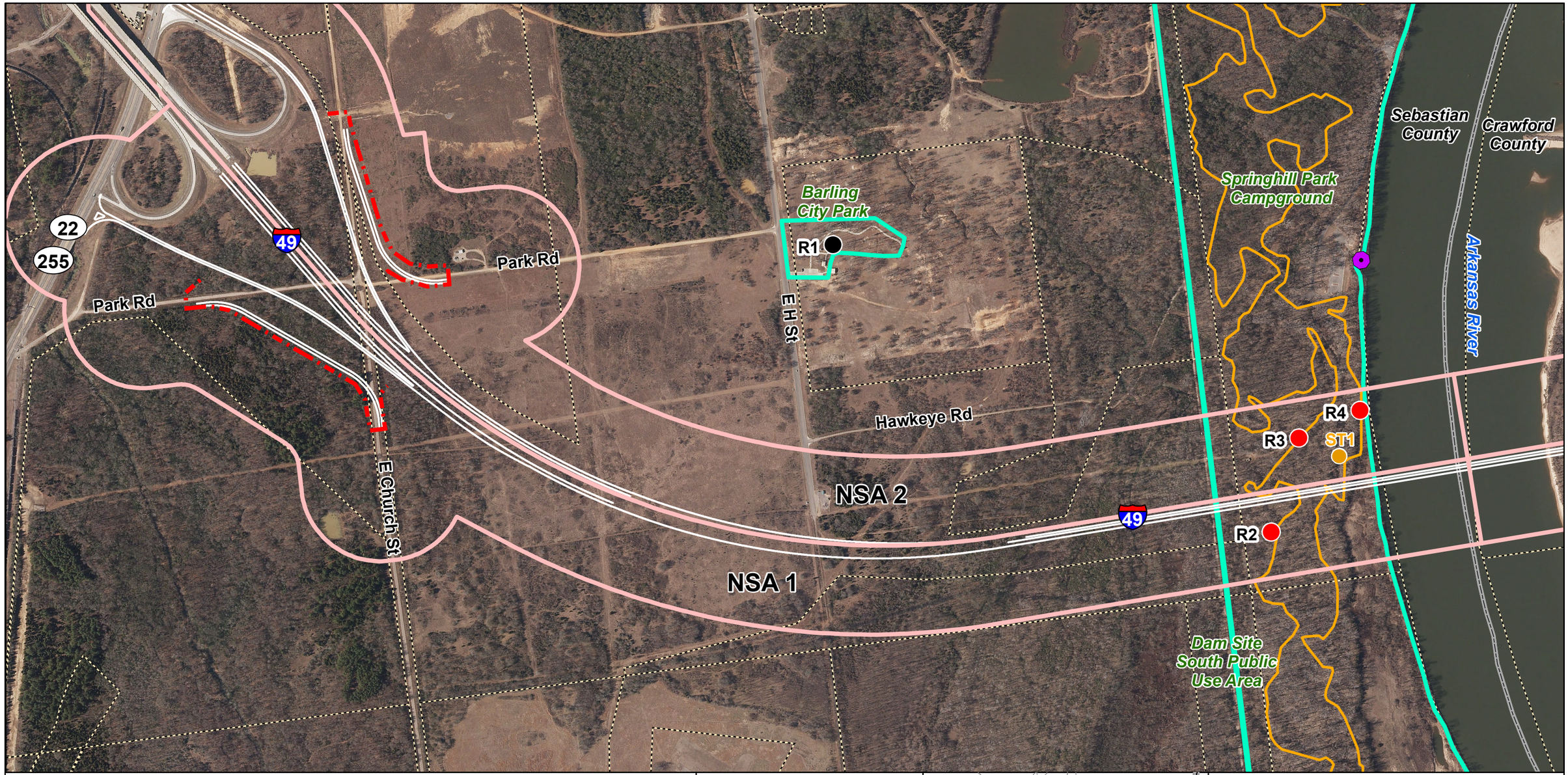


ATTACHMENT A-1
NOISE STUDY AREAS MAP

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report

Sebastian & Crawford Counties, Arkansas



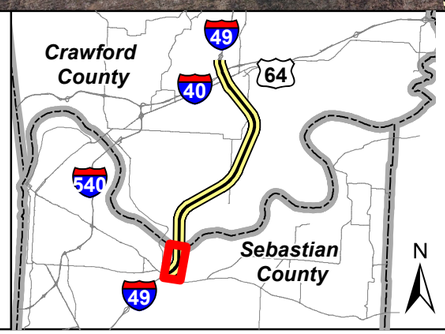
Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

N

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

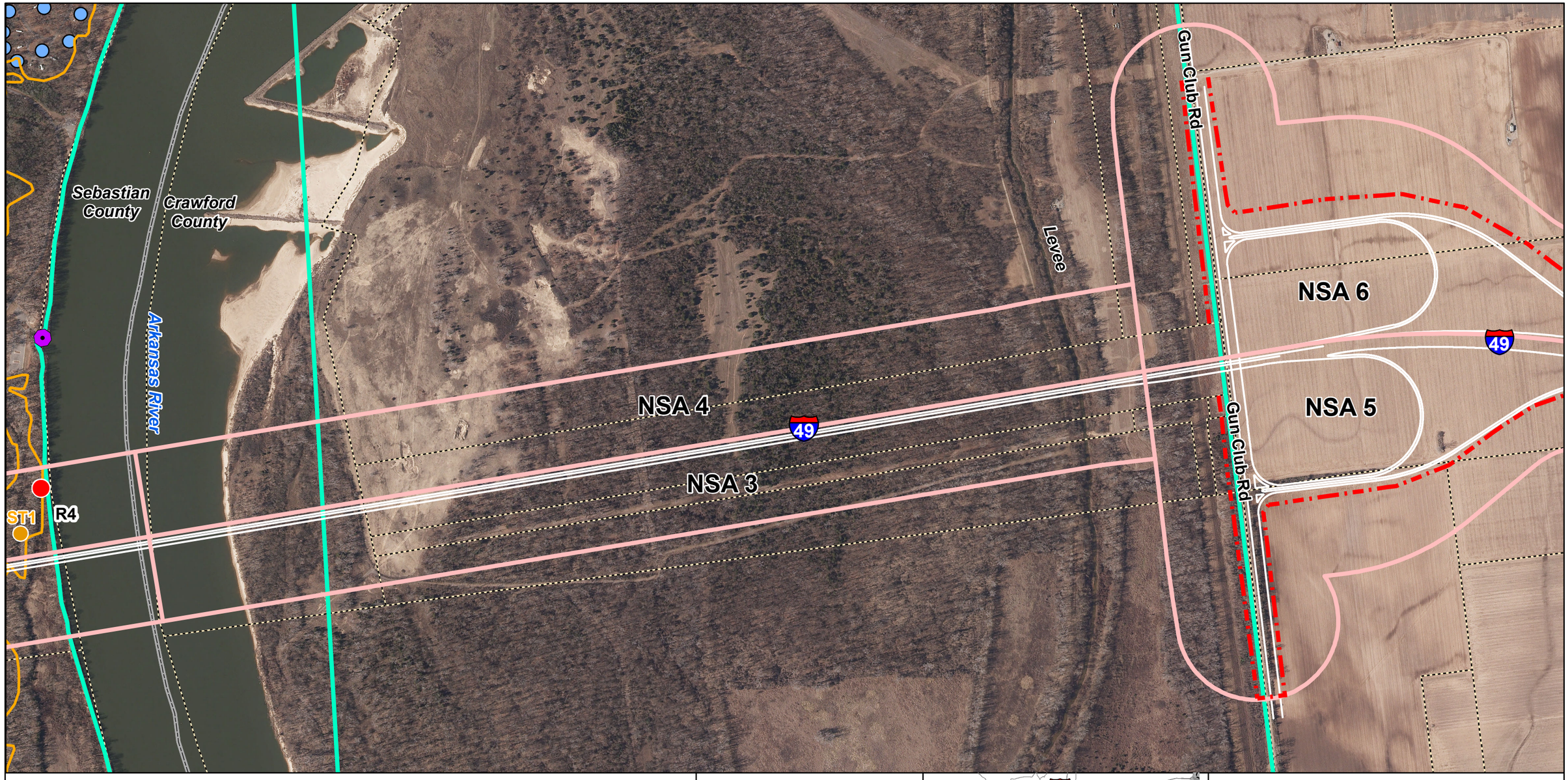


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 1 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).



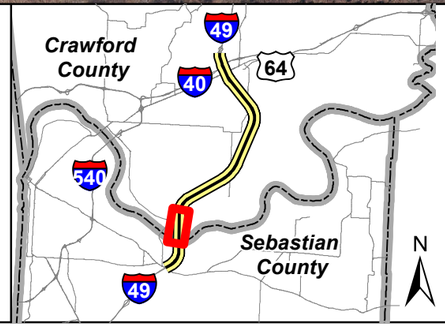
Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

N

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 2 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

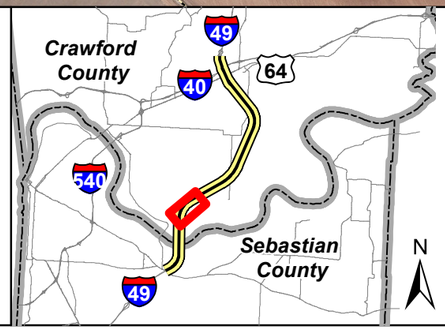
Source: ARDOT 30% Strip Map (January 2022).

Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 3 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

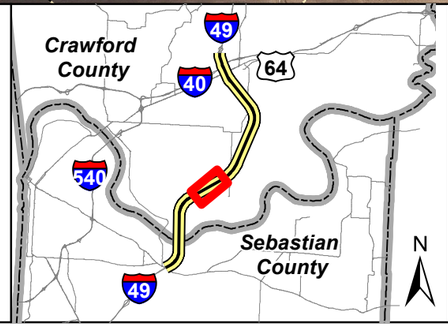
Source: ARDOT 30% Strip Map (January 2022).

Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

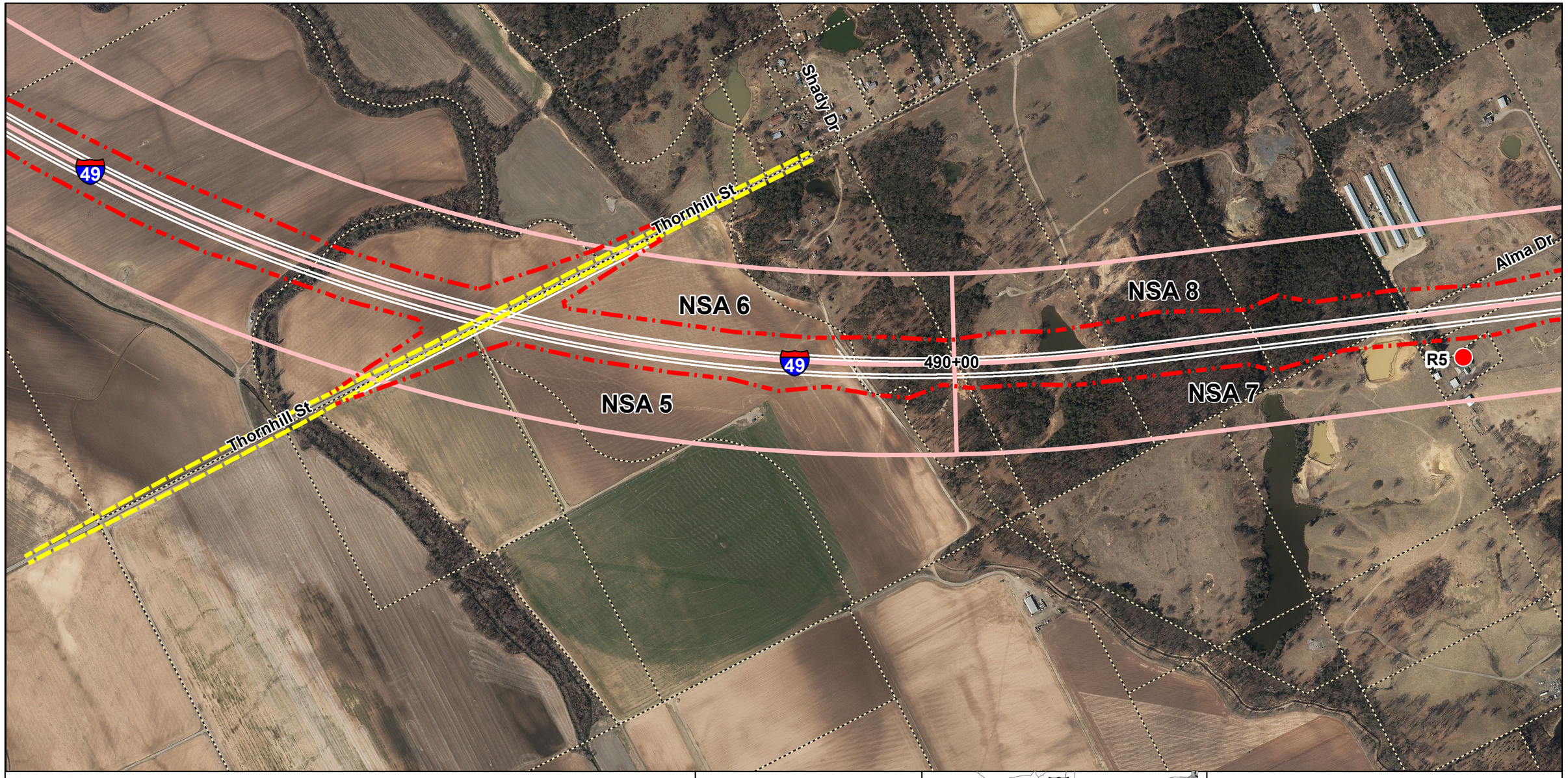


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 4 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).



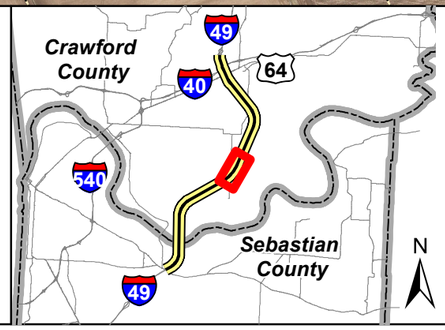
Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

N

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

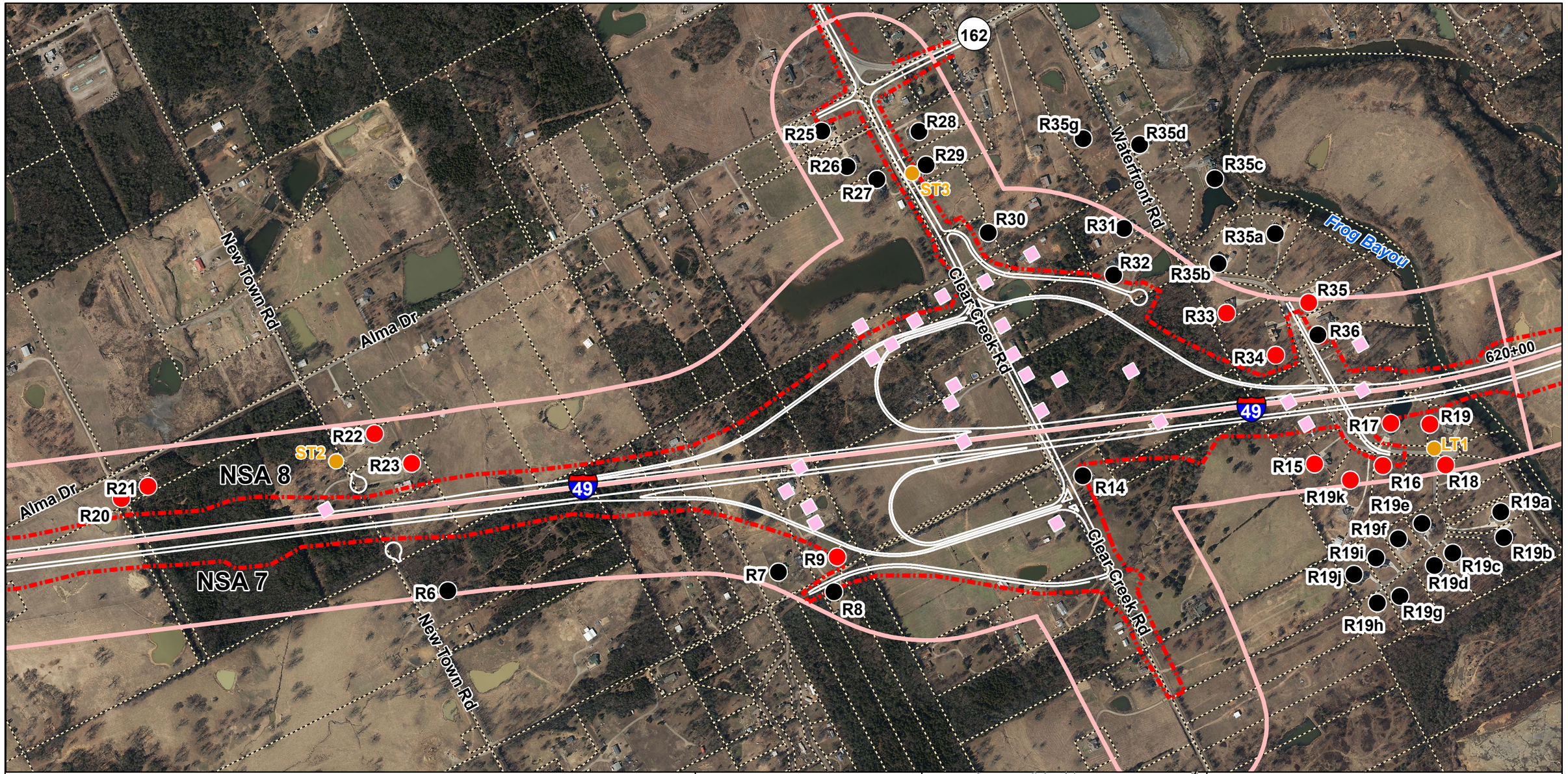


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 5 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).

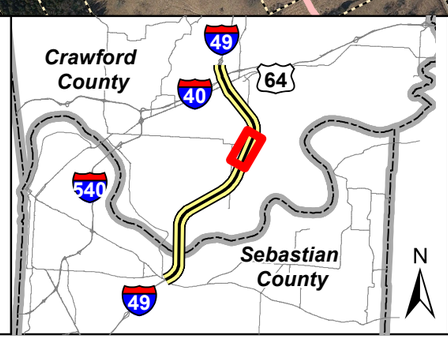


Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

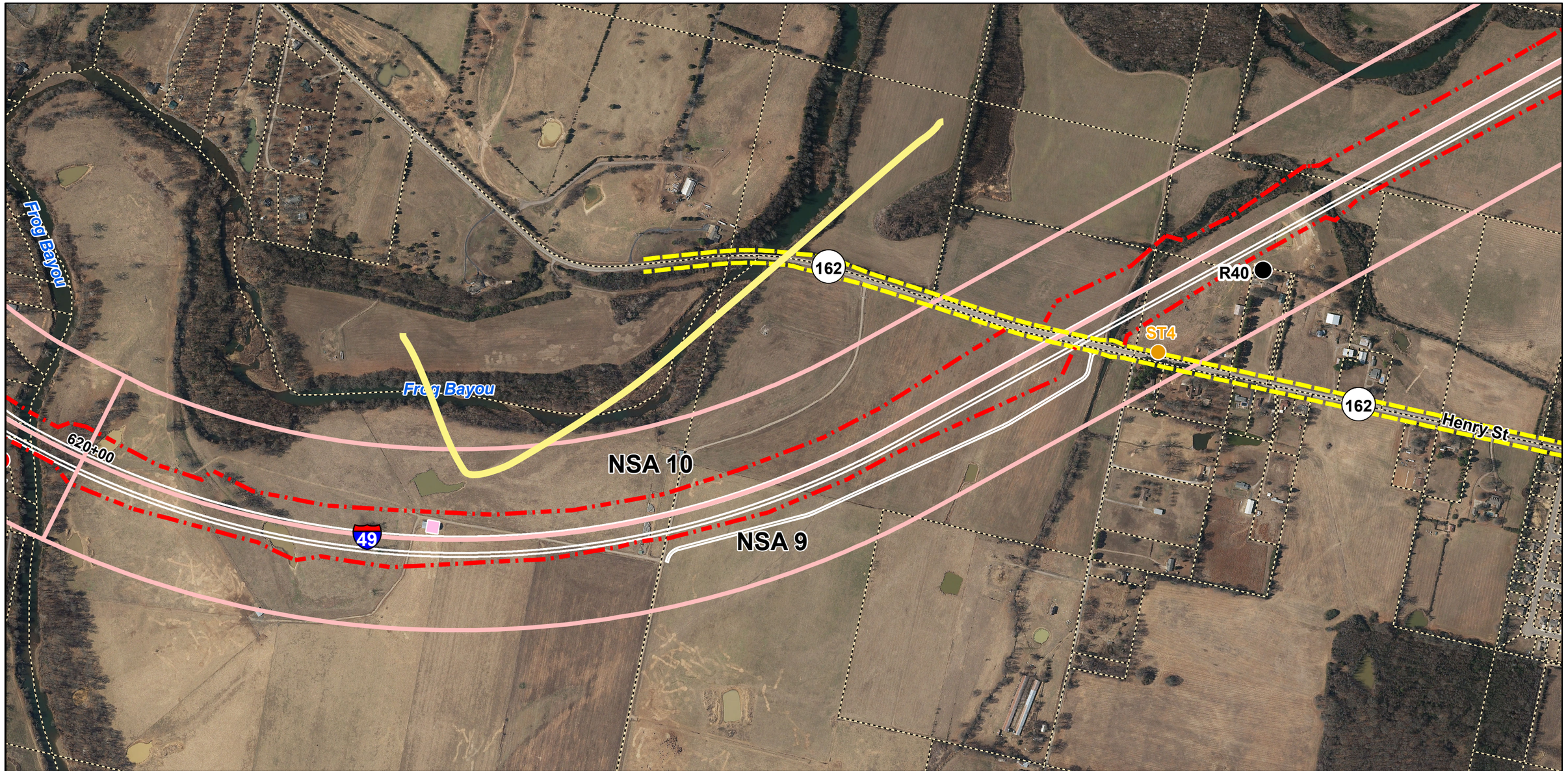


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 6 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).



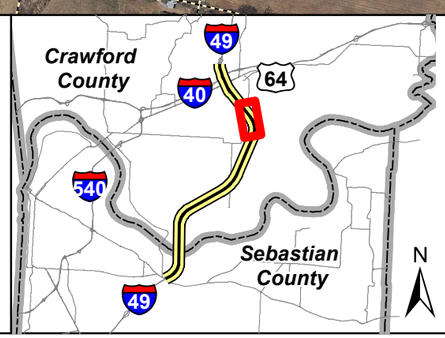
Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

N

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 7 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

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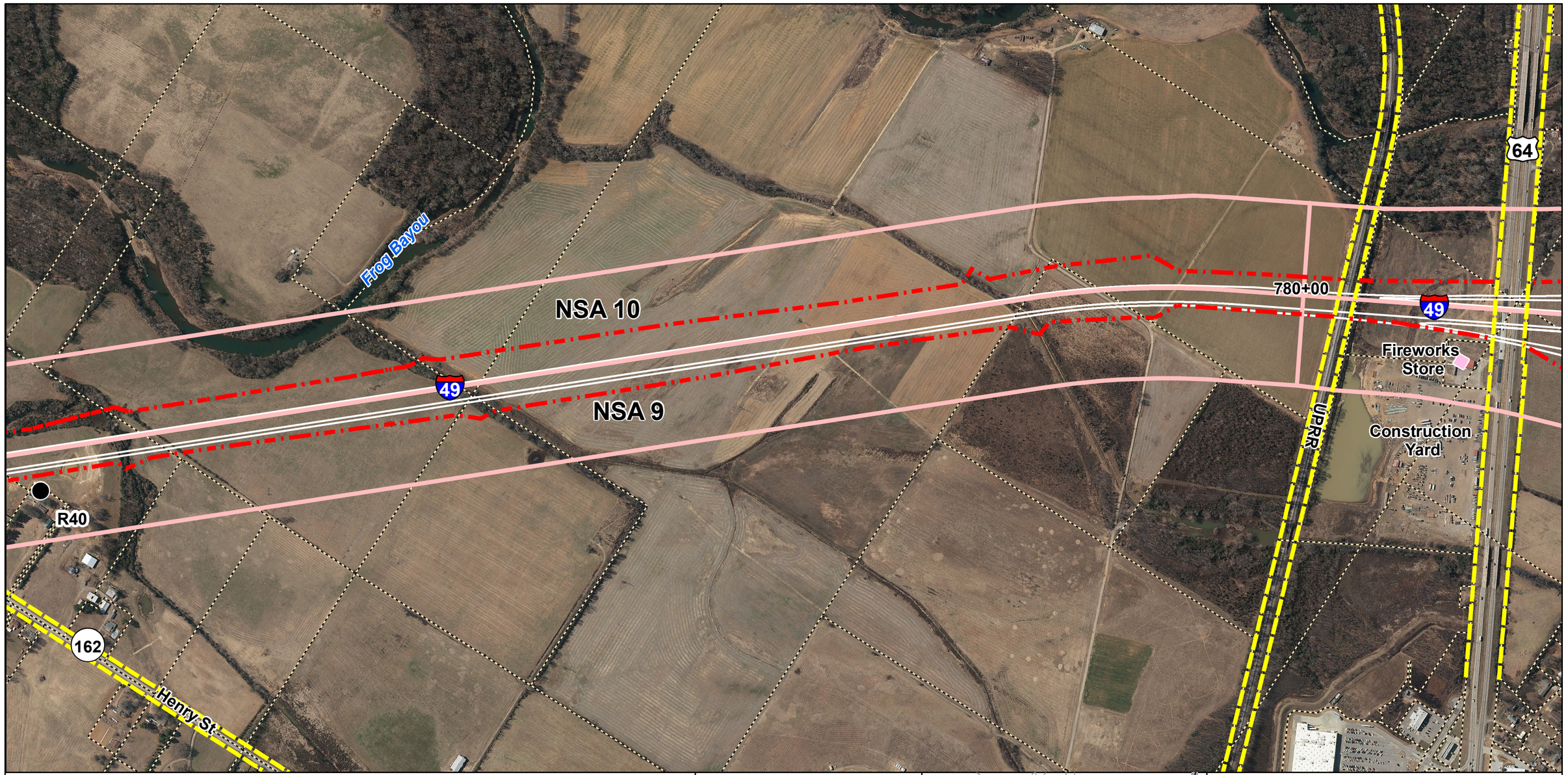
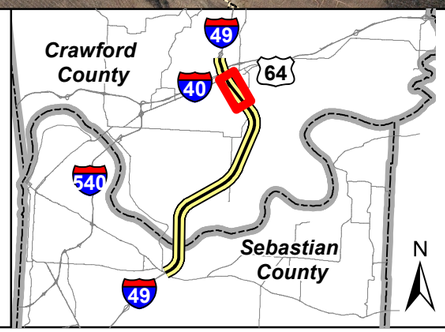


Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

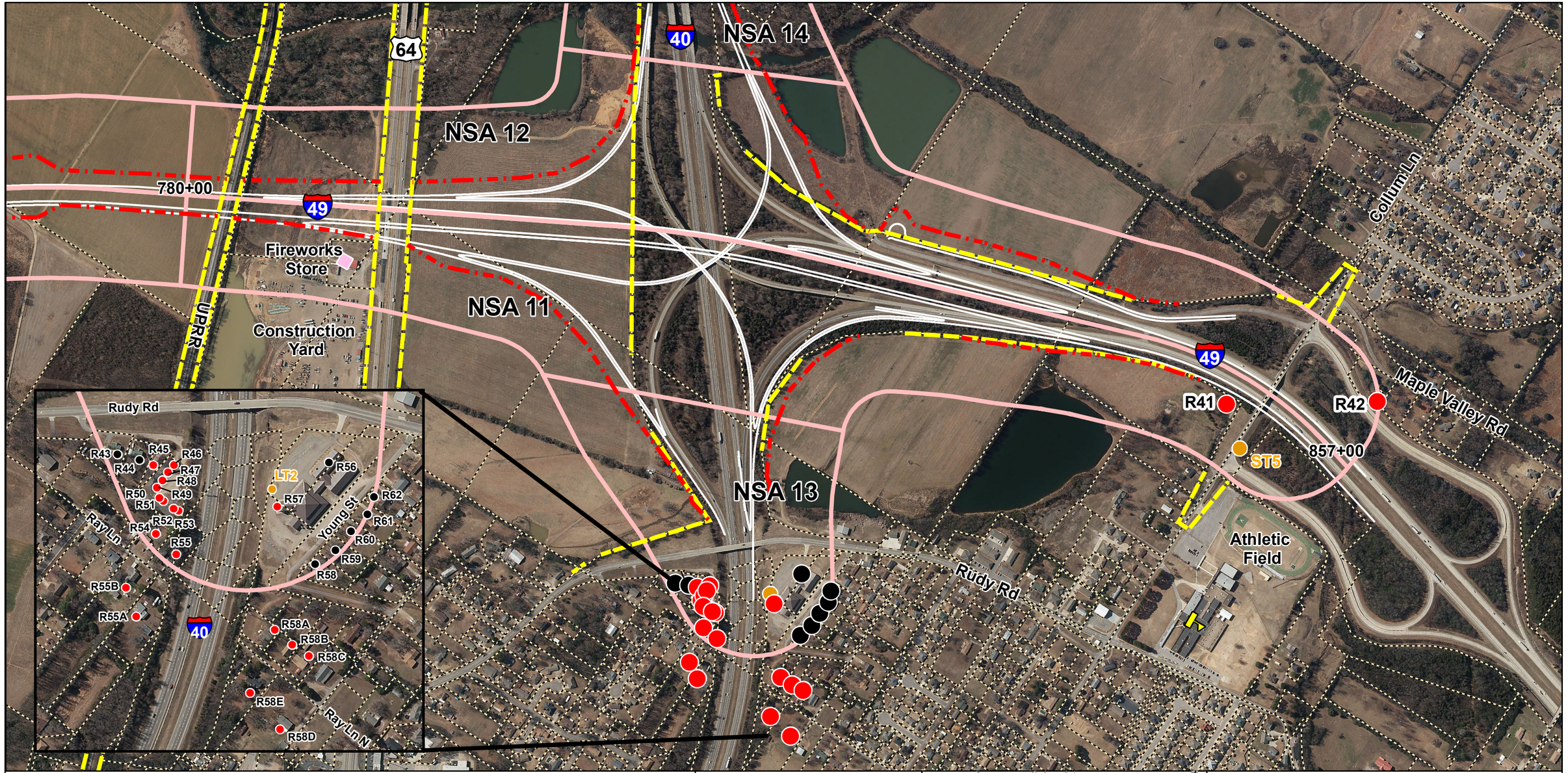


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 8 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).

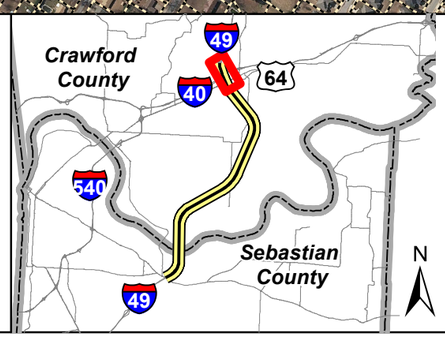


Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

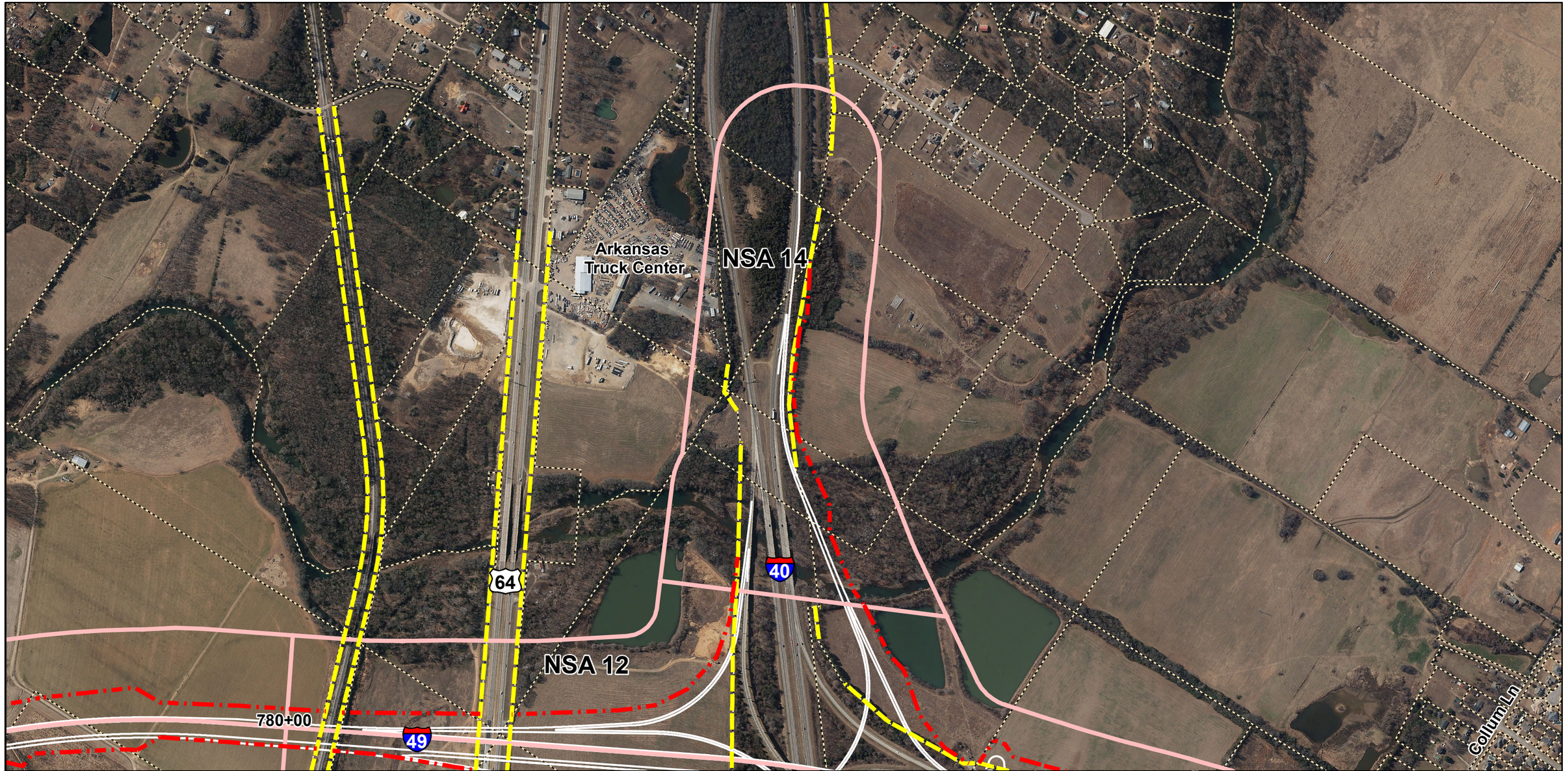


ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 9 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).



Legend

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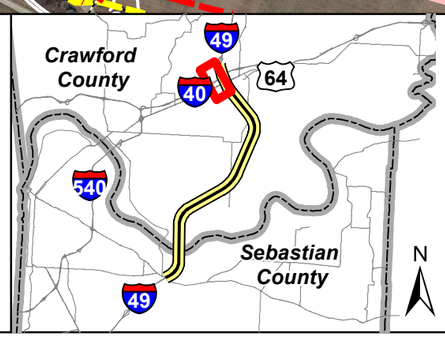
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Impacted Receiver
- Short-Term (ST)/Long-Term (LT) Measurement Site
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Campsite
- Boat Ramp
- Potential Displacement
- Parcel
- County

0 250 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



ATTACHMENT A-2
TRAFFIC NOISE RECEIVER LOCATION MAP
Sheet 10 of 10

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).

Legend

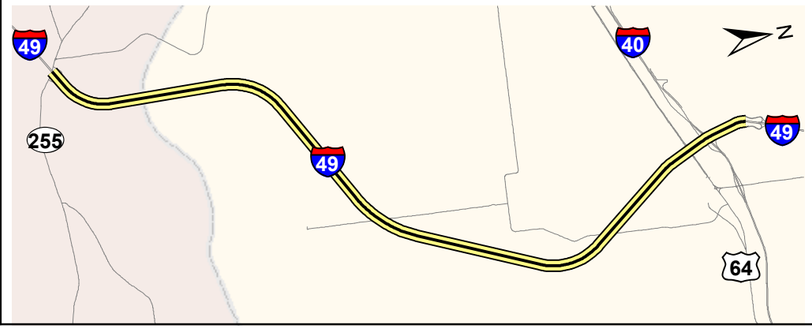
- Not Feasible or Reasonable Barrier
- Proposed Pavement Edge
- County Boundary
- Park

N

Miles

0 0.5 1

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

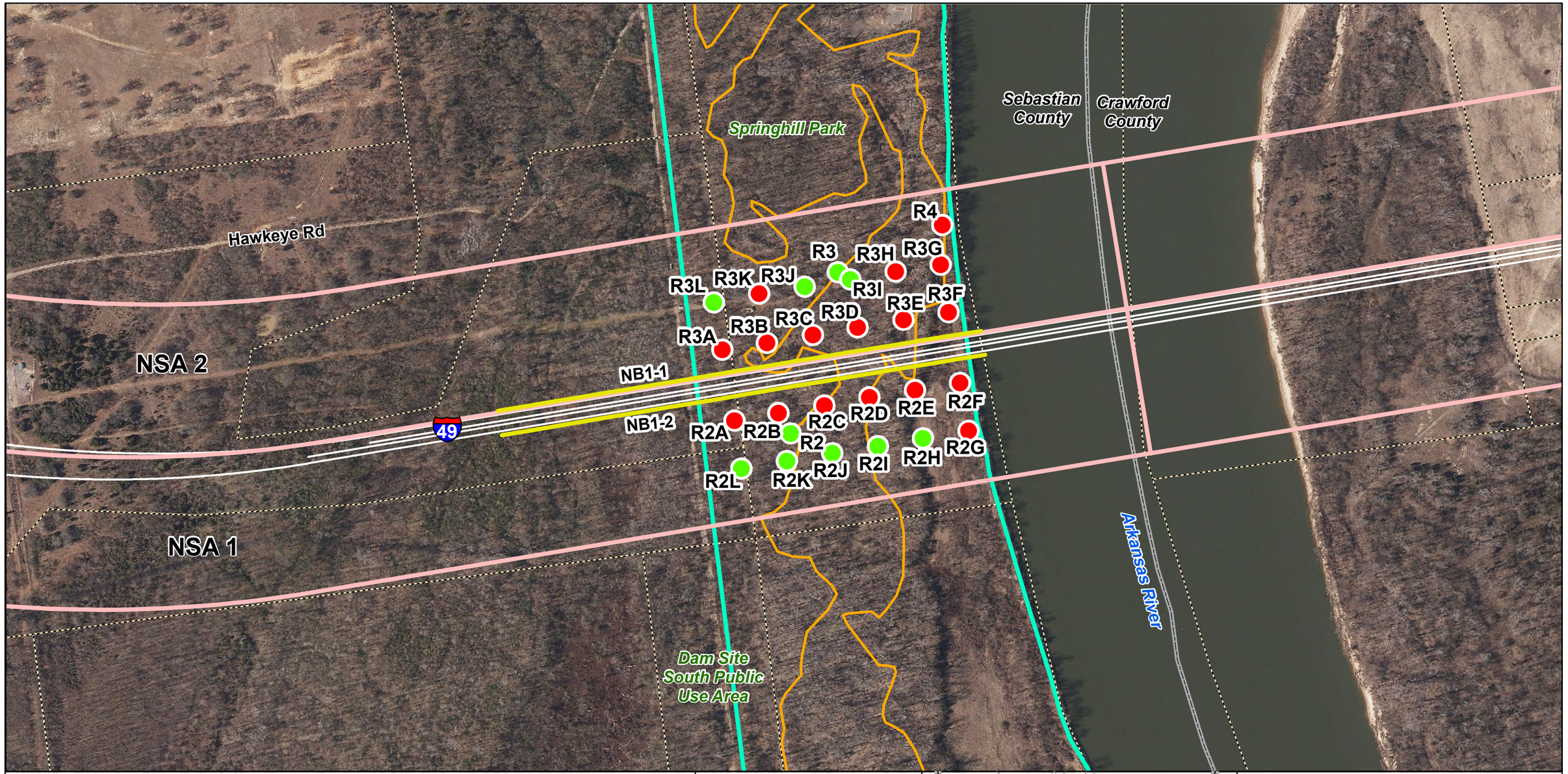


ATTACHMENT A-3
TRAFFIC NOISE BARRIERS MAP

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report

Sebastian & Crawford Counties, Arkansas



Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Non-Benefitted Receiver
- Benefitted Receiver
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Not Feasible or Reasonable Barrier
- Parcel
- County

N

0 300 600 Feet

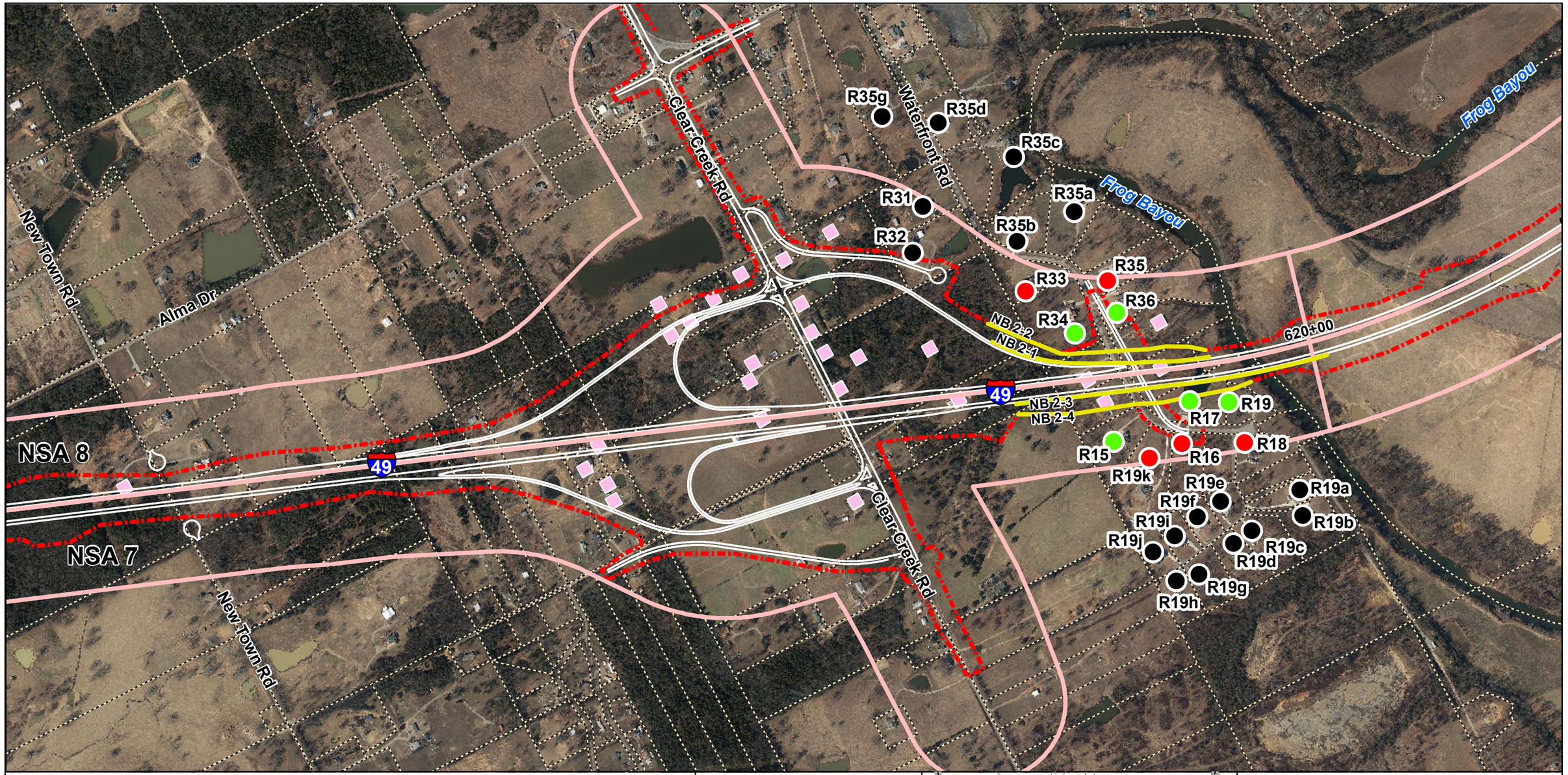
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

ATTACHMENT A-3
TRAFFIC NOISE BARRIERS MAP
Sheet 1 of 3

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).

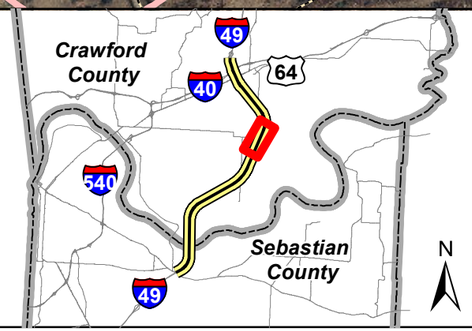


Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Non-Benefitted Receiver
- Benefitted Receiver
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Not Feasible or Reasonable Barrier
- Parcel
- County

0 500 1,000 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

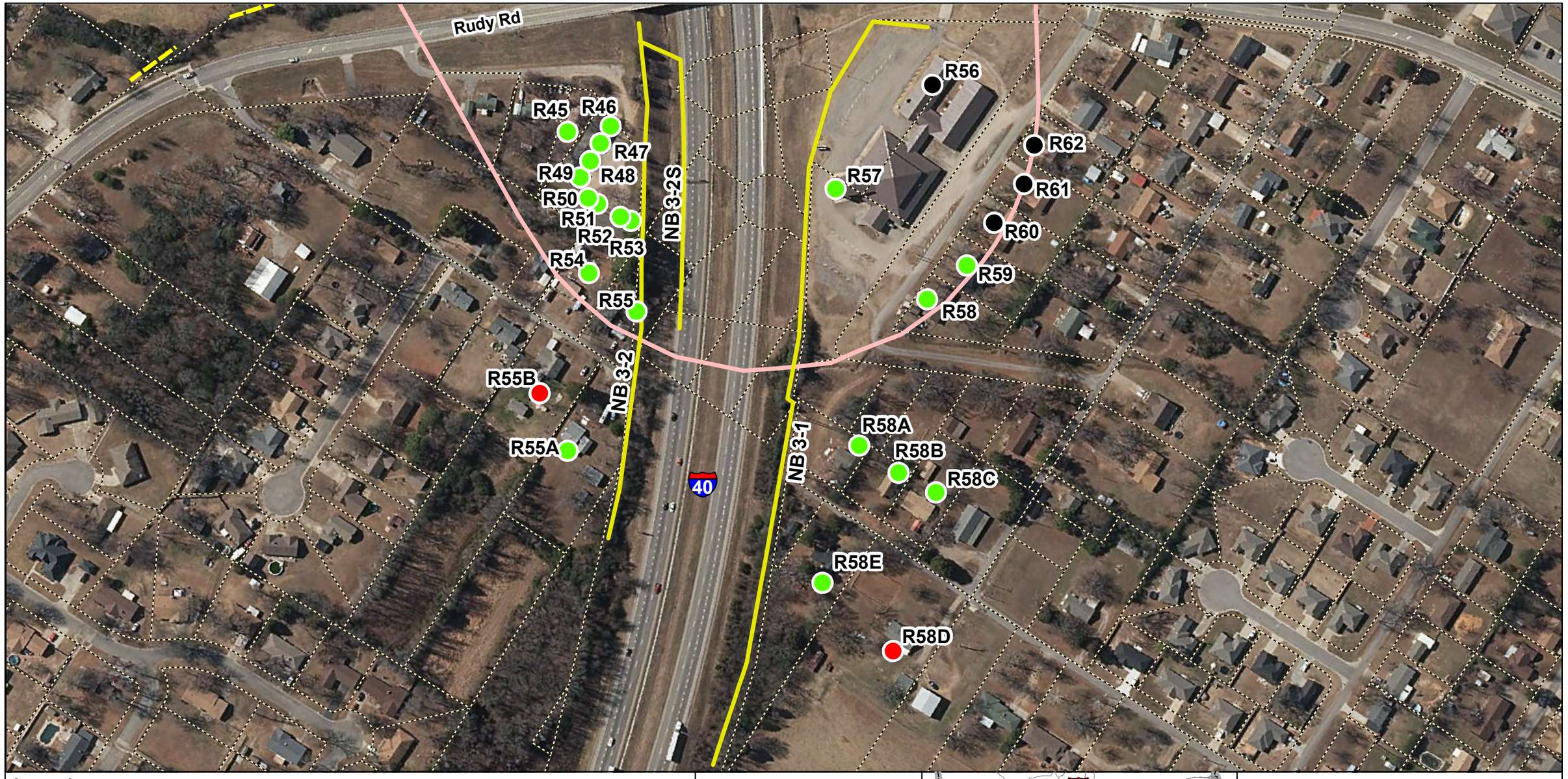


ATTACHMENT A-3
TRAFFIC NOISE BARRIERS MAP
Sheet 2 of 3

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

Source: ARDOT 30% Strip Map (January 2022).

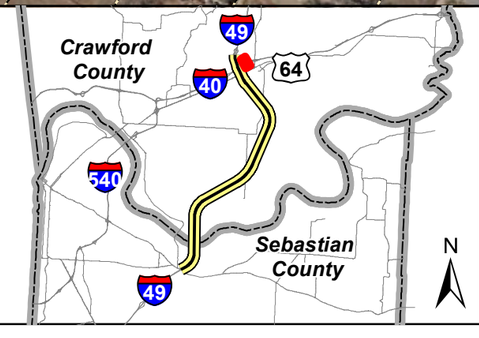


Legend

- Proposed Pavement Edge
- Existing ROW
- Proposed ROW
- Non-Impacted Receiver
- Non-Benefitted Receiver
- Benefitted Receiver
- Noise Study Area (NSA)
- Park Boundary
- Springhill Park Trail
- Not Feasible or Reasonable Barrier
- Parcel
- County

0 150 300 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



ATTACHMENT A-3
TRAFFIC NOISE BARRIERS MAP
Sheet 3 of 3

I-49 FEIS Re-evaluation
From Highway 22
To Interstate 40
Job 040748

Traffic Noise Study Report
Sebastian & Crawford Counties, Arkansas

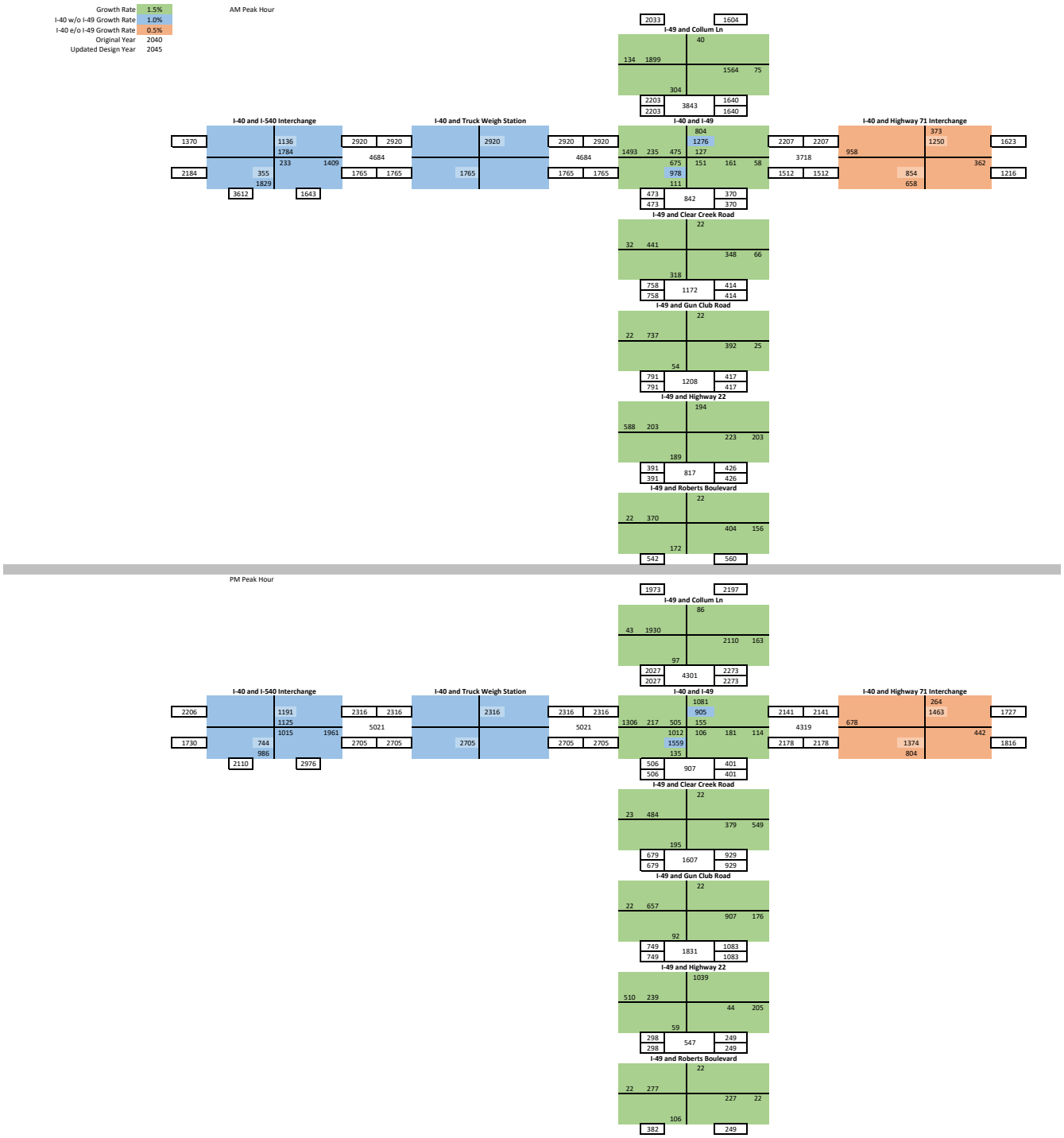
Source: ARDOT 30% Strip Map (January 2022).

ATTACHMENT B: PEAK HOUR TRAFFIC DATA, FIELD DATA SHEETS, SITE PHOTOGRAPHS, AND SOUND LEVEL CALIBRATION CERTIFICATES

Existing Peak Hour Traffic (2021)

Source: I-49 Interchange Justification Report, March 2022

Proposed Peak Hour Traffic (2045)



Source: I-49 Interchange Justification Report, March 2022

ST-1

Traffic Noise Measurement Data Sheet*

Date 11/15/21

District ARDOT

Project/Roadway I-49 Pavement Type ASPHALT

Location SPRINGHILL PARK (Trail)

Purpose SHORT-TERM MEASUREMENT SITE #1

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	(Yes)	No
Ambient (-10 dBA)	(Yes)	No

Traffic Volume/Mix/Speed ( )

Autos None (trail)

MT

HT

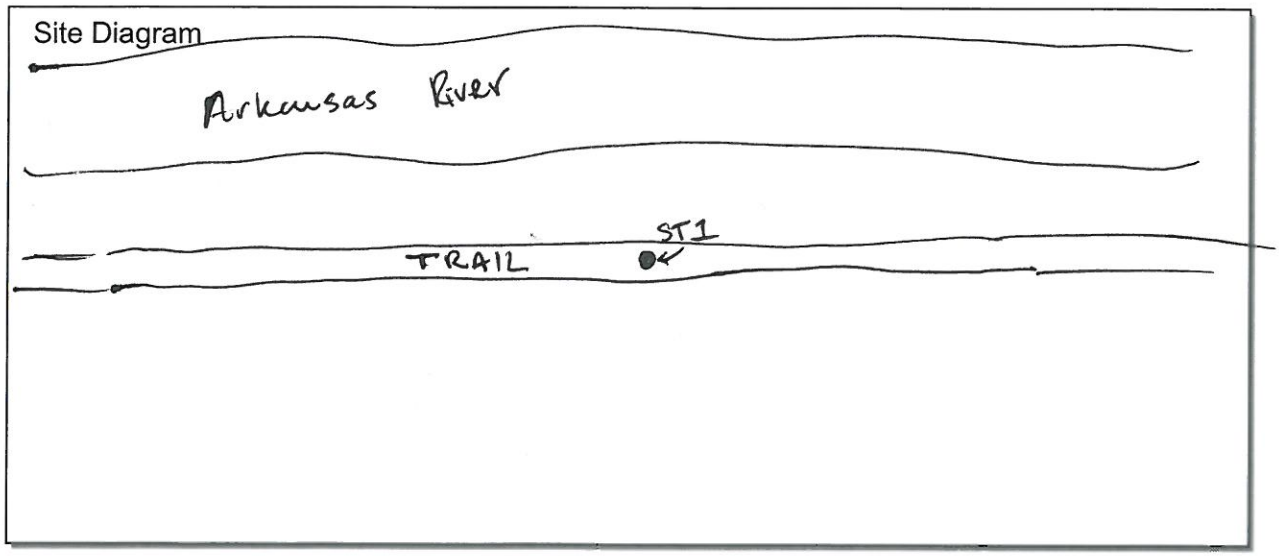
Measurement

Start Time 3:22 pm

Duration 15 mins

dBA L_{eq} 47.5

Site Diagram



Notes: Woodpecker, crickets, jet flyover 8 mins left, + 6 mins left, 4 mins left
2 mountain bikers

ST-1

Traffic Noise Measurement Data Sheet*

Date 11/19/21

District ARDOT

Project/Roadway Future I-49 Pavement Type Asphalt

Location Springhill Park (Trail)

Purpose Existing Sound Level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed ( )

Autos None (trail)

MT

HT

Measurement

Start Time 3:39 pm

Duration 15 mins

dBA L_{eq} 47.7

Site Diagram

See Sheet 2

Notes: jet 1 min in, jet 10 mins in, jet 13 mins in

ST-1

Traffic Noise Measurement Data Sheet*

Date 11/15/21

District ARDOT

Project/Roadway I-49 Pavement Type ~~Asphalt~~

Location Springhill Park (Trail)

Purpose Existing Sound Level

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed ( )

Autos

MT None (trail)

HT

Measurement

Start Time 3:55 pm

Duration 15 mins

dBA L_{eq} 44.5

Site Diagram

See sheet 1

Notes:

S2 #1

S1-2

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Rock/Dirt

Location S2 623 New Town Rd

Purpose Short term measurement

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ~~ANSI Type1~~ Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (30mph)

Autos ||

MT

HT

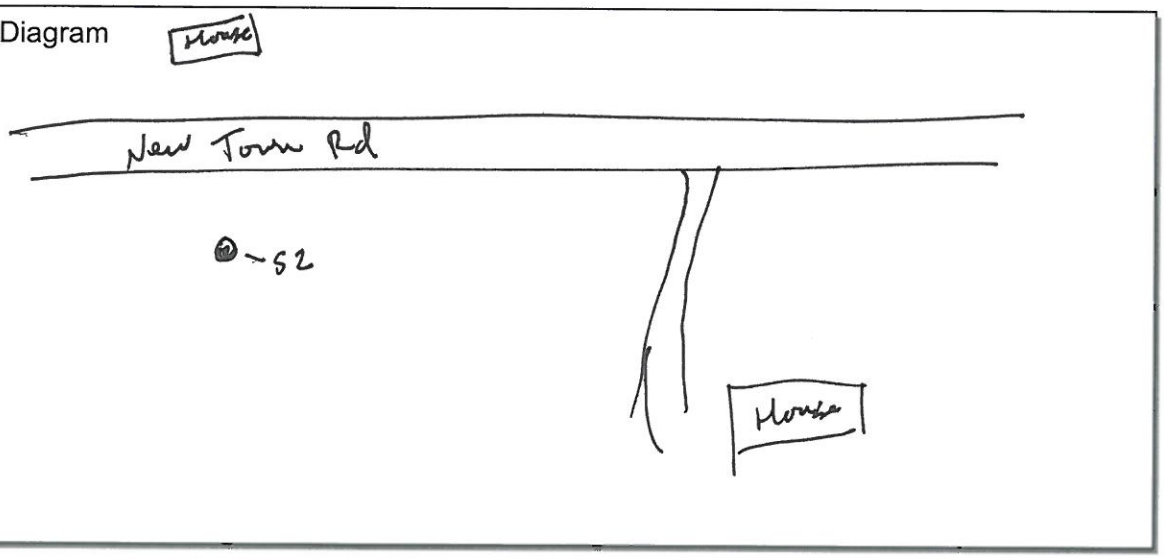
Measurement

Start Time 8:29

Duration 15 mins

dBA L_{eq} 51.5

Site Diagram



Notes: Dog barking @ 15 mins

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Rock/Dirt

Location S2 623 New Town Rd

Purpose Existing Sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (30 mph)

Autos 111

MT

HT

Measurement

Start Time 8:47 am

Duration 15 mins

dBA L_{eq} 52.1

Site Diagram

See sheet 1

Notes: geese flewover @ 14 mins

S2 #3

S1-2

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Rock/Dirt

Location S2 623 New Town Rd

Purpose Existing Sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~ ✓	No

Traffic Volume/Mix/Speed (25 mph)

Autos IIII

MT

HT

Measurement

Start Time 9:05

Duration 15 mins

dBA L_{eq} 45.6

Site Diagram

see sheet 1

Notes:

ST-3

Traffic Noise Measurement Data Sheet*

Date 11/12/21

District ARDOT

Project/Roadway I-49 Pavement Type Asphalt

Location 53 6000 Clear creek rd

Purpose Existing Sound level

Operator Connor Thom Initials CST

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (35 mph)

Autos |||| ||

MT

HT |

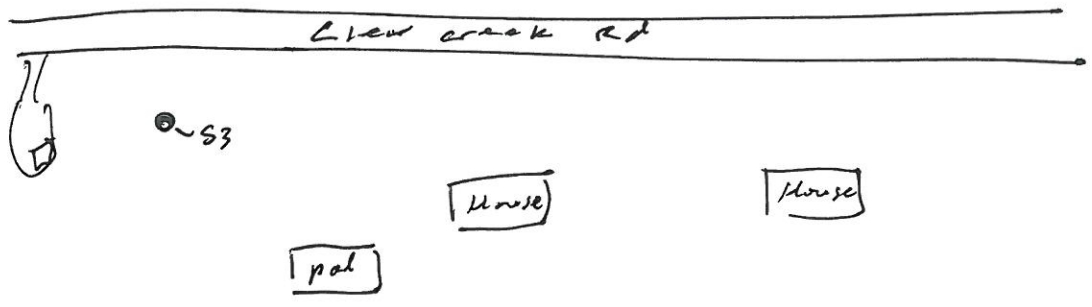
Measurement

Start Time 9:52 am

Duration 15 mins

dBA L_{eq} 59.7

Site Diagram



Notes: jet flyover at 14 mins - no spike

ST-3

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Asphalt

Location ST3 600 Clear Creek Rd

Purpose Existing Sound Level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type I Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (35mph)

Autos 𝍸 𝍸 𝍸 |||

MT

HT

Measurement

Start Time 10:08

Duration 15 mins

dBA L_{eq} 55.9

Site Diagram

see sheet 1

Notes:

ST-3

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type ASPHALT

Location CLEAR CREEK ROAD

Purpose Existing Sound Level

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2250

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	(Yes)	No
Ambient (-10 dBA)	(Yes)	No

Traffic Volume/Mix/Speed (35 mph)

Autos 𝍸 𝍸 𝍸 ||

MT

HT

Measurement

Start Time 10:25 am

Duration 15 MINUTES

dBA L_{eq} 56.3

Site Diagram

See sheet #1

Notes:

Traffic Noise Measurement Data Sheet*

ST-4

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Asphalt

Location S4 along Hwy 162 3040 S Hwy 162

Purpose existing sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (50mph)

Autos |||| |||| |||| |||| |||| ||||

MT 1

HT

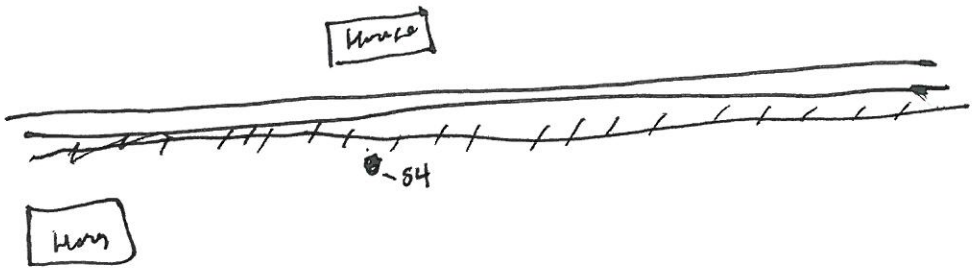
Measurement

Start Time 2:30

Duration 15 min

dBA L_{eq} 65.4

Site Diagram



Notes:

ST-4

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Asphalt

Location ST4 3040 S Hwy 162

Purpose Existing sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	Yes	No

Traffic Volume/Mix/Speed (50-55

Autos 𝍸 𝍸 𝍸 |||

MT ||

HT 1

Measurement

Start Time 2:46

Duration 15 min

dBA L_{eq} 62.6

Site Diagram

see sheet #1

Notes:

ST-4

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ADOT

Project/Roadway I-40 Pavement Type Asphalt

Location ST4 3040 S Hwy 162

Purpose

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	Yes	No

Traffic Volume/Mix/Speed (50mph

Autos 𝍸 𝍸 𝍸

Traffic Noise Measurement Data Sheet*

ST-5

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type Asphalt

Location ~~ST5~~ ST5 Collum Rd 1522 Collum ~~Rd~~ Ln

Purpose Existing Sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

MC 11

Traffic Volume/Mix/Speed (25 mph)

Autos ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~

MT

HT

~~||||~~ ~~||||~~ ~~||||~~ |||

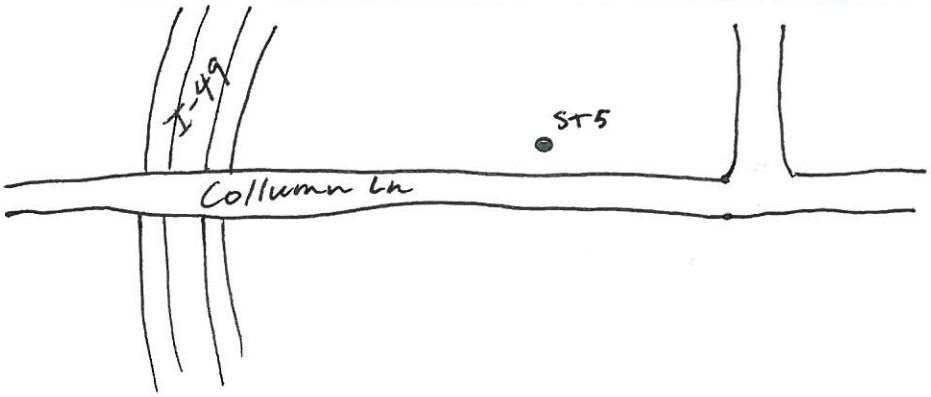
Measurement

Start Time ~~15 mins~~ 12:08 pm

Duration 15 mins

dBA L_{eq} 66.1

Site Diagram



Notes:

S5 - #2

ST-5

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway I-49 Pavement Type ASPHALT

Location ST5 1522 Collum Ln

Purpose Existing Sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	(Yes)	No
Ambient (-10 dBA)	(Yes)	No

Traffic Volume/Mix/Speed (35-55)

Autos 𝍸 𝍸 𝍸

55 #3
ST-5

Traffic Noise Measurement Data Sheet*

Date 12/16/21

District ARDOT

Project/Roadway I-49 Pavement Type ASPHALT

Location ST 5 Collum Ln 1522 Collum Ln

Purpose Existing Sound level

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	(Yes)	No
Ambient (-10 dBA)	(Yes)	No

Traffic Volume/Mix/Speed (25)

Autos 𝍸 𝍸 𝍸

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway Future I-49 Pavement Type Asphalt

Location V1 Grace Church along I-40 330 Rudy Rd

Purpose Validation

Operator Connor Horn Initials CSH

Equipment

Calibrator Bruel & Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Bruel & Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	(Yes)	No
Wind (≤12 mph)	(Yes)	No
Ambient (-10 dBA)	(Yes)	No

Traffic Volume/Mix/Speed (70 mph)

Autos See validation traffic count sheets

MT

HT

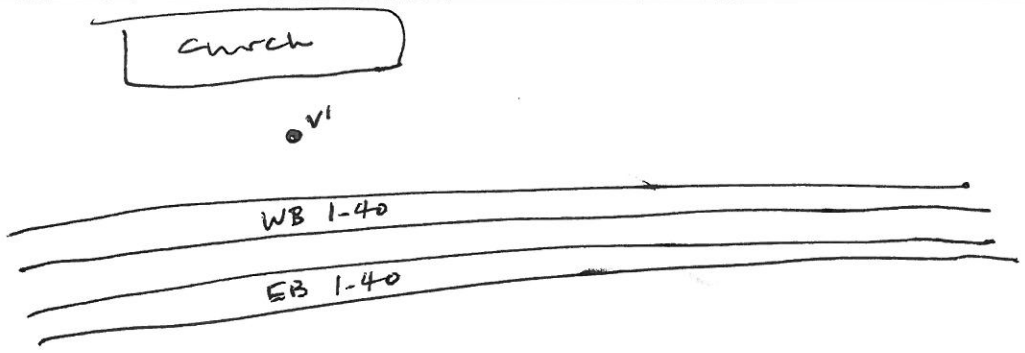
Measurement

Start Time 1:09 pm

Duration 15 min

dBA L_{eq} 73.3

Site Diagram



Notes:

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway Future I-49 Pavement Type Asphalt

Location V1 Grace Church along I-40 330 Rudy Rd

Purpose Validation

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel + Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (70mph)

Autos see validation traffic count sheets

MT

HT

Measurement

Start Time 1:26 pm

Duration 15 min

dBA L_{eq} 73.1

Site Diagram

See previous sheet 1

Notes:

Traffic Noise Measurement Data Sheet*

Date 11/16/21

District ARDOT

Project/Roadway Future I-49 Pavement Type Asphalt

Location V1 Grace Church along I-40 (330 Ruddy Rd)

Purpose Validation

Operator Connor Horn Initials CSH

Equipment

Calibrator Brüel Kjaer Type 4231

Meter/Analyzer ANSI Type 1 Brüel Kjaer Type 2240

Calibration 93.9

Weather/Conditions

Clear/Dry	~~Yes~~	No
Wind (≤12 mph)	~~Yes~~	No
Ambient (-10 dBA)	~~Yes~~	No

Traffic Volume/Mix/Speed (70mph)

Autos see validation

MT traffic count

HT sheets

Measurement

Start Time 1:42pm

Duration 15 min

dBA L_{eq} 73.4

Site Diagram

see previous sheet 1

Notes:

Noise Validation Traffic Counts

Project Name: I-49 Grace Church along I-40

Project Number:

~~1:09~~ Start 1:09

MC 1

Validation Site Location: V1 (NB/SB) WB 73.3

Measurement #1

Cars- [illegible]

Medium Trucks- III

Heavy Trucks- [illegible]

Validation Site Location: V1 (NB/SB) 73.1 [illegible] Start 1:26

Measurement #2

Cars- [illegible]

Medium Trucks- III

Heavy Trucks- [illegible]

Validation Site Location: V1 (NB/SB) 73.4 Start 1:42

Measurement #3

Cars- [illegible]

Medium Trucks- [illegible]

Heavy Trucks- [illegible]

Noise Validation Traffic Counts

Project Name: I-49
Project Number:

Validation Site Location: V1 (NB/SB) EB

Measurement #1

Cars- 𝍸 𝍸 𝍸

SITE PHOTOGRAPHS

Photo 1: View of short-term measurement (ST-1) at Springhill Park along the trail facing northwest.

Photo 2: View of ST-1 at Springhill Park along trail facing north.

Photo 3: View of ST-2 at single family residence 623 New Town Rd. facing north.

Photo 4: Looking east along New Town Rd. from (ST-2) 623 New Town Rd.

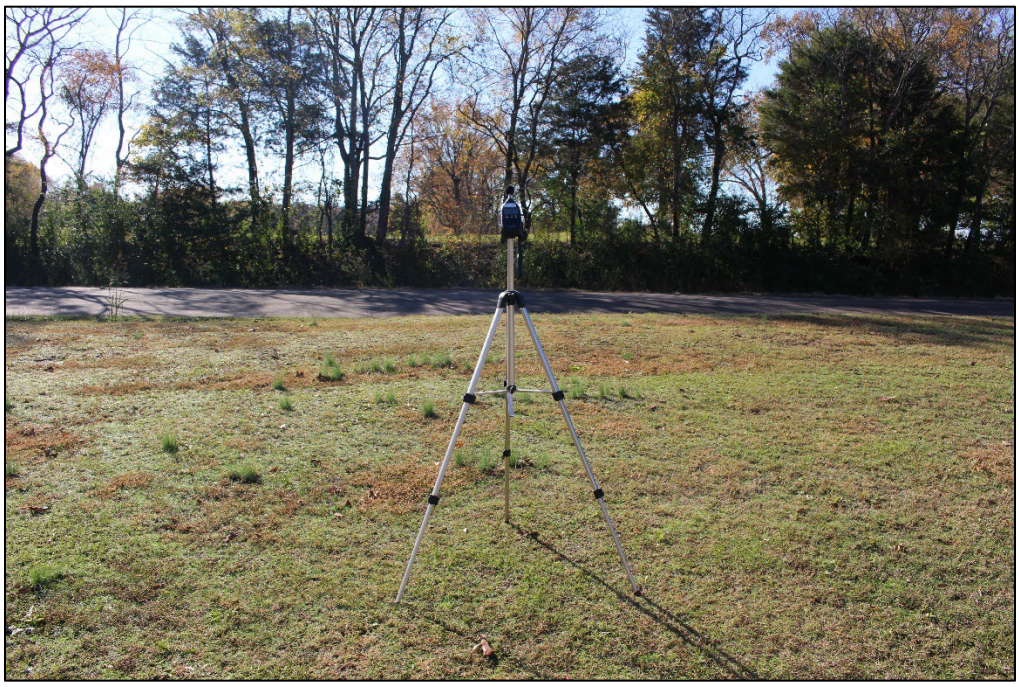


Photo 5: View of ST-3 at single family residence 600 Clear Creek Rd. facing south.

Photo 6: Looking west along Clear Creek Rd. from (ST-3) 600 Clear Creek Rd.

Photo 7: View of long-term measurement (LT-1) at single family residence 1330 Waterfront Rd. facing west.

Photo 8: Looking west along Waterfront Rd. from (LT-1) 1330 Waterfront Rd.

Photo 9: View of ST-4 at single family residence at 3040 S. Hwy. 162 facing north.

Photo 10: Looking north along S. Hwy.162 from (ST-4) 3040 S. Hwy. 162.

Photo 11: View of ST-5 at 1522 Collum Ln. facing southwest.

Photo 12: Looking west along (ST-5) Collum Ln. towards bridge over I-49.

Photo 13: View of validation measurement at 330 Rudy Rd. facing south towards I-40.

Photo 14: View of LT-2 at 330 Rudy Rd. facing south towards I-40.

Photo 15: Looking east along I-40 (LT-2 and Validation) from 330 Rudy Rd.

Photo 16: Looking west along I-40 (LT-2 and Validation) from 330 Rudy Rd.

Calibration Certificate

Certificate Number 2021002515

Customer:
The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	377B02	***Procedure Number***	D0001.8387		
Serial Number	326325	***Technician***	Abraham Ortega		
Test Results	**Pass**	***Calibration Date***	8 Mar 2021		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	25.2	°C	± 0.01 °C
Description	1/2 inch Microphone - FF - 0V	***Humidity***	25.6	%RH	± 0.5 %RH
		Static Pressure	101.43	kPa	± 0.03 kPa

Evaluation Method Tested electrically using an electrostatic actuator.

Compliance Standards Compliant to Manufacturer Specifications.

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017.
Test points marked with a ‡ do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis Model 2900 Real Time Analyzer	07/01/2020	07/01/2021	001230
Microphone Calibration System	08/25/2020	08/25/2021	001233
1/2" Preamplifier	12/18/2020	12/18/2021	001274
Agilent 34401A DMM	12/08/2020	12/08/2021	001329
Larson Davis CAL250 Acoustic Calibrator	09/01/2020	09/01/2021	003030
1/2" Preamplifier	04/13/2020	04/13/2021	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	07/09/2020	07/09/2021	006507
1/2 inch Microphone - RI - 200V	06/04/2020	06/04/2021	006510
1/2 inch Microphone - RI - 200V	07/31/2020	07/31/2021	006519
Larson Davis 1/2" Preamplifier 7-pin LEMO	07/09/2020	07/09/2021	006530
Larson Davis 1/2" Preamplifier 7-pin LEMO	07/24/2020	07/24/2021	006531

Frequency [Hz]	Actuator [dB]	Free Field [dB]	Lower limit [dB]	Upper limit [dB]	Result
251.19	0.00	0.00	-0.50	0.50	Pass ‡
316.23	-0.01	0.00	-0.50	0.50	Pass ‡
398.11	-0.02	-0.02	-0.50	0.50	Pass ‡
501.19	-0.03	0.01	-0.50	0.50	Pass ‡
630.96	-0.04	0.00	-0.50	0.50	Pass ‡
794.33	-0.06	0.03	-0.50	0.50	Pass ‡
1,000.00	-0.09	0.03	-0.50	0.50	Pass ‡
1,059.25	-0.10	0.03	-0.50	0.50	Pass ‡
1,122.02	-0.11	0.03	-0.50	0.50	Pass ‡
1,188.50	-0.12	0.03	-0.50	0.50	Pass ‡
1,258.93	-0.13	0.03	-0.50	0.50	Pass ‡
1,333.52	-0.14	0.04	-0.50	0.50	Pass ‡
1,412.54	-0.16	0.03	-0.50	0.50	Pass ‡
1,496.24	-0.18	0.02	-0.50	0.50	Pass ‡
1,584.89	-0.19	0.02	-0.50	0.50	Pass ‡
1,678.80	-0.21	0.02	-0.50	0.50	Pass ‡
1,778.28	-0.24	0.01	-0.50	0.50	Pass ‡
1,883.65	-0.26	0.02	-0.50	0.50	Pass ‡
1,995.26	-0.29	0.02	-0.50	0.50	Pass ‡
2,113.49	-0.32	0.02	-0.50	0.50	Pass ‡
2,238.72	-0.35	0.02	-0.50	0.50	Pass ‡
2,371.37	-0.39	0.02	-0.50	0.50	Pass ‡
2,511.89	-0.43	0.03	-0.50	0.50	Pass ‡
2,660.73	-0.47	0.04	-0.50	0.50	Pass ‡
2,818.38	-0.53	0.03	-0.50	0.50	Pass ‡
2,985.38	-0.58	0.04	-0.50	0.50	Pass ‡
3,162.28	-0.65	0.03	-0.50	0.50	Pass ‡
3,349.65	-0.72	0.02	-0.50	0.50	Pass ‡
3,548.13	-0.80	0.02	-0.50	0.50	Pass ‡
3,758.37	-0.88	0.02	-0.50	0.50	Pass ‡
3,981.07	-0.98	0.02	-0.50	0.50	Pass ‡
4,216.97	-1.08	0.03	-0.56	0.56	Pass ‡
4,466.84	-1.20	0.03	-0.63	0.63	Pass ‡
4,731.51	-1.33	0.04	-0.69	0.69	Pass ‡
5,011.87	-1.48	0.05	-0.75	0.75	Pass ‡
5,308.84	-1.63	0.07	-0.81	0.81	Pass ‡
5,623.41	-1.81	0.07	-0.88	0.88	Pass ‡
5,956.62	-2.00	0.07	-0.94	0.94	Pass ‡
6,309.57	-2.21	0.08	-1.00	1.00	Pass ‡
6,683.44	-2.44	0.08	-1.00	1.00	Pass ‡
7,079.46	-2.68	0.10	-1.00	1.00	Pass ‡
7,498.94	-2.96	0.11	-1.00	1.00	Pass ‡
7,943.28	-3.26	0.13	-1.00	1.00	Pass ‡
8,413.95	-3.59	0.14	-1.00	1.00	Pass ‡
8,912.51	-3.99	0.12	-1.00	1.00	Pass ‡
9,440.61	-4.43	0.09	-1.00	1.00	Pass ‡
10,000.00	-4.89	0.06	-1.00	1.00	Pass ‡
10,592.54	-5.51	-0.11	-1.13	1.13	Pass ‡
11,220.19	-5.98	-0.12	-1.25	1.25	Pass ‡
11,885.02	-6.40	-0.08	-1.38	1.38	Pass ‡
12,589.25	-6.78	-0.01	-1.50	1.50	Pass ‡
13,335.21	-6.99	0.20	-1.63	1.63	Pass ‡
14,125.38	-7.16	0.43	-1.75	1.75	Pass ‡

Calibration Certificate

Certificate Number 2021002527
Customer:
The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	LxT1	***Procedure Number***	D0001.8384		
Serial Number	0006392	***Technician***	Ron Harris		
Test Results	**Pass**	***Calibration Date***	9 Mar 2021		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	23.39	°C	± 0.25 °C
Description	SoundTrack LxT Class 1	***Humidity***	51.6	%RH	± 2.0 %RH
	Class 1 Sound Level Meter	***Static Pressure***	85.82	kPa	± 0.13 kPa
	Firmware Revision: 2.404				

Evaluation Method ***Tested with:*** ***Data reported in dB re 20 µPa.***

Larson Davis PRMLxT1L. S/N 070020
PCB 377B02. S/N 326168
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Self-generated Noise

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement	Test Result [dB]
A-weighted	40.27

-- End of measurement results--

-- End of Report--

Signatory: *Ron Harris*

Calibration Certificate

Certificate Number 2021002472

Customer:

The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	LxT1	***Procedure Number***	D0001.8378		
Serial Number	0006392	***Technician***	Ron Harris		
Test Results	**Pass**	***Calibration Date***	8 Mar 2021		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	23.46	°C	± 0.25 °C
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.404	***Humidity***	52.1	%RH	± 2.0 %RH
		Static Pressure	85.68	kPa	± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1L S/N 070020 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

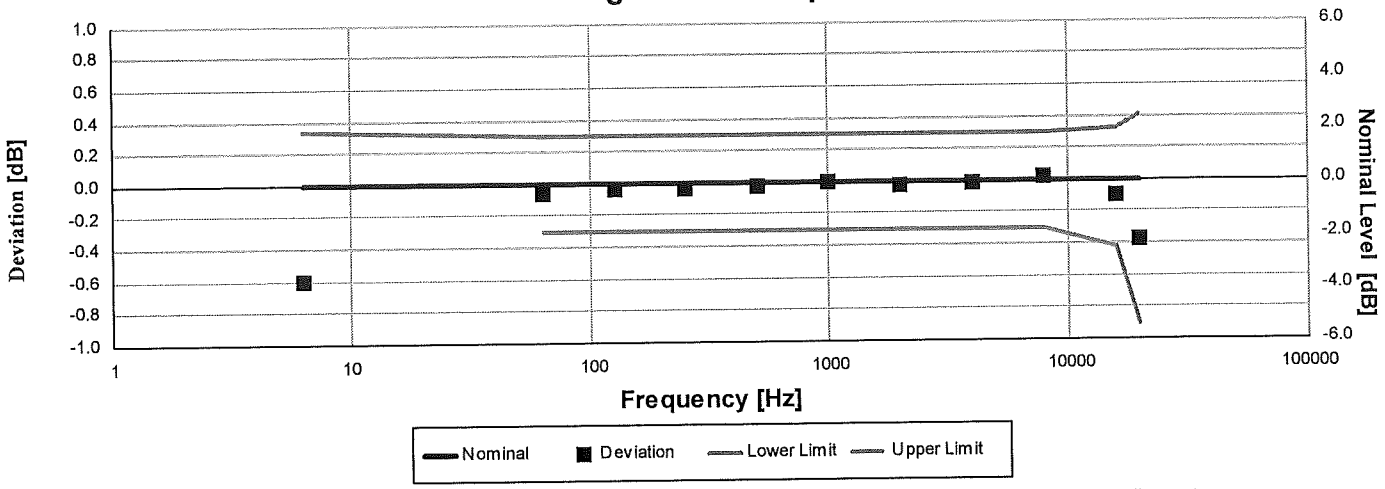
The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the organization issuing this report.

Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Z-weight Filter Response



Electrical signal test of frequency weighting performed according to IEC 61672-3:2013 13 and ANSI S1.4-2014 Part 3: 13 for compliance to IEC 61672-1:2013 5.5; IEC 60651:2001 6.1 and 9.2.2; IEC 60804:2000 5; ANSI S1.4:1983 (R2006) 5.1 and 8.2.1; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Deviation [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
6.31	-0.60	-0.60	-1.11	0.33	0.15	Pass
63.10	-0.07	-0.07	-0.30	0.30	0.15	Pass
125.89	-0.04	-0.04	-0.30	0.30	0.15	Pass
251.19	-0.04	-0.04	-0.30	0.30	0.15	Pass
501.19	-0.02	-0.02	-0.30	0.30	0.15	Pass
1,000.00	0.00	0.00	-0.30	0.30	0.15	Pass
1,995.26	-0.03	-0.03	-0.30	0.30	0.15	Pass
3,981.07	-0.02	-0.02	-0.30	0.30	0.15	Pass
7,943.28	0.03	0.03	-0.30	0.30	0.15	Pass
15,848.93	-0.09	-0.09	-0.42	0.32	0.15	Pass
19,952.62	-0.38	-0.38	-0.91	0.41	0.15	Pass

-- End of measurement results--

Peak Rise Time

Peak rise time performed according to IEC 60651:2001 9.4.4 and ANSI S1.4:1983 (R2006) 8.4.4

Amplitude [dB]	Duration [µs]		Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
116.15	40	Negative Pulse	117.53	116.05	118.05	0.15	Pass
		Positive Pulse	117.47	116.00	118.00	0.15	Pass
	30	Negative Pulse	116.58	116.05	118.05	0.15	Pass
		Positive Pulse	116.52	116.00	118.00	0.15	Pass

-- End of measurement results--

Positive Pulse Crest Factor

200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
114.15	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
104.15	3	-0.15	± 0.50	0.15 ‡	Pass
	5	-0.17	± 1.00	0.16 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
94.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	-0.28	± 1.50	0.15 ‡	Pass
84.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.14	± 1.00	0.15 ‡	Pass
	10	-0.25	± 1.50	0.15 ‡	Pass

-- End of measurement results--

Negative Pulse Crest Factor

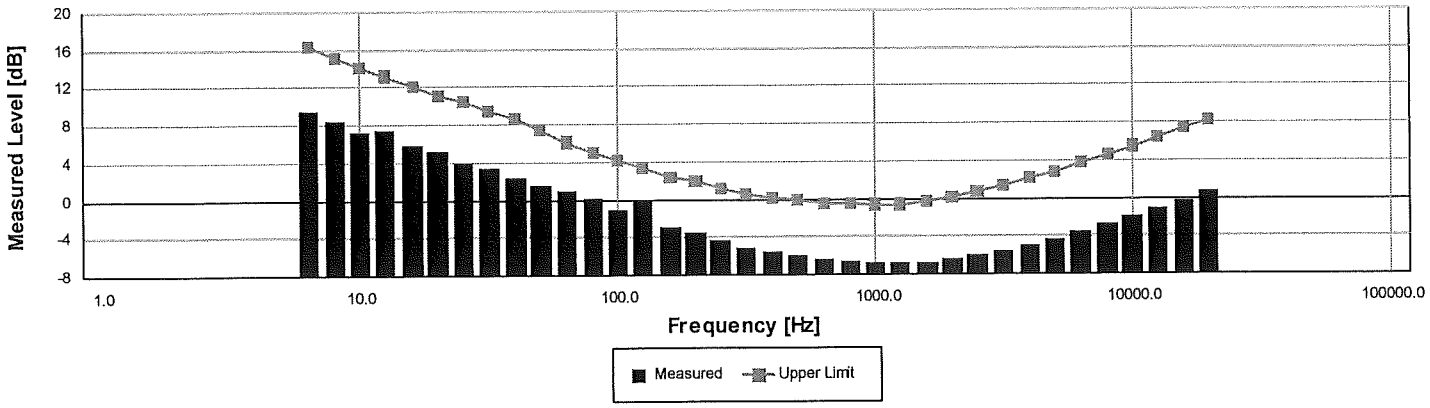
200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
114.15	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
104.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.11	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
94.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.14	± 1.00	0.15 ‡	Pass
	10	-0.24	± 1.50	0.15 ‡	Pass
84.15	3	-0.12	± 0.50	0.15 ‡	Pass
	5	-0.15	± 1.00	0.15 ‡	Pass
	10	-0.26	± 1.50	0.15 ‡	Pass

-- End of measurement results--

1/3-Octave Self-Generated Noise



The SLM is set to low range.

Frequency [Hz]	Test Result [dB]	Upper limit [dB]	Result
6.30	9.50	16.30	Pass
8.00	8.46	15.20	Pass
10.00	7.21	14.20	Pass
12.50	7.37	13.20	Pass
16.00	5.84	12.10	Pass
20.00	5.14	11.10	Pass
25.00	4.08	10.40	Pass
31.50	3.36	9.40	Pass
40.00	2.34	8.60	Pass
50.00	1.48	7.40	Pass
63.00	0.86	6.10	Pass
80.00	0.05	5.00	Pass
100.00	-1.09	4.20	Pass
125.00	-0.12	3.30	Pass
160.00	-2.97	2.40	Pass
200.00	-3.58	1.90	Pass
250.00	-4.37	1.20	Pass
315.00	-5.11	0.60	Pass
400.00	-5.54	0.20	Pass
500.00	-5.96	-0.10	Pass
630.00	-6.38	-0.50	Pass
800.00	-6.56	-0.50	Pass
1,000.00	-6.75	-0.60	Pass
1,250.00	-6.74	-0.60	Pass
1,600.00	-6.71	-0.20	Pass
2,000.00	-6.43	0.20	Pass
2,500.00	-6.04	0.70	Pass
3,150.00	-5.51	1.40	Pass
4,000.00	-4.95	2.10	Pass
5,000.00	-4.29	2.80	Pass
6,300.00	-3.59	3.70	Pass
8,000.00	-2.79	4.60	Pass
10,000.00	-1.98	5.50	Pass
12,500.00	-1.13	6.40	Pass
16,000.00	-0.25	7.40	Pass
20,000.00	0.64	8.30	Pass

-- End of measurement results--

Calibration Certificate

Certificate Number 2021003486

Customer:
The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	CAL200	***Procedure Number***	D0001.8386		
Serial Number	18754	***Technician***	Scott Montgomery		
Test Results	**Pass**	***Calibration Date***	30 Mar 2021		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	23	°C	± 0.3 °C
Description	Larson Davis CAL200 Acoustic Calibrator	***Humidity***	30	%RH	± 3 %RH
		Static Pressure	101.0	kPa	± 1 kPa

Evaluation Method The data is aquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	08/04/2020	08/04/2021	001021
Larson Davis Model 2900 Real Time Analyzer	04/02/2020	04/02/2021	001051
Microphone Calibration System	02/24/2021	02/24/2022	005446
1/2" Preamplifier	08/27/2020	08/27/2021	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/06/2020	08/06/2021	006507
1/2 inch Microphone - RI - 200V	06/04/2020	06/04/2021	006510
Pressure Transducer	07/17/2020	07/17/2021	007368

Output Level

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
114	101.3	114.00	113.80	114.20	0.14	Pass
94	101.0	94.01	93.80	94.20	0.15	Pass

-- End of measurement results--

Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
114	101.3	1,000.07	990.00	1,010.00	0.20	Pass
94	101.0	1,000.08	990.00	1,010.00	0.20	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
114	101.3	0.45	0.00	2.00	0.25 ‡	Pass
94	101.0	0.46	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Level Change Over Pressure

Tested at: 114 dB, 25 °C, 25 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
108.0	108.2	-0.02	-0.30	0.30	0.04 ‡	Pass
101.3	101.1	0.00	-0.30	0.30	0.04 ‡	Pass
92.0	91.8	0.01	-0.30	0.30	0.04 ‡	Pass
83.0	83.3	0.00	-0.30	0.30	0.04 ‡	Pass
74.0	73.9	-0.01	-0.30	0.30	0.04 ‡	Pass
65.0	65.4	-0.04	-0.30	0.30	0.04 ‡	Pass

-- End of measurement results--

Frequency Change Over Pressure

Tested at: 114 dB, 25 °C, 25 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
108.0	108.2	0.00	-10.00	10.00	0.20 ‡	Pass
101.3	101.1	0.00	-10.00	10.00	0.20 ‡	Pass
92.0	91.8	0.00	-10.00	10.00	0.20 ‡	Pass
83.0	83.3	0.00	-10.00	10.00	0.20 ‡	Pass
74.0	73.9	-0.01	-10.00	10.00	0.20 ‡	Pass
65.0	65.4	-0.01	-10.00	10.00	0.20 ‡	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 25 °C, 25 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
108.0	108.2	0.45	0.00	2.00	0.25 ‡	Pass
101.3	101.1	0.44	0.00	2.00	0.25 ‡	Pass
92.0	91.8	0.42	0.00	2.00	0.25 ‡	Pass
83.0	83.3	0.40	0.00	2.00	0.25 ‡	Pass
74.0	73.9	0.39	0.00	2.00	0.25 ‡	Pass
65.0	65.4	0.39	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Signatory: *Scott Montgomery*

LARSON DAVIS - A PCB PIEZOTRONICS DIV.
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ilac-MRA A2LA ACCREDITED Cert. #3622.01

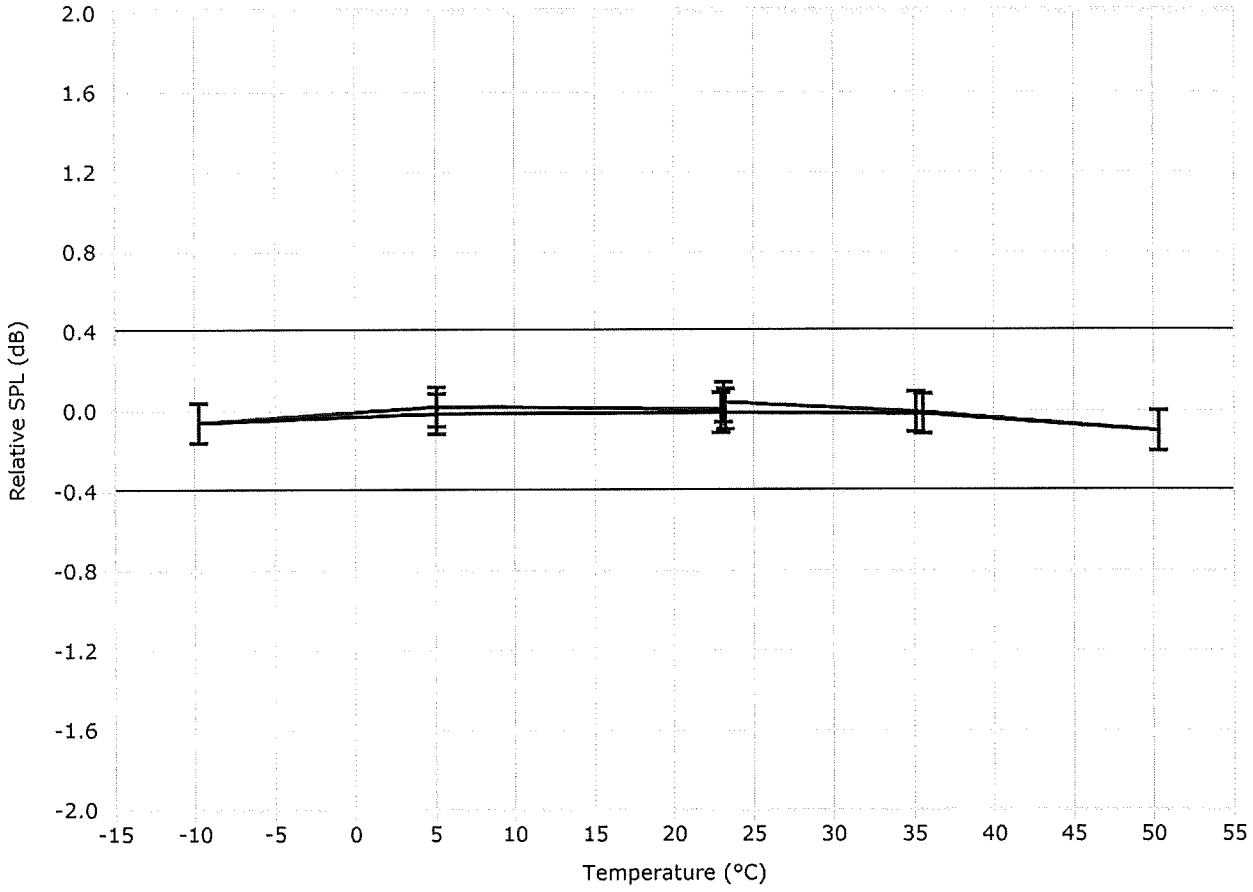
LARSON DAVIS A PCB PIEZOTRONICS DIV.

Model CAL200 Relative SPL vs. Temperature

Larson Davis Model CAL200 Serial Number: 18754

Model CAL200 Relative SPL vs. Temperature at 50% RH.
A 2559 Mic (SN: 2995) with a PRM902 Preamp (SN: 5726), station 19 was used to check the levels.

Test Date: 05 Mar 2021 11:39:56 AM



0.1dB expanded uncertainty at ~95% confidence level (k=2)

Sequence File: CAL200.SEQ

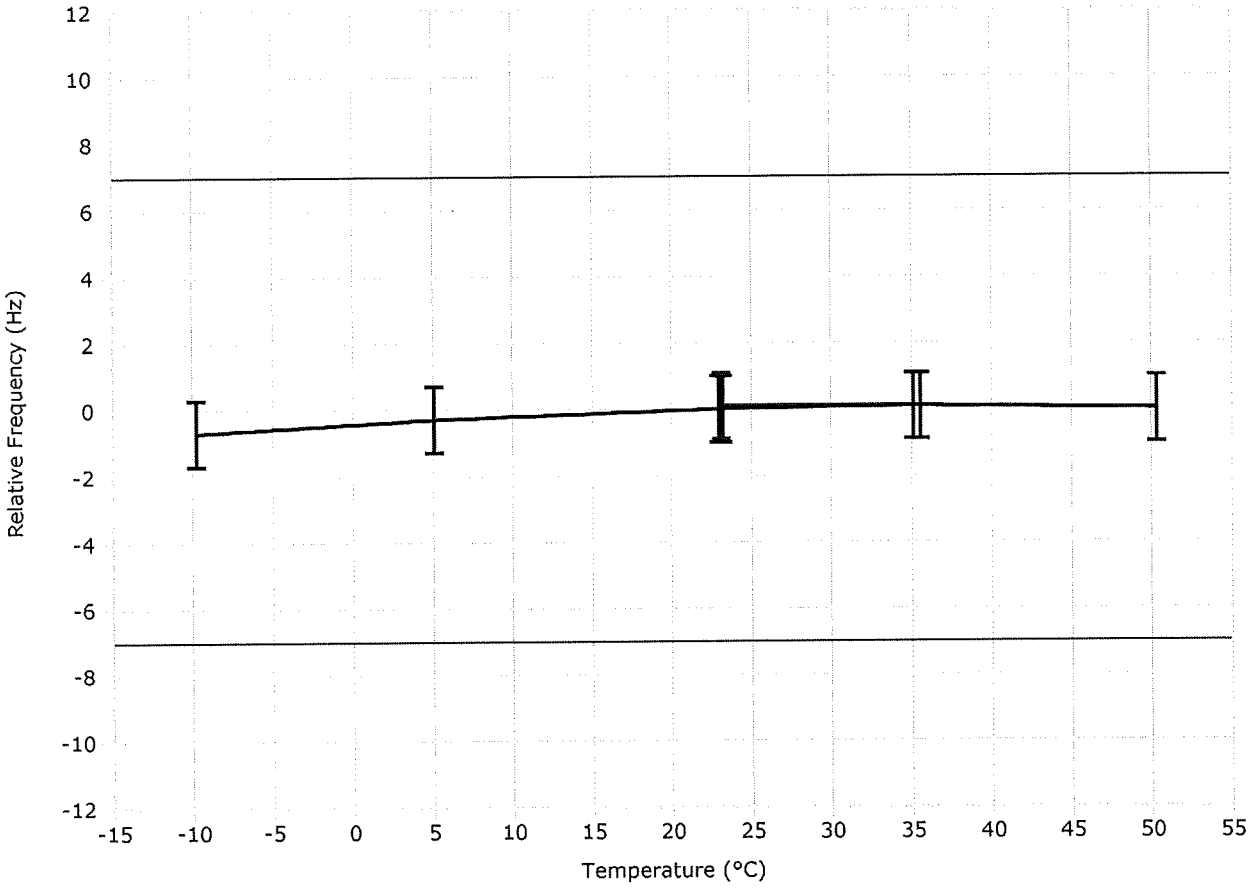
Test Location: Larson Davis, a division of PCB Piezotronics, Inc.
1681 West 820 North, Provo, Utah 84601
Tel: 716 684-0001 www.LarsonDavis.com

Model CAL200 Relative Frequency vs. Temperature

Larson Davis Model CAL200 Serial Number: 18754

Model CAL200 Relative Frequency vs. Temperature at 50% RH.
A 2559 Mic (SN: 2995) with a PRM902 Preamp (SN: 5726), station 19 was used to check the levels.

Test Date: 05 Mar 2021 11:39:56 AM



1.0 Hz expanded uncertainty at ~95% confidence level (k=2)

Sequence File: CAL200.SEQ

Test Location: Larson Davis, a division of PCB Piezotronics, Inc.
1681 West 820 North, Provo, Utah 84601
Tel: 716 684-0001 www.LarsonDavis.com

~ Certificate of Calibration and Compliance ~

Microphone Model: 377B02 Serial Number: 327173 Manufacturer: PCB

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Reference Equipment

Manufacturer	Model #	Serial #	PCB Control #	Cal Date	Due Date
National Instruments	PCIe-6351	1896F08	CA1918	10/19/20	10/19/21
Larson Davis	PRM915	146	CA2115	4/1/20	4/1/21
Larson Davis	PRM902	4394	CA1244	6/30/20	6/30/21
Larson Davis	PRM916	128	CA1553	10/14/20	10/14/21
Larson Davis	CAL250	4118	TA463	1/31/20	3/1/21
Larson Davis	2201	151	CA2073	11/24/20	11/24/21
Bruel & Kjaer	4192	3259547	CA3214	1/21/21	1/21/22
Larson Davis	GPRM902	5283	CA2152	3/31/20	3/31/21
Newport	iTHX-SD/N	1080002	CA1511	2/4/21	2/4/22
Larson Davis	PRA951-4	234	CA1154	11/11/20	11/11/21
Larson Davis	PRM915	136	CA1434	10/14/20	10/14/21
0	0	0	0	not required	not required
0	0	0	0	not required	not required
0	0	0	0	not required	not required
0	0	0	0	not required	not required

Frequency sweep performed with B&K UA0033 electrostatic actuator.

Condition of Unit

As Found: n/a

As Left: New Unit, In Tolerance

Notes

1. Calibration of reference equipment is traceable to one or more of the following National Labs; NIST, PTB or DFM.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 10012-1, ANSI/NCSL Z540.3 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Open Circuit Sensitivity is measured using the insertion voltage method following procedure AT603-5.
6. Measurement uncertainty (95% confidence level with coverage factor of 2) for sensitivity is +/-0.20 dB.
7. Unit calibrated per ACS-20.

Technician: Leonard Lukasik Date: February 15, 2021

ilac-MRA ACCREDITED
CALIBRATION CERT #1852.01

PCB PIEZOTRONICS VIBRATION DIVISION
3425 Walden Avenue, Depew, New York, 14043
TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

ID:CAL112-369823900A.69340

~ *Calibration Report* ~

Microphone Model: 377B02 Serial Number: 327173 Description: 1/2" Free-Field Microphone

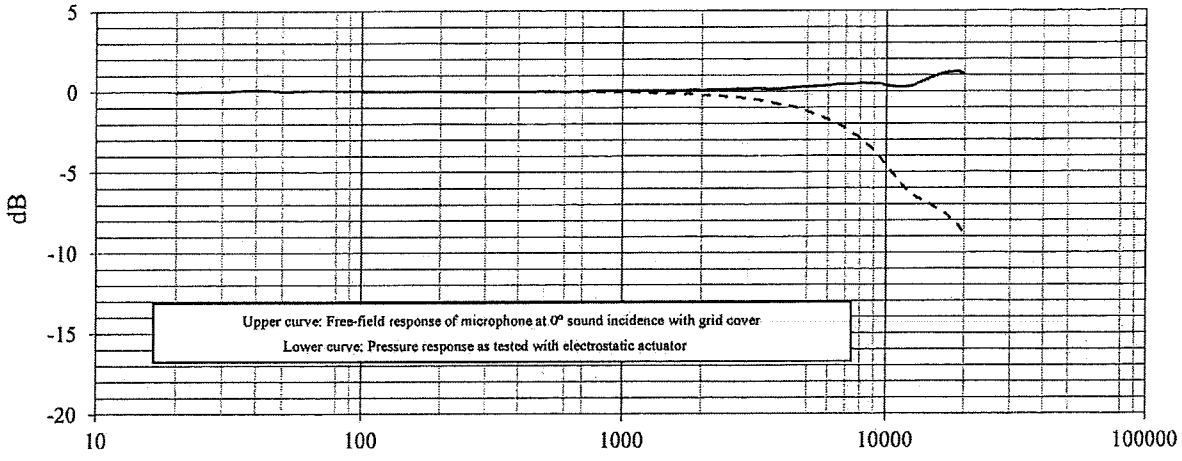
Calibration Data

Open Circuit Sensitivity @ 251.2 Hz: 51.58 mV/Pa
-25.75 dB re 1V/Pa

Polarization Voltage, External: 0 V
Capacitance: 13.6 pF

Temperature: 71 °F (22°C) Ambient Pressure: 998 mbar Relative Humidity: 29 %

Frequency Response (0 dB @ 251.2 Hz)



Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)
20.0	-0.04	-0.04	1679	-0.16	0.07	7499	-2.63	0.45	-	-	-
25.1	0.00	0.00	1778	-0.17	0.09	7943	-2.90	0.49	-	-	-
31.6	0.02	0.02	1884	-0.18	0.10	8414	-3.26	0.48	-	-	-
39.8	0.10	0.10	1995	-0.23	0.08	8913	-3.63	0.48	-	-	-
50.1	0.01	0.01	2114	-0.24	0.10	9441	-4.06	0.46	-	-	-
63.1	0.05	0.05	2239	-0.28	0.09	10000	-4.62	0.33	-	-	-
79.4	0.04	0.04	2371	-0.29	0.12	10593	-5.10	0.30	-	-	-
100.0	0.02	0.02	2512	-0.33	0.13	11220	-5.60	0.26	-	-	-
125.9	0.01	0.01	2661	-0.36	0.15	11885	-6.04	0.28	-	-	-
158.5	0.01	0.01	2818	-0.39	0.17	12589	-6.42	0.35	-	-	-
199.5	0.01	0.01	2985	-0.47	0.15	13335	-6.66	0.53	-	-	-
251.2	0.00	0.00	3162	-0.50	0.18	14125	-6.89	0.71	-	-	-
316.2	0.00	0.01	3350	-0.57	0.17	14962	-7.10	0.87	-	-	-
398.1	-0.01	-0.01	3548	-0.67	0.15	15849	-7.33	1.02	-	-	-
501.2	-0.02	0.02	3758	-0.74	0.16	16788	-7.58	1.14	-	-	-
631.0	-0.04	0.00	3981	-0.83	0.17	17783	-7.92	1.19	-	-	-
794.3	-0.04	0.05	4217	-0.90	0.21	18837	-8.29	1.22	-	-	-
1000.0	-0.05	0.07	4467	-0.99	0.24	19953	-8.91	1.03	-	-	-
1059.3	-0.06	0.07	4732	-1.11	0.26	-	-	-	-	-	-
1122.0	-0.07	0.07	5012	-1.25	0.28	-	-	-	-	-	-
1188.5	-0.08	0.07	5309	-1.40	0.30	-	-	-	-	-	-
1258.9	-0.09	0.07	5623	-1.56	0.32	-	-	-	-	-	-
1333.5	-0.10	0.08	5957	-1.73	0.34	-	-	-	-	-	-
1412.5	-0.13	0.06	6310	-1.89	0.40	-	-	-	-	-	-
1496.2	-0.15	0.05	6683	-2.11	0.41	-	-	-	-	-	-
1584.9	-0.14	0.08	7080	-2.36	0.42	-	-	-	-	-	-

Technician: Leonard Lukasik Date: February 15, 2021

ilac-MRA ACCREDITED
CALIBRATION CERT #1562.01

PCB PIEZOTRONICS™
VIBRATION DIVISION

3425 Walden Avenue, Depew, New York, 14043
TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

ID:CAL112-369623004-69340

Calibration Certificate

Certificate Number 2021011762

Customer:

The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	LxT1		***Procedure Number***	D0001.8384	
Serial Number	0006590		***Technician***	Ron Harris	
Test Results	**Pass**		***Calibration Date***	21 Sep 2021	
Initial Condition	As Manufactured		***Calibration Due***		
			Temperature	23.26 °C	± 0.25 °C
Description	SoundTrack LxT Class 1		***Humidity***	52.1 %RH	± 2.0 %RH
	Class 1 Sound Level Meter		***Static Pressure***	87.47 kPa	± 0.13 kPa
	Firmware Revision: 2.404				

Evaluation Method

Tested with:

Larson Davis PRMLxT1, S/N 075352
PCB 377B02, S/N 332769
Larson Davis CAL200, S/N 9079
Larson Davis CAL291, S/N 0108

Data reported in dB re 20 µPa.

Compliance Standards

Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

For 1/4" microphones, the Larson Davis ADP024 1/4" to 1/2" adaptor is used with the calibrators and the Larson Davis ADP043 1/4" to 1/2" adaptor is used with the preamplifier.

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Periodic tests were performed in accordance with precedures from IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part3.

Pattern approval for IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 successfully completed by Physikalisch-Technische Bundesanstalt (PTB) on 2007-10-09 reference number PTB-1.72-4034218.

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part 3, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organization responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013 / ANSI/ASA S1.4-2014/Part 2, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1; the sound level meter submitted for testing conforms to the class 1specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1.

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis CAL291 Residual Intensity Calibrator	2021-09-10	2022-09-10	001250
Hart Scientific 2626-H Temperature Probe	2021-02-04	2022-08-04	006767
Larson Davis CAL200 Acoustic Calibrator	2021-07-21	2022-07-21	007027
Larson Davis Model 831	2021-03-02	2022-03-02	007182
PCB 377A13 1/2 inch Prepolarized Pressure Microphone	2021-03-03	2022-03-03	007185
SRS DS360 Ultra Low Distortion Generator	2021-04-13	2022-04-13	007635
Larson Davis 1/2" Preamplifier for Model 831 Type 1	2020-10-06	2021-10-06	PCB0004783

Acoustic Calibration

Measured according to IEC 61672-3:2013 10 and ANSI S1.4-2014 Part 3: 10

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
1000 Hz	114.01	113.80	114.20	0.14	Pass

Loaded Circuit Sensitivity

Measurement	Test Result [dB re 1 V / Pa]	Lower Limit [dB re 1 V / Pa]	Upper Limit [dB re 1 V / Pa]	Expanded Uncertainty [dB]	Result
1000 Hz	-50.32	-52.44	-48.33	0.14	Pass

-- End of measurement results--

Acoustic Signal Tests, C-weighting

Measured according to IEC 61672-3:2013 12 and ANSI S1.4-2014 Part 3: 12 using a comparison coupler with Unit Under Test (UUT) and reference SLM using slow time-weighted sound level for compliance to IEC 61672-1:2013 5.5; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Expected [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
125	-0.24	-0.20	-1.20	0.80	0.23	Pass
1000	0.20	0.00	-0.70	0.70	0.23	Pass
8000	-2.45	-3.00	-5.50	-1.50	0.32	Pass

-- End of measurement results--

Certificate Number 2021011762

Self-generated Noise

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement	Test Result [dB]
A-weighted	40.86

-- End of measurement results--

-- End of Report--

Signatory: *Ron Harris*

Calibration Certificate

Certificate Number 2021011757

Customer:

The Modal Shop
10310 AeroHub Boulevard
Cincinnati, OH 45215, United States

Model Number	LxT1	***Procedure Number***	D0001.8378		
Serial Number	0006590	***Technician***	Ron Harris		
Test Results	**Pass**	***Calibration Date***	21 Sep 2021		
Initial Condition	As Manufactured	***Calibration Due***			
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.404	***Temperature***	23.34	°C	± 0.25 °C
		Humidity	53.4	%RH	± 2.0 %RH
		Static Pressure	87.46	kPa	± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1 S/N 075352 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 50.0 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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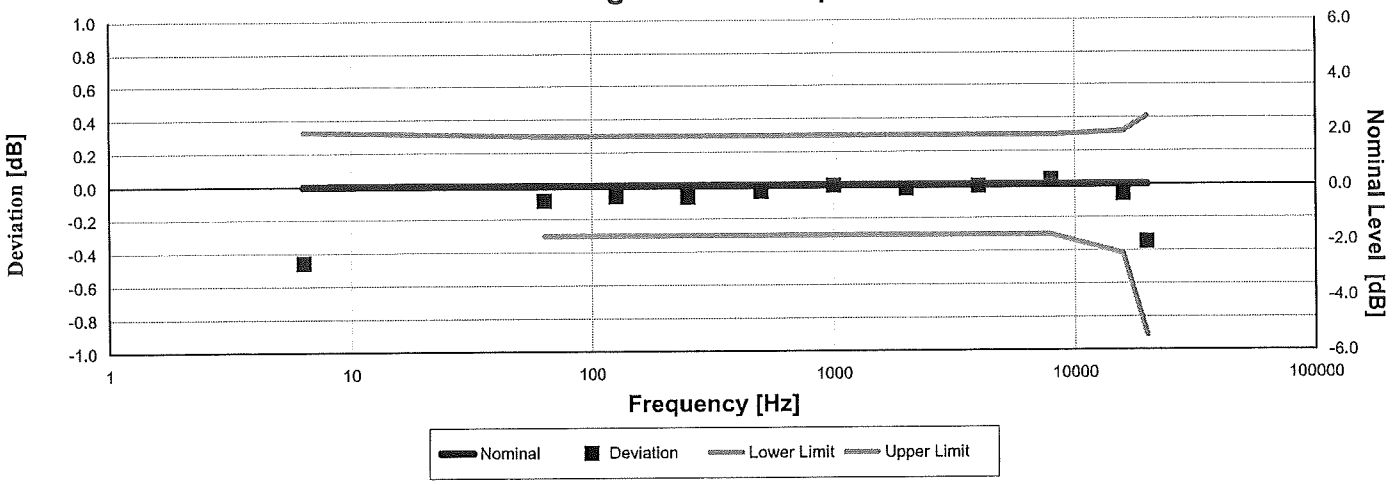
Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Hart Scientific 2626-H Temperature Probe	2021-02-04	2022-08-04	006767
SRS DS360 Ultra Low Distortion Generator	2021-01-05	2022-01-05	007118

Z-weight Filter Response

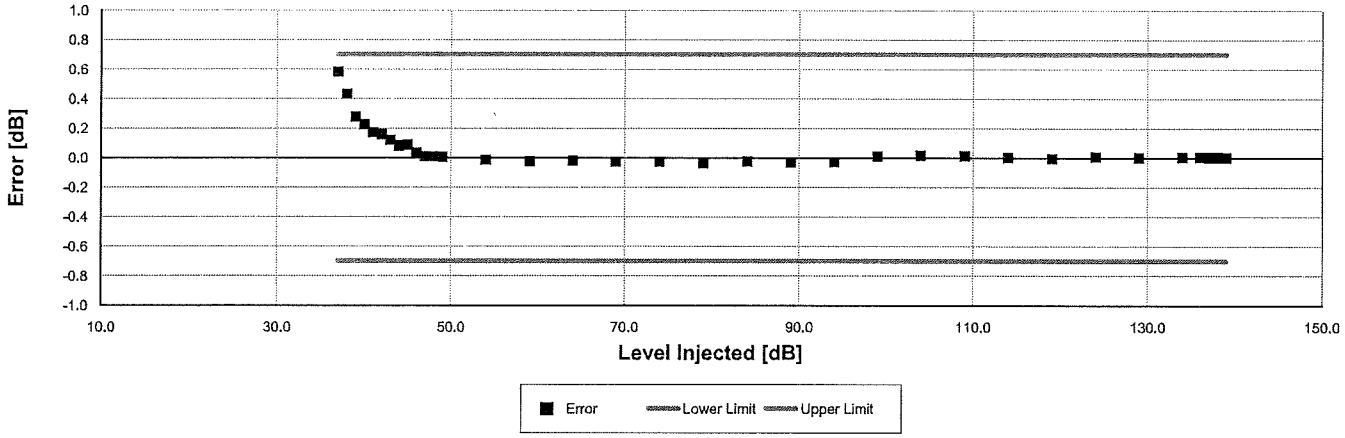


Electrical signal test of frequency weighting performed according to IEC 61672-3:2013 13 and ANSI S1.4-2014 Part 3: 13 for compliance to IEC 61672-1:2013 5.5; IEC 60651:2001 6.1 and 9.2.2; IEC 60804:2000 5; ANSI S1.4:1983 (R2006) 5.1 and 8.2.1; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Deviation [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
6.31	-0.46	-0.46	-1.11	0.33	0.15	Pass
63.10	-0.09	-0.09	-0.30	0.30	0.15	Pass
125.89	-0.06	-0.06	-0.30	0.30	0.15	Pass
251.19	-0.07	-0.07	-0.30	0.30	0.15	Pass
501.19	-0.04	-0.03	-0.30	0.30	0.15	Pass
1,000.00	0.00	0.00	-0.30	0.30	0.15	Pass
1,995.26	-0.02	-0.02	-0.30	0.30	0.15	Pass
3,981.07	-0.01	-0.01	-0.30	0.30	0.15	Pass
7,943.28	0.03	0.03	-0.30	0.30	0.15	Pass
15,848.93	-0.06	-0.06	-0.42	0.32	0.15	Pass
19,952.62	-0.35	-0.35	-0.91	0.41	0.15	Pass

-- End of measurement results--

A-weighted Broadband Log Linearity: 8,000.00 Hz



Broadband level linearity performed according to IEC 61672-3:2013 16 and ANSI S1.4-2014 Part 3: 16 for compliance to IEC 61672-1:2013 5.6, IEC 60804:2000 6.2, IEC 61252:2002 8, ANSI S1.4 (R2006) 6.9, ANSI S1.4-2014 Part 1: 5.6, ANSI S1.43 (R2007) 6.2

Level [dB]	Error [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
37.00	0.58	-0.70	0.70	0.16	Pass
38.00	0.43	-0.70	0.70	0.16	Pass
39.00	0.28	-0.70	0.70	0.16	Pass
40.00	0.23	-0.70	0.70	0.16	Pass
41.00	0.17	-0.70	0.70	0.16	Pass
42.00	0.16	-0.70	0.70	0.16	Pass
43.00	0.12	-0.70	0.70	0.17	Pass
44.00	0.08	-0.70	0.70	0.17	Pass
45.00	0.09	-0.70	0.70	0.16	Pass
46.00	0.03	-0.70	0.70	0.16	Pass
47.00	0.01	-0.70	0.70	0.16	Pass
48.00	0.01	-0.70	0.70	0.16	Pass
49.00	0.01	-0.70	0.70	0.16	Pass
54.00	-0.01	-0.70	0.70	0.16	Pass
59.00	-0.02	-0.70	0.70	0.16	Pass
64.00	-0.02	-0.70	0.70	0.16	Pass
69.00	-0.03	-0.70	0.70	0.16	Pass
74.00	-0.03	-0.70	0.70	0.16	Pass
79.00	-0.04	-0.70	0.70	0.16	Pass
84.00	-0.02	-0.70	0.70	0.16	Pass
89.00	-0.03	-0.70	0.70	0.16	Pass
94.00	-0.03	-0.70	0.70	0.16	Pass
99.00	0.01	-0.70	0.70	0.15	Pass
104.00	0.02	-0.70	0.70	0.15	Pass
109.00	0.01	-0.70	0.70	0.15	Pass
114.00	0.00	-0.70	0.70	0.15	Pass
119.00	0.00	-0.70	0.70	0.15	Pass
124.00	0.01	-0.70	0.70	0.15	Pass
129.00	0.00	-0.70	0.70	0.15	Pass
134.00	0.01	-0.70	0.70	0.15	Pass
136.00	0.01	-0.70	0.70	0.15	Pass
137.00	0.00	-0.70	0.70	0.15	Pass
138.00	0.00	-0.70	0.70	0.15	Pass
139.00	0.00	-0.70	0.70	0.15	Pass

-- End of measurement results--

Peak Rise Time

Peak rise time performed according to IEC 60651:2001 9.4.4 and ANSI S1.4:1983 (R2006) 8.4.4

Amplitude [dB]	Duration [µs]		Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
137.85	40	Negative Pulse	135.09	133.60	135.60	0.15	Pass
		Positive Pulse	135.09	133.60	135.60	0.15	Pass
	30	Negative Pulse	134.16	133.60	135.60	0.15	Pass
		Positive Pulse	134.12	133.60	135.60	0.15	Pass

-- End of measurement results--

Positive Pulse Crest Factor

200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
136.85	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
126.85	3	-0.13	± 0.50	0.15 ‡	Pass
	5	-0.14	± 1.00	0.16 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
116.85	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	-0.09	± 1.50	0.15 ‡	Pass
106.85	3	-0.15	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	-0.09	± 1.50	0.15 ‡	Pass

-- End of measurement results--

Negative Pulse Crest Factor

200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
136.85	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
126.85	3	-0.13	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
116.85	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	-0.07	± 1.50	0.15 ‡	Pass
106.85	3	-0.15	± 0.50	0.15 ‡	Pass
	5	-0.13	± 1.00	0.15 ‡	Pass
	10	-0.09	± 1.50	0.15 ‡	Pass

-- End of measurement results--

Gain

Gain measured according to IEC 61672-3:2013 17.3 and 17.4 and ANSI S1.4-2014 Part 3: 17.3 and 17.4

Measurement	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
0 dB Gain	93.96	93.90	94.10	0.15	Pass
0 dB Gain, Linearity	41.10	40.30	41.70	0.16	Pass
OBA Low Range	94.00	93.90	94.10	0.15	Pass
OBA Normal Range	94.00	93.20	94.80	0.15	Pass

-- End of measurement results--

Broadband Noise Floor

Self-generated noise measured according to IEC 61672-3:2013 11.2 and ANSI S1.4-2014 Part 3: 11.2

Measurement	Test Result [dB]	Upper limit [dB]	Result
A-weight Noise Floor	27.06	36.00	Pass
C-weight Noise Floor	26.98	35.00	Pass
Z-weight Noise Floor	32.58	39.00	Pass

-- End of measurement results--

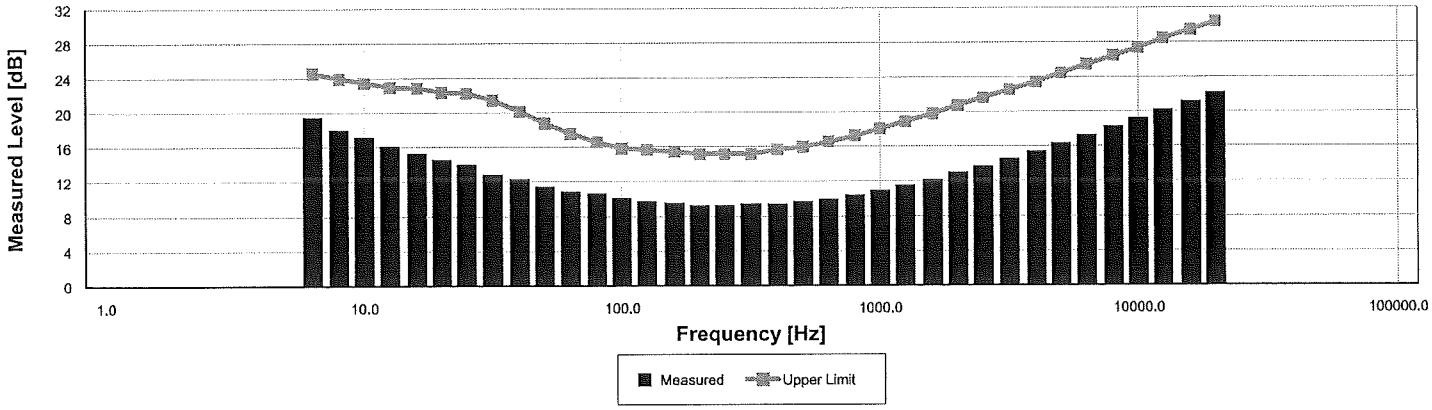
Total Harmonic Distortion

Measured using 1/3-Octave filters

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
10 Hz Signal	135.61	135.05	136.65	0.15	Pass
THD	-67.96		-58.00	0.01 ‡	Pass
THD+N	-63.41		-58.00	0.01 ‡	Pass

-- End of measurement results--

1/3-Octave Self-Generated Noise



The SLM is set to low range.

Frequency [Hz]	Test Result [dB]	Upper limit [dB]	Result
6.30	19.52	24.60	Pass
8.00	18.07	24.00	Pass
10.00	17.27	23.50	Pass
12.50	16.20	23.00	Pass
16.00	15.39	22.90	Pass
20.00	14.64	22.40	Pass
25.00	14.07	22.30	Pass
31.50	12.88	21.50	Pass
40.00	12.42	20.20	Pass
50.00	11.54	18.80	Pass
63.00	10.93	17.60	Pass
80.00	10.74	16.60	Pass
100.00	10.20	15.90	Pass
125.00	9.80	15.70	Pass
160.00	9.59	15.50	Pass
200.00	9.32	15.20	Pass
250.00	9.33	15.20	Pass
315.00	9.49	15.20	Pass
400.00	9.46	15.70	Pass
500.00	9.77	16.00	Pass
630.00	10.01	16.60	Pass
800.00	10.46	17.30	Pass
1,000.00	11.01	18.10	Pass
1,250.00	11.61	18.90	Pass
1,600.00	12.27	19.80	Pass
2,000.00	13.06	20.80	Pass
2,500.00	13.79	21.70	Pass
3,150.00	14.66	22.60	Pass
4,000.00	15.52	23.50	Pass
5,000.00	16.43	24.50	Pass
6,300.00	17.38	25.50	Pass
8,000.00	18.34	26.50	Pass
10,000.00	19.32	27.40	Pass
12,500.00	20.26	28.50	Pass
16,000.00	21.24	29.50	Pass
20,000.00	22.23	30.40	Pass

-- End of measurement results--

-- End of Report--

Signatory: *Ron Harris*

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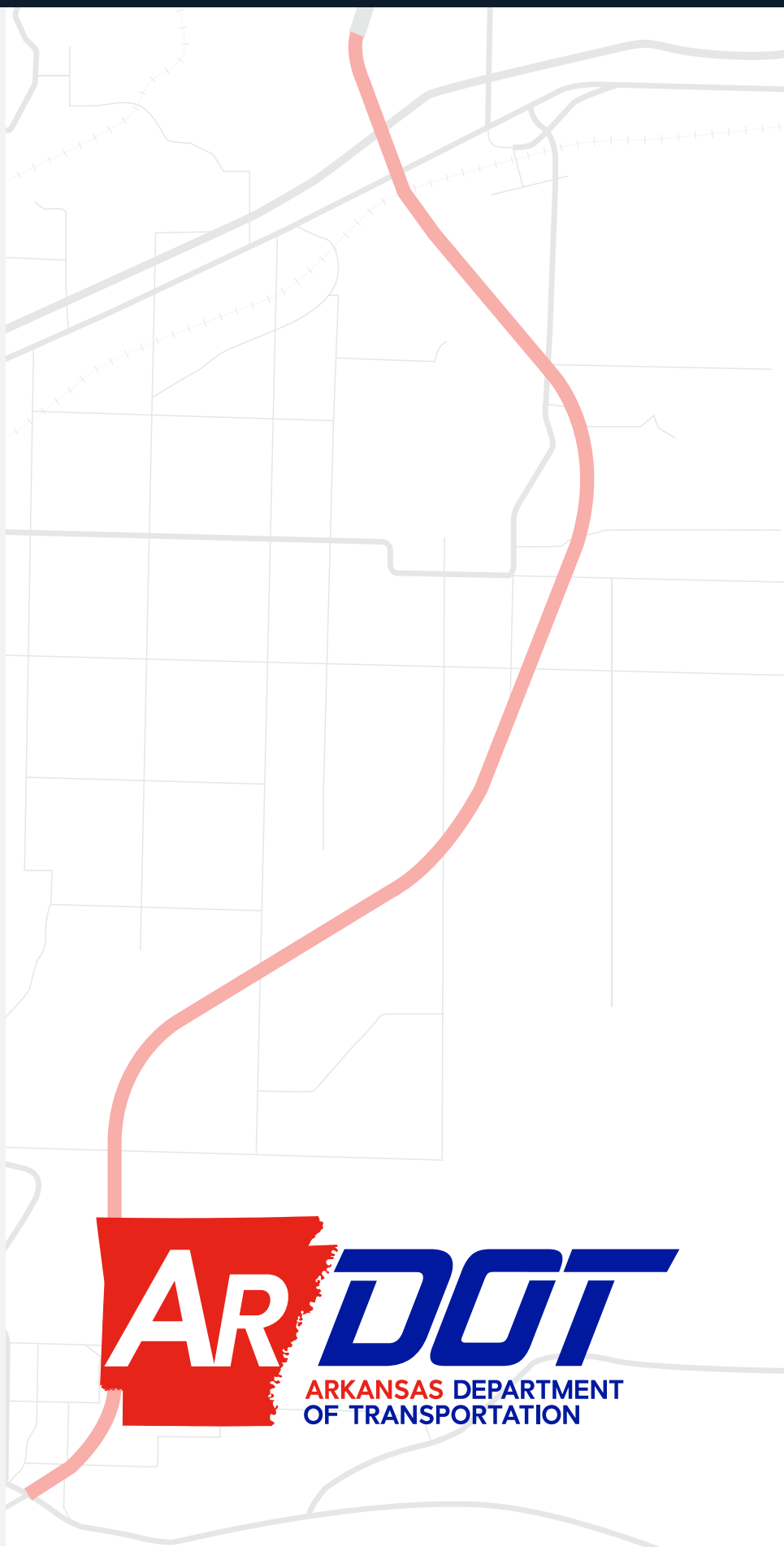
Date Calibrated 26 May 2015
Date Due
Technician D.Wilson
Brüel & Kjær
Type 2240

APPENDIX G

Visual Impacts Technical Report



I-49 Visual Impacts Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

April 2022
Job 001747

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 INTRODUCTION

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a reevaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 13.6 miles. The project location is depicted in **Figure 1-1**.

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation Project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed. From Highway 71 to Highway 22, Highway 549 (future Interstate 49) is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40, the existing Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads. North of Collum Lane the existing roadway includes one southbound lane and two northbound lanes which drops down to one lane in each direction north of Fine Way.

The purpose of this visual impact assessment (VIA) is to document potential visual impacts of the proposed project and propose measures to lessen any detrimental impacts identified using the updated FHWA Guidelines for the *Visual Impact Assessment of Highway Projects (2015),* published subsequent to the ROD for the 1997 FEIS. The 1997 FEIS provided a broad overview of visual impacts for the whole of the U.S. 71 Relocation conceptual alignment. Discussion of visual impacts from the 1997 FEIS, relevant to the current project alignment, were limited to view impacts at Springhill Park.

1.1 Regulatory Context

Visual impacts are included in the National Environmental Policy Act (NEPA) of 1969 and Council on Environmental Quality (CEQ) regulations to implement NEPA under the heading of aesthetics. NEPA requires Federal agencies to undertake an assessment of the environmental effects of their proposed actions prior to making decisions. Visual impacts are included among those environmental effects.

Section 136 of the Federal Aid Highway Act of 1970 (Public Law 91-605) requires consideration of aesthetic values in the highway planning process. Title 23 of the United States Code (U.S.C.), section 109(h) requires that final decisions on project development are made in the best overall public interest, taking into consideration a number of socio-economic, engineering, and environmental factors including, specifically, aesthetic values. FHWA satisfies the requirements in 23 U.S.C. 109(h) through the NEPA procedures described in 23 Code of Federal Regulations (CFR) 771.

The FHWA published the Guidelines for the *Visual Impact Assessment of Highway Projects* in January 2015 as an update to the original 1980s Visual Impact Assessment (VIA) document. This VIA technical memorandum incorporates the new guidelines into the visual analysis.

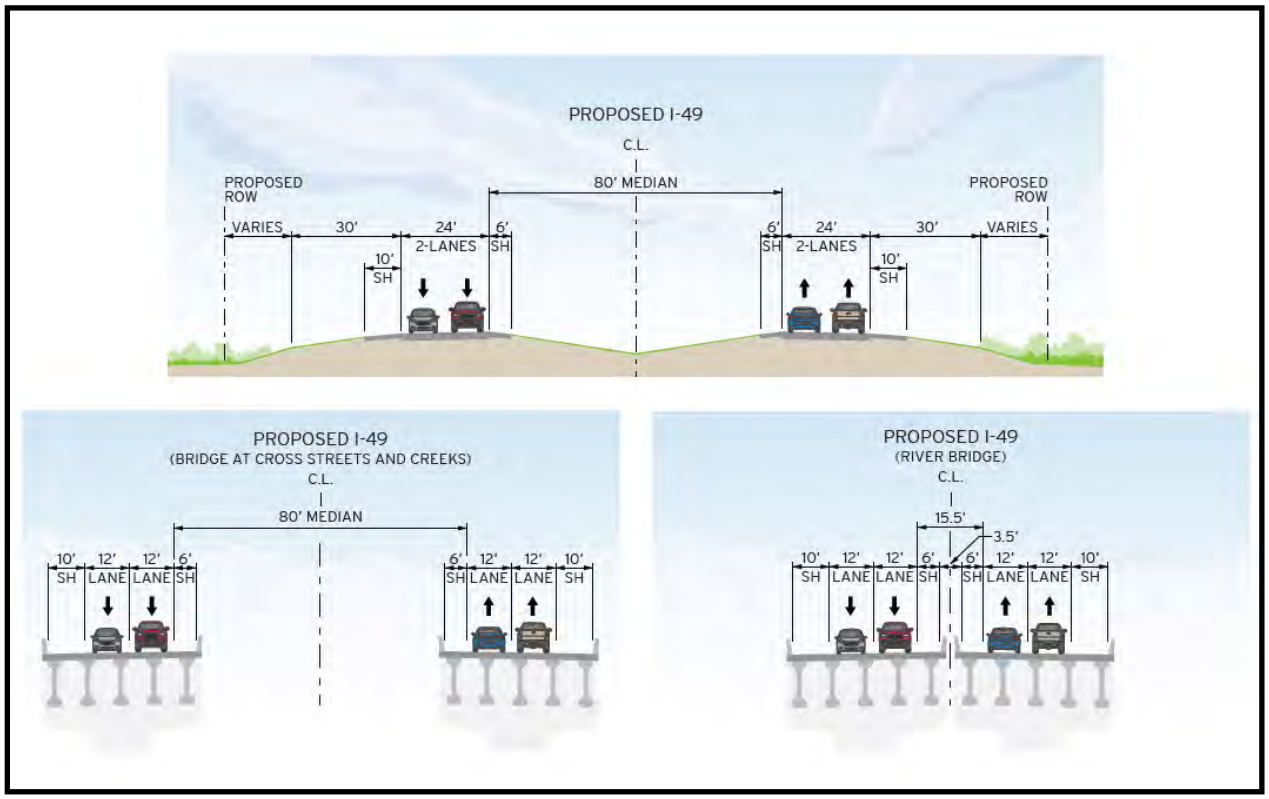
Figure 1-1: Project Location Map

2.0 PROJECT DESCRIPTION

The proposed project consists of four-lanes (two lanes in each direction) separated by a median. Since the 1997 FEIS, the approved general alignment has been refined. Interchanges are proposed with slip/loop[1] ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade separated intersections without ramps, are proposed for Thornhill Street, Highway 162 (Henry Street), Union Pacific Railroad (UPRR), and Highway 64 to maintain local access. Waterfront Road will be re-designed as an overpass. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements will extend west to Highway 162, allowing for increased access and mobility to Interstate 49. Illustrations of typical sections provided in **Figure 2-1.**

Lighting for the project will be limited to areas where it has been identified as necessary for safety purposes. Lighting will occur only at intersections and potentially merge points on the freeway but will not be continuous. All lighting will be installed in accordance with ARDOT specifications.

Figure 2-1: Interstate 49 Typical Section Illustrations[2]



[1] A slip lane is a road at a junction that allows people to change roads without entering an intersection. Minor roadways provided within an interchange to allow traffic to move from one major roadway to another are known as ramps; loop ramps reference a clover leaf interchange design.

[2] Typical Section Illustrations used in this VIA were designed for information purposes only; depictions are conceptual and for the convenience of reference. They should not be relied upon as representation, express or implied, of the final design and are subject to change.

3.0 AFFECTED ENVIRONMENT

The project is located in the Arkansas River Valley, generally defined as the area between the Ozark and Ouachita Mountains. The River Valley is characterized by flat lowlands, covered in fertile farmland and lakes periodically interrupted by high peaks and swaths of rolling hills.

The project begins within an urbanized area in the limits of the City of Barling, just northwest of Fort Chafee, at the current terminus of Highway 549. The project extends north over the Arkansas River through flat low land crop fields, up to the southeast limits of the small City of Kibler. The project continues north parallel to Kibler, crossing over Frog Bayou, where the project then meanders west and continues north parallel to the Bayou. It then extends over Highway 162 and Highway 64, where the project connects to the existing Interstate 49/Interstate 40 interchange with ramps.

The project area contains limited structural resources related to the project area's early development. Structures making up the cultural order reflect the area's transition from agrarian to 20th century suburban and rural-urbanized landscapes. The project area is largely composed of residential land developments from the last four to five decades, intermixed with areas of undeveloped agricultural lands all sporadically interrupted by small pockets of undisturbed forests. The project area[3] encompasses approximately 1,294 acres of lands located in Sebastian and Crawford counties, and parts of the project extend into the limits of the Cities of Barling, Kibler, and Alma.

3.1 Landscape Units

Generally environmental elements such as vegetation and terrain block views of the sites from foreground vantages beyond 1,000 feet. The Area of Visual Affect (AVE) generally comprises lands within 1,000 feet of the project area, as shown in **Attachment A-1** . The project area was aggregated into unique landscape units, defined by their similar compositions of natural and built forms. Landscape units, illustrated in **Attachment A-1**, are as follows:

- Landscape Unit 1: Taylor Avenue to Crawford Road
- Landscape Unit 2: Crawford Road to Thornhill Street
- Landscape Unit 3: Thornhill Street to New Town Road
- Landscape Unit 4: New Town Road to Frog Bayou
- Landscape Unit 5: Frog Bayou to Alma Highway (Highway 64)
- Landscape Unit 6: Alma Highway (Highway 64) to Maple Shade Road

Generally, the presence of vegetation was not considered when identifying the larger landscape unit boundaries because screening provided by vegetation may be altered by human actions such as clearing for development and natural phenomena such as fire. However, vegetation was considered in the Key Observation Point (KOP) analysis because of the impact vegetation may have on the viewer's perspective.

The visual analysis referenced the January 2022 project alignment (that corresponds to the 30%

[3] Project area is defined as the area needed to construct the proposed project.

Strip Map), aerial photos, a 3-D model, profile illustrations, photos of the project limits collected from other environmental disciplines, and photos from a site visit for the exclusive purpose of documenting visual elements of the affected environment. The information collected was organized into **Table 3-1** and used to develop a synthesis of each landscape unit's visual character.

On March 17, 2022, ARDOT facilitated a public meeting to solicit comments on the January 2022 project alignment. Following completion of the Comment Summary Report for the public meeting, and once comments pertaining to potential view impacts have been reviewed, it will be determined if further visual analysis is required.

3.2 Evaluation of Landscape Units

In **Table 3-1** each landscape unit was documented as having low, moderate, or high visual character.

- **Low Visual Character:** Areas may be visually disjointed, degraded, or jumbled, with no cohesion; composition of the landscape is not intact.
- **Moderate Visual Character:** Areas may be pleasing to the eye but lack vivid or memorable features. Visual conditions in the region are commonly of moderate quality.
- **High Visual Quality:** Areas must clearly or dramatically exhibit the character of the region, and be distinct, unique, or memorable. Landscape should achieve harmonious unity and cohesion. Dramatic terrain or exceptionally memorable urban areas may fall into this category.

Table 3-1 catalogues specific information observed in the project area's natural and cultural environments as part of the inventory assessment. For the inventory of the natural environment, land and vegetation resources in the landscape unit were inventoried. For the inventory of the cultural environment, visual attributes of cultural resources contained in the project's landscape unit include buildings, infrastructure, structures, artifacts, and art.

Like the attributes associated with natural visual resources, cultural resources interact with each other to form a composition. Some cultural visual resources, although not buildings, infrastructure, or structures, still can contribute to the visual character of the project area. Many of these items, classified by the visual impacts assessment process as artifacts, are those items that do not fit neatly into any other category. A discussion of methodology and impact analysis follows **Table 3-1.**

Table 3-1: Visual Character of the Natural and Cultural Environment

Landscape Unit	Visual Character of Natural Environment		Visual Character of Cultural Environment				Synthesis of Visual Character
	Land	Vegetation	Buildings	Infrastructure	Structures	Artifacts & Art	
LU1: Taylor Avenue to Crawford Road	Area is a gateway to Barling where the city transitions from fringe urban development (gas stations, motel, and restaurant) to wooded park lands. Previously forested flat lands between Church Street and H Street have been graded and cleared for the development of the loop interchange. North of H Street to Springhill Park and the Arkansas River, land is generally flat to rolling densely forested lowlands. Arkansas River presents itself as a vivid intact ecological unit; across the river are wooded lands that quickly transition to agricultural lowlands.	Near the Interstate 49 interchange, some lands show evidence of clearing and grubbing. North of H Street, lands are generally verdant with native vegetation. Approach to the Arkansas River is densely vegetated, to the north and south. North of the Arkansas River to Gun Club Road, lands are wooded and densely vegetated, with the exception of an embankment/sandbar. North of Gun Club Road, lands transition to flat agricultural crop lowlands.	This landscape unit is where the land transitions from urbanized (Barling and Fort Chafee) to a less developed rural landscape. The small City of Barling is located Just west of the project area, near the Interstate 49 interchange, where typical contemporary small scale highway commercial development fronts Highway 22. There are limited single family residential homes in this area. Highway 59 has previously served as the edge of Barling. That is, there has been little to no development occurring east of Highway 59 until recently, with the single-family subdivision development occurring just east of Highway 59 immediately north of E. H Street. North of H Street within the project area is Barling City Park; a frisbee golf course, restrooms, playground; active and passive open space make up the composition of the facility. North of H Street the project extends into SpringHill Park where the project extends over mountain bike trails.	Interstate 49 interchange ramps James Trimble Lock and Dam Highway 59 & Highway 22 Levee	Oil and gas production equipment	Barling City Park Springhill Park	High
LU2: Crawford Road to Thornhill Street	Flat rolling agricultural lands form a unified scenic composition	Agrarian and pastoral in composition. Visual character defined by formal organization and continuity of horizontal and vertical rows of low growth crops.	None observed	None observed	Dispersed across landscape are oil/gas production equipment, agricultural irrigation systems, and miscellaneous small scale industrial operations equipment.	None observed	High
LU3: Thornhill Street to New Town Road	Just east of Thornhill Road, crop lands terminate; there is a shift to rolling hills. The area is an intact rural unit, small farms, rural estates, poultry farms, etc. Hall Lake and Frog Bayou are both located in this LU.	Interspersed heavily wooded patches of forest are sporadic. Native vegetation has been largely cleared to accommodate low density rural estate homes and small farm residential development with landscaped yards (grass, trees, shrubs).	Large lot rural residential single-family homes Poultry farm.	Cell tower	None observed	Joe Smith Cemetery	Medium
LU4: New Town Road to Frog Bayou (where its adjacent to Waterfront Road)	Approaching the City of Kibler, still rural in nature, the unit becomes more developed with large subdivided residential lots. The landscape transitions to a suburban form in character as the project extends north along the eastern limits of Kibler.	The southern limits are composed of agricultural lands, but transition to interspersed wooded urbanized areas. Most native vegetation has been cleared to accommodate low density rural estate homes and small farm residential developments.	Intersection of Clear Creek Road and Alma Drive, and Waterfront Road generally support contemporary large lot suburban style homes. Other rural residential homes are dispersed at a low density.	Highway 62	None observed	None observed	Medium

Landscape Unit	Visual Character of Natural Environment		Visual Character of Cultural Environment				Synthesis of Visual Character
	Land	Vegetation	Buildings	Infrastructure	Structures	Artifacts & Art	
LU5: Frog Bayou to Alma Highway (Highway 64)	Generally, lands are flat and rolling agricultural.	Landscape generally composed of agriculture crops. Lands immediately adjacent to Frog Bayou support typical wetlands vegetation.	Rural homes, barns, and ancillary structures supporting agriculture.	None observed	None observed	Pitcock Cemetery Railroad tracks	Medium
LU6: Alma Highway (Highway 64) to Maple Shade Road	Generally, the composition of this LU is the existing Interstate 49/Interstate 40 interchange on rolling flatlands, the project terminates in this LU. Frog Bayou provides a visual strip of native vegetation relief.	ARDOT right of way (ROW) and Frog Bayou are vegetated and wooded. Just east of the existing interchange is the City of Alma, where vegetation has modified to support residential development and commercial land uses.	East of the project area is a conglomeration of suburban type single family residential homes, places of worship, and commercial businesses in contemporary commercial buildings. Alma Intermediate School campus is situated immediately east of the project terminus.	Highway 64 Elevated stacked Interstate 40/Interstate 49 interchange Cell tower High voltage electrical transmission lines	None observed	Alma Intermediate School Sports Stadium Billboards	Medium

Source: February (2022) site visit, Crawford and Sebastian County Assessor GIS, and Google Earth.

4.0 METHODOLOGY

4.1 Defining Visual Quality

Visual quality is an aesthetic issue. Aesthetics is the study of perceptual experiences that are pleasing to people. Visual quality is, therefore, the experience of having pleasing visual perceptions. Although background and former experiences make each individual's experience of visual quality unique, human perception of what constitutes a pleasing landscape is remarkably consistent, not only within a society but, across cultures.

For the purposes of the VIA, three aspects of visual perception determine the visual quality of a particular scene. Upon consideration of existing visual quality (the degree of impact and the compatibility of the impact – defined in **Section 4.4**) a designation of high, medium, or low was assigned to each KOP's visual quality based on the projected visual perception at the KOP in relation to the:

- **Natural Harmony:** Viewing the visual resources of the natural environment creates a sense of natural harmony. People interpret the visual resources of the natural environment as being harmonious or inharmonious.
- **Cultural Order:** Viewing the visual resources of the cultural environment creates in people a sense of cultural order. People interpret the visual resources of the cultural environment as being orderly or disorderly.
- **Project Coherence:** Viewing the visual resources of the project environment creates in people a sense of project coherence. People interpret the visual resources of the project environment as being either coherent or incoherent.

4.2 Viewer Group Sensitivity

The population affected by the proposed Project is referred to as viewers. There are two distinct groups of viewers: neighbors and travelers. Neighbors are those people who are adjacent to the Interstate and have "views of the road." Travelers are those people who are using the Interstate and have "views from the road." Neighbors and travelers can be further subdivided into categories that help to establish viewer preferences and their sensitivity to changes in visual resources. The compatibility of the impact and the sensitivity of the viewer yield the degree of the impact to visual quality.

Sensitivity to the impact is defined by the ability of viewers to see and care about a project's impacts. The sensitivity to impact is based on viewer sensitivity to changes in the visual character of visual resources. Viewers are either sensitive or insensitive to impacts. By itself, the sensitivity of the impact should not be confused or conflated with the value of the impact.

A proposed project may benefit visual quality by either enhancing visual resources or by creating better views of those resources and improving the experience of visual quality by viewers. Similarly, it may adversely affect visual resources.

4.3 Key Observation Points (KOP)

Within each landscape unit, KOPs were identified because they are critical or representative of the visual character of either the environment or the project. KOPs encompass views both of and

from the interstate and are representative of the range of views that are affected by the project.

KOPs for the project were identified with the intent of cataloging an image of critical baseline conditions to be used to assess visual impacts of the project. KOPs for the analysis provide an image of the point of view of the existing visual character and visual quality of the landscape unit anticipated to be altered by the proposed project.

Because a large part of the project limits is contained within a rural landscape, some KOPs were selected to capture the viewshed for clusters of rural residential homes, where it was anticipated a change in the landscape form would impact the view. Those who live in the area, near and adjacent to the project limits, were assumed to be the most sensitive to any visual change to the landscape. Specific information prepared for the KOP analysis can be found in **Attachment A-2** and **B**.

4.4 Assessing Impacts

Impacts are simply changes to the environment (measured by the compatibility of the impact) or to viewers (measured by sensitivity to the impacts). Together, the compatibility of the impact and the sensitivity of the impact yield the degree of the impact to visual quality.

- **Degree of the Impact:** Defined as either a beneficial, adverse, or neutral change to visual quality. A proposed project may benefit visual quality by either enhancing visual resources or by creating better views of those resources and improving the experience of visual quality by viewers. Similarly, it may adversely affect visual quality by degrading visual resources or obstructing or altering a desired view.
- **Compatibility of the Impact**: Defined as the ability of the environment to absorb the proposed project as a result of the project and the environment having compatible visual characters. The proposed project can be considered compatible or incompatible. By itself, compatibility of the impact should not be confused or conflated with the value of the impact.

Table 4-1 summarizes the existing visual quality, degree of impact from the project, compatibility of the impact, and resulting visual quality with the project. **Attachment A-2** illustrates the KOPs discussed in **Table 4-1**.

Table 4-1: Visual Impacts

Landscape Unit	Primary Viewer	Viewer Group Sensitivity	Key Observation Point (shown in Attachment A-2)	Build Alternative Changes in Landscape	Existing Visual Quality	Degree of Impact	Compatibility of the Impact	Resulting Visual Quality
LU1	Neighbor	Insensitive	KOP1: East Church Street & Highway 59	Current view: Bulk/mass of existing Interstate 49 overpass at Highway 22 and a large service station canopy are prominent visual features of background view, but with limited visibility beyond clusters of mature trees in open space (right of way and vacant lots) in the foreground. Effect: This KOP provides for a view from an established neighborhood at the eastern most limits of the City of Barling. Highway 59 has acted as a visual limit to urbanization at this KOP. Only recently has development occurred east of Highway 59, with the construction of a small contemporary subdivision (just north of KOP1). The project will not impact the visual cohesion of the neighborhood and may serve as a new eastern visual boundary/community marker.	Medium	Neutral	Compatible	Medium
LU1	Neighbor	Insensitive	KOP2: Barling City Park @ H Street & Park Road (parking area near restroom facilities)	Current view: Looking east towards the project from Barling City Park, beyond the parking area are undeveloped grasslands and open space, scattered clusters of mature trees are in the foreground, visually blending with thick clusters of mature trees in the background. Effect: Generally, the project will be developed at grade where it parallels the parks eastern boundary and will be located approximately 1,000 feet east of the park's most eastern limits. No visual impact is anticipated from the project.	High	Neutral	Compatible	High
LU1	Neighbor	Sensitive	KOP3: Springhill Park Shoreline near Boat Ramp	Current view: Surrounding the parking area and boat ramp, lands are densely forested with riverbank vegetation. The river corridor runs at an east/west horizontal at this KOP. The lock and dam/Highway 59 stretching over the river is visible to the west. To the east, the view of the river corridor does not include human made infrastructure, but barges traveling down the river transporting bulk items are not uncommon. Effect: The effect of the project at this KOP has not changed since the 1997 visual impact analysis.[4] Due to the dense vegetative cover of most areas of Springhill Park, the bridge spanning the park would not be visible from most areas within the grounds. It is not anticipated the project will be visible from the campground facilities (located west of the project limits) due to distance between the project limits and camping facilities. As predicted in the 1997 analysis, lands where the bridge spans over the Arkansas River would be visible from the boat launch and the parking area that serves the boat launch. While the addition of the bridge structure over the river will be a substantial change to the natural harmony of the visual landscape, the impact to the visual quality is anticipated to be minimal; as to the west, a viewer already sees the lock and dam/ Highway 59. The integration of a bridge span will change the visual composition but will be compatible with the existing scenic character.	High	Neutral	Compatible	High

[4] . From the 1997 FEIS Visual Effects: "*Due to the dense vegetative cover of most areas of the park, the bridge over the park would not be visible from most park facilities. At the crossing location, the bridge would be approximately 50 feet above the existing ground of the park and hidden within the forested canopy. The main spans of the bridge over the Arkansas River would be visible from the boat launching ramp and the overlook just as the lock and dam structure are currently visible from these locations. Lines 1 and 2[1] crossing the park would be visible from the end of the roadway through the park although no park facilities are located in this area. Should the Corps find a solution to the recurrent flooding problems and further develop the eastern area of the park, the bridge would be visible as visitors pass under it and for some distance beyond. As in the case of the existing camping areas and other park facilities, it is expected that dense vegetation associated with the future developed areas would obstruct the view of the bridge.*" References to Lines 1 and 2 in the 1997 FEIS refer to alternative alignments previously considered; both Lines 1 and 2 as illustrated in the 1997 FEIS are in close proximity to the Interstate 49 alignment project limits discussed within this VIA.

Landscape Unit	Primary Viewer	Viewer Group Sensitivity	Key Observation Point (shown in Attachment A-2)	Build Alternative Changes in Landscape	Existing Visual Quality	Degree of Impact	Compatibility of the Impact	Resulting Visual Quality
LU1	Neighbor	Sensitive	KOP4: Springhill Park Mountain Bike Trail	Current view: Since the FEIS Record of Decision (ROD), Springhill Park Trail, a mountain bike/hiking trail, was constructed within the project limits. The trail is within a densely forested area of the park with limited site visibility beyond the foreground. Effect: Portions of the trail under the bridge deck would need to be re-routed to avoid the proposed bridge substructure, which includes eight concrete bents. Bents would include no more than four bridge columns each, for a total of 32 bridge columns located within Springhill Park. Approximately 583 feet of the trail would be located under the bridge deck. The re-routing of the mountain bike trail is depicted in **Attachment B**. Bridge spans will be cleared of vegetation where the project and the mountain bike trail interact. The project will interrupt natural coherence, introducing a large man-made infrastructure project into the foreground of a mountain bike trail, with the bulk/mass of bridge spans shadowing a landscape cleared of vegetation. Concrete columns will be aligned in two rows at consistent repetitive intervals. Clearing activities beyond what would be required to accommodate these elements will be minimized. While the project disrupts the intactness of the natural landscape composition, users' attention and focus will be fleeting as they pass through the space on a bike. Sensitivity to the view is limited.	High	Adverse	Compatible	Medium
LU2	Traveler	Insensitive	KOP5: Crawford Road & Interstate 49	Current view: Low growing crop fields present a coherent agricultural composition in the foreground. Rolling wooded hills frame the background. The landscape is flat and void of ornamental or native landscape materials. Effect: The project will introduce the linear bulk of a roadway through open agricultural space. If land use patterns remain the same, a traveler will be able to observe agricultural operations in the foreground, framed by densely vegetated rolling hills over the horizon in the background. Because the area is sparsely populated and the viewers generally limited to those working the land, visual impacts to neighbors would be limited.	Medium	Beneficial	Compatible	Medium
LU3	Neighbor	Insensitive	KOP6: Thornhill Street and Shady Drive	Current view: The current views are wooded rolling hills in the foreground; background views are generally obstructed from dense native vegetation in the foreground. Thornhill Street provides a view corridor through this dense wooded area. Effect: With the project being at grade, where it runs perpendicular to Thornhill Street, it should not dominate the harmony of rolling hills landscape that act at a framework for the background view. In the foreground the project will be integrated into the landscape at grade without disrupting order.	Medium	Neutral	Compatible	Medium
LU3	Neighbor	Sensitive	KOP7: Alma Drive (1/2 mile north of East Elm Boulevard)	Current view: Homes along Alma Drive have views to the east composed of large swaths of open grasslands interrupted by sporadic patches of mature trees in the foreground. The flat open space allows for a clear background view of rolling wooded hills. Effect: Some foreground views from this stretch of Alma Drive will be visually impacted by the project. For some residential land uses with open space views to the east, the project will be visible in the foreground. Beyond the project limits, wooded hills will frame the background. The introduction of the project into the existing visual composition has the potential to change the rural visual character.	High	Adverse	Compatible	Medium

Landscape Unit	Primary Viewer	Viewer Group Sensitivity	Key Observation Point (shown in Attachment A-2)	Build Alternative Changes in Landscape	Existing Visual Quality	Degree of Impact	Compatibility of the Impact	Resulting Visual Quality
LU4	Neighbor	Sensitive	KOP8A and 8B: Waterfront Road and Waterfront Circle	Current view: Organized large lot rural residential suburban homes on rolling hills; development generally situated on a single east/west road. A densely vegetated bayou is situated in the southern foreground. The neighborhood is generally cleared, with large open lots. Substantial open space provides for neighborhood cohesion. Rolling wooded hills are often in the background of views throughout the neighborhood. Views from each side of the project, where it will cross under Waterfront Road were collected to provide a synthesis of typical visual impacts. Effect: Changes in landform will occur in the neighborhood as part of the project. The project is designed to be at grade on a compacted earth where it crosses through the residential development. A new Waterfront Road bridge will be constructed over Interstate 49. The project will alter the existing visual cohesion of the residential environment. Continuity of landscaped open space in the neighborhood will be interrupted with the bulk/mass of the project and an elevated roadway. Some residential homes making up the existing visual composition will be removed. Homes immediately adjacent to the project will have an amended view. The project will be in the foreground view for those living adjacent to the project, the change in landform may partially obstruct existing views.	High	Adverse	Compatible	Medium
LU5	Neighbor	Sensitive	KOP9: Hamer Road (just east of South Highway 162)	Current view: Composition is low growth crop fields in the foreground with vegetated/wooded hills in the background. Highway 162 runs north/south just west of residential homes on Hamer Road, the existing roadway is integrated into the existing view. Homes on Hamer Road face south. Effect: Where the roject intersects Highway 162, it will be a grade separated intersection without ramps. A compacted landform and elevated roadway may compose the foreground composition for viewers of in homes along Hamer Road. Background of treetops against the open sky should be visible beyond the foreground. Residents living closest to the intersection of Highway 162 and Hamer Road will have the most impacted foreground view at this KOP due to proximity of the project limits.	High	Adverse	Compatible	Medium
LU6	Traveler	Insensitive	KOP10: Highway 64 & Frog Bayou	Current view: This area transitions form rural to urban. Billboards line the highway just outside of right of way with high power transmission lines above, as travelers approach the City of Alma on a four-lane divided median highway (in the east bound travel lanes). On the north side of the road, a cleared field is in the foreground, elements of Interstate 49 peek through vegetation. Effect: While the project will have its largest physical presence at this location, because the visual quality of this landscape unit is disjointed, the geometry of the project may bring a sense of organization, cohesion, and unity to the composition of the built environment.	Low	Beneficial	Compatible	Medium
LU6	Neighbor	Insensitive	KOP11: Rudy Road and Ray Lane	Current view: Beyond the exit to this neighborhood via Ray Lane, across Rudy Road, there is a slope down in topography. In the foreground, treetops generally obstruct a view beyond Rudy Road, providing glimpses of the existing Interstate 49 elevated on-ramps. Effect: The view of the project from this established neighborhood should be limited due to distance of the project, topography, and vegetation.	Medium	Neutral	Compatible	Medium

5.0 IMPACTS TO VISUAL QUALITY

5.1 Construction Impacts

Construction impacts would be temporary in nature but would be visible to most viewer groups. Demolition of some structures would affect visual form of the site, including removal of buildings, trees, and roads. Mature trees or large areas of vegetation may be removed. Staging areas may contain stockpiles of materials, lighting, signage, fences, and presence of large equipment such as cranes, scaffolding, and earthmoving equipment. Additional trucks and equipment would travel to and from the site. The construction site would represent a visual nuisance for the surrounding viewers; however, it would be temporary and typical of roadway projects where construction is occurring.

If nighttime work occurs, the construction contractor would minimize project-related light and glare, consistent with safety considerations. Portable lights may be operated at the lowest practicable wattage and height would be minimized. Lights would be screened and directed downward toward work activities and away from the night sky and nearby residents. The number of nighttime lights used would be minimized to the extent practicable.

5.2 Operational Impacts

Operational features that may affect visual quality include functional and ornamental lighting in the corridor, vehicular headlights, changeable message signs, vegetation removal, and glare from reflective materials.

Because lighting for the project will not be continuous but be limited to areas where it has been identified as necessary for safety purposes, at intersections and potentially merge points on the freeway, operational impacts are anticipated to be limited.

5.3 Environment Impacts

Impacts to the project environment would include the visual impacts of the built facilities (elevated interchange, direct connectors, main lanes, frontage roads, and underpass). The following impacts would be typical of the build alternative:

- Changes to landforms through grading and adding retaining and noise walls;
- Changes to building mass, such as removal of some existing buildings and construction of new transportation structures; and
- Changes to vegetation, such as removal of existing vegetation and planting of new vegetation.

5.4 Mitigation

Potential mitigation measures include landscaping treatments to enhance the visual character. Such treatments would include incorporating landscaping along the transportation corridor, as appropriate, to help integrate the project into existing land use patterns. Landscaping would include regionally native plants for landscaping and implementing design and construction practices that minimize adverse effects on the natural habitat. To the extent possible, the proposed Project would continue to be designed to create an aesthetically and visually pleasing experience for both roadway users and roadway viewers.

Other elements may include treatment of walls, incorporation of a variety of architectural finishes and lighting treatments. Context-sensitive design elements could include the following items:

- Landscaping at perimeter of the project limits, where the project is situated immediately adjacent to established residential structure/s.
- Coordination with US Army Corps of Engineers on a redesigned mountain bike trail that incorporates the bridge span column into the overall design of the mountain bike trail. It would benefit the project to involve a mountain bike trail designer in the planning and design of the final mountain bike trail alignment.
- All lighting would be in accordance with the ARDOT specification regarding light pollution. To the extent possible, outdoor lighting fixtures would only be installed and operated if the purpose of the lighting cannot be achieved by the installation of reflective road markers, lines, warning, or informational signs, or other effective passive methods. Additionally, full consideration would be given to energy conservation, reduction of glare, minimizing light pollution, and preserving the natural light environment. An example of commonly used lighting meeting these considerations is the use of high-pressure sodium lamps equipped with glare shields.

Where practicable, mitigation to improve the visual and aesthetic qualities of the project area could include the following features:

- Landscape plantings and re-vegetation per ARDOT's specifications, which allocates funds for trees and plants within roadway right of way.
- Promoting the project as a roadside native wildflower planting program, Operation Wildflower.
- Providing adequate signage and easy access to roadway facilities.

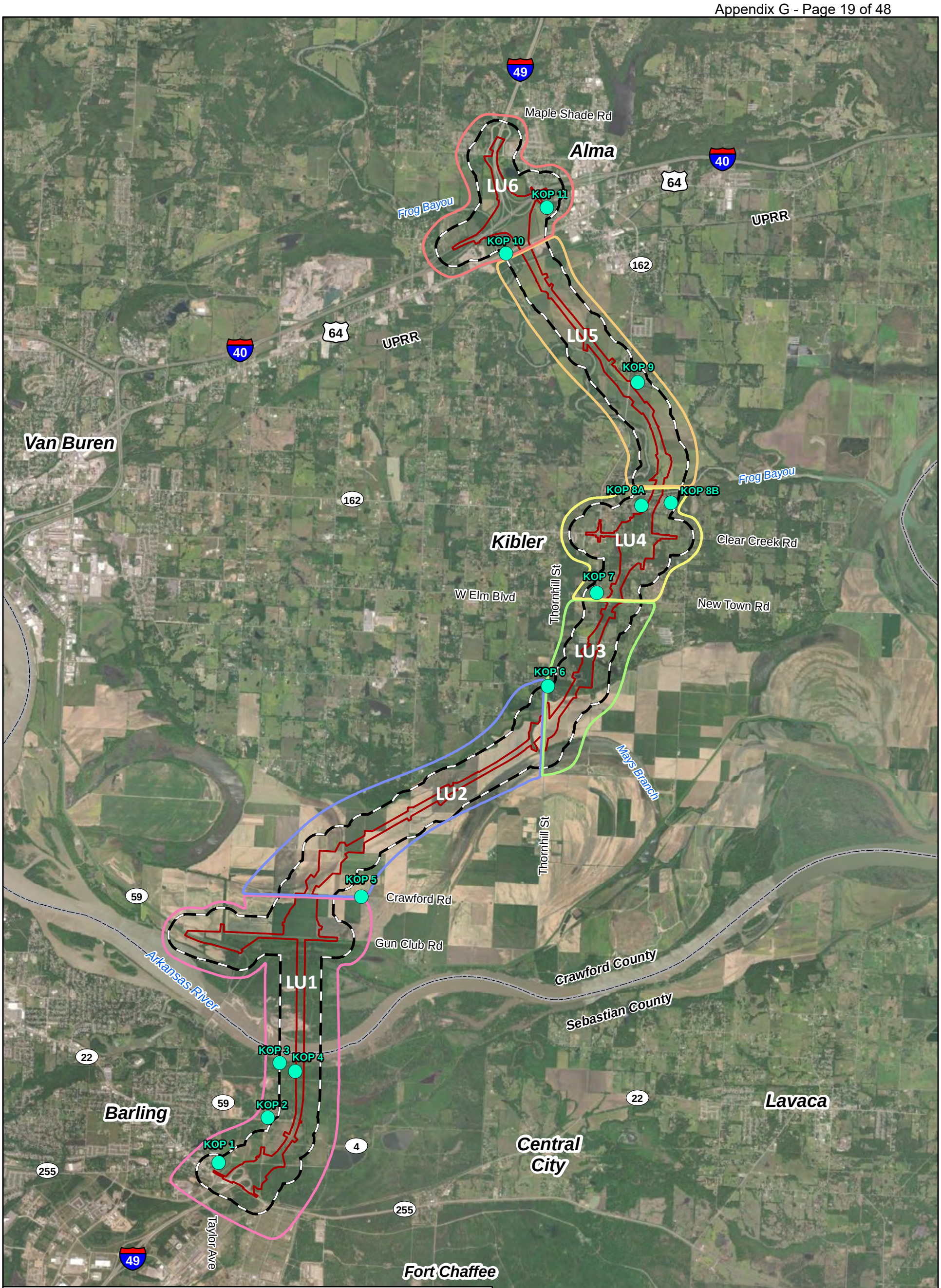
6.0 CONCLUSION

The project, in its planned physical form and location is a culmination of a design process that has been ongoing since the 1997 FEIS. Throughout this time, opportunities have been identified to minimize impacts and maximize compatibility with the existing built and natural environments. The structural design elements of the project were developed to be compatible with the surrounding natural and cultural environments to minimize visual impacts.

In general, the visual impacts of the project along its current alignment are neutral. The potential for the project to have adverse visual impacts have been identified at LU1 KOP4, LU3 KOP7, LU4 KOP8, and LU5 KOP9, where the form of the project improvements may interfere with the existing visual harmony, order, and coherence for a limited number of residential viewsheds.

As final design efforts move forward and relocations are determined, the VIA can be used to inform where landscape materials may be needed to mitigate potential visual impacts to adjacent residential land uses. With purposeful landscape design, the project can be integrated into the existing visual conditions, with limited adverse visual impacts.

ATTACHMENT A-1: LANDSCAPE UNITS, AREA OF VISUAL EFFECT AND KEY OBSERVATION POINTS



Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Project Right of Way
- Area of Visual Effect (AVE)
- County Boundary
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6

N

0 1 2 Miles

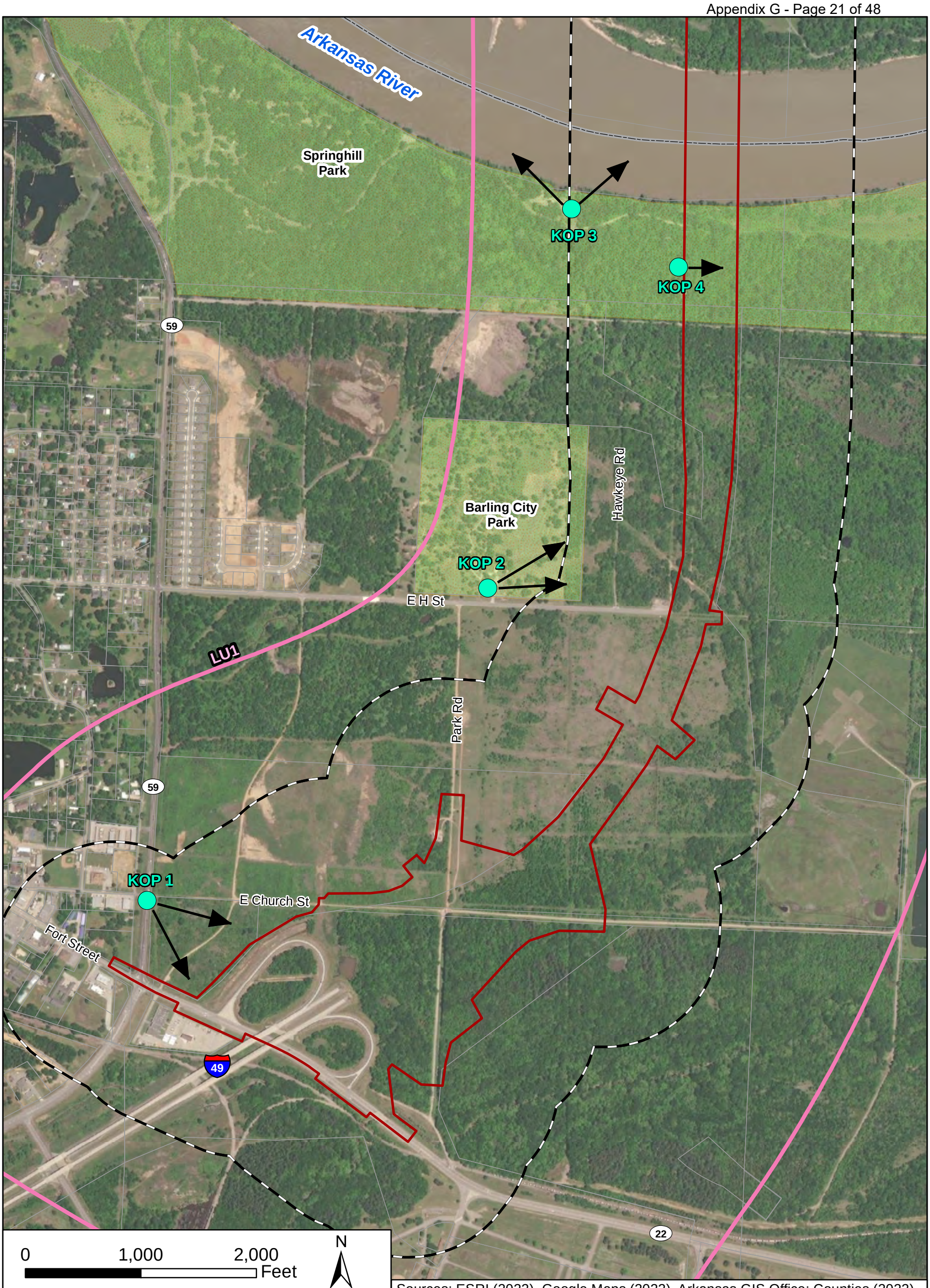
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Attachment A-1
LANDSCAPE UNITS (LU), AREA OF VISUAL EFFECT (AVE), AND KEY OBSERVATION POINTS (KOP)

Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

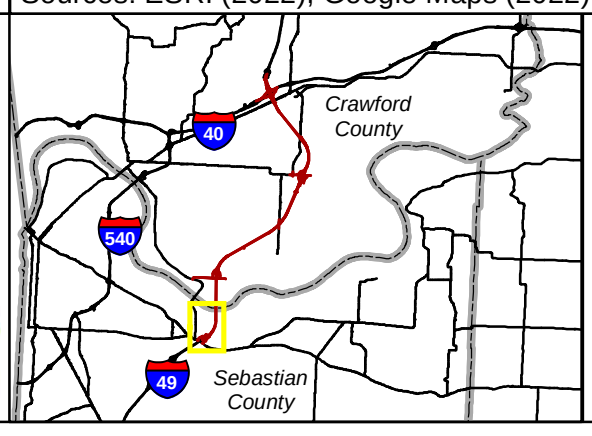
ATTACHMENT A-2: KEY OBSERVATION POINTS DETAIL



Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Area of Visual Effect (AVE)
- Project Right of Way
- County Boundary
- Parcel
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6



Attachment A-2
KEY OBSERVATION POINTS DETAIL
Sheet 1 of 5

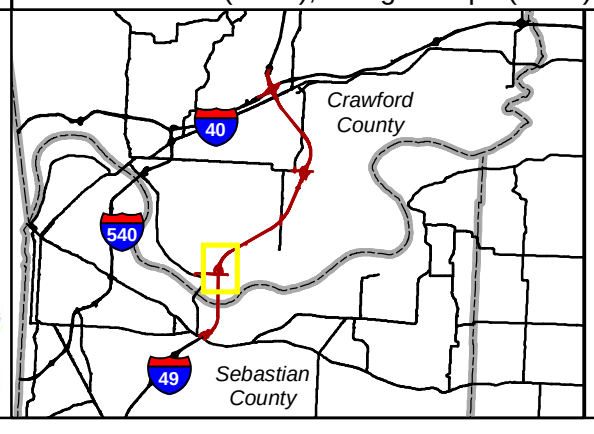
Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Area of Visual Effect (AVE)
- Project Right of Way
- County Boundary
- Parcel
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6



Attachment A-2
KEY OBSERVATION POINTS DETAIL
Sheet 2 of 5

Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

KOP 7
W Elm Blvd
New Town Rd
LU4
LU3
Alma Dr
LU3
LU2
KOP 6
Shady Dr
Thornhill St
Mays Branch Creek

0 1,000 2,000 Feet

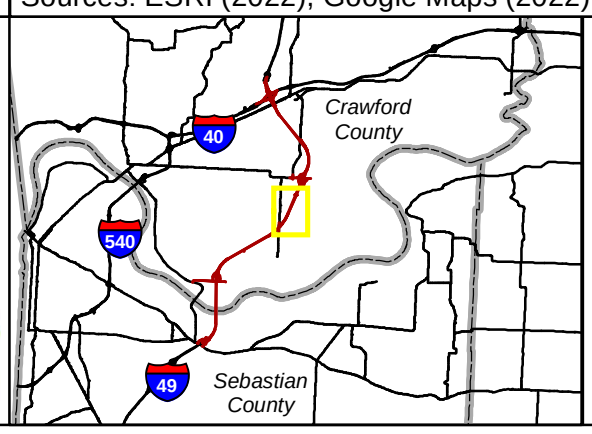
N

Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Area of Visual Effect (AVE)
- Project Right of Way
- County Boundary
- Parcel
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



Attachment A-2
KEY OBSERVATION POINTS DETAIL
Sheet 3 of 5

Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

KOP 9
Hamer Rd
162
LU5
LU4
Frog Bayou
KOP 8B
KOP 8A
Waterfront Rd
Waterfront Cir
162
Clear Creek Rd

0 1,000 2,000 Feet

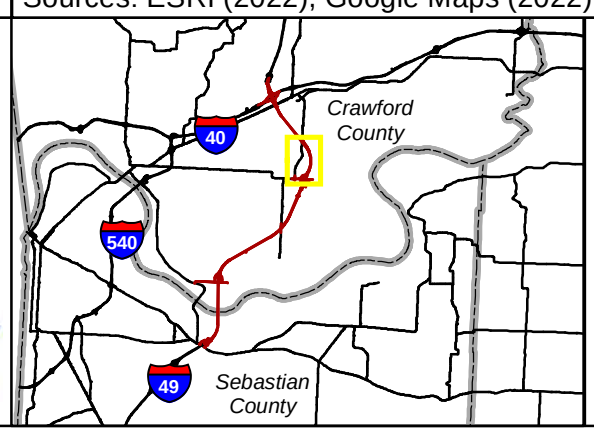
N

Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Area of Visual Effect (AVE)
- Project Right of Way
- County Boundary
- Parcel
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6

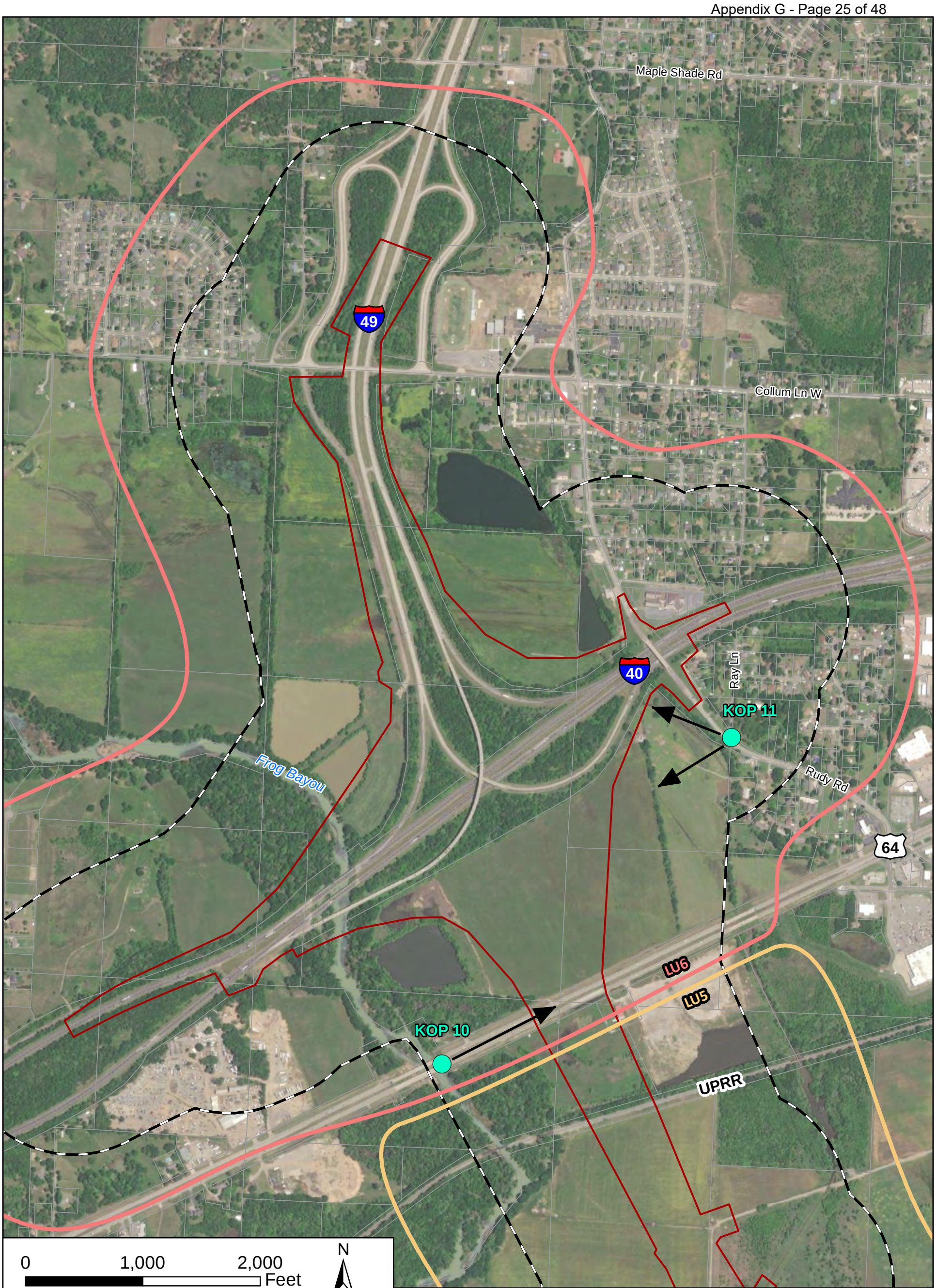
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



Attachment A-2
KEY OBSERVATION POINTS DETAIL
Sheet 4 of 5

Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

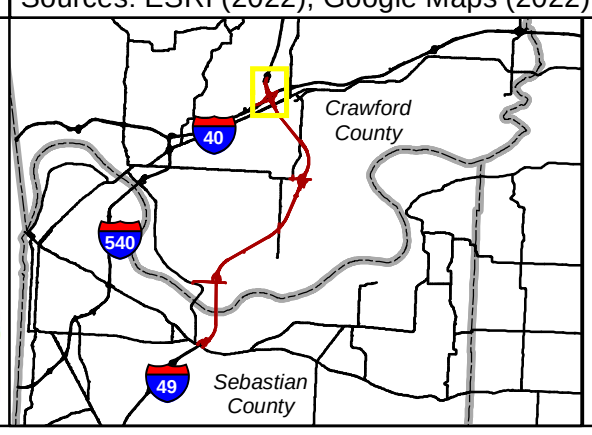


Sources: ESRI (2022), Google Maps (2022), Arkansas GIS Office: Counties (2022)

Legend

- Key Observation Point (KOP)
- Area of Visual Effect (AVE)
- Project Right of Way
- County Boundary
- Parcel
- LU1
- LU2
- LU3
- LU4
- LU5
- LU6

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION



Attachment A-2
KEY OBSERVATION POINTS DETAIL
Sheet 5 of 5

Visual Impacts Technical Report
I-49 FEIS Re-evaluation
Highway 22 to Interstate 40

Crawford and Sebastian Counties, AR

ATTACHMENT B: VISUAL AND AESTHETIC RESOURCES ASSESSMENT PHOTOS AND RENDERINGS

LANDSCAPE UNIT 1: TAYLOR AVENUE TO CRAWFORD ROAD

LU 1 KOP 1: Bird's Eye View, East Church Street Area and Hwy. 59, Rendering[1]

LU 1 KOP 1: East Church Street and Hwy. 59, Aerial

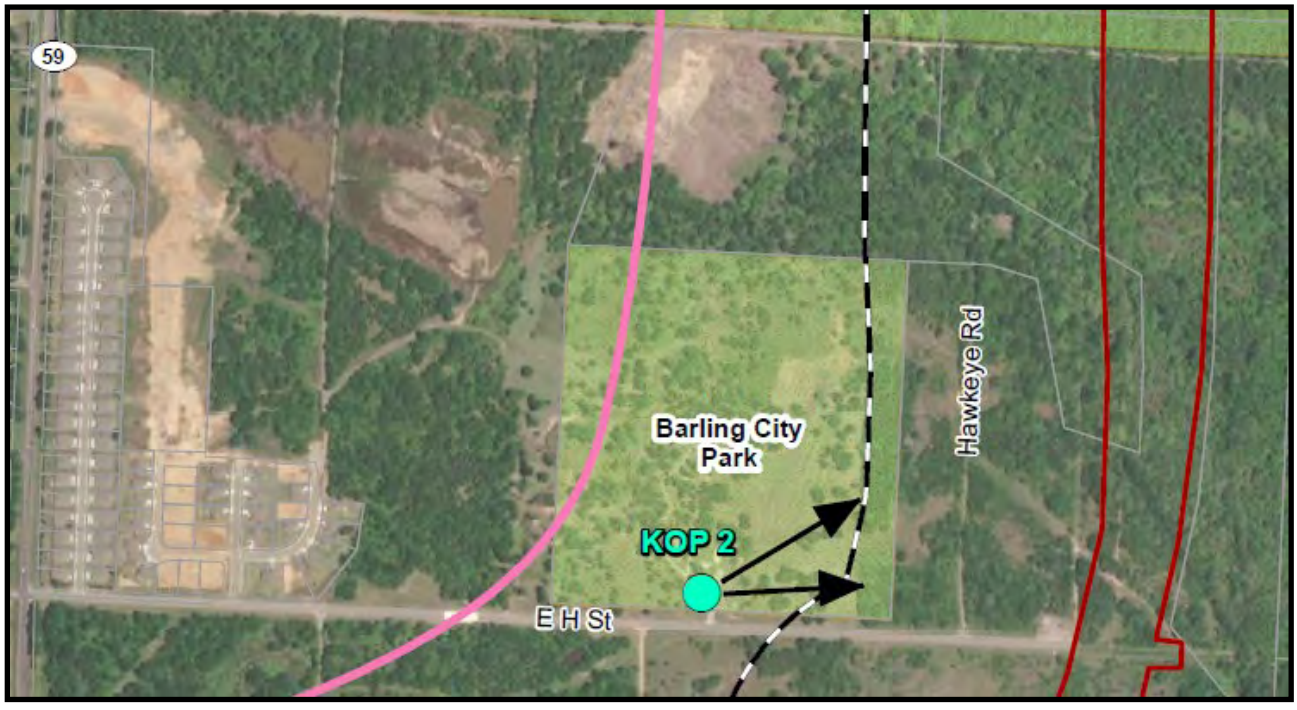
[1] Renderings used in this VIA were designed for information purposes only. Renderings and depictions contained herein are conceptual and for convenience of reference. They should not be relied upon as representation, express or implied, of the final design and are subject to change. Renderings were modeled using the January 2022 Project alignment drawings as reference. Renderings are not always presented with north arrow at plan view true north. Aerials provided for ease of reference, full KOP details provided in Sheets 1 - 5 of Attachment A-2.

LU 1 KOP 1: East Church Street and Hwy. 59, Facing Southeast[2]

[2] All photos presented herein, were captured during a February 21, 2022 site visit, weather conditions were partly cloudy.

LU 1 KOP2 Bird's Eye View, Barling City Park, Rendering

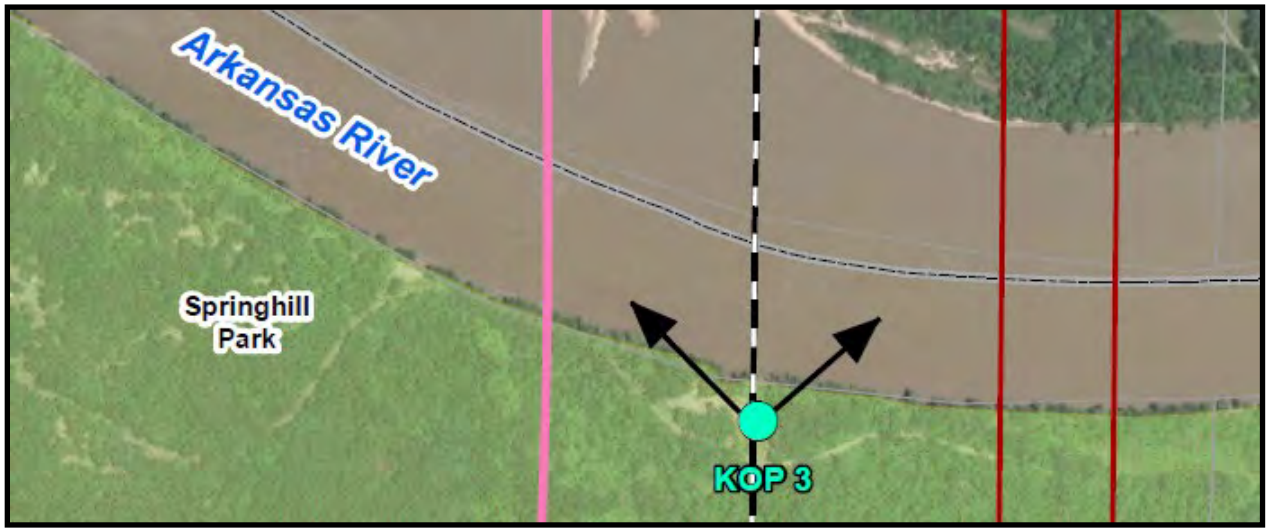
LU 1 KOP2 B Barling City Park Area, Aerial



LU 1 KOP2: Barling City Park, Parking Area (just North of H Street) Facing East

LU 1 KOP3: Bird's Eye View Springhill Park Boat Ramp and Parking Area, Rendering

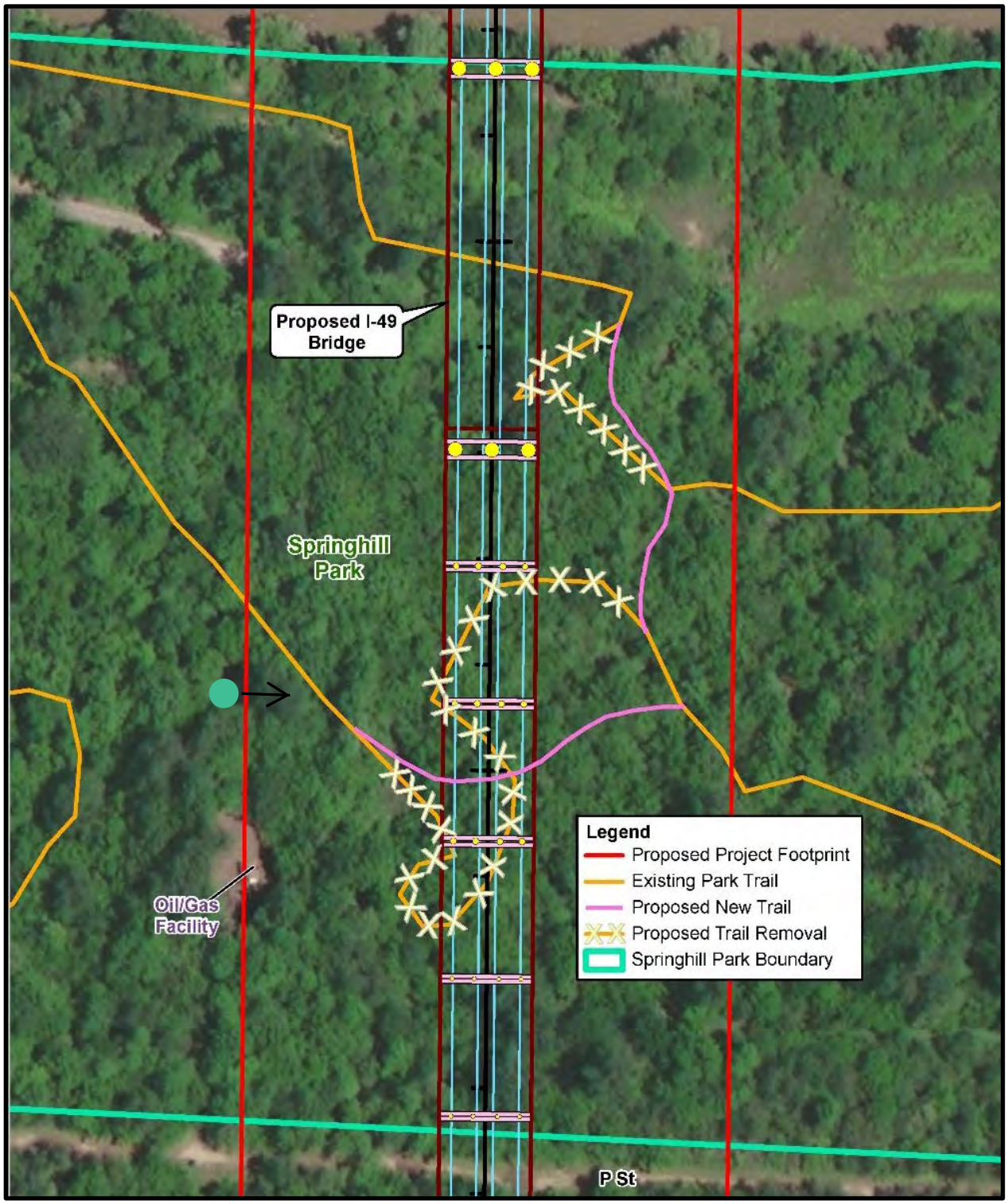
LU 1 KOP3: Bird's Eye View Springhill Park Boat Ramp and Parking Area, Aerial



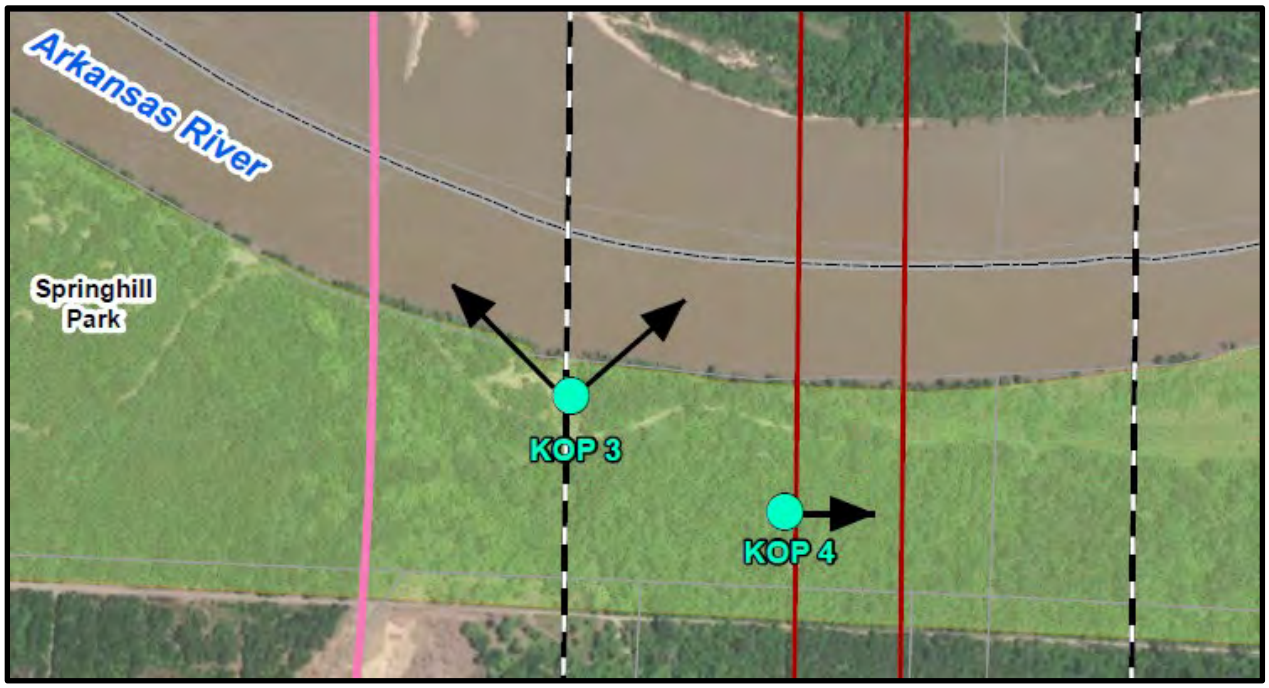
LU 1 KOP3: Springhill Park Boat Ramp Area, Facing West

LU 1 KOP3: Springhill Park Boat Ramp Area, Facing East

LU 1 KOP4: Springhill Park, Potential Trail Re-Route Under Bridge



KOP4: Springhill Park, Wooded Area Near I-49 Project Aerial

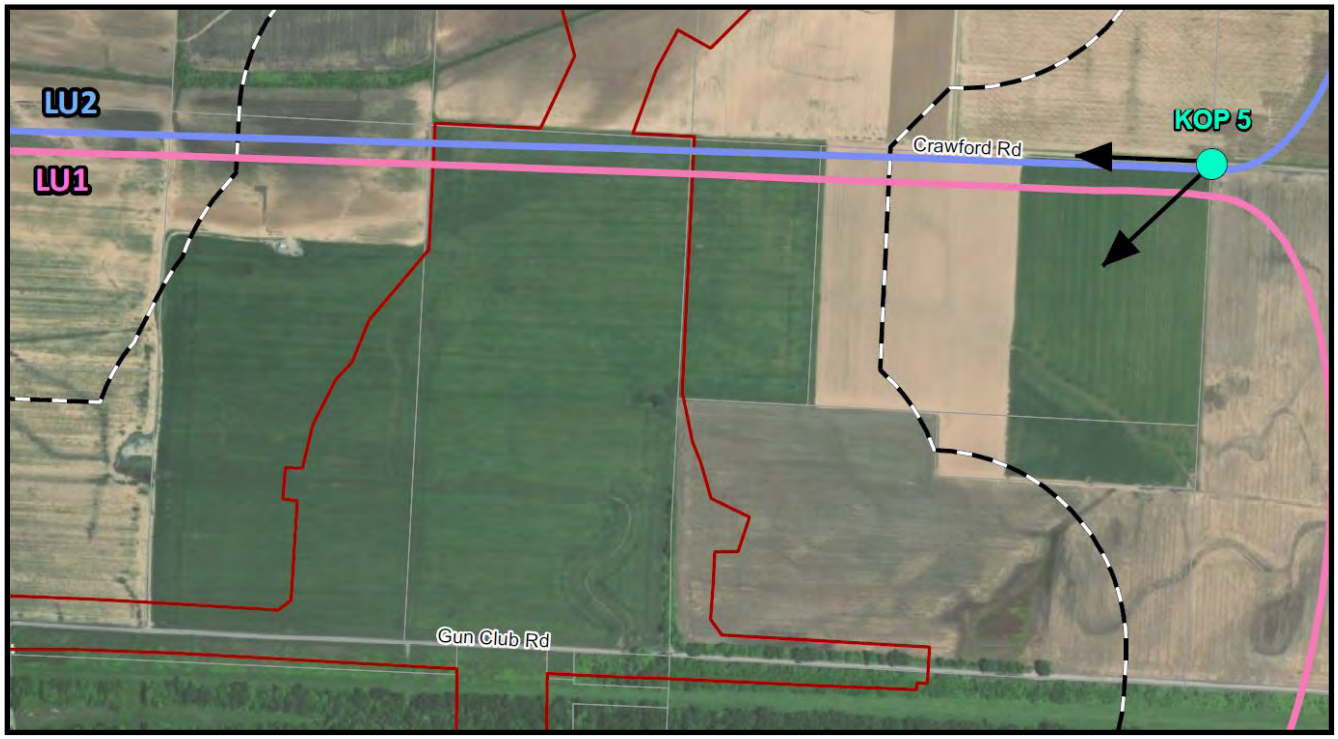


LU 1 KOP4: Springhill Park, Wooded Area Near I-49 Project, Facing West

LANDSCAPE UNIT 2: CRAWFORD ROAD TO THORNHILL STREET

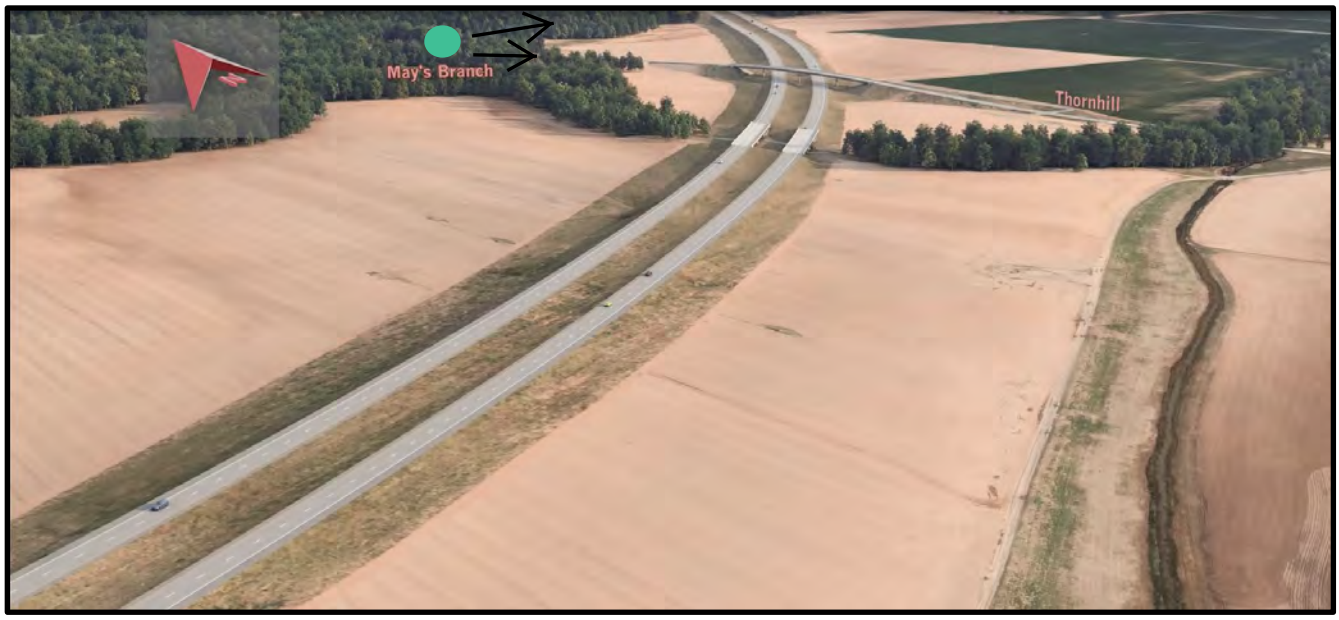
LU 2 KOP 5: Bird's Eye View Crawford Road, West of Proposed I-49 Project, Rendering

LU 2KOP 5: Crawford Road, Near Proposed I-49 Project, Aerial

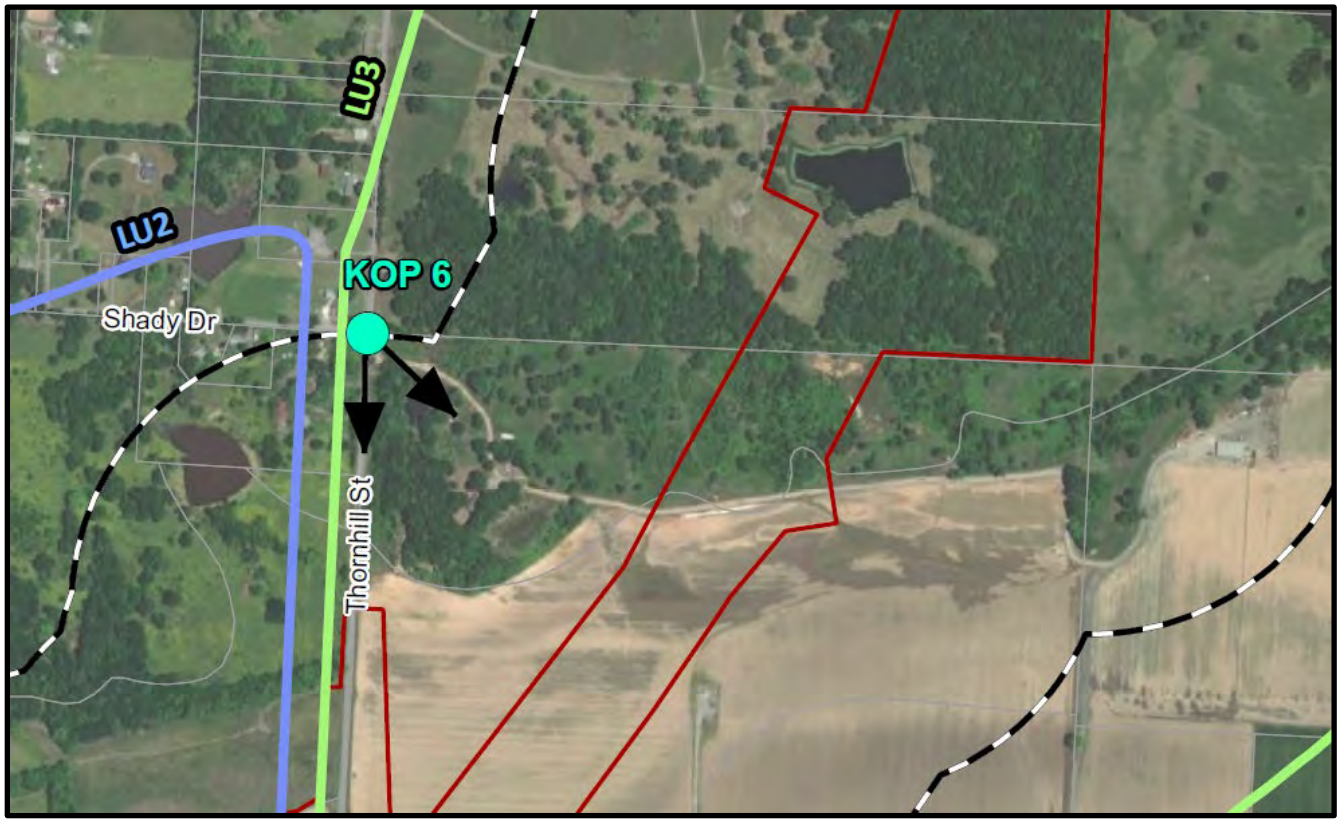


LU 2KOP 5: Crawford Road, Near Proposed I-49 Project, Facing West

LU 3 KOP 6: Bird's Eye View Thornhill Street and Shady Drive, Rendering



LU 3 KOP 6: Thornhill Street and Shady Drive, Facing Southeast, Aerial

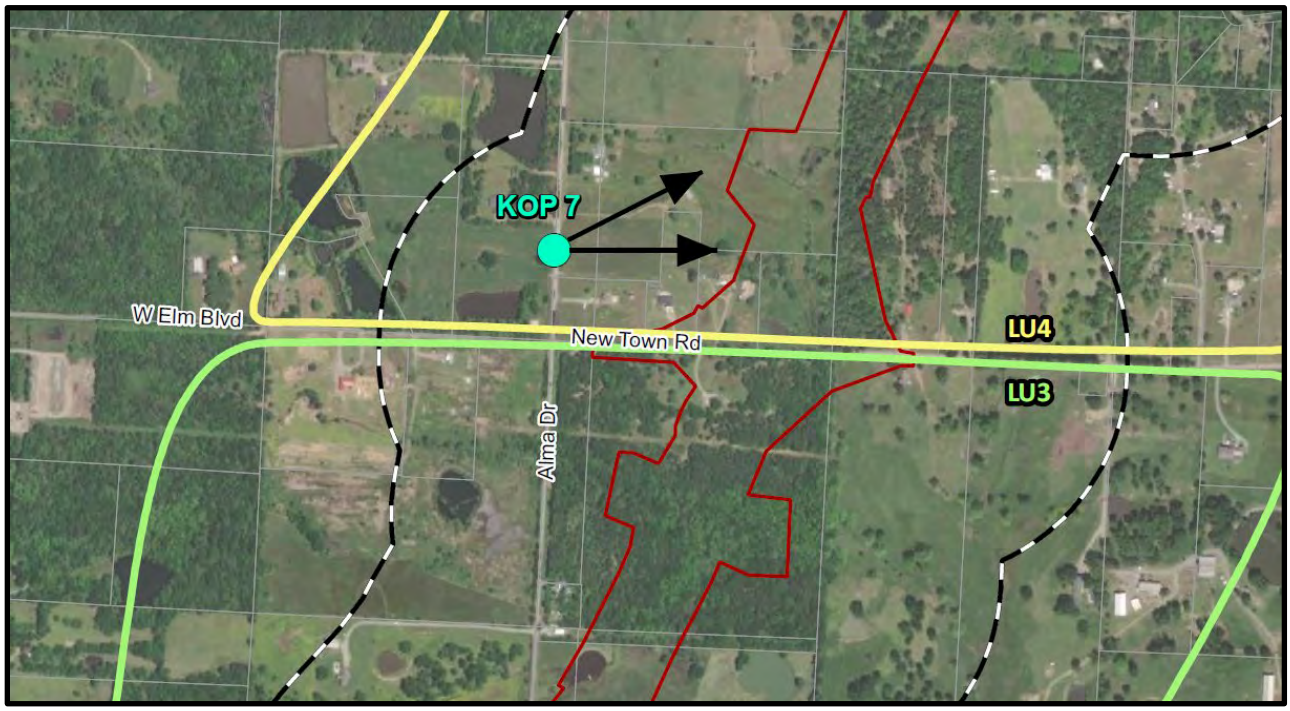


LU 3 KOP 6: Thornhill Street and Shady Drive, Facing Southeast

LANDSCAPE UNIT 3: THORNHILL STREET TO NEW TOWN ROAD

LU 4 KOP 7: Bird's Eye View Alma Drive (just North of E. Elm Boulevard/New Town Road[2]), Rendering

LU 4 KOP 7: Alma Drive (just North of E. Elm Boulevard/New Town Road), Aerial

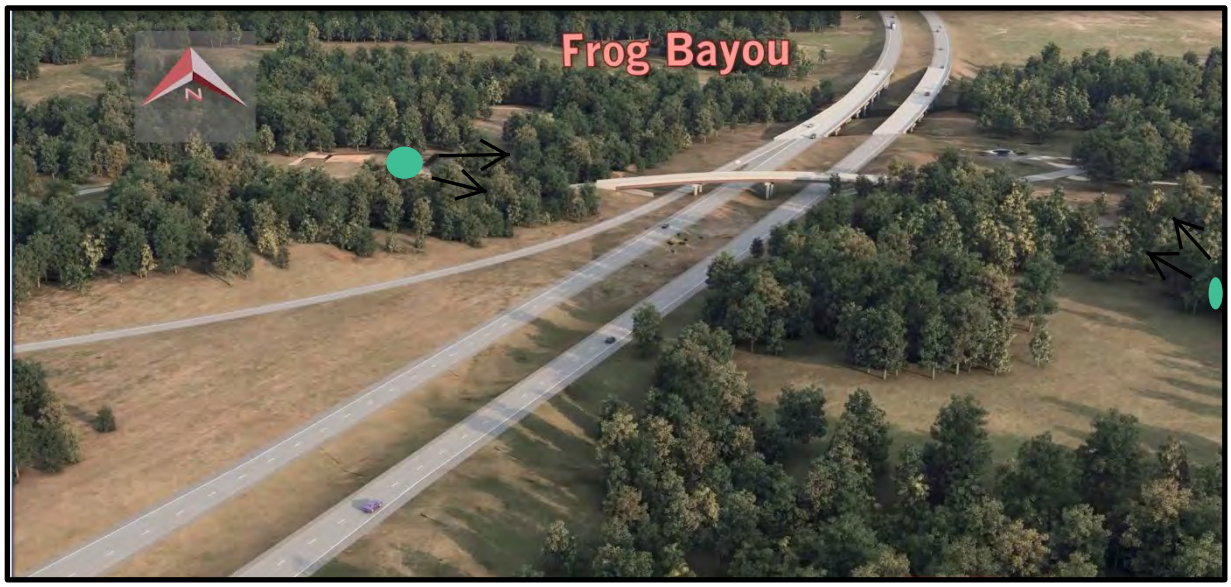


[2] West of Alma Drive, the roadway name designation is E. Elm Boulevard; east of Alma Drive, the roadway name is New Town Road.

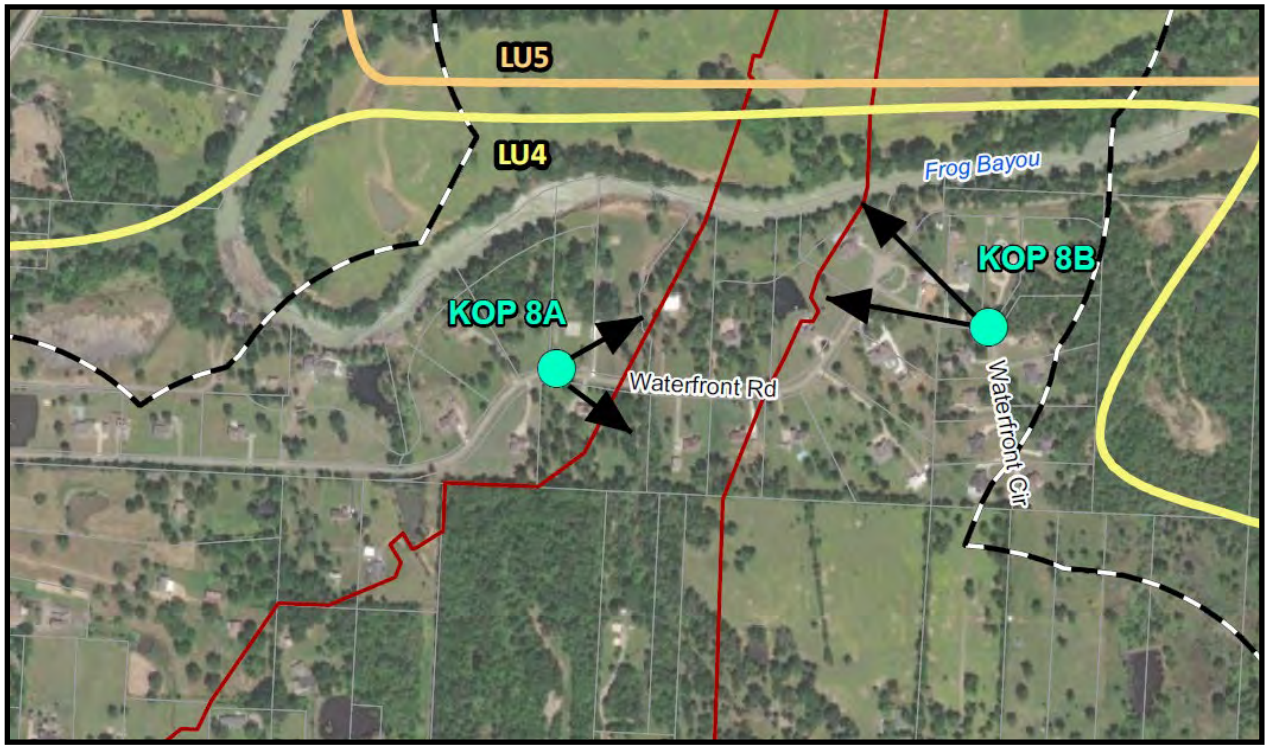
LU 4 KOP 7: Alma Drive (just North of E. Elm Boulevard/New Town Road)

LANDSCAPE UNIT 4: NEW TOWN ROAD TO FROG BAYOU

LU 4 KOP 8: Bird's Eye View Waterfront Road and Waterfront Circle, Rendering



LU 4 KOP 8: 1100 Block of Waterfront Road and 200 Block of Waterfront Circle Facing South



LU 4 KOP 8A: 1100 Block of Waterfront Road Facing East

LU 4 KOP B8: 200 Block of Waterfront Circle Facing South

LANDSCAPE UNIT 5: FROG BAYOU TO ALMA HWY. (HWY. 64)

LU 5 KOP 9: I-49 at Hwy. 162, Rendering

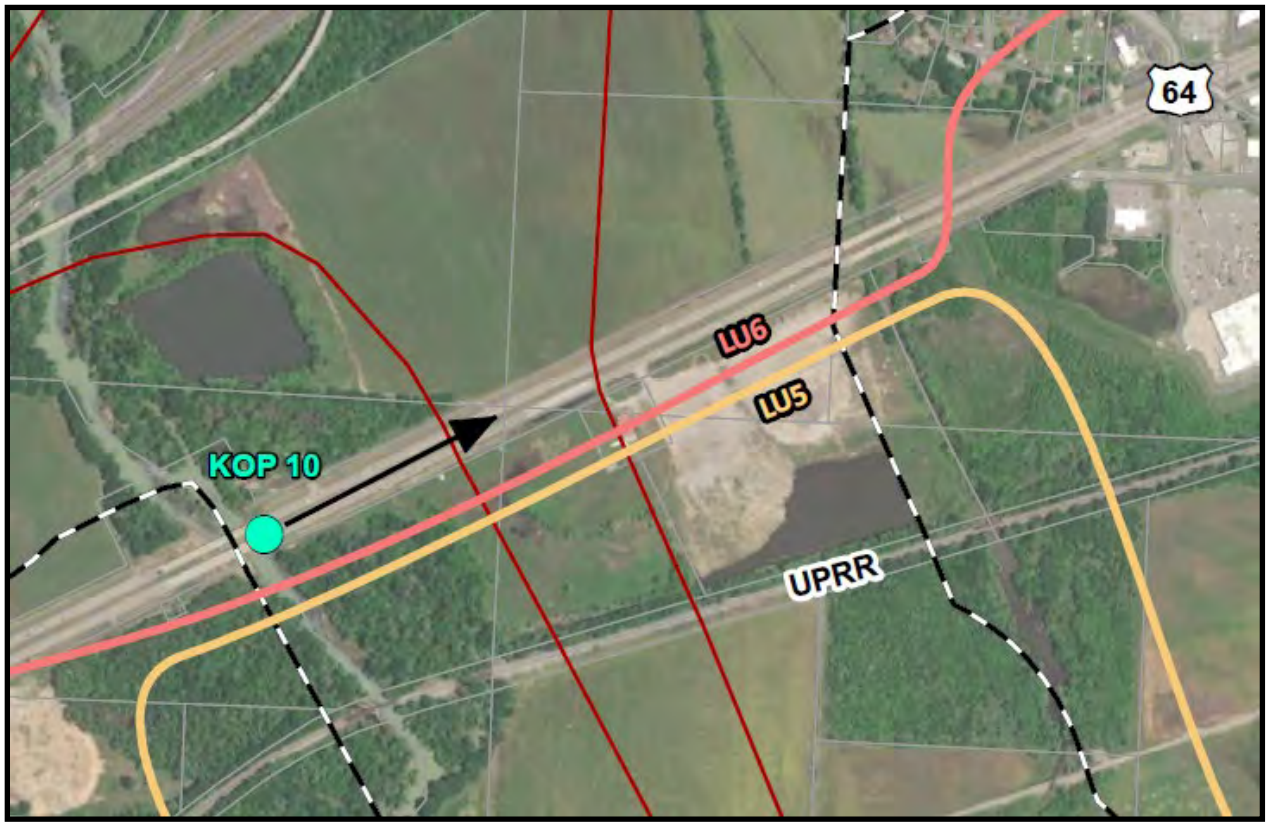
LU 5 KOP 9: Hamer Road (just East of Hwy. 162), Facing Southwest Aerial

LU 5 KOP 9: Hamer Road (just East of Hwy. 162), Facing Southwest

LANDSCAPE UNIT 6: ALMA HWY (HW 64) TO MAPLE SHADE ROAD

LU 6 KOP 10: Hwy. 64 & Frog Bayou, Rendering

LU 6 KOP 10: Hwy. 64 & Frog Bayou, Facing Northeast, Aerial

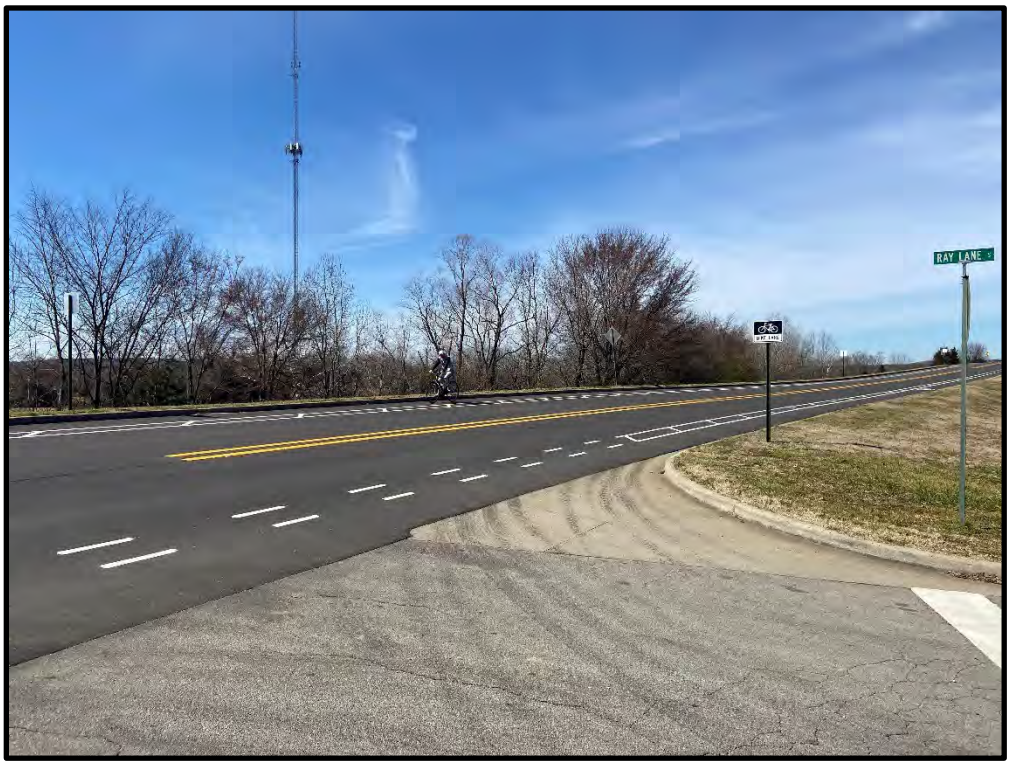


LU 6 KOP 10: Hwy. 64 & Frog Bayou, Facing Northeast

LU 6 KOP 11 Rudy Road, Rendering

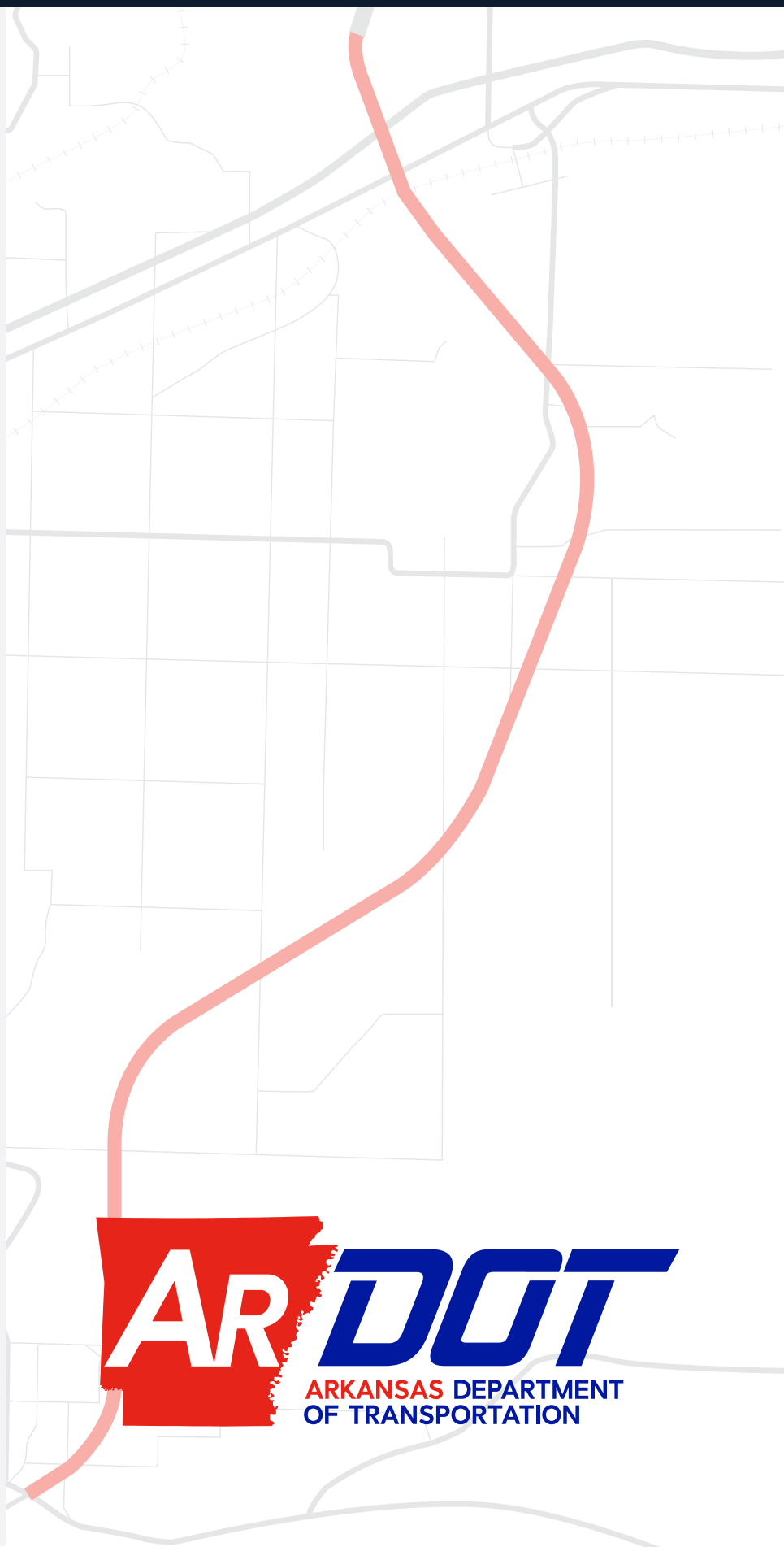
LU 6 KOP 11 Rudy Road and Ray Lane, Facing West

LU 6 KOP 11 Rudy Road and Ray Lane, Facing West



APPENDIX H

Hazardous Materials Technical Report



I-49 Hazardous Materials Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

November 2021
Job 001747

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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2.0 PHYSICAL SETTING 3
3.0 REGULATORY CONTEXT 4
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ATTACHMENTS

Attachment A: Exhibits
Exhibit 1 – Regulated Facilities
Exhibit 2 – Natural Gas Wells
Exhibit 3 – 3rs Explosives Safety Guide
Attachment B: Photographs of Sites Potentially Impacting the Project Footprint
Attachment C: Historical Documentation
Attachment D: EDR Regulatory Report

1.0 PROJECT BACKGROUND

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing this re-evaluation of the 1997 Final Environmental Impact Statement (FEIS) and refining the alignment for a new proposed section of Interstate 49. The new section is a critical connection between Arkansas State Highway 22 in Sebastian County and the Interstate 40/Interstate 49 interchange in Crawford County, a distance of approximately 14 miles. The project location is depicted in **Figure 1-1**.

This proposed project was originally part of a larger environmental study known as the U.S. Highway (U.S.) 71 Relocation (DeQueen to Interstate 40). This study extended from Highway 70 in De Queen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally designated High Priority Corridor 1, which extends from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project in 1997. The Record of Decision (ROD) for the FEIS was issued in December 1997, which environmentally approved the general alignment of a new location, four-lane highway in western Arkansas. Due to the length of the FEIS corridor and funding constraints, design and construction of sections of the corridor have been completed as funding has become available.

The Interstate 49 corridor has been under construction since the early 1990s with several sections fully completed. A section from U.S. 71 to Highway 22, near White Bluff, which is six miles southwest of Barling, and designated as Highway 549 (future Interstate 49), is currently a median separated highway with two main lanes in each direction and no frontage roads. North of Interstate 40 in Alma, an existing section of Interstate 49 is also a median separated highway with two lanes in each direction and no frontage roads.

The current proposed project is a new location roadway that would begin at Highway 22 at the south project limits and terminate at Interstate 40. The proposed project would be constructed in phases. Initial construction would consist of a two-lane roadway (one lane in each direction) with the ultimate construction consisting of two main lanes in each direction without frontage roads.

A project footprint has been determined based on the area that may be impacted by the construction of the ultimate four lane (two lanes in each direction) facility and is the basis for the analysis in this document. Photographs of sites that could potentially impact the project footprint are included in **Attachment B**.

Figure 1-1: Project Location Map

2.0 PHYSICAL SETTING

The project footprint is located within the Arkansas River Valley physiographic province, which is comprised of consolidated Pennsylvanian-aged clastic sedimentary rocks that were originally deposited on a continental shelf margin. Structurally, the area is made up of broad synclines with relatively narrow intervening anticlines. The axes of these folds generally trend east-west. Most of the observed faulting is normal, but some thrust faults are noted, associated with the anticlines in the southern part of the province. The synclines are often the most conspicuously present positive topographic features, formed from more rapid erosion of underlying shales, once capping sandstones were breached on the crests and flanks of the surrounding anticlines (Stratigraphic Summary of Arkansas, 2004).

The Pennsylvanian-aged rocks are overlain in places by unconsolidated Quaternary-aged alluvial and terrace deposits that were deposited by the Arkansas River. The alluvial deposits consist of gravels, sands, silts, clays, and mixtures of any and all of these clastic materials. The older terrace deposits are similar and consist of a complex sequence of unconsolidated gravels, sandy gravels, sands, silty sands, silts, clayey silts, and clays. At least three terrace levels are recognized with the lowest being the youngest (Stratigraphic Summary of Arkansas, 2004).

The majority of the project footprint is underlain by Quaternary alluvium. The northernmost extent between Alma and Kibler is underlain by sediments deposited by Frog Bayou, which roughly parallels the project footprint to the southwest. Topography is relatively flat with elevations averaging approximately 400 feet above mean sea level (amsl). The project footprint crosses Frog Bayou northeast of Kibler and enters an area of moderately hilly topography, which is underlain by the Pennsylvanian-aged McAlester Formation. The McAlester Formation generally consists of shale with thin sandstone and coal beds (Stratigraphic Summary of Arkansas, 2004). Elevations in this section of the project footprint range from approximately 400 to 450 feet amsl.

The project footprint crosses back into alluvial sediments deposited by the Arkansas River approximately 1.9 miles south of Kibler. The project footprint continues southwest and then south before crossing the Arkansas River. Topography in this area is generally flat with elevations ranging from 390 to 395 feet amsl. South of the Arkansas River, the project footprint crosses a short section of Alluvial deposits before re-entering the McAlester Formation at its southern terminus near Barling.

Several surface water bodies will be potentially impacted by the proposed construction. These include Mays Branch, Frog Bayou, Little Vache Grasse Creek, Arkansas River, and several unnamed tributaries of those streams. Mays Branch is a tributary of Frog Bayou. Frog Bayou and Little Vache Grasse Creek are tributaries of the Arkansas River. The section of the Arkansas River below the proposed footprint is also known as Ozark Lake, impounded by the Ozark-Jeta Taylor Lock and Dam in Ozark, Arkansas, east of the proposed project footprint.

3.0 REGULATORY CONTEXT

This Hazardous Materials Technical Report was prepared as part of the FEIS Re-evaluation in accordance with NEPA and FHWA regulations and guidelines. The regulated facility search was conducted in accordance with prescribed radii established in the ASTM International E1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* No significant changes have occurred to regulations since the 1997 FEIS.

4.0 HISTORICAL AND CURRENT LAND USE

Historical topographic maps and historical aerial photographs of the project footprint were obtained from Environmental Data Resources, LLC (EDR) of Shelton, Connecticut. These documents are summarized in the following sections.

4.1 Historic Topographic Maps

United States Geological Survey (USGS) 7.5-minute, 15-minute, and 30-minute topographic maps showing the project footprint area were published from 1887 to 2014. **Table 4-1** below summarizes the maps and observations.

Table 4-1: Summary of Historic Topographic Maps Reviewed

Date	Name	Scale	Description
1887	Van Buren	1:62,500 (15-minute)	This map captures most of the southern half of the project footprint. The map shows that the area is rural with minimal development. Several unimproved roads are shown crossing the project footprint. The Arkansas River is shown in its approximate current location.
1890	Fort Smith	1:125,000 (30-minute)	This map depicts the entire project footprint and shows Alma on the north end of the project footprint along with Frog Bayou. Several other unnamed tributaries are also shown crossing the project footprint. The area remains rural. A road is shown going through the Kibler area; however, the town is not depicted on the map.
1906	Lavaca	1:62,500 (15-minute)	This map only captures the northern half of the project footprint. The map shows more topographic detail, but the area remains rural with minimal development. Frog Bayou is identified as Clear Creek. Alma is shown on the map. A railroad transecting Alma is identified as the Little Rock and Fort Smith Railroad.
1943	Fort Smith	1:125,000 (30-minute)	This map depicts the entire project footprint and shows greater detail. Alma is shown on the north end of the project footprint. U.S. Highways 64 and 71 are shown near Alma. Missouri Pacific railroad is also shown. Frog Bayou is shown and labeled as such. Several unimproved roads are shown crossing the alignment in the location of many of the current roads. The towns of Kibler and Barling area are also first shown on this map. Fort Chafee is identified as Camp Chaffee with portions of the boundary shown within the project footprint.

Date	Name	Scale	Description
1947	Van Buren	1:24,000 (7.5-minute)	This map shows only a small portion of the project footprint southwest of Kibler.
1947, 1951	Van Buren	1:24,000 (7.5-minute)	This map shows the northern portion of the project footprint near Alma. No changes from the previous maps.
1949	Alma Barling Lavaca Van Buren	1:24,000 (7.5-minute)	These maps show that the majority of the project footprint was undeveloped, cleared land. Clear Creek Road is identified as Yoestown Road. Scattered residences were evident in the Kibler area. A ford is identified on Frog Bayou southeast of the project footprint near Alma. Several strip mines are identified on the map in the vicinity of the project footprint. Several gas wells are also identified throughout the project footprint. A landing field is shown on the south end of the project footprint on land that is part of Fort Chaffee.
1951	Alma Barling Lavaca Van Buren	1:24,000 (7.5-minute)	No obvious changes from previous edition of maps.
1969, 1971	Mountainburg SW Rudy	1:24,000 (7.5-minute)	These maps show the northernmost portion of the project footprint near Alma. Other than the addition of Interstate 40 (Interstate 40), no other changes to the project footprint are evident.
1971	Alma Barling Lavaca Van Buren	1:24,000 (7.5-minute)	These maps show the remainder of the project footprint south of the maps above. Minimal changes are apparent from the previous maps. The Arkansas River is identified as Ozark Reservoir. Lock and Dam No. 13 is shown to the west of the project footprint at its current location on the Arkansas River.
1975	Barling	1:24,000 (7.5-minute)	This map only shows the southernmost portion of the project footprint. No changes were evident from the previous maps.
1978, 1983	Mountainburg SW Rudy	1:24,000 (7.5-minute)	These maps show the northernmost portion of the project footprint near Alma. No changes to the project footprint are evident.
1978	Alma	1:24,000 (7.5-minute)	This map shows the central portion of the project footprint. No changes were evident from the previous maps.
1987	Alma Barling Lavaca Van Buren	1:24,000 (7.5-minute)	These maps show the entire project footprint. Other than increased residential development in the central portion of the project footprint, no major changes were evident. Several water wells and gas wells were depicted within the project footprint.
1997	Van Buren	1:24,000 (7.5-minute)	This map shows a small portion of the project footprint north of the Arkansas River. No changes from previous maps were evident.
2014	Alma Barling Lavaca Mountainburg SW Rudy Van Buren	1:24,000 (7.5-minute)	These maps show the entire project footprint. Interstate 49 north of Alma and Interstate 40 are shown on the maps. Existing roads are shown; however, these maps show very few structures (typical for this era map). No gas or water wells are shown; however, several gas fields are labeled in the vicinity of the project footprint.

Source: EDR Report, dated June 11, 2021

4.2 Historic Aerial Photographs

Current and historical aerial imagery of the project footprint was reviewed for this assessment. Aerial imagery provided by EDR was published from 1971 to 2017. **Table 4-2** summarizes the aerial imagery and observations.

Table 4-2: Summary of Aerial Photographs Reviewed

Date	Source	Scale	Description
1971	USGS	1:30,000	This aerial imagery shows the entire project footprint. Interstate 40, Highway 64/U.S. 71, and the Missouri Pacific Railroad line are all shown on the north end of the project footprint near Alma. Most of the project footprint from the north to Frog Bayou is agricultural land. Two apparent natural gas wells/well pads are evident in this area. Residential areas are visible along Highway 162 to the north and south of the project footprint. Residential areas are also evident along Clear Creek Road (formerly known as Yoestown Road) within the project footprint. South of this area, the project footprint re-enters agricultural land in the Arkansas River alluvial plain. From Gun Club Road south toward the river, the land is wooded and undeveloped floodplain. South of the river, the land appears to be mostly cleared pastureland with scattered trees. An apparent well pad is evident on the west edge of the project footprint just south of the river (this well head was observed during the site reconnaissance).
1976	USGS	1:80,000	This aerial imagery shows the entire project footprint; however, due to scale, the imagery is not as clear as the 1971 imagery. No obvious changes were observed from the previous imagery.
1980	USGS	1:58,000	This imagery shows the entire project footprint and is in color (infrared enhanced). The imagery is clearer than the previous imagery but shows no obvious changes since the previous imagery.
1994	USGS/DOQQ	1 Meter GSD	This black and white imagery depicts the entire project footprint and shows greater detail. Interstate 49 is shown to the north of Interstate 40. A natural gas wellhead is evident to the west of Interstate 49 and north of Interstate 40 in the location of one observed during the site reconnaissance. Other than apparent increased residential development along the project footprint, no major changes to the area or land use were evident.
2001	USGS/DOQQ	1 Meter GSD	This imagery shows the entire project footprint and is in color (infrared enhanced). The imagery is clearer than the previous imagery and appears to show a general increase in residential development, primarily in the Kibler area. Areas to the north of Frog Bayou and south of the Kibler area remain agricultural.
2010	USGS/NAIP	1 Meter GSD	This imagery shows the entire project footprint and is in true color. Land use appears the same as previous imagery. Increased residential development is evident.
2013	USGS/NAIP	1 Meter GSD	This imagery shows the entire project footprint and is in true color. Land use appears the same as previous imagery. Increased residential development is evident. A small natural gas compressor is shown immediately west of the project footprint near the southern terminus on H Street.
2017	USGS/NAIP	1 Meter GSD	This imagery shows the entire project footprint and is in true color. Land use appears the same as previous imagery. Increased residential development is evident.

Notes: USGS – United States Geological Survey; DOQQ - digital orthophoto quarter quadrangle; NAIP – National Agriculture Imagery Program; GSD – ground sample distance.
Source: EDR Report, dated June 11, 2021

Copies of the historic topographic maps and aerial imagery are presented in **Attachment C** (Historical Documentation).

5.0 REGULATED FACILITIES

The 1997 FEIS identified multiple regulated facilities along the original 125-mile preferred alignment. These included 22 Resource Conservation and Recovery Act (RCRA) hazardous waste facilities, one Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund site, 17 state leaking and non-leaking underground storage tank (UST) sites and two state illegal dumpsites. Field work conducted at the time revealed two additional dump sites along the 1997 preferred alignment.

Most of the RCRA facilities identified in the FEIS were located on Fort Chaffee, outside the proposed Re-evaluation project footprint. The CERCLA site was identified as being approximately six miles south/southwest of Barling, outside the current Re-evaluation project footprint. The majority of the UST sites identified were either located in Alma, Kibler, Barling or Fort Chaffee, also outside of the proposed Re-evaluation project footprint.

Due to a variety of factors including change of ownership, cessation of business, remedial activities, and/or the regulatory status of facilities identified in 1997 having changed over time, the data collected during the 1997 FEIS is mostly outdated. As such a review of reasonably ascertainable federal and state regulatory records was conducted to determine the current status of regulated facilities within or within close proximity to the Re-evaluation project footprint. EDR was utilized to conduct the regulatory search.

The review was performed to help identify recognized environmental conditions (RECs) in connection with the project footprint. A REC is "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

EDR provided records from the United States Environmental Protection Agency (EPA) and the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ). The standard environmental record sources reviewed for this Re-evaluation included:

- National Priorities List;
- CERCLIS List;
- CERCLIS NFRAP Site List;
- RCRA CORRACTS List;
- RCRA Treatment, Storage, and Disposal Facilities;
- RCRA Generators List;
- Federal institutional control/engineering control registries;
- Federal Emergency Response Notification System List (ERNS) List;
- State and tribal lists of hazardous waste sites identified for investigation or remediation;

- State Remedial Action Site List;
- State and Tribal Landfill List;
- State and Tribal Voluntary Cleanup Sites;
- State and Tribal Brownfields Sites; and
- State and Tribal Registered and Leaking Storage Tank Lists.

Where available, the following supplemental records were also reviewed:

- Local Brownfields Lists;
- Local Lists of Landfills and SWDS;
- Registered Storage Tanks;
- Local Land Records;
- Records of Emergency Release Reports;
- Records of Contaminated Wells;
- EDR Historic Auto Database; and
- EDR Historic Dry-Cleaner Database.

Table 5-1 summarizes the facilities identified in the EDR report. **Exhibit 1** in **Attachment A** shows the location of these facilities relative to the project footprint. The information obtained from EDR was also compared to the information in Table 3-7 Hazardous Materials in the 1997 FEIS. Additional discussion of the sites follows.

Table 5-1: Summary of Regulated Facilities

Map ID#	Facility Name	Address/Location	City	Database(s)
1	OZARK LAKE			DOD
2	FORT CHAFFEE (CLOSED)			DOD
3	STEPHENS PRODUCTION - STEWARD GILLIE SMITH #1	SEC 29 - T9N - R30W	ALMA	TIER 2
4	CLEAR CREEK PIT	HWY 162 & CLEAR CREEK RD	ALMA	FINDS, PERMITS
5	ANADARKO-MORRIS #2 COMPRESSOR STATION	KIBLER FIELD - SEC 36 9N 31W	KIBLER	FINDS, ECHO
6	ARKLA - MCCARTY	1.5 SE OF ALMA	ALMA	FINDS
7	DON NEWTON	1218 CLEAR CREEK ROAD	ALMA	SWID
8	STEPHENS PRODUCTION - E.L KIBLER #4	SEC 7 - T8N - R30W	ALMA	TIER 2
9	BLAKE CONST/BORROW PITS	HWY 59 & 22	BARLING	PERMITS
10	CASEY'S GENERAL STORE #3487	107 FORT STREET	BARLING	UST, Financial Assurance
11	US ARMY RESERVE CENTER	101 FORT ST	BARLING	FINDS, PERMITS, ECHO, RCRA-VSQG
12	MENDENHALL MARVIN J	103 FORT ST	BARLING	EDR Hist Auto
13	MAI NGUYEN	8315 ALMA HWY.	ALMA	SWID
14	BARLING, CITY OF	304 CHURCH STREET	BARLING	UST
15	STERICYCLE @ SEBASTIAN	6700 MAHOGANY AVE	BARLING	FINDS, ECHO, RCRA NonGen / NLR
16	BARLING FOOD CENTER	406 CHURCH ST	BARLING	PERMITS, UST, LTANKS
17	KEN'S CAR CARE	712 FORT ST	BARLING	PERMITS, UST, LTANKS, Financial Assurance
18	ROY BOWLES	2925 OLD MACEDONIA ROAD	ALMA	SWID

Source: EDR Report, dated June 11, 2021

Two Department of Defense (DOD) sites were identified in the EDR report. These sites are Ozark Lake (**Map ID #1**), which was created when the U.S. Army Corps of Engineers (USACE) installed the Ozark-Jeta Taylor Lock and Dam on the Arkansas River in Ozark, Arkansas, east of the project footprint, and Fort Chaffee (**Map ID #2**) located adjacent to the south end of the project footprint. The lake is listed because it was authorized and engineered by the USACE. Ozark Lake would not adversely impact to the project footprint. Portions of Fort Chaffee (**Map ID #2**) have been or are currently regulated through various EPA and DEQ regulatory programs. Several Fort Chaffee facilities were identified in the Orphan Summary of the EDR report; however, none of the regulated entities at this facility were determined to likely have an adverse impact on the project footprint. Further, none of the Fort Chaffee facilities identified in the EDR report were identified in Table 3-7 of the 1997 FEIS.

Stephens Production – Steward Gillie Smith #1 (**Map ID #3**) is a natural gas well located at approximately 910 Clear Creek Road within the project footprint (see Photograph #5). This site was identified on the Arkansas Division of Environmental Management (ADEM) Tier 2 list, which is a listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report. This well and pad are directly in the footprint of the proposed roadway and will require plug and abandonment in accordance with Arkansas Oil and Gas Commission (AOGC) regulations. As this is a dry natural gas well, minimal petroleum hydrocarbon contamination to the ground surface would be expected and thus would not be expected to adversely impact the project footprint.

Clear Creek Pit (**Map ID #4**), identified at the intersection of Clear Creek Road and Highway 162, was actually located approximately 0.25-mile northeast of this intersection outside the project footprint. This site was identified on the DEQ Permits database and EPA Facility Index System (FINDS) database. The Arkansas Permit Data System (PDS) is a system maintaining data on air quality, mining, tires, solid waste, tanks, water and hazardous waste, as well as inspections, invoicing and complaints. The EPA FINDS database is a catch-all that contains both facility information and "pointers" to other regulatory sources that contain more detail. This facility was listed because it was issued a stormwater permit by DEQ in 2005. This facility would not be likely to adversely impact the project footprint as a result of being issued this permit.

Anadarko-Morris #2 Compressor Station (**Map ID #5**) was identified on the EPA FINDS and Enforcement and Compliance History Online (ECHO) databases as being located near the intersection of Clear Creek Road and Highway 162. This facility was not observed at this location in the field. Review of the data shows that this facility is actually located in Section 36, Township 9 North, Range 31 West, which is greater than 0.5-mile west of and outside the project footprint. As such, this facility would be unlikely to adversely impact the project footprint.

Arkla-McCarty (**Map ID #6**), presumably a well, was identified on the EPA FINDS database as being located near the intersection of Clear Creek Road and Highway 162. This facility was not observed at this location in the field. Review of the data indicates that this facility was located 1.5 miles southeast of Alma, which would be east of and outside the project footprint. No information regarding a well with this name was provided in the oil and gas records reviewed. As such, this facility would be unlikely to adversely impact the project footprint.

Don Newton (**Map ID #7**), at 1218 Clear Creek Road, was listed on the DEQ solid waste illegal dump (SWID) site database. This address is located inside the project footprint. The database records indicated that when the site was inspected in 2008, no illegal disposal was occurring at the site. No further information was provided. No evidence of illegal dumping was observed at this location during the site reconnaissance, and as such would be unlikely to adversely impact the project footprint.

Stephens Production – E.L. Kibler #4 natural gas well (**Map ID #8**) was identified on the ADEM Tier 2 list. This location was incorrectly mapped by EDR as being in the project footprint. Further research indicates that this well was in Section 7, Township 8 North, Range 30 West, which is southeast of and outside the project footprint. Coordinates obtained from the AOGC website also place this well outside and southeast of the project footprint. Review of the available information in the EDR report indicates that this facility would not adversely impact the project footprint.

Blake Construction Borrow Pits (**Map ID #9**) were identified on the Arkansas Permits database at the intersection of Highways 59 and 22 in Barling, AR, which coincides with the southern terminus of the project footprint. A borrow pit was evident to the north of the area on available aerial photographs. This facility was listed on the database for an expired stormwater permit. It is likely that this borrow pit was associated with the construction of the existing section of Interstate 49 that extends southwest from Highway 22 and Barling. It is unlikely that this facility would adversely impact the project footprint.

Casey's General Store #3487 (**Map ID #10**), located at 107 Fort Street (Highway 22) in Barling, was identified on the DEQ financial assurance and underground storage tank (UST) databases for two USTs installed in 2016 that are currently in use. This facility is located adjacent to the south end of the project footprint on the south side of Highway 22. This facility was recently constructed and is currently in compliance. The facility is not on the DEQ Leaking UST database and would be unlikely to adversely impact the project footprint.

The U.S. Army Reserve Center (**Map ID #11**), located at 101 Fort Street (Highway 22) in Barling, was identified on the FINDS, ECHO, Permits, and RCRA databases. The facility was identified as a very small quantity generator (VSQG) of hazardous waste (also known as a conditionally exempt small quantity generator). According to the EDR report, this facility generates ignitable waste and spent solvents. No violations were reported for this facility, and it is unlikely that this facility would adversely impact the project footprint.

Marvin J. Mendenhall (**Map ID #12**), formerly located at 103 Fort Street (Highway 22) in Barling, was identified on EDR's proprietary historic auto database in 1971 and 1972 as a gasoline service station and from 1973 to 1983 as an auto and home supply store. This address was mapped on the Google Maps website, and it was located where the Casey's General Store is currently located. No violations were reported for this facility, and it is unlikely that this facility would adversely impact the project footprint.

Mai Nguyen (**Map ID #13**), at 8315 Alma Highway, was listed on the DEQ SWID database for an anonymously reported dumpsite in 2011. This address is located just outside the project footprint. The database records indicated that the complaint of dumping was valid; however, no other information was provided. No evidence of illegal dumping was observed at this location during the site reconnaissance. As such, this facility would be unlikely to adversely impact the project footprint.

City of Barling (**Map ID #14**), located at 304 Church Street, was identified on the DEQ UST database for two USTs installed in 1983 and permanently removed from service in 1993. This facility is located west of the south end of the project footprint. This facility was identified on Table 3-7 of the 1997 FEIS as Barling City Hall. The facility was not on the Leaking UST database and would be unlikely to adversely impact the project footprint.

Stericycle (**Map ID #15**), previously located at 6700 Mahogany Avenue, was identified on the FINDS, ECHO, and RCRA non-generator databases. This facility is located outside the south end of the project footprint and is currently in use by the University of Arkansas Cooperative Extension Service. No violations were listed for this facility, and it is unlikely that this facility would adversely impact the project footprint.

Barling Food Center (**Map ID #16**), previously located at 406 Church Street, was identified on the DEQ Permits, UST and leaking UST databases. This facility is located to the west of the southern limits of the proposed project footprint. This facility was also identified on Table 3-7 of the 1997 FEIS as Barling Food Center. This facility had three USTs installed in 1986 that were permanently removed from service in 2002. Two leak cases were opened in 2002 prior to subsequent UST closure activities. Review of the files indicated that the USTs were removed in 2002 and that all petroleum-impacted soils were removed at the time. The DEQ issued a “no further action” letter closing both cases. As such, this facility would be unlikely to adversely impact the project footprint.

Ken’s Car Care (**Map ID #17**), previously located at 712 Fort Street, was identified on the DEQ Permits, Financial Assurance, UST and Leaking UST databases. This facility is located approximately 0.5-mile west of the project footprint. This facility had six USTs installed between 1979 and 1986 that were permanently removed from service in 1999 and 2009. One leak case was opened in 2002 prior to subsequent UST closure activities. Review of the files indicated that the remaining USTs were removed in 2009 and that all petroleum-impacted soils were removed at the time. The DEQ issued a “no further action” letter closing the case. As such, this facility would be unlikely to adversely impact the project footprint.

The Roy Bowles/unknown site (**Map ID #18**) located at 2925 Old Macedonia Road was identified on the DEQ SWID database. This facility was located 0.6-mile northeast of the project footprint and would be unlikely to adversely impact the project footprint.

Review of the EDR report also listed multiple sites termed “orphan” sites that could not be accurately mapped due to poor geocoding or address information. Review of the data provided

indicated that these sites were outside the project footprint and would not adversely impact the project footprint.

Exhibit 1 in **Attachment A** shows the project footprint and the locations of the regulated facilities. With the exception of the Stephens Production – Steward Gillie Smith #1 natural gas well, none of the identified regulated facilities are directly located within the project footprint. Review of the data provided in the EDR report indicates that it is unlikely that any of the identified regulated facilities will adversely impact the project footprint. The EDR report is included in **Attachment D**.

6.0 WATER WELLS

The 1997 FEIS discussed the general use of groundwater (via water wells) in the project study area; however, no specific details of individual water wells were included in the FEIS. For the FEIS Re-evaluation, records of water wells within a one-mile radius of the project footprint were obtained from EDR. A total of 98 water wells were identified within this radius. Of these, four wells were mapped within the project footprint. Review of aerial imagery and on-site ground truthing indicates that none of these wells were actually located in the project footprint and were incorrectly geolocated. As such the water wells would not be an environmental concern for the project. The EDR well record report is included in **Attachment D**.

7.0 NATURAL GAS WELLS

The 1997 FEIS indicated that the locations of producing, inactive and abandoned gas wells were obtained from the AOGC. The report included limited information regarding the locations of natural gas wells along the FEIS alignment options; however, it indicated that no producing wells would be impacted by the FEIS preferred alternative.

For the FEIS Re-evaluation, oil and gas well data was obtained from EDR (along with supplemental GIS data from the AOGC) to evaluate the presence of existing and former oil and natural gas wells in the project footprint. A total of 170 natural gas wells (including producing, dry and abandoned, or plugged and abandoned) were located within a one-mile radius of the project footprint in Crawford County. A total of six natural gas wells (including producing or plugged and abandoned) were located within a one-mile radius of the project footprint in Sebastian County. **Exhibit 2** in **Attachment A** shows the wells identified within and adjacent to the project footprint.

A total of 62 wells have been plugged and abandoned within one mile of the project footprint. Of these, five were located within the project footprint. Seven producing natural gas wells were located within the project footprint. Six producing wells were located adjacent to or nearly adjacent to the project footprint. **Table 6-1** summarizes the wells identified within the project footprint.

Table 7-1: Summary of Natural Gas Wells and Compressor Stations

Map ID	Well Name	Operator	Status	County	Latitude	Longitude
1	**Steward, Gillie Smith #1**	Stephens Production Company	Producing	Crawford	35.43151	-94.21418
2	McClure #2	Stephens Production Company	Producing	Crawford	35.38745	-94.25526
3	**Brown 1-1**	Lyons & Lyons, Inc.	Producing	Crawford	35.48493	-94.24408
4	Newton, Don #1	Stephens Production Company	Producing	Crawford	35.40145	-94.22821
5	Newton, Don #2	Stephens Production Company	Producing	Crawford	35.40631	-94.22808
6	**Chitwood 3-A**	Foundation Energy Management, LLC	Producing	Crawford	35.44822	-94.21182
7	McClure #3	Stephens Production Company	Producing	Crawford	35.38909	-94.24988
8	Tibbits 5-11	Merit Energy Company, LLC	Producing	Crawford	35.38008	-94.26424
9	Cazort #5	Waelder Oil and Gas, Inc.	Producing	Crawford	35.39879	-94.23598
10	**Cazort #8**	Waelder Oil and Gas, Inc.	Producing	Crawford	35.39488	-94.23603
11	**Cazort #2**	Waelder Oil and Gas, Inc.	Producing	Crawford	35.40605	-94.22476
12	**Griffith, Raymond #1**	Diamond Shamrock Corp.	P&A	Crawford	35.44666	-94.21128
13	**Shibley, Emma #1**	Stephens Production Company	P&A	Crawford	35.38983	-94.24744
14	**Ogden, Mrs. Fannie #1**	Stephens Production Company	P&A	Crawford	35.38633	-94.25183
15	**Andrews, C.A. #1**	Clear Creek Oil & Gas Company	P&A	Crawford	35.42827	-94.21148
16	**Hardin, Nina V. #1**	Industrial Oil & Gas Co.	P&A	Crawford	35.42064	-94.21842
17	**Fort Chaffee Federal 1-27**	Merit Energy Company, LLC	Producing	Sebastian	35.33991	-94.28131
18	**USA 1-34**	Merit Energy Company, LLC	Producing	Sebastian	35.32602	-94.28850
19	Compressor Station	Waelder Oil and Gas, Inc.	Operating	Crawford	35.39457	-94.23494
20	Compressor Station	Merit Energy Company, LLC	Operating	Sebastian	35.33239	-94.28176

Notes: **Bold red text** indicates well located within the project footprint. P&A – plugged & abandoned.
Source: EDR Report, dated June 11, 2021

Several producing wells were identified in the project footprint. These include the Lyons & Lyons, Inc. Brown 1-1 (see photographs 1 – 3), Foundation Energy Management, LLC Chitwood 3-A (see photograph 4 showing locked gate preventing access to this location), Stephens Production Company Steward, Gillie Smith #1 (see Photograph 5), Waelder Oil and Gas, Inc. Cazort #8 (see photograph 11) and Cazort #2 (see Photograph 7), and Merit Energy Company, LLC Fort Chaffee Federal 1-27 (see Photographs 26 and 27) and USA 1-34 (see photographs 28 and 29).

Several producing wells were located adjacent to the project footprint. Although these wells were outside the footprint, access to the wells was via lease roads that crossed the project footprint. These wells included the Stephens Production Company Newton, Don #1 (see photograph 8-10), Newton, Don #2 (see photograph 6), McClure #2 (see photograph 18), and McClure #3 (see photograph 17). The Merit Energy Company, LLC Tibbits 5-11 (see photographs 19 – 21).

Five plugged and abandoned wells were identified as being in the project footprint; however, the former locations of these wells were not observed in the field.

A natural gas compressor station (see Photographs 11 – 16), operated by Waelder Oil and Gas, Inc., was located within the project footprint southeast of the Cazort #8 well (see Photograph 11). The entrance was located west of Thornhill Street, 2.6 miles south of the intersection with Highway 162 in Kibler. The Cazort #5 and #8 wells are connected to this compressor station. Oil staining was observed below the compressor. In addition, a green-colored substance, presumably liquid herbicide, had been sprayed around the compressor station. Oil staining was also observed adjacent to wellhead compressors at the Stephens Production Company Newton, Don #1 well pad and the Merit Energy Company Tibbits #5-11 well pad.

A second natural gas compressor station (see Photographs 22 – 25), operated by Merit Energy Company, LLC, was located adjacent to the project footprint south of the Arkansas River. This fenced compressor station was located on the north side of H Street, approximately 0.8-mile east of Highway 59 in Barling and was connected to the Fort Chaffee Federal 1-27 well (see Photographs 26 and 27), located approximately 0.5-mile to the north in the project footprint. Some staining was observed around the equipment within the fenced area. An Arkansas Oklahoma Gas Corporation natural gas pipeline (see Photographs 30 and 31) crossed a portion of the south end of the project footprint along Highway 4 (Church Street). **Exhibit 2** in **Attachment A** shows the locations of the natural gas wells and compressor stations within the project footprint or adjacent to the project footprint. A few of the wells, although outside the project footprint, are connected via lease roads and/or piping to wells and/or compressor stations in the project footprint.

The natural gas produced in this area is considered “dry,” which indicates the absence of natural gas liquids (ethane, propane, butane, isobutane and pentane). It should be noted that, although the gas is considered dry, water is produced with the gas that is typically high in chloride content. This produced water is stored in tanks on the well pads until hauled off for re-use or disposal, typically in deep injection wells. No injection wells are located within one mile of the project footprint.

8.0 SITE RECONNAISSANCE

Mr. Thomas Huetter, P.G., Senior Project Manager, inspected the project footprint on June 22-23, 2021, then again on November 11, 2021, and January 21, 2022. The weather was clear to partly cloudy and in the mid to upper 80’s during the June visit and clear and cold during the follow up visits. The project footprint is situated in a primarily rural environment. As discussed previously, the northernmost section is primarily bottomland alluvial agricultural land with minimal development. The central section, located in an upland area east of Kibler, is lightly residential with scattered wooded areas and cleared pastureland. The southern portion of the project footprint is primarily bottomland alluvial agricultural land with minimal development.

Several piles of trash were observed in the project footprint between Kibler and the south end of the project footprint north and south of the Arkansas River.

A trash dump (see Photograph 32) was observed in a wooded area within the project footprint south of Kibler approximately 0.2-mile west of Richland Drive and 0.1-mile south of Green Acres

Circle (35.422861, -94.217889). Discarded materials consisted predominantly of old appliances and furniture but was largely obscured by thick vegetation.

A large pile of discarded trash (see Photographs 33 and 34) was located on the north side of Gun Club Road approximately 1.5 miles east of the intersection with AR 59 (35.362528, -94.277944). Discarded materials included but were not limited to bagged household trash, pallets, mattresses, construction debris and furniture.

A second dump area (see Photographs 35 - 40) was observed at the Gun Club Road bridge over Flat Rock Creek approximately 0.4 miles east of the intersection with AR 59 (35.362966, -94.296719). Discarded materials included but were not limited to bagged household trash, coolers, appliances, tires, mattresses, construction debris and furniture. The bulk of the trash was on the north side of the road; however, some debris was observed on the south side of the road as well.

Two smaller trash piles were observed on the south side of the river near the southern terminus. A small trash pile (see Photographs 41 and 42) was located in the project footprint just east of the west end of H Street (35.332224, -94.281460). The discarded material included landscaping plastic waste (bags, pots) and one tire. A second small trash pile (see Photographs 43 and 44) was observed north of Highway 4 approximately 0.4-mile east of Frontier Road (35.325632, -94.286544). Discarded material included furniture and cardboard.

Photographs taken during the site reconnaissance are included in **Attachment B**.

9.0 ASBESTOS

Minimal research was conducted regarding the potential for asbestos-containing materials (ACM) that could be present in structures slated for demolition during the 1997 FEIS. Section 4.20 of the FEIS references that no properties were identified as containing asbestos; however, no other information regarding the assessment of asbestos or ACM was provided. A review of existing structures in the project footprint was conducted during this Re-evaluation to evaluate the potential for ACM that could be present in structures slated for demolition. No asbestos sampling was conducted as part of this evaluation. Federal and state regulatory agencies define ACM as any building material that contains greater than 1% asbestos. The presence and percentage of asbestos can only be determined by laboratory analysis.

The northernmost portion of the project footprint (from Interstate 40 to Frog Bayou) crosses mostly open pastureland. Two structures that appear to be barns were observed on aerial imagery just to the north of Frog Bayou on land that was inaccessible per the landowner. Due to landowner access restrictions, the use, age and structure type could not be verified. Review of Crawford County Tax Assessor records shows that these buildings are either general purpose barn or pole sheds, neither of which are likely to contain ACM.

South of Frog Bayou, the project footprint enters a primarily residential area. The project footprint crosses Waterfront Road, which is a residential development, construction of which

began around 2004. Four residential structures with outbuildings are located within the project footprint north and south of Waterfront Road. Two additional residential structures are located on or just outside the project footprint boundary in this neighborhood. These buildings were constructed between 2006 and 2016. Based on the age of these structures, ACM is unlikely to be encountered.

The project footprint next crosses Clear Creek Road and Richland Road then Newtown Road farther south. Multiple residences along with various storage buildings and pole barns are located within the project footprint in this area. Most of the residences consisted of wood-frame, concrete slab-on-grade or pier foundation with fiberglass shingle roofing. Many of the residences had brick veneer outer surfacing. According to Crawford County Tax Assessor records, the residences were constructed between 1960 and 2014, with over half of those constructed before 1990. The age of these structures increases the likelihood that ACM may be present.

South of the residences along Newtown Road, the project footprint enters a wooded area, then pasture before crossing Alma Drive. The project footprint re-enters a wooded, undeveloped area south of the terminus of Alma Drive. The project footprint enters agricultural land south of the wooded area then crosses Thornhill Street. The project footprint continues southwest over agricultural land, crossing Westville Road, then turning south just before crossing Gun Club Road. The project footprint continues south over the Arkansas River levee and floodplain, then over the Arkansas River into wooded floodplain, then mixed pasture-woodland owned by Fort Chaffee. The project footprint crosses P Street and H Street northeast of Barling, then shifts back in a southwest direction crossing Highway 4 (Church Street) until its southern terminus at Highway 22 and the existing section of Interstate 49. No structures were located within the project footprint.
Several natural gas well pads are either in the project footprint or adjacent to the project footprint. ACM would not be expected at these locations. Well information is discussed in greater detail in Section 6.0 above.

An asbestos survey should be performed of any structures slated for demolition within the project footprint. The survey should be conducted by a licensed inspector in accordance with DEQ and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements. Inspection procedures should be conducted in accordance with the EPA's Asbestos Hazard Emergency Response Act (AHERA).

10.0 POTENTIAL UNEXPLODED ORDANCE

Much of the project footprint immediately north and south of the Arkansas River is land currently or previously owned by the Fort Chaffee Joint Maneuver Training Center (FCJMTC). FCJMTC is a 65,000-acre premier training site near Fort Smith, AR. It is utilized by all Department of Defense components and a variety of local, state, and federal agencies for maneuver training, live fire exercises, river crossing operations, and urban combat training. As such, potential unexploded ordnance (UXO) or discarded military munitions (DMM) could occur on lands owned by FCJMTC within the project footprint. Photograph 45 shows a sign warning of potential UXO observed on FCJMTC land south of the river.

ARDOT provided a copy of a construction guide prepared by the U.S. Army Technical Center for Explosives Safety for construction work performed on current and former military installations. This guide, the *3Rs Explosives Safety Guide*, emphasizes the importance of the "Recognize, Retreat, and Report" protocol when encountering UXO or DMM during construction operations, particularly during clearing and grubbing operations. The 3Rs protocol is as follows:

RECOGNIZE

When you may have encountered a munition.

RETREAT

Do not touch, move or disturb it, but carefully leave the area.

REPORT

Immediately notify the police if on land, or the U.S. Coast Guard if at sea.

This guide will be provided to all contractors bidding on this project for awareness purposes. More detailed training will be provided to all field personnel upon award of the contract. A copy of the guide is included as Exhibit C in Appendix A of this report.

11.0 SUMMARY AND CONCLUSIONS

ARDOT, in cooperation with FHWA, is preparing a re-evaluation of the FEIS and refining the alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County, and Interstate 40 in Crawford County, a distance of approximately 14 miles.

11.1 Land Use

Review of historic land use indicates that the project footprint has been mostly rural with minimal development over the years. Large portions of the north and south ends of the project footprint are currently in agricultural use or is undeveloped wooded land along the Arkansas River. A residential area exists east of Kibler near the center of the project footprint.

11.2 Regulated Facilities

Review of regulated facility data shows that minimal impact should be expected from the facilities identified. One regulated facility, the Stephens Production – Steward Gillie Smith #1 natural gas wellhead (**Attachment A**, **Exhibit 1**, Map ID #3 and **Attachment A**, **Exhibit 2**, Map ID #1), was located at 910 Clear Creek Road within the project footprint. This well will require plug and abandonment in accordance with AOGC regulations prior to initiation of construction activities. No other identified regulated facilities were located within the project footprint;

therefore, they would not be a concern for the proposed project.

11.3 Natural Gas Wells

Several natural gas wells and two compressor stations were identified within or immediately adjacent to the project footprint and are shown on **Exhibit 2** in **Attachment A**. Wells located within the project footprint that cannot be avoided will require plug and abandonment in accordance with AOGC regulations. This will require coordination between ARDOT and the well operators, who would be responsible for properly plugging and abandoning the wells. Equipment infrastructure (gathering lines and other piping) will also require removal.

Some oil and herbicide application staining were observed at the Waelder Oil and Gas, Inc. compressor station (Exhibit 2, Map ID #19). Other oil staining was observed adjacent to wellhead compressors at the Stephens Production Company Newton, Don #1 well pad and the Merit Energy Company Tibits #5-11 well pad.

The staining was largely de minimis and would not be expected to cause substantial impact to the project footprint. After removal of the equipment, the stained soils should be excavated and disposed of at an appropriate permitted landfill. Soil sampling and laboratory analysis may be required to characterize the soils for disposal and to evaluate whether impacted soils have been adequately removed.

11.4 Additional Environmental Concerns

Several trash piles were observed in the project footprint. These were located approximately 0.2-mile west of Richland Drive and 0.1-mile south of Green Acres Circle (35.422861, -94.217889) in Kibler, on the north side of Gun Club Road approximately 1.5 miles east of the intersection with AR 59 (35.362528, -94.277944), and north and south of the Gun Club Road bridge over Flat Rock Creek approximately 0.4 miles east of the intersection with AR 59 (35.362966, -94.296719). All the sites were located on the north side of the Arkansas River in Crawford County. Two other trash piles were located just east of the west end of H Street (35.332224, -94.281460), and north of Highway 4 approximately 0.4-mile east of Frontier Road (35.325632, -94.286544), both on the south side of the Arkansas River in Sebastian County. Materials observed were non-hazardous but will require disposal at an appropriate permitted disposal facility prior to the initiation of construction. Should evidence of hazardous substances be discovered during removal, soil sampling may be required to evaluate potential impacts, and/or confirm that the area has been appropriately remediated.

As substantial areas in the southern portion of the project footprint are located within land currently or previously owned by FCJMTC, UXO or DMM could occur within the project footprint. Contractors bidding on the project will be provided with guidance to make them aware of the hazard prior to bidding. Appropriate training will be provided to all field personnel upon award of the contract.

ATTACHMENT A: EXHIBITS

MAP ID	FACILITY NAME	ADDRESS	CITY	ST	DATABASE NAME
1	OZARK LAKE	N/A	BARLING	AR	DOD
2	FORT CHAFFEE (CLOSED)	SH 22	BARLING	AR	DOD
3	STEPHENS PRODUCTION - STEWARD GILLIE SMITH #1	SEC 29 - T9N - R30W	ALMA	AR	TIER 2
4	CLEAR CREEK PIT	HWY 162 & CLEAR CREEK RD	ALMA	AR	FINDS, PERMITS
5	ANADARKO-MORRIS #2 COMPRESSOR STATION	KIBLER FIELD - SEC 36 9N 31W	KIBLER	AR	FINDS, ECHO
6	ARKLA - MCCARTY	1.5 SE OF ALMA	ALMA	AR	FINDS
7	DON NEWTON	1218 CLEAR CREEK PARK ROAD	ALMA	AR	SWID
8	STEPHENS PRODUCTION - E.L KIBLER #4	SEC 7 - T8N - R30W	ALMA	AR	TIER 2
9	BLAKE CONST/BORROW PITS	HWY 59 & 22	BARLING	AR	PERMITS
10	CASEY'S GENERAL STORE #3487	107 FORT STREET	BARLING	AR	UST, Financial Assurance
11	US ARMY RESERVE CENTER	101 FORT ST	BARLING	AR	FINDS, PERMITS, ECHO, RCRA-VSQG
12	MENDENHALL MARVIN J	103 FORT ST	BARLING	AR	EDR Hist Auto
13	MAI NGUYEN	8315 ALMA HWY.	ALMA	AR	SWID
14	BARLING, CITY OF	304 CHURCH STREET	BARLING	AR	UST
15	STERICYCLE @ SEBASTIAN	6700 MAHOGANY AVE	BARLING	AR	FINDS, ECHO, RCRA NonGen / NLR
16	BARLING FOOD CENTER	406 CHURCH ST	BARLING	AR	PERMITS, UST, LTANKS
17	KEN'S CAR CARE	712 FORT ST	BARLING	AR	PERMITS, UST, LTANKS, Financial Assurance
18	ROY BOWLES	2925 OLD MACEDONIA ROAD	ALMA	AR	SWID

EXHIBIT 1
REGULATED FACILITIES
I-49 FEIS RE-EVALUATION

From Hwy. 22 to I-40

Hazardous Materials
Technical Report

Crawford and Sebastian
Counties, Arkansas

MAP ID	OPERATOR	WELL NAME	WELL TYPE	COUNTY	STATUS
1	Stephens Production Company	Steward, Gillie Smith #1	Natural gas	Crawford	Producing Well
2	Stephens Production Company	McClure #2	Natural gas	Crawford	Producing Well
3	Lyons & Lyons, Inc	Brown #1-1	Natural gas	Crawford	Producing Well
4	Stephens Production Company	Newton, Don #1	Natural gas	Crawford	Producing Well
5	Stephens Production Company	Newton, Don #2	Natural gas	Crawford	Producing Well
6	Foundation Energy Management, LLC	Chitwood #3-A	Natural gas	Crawford	Producing Well
7	Stephens Production Company	McClure #3	Natural gas	Crawford	Producing Well
8	Merit Energy Company, LLC	Tibbits #5-11	Natural gas	Crawford	Producing Well
9	Waelder Oil and Gas, Inc.	Cazort #5	Natural gas	Crawford	Producing Well
10	Waelder Oil and Gas, Inc.	Cazort #8	Natural gas	Crawford	Producing Well
11	Waelder Oil and Gas, Inc.	Cazort #2	Natural gas	Crawford	Producing Well
12	Diamond Shamrock Corp	Griffith, Raymond #1	Natural gas	Crawford	Plugged and Abandoned
13	Stephens Production Company	Shibley, Emma #1	Natural gas	Crawford	Plugged and Abandoned
14	Stephens Production Company	Ogden, Mrs Fannie #1	Natural gas	Crawford	Plugged and Abandoned
15	Clear Creek Oil & Gas Company	Andrews, C A #1	Natural gas	Crawford	Plugged and Abandoned
16	Industrial Oil & Gas Co	Hardin, Nina V #1	Natural gas	Crawford	Plugged and Abandoned
17	Merit Energy Company, LLC	Fort Chaffee Federal #1	Natural gas	Sebastian	Producing Well
18	Merit Energy Company, LLC	USA #1-34	Natural gas	Sebastian	Producing Well
19	Waelder Oil and Gas, Inc.	N/A	Natural gas	Crawford	Compressor Station
20	Merit Energy Company, LLC	N/A	Natural gas	Sebastian	Compressor Station

Alma
Van Buren
Kibler
Clear Creek Road
Frog Bayou
Crawford County
Sebastian County
Central City
Barling
Union Pacific Railroad
Arkansas River
Cedars Country Club
Wildcat Mountain
Fort Chaffee MTC
Summerdale Dr
Hilltop Rd
Hilltop Dr
Old Concord Rd
Hamer Rd
Pleasant Valley Rd
Sunnyside Rd
N Arkansas Ave
Shibley Rd
Alma Hwy
Kibler Rd
W Kibler Hwy
S 28th St
S 4th St
Industrial Park Rd
Old Rouw Rd
Oak Grove Rd
Catcher Rd
Parks Rd
Catcher Xing
Westville Rd
McClure Rd
Hale Farm Rd
Hollis Lake Rd
S Ar 59 Hwy
Crawford Rd
Gun Club Rd
New Town Rd
Cross Lanes Rd
Bugscuffle Rd
N River Rd
Dallas St
Rogers Ave
Fort St
Highway 59
Butler St
Carter St
E Central Ave
W Central Ave
Massard Rd
Frontier Rd
Strozier Ln
AR-4
Reed
Orrick Rd
Shade Rd
Ruby Rd
US-71 N
CRAWFORD
SEBASTIAN

Legend

- Producing Well
- Plugged and Abandoned Well
- Compressor Station
- I-49 Project Footprint
- Gun Club Extension
- Municipal Boundary
- County Boundary

0 1 2 Miles

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

N W E S

EXHIBIT 2
NATURAL GAS WELLS
I-49 FEIS RE-EVALUATION

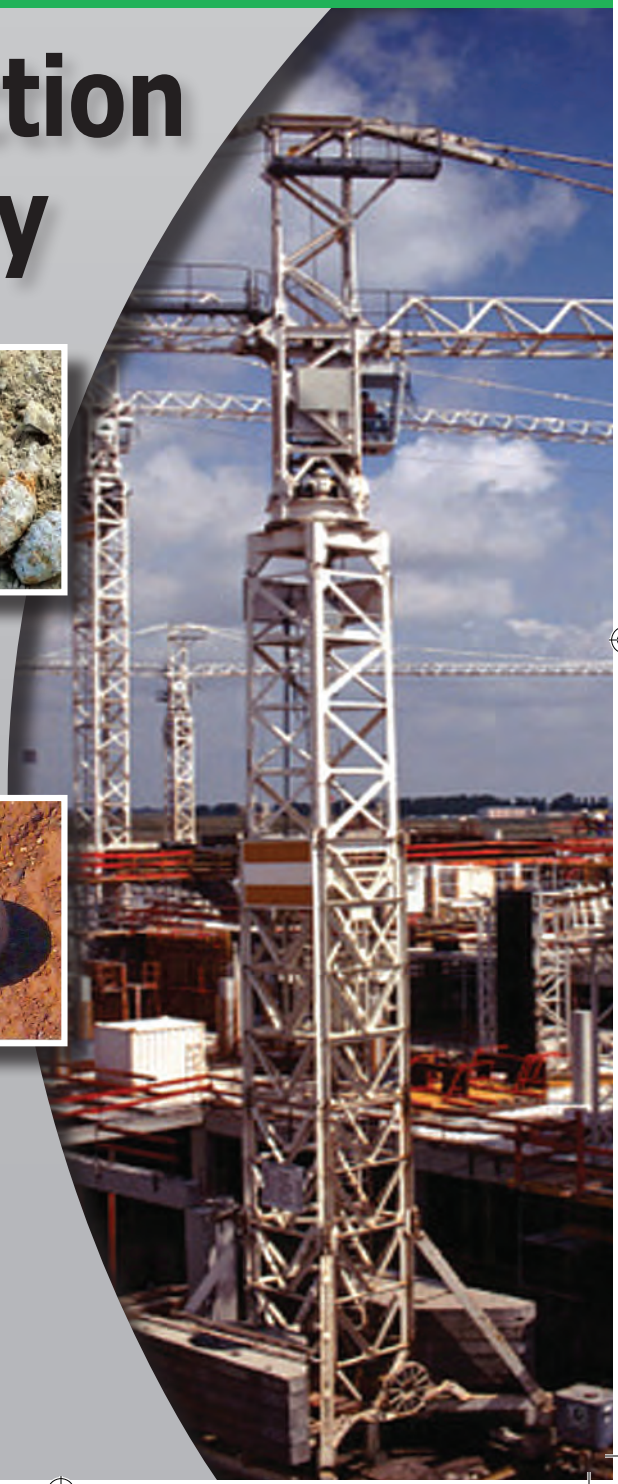
From Hwy. 22 to I-40

Hazardous Materials
Technical Report

Crawford and Sebastian
Counties, Arkansas

3Rs Explosives Safety Guide

Construction Industry



ORecognize
ORetreat
OReport

THE UNITED STATES HAS ALWAYS MAINTAINED A HIGHLY TRAINED AND READY FORCE TO PROTECT ITS NATIONAL INTERESTS.

After both world wars and recently with force realignment and modernization efforts, the Department of Defense (DoD) closed a number of military installations and training areas, and returned other lands previously used for military-related activities to public use. Because of the live-fire training and testing required to maintain this force, millions of acres in the United States are known or suspected to contain military munitions in the form of unexploded ordnance (UXO), or discarded military munitions (DMM). In some cases, munitions constituents (e.g., TNT) may also exist in high enough concentrations to present an explosive (detonation) hazard. Although DoD routinely made an effort to remove any explosive hazards present before releasing land from its control, some may remain. These explosive hazards may be found on the surface or in the subsurface.

Munitions are designed to injure, maim or kill people, or to destroy equipment or structures. Consider any encounter with a known or suspected munition as an extremely dangerous situation.

During construction work (e.g. clearing vegetation, grubbing, grading, or excavation), munitions may be encountered. This is particularly true for areas known to have once been used by the military for munitions-related activities (e.g., live-fire training and testing, and munitions demilitarization).

Military munitions operating buildings (e.g., munitions production and demilitarization facilities) and any installed equipment may contain explosives residue in high enough concetrations to present an explosive hazard. Building features (e.g., floors, walls, drains, internal and external piping, and ventilation systems), in which explosives residues could accumulate and present an explosive hazard, are of particular concern. Industrial equipment, particularly equipment with internal cavities, from facilities used in munitions production or demilitarization operations (e.g., cast loading, milling, or steam-out) that generated explosive residues (e.g., dust or vapors) is also of concern.

WILL YOU KNOW WHAT TO DO IF YOU ENCOUNTER A MUNITION?

Areas at which DoD conducted munitions-related activities include, but are not limited to operational and former ranges, and areas used for munitions demilitarization. The types of explosive hazards present may differ between areas. As an example, a former impact area may contain UXO, while a former maneuver area may only contain DMM.

Munitions can also be found in areas where combat operations once occurred. Even cannon balls found on Civil War battlefields present a potential explosive hazard. However, for a variety of reasons (unauthorized disposals, discarded souvenirs) munitions may be encountered almost anywhere.

Prior to working in areas with a history of military use, even areas where DoD has completed an environmental response to remove any hazards detected, it is important to familiarize yourself with the site history and potential hazards. This can be provided through site-specific safety training. In some cases, safety officials may determine that on-site or on-call construction support by UXO-qualified personnel is necessary to help ensure the safety of construction workers, particularly during ground disturbing or intrusive activities.

MUNITIONS ARE DESIGNED TO BE DANGEROUS

Remember that munitions:

- Come in many shapes and sizes.
  - They could look like a:
    - Pointed pipe
    - Soda can
    - Baseball
    - Car muffler
  - They may:
    - Look new or old
    - Be found alone or in clusters
- Should be considered extremely dangerous regardless of size or age
- Munitions often become more dangerous with age, not safer

Munitions may be:

- Found almost anywhere
- Clearly visible on the surface
- Buried at depths of inches to many feet
- Partially or completely hidden by dirt or vegetation
- Found under paved areas (roads, parking lots) or building slabs
- Underwater, in lakes, streams, or the ocean
- Exposed by natural phenomena (e.g., tides)
- Easy or difficult to recognize

While munitions are most likely to be encountered during construction in areas where DoD conducted munitions-related activities, they may be encountered anywhere. To protect yourself and your co-workers, know whether munitions-related activities ever occurred at your work site, and learn to follow the 3Rs: Recognize, Retreat, Report.

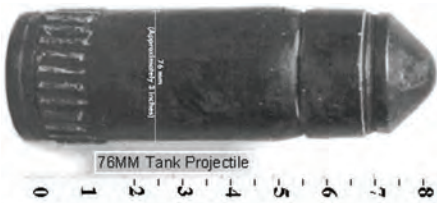
Recognize

Recognizing that you may have encountered a munition is one of the most important steps in reducing the potential risk of injury or death. Because munitions pose a potential explosive hazard, they should never be touched, moved or disturbed (handled).

WILL YOU DO THE RIGHT THING WHEN THE TIME COMES?

In 1993, a construction worker digging a trench unearthed what looked like large bullets. He recognized the potential danger, stopped digging and notified his supervisor. Local authorities were called. As a result of this worker's actions, nearly 150 high explosive tank shells were recovered from a former WWI training area.

Remember, whether complete or in pieces, any munition or suspect munition encountered should be considered extremely dangerous. Do the right thing! immediately stop all operations in the area; do not touch, move or disturb it, and notify your supervisor or local authorities.



Retreat

If you encounter or suspect you may have encountered a munition, do not touch, move or disturb it. Instead, carefully retreat from the area by retracing your steps.

- Immediately stop all construction activities in the area, warning others of the potential danger.
- Do not approach the munition or a suspect munition. (Some fuzes are sensitive to changes in temperature, movement or pressure.)
- Move away from the area and keep others away from it!

Unfortunately, munitions are often popular, but potentially deadly souvenirs. Taking a munition for a keepsake presents an immediate and real danger to you. Bringing one home endangers your family, your friends, and your community. Don't be tempted.

Report

If you encounter or suspect you have encountered a munition, do not touch, move or disturb it. Instead, immediately stop construction activities and move away from the area and report what you saw.

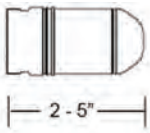
Protect yourself, your co-workers, and the public by immediately reporting any munitions or suspect munitions encountered to your foreman, site supervisor, or by calling 911.

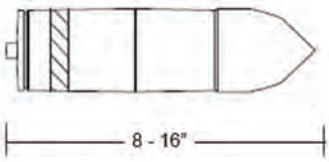
Provide as much information as possible about what you saw and where you saw it. This will help the police and explosive ordnance disposal personnel (usually referred to as EOD personnel) find, evaluate and address the situation.

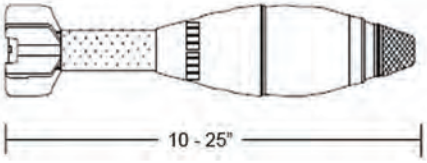
If you believe you may have encountered a munition, report the following:

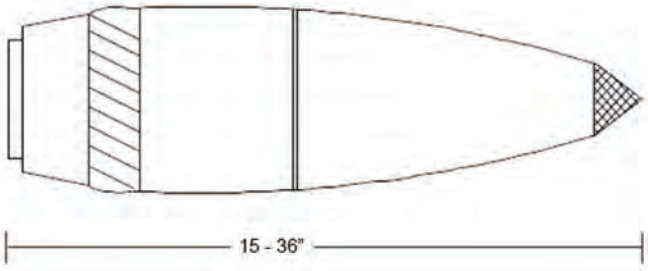
- The area where you encountered it.
- A general description of the munition, to include:
  - Its size
  - Its shape
  - Any readily visible markings--do not approach or handle the munition to see the markings

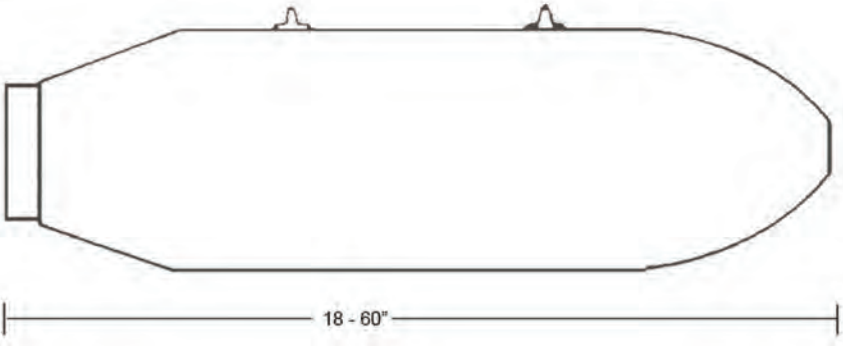
MUNITIONS COMMON SIZE AND SHAPE PROFILES











Don't Forget

- Munitions are dangerous and may not be easily recognizable!
- The history of your work site--know when you are working on a former military range or disposal area!
- Never touch, move or disturb a munition!

Follow the 3Rs

Recognize

When you may have encountered a munition.

Retreat

Do not touch, move or disturb it, but carefully leave the area.

Report

Immediately notify the police if on land,
or the U.S. Coast Guard if at sea.

Emergency contacts:

- On land: Call 911
- At sea: Use Channel 16 (156.800 MHz)

For additional information call
U.S. Army Technical Center for Explosives Safety
at (918) 420-8919
or see

the US Army's UXO Safety Education website
https://www.denix.osd.mil/uxosafety

ATTACHMENT B – PHOTOGRAPHS OF SITES POTENTIALLY IMPACTING THE PROJECT FOOTPRINT

Photo 1: View southwest of Lyons & Lyons, Inc. Brown 1-1 (**Exhibit 2, Map ID #3**) wellhead sign located within project footprint to the north of Interstate 40 and west of existing Interstate 49 north of Alma.

Photo 2: View southwest of Brown 1-1 well pad (**Exhibit 2, Map ID #3**) with produced water tank and gas/water separator.

Photo 3: View west/southwest of Brown 1-1 wellhead (**Exhibit 2, Map ID #3**) with gas/water separator.

Photo 4: View east of location of Foundation Energy Management, LLC – Chitwood #3-A well head (**Exhibit 2, Map ID #6**) located east of Highway 162 north of Kibler. The gate in this photo was locked preventing access to this wellhead.

Photo 5: View north of Stephens Production – Steward Gillie Smith #1 well head (**Exhibit 1, Map ID #3; Exhibit 2, Map ID #1**) located north of Clear Creek Road 0.5-mile east of the intersection with Highway 162 in Kibler. This was the only site identified on both the regulatory and natural gas well database searches.

Photo 6: View south of Stephens Production – Newton, Don #2 well head (**Exhibit 2, Map ID #5**) located east of Thornhill Street south of Kibler.

Photo 7: View north of Waelder Oil & Gas, Inc. – Cazort #2 well head (**Exhibit 2, Map ID #11**) located north of Clear Creek Road 0.5 miles east of the intersection with Highway 162 in Kibler.

Photo 8: View north of Stephens Production – Newton, Don #1 well head (**Exhibit 2, Map ID #4**) located east of Thornhill Street south of Kibler. This wellhead had a diesel-powered compressor.

Photo 9: Oil staining on gravel around diesel-powered compressor at Stephens Production – Newton, Don #1 well head.

Photo 10: Close-up of oil staining on gravel at Stephens Production – Newton, Don #1 well head.

Photo 11: View west of Waelder Oil & Gas, Inc. – Cazort #8 natural gas wellhead (**Exhibit 2 Map ID #10**) located west of Thornhill Street 2.6 miles south of the intersection with Highway 162 in Kibler. Cazort #5 well head (**Exhibit 2 Map ID #9**) in field to northwest.

Photo 12: View northwest of compressor (**Exhibit 2 Map ID #19**) and diesel AST located southeast of Cazort #8 well. Green staining is liquid herbicide sprayed for presumed weed control.

Photo 13: View northwest of produced water tank and gas-water separator (**Exhibit 2 Map ID #19**) near Cazort #5 and #8 wells. Green herbicide staining also visible.

Photo 14: Oil staining below compressor at location above. Green herbicide staining also visible.

Photo 15: Diesel AST at compressor station near Cazort #8 well (**Exhibit 2 Map ID #19**). Green herbicide staining also visible.

Photo 16: Oil staining below AST at location above. Green herbicide staining also visible.

Photo 17: View southeast of Stephens Production Company – McClure #3 well head (**Exhibit 2, Map ID #7**) located east of Westville Road south of Kibler.

Photo 18: View northwest of Stephens Production Company – McClure #2 well head (**Exhibit 2, Map ID #2**) located east of Westville Road south of Kibler.

Photo 19: View north of Merit Energy Company, LLC. – Tibbitts #5-11 well head (**Exhibit 2, Map ID #8**) located west of Thornhill Street south of Kibler. Well head on right side of pump jack.

Photo 20: Well head compressor near Tibbitts #5-11 well head (**Exhibit 2, Map ID #8**). Some stained gravel evident.

Photo 21: View of stained gravel near compressor at Tibbitts #5-11 well head (**Exhibit 2, Map ID #8**).

Photo 22: View north of natural gas compressor station (**Exhibit 2 Map ID #20**) near Fort Chaffee Federal 1-27 well at H Street in Barling.

Photo 23: View northeast of natural gas compressor station (**Exhibit 2 Map ID #20**) near Fort Chaffee Federal 1-27 well.

Photo 24: View northwest of gas/water separators and produced water tank.

Photo 25: Well head sign at compressor station.

Photo 26: View north of Fort Chaffee Federal 1-27 wellhead (**Exhibit 2 Map ID #17**) located approximately 0.5-mile north of compressor station.

Photo 27: View northeast of skid mounted gas/water separator at Fort Chaffee Federal 1-27 wellhead.

Photo 28: View south of Merit Energy Company, LLC USA 1-34 well head sign. approximately 0.1-mile north of E. Church Street.

Photo 29: View of oil staining around wellhead compressor at Merit Energy Company, LLC USA 1-34.

Photo 30: View north of Arkansas Oklahoma Gas Corp. pipeline easement crossing Highway 4 approximately 0.6-mile east of Frontier Road.

Photo 31: Close-up view north of Arkansas Oklahoma Gas Corp. pipeline easement sign.

Photo 32: View west of trash pile located south of Kibler approximately 0.2-mile west of Richland Drive and 0.1-mile south of Green Acres Circle.

Photo 33: View northeast of trash pile on north side of Gun Club Road.

Photo 34: View northwest of trash pile on north side of Gun Club Road.

Photo 35: View northeast of trash dump on north side of Gun Club Road at Flat Rock Creek.

Photo 36: View northeast of trash dump on north side of Gun Club Road at Flat Rock Creek.

Photo 37: View north of trash dump on north side of Gun Club Road at Flat Rock Creek.

Photo 38: View northwest of trash dump on north side of Gun Club Road at Flat Rock Creek.

Photo 39: View southwest of trash dumping on south side of Gun Club Road at Flat Rock Creek.

Photo 40: View southwest of trash dumping on south side of Gun Club Road at Flat Rock Creek.

Photo 41: View east of small trash pile in project footprint west of H street.

Photo 42: View east of small trash pile in project footprint west of H street.

Photo 43: Small trash pile observed north of Highway 4 approximately 0.4-mile east of Frontier Road.

Photo 44: Small trash pile observed north of Highway 4 approximately 0.4-mile east of Frontier Road.

Photo 45: View of unexploded ordnance sign on Ft. Chaffee property (Park Road 0.1-mile north of Fort Street).

ATTACHMENT C – HISTORICAL DOCUMENTATION

Future I-49 Corridor
Alma To Barling
Alma, AR 72921

Inquiry Number: 6532205.5
June 14, 2021

EDR Historical Topo Map Report
with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

06/14/21

Site Name:

Future I-49 Corridor
Alma To Barling
Alma, AR 72921
EDR Inquiry # 6532205.5

Client Name:

Harbor Environmental Inc
5800 Evergreen Drive
Little Rock, AR 72205
Contact: Thomas Huetter

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Harbor Environmental Inc were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# HNTB-20451
Project: I-49 Corridor

Coordinates:

Latitude:	35.39393 35° 23' 38" North
Longitude:	-94.2413 -94° 14' 29" West
UTM Zone:	Zone 15 North
UTM X Meters:	387271.92
UTM Y Meters:	3917437.15
Elevation:	395.00' above sea level

Maps Provided:

2014	1951
1997	1949
1987	1947, 1951
1978	1947
1978, 1983	1943
1975	1906
1971	1890
1969, 1971	1887

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2014 Source Sheets

Barling
2014
7.5-minute, 24000

Van Buren
2014
7.5-minute, 24000

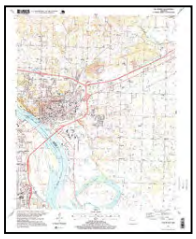
Alma
2014
7.5-minute, 24000

Lavaca
2014
7.5-minute, 24000

Mountainburg SW
2014
7.5-minute, 24000

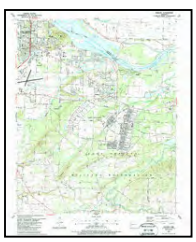
Rudy
2014
7.5-minute, 24000

1997 Source Sheets



Van Buren
1997
7.5-minute, 24000
Aerial Photo Revised 1983

1987 Source Sheets



Barling
1987
7.5-minute, 24000
Aerial Photo Revised 1983

Lavaca
1987
7.5-minute, 24000
Aerial Photo Revised 1983

Van Buren
1987
7.5-minute, 24000
Aerial Photo Revised 1983

Alma
1987
7.5-minute, 24000
Aerial Photo Revised 1983

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1978 Source Sheets

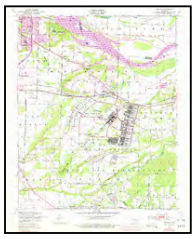
Alma
1978
7.5-minute, 24000
Aerial Photo Revised 1975

1978, 1983 Source Sheets

Rudy
1983
7.5-minute, 24000
Aerial Photo Revised 1981

Mountainburg SW
1983
7.5-minute, 24000
Aerial Photo Revised 1981

1975 Source Sheets



Barling
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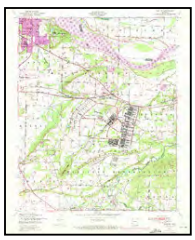
7.5-minute, 24000
Aerial Photo Revised 1975

1971 Source Sheets



Barling
1971
7.5-minute, 24000
Aerial Photo Revised 1971

Van Buren
1971
7.5-minute, 24000
Aerial Photo Revised 1946

Lavaca
1971
7.5-minute, 24000
Aerial Photo Revised 1971

Alma
1971
7.5-minute, 24000
Aerial Photo Revised 1971

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1969, 1971 Source Sheets

Rudy
1969
7.5-minute, 24000
Aerial Photo Revised 1967

Mountainburg SW
1969
7.5-minute, 24000
Aerial Photo Revised 1967

1951 Source Sheets

Lavaca
1951
7.5-minute, 24000
Aerial Photo Revised 1946

Barling
1951
7.5-minute, 24000
Aerial Photo Revised 1946

Van Buren
1951
7.5-minute, 24000
Aerial Photo Revised 1946

Alma
1951
7.5-minute, 24000
Aerial Photo Revised 1946

1949 Source Sheets

BARLING
1949
7.5-minute, 25000

ALMA
1949
7.5-minute, 25000

LAVACA
1949
7.5-minute, 25000

VAN BUREN
1949
7.5-minute, 25000

1947, 1951 Source Sheets

Van Buren
1947
7.5-minute, 24000
Aerial Photo Revised 1946

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1943 Source Sheets

Fort Smith
1943
30-minute, 125000
Aerial Photo Revised 1943

1906 Source Sheets

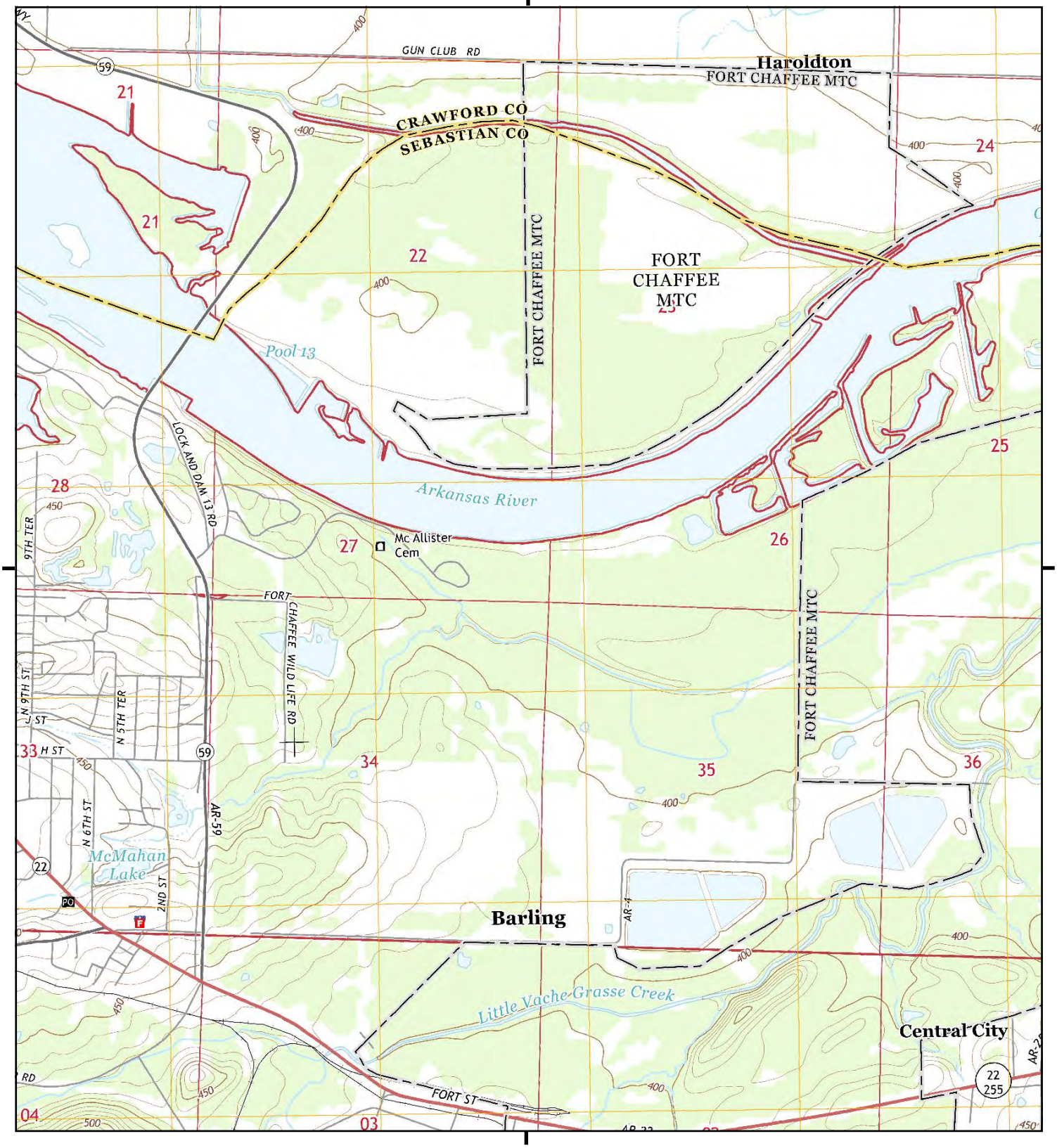
Lavaca
1906
15-minute, 62500

1890 Source Sheets

Fort Smith
1890
30-minute, 125000

1887 Source Sheets

Van Buren
1887
15-minute, 62500



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

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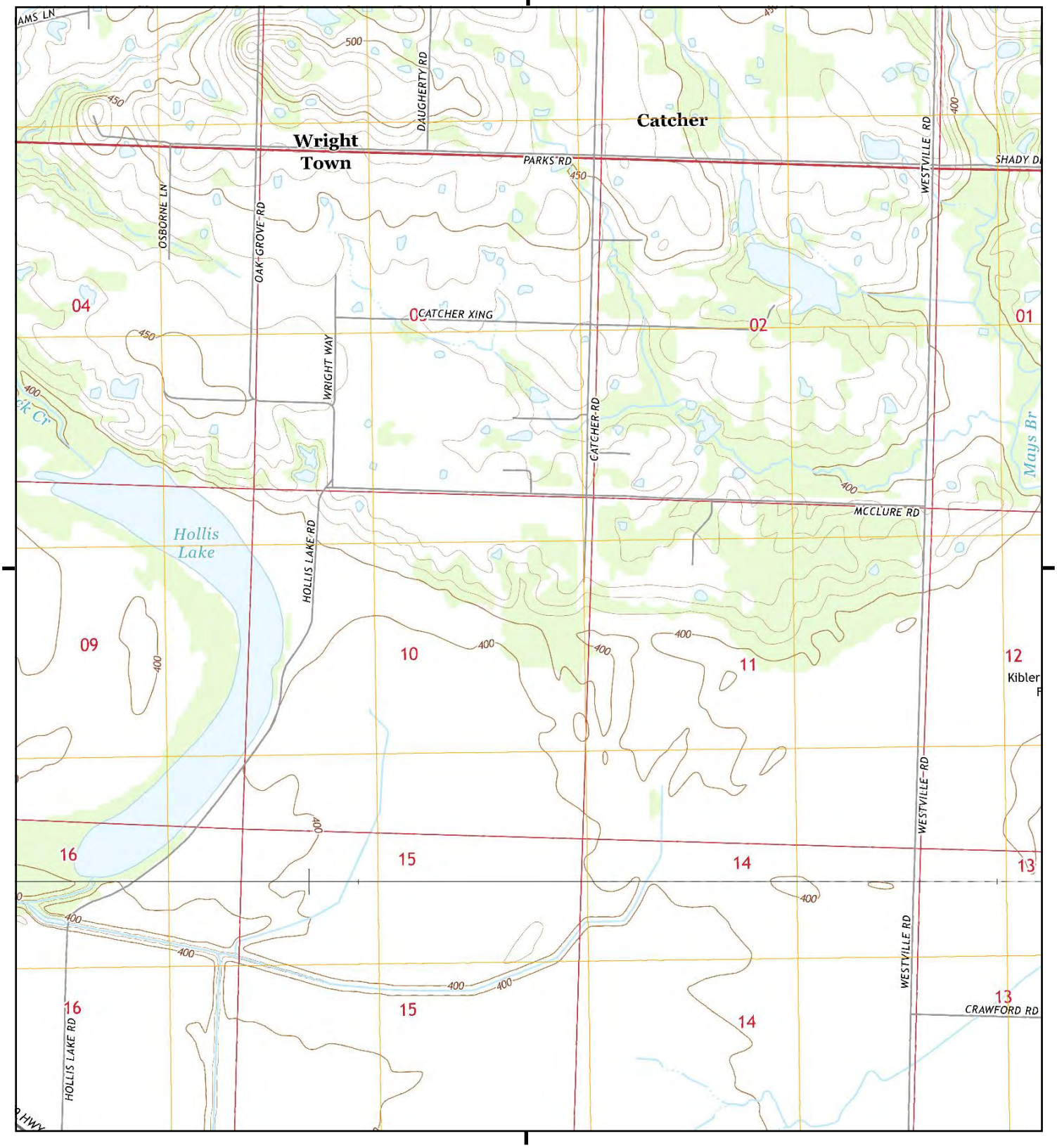
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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W E
SW S SE

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S, Barling, 2014, 7.5-minute

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ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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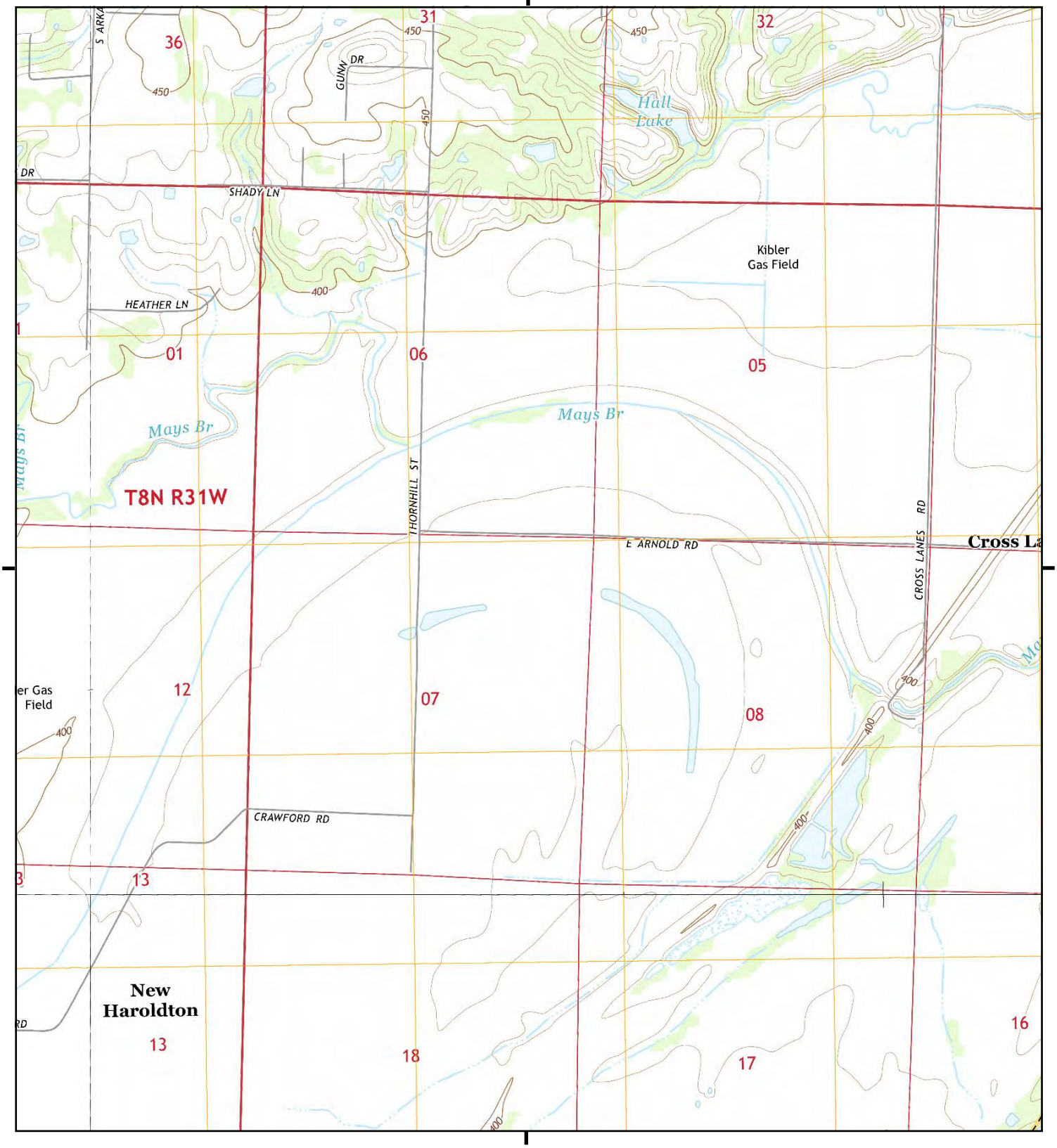

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W E
SW S SE

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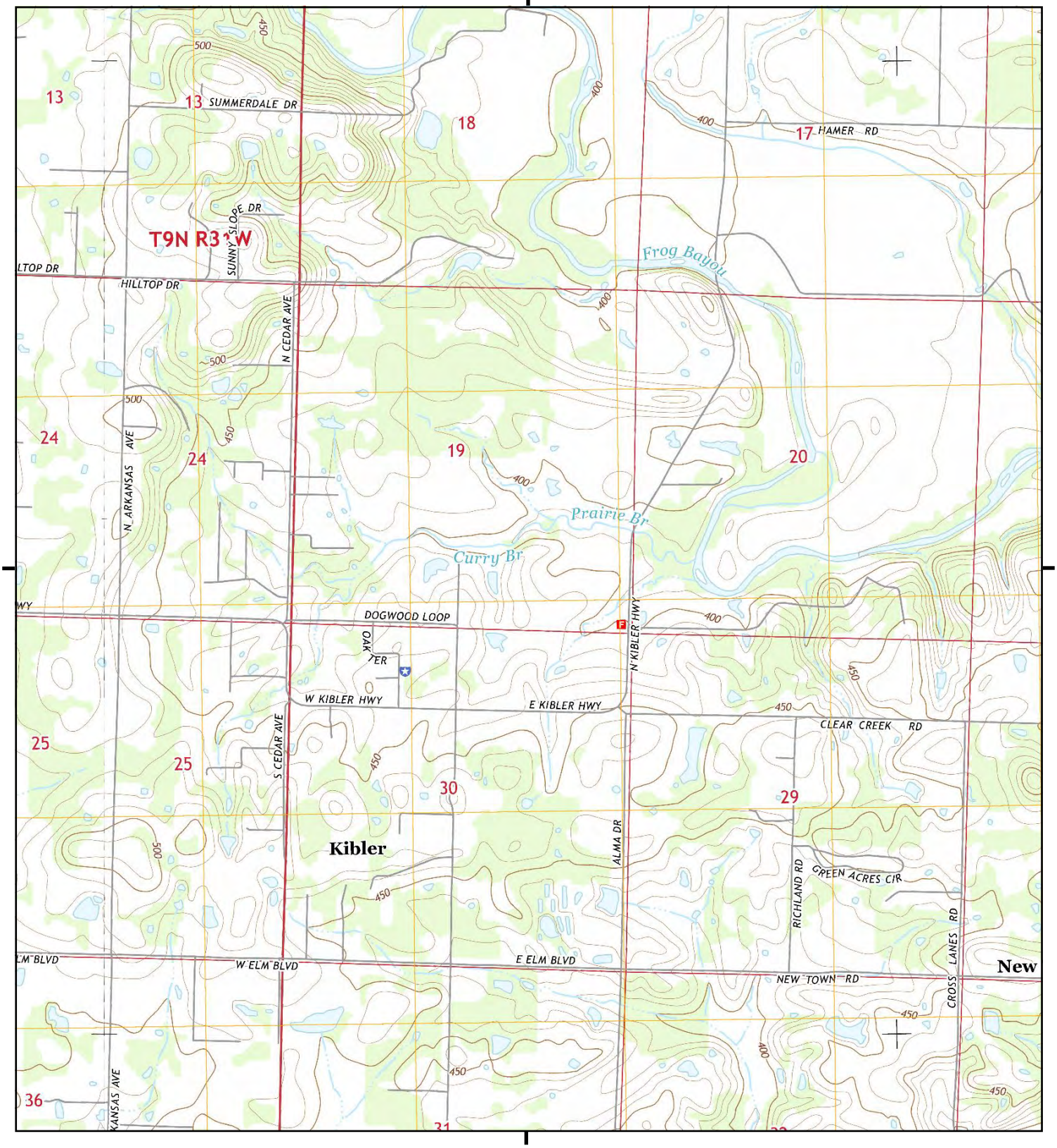
S, Barling, 2014, 7.5-minute
NW, Van Buren, 2014, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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W E
SW S SE

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W, Van Buren, 2014, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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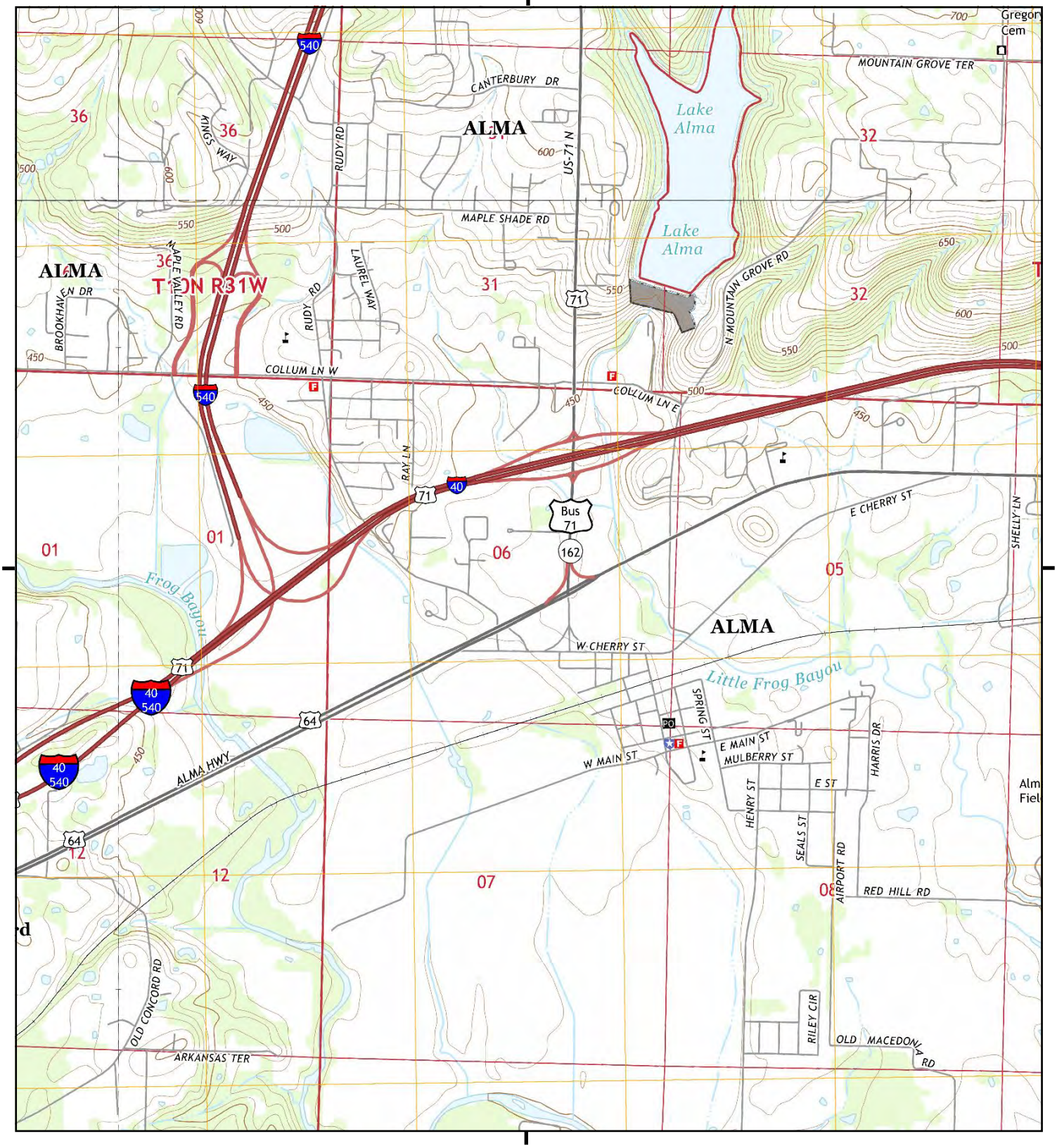

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W E
SW S SE

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NE, Mountainburg SW, 2014, 7.5-minute
SW, Van Buren, 2014, 7.5-minute

SITE NAME: Future I-49 Corridor
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Alma, AR 72921
CLIENT: Harbor Environmental Inc

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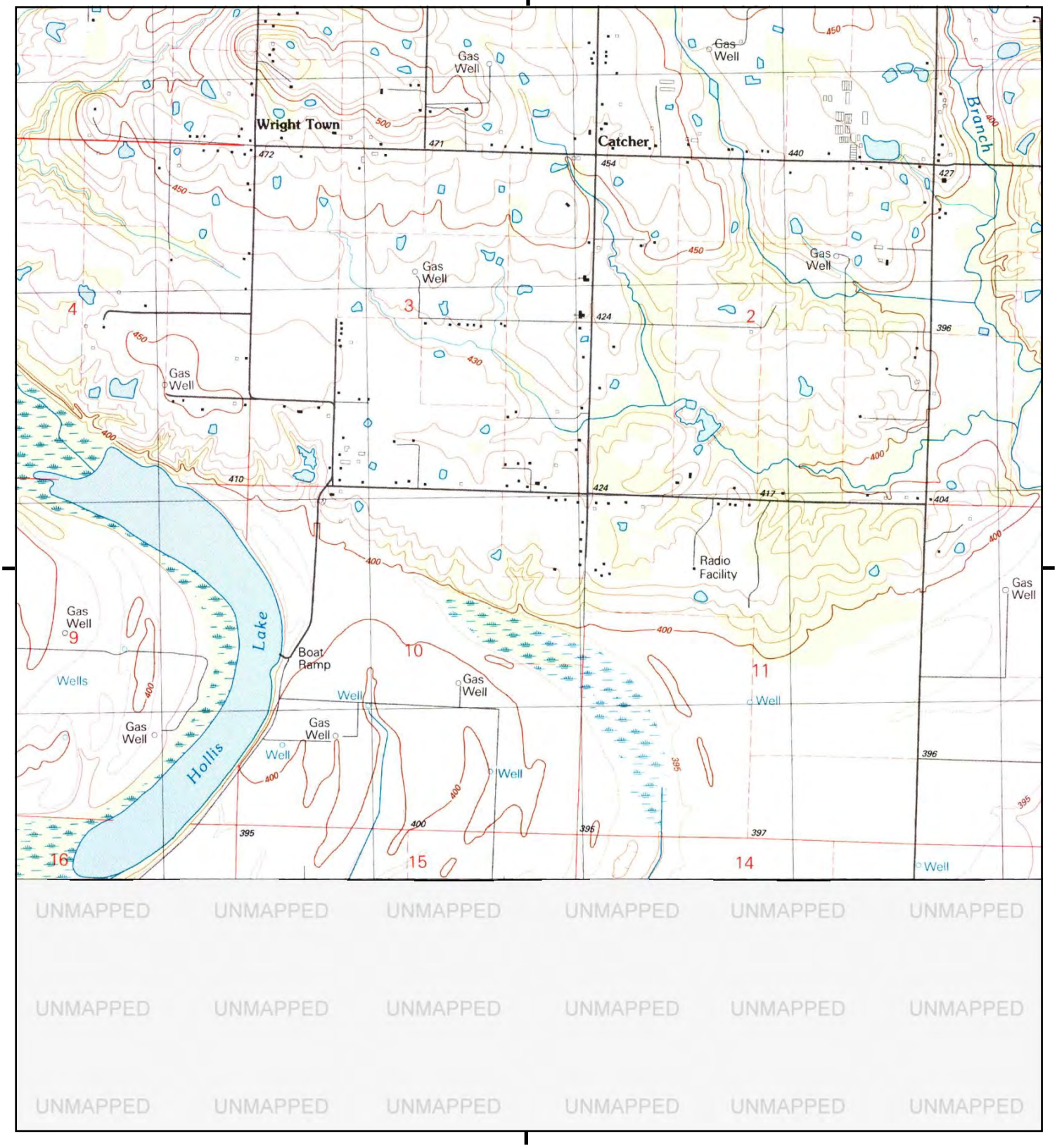

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W E
SW S SE

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ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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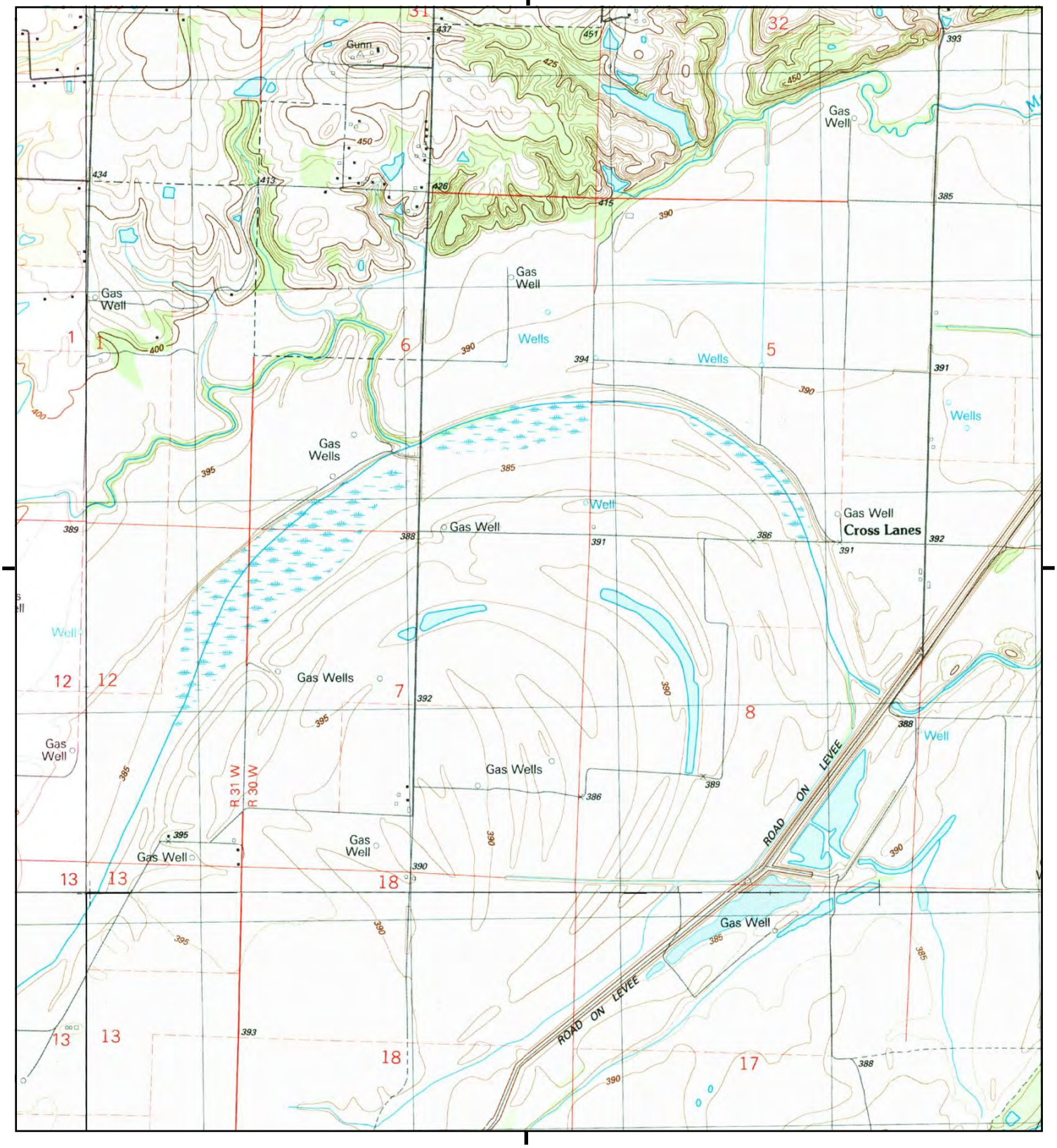

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SW S SE

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SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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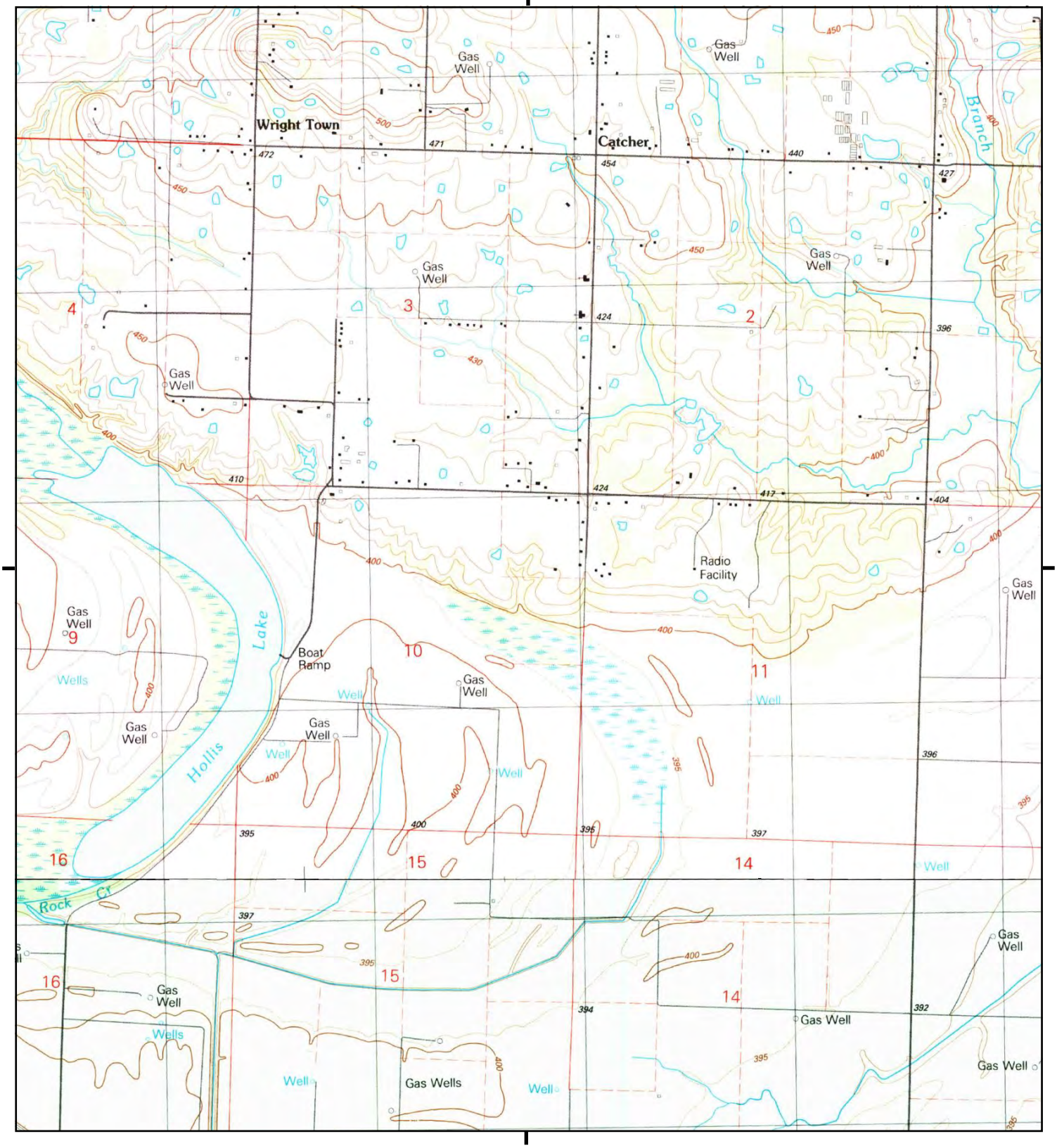

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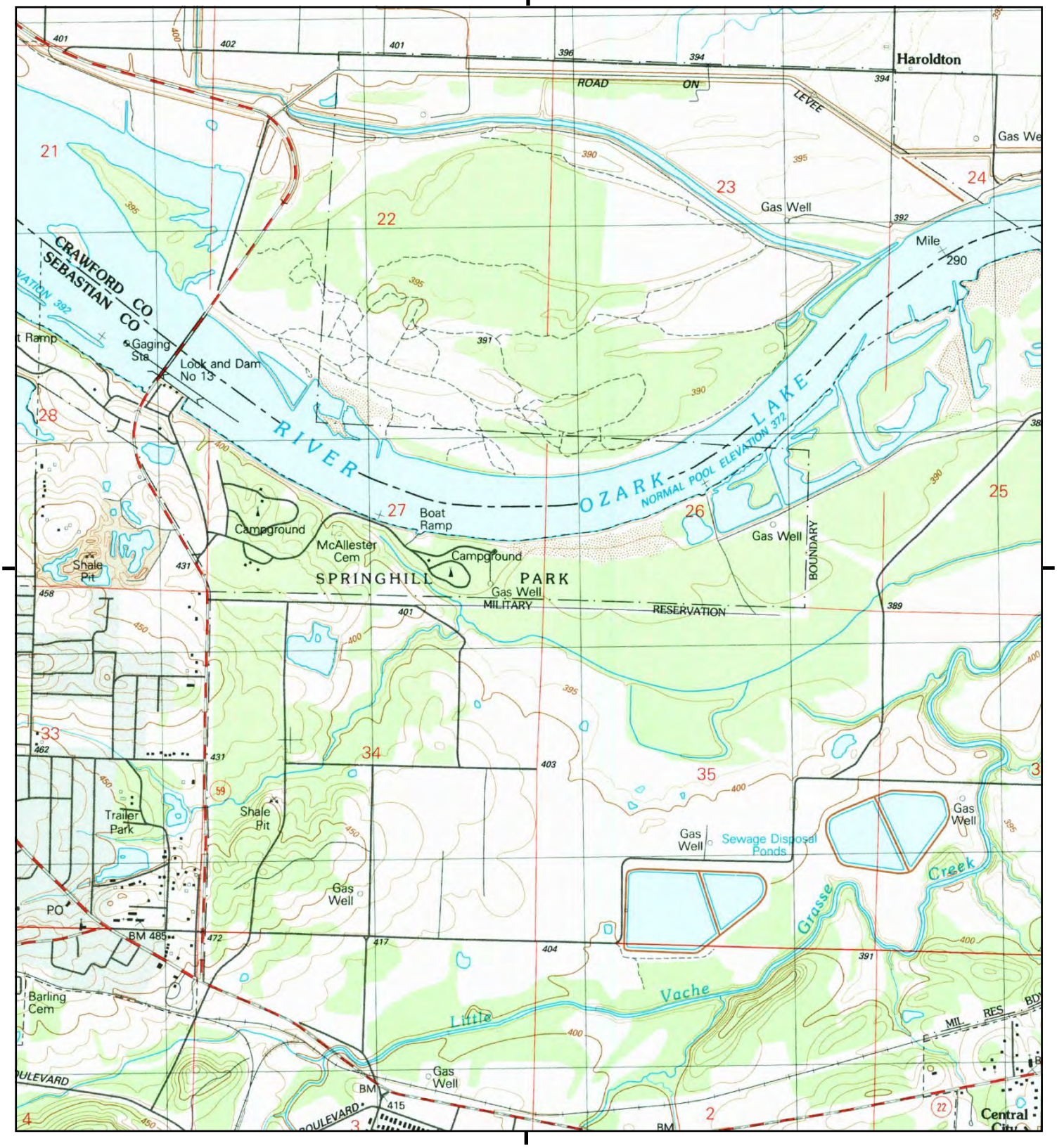

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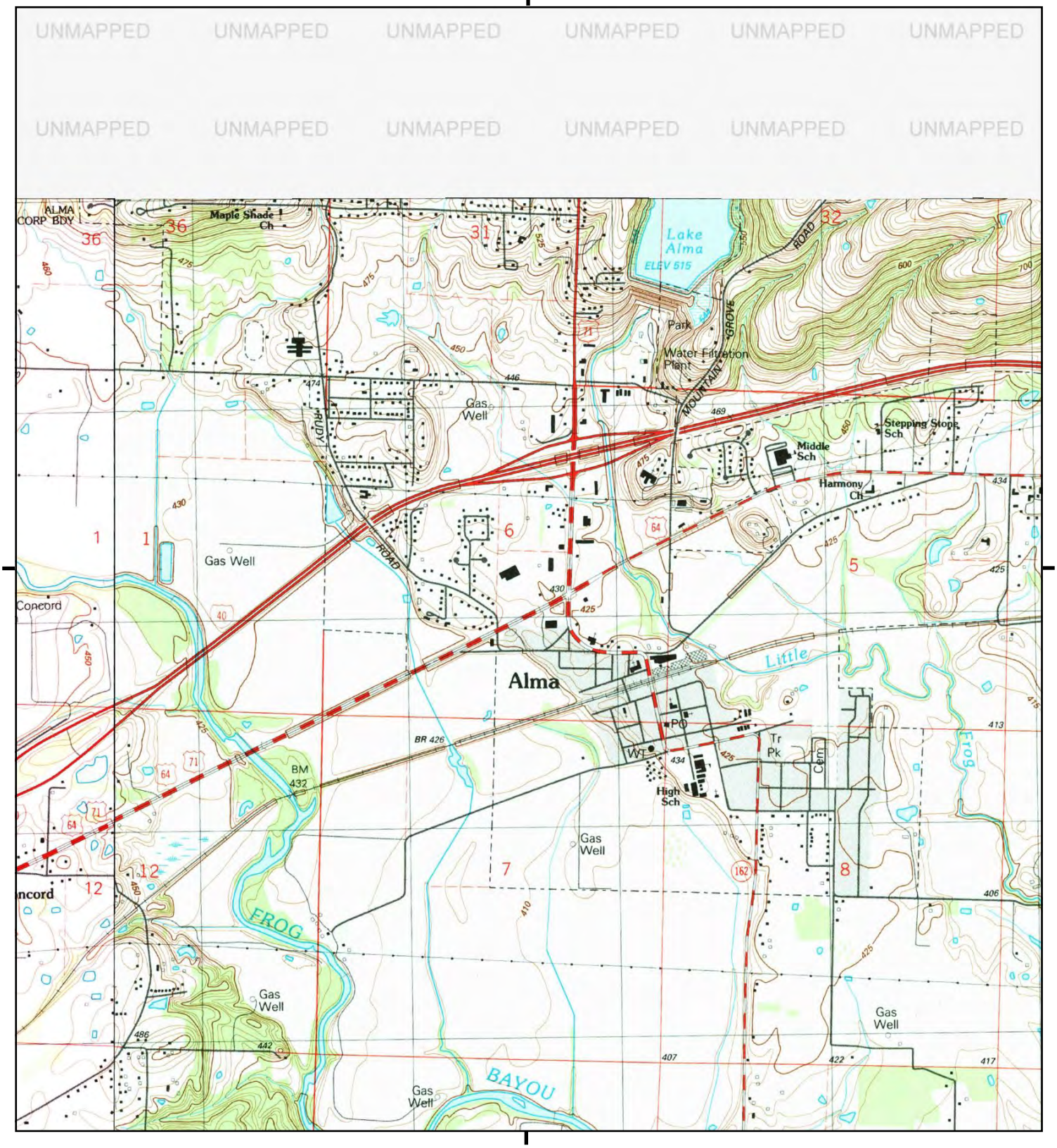

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SW S SE

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CLIENT: Harbor Environmental Inc

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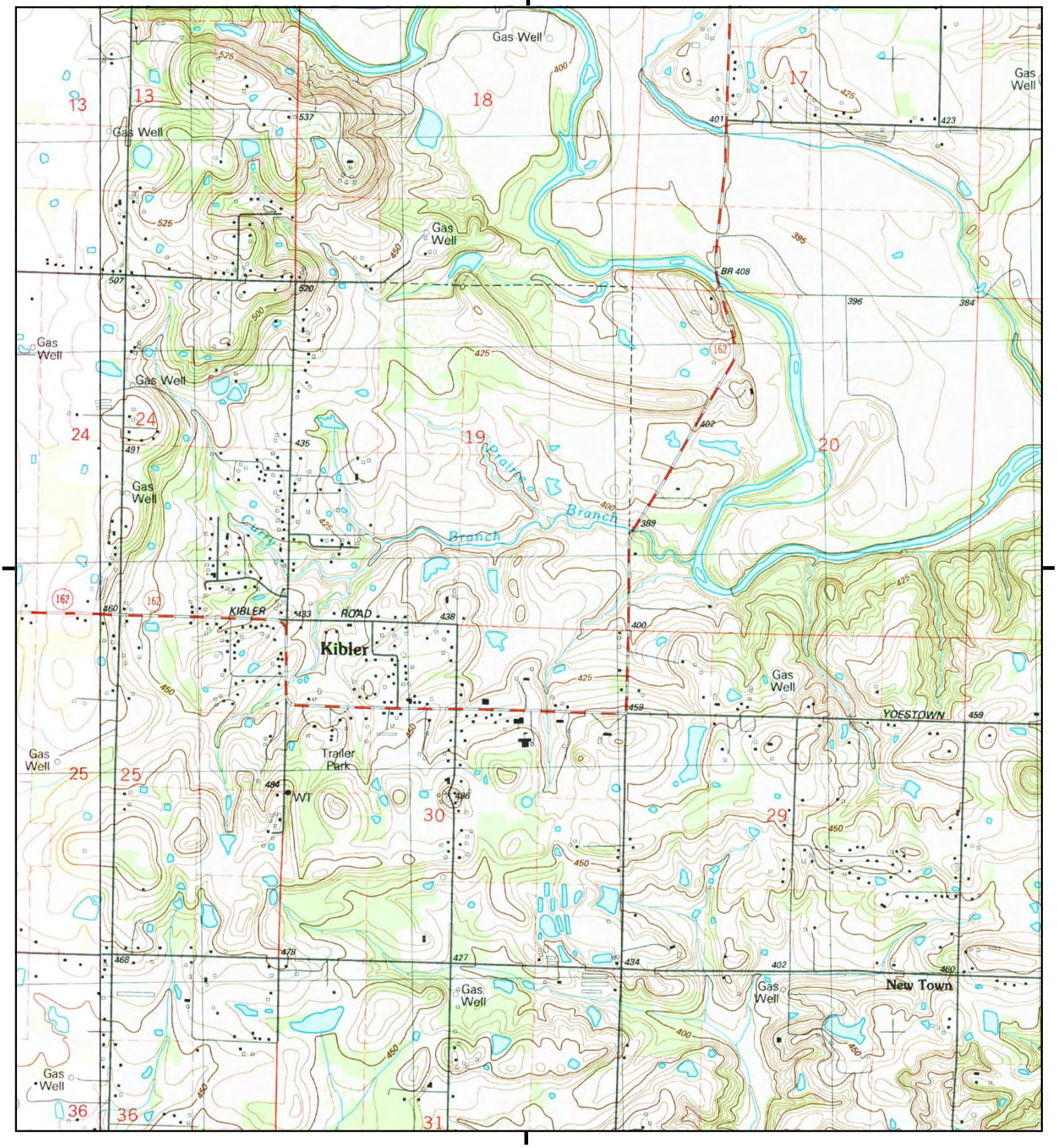

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SW S SE

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Alma, AR 72921
CLIENT: Harbor Environmental Inc

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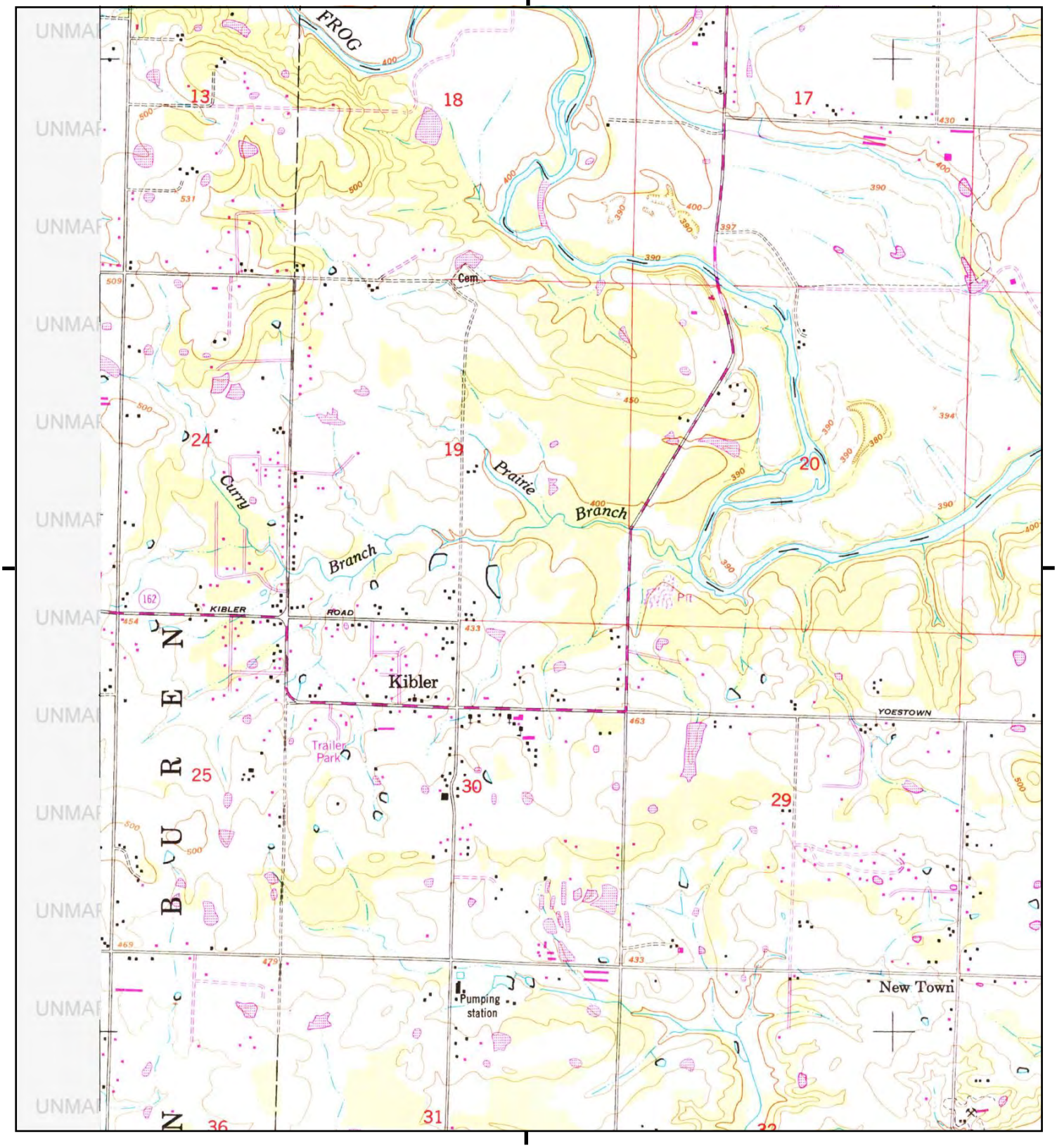

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SW S SE

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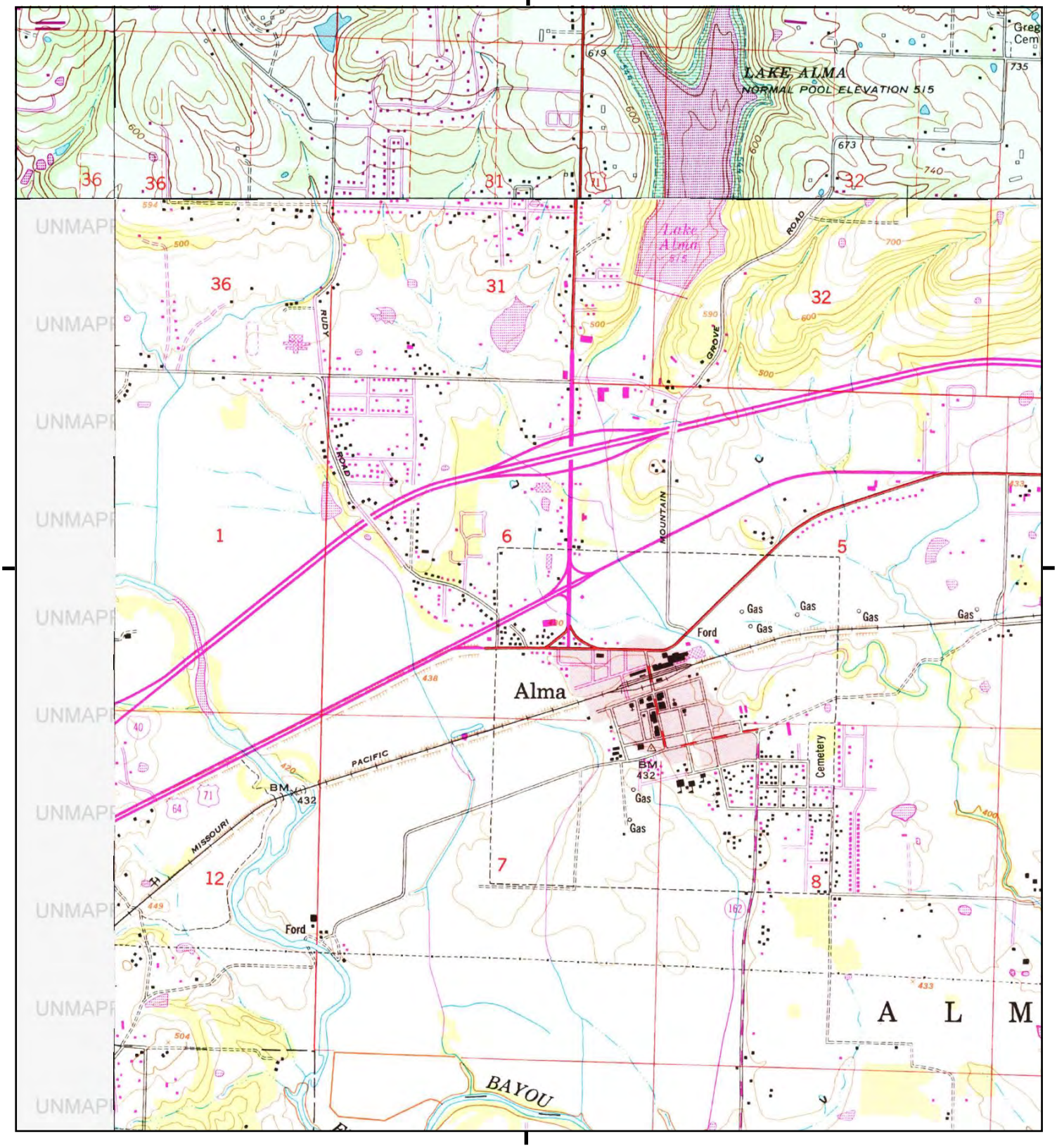
SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

Historical Topo Map

1978, 1983



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W E
SW S SE

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NE, Mountainburg SW, 1983, 7.5-minute
NW, Rudy, 1983, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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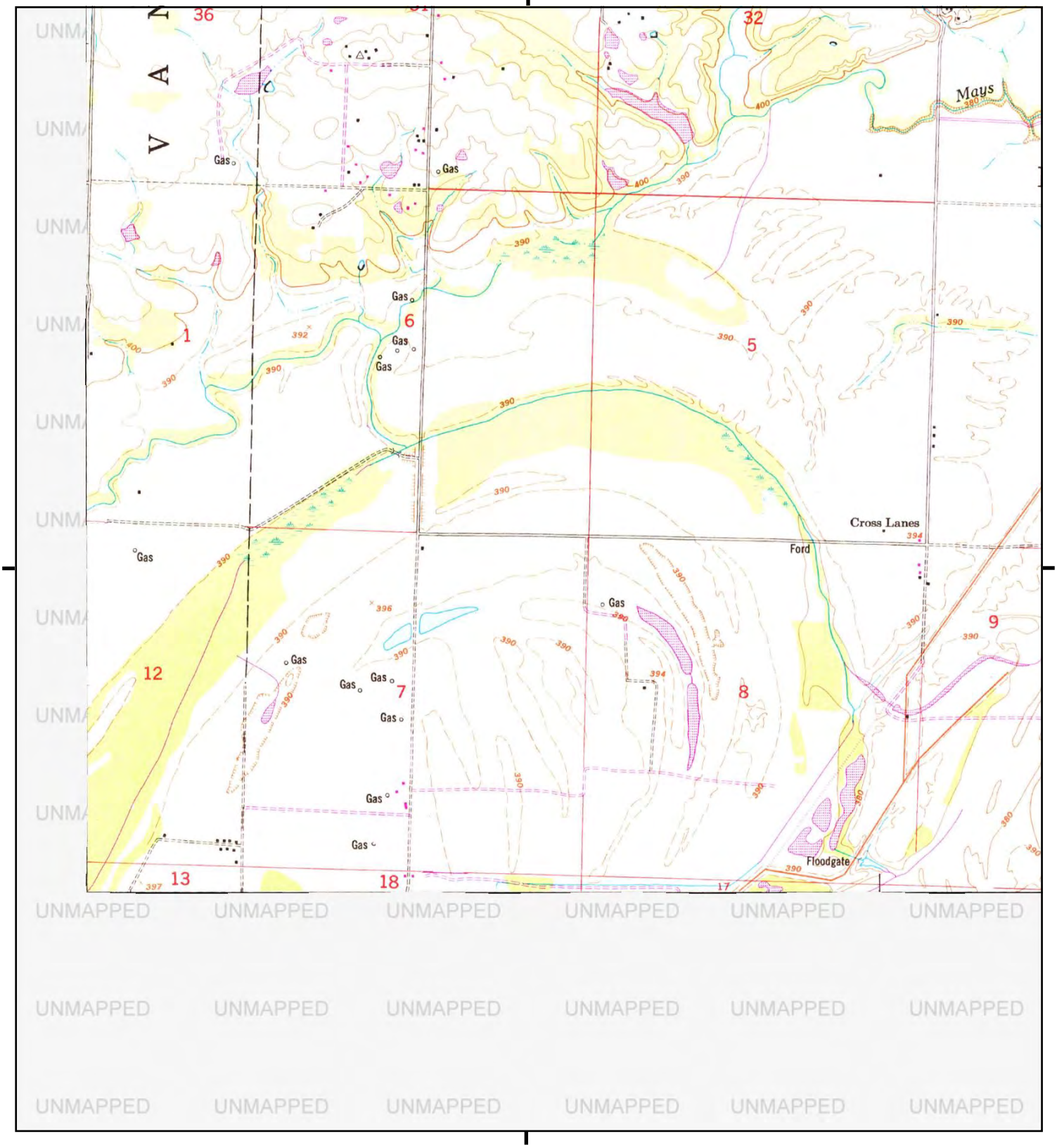

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W E
SW S SE

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ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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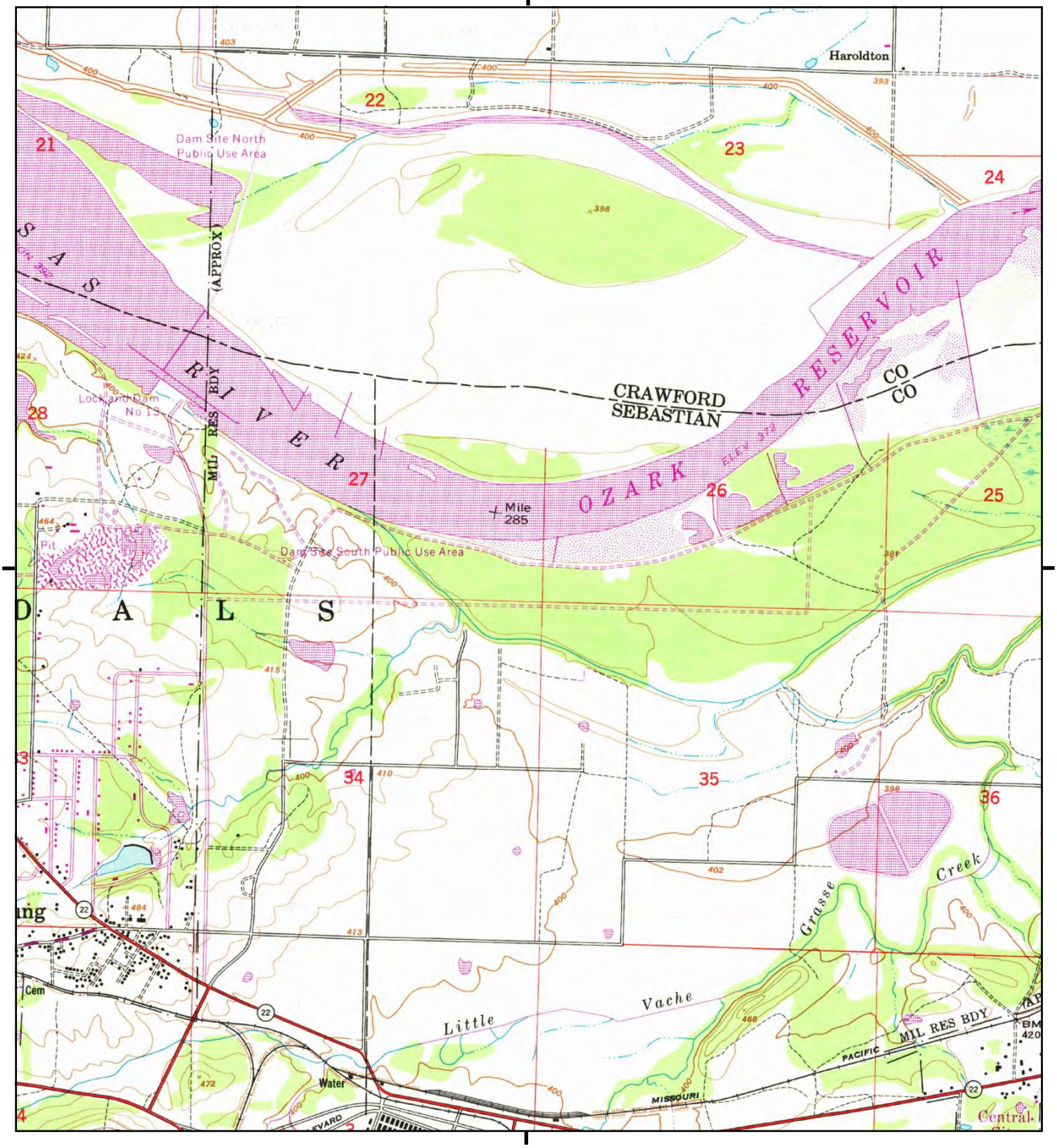

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SW S SE

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Alma, AR 72921
CLIENT: Harbor Environmental Inc

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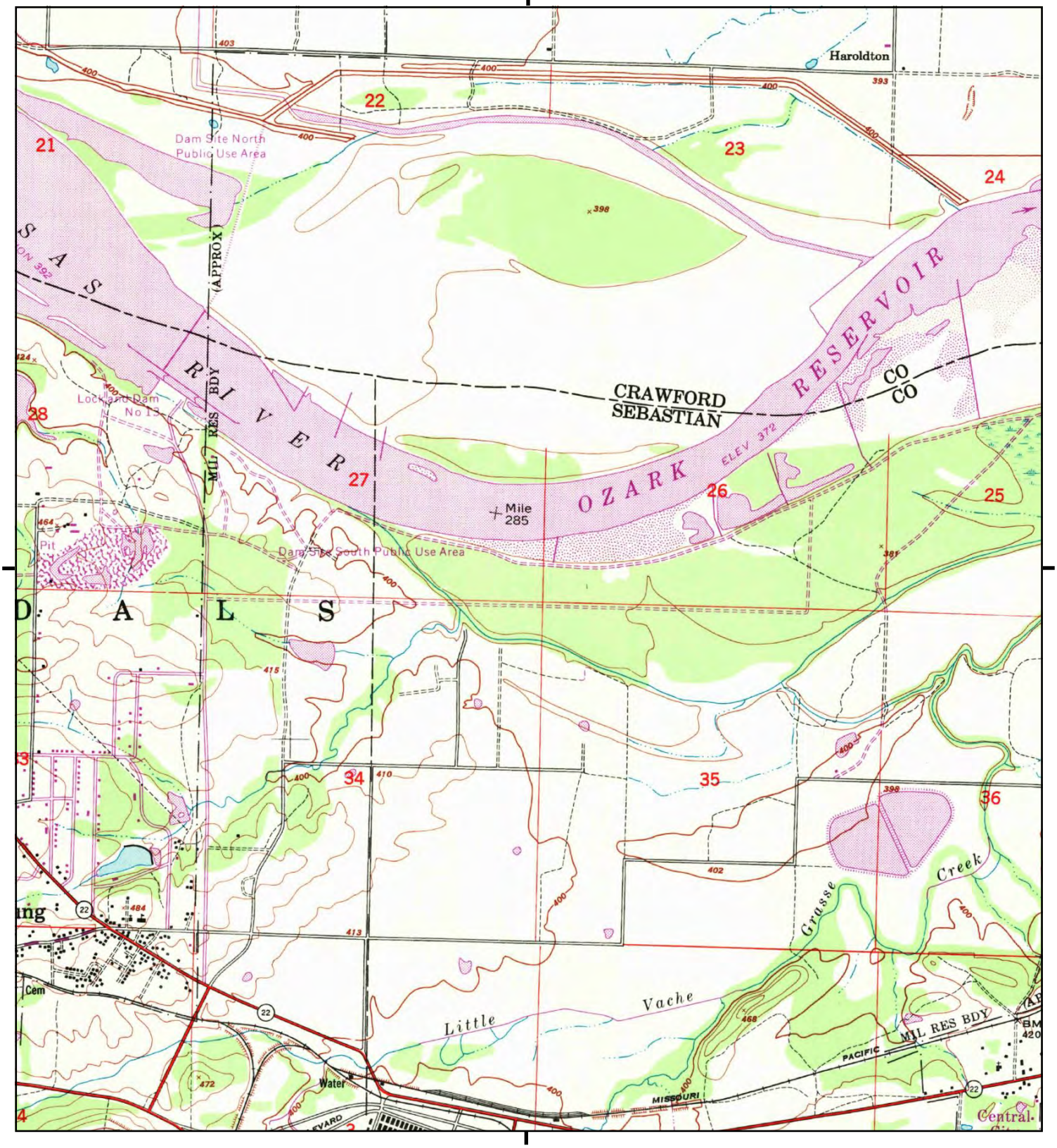

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SW S SE

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Alma, AR 72921
CLIENT: Harbor Environmental Inc

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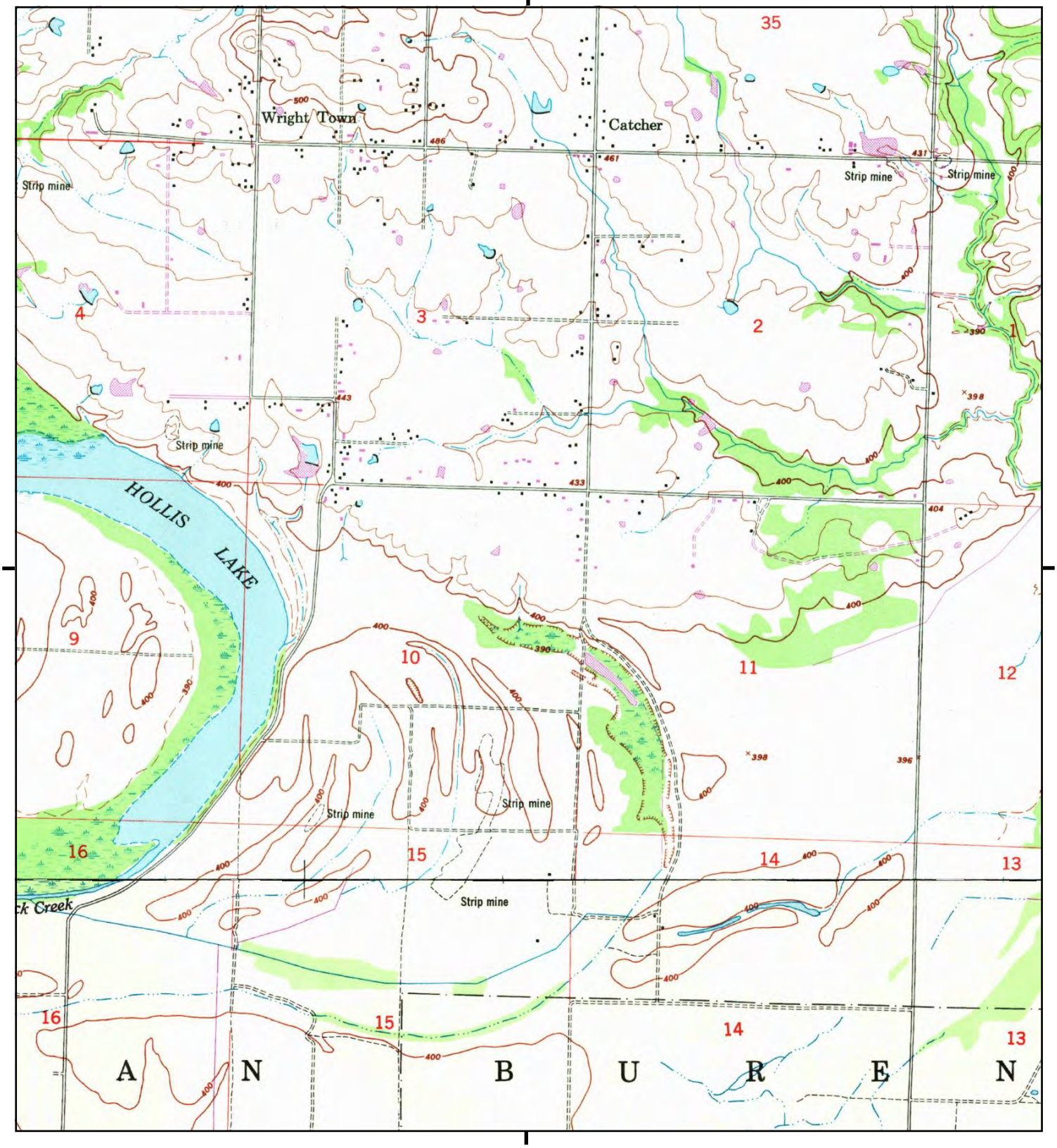

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W E
SW S SE

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S, Barling, 1971, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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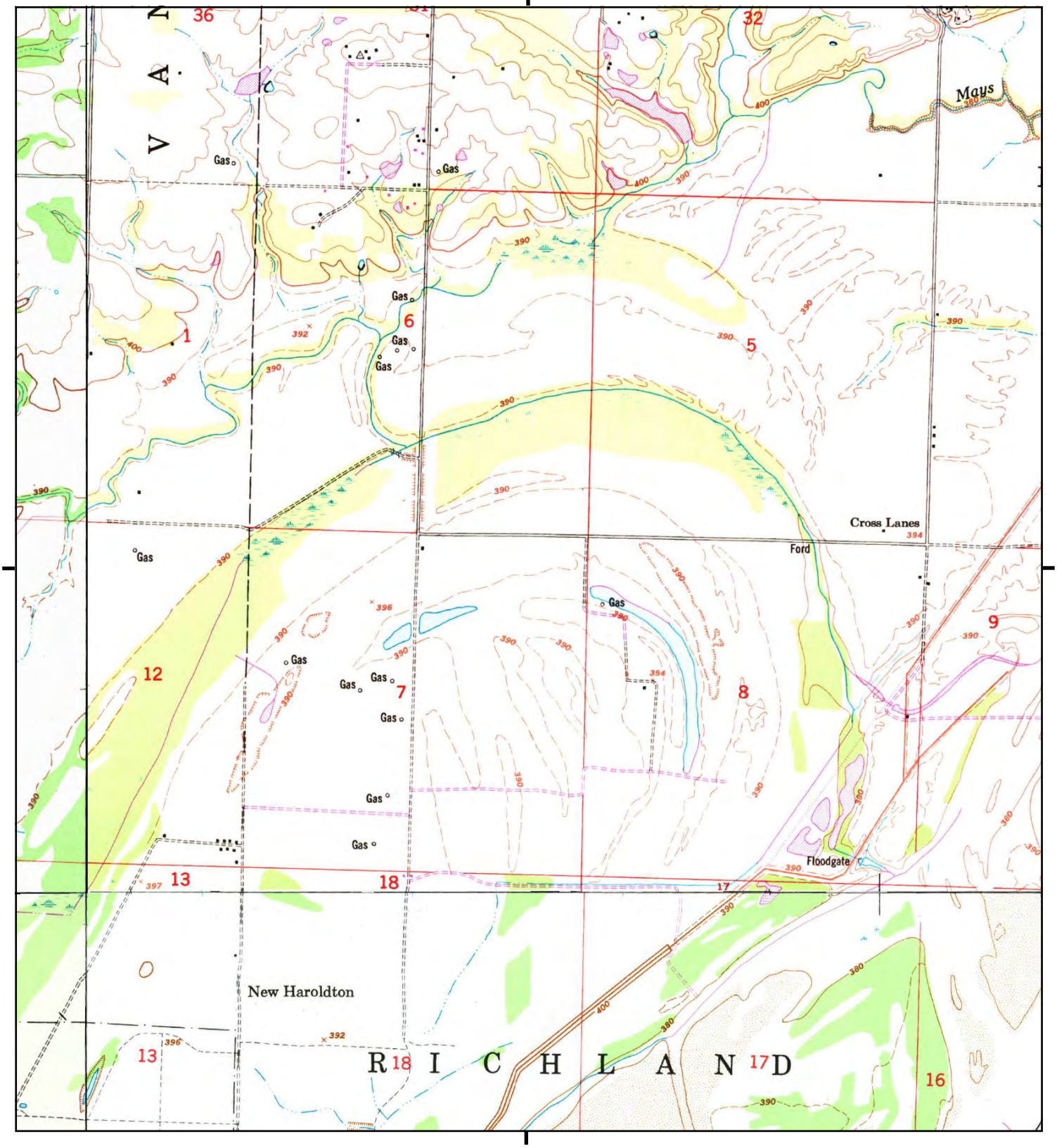

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W E
SW S SE

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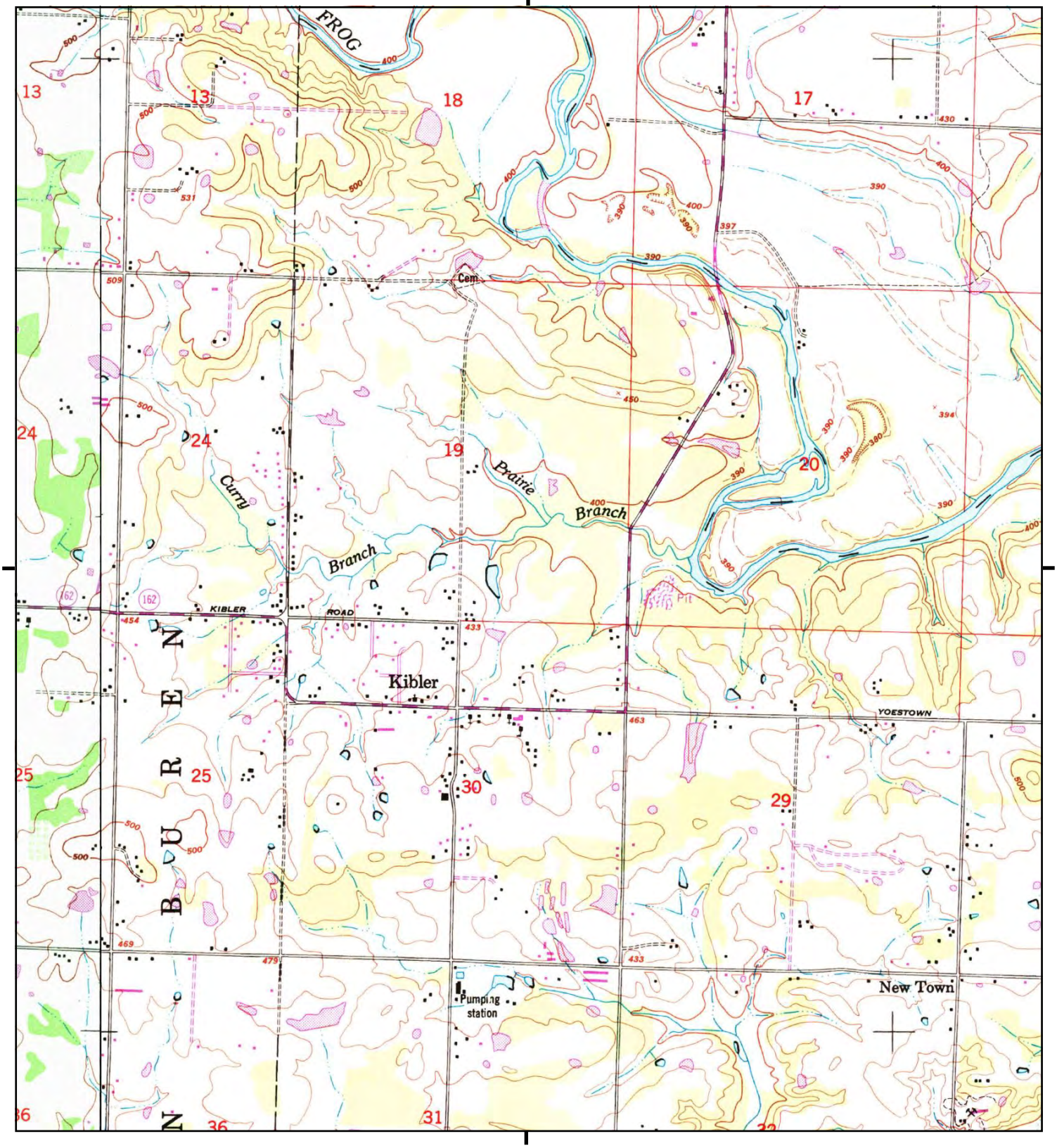
SW, Barling, 1971, 7.5-minute
NW, Van Buren, 1971, 7.5-minute
T, Alma, 1971, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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W E
SW S SE

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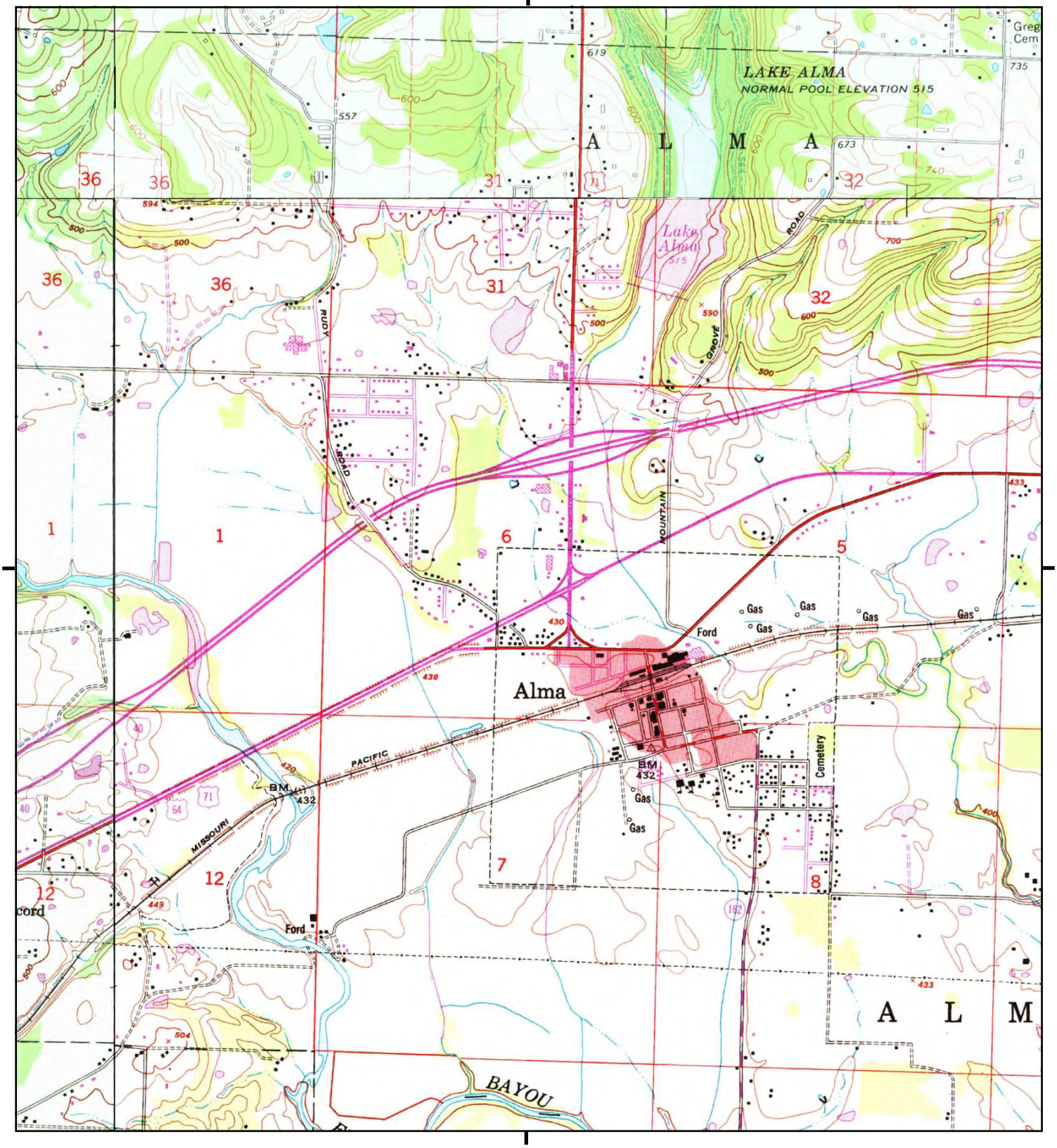
W, Van Buren, 1971, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

Historical Topo Map

1969, 1971



This report includes information from the following map sheet(s).

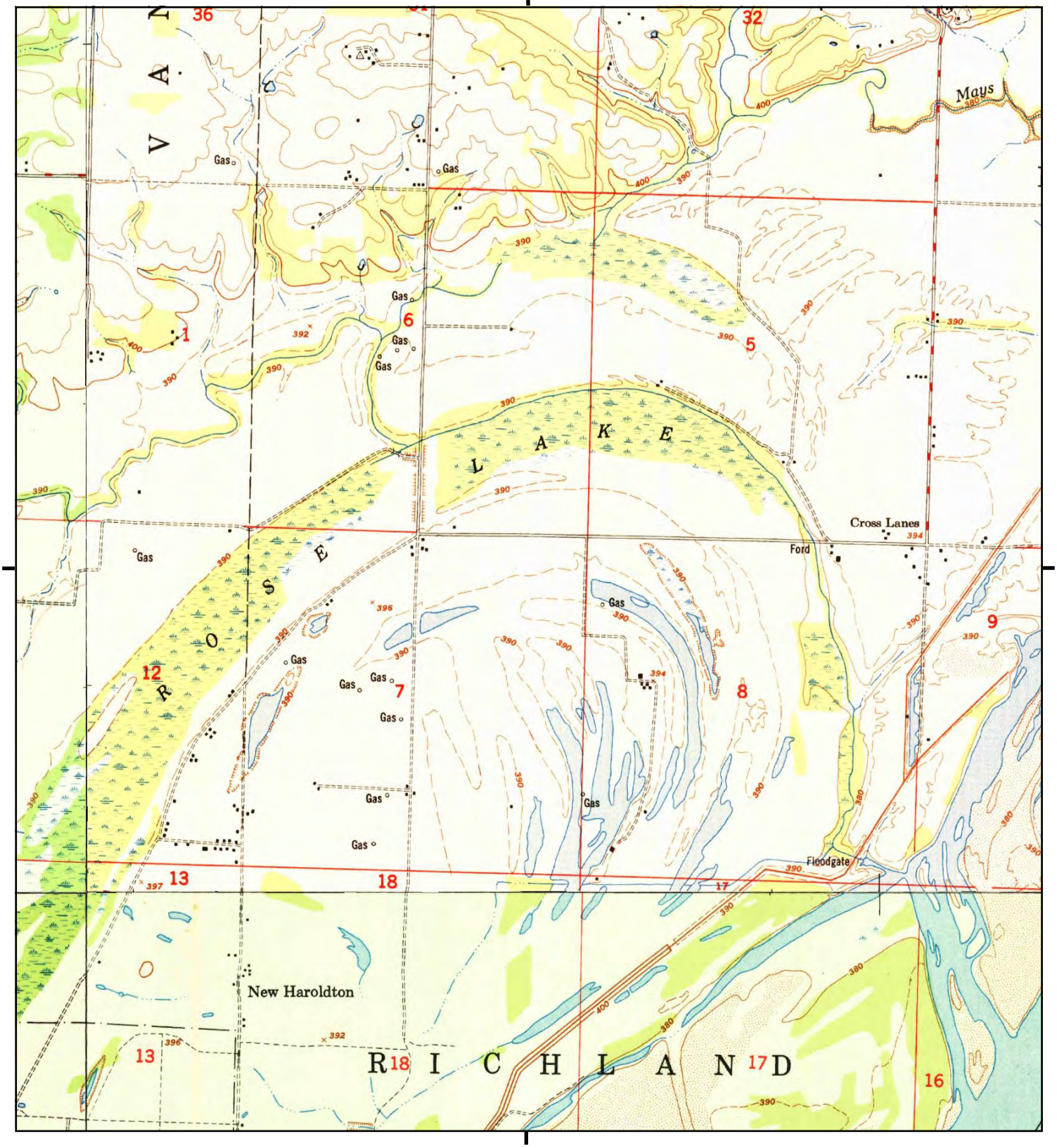
0 Miles 0.25 0.5 1 1.5

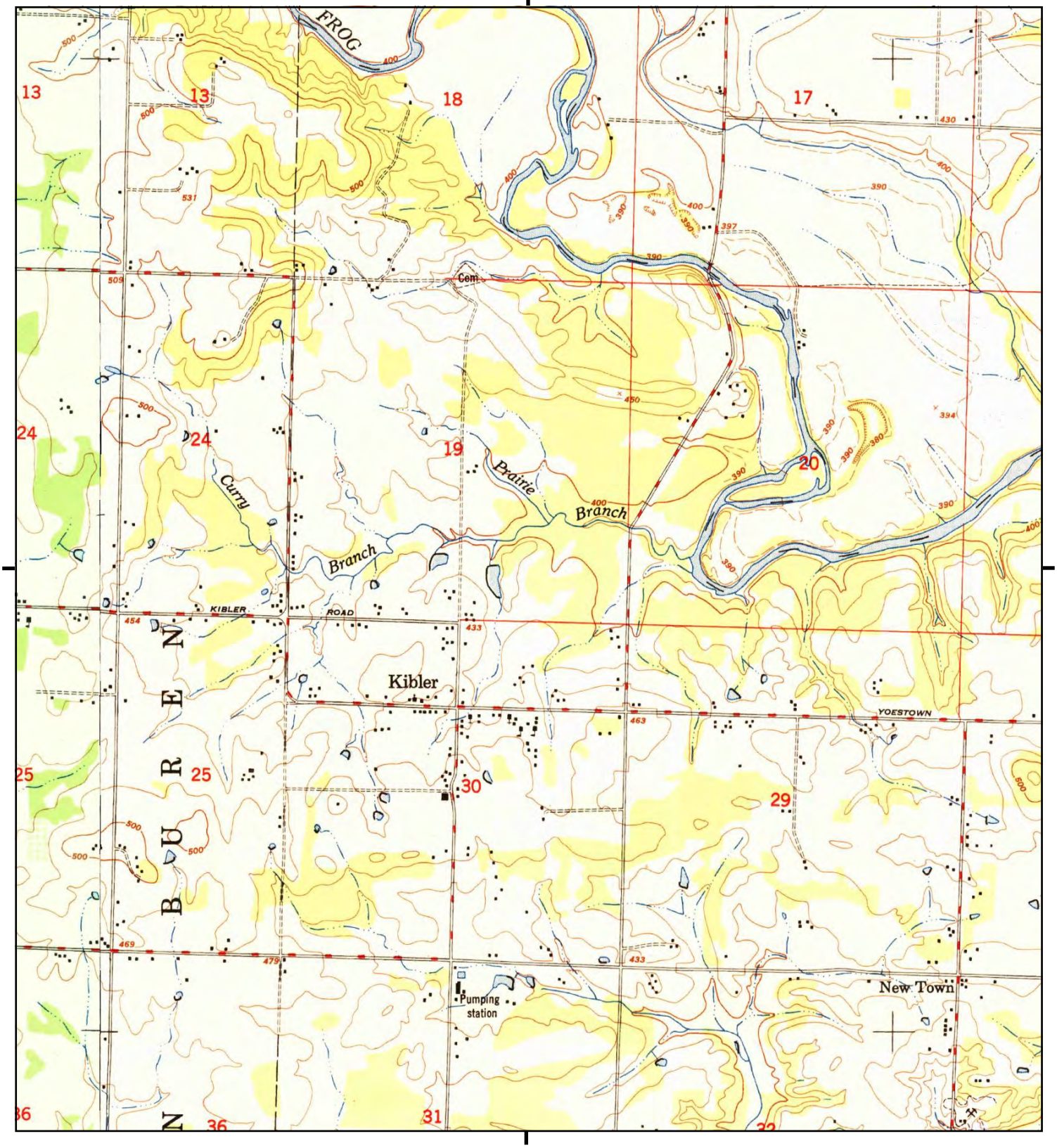
NW N NE
W E
SW S SE

NE, Mountainburg SW, 1969, 7.5-minute
SW, Van Buren, 1971, 7.5-minute
NW, Rudy, 1969, 7.5-minute
T, Alma, 1971, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N


Mays
Cross Lanes
Ford
Floodgate
New Haroldton
Gas
Gas
Gas



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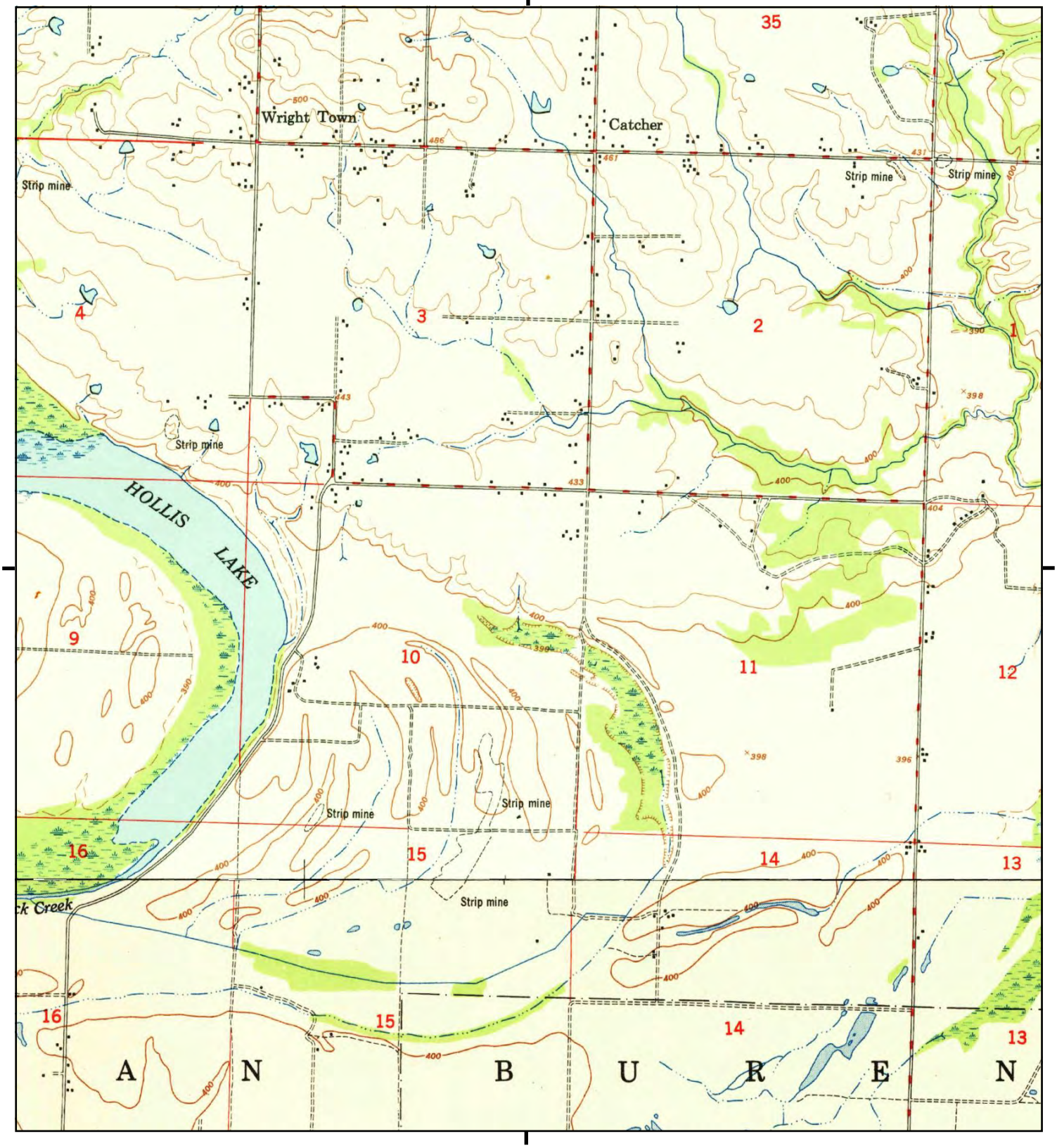
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Alma, 1951, 7.5-minute
W, Van Buren, 1951, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Van Buren, 1951, 7.5-minute
S, Barling, 1951, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

This report includes information from the following map sheet(s).

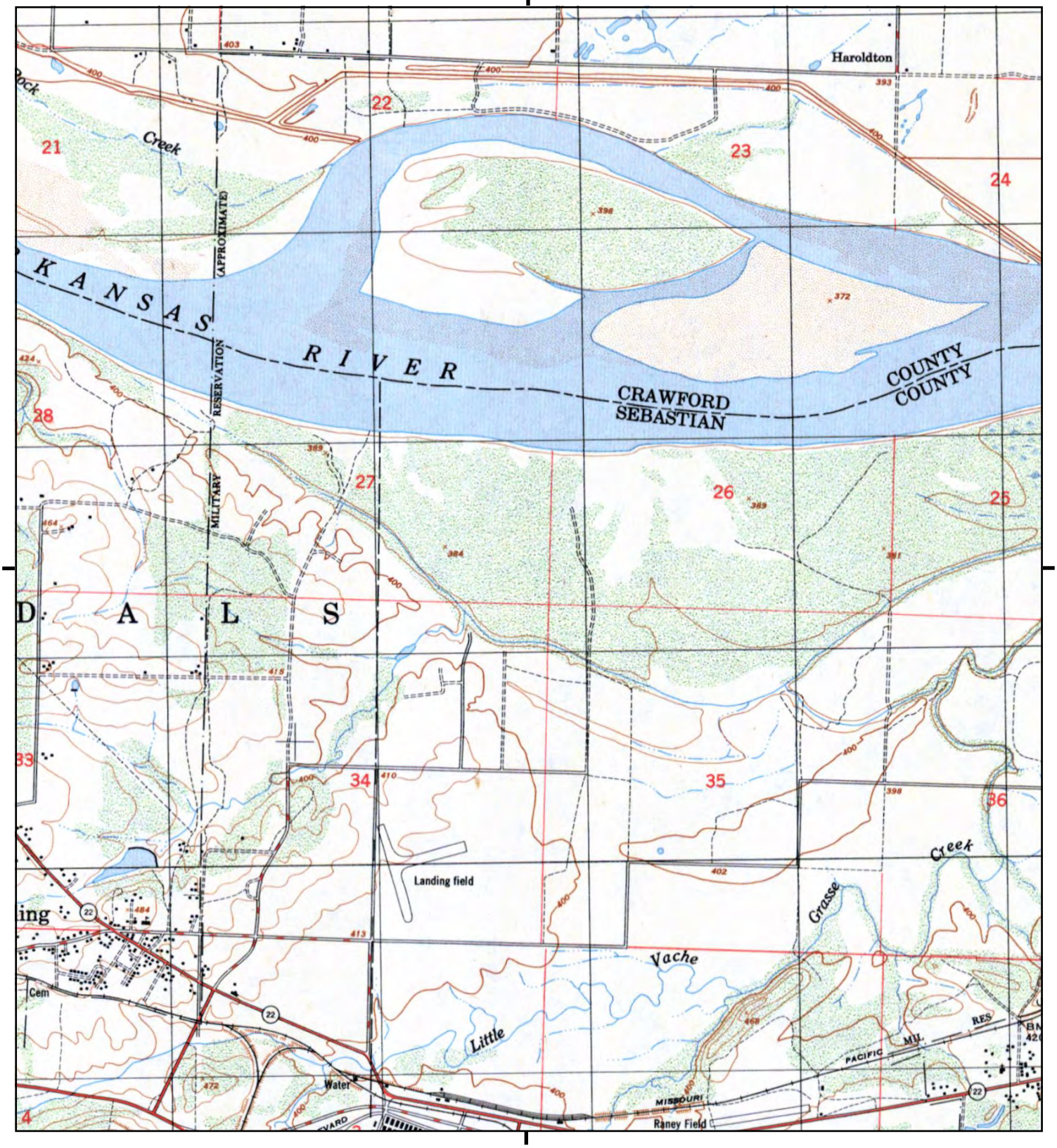
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Barling, 1951, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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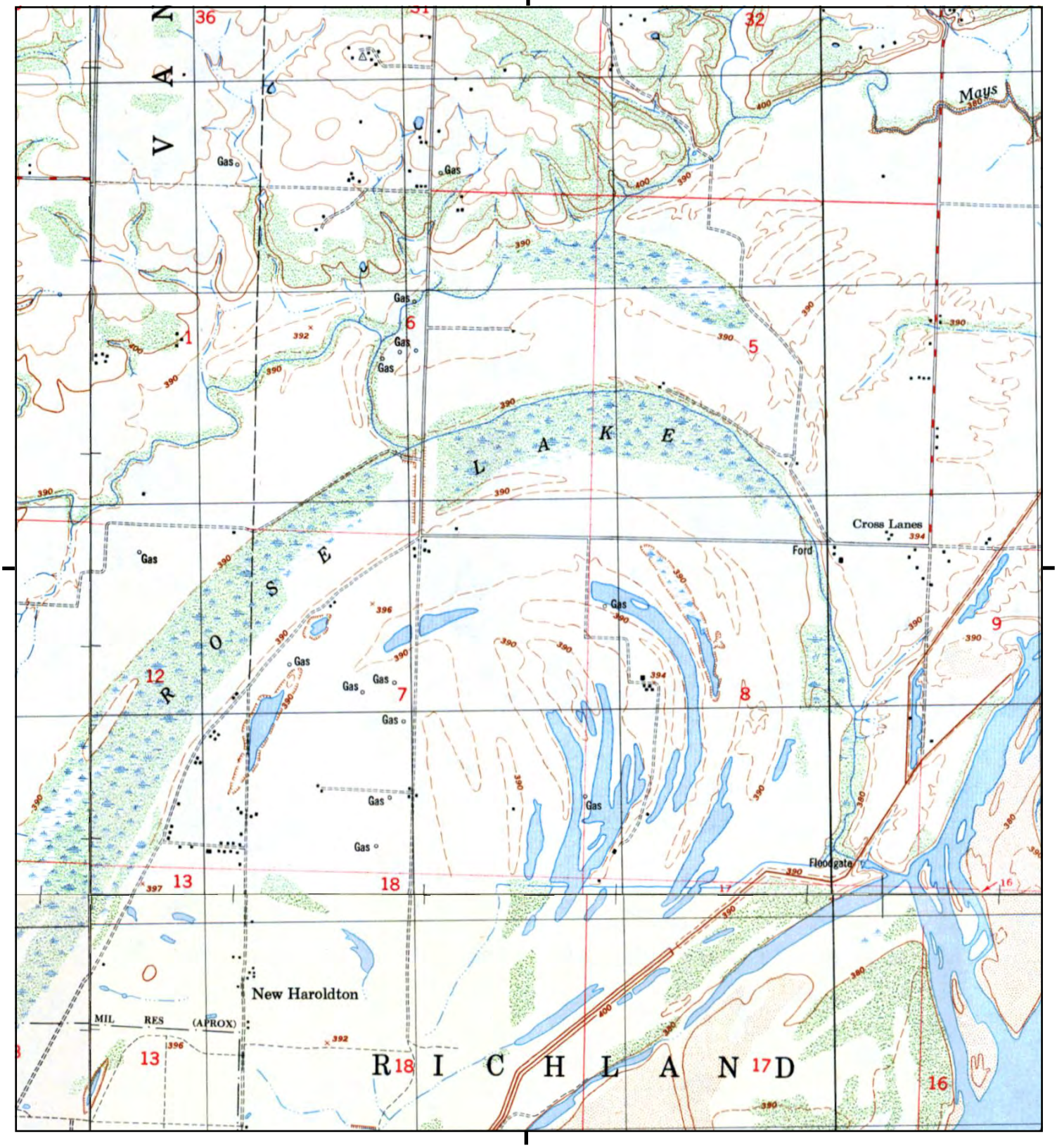
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, BARLING, 1949, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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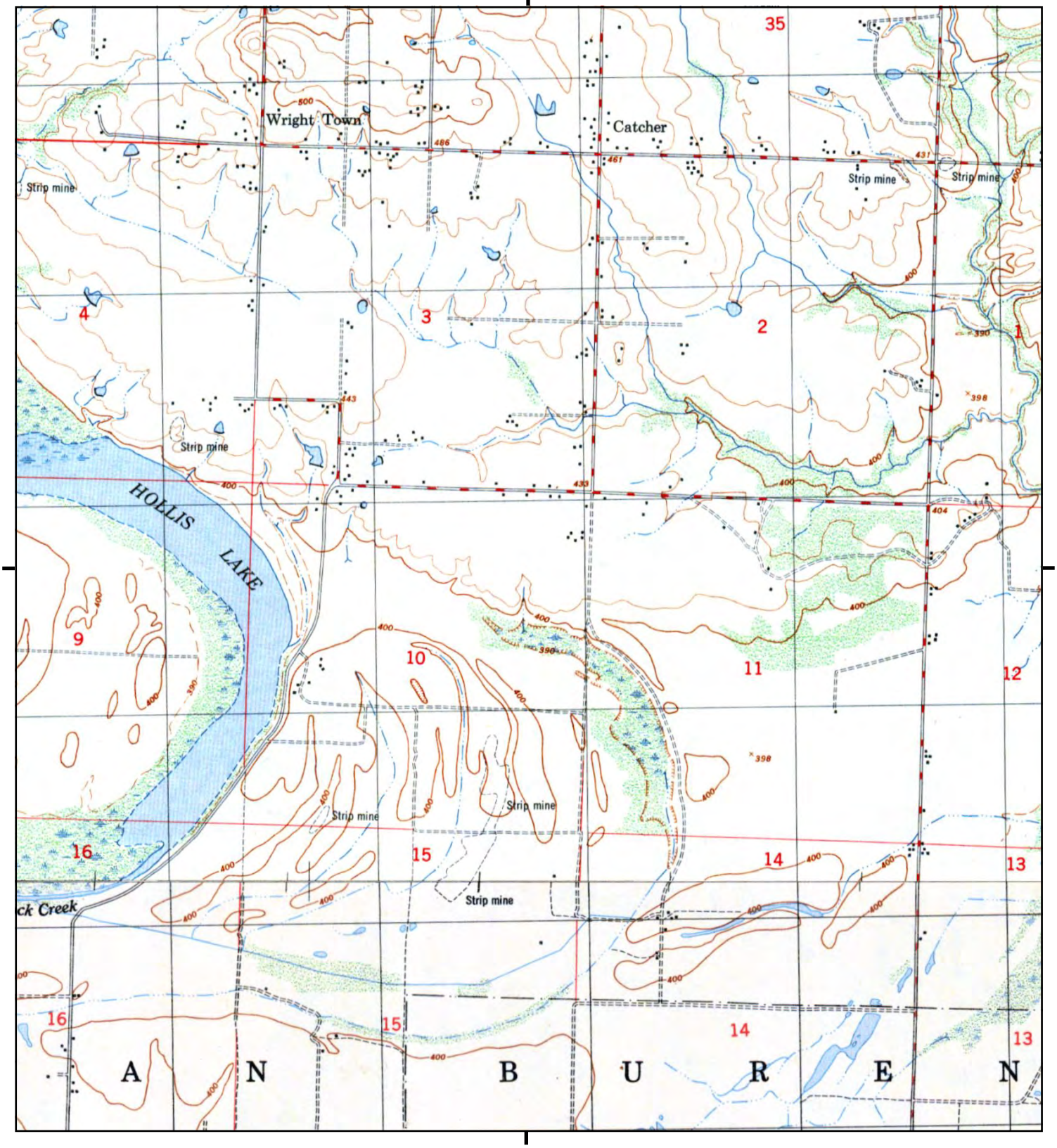
W E
SW S SE

TP, ALMA, 1949, 7.5-minute
N, VAN BUREN, 1949, 7.5-minute
SE, LAVACA, 1949, 7.5-minute
SW, BARLING, 1949, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

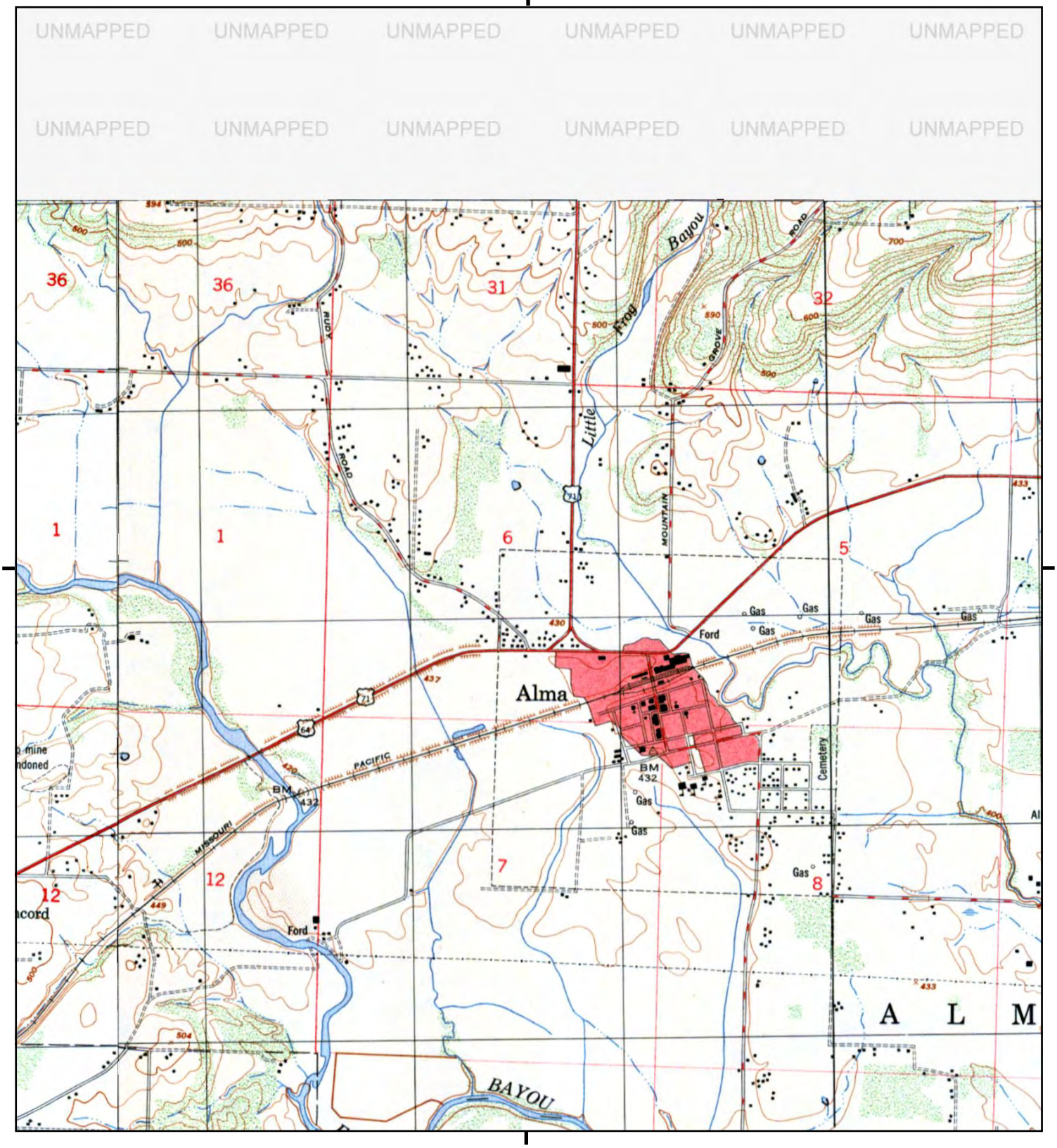
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, VAN BUREN, 1949, 7.5-minute
S, BARLING, 1949, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

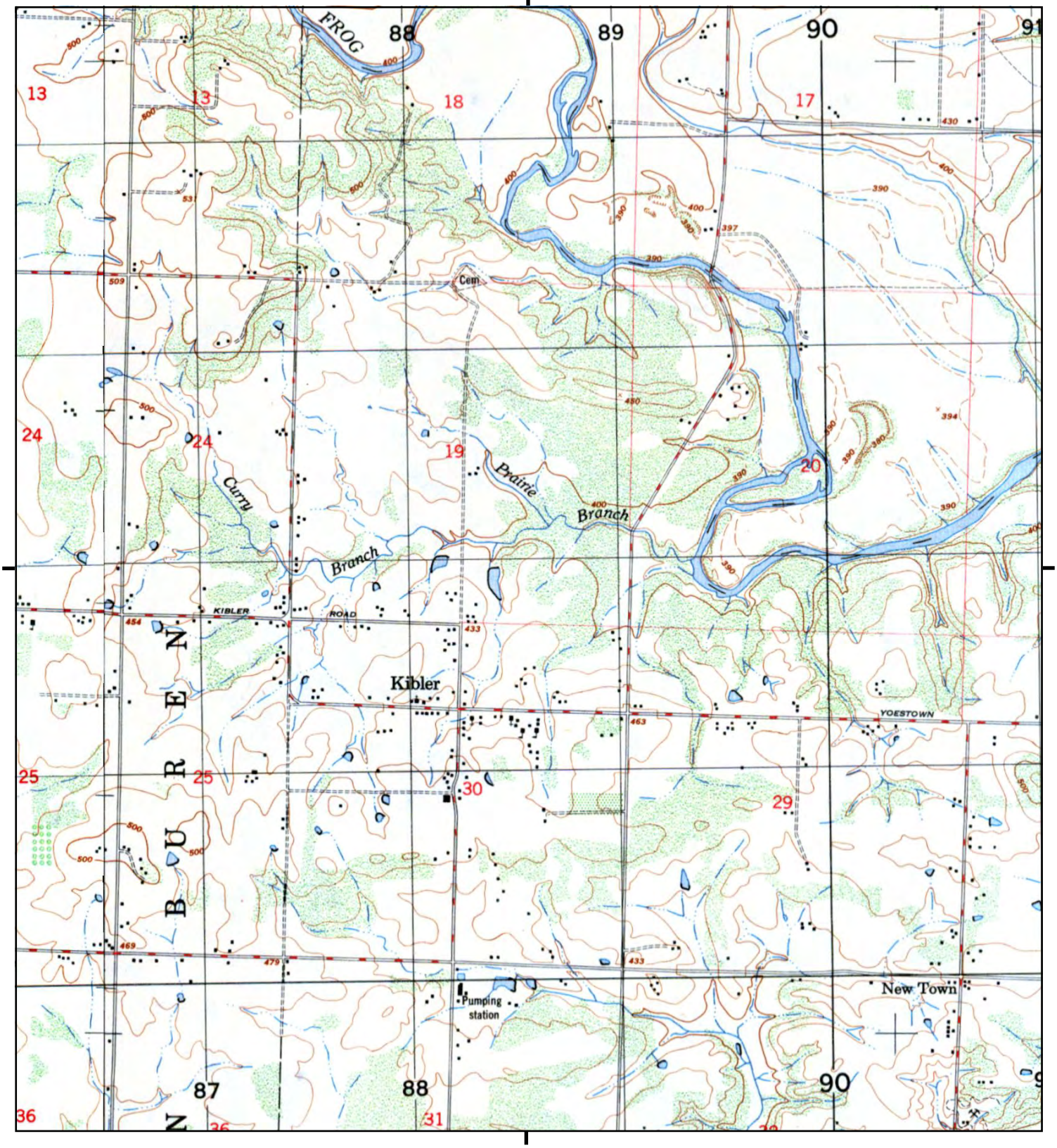
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, ALMA, 1949, 7.5-minute
SW, VAN BUREN, 1949, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

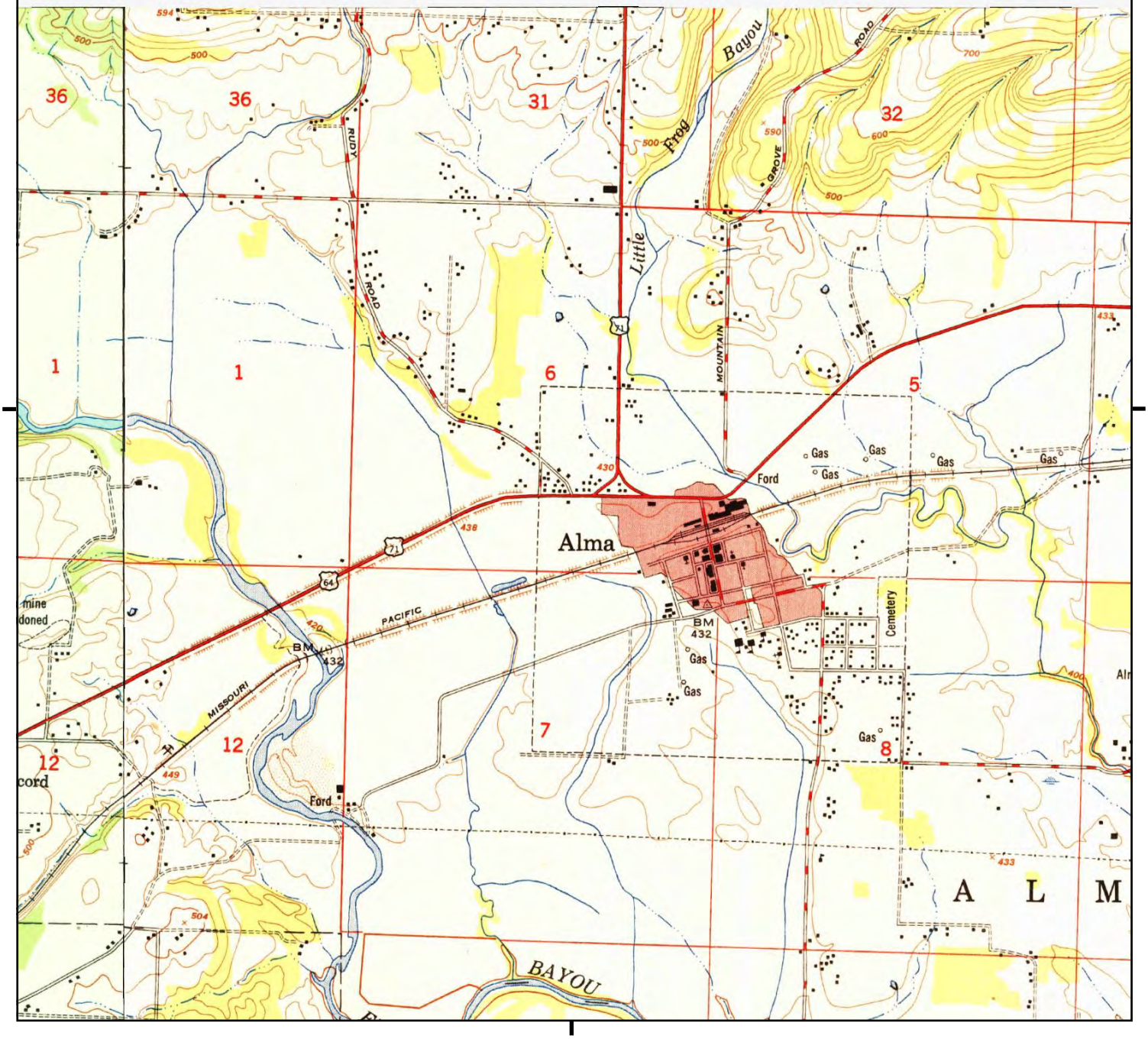
TP, ALMA, 1949, 7.5-minute
W, VAN BUREN, 1949, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

Historical Topo Map

1947, 1951



This report includes information from the following map sheet(s).

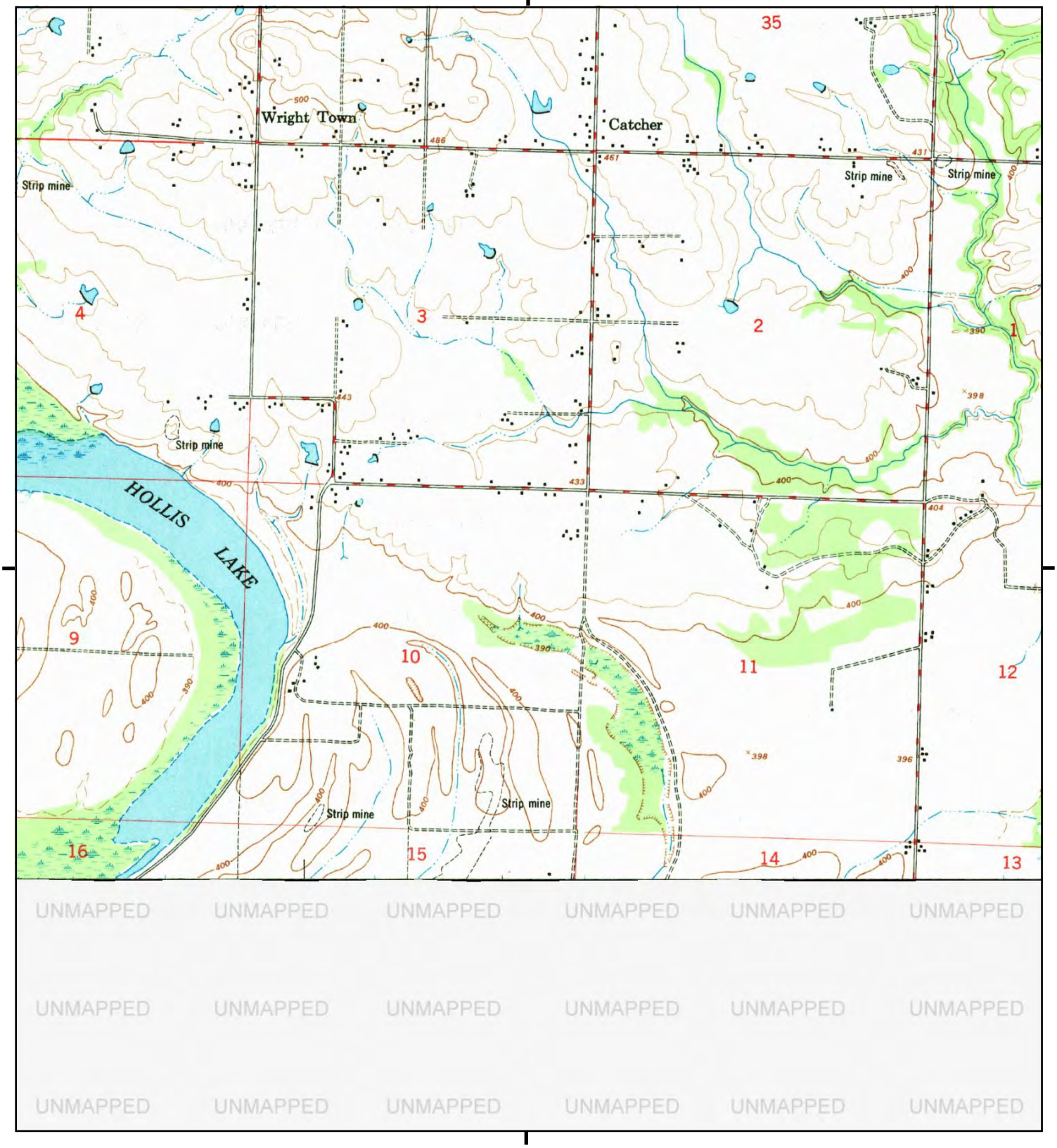
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Alma, 1951, 7.5-minute
SW, Van Buren, 1947, 7.5-minute
SW, Van Buren, 1951, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

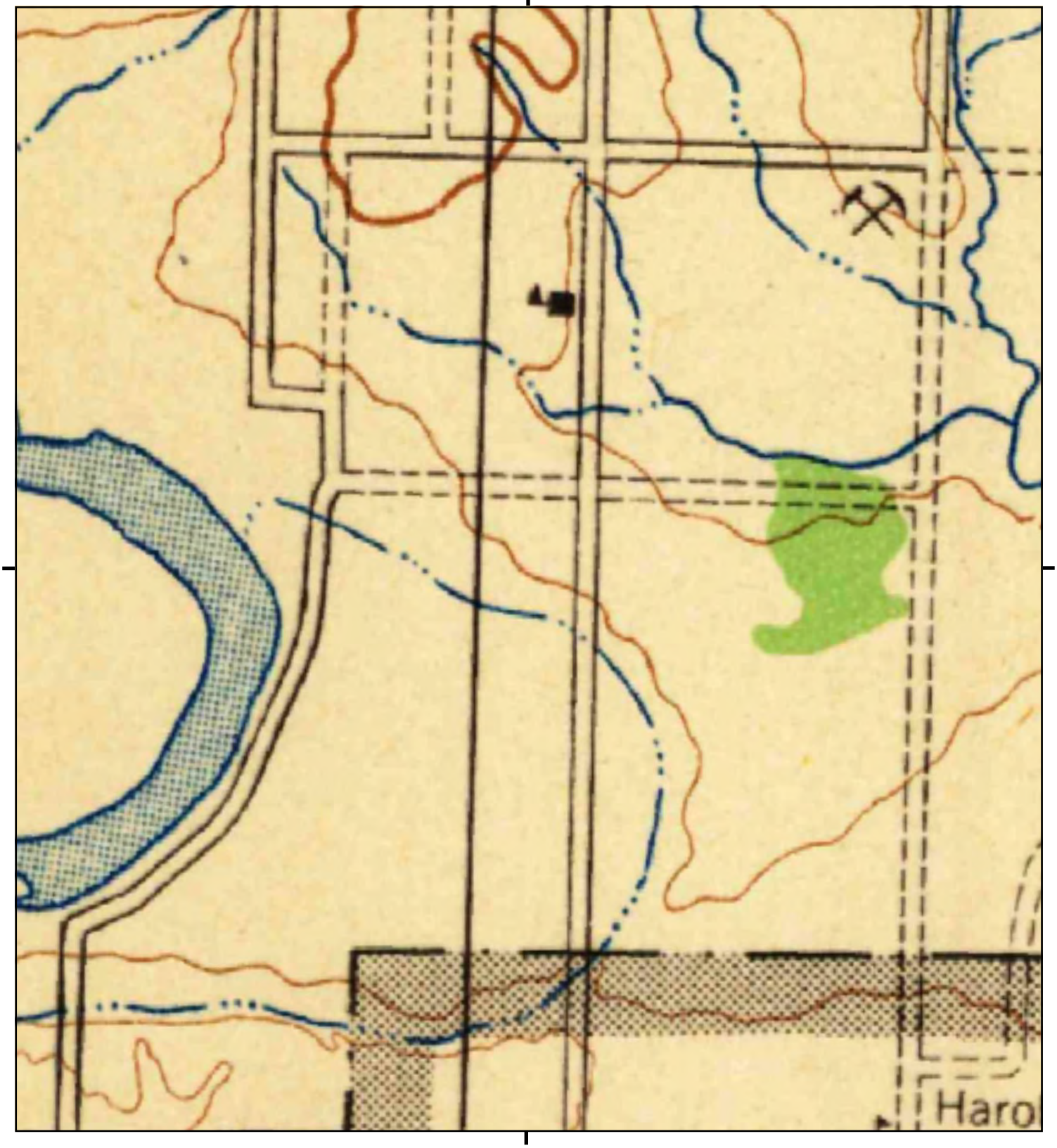
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Van Buren, 1947, 7.5-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

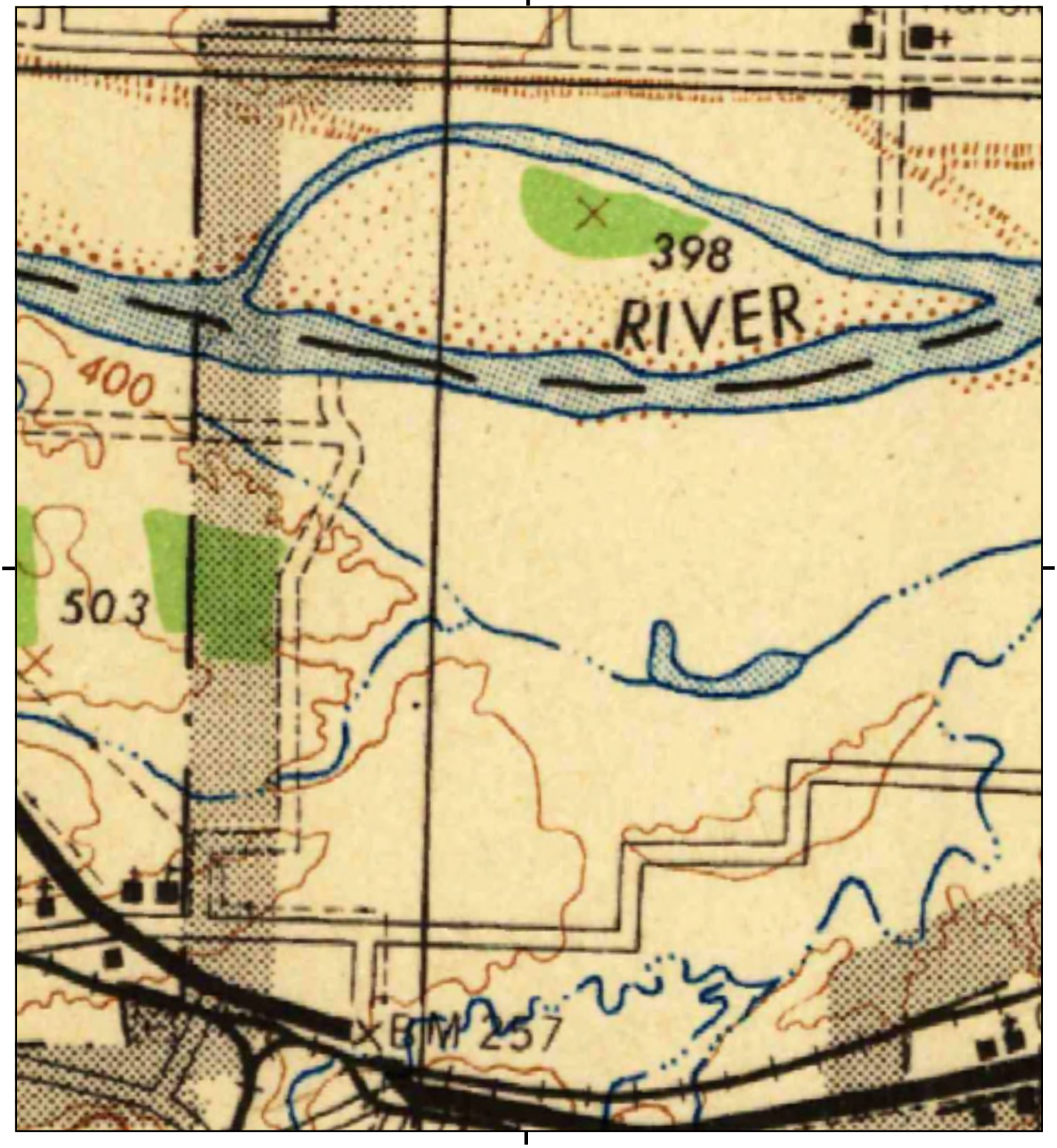
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1943, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

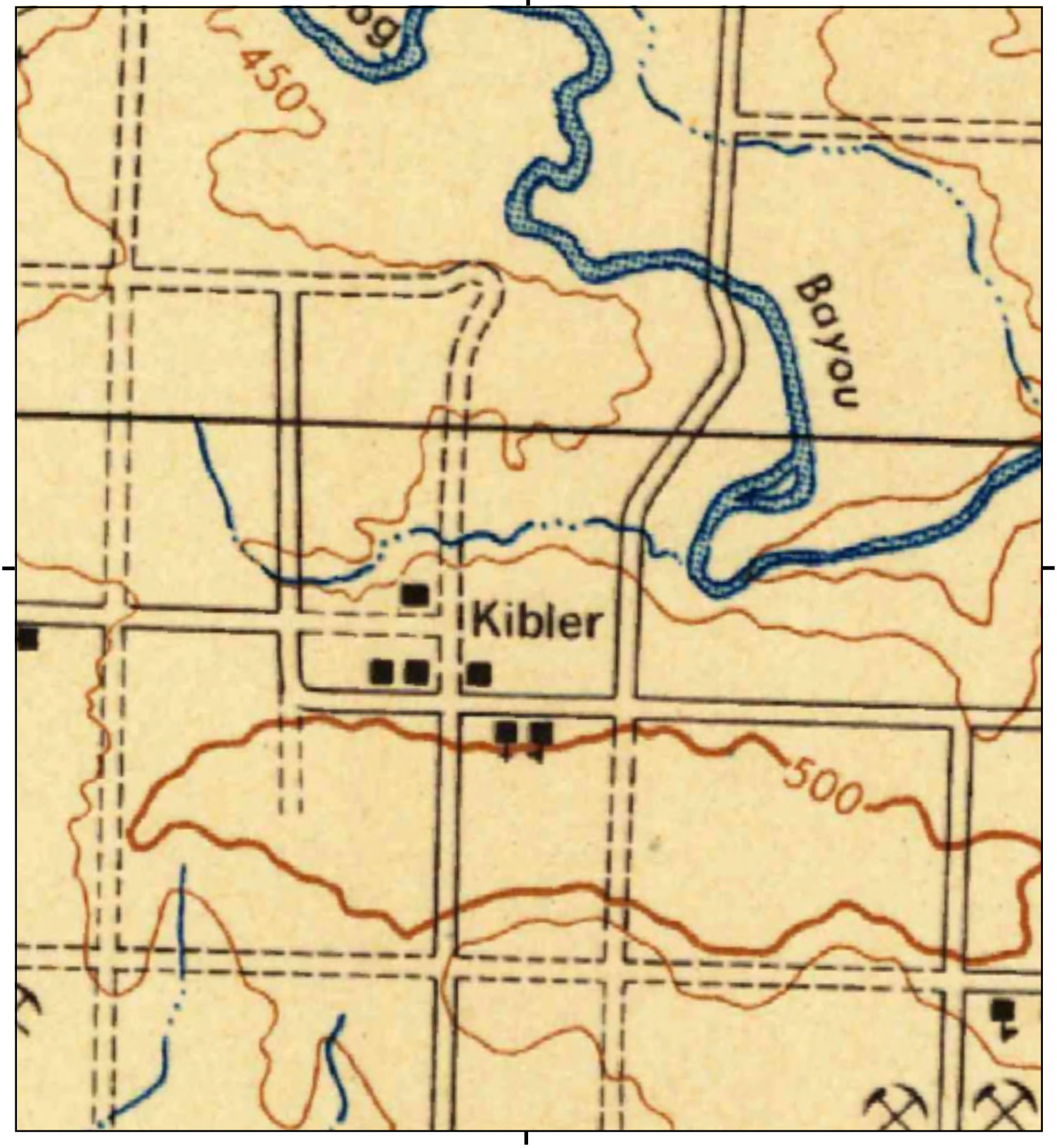
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1943, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1943, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1943, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

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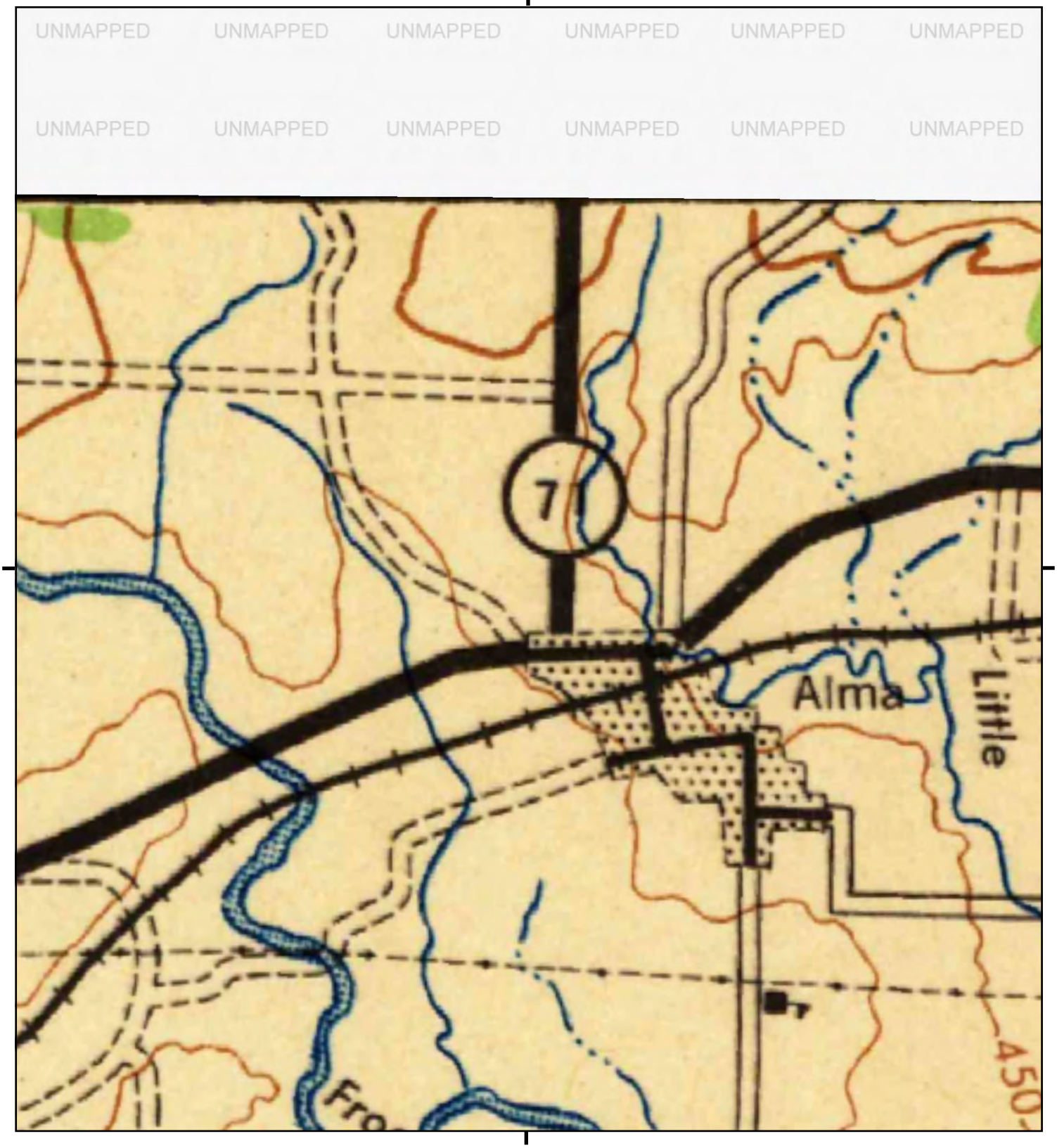


This report includes information from the following map sheet(s).

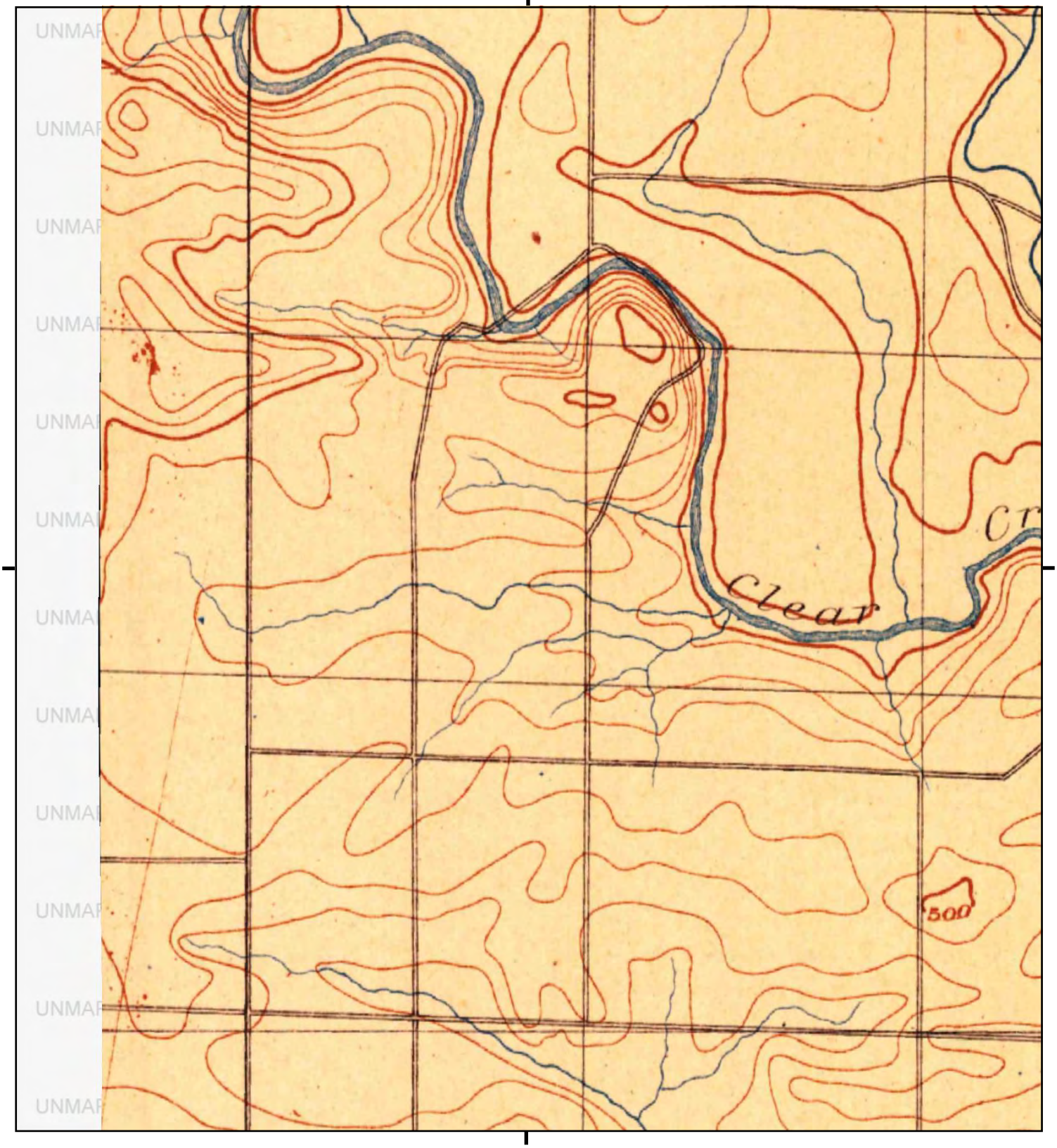
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1943, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

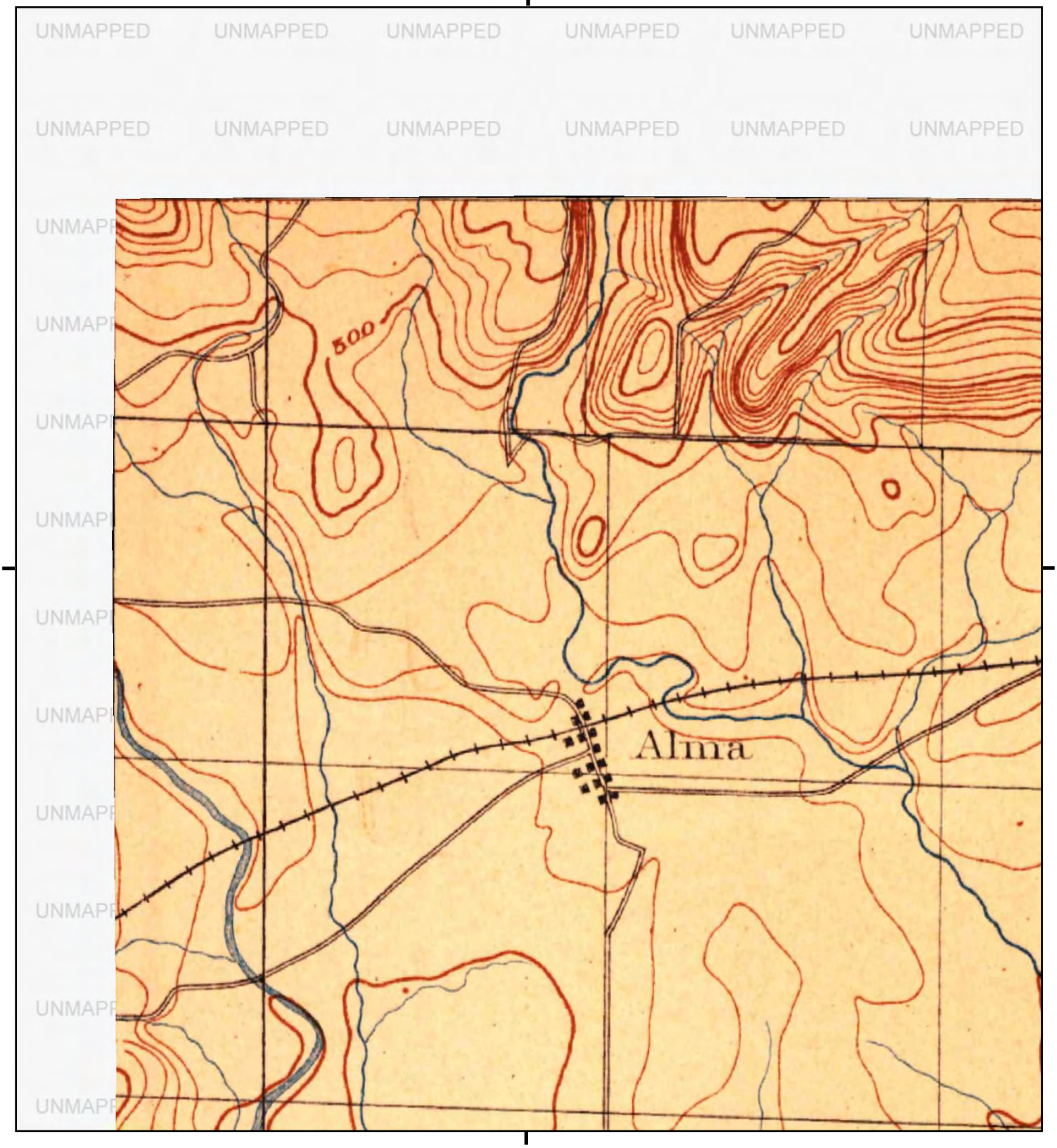
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lavaca, 1906, 15-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

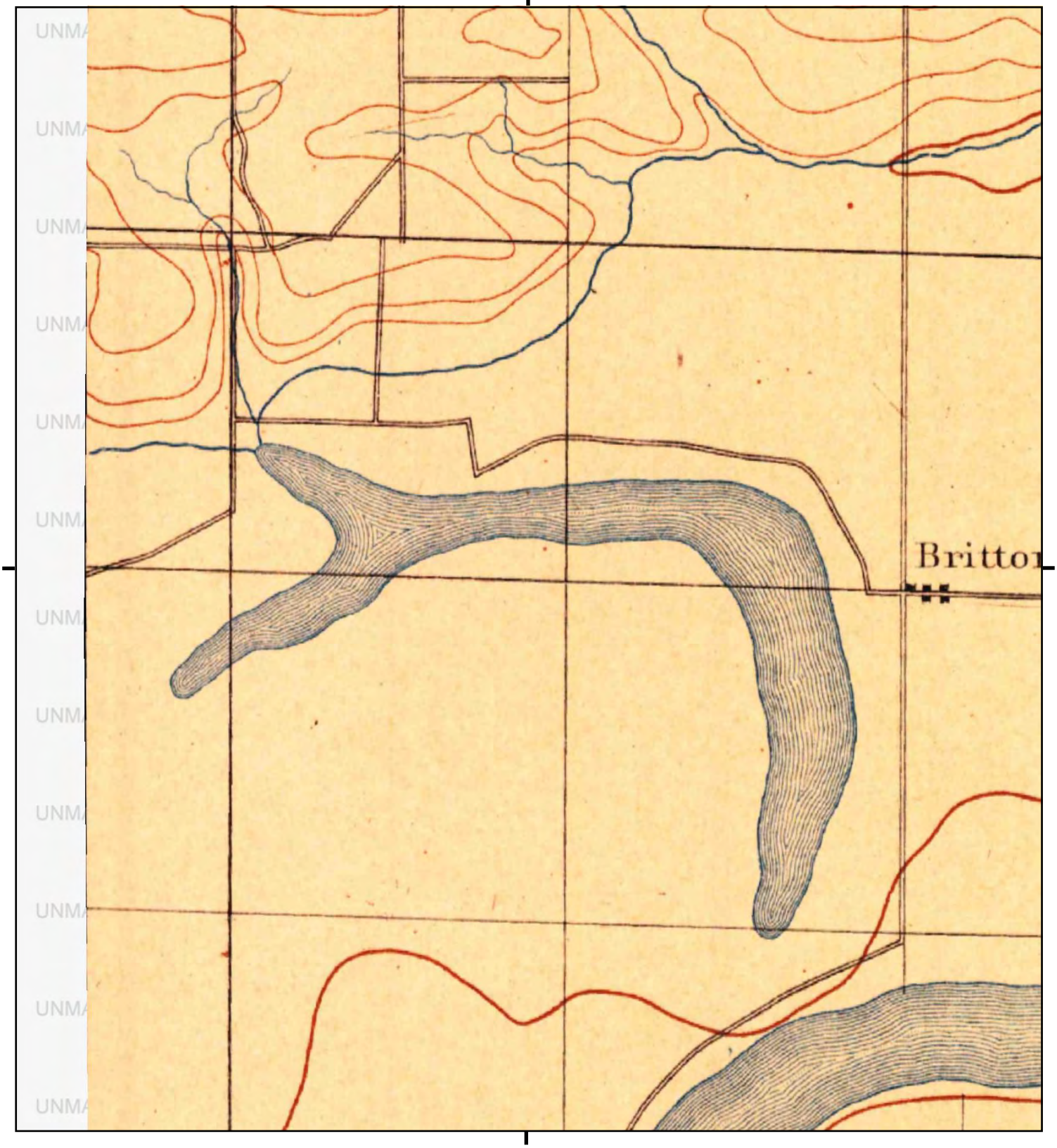
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lavaca, 1906, 15-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

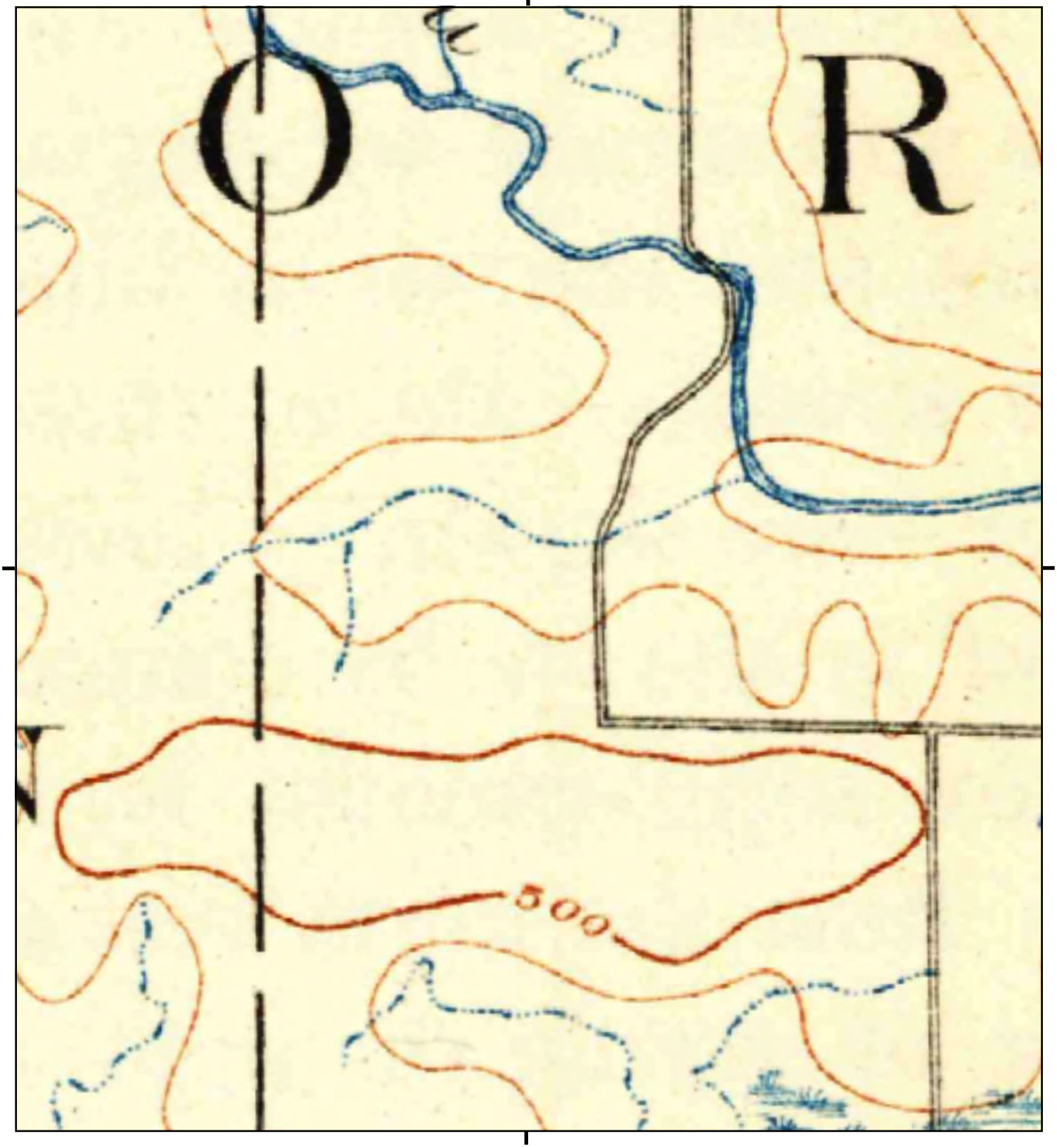
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lavaca, 1906, 15-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

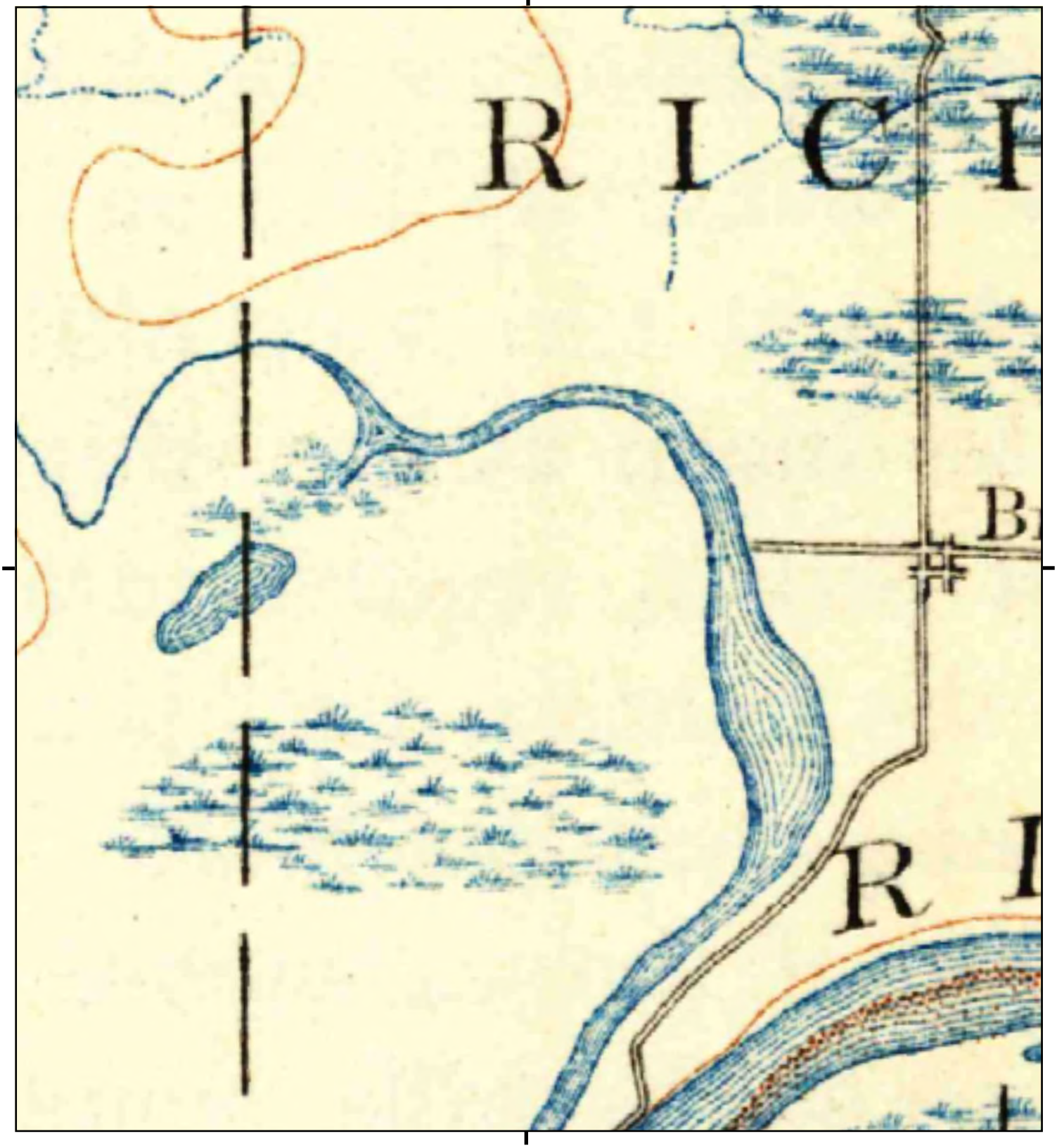
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1890, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

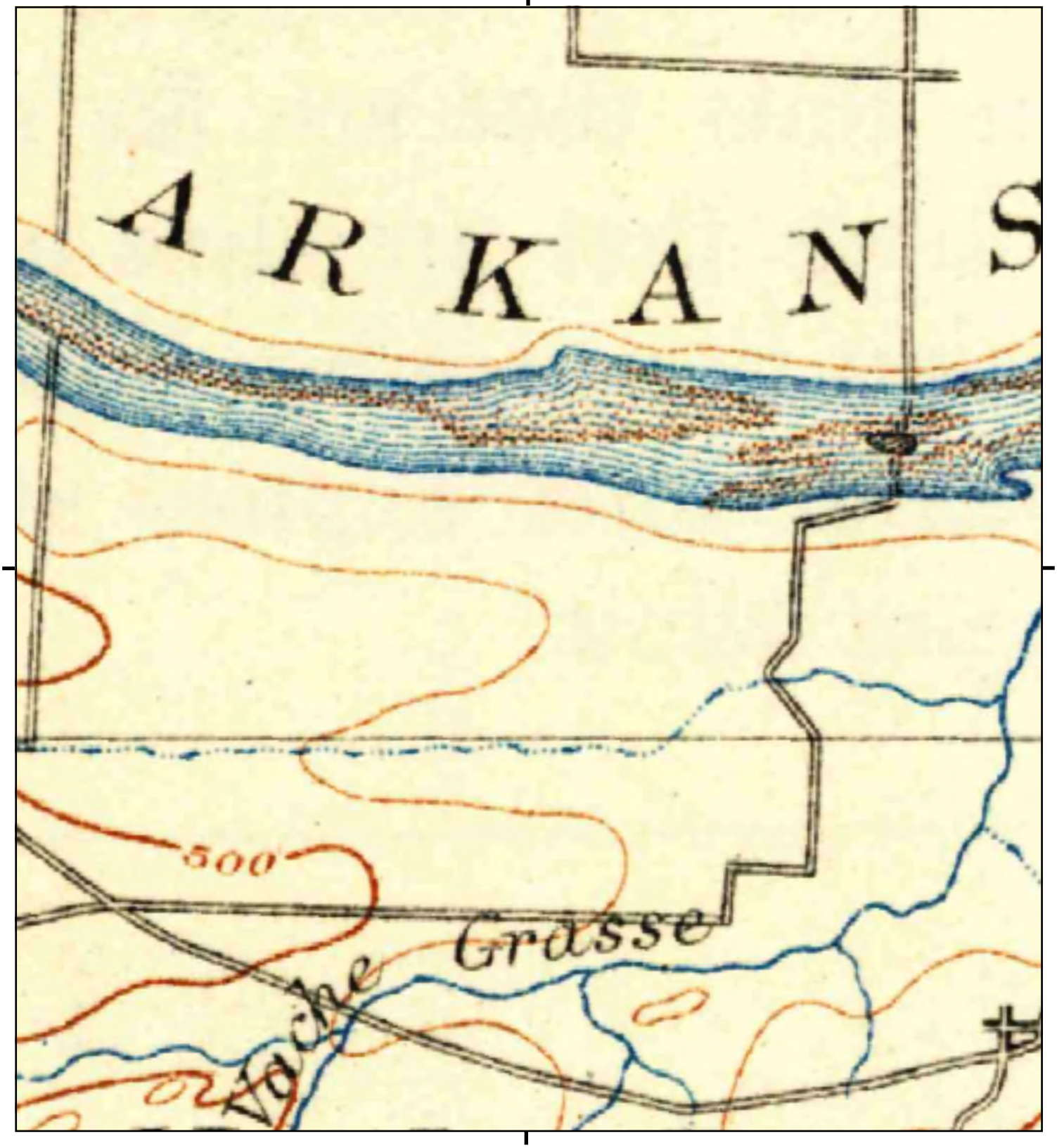
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1890, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1890, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
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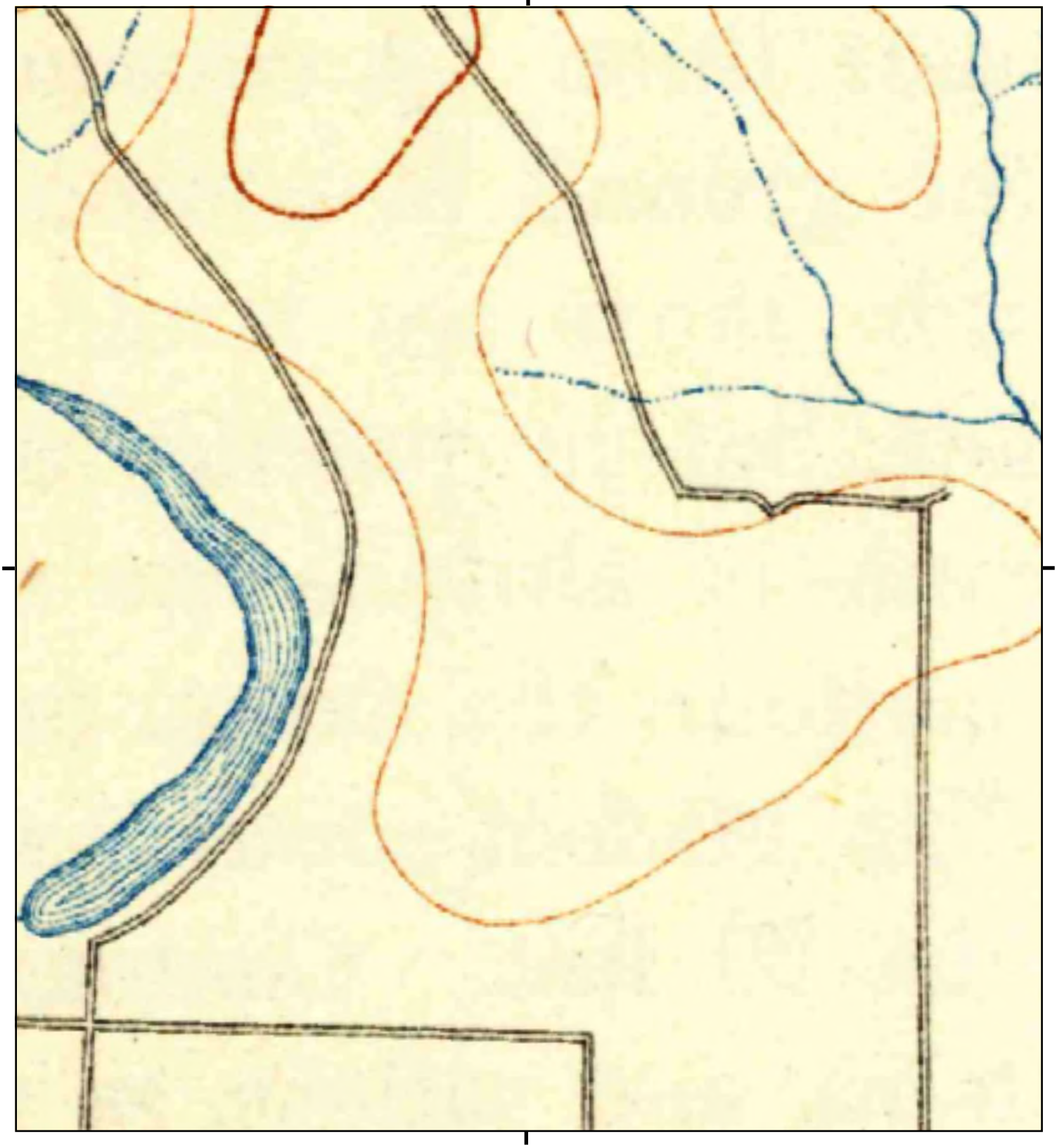

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0 Miles 0.25 0.5 1 1.5

NW N NE
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SW S SE

TP, Fort Smith, 1890, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
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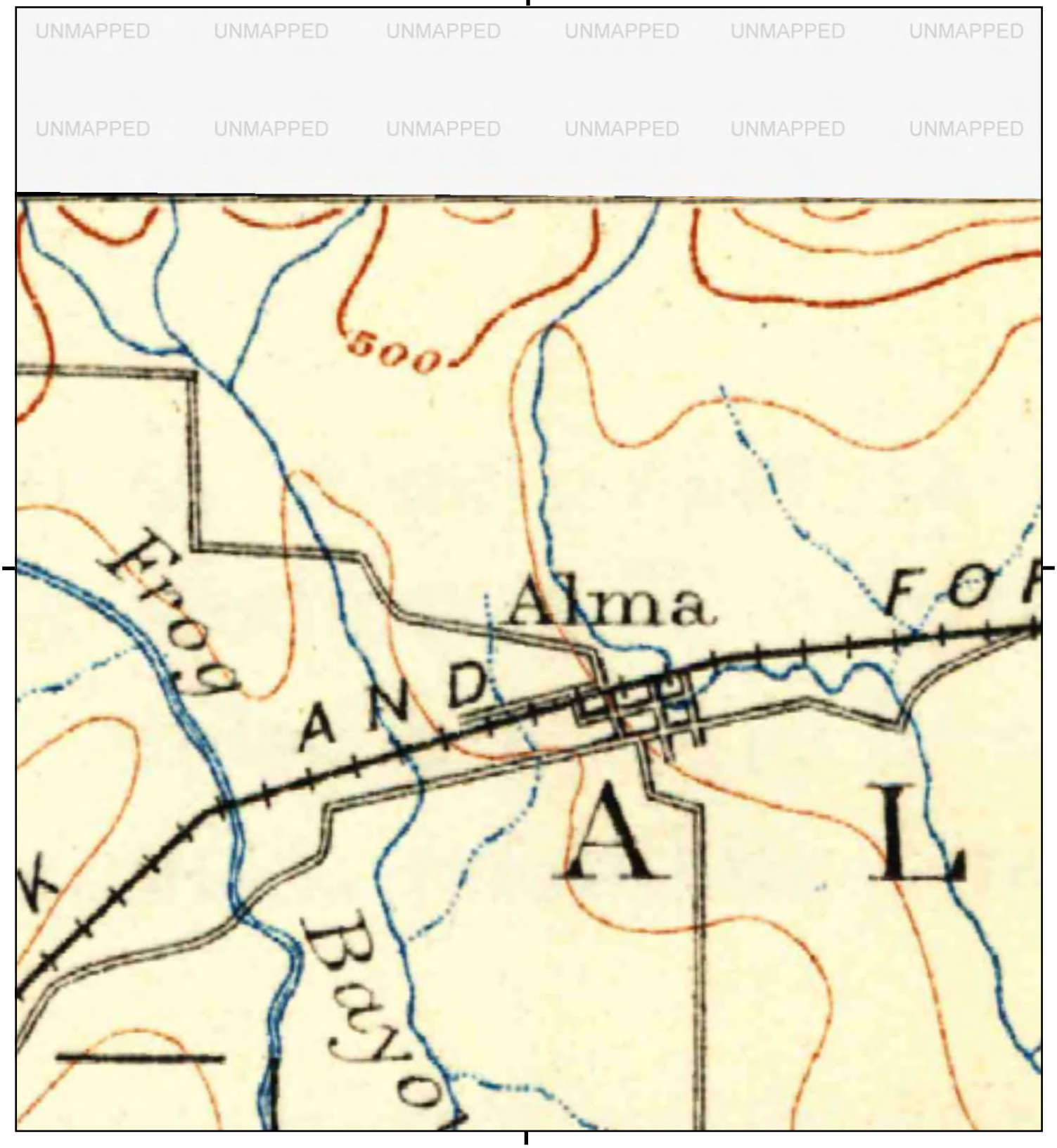


This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fort Smith, 1890, 30-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

This report includes information from the following map sheet(s).

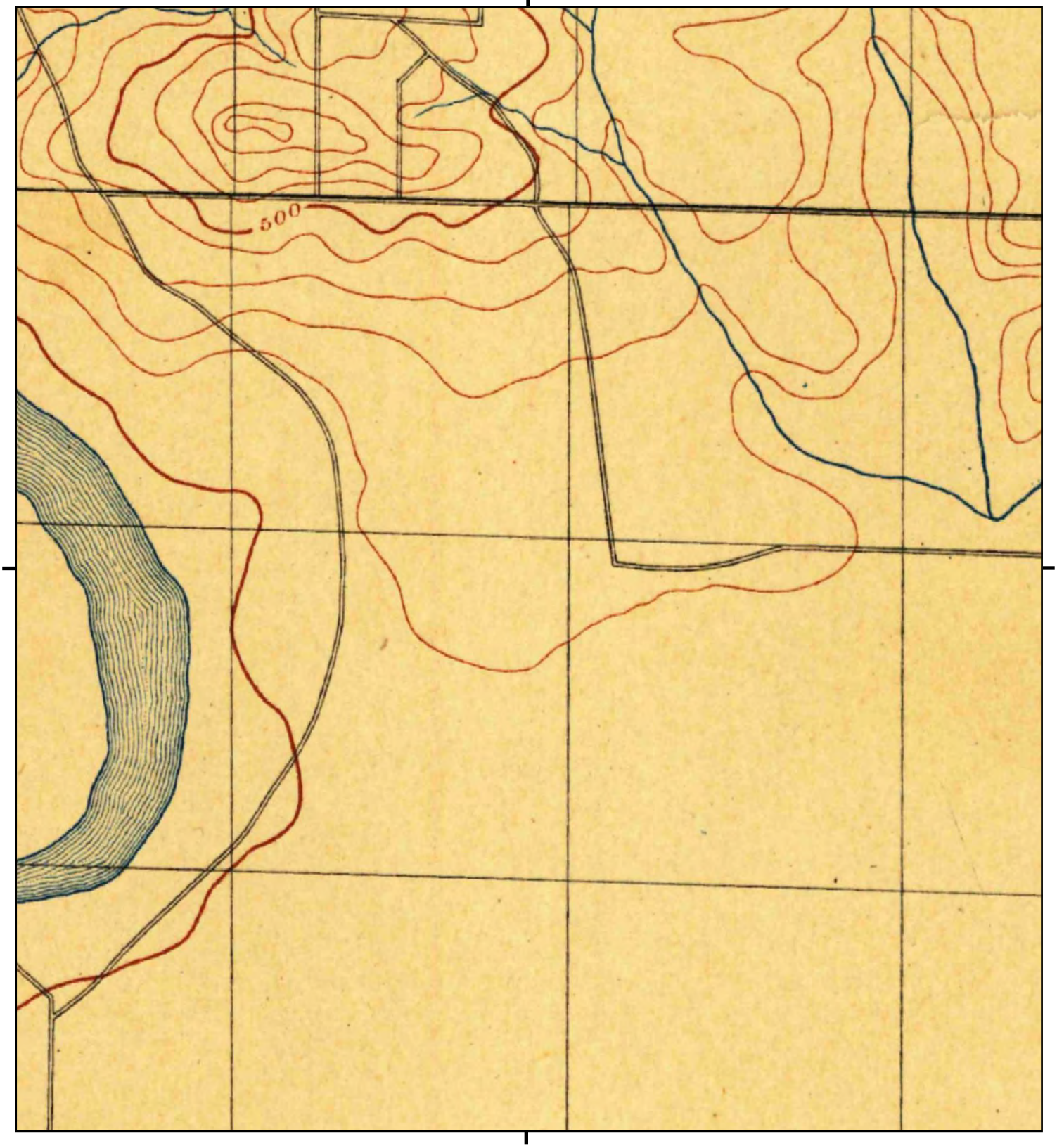
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Van Buren, 1887, 15-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N



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NW N NE
W E
SW S SE

TP, Van Buren, 1887, 15-minute

SITE NAME: Future I-49 Corridor
ADDRESS: Alma To Barling
Alma, AR 72921
CLIENT: Harbor Environmental Inc

N

Future I-49 Corridor

Alma To Barling

Alma, AR 72921

Inquiry Number: 6532205.6

June 15, 2021

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Date EDR Searched Historical Sources:

Aerial Photography June 15, 2021

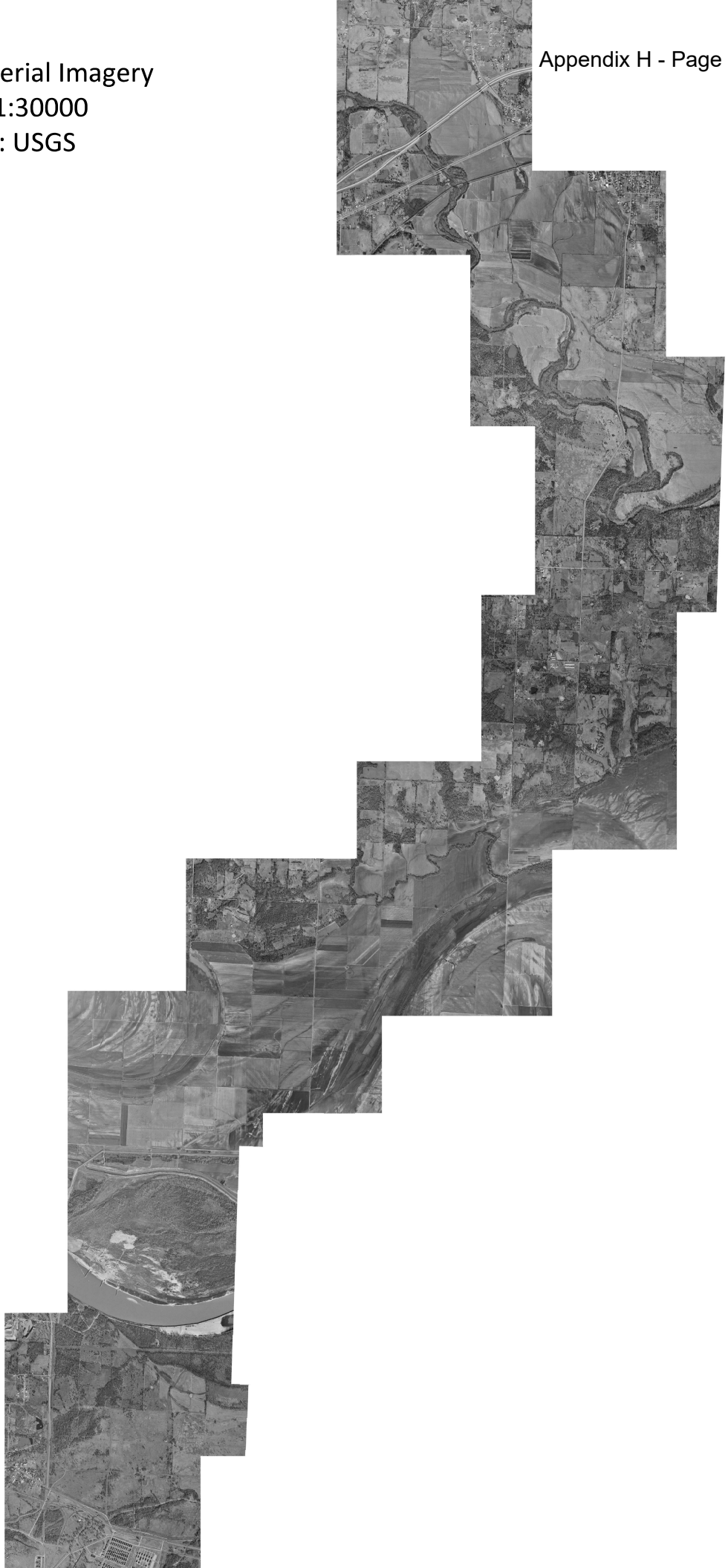
Target Property:

Alma To Barling

Alma, AR 72921

Year	***Scale***	***Details***	***Source***
1971	Aerial Photograph. Scale: 1:30000	Flight Year: 1971	USGS
1976	Aerial Photograph. Scale: 1:80000	Flight Year: 1976	USGS
1980	Aerial Photograph. Scale: 1:58000	Flight Year: 1980	USGS
1994	Aerial Photograph. Scale: 1 Meter GSD	Flight Year: 1994	USGS/DOQQ
2001	Aerial Photograph. Scale: 1 Meter GSD	Flight Year: 2001	USGS/DOQQ
2010	Aerial Photograph. Scale: 1 Meter GSD	Flight Year: 2010	USGS/NAIP
2013	Aerial Photograph. Scale: 1 Meter GSD	Flight Year: 2013	USGS/NAIP
2017	Aerial Photograph. Scale: 1 Meter GSD	Flight Year: 2017	USGS/NAIP

1971 Aerial Imagery
Scale: 1:30000
Source: USGS

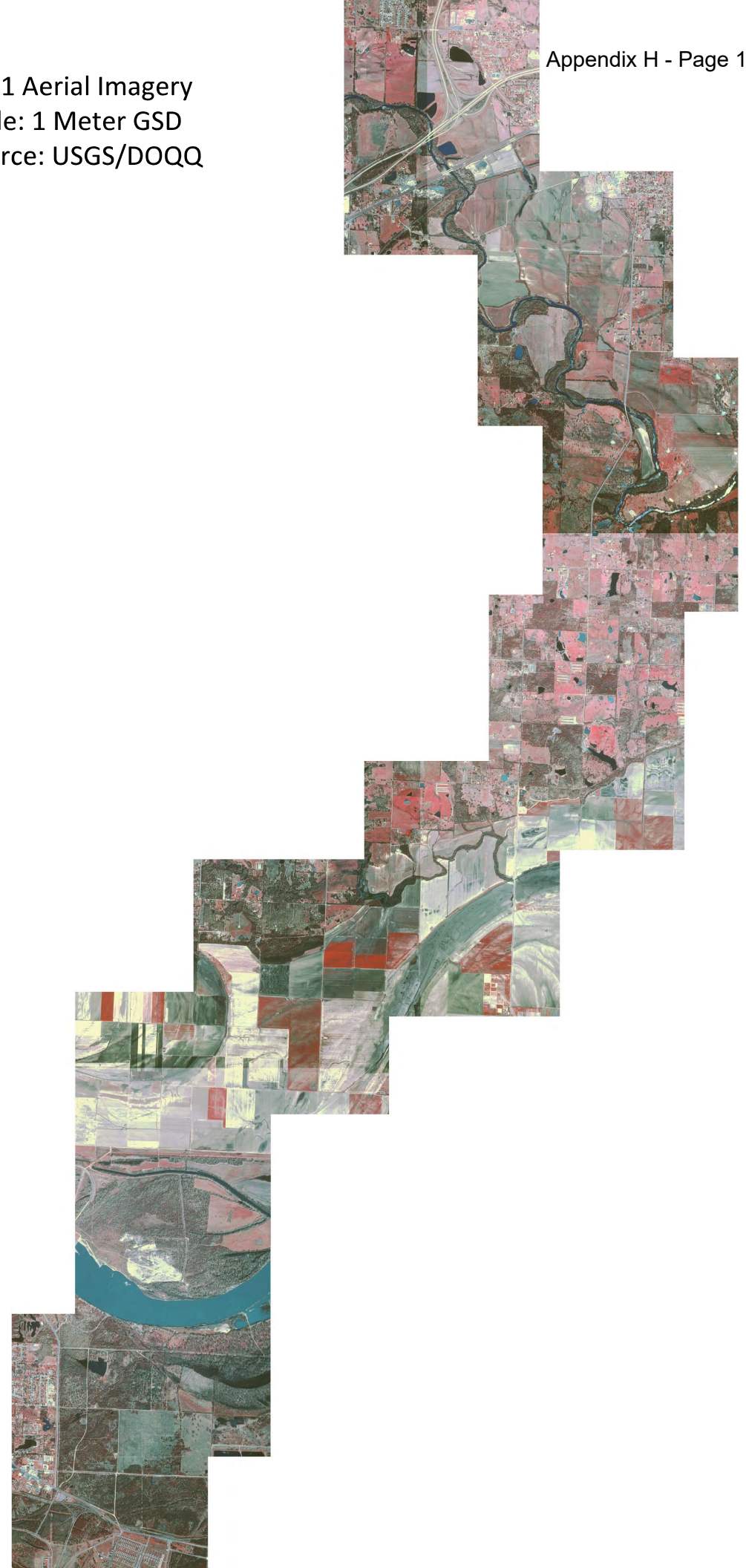


1976 Aerial Imagery
Scale: 1:80000
Source: USGS

1980 Aerial Imagery
Scale: 1:58000
Source: USGS

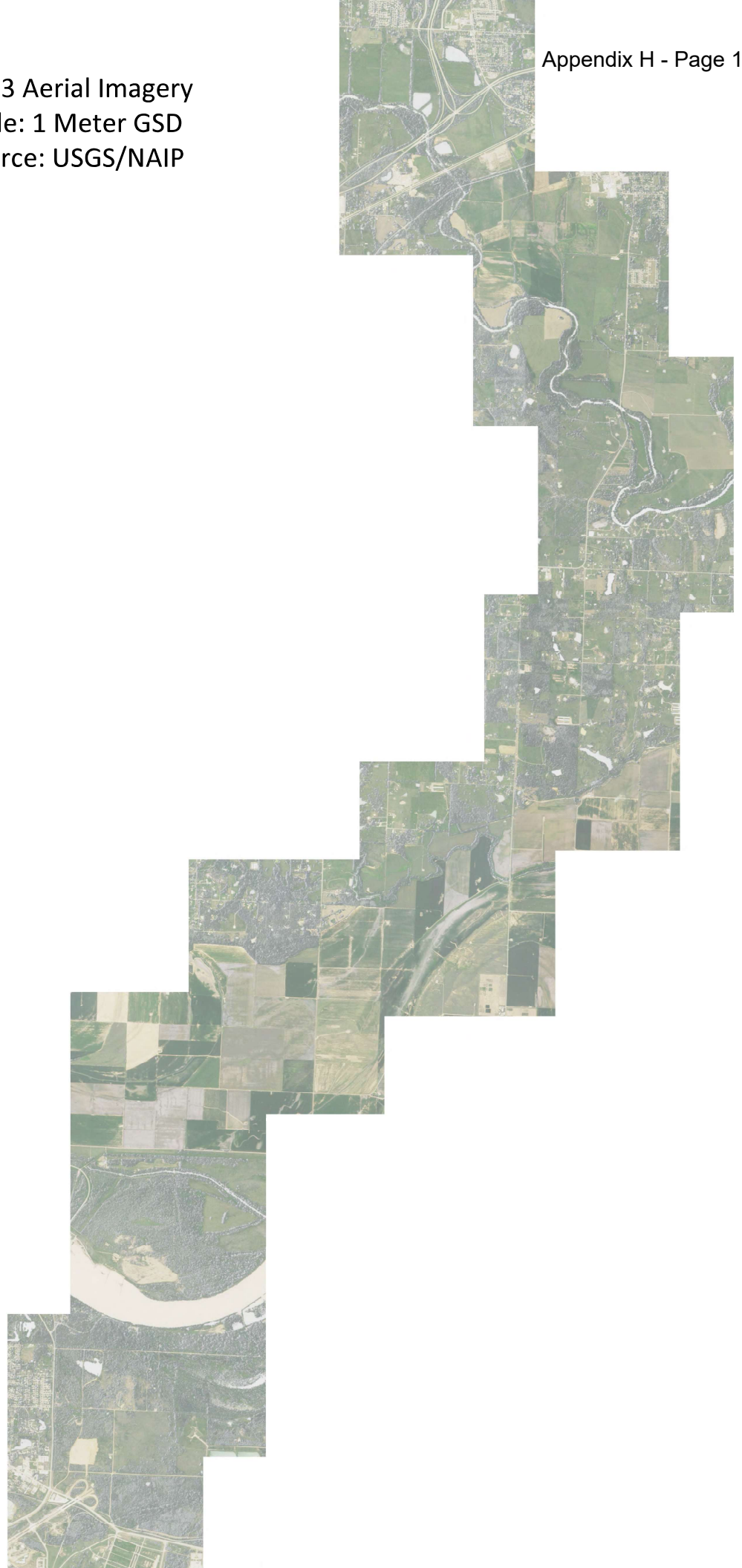
1994 Aerial Imagery
Scale: 1 Meter GSD
Source: USGS/DOQQ

2001 Aerial Imagery
Scale: 1 Meter GSD
Source: USGS/DOQQ

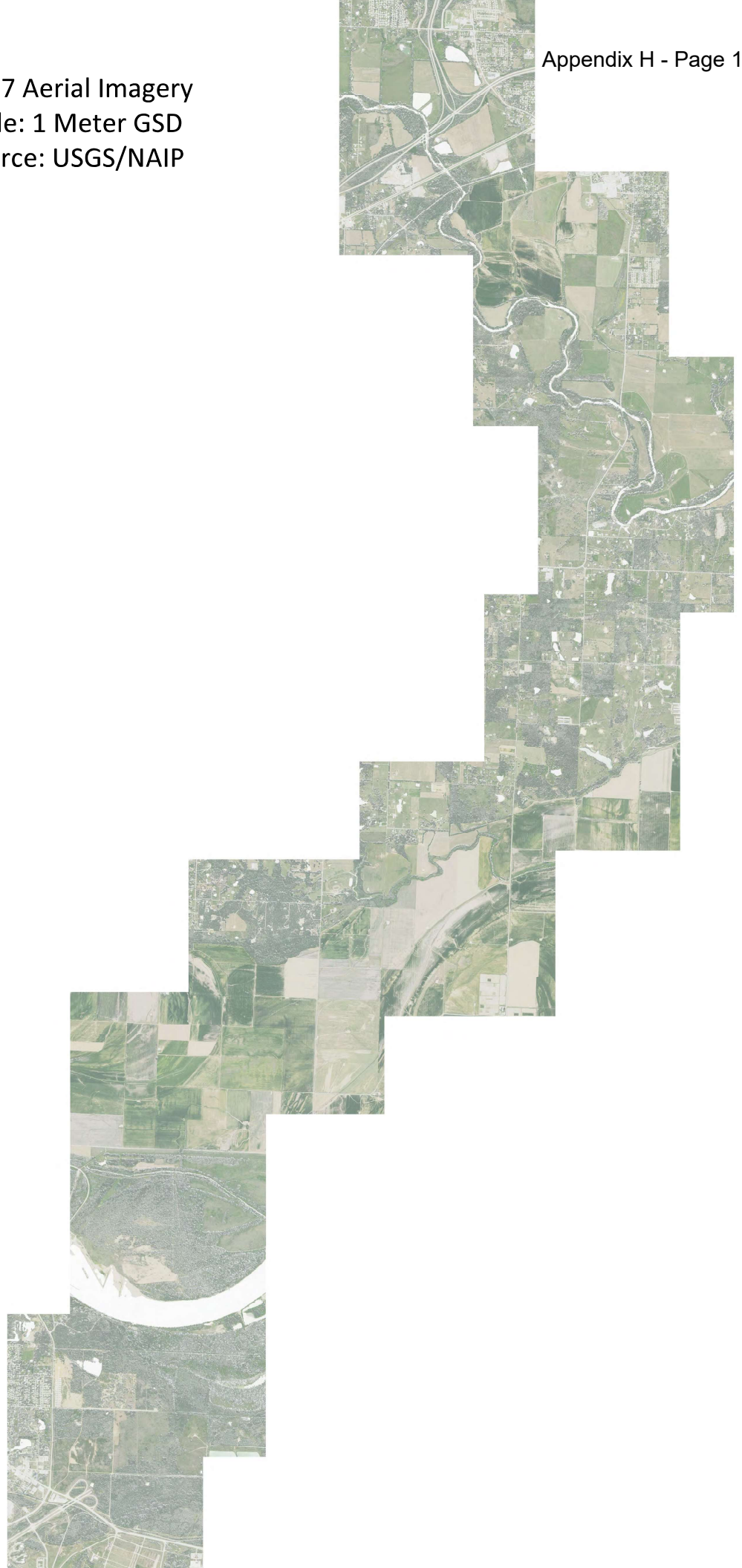


2010 Aerial Imagery
Scale: 1 Meter GSD
Source: USGS/NAIP

2013 Aerial Imagery
Scale: 1 Meter GSD
Source: USGS/NAIP



2017 Aerial Imagery
Scale: 1 Meter GSD
Source: USGS/NAIP



ATTACHMENT D – EDR REGULATORY REPORT

ATTACHMENT D – EDR REGULATORY REPORT

Future I-49 Corridor
Alma To Barling
Alma, AR 72921

Inquiry Number: 6532205.2s
June 11, 2021

EDR Area / Corridor Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Mapped Sites Summary	2
Key Map	2
Map Findings Summary	3
Focus Maps	7
Map Findings	39
Orphan Summary	OR-1
Government Records Searched/Data Currency Tracking	GR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

SUBJECT PROPERTY INFORMATION

ADDRESS

ALMA TO BARLING
ALMA, AR 72921

TARGET PROPERTY SEARCH RESULTS

The Target Property was identified in the following databases.

Page Numbers and Map Identifcations refer to the EDR Area/Corridor Report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

STANDARD ENVIRONMENTAL RECORDS

State and tribal landfill and/or solid waste disposal site lists

SWID: Solid Waste Illegal Dumps Database

A review of the SWID list, as provided by EDR, and dated 01/31/2021 has revealed that there is 1 SWID site within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
DON NEWTON Compliant NBR Formatted: 007805	1218 CLEAR CREEK PAR	6 / 7	46

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Department of Defense Sites

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 DOD sites within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
OZARK LAKE		Region / 12,13	38
FORT CHAFFEE (CLOSED		Region / 13,12,15,16	38

EXECUTIVE SUMMARY

FINDS: Facility Index System/Facility Registry System

A review of the FINDS list, as provided by EDR, and dated 02/03/2021 has revealed that there are 3 FINDS sites within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
CLEAR CREEK PIT Registry ID:: 110024961139	HWY 162 & CLEAR CREE	A2 / 6	41
ANADARKO-MORRIS #2 C Registry ID:: 110038614309	***KIBLER FIELD - SEC 3***	***4 / 6***	***45***
ARKLA - MCCARTY Registry ID:: 110024953326	1.5 SE OF ALMA	A5 / 6	45

ECHO: Enforcement & Compliance History Information

A review of the ECHO list, as provided by EDR, and dated 01/02/2021 has revealed that there is 1 ECHO site within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
ANADARKO-MORRIS #2 C Registry ID: 110038614309	***KIBLER FIELD - SEC 3***	***4 / 6***	***45***

PERMITS: Permit Data System

A review of the PERMITS list, as provided by EDR, and dated 03/08/2021 has revealed that there are 2 PERMITS sites within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
CLEAR CREEK PIT Facility Status: A	HWY 162 & CLEAR CREE	A3 / 6	41
BLAKE CONST/BORROW P Facility Status: A	HWY 59 & 22	B8 / 15	49

TIER 2: Tier 2 Information Listing

A review of the TIER 2 list, as provided by EDR, and dated 12/31/2013 has revealed that there are 2 TIER 2 sites within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
STEPHENS PRODUCTION Facility Record Id: FATR20139SEHRN0049X2	SEC 29 - T9N - R30W	1 / 6	38
STEPHENS PRODUCTION Facility Record Id: FATR20139SGPZ10CGG7S	SEC 7 - T8N - R30W	7 / 10	46

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Page Numbers and Map Identifcations refer to the EDR Area/Corridor Report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

A review of the RCRA-VSQG list, as provided by EDR, and dated 03/22/2021 has revealed that there is 1 RCRA-VSQG site within approximately 0.25 miles of the requested target property.

Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
US ARMY RESERVE CENT	***101 FORT ST***	***SSW 0 - 1/8 (0.002 mi.)***	***B10 / 15***	***55***
EPA ID:: AR2210499818				

State and tribal landfill and/or solid waste disposal site lists

SWID: Solid Waste Illegal Dumps Database

A review of the SWID list, as provided by EDR, and dated 01/31/2021 has revealed that there are 4 SWID sites within approximately 0.5 miles of the requested target property.

Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
MAI NGUYEN	8315 ALMA HWY.	SW 1/8 - 1/4 (0.126 mi.)	12 / 2	64
Compliant NBR Formatted: 011685				
UNKNOWN (CRAWFORD CO	2925 OLD MACEDONIA R	NE 1/4 - 1/2 (0.495 mi.)	C17 / 5	86
Compliant NBR Formatted: 021049				
ROY BOWLES	2925 OLD MACEDONIA R	NE 1/4 - 1/2 (0.495 mi.)	C18 / 5	87
Compliant NBR Formatted: 023073				
ROY BOWLES	2925 OLD MACEDONIA R	NE 1/4 - 1/2 (0.495 mi.)	C19 / 5	89
Compliant NBR Formatted: 024911				

State and tribal leaking storage tank lists

LTANKS: Leaking Storage Tank Location Listing

A review of the LTANKS list, as provided by EDR, and dated 03/15/2021 has revealed that there are 2 LTANKS sites within approximately 0.5 miles of the requested target property.

Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
BARLING FOOD CENTER	***406 CHURCH ST***	***WNW 1/8 - 1/4 (0.242 mi.)***	***15 / 15***	***69***
NFA Issued: 2002-10-01 00:00:00				
KEN'S CAR CARE	***712 FORT ST***	***NW 1/4 - 1/2 (0.472 mi.)***	***16 / 15***	***77***

EXECUTIVE SUMMARY

NFA Issued: 2010-07-26 00:00:00

State and tribal registered storage tank lists

UST: Underground Storage Tank Data

A review of the UST list, as provided by EDR, and dated 03/15/2021 has revealed that there are 3 UST sites within approximately 0.25 miles of the requested target property.

Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
CASEY'S GENERAL STOR Tank Status: IU Facility Id: 66001864 Facility Id: 66001864 ADEQ Facility ID: 66-01790	***107 FORT STREET***	***SSW 0 - 1/8 (0.002 mi.)***	***B9 / 15***	***52***
BARLING, CITY OF Tank Status: PO Facility Id: 66000044 Facility Id: 66000044 ADEQ Facility ID: 66-00607	304 CHURCH STREET	NW 1/8 - 1/4 (0.160 mi.)	13 / 15	64
BARLING FOOD CENTER Tank Status: PO Facility Id: 66000066 Facility Id: 66000066 ADEQ Facility ID: 66-00894	***406 CHURCH ST***	***WNW 1/8 - 1/4 (0.242 mi.)***	***15 / 15***	***69***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/22/2021 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the requested target property.

Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
STERICYCLE @ SEBASTI EPA ID:: ARR000027011	***6700 MAHOGANY AVE***	***SSE 1/8 - 1/4 (0.187 mi.)***	***14 / 16***	***66***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR Exclusive Historical Auto Stations

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto

EXECUTIVE SUMMARY

site within approximately 0.125 miles of the requested target property.

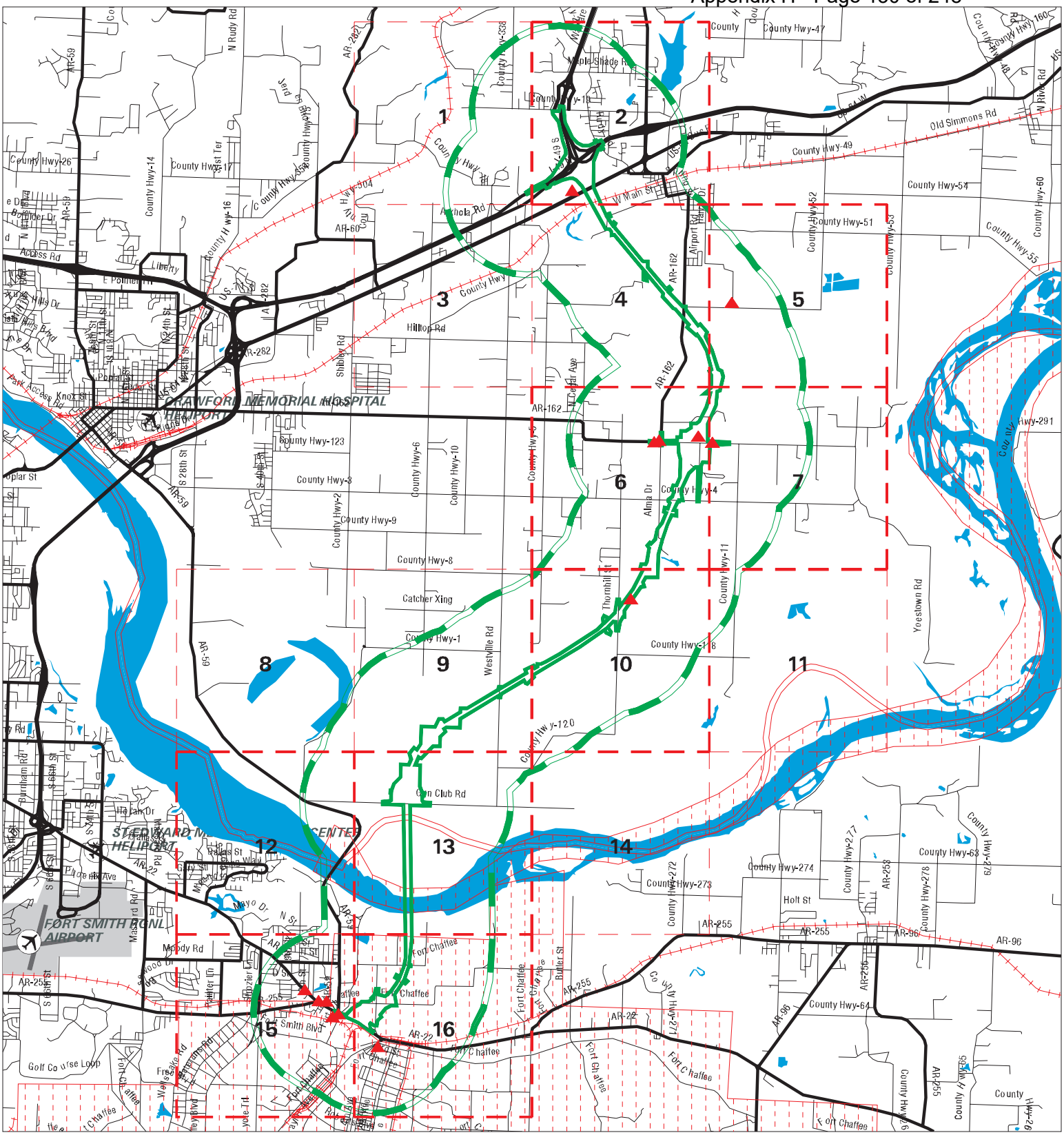
Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
MENDENHALL MARVIN J	103 FORT ST	SSW 0 - 1/8 (0.066 mi.)	11 / 15	63

MAPPED SITES SUMMARY

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
Reg / Multiple	OZARK LAKE		DOD	TP
Reg / Multiple	FORT CHAFFEE (CLOSED		DOD	TP
1 / 6	STEPHENS PRODUCTION	SEC 29 - T9N - R30W	TIER 2	TP
A2 / 6	CLEAR CREEK PIT	HWY 162 & CLEAR CREE	FINDS	TP
A3 / 6	CLEAR CREEK PIT	HWY 162 & CLEAR CREE	PERMITS	TP
4 / 6	ANADARKO-MORRIS #2 C	KIBLER FIELD - SEC 3	FINDS, ECHO	TP
A5 / 6	ARKLA - MCCARTY	1.5 SE OF ALMA	FINDS	TP
6 / 7	DON NEWTON	1218 CLEAR CREEK PAR	SWID	TP
7 / 10	STEPHENS PRODUCTION	SEC 7 - T8N - R30W	TIER 2	TP
B8 / 15	BLAKE CONST/BORROW P	HWY 59 & 22	PERMITS	TP
B9 / 15	CASEY'S GENERAL STOR	107 FORT STREET	UST, Financial Assurance	11 0.002 SSW
B10 / 15	US ARMY RESERVE CENT	101 FORT ST	RCRA-VSQG, FINDS, ECHO, PERMITS	12 0.002 SSW
11 / 15	MENDENHALL MARVIN J	103 FORT ST	EDR Hist Auto	350 0.066 SSW
12 / 2	MAI NGUYEN	8315 ALMA HWY.	SWID	664 0.126 SW
13 / 15	BARLING, CITY OF	304 CHURCH STREET	UST	843 0.160 NW
14 / 16	STERICYCLE @ SEBASTI	6700 MAHOGANY AVE	RCRA NonGen / NLR, FINDS, ECHO	989 0.187 SSE
15 / 15	BARLING FOOD CENTER	406 CHURCH ST	LTANKS, UST, PERMITS	1280 0.242 WNW
16 / 15	KEN'S CAR CARE	712 FORT ST	LTANKS, UST, Financial Assurance, PERMIT...	2492 0.472 NW
C17 / 5	UNKNOWN (CRAWFORD CO	2925 OLD MACEDONIA R	SWID	2615 0.495 NE
C18 / 5	ROY BOWLES	2925 OLD MACEDONIA R	SWID	2615 0.495 NE
C19 / 5	ROY BOWLES	2925 OLD MACEDONIA R	SWID	2615 0.495 NE

Key Map - 6532205.2s



SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21 12:07 PM

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		1	0	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
SWID	0.500	1	0	1	3	NR	NR	5
State and tribal leaking storage tank lists								
LTANKS	0.500		0	1	1	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		1	2	NR	NR	NR	3
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	1	NR	NR	NR	1
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000	2	0	0	0	0	NR	2
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	3	NR	NR	NR	NR	NR	3
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
ASBESTOS	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PERMITS	TP	2	NR	NR	NR	NR	NR	2
AR Sludge	0.500		0	0	0	NR	NR	0
TIER 2	TP	2	NR	NR	NR	NR	NR	2
UIC	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		11	3	5	4	0	0	23

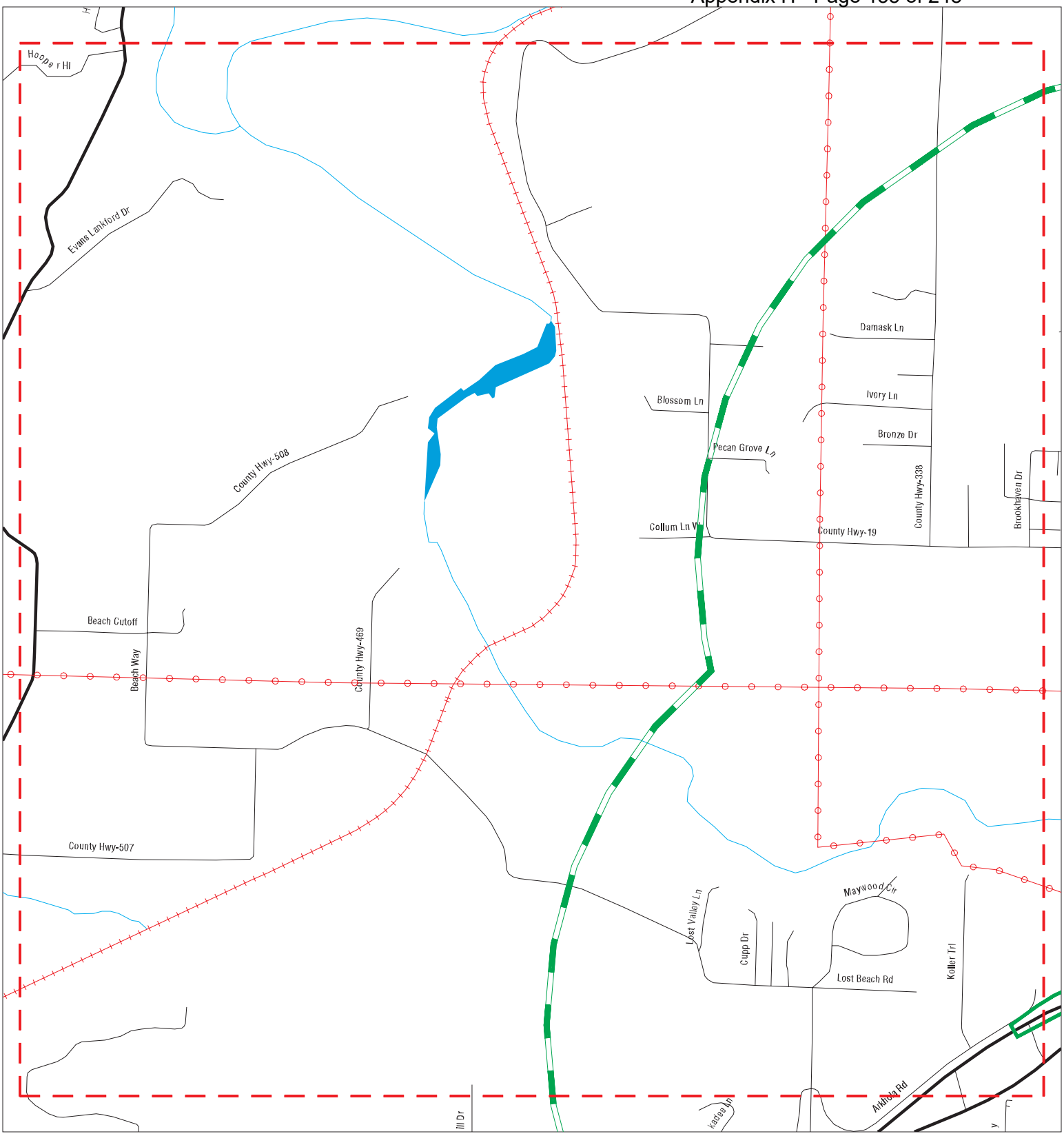
NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Focus Map - 1 - 6532205.2s



SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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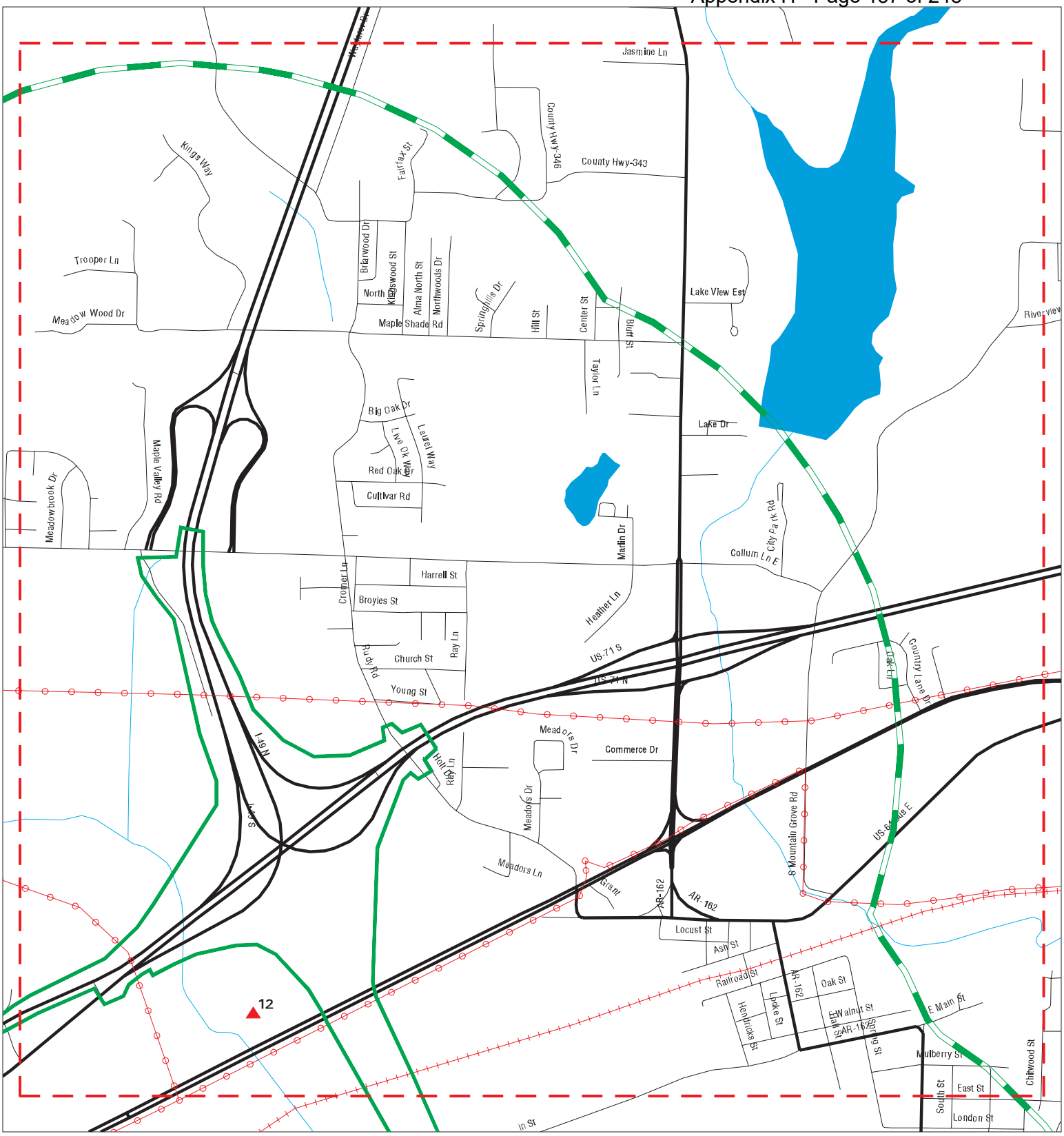
MAPPED SITES SUMMARY - FOCUS MAP 1

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 2 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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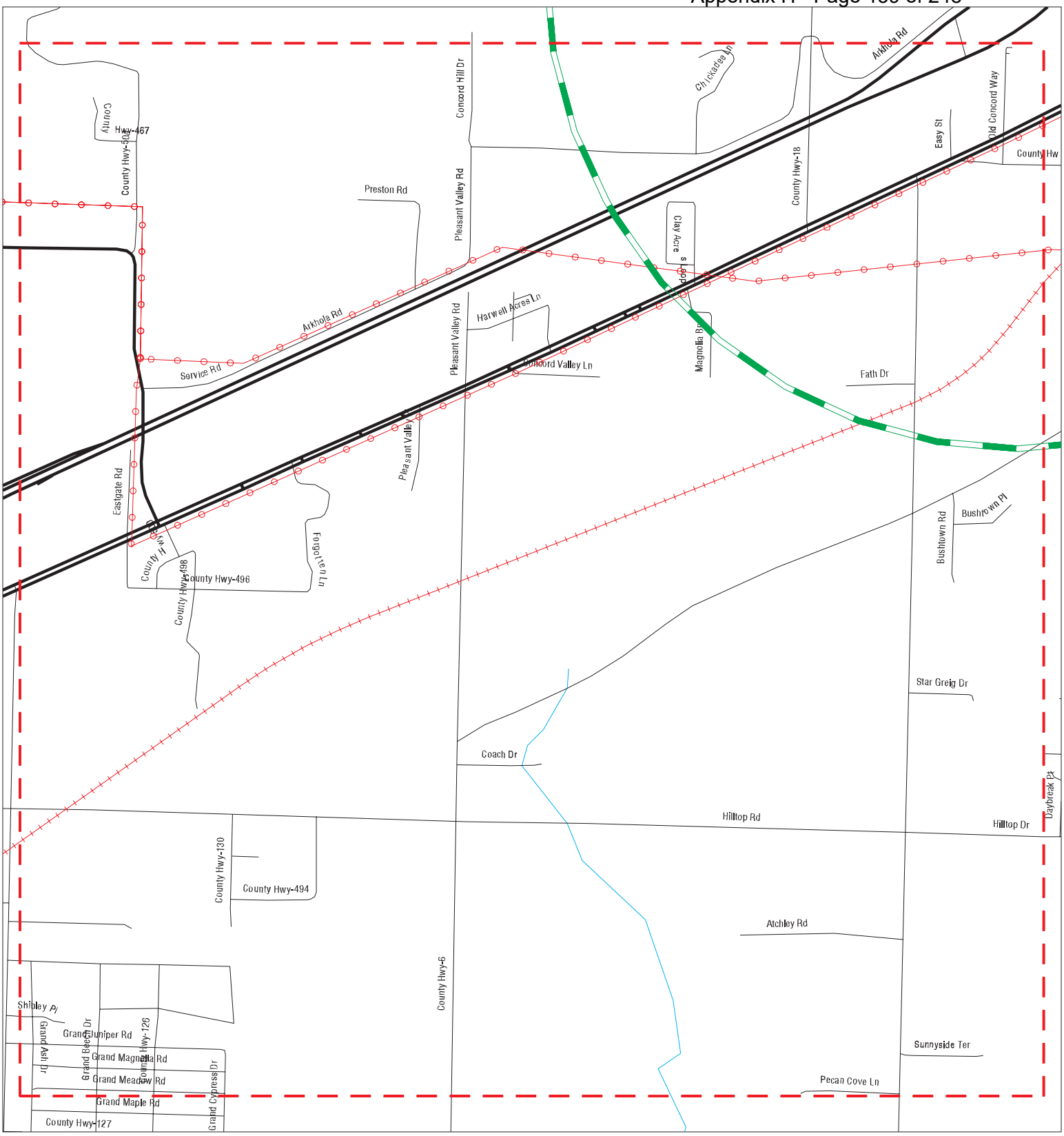
MAPPED SITES SUMMARY - FOCUS MAP 2

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
12 / 2	MAI NGUYEN	8315 ALMA HWY.	SWID	664 0.126 SW

Focus Map - 3 - 6532205.2s



- Sites
- Target Property
- Search Buffer
- Focus Map - No Sites
- Focus Map - Sites
- Power Line
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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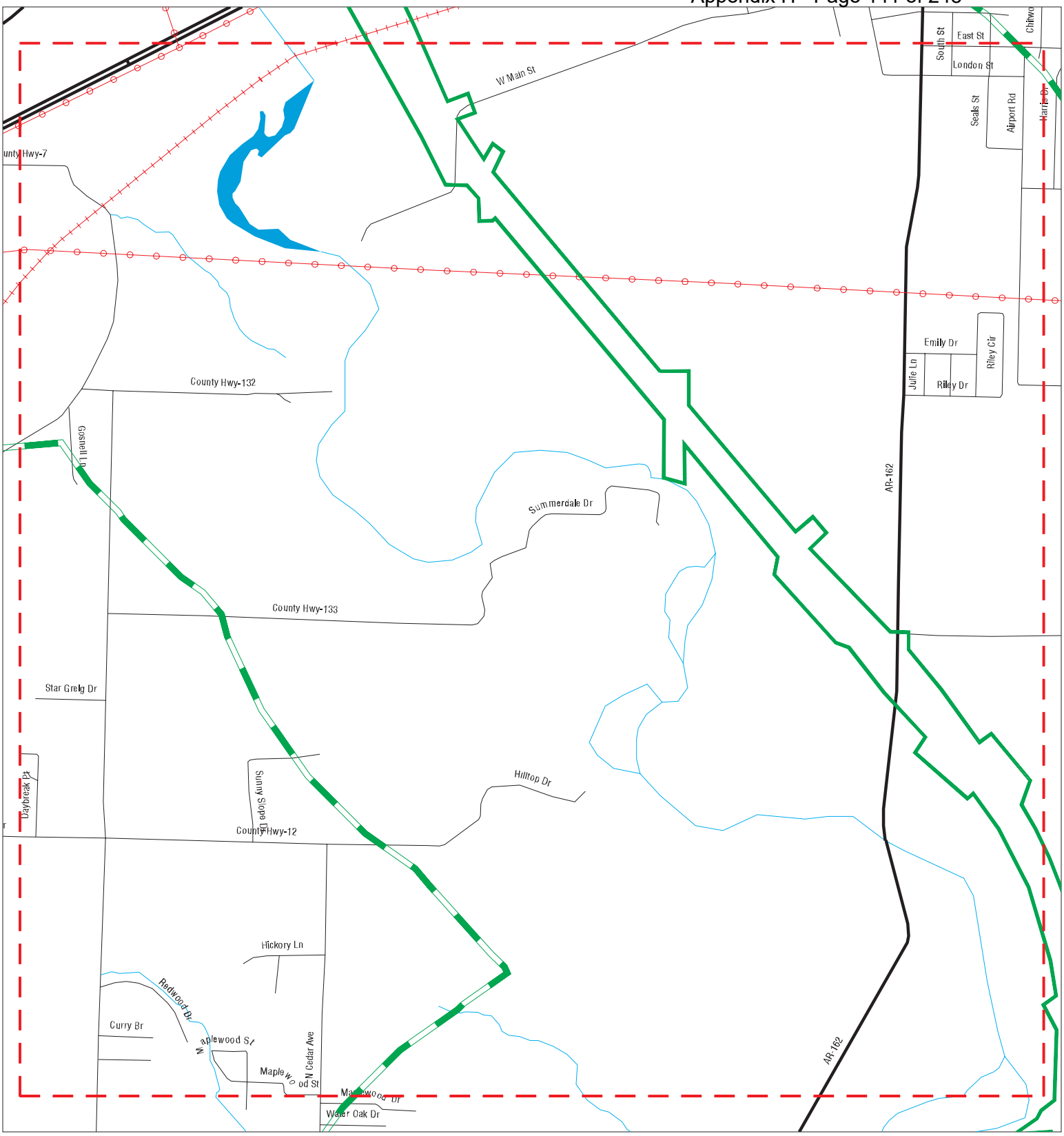
MAPPED SITES SUMMARY - FOCUS MAP 3

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 4 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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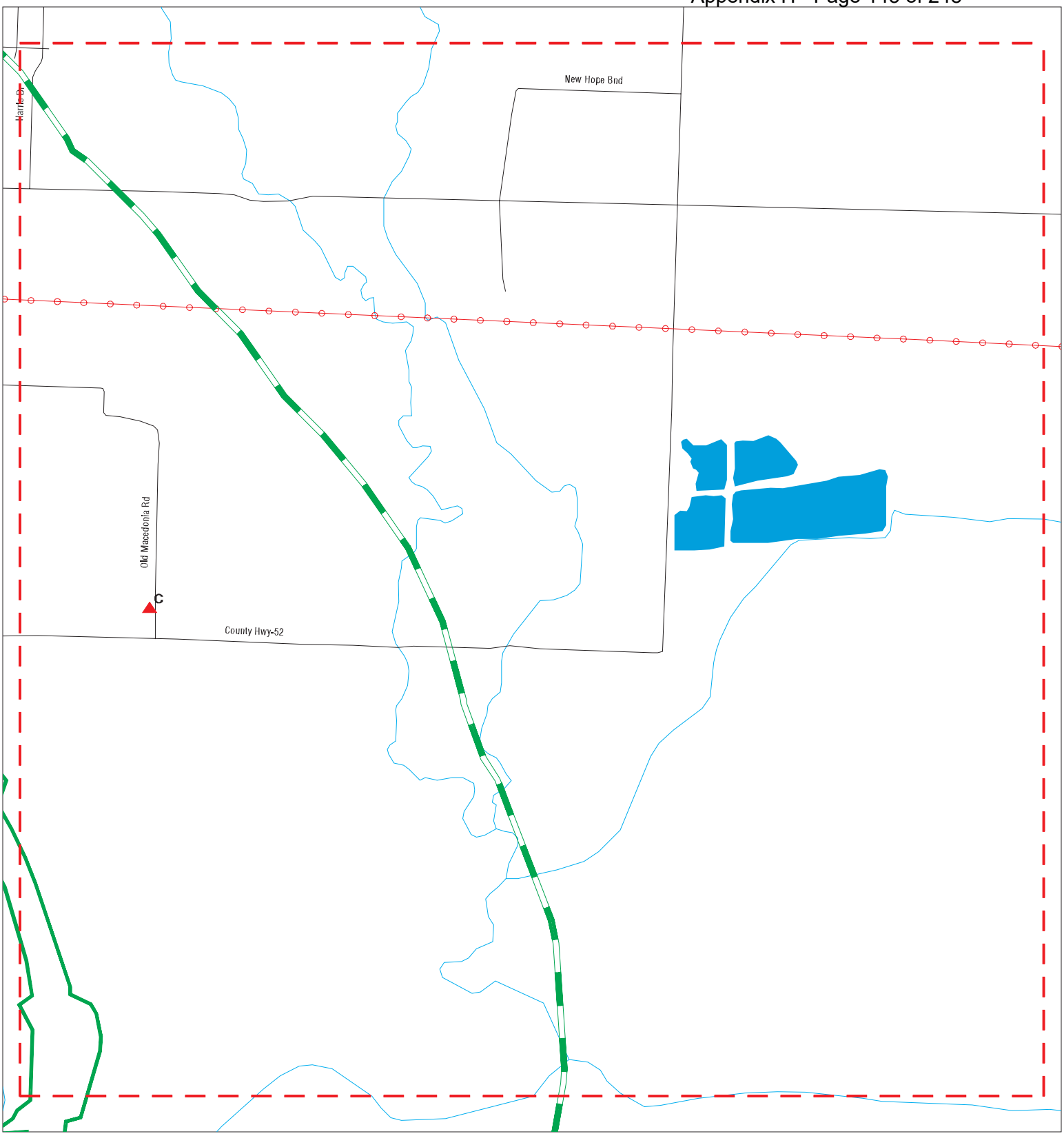
MAPPED SITES SUMMARY - FOCUS MAP 4

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 5 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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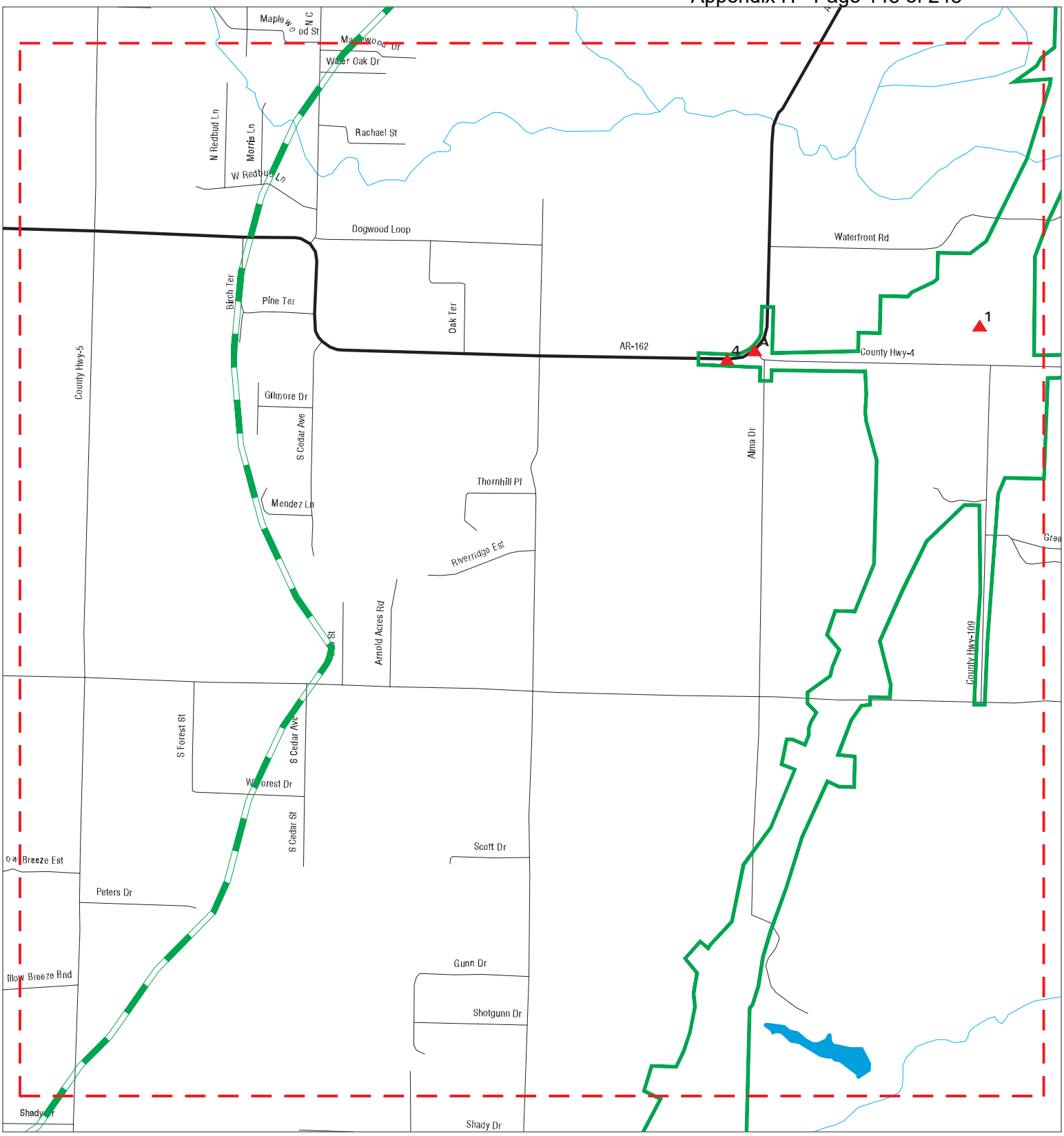
MAPPED SITES SUMMARY - FOCUS MAP 5

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
C17 / 5	UNKNOWN (CRAWFORD CO	2925 OLD MACEDONIA R	SWID	2615 0.495 NE
C18 / 5	ROY BOWLES	2925 OLD MACEDONIA R	SWID	2615 0.495 NE
C19 / 5	ROY BOWLES	2925 OLD MACEDONIA R	SWID	2615 0.495 NE

Focus Map - 6 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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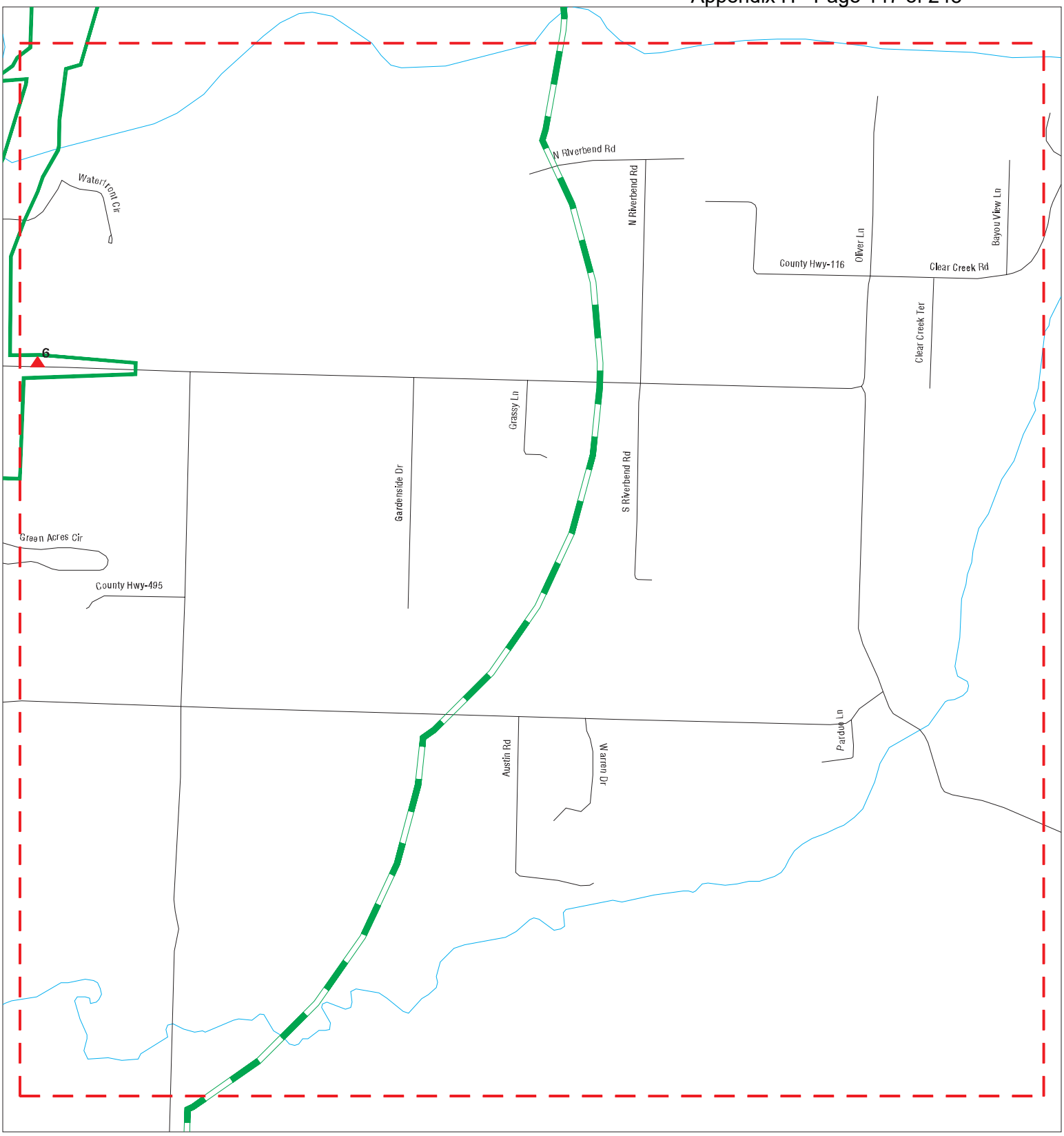
MAPPED SITES SUMMARY - FOCUS MAP 6

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
1 / 6	STEPHENS PRODUCTION	SEC 29 - T9N - R30W	TIER 2	TP
A2 / 6	CLEAR CREEK PIT	HWY 162 & CLEAR CREE	FINDS	TP
A3 / 6	CLEAR CREEK PIT	HWY 162 & CLEAR CREE	PERMITS	TP
4 / 6	ANADARKO-MORRIS #2 C	KIBLER FIELD - SEC 3	FINDS, ECHO	TP
A5 / 6	ARKLA - MCCARTY	1.5 SE OF ALMA	FINDS	TP

Focus Map - 7 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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MAPPED SITES SUMMARY - FOCUS MAP 7

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
6 / 7	DON NEWTON	1218 CLEAR CREEK PAR	SWID	TP

Focus Map - 8 - 6532205.2s

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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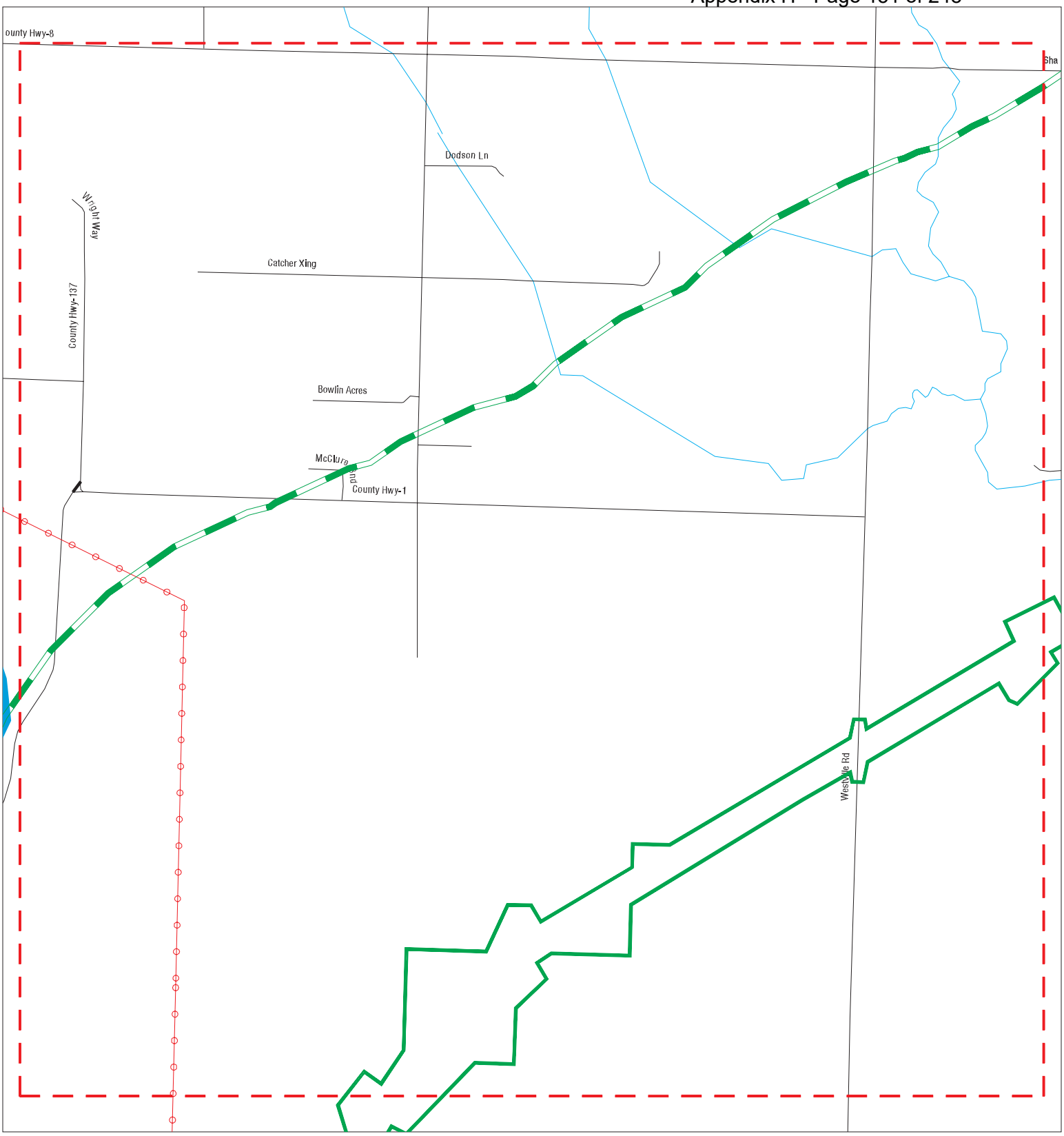
MAPPED SITES SUMMARY - FOCUS MAP 8

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 9 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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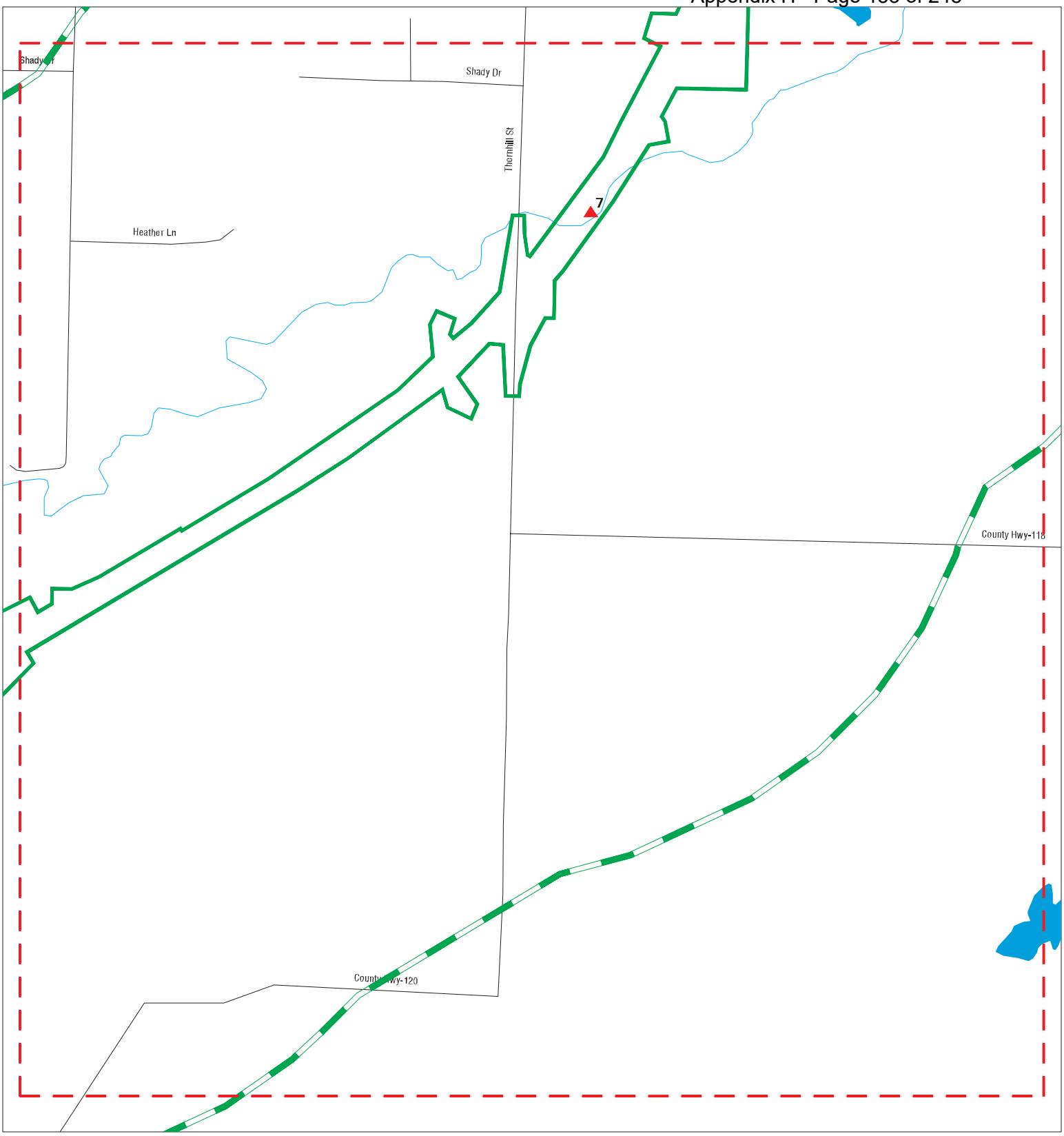
MAPPED SITES SUMMARY - FOCUS MAP 9

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 10 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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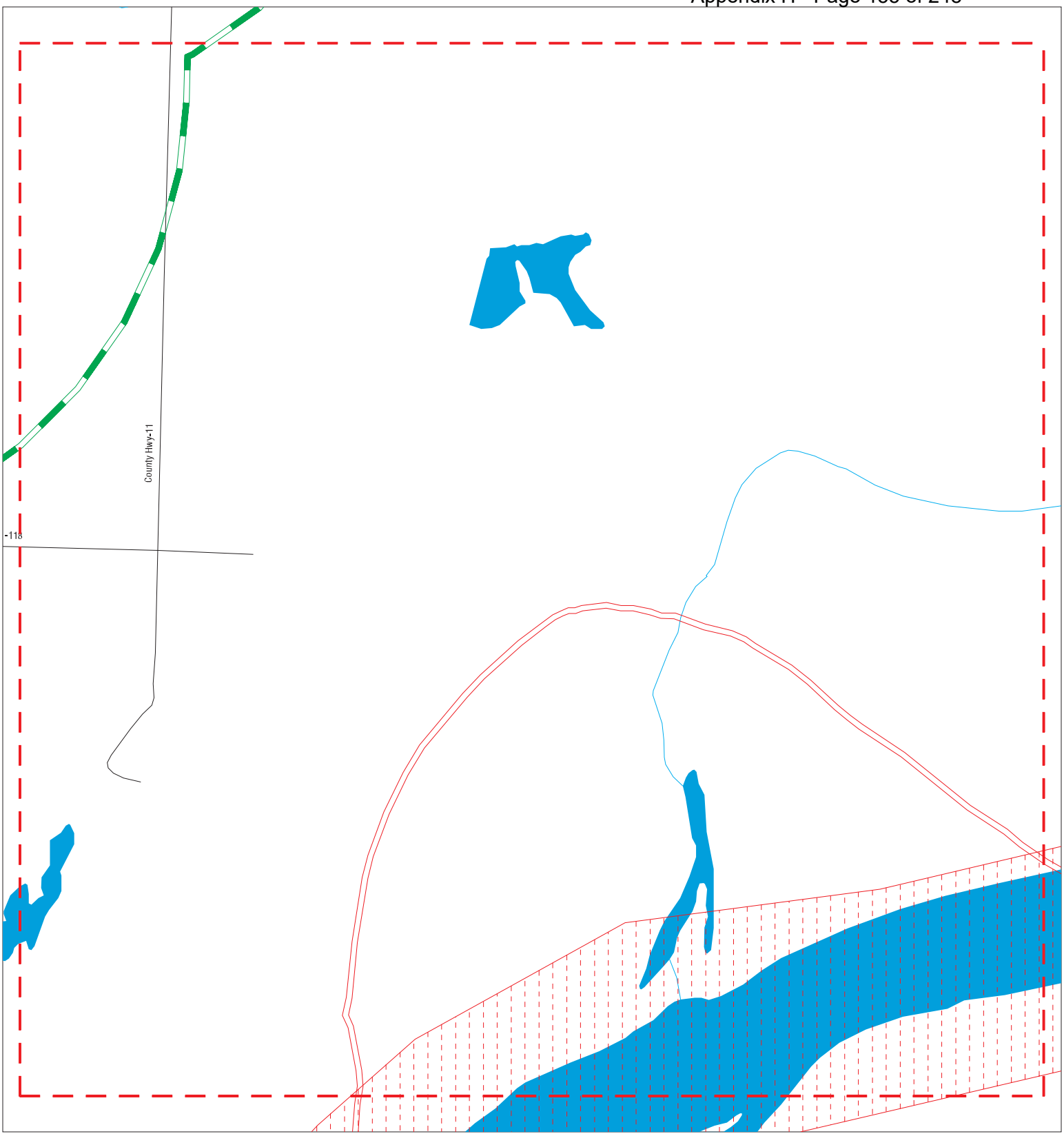
MAPPED SITES SUMMARY - FOCUS MAP 10

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
7 / 10	STEPHENS PRODUCTION	SEC 7 - T8N - R30W	TIER 2	TP

Focus Map - 11 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME:	Future I-49 Corridor	CLIENT:	Harbor Environmental Inc
ADDRESS:	Alma To Barling	CONTACT:	Thomas Huetter
CITY/STATE:	Alma AR	INQUIRY #:	6532205.2s
ZIP:	72921	DATE:	06/11/21

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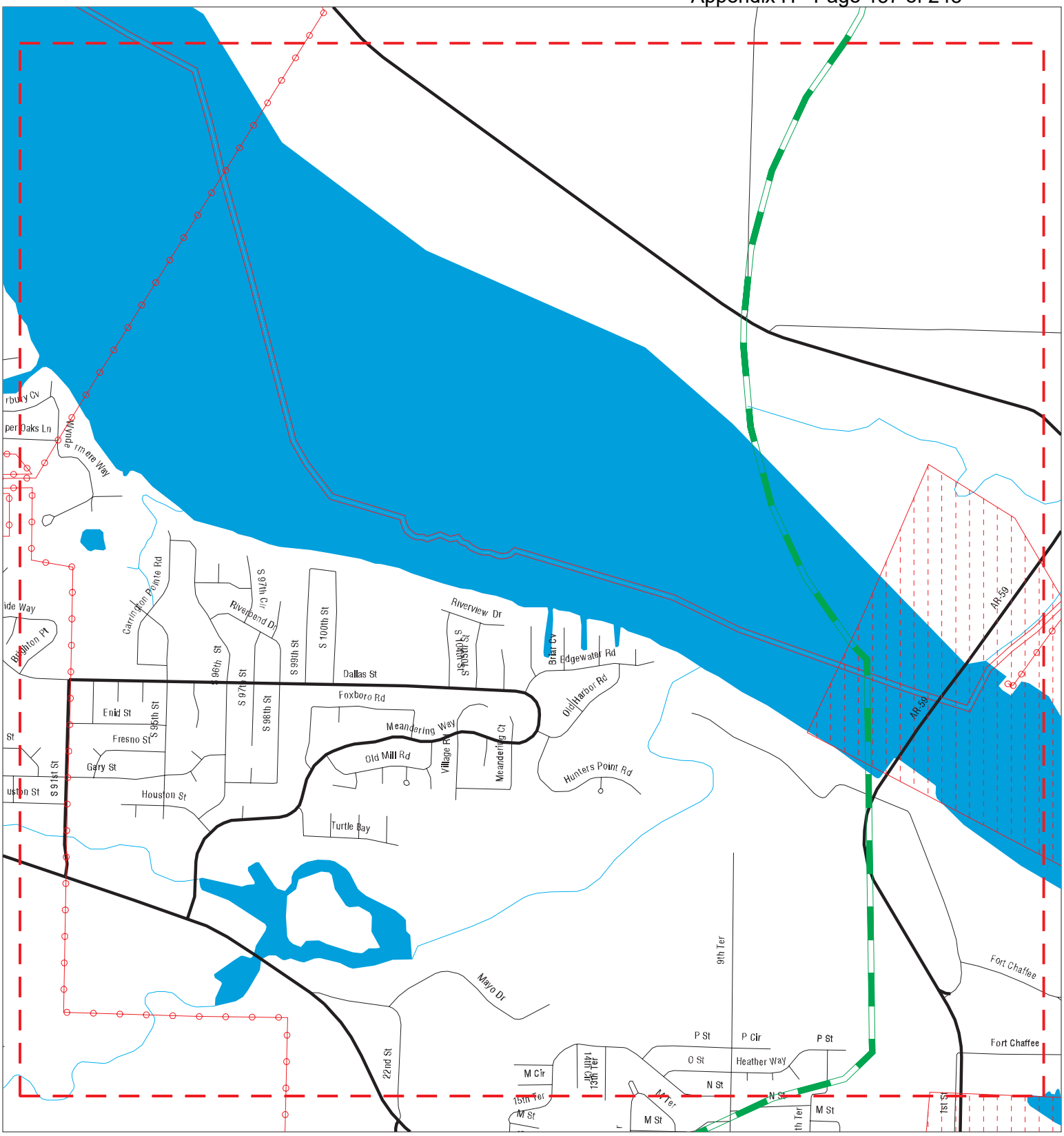
MAPPED SITES SUMMARY - FOCUS MAP 11

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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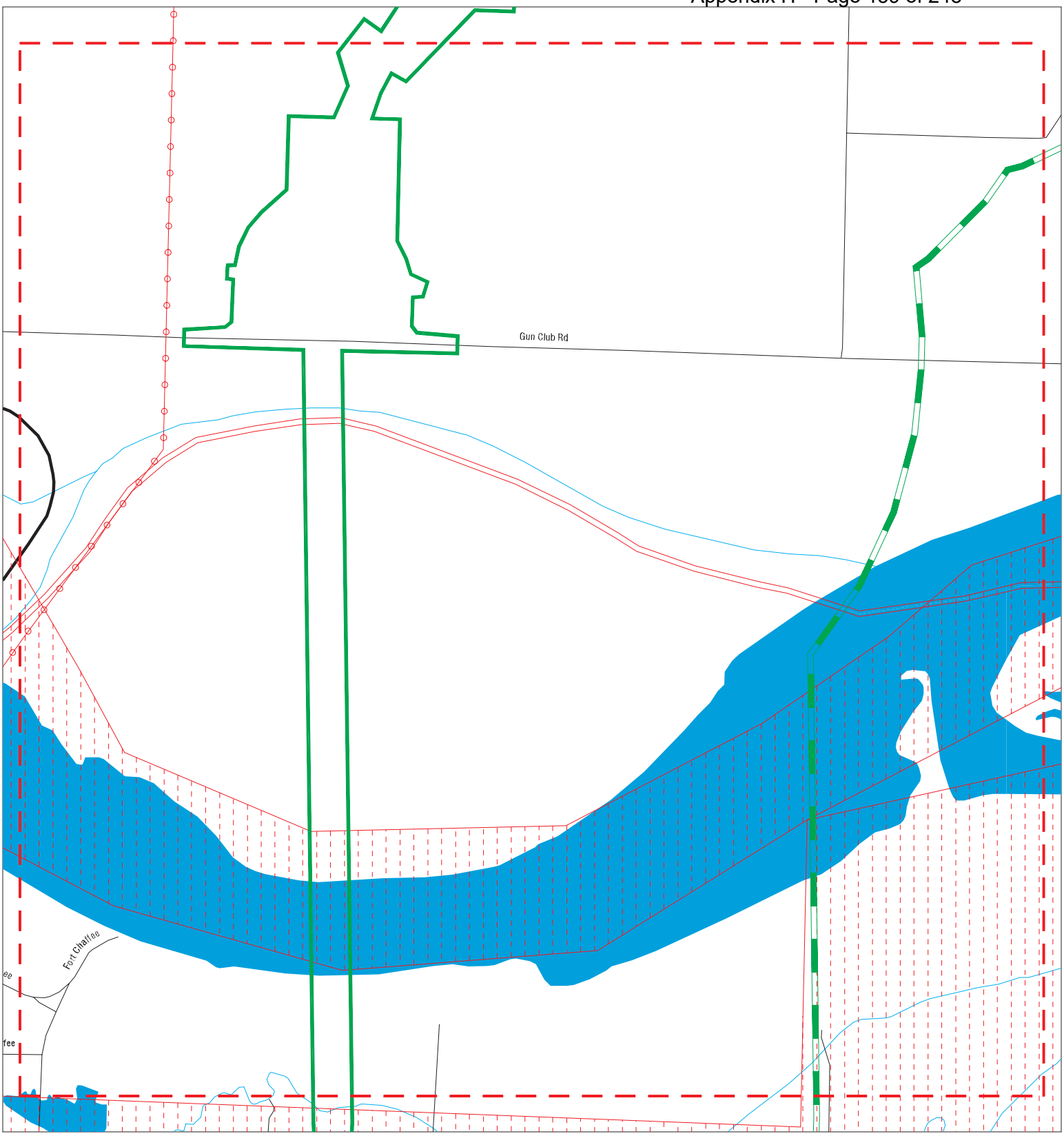
MAPPED SITES SUMMARY - FOCUS MAP 12

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
Reg / Multiple	OZARK LAKE		DOD	TP
Reg / Multiple	FORT CHAFFEE (CLOSED		DOD	TP

Focus Map - 13 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME:	Future I-49 Corridor	CLIENT:	Harbor Environmental Inc
ADDRESS:	Alma To Barling	CONTACT:	Thomas Huetter
CITY/STATE:	Alma AR	INQUIRY #:	6532205.2s
ZIP:	72921	DATE:	06/11/21

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MAPPED SITES SUMMARY - FOCUS MAP 13

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
Reg / Multiple	OZARK LAKE		DOD	TP
Reg / Multiple	FORT CHAFFEE (CLOSED		DOD	TP

Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/4 1/2 Miles

SITE NAME:	Future I-49 Corridor	CLIENT:	Harbor Environmental Inc
ADDRESS:	Alma To Barling	CONTACT:	Thomas Huetter
CITY/STATE:	Alma AR	INQUIRY #:	6532205.2s
ZIP:	72921	DATE:	06/11/21

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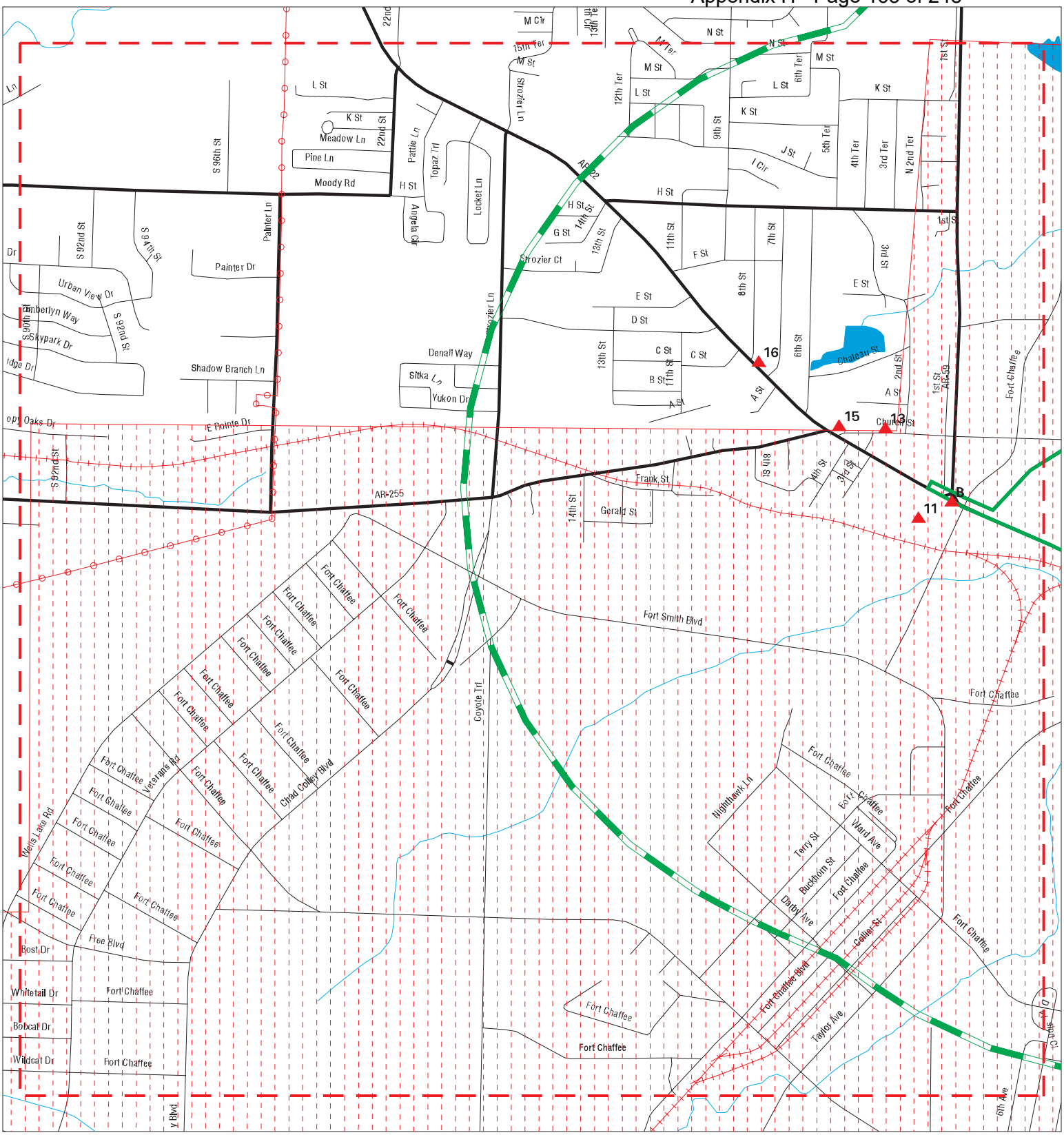
MAPPED SITES SUMMARY - FOCUS MAP 14

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 15 - 6532205.2s



SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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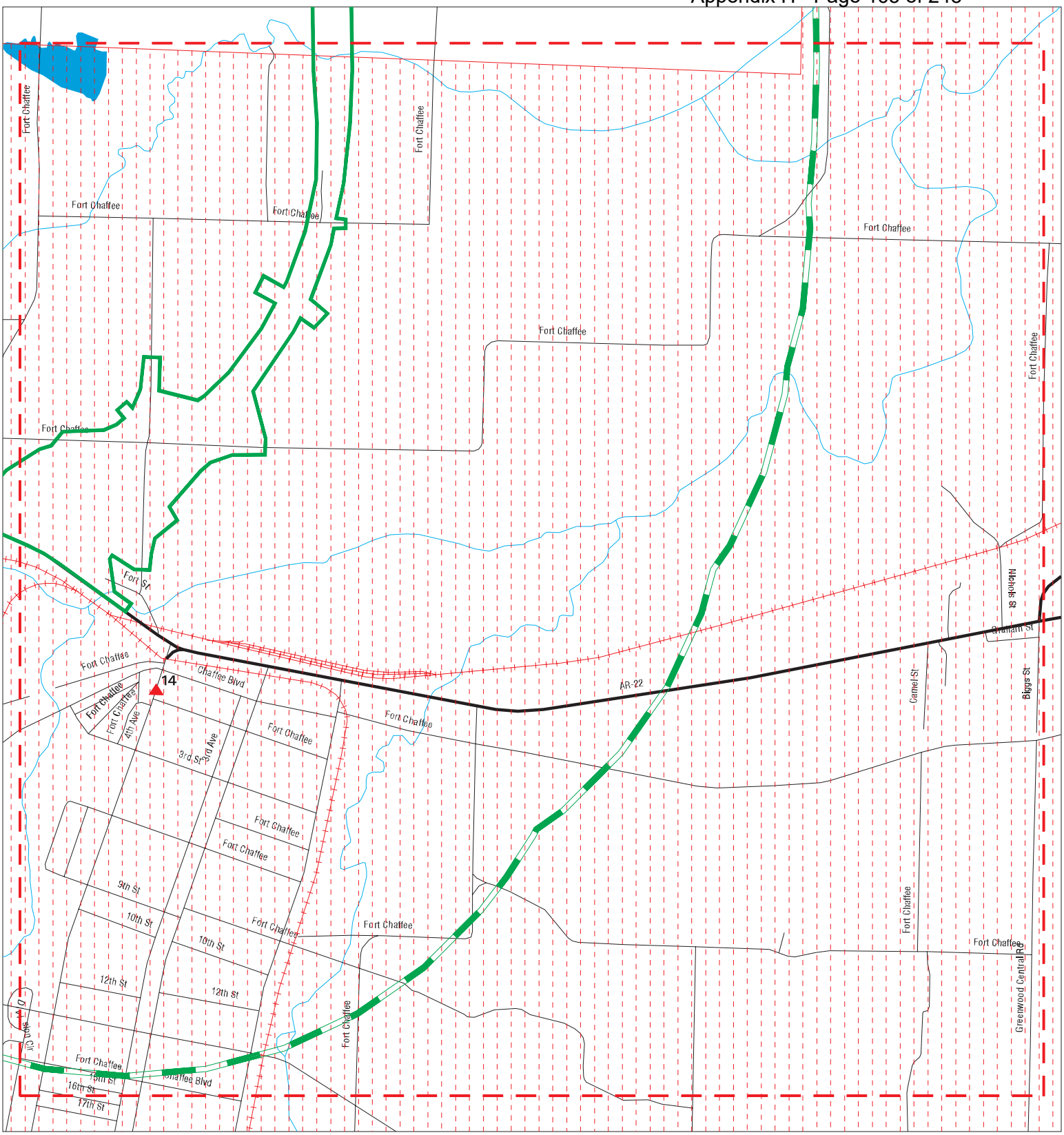
MAPPED SITES SUMMARY - FOCUS MAP 15

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
Reg / Multiple	FORT CHAFFEE (CLOSED		DOD	TP
B8 / 15	BLAKE CONST/BORROW P	HWY 59 & 22	PERMITS	TP
B9 / 15	CASEY'S GENERAL STOR	107 FORT STREET	UST, Financial Assurance	11 0.002 SSW
B10 / 15	US ARMY RESERVE CENT	101 FORT ST	RCRA-VSQG, FINDS, ECHO, PERMITS	12 0.002 SSW
11 / 15	MENDENHALL MARVIN J	103 FORT ST	EDR Hist Auto	350 0.066 SSW
13 / 15	BARLING, CITY OF	304 CHURCH STREET	UST	843 0.160 NW
15 / 15	BARLING FOOD CENTER	406 CHURCH ST	LTANKS, UST, PERMITS	1280 0.242 WNW
16 / 15	KEN'S CAR CARE	712 FORT ST	LTANKS, UST, Financial Assurance, PERMIT...	2492 0.472 NW

Focus Map - 16 - 6532205.2s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

SITE NAME: Future I-49 Corridor	CLIENT: Harbor Environmental Inc
ADDRESS: Alma To Barling	CONTACT: Thomas Huetter
CITY/STATE: Alma AR	INQUIRY #: 6532205.2s
ZIP: 72921	DATE: 06/11/21

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MAPPED SITES SUMMARY - FOCUS MAP 16

Target Property:
ALMA TO BARLING
ALMA, AR 72921

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
Reg / Multiple	FORT CHAFFEE (CLOSED		DOD	TP
14 / 16	STERICYCLE @ SEBASTI	6700 MAHOGANY AVE	RCRA NonGen / NLR, FINDS, ECHO	989 0.187 SSE

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

DOD **OZARK LAKE** **DOD** **CUSA139331**
Region **N/A**
Target Property **OZARK LAKE (County), AR**

Focus Map: 12,13

DOD:
Feature 1: Army Corps of Engineers DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Ozark Lake
Name 2: Not reported
Name 3: Not reported
State: AR
DOD Site: Yes
Tile name: ARFRANKLIN

DOD **FORT CHAFFEE (CLOSED)** **DOD** **CUSA139640**
Region **N/A**
Target Property **FORT CHAFFEE (CLOSED) (County), AR**

Focus Map: 13,12,15,16

DOD:
Feature 1: Army DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Fort Chaffee (Closed)
Name 2: Not reported
Name 3: Not reported
State: AR
DOD Site: Yes
Tile name: ARSEBASTIAN

---

1 **STEPHENS PRODUCTION - STEWARD GILLIE SMITH #1** **TIER 2** **S117233890**
Target Property **SEC 29 - T9N - R30W** **N/A**
ALMA, AR 72921

Actual: 443 ft.

Focus Map: 6

TIER 2:
Report Year: 2013
Facility Record Id: FATR20139SEHRN0049X2

Facility Info:
Record Key: FDTR20139SEHRN0059X2
Id: 211111
Type: NAICS
Description: Crude Petroleum and Natural Gas Extraction
Last Modified: 1/28/2014

Record Key: FDTR20139SEHRN0069X2
Id: 38830629
Type: Dun & Bradstreet
Description: Not reported
Last Modified: 1/28/2014

Facility Dept: Not reported
All Chemicals Same As Last Year: Not reported
Date Signed: 1/28/2014
Dike Or Other Safeguard: Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STEPHENS PRODUCTION - STEWARD GILLIE SMITH #1 (Continued) **S117233890**

Num Of Employees:	0
Failed Validation:	Not reported
Date Modified:	03/27/2014
Fees Total:	Not reported
Mail Address:	Not reported
Mail City/State/Zip:	Not reported
Mail Country:	Not reported
Site Map:	Not reported
Validation Report:	Not reported
Fire District:	Not reported
Submitted By:	Shawn Billings / Authorized Representative
State Label Code:	Not reported
Notes:	Not reported
Site Coord Abbrev:	Not reported
Subject to Chem Accident Prevention Y:	Not reported
Subject to Chem Accident Prevention N:	True
Subject to Emergency Planning Y:	Not reported
Subject to Emergency Planning N:	True
Manned Y:	Not reported
Manned N:	True
Latitude:	35.43152
Longitude:	-94.21411
Latlong Location Description:	Not reported
Latlong Method:	Not reported

Contact Info:

Title:	Authorized Representative
Name:	Shawn Billings
EMail:	mbarnes@stephenspro.com
Mail Address:	106111 Old Highway 71 South
Mail City/State/Zip:	Ft.Smith, AR 72916
Mail Country:	USA
Contact1 Type:	Owner / Operator
Contact2 Type:	Emergency Contact
Contact3 Type:	Not reported
Contact4 Type:	Not reported
Modification Date:	2/19/2014
Title:	Authorized Representative
Phone:	479.788.9900
Type:	24-hour
Phone Last Modified:	1/28/2014
Phone:	479.646.2076
Type:	Work
Phone Last Modified:	1/28/2014
Phone:	479.788.9900
Type:	Emergency
Phone Last Modified:	1/28/2014

Contact Info:

Title:	Not reported
Name:	Kim The Environmental Compliance Group ,LLC
EMail:	production@benzolgroup,com
Mail Address:	14909 N Kelly

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STEPHENS PRODUCTION - STEWARD GILLIE SMITH #1 (Continued) **S117233890**

Mail City/State/Zip:	Edmond, OK 73013
Mail Country:	USA
Contact1 Type:	Tier II Information Contact
Contact2 Type:	Submitter
Contact3 Type:	Not reported
Contact4 Type:	Not reported
Modification Date:	2/19/2014
Title:	Not reported
Phone:	855.236.9651
Type:	Work
Phone Last Modified:	1/28/2014

Chemical Inventory:

Cheminv Record Id:	CVTR20139SEJ4F00CCPY
CICAS:	Not reported
EHS Chemical:	Not reported
Acute:	True
Chem Same As Last Yr:	Not reported
Chronic:	True
Last Modified:	3/27/2014
Days On Site:	365
Entered Chem Name:	CRUDE OIL, PETROLEUM, [COMBUSTIBLE LIQUID LABEL]
Fire:	True
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	True
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Ave Amount Code:	03
Ave Amount:	Not reported
Max Amount Code:	05
Max Amount:	Not reported
Max Amt Container:	Not reported

Chemical Location:

Chem Inv Record Id:	CVTR20139SEJ4F00CCPY
Type Code:	Above ground tank
Pressure Code:	Ambient pressure
Temperature Code:	Ambient temperature
Location:	On Site
Amount:	Not reported
Amount Unit:	pounds
Last Modified:	2/19/2014

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

A2
Target Property
CLEAR CREEK PIT
HWY 162 & CLEAR CREEK RD
ALMA, AR 72921

FINDS **1009571740** **N/A**

Site 1 of 3 in cluster A

Actual: **448 ft.**
Focus Map: **6**

FINDS:
Registry ID: 110024961139
Click Here:

Environmental Interest/Information System:
Arkansas Permit Data System (PDS) is a system maintaining data on air quality, mining, tires, solid waste, tank, water and hazardous waste, as well as inspections, invoicing and complaints.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A3
Target Property
CLEAR CREEK PIT
HWY 162 & CLEAR CREEK RD
ALMA, AR

PERMITS **S107262561** **N/A**

Site 2 of 3 in cluster A

Actual: **448 ft.**
Focus Map: **6**

PERMITS:

Name:	CLEAR CREEK PIT
Address:	HWY 162 & CLEAR CREEK RD
City,State,Zip:	ALMA, AR
Facility Type Desc:	Standard
Alternate Facility Name:	Not reported
Facility Status:	Active
AFIN:	1700530
AFIN Status Date:	Not reported
AFIN Status Desc:	Active
Type Description:	STD
Owner Name:	Not reported
Owner ID:	Not reported
Secondary Facility Address:	Not reported
Facility Invoice Billing Month:	10
Facility Invoice Phone Number:	4796322338
Facility Invoice Comments:	Not reported
Facility Invoice Address:	BRANSEN HARRIS
Facility Invoice Address 2:	WILSON BROTHERS CONSTRUCTION
Facility Invoice Address 3:	PO BOX 580
Facility Invoice City,St,Zip:	ALMA, AR 72921
Facility Invoice Country:	Not reported
Facility Telephone:	Not reported
Facility Fax:	Not reported
Facility Email:	Not reported
Mailing Address 1:	Not reported
Mailing Country:	Not reported
Other Identifier:	Not reported
Primary SIC Code:	Not reported
Secondary SIC Code:	Not reported
Tertiary SIC Code:	Not reported
Primary NAIC Code:	Not reported
Secondary NAIC Code:	Not reported
Tertiary NAICS Code:	Not reported
GIS Original Coordinate System:	Lat/Long
GIS Original Datum Code:	NAD27

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CLEAR CREEK PIT (Continued) **S107262561**

GIS Current Datum Code:	NAD83
UTM Northing:	3921437.17
UTM Easting:	390699.68
UTM Zone:	15
Section/Township/Range:	Not reported
GIS Date Measured:	Not reported
GIS Source Name:	Submitted by permittee
GIS Collector Staff Code:	Not reported
GIS Certifield Measurment:	No
GPS Receiver Type Name:	Not reported
GPS Receiver Cannels:	Not reported
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Not reported
GIS Huc:	11110201
GIS Planning Segment:	3H
GIS Ark Sen Dist:	03
GIS Ark Rep Dist:	066
Created By:	Not reported
Record Created:	2005-10-03 14:24:00
Modified By:	Not reported
Modified Date:	2013-09-09 12:22:00
Primary SIC Desc:	Not reported
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported
Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	35
Latitude Minute:	25
Latitude Second:	49.33
Longitude Degree:	-94
Longitude Minute:	12
Longitude Second:	14.77
Latitude Decimal:	35.430371
Longitude Decimal:	-94.204099
Comments:	Not reported
Permit Number:	0663-MN
Permit Issued Date:	2007-08-30
Permit Modified Date:	Not reported
Permit Expiration Date:	2012-08-29
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	MN
Permit Type:	SHAL
Permit Staff:	DH
Permit Status:	F
Permit Status Date:	2014-02-06 15:49:40
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CLEAR CREEK PIT (Continued) **S107262561**

Permit Fee Volume:	Not reported
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	N
Permit Inv Single Lbl:	N
Permit Contact Name:	Mr. Thomas Edgmon
Permit Contact Telephone:	4796322338
Permit Mail Address 1:	Wilson Brothers Construction C
Permit Mail Address 2:	P.O. Box 580
Permit Mail County Code:	17
Permit Mail County Name:	Crawford
Permit Mail City,St,Zip:	Alma, AR 72921
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Not reported
Permit GIS Original Datum Code:	Not reported
Permit GIS Current Datum Code:	Not reported
Permit UTM Northing:	Not reported
Permit UTM Easting:	Not reported
Permit UTM Zone:	Not reported
Permit Section Township Range:	21/9N/30W
Permit GIS Date Measured:	Not reported
Permit GIS Source Name:	Not reported
Permit GIS Collector Staff Code:	Not reported
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Not reported
Permit GPS Receiver Cannels:	Not reported
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Not reported
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	2007-08-30 14:36:53
Permit Media Description:	Mining-Non-Coal
Permit Type:	Shale
Permit Status Description:	Forfeited
Permit Fee Description:	Not reported
Permit Staff Name:	David Hartley
Permit History:	New
Permit Comment:	Not reported
Lat/Long (dms):	Not reported
Permit Number:	ARR151254
Permit Issued Date:	2008-12-15
Permit Modified Date:	Not reported
Permit Expiration Date:	2012-02-01
Permit Void Date:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CLEAR CREEK PIT (Continued) **S107262561**

Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	WN
Permit Type:	S
Permit Staff:	KF
Permit Status:	E
Permit Status Date:	2009-02-26 10:29:19
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	R2
Permit Fee Volume:	.000000
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	N
Permit Inv Single Lbl:	N
Permit Contact Name:	Bransen Harris
Permit Contact Telephone:	4796322338
Permit Mail Address 1:	Bransen Harris
Permit Mail Address 2:	Wilson Bros. Const. Co.
Permit Mail Address 3:	P.O. Box 580
Permit Mail County Code:	17
Permit Mail County Name:	Crawford
Permit Mail City,St,Zip:	ALMA, AR 72921
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Lat/Long
Permit GIS Original Datum Code:	NAD27
Permit GIS Current Datum Code:	NAD83
Permit UTM Northing:	3921437.17
Permit UTM Easting:	390699.68
Permit UTM Zone:	15
Permit Section Township Range:	Not reported
Permit GIS Date Measured:	Not reported
Permit GIS Source Name:	Submitted by permittee
Permit GIS Collector Staff Code:	Not reported
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Not reported
Permit GPS Receiver Cannels:	Not reported
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Not reported
Permit GIS Huc:	11110201
Permit GIS Planning Segment:	3H
Permit GIS Ark Sen Dist:	03
Permit GIS Ark Rep Dist:	066
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	2005-10-05 08:52:59
Permit Media Description:	Water-NPDES
Permit Type:	Storm Runoff

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

CLEAR CREEK PIT (Continued) **S107262561**

Permit Status Description: Expired
Permit Fee Description: Stormwater: Construction
Permit Staff Name: KIMBERLY A. FULLER
Permit History: 10/04/2005 original issued date
Permit Comment: Not reported
Lat/Long (dms): 35 25 49.33 / -94 12 14.77

---

4 **ANADARKO-MORRIS #2 COMPRESSOR STATION** **FINDS** **1012069577**
Target Property **KIBLER FIELD - SEC 36 9N 31W** **ECHO** **N/A**
KIBLER, AR 72921

Actual: 452 ft.

Focus Map: 6

FINDS:
Registry ID: 110038614309

Click Here:

Environmental Interest/Information System:
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.
AIR MINOR

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1012069577
Registry ID: 110038614309
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110038614309
Name: ANADARKO-MORRIS #2 COMPRESSOR STATION
Address: KIBLER FIELD - SEC 36 9N 31W
City,State,Zip: KIBLER, AR 72921

A5 **ARKLA - MCCARTY** **FINDS** **1009571072**
Target Property **1.5 SE OF ALMA** **N/A**
ALMA, AR 72921

Site 3 of 3 in cluster A

Actual: 456 ft.

Focus Map: 6

FINDS:
Registry ID: 110024953326

Click Here:

Environmental Interest/Information System:
Arkansas Permit Data System (PDS) is a system maintaining data on air quality, mining, tires, solid waste, tank, water and hazardous waste, as well as inspections, invoicing and complaints.

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

ARKLA - MCCARTY (Continued) **1009571072**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

---

6 **DON NEWTON** **SWID** **S110827678**
Target Property **1218 CLEAR CREEK PARK ROAD** **N/A**
ALMA, AR

Actual: 421 ft.
Focus Map: 7

SWID:

Name:	DON NEWTON
Address:	1218 CLEAR CREEK PARK ROAD
City,State,Zip:	ALMA, AR
Compliant Web Ready Code:	False
Compliant NBR Formatted:	007805
PDS Compliant ID:	007805
Compliant PDF Filename:	007805-comp.pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	10/08/2008
Inspector:	Sparrow, Justin
Valid:	No
Total Score:	Not reported
Date of 1st Letter:	Not reported
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	No illegal disposal occurring
Comments:	From 162 go East on Clear Creek Road - approximately 1 mile on left there will be driveway with a wooden fence on each side that leads to Don Newton's home which is approximately 200 yards off the road. All other homes in the area are close to the road.

---

7 **STEPHENS PRODUCTION - E.L KIBLER #4** **TIER 2** **S117233712**
Target Property **SEC 7 - T8N - R30W** **N/A**
ALMA, AR 72921

Actual: 390 ft.
Focus Map: 10

TIER 2:

Report Year:	2013
Facility Record Id:	FATR20139SGPZ10CGG7S

Facility Info:

Record Key:	FDTR20139SGPZ10CJG88
Id:	38830629
Type:	Dun & Bradstreet
Description:	Not reported
Last Modified:	1/29/2014
Record Key:	FDTR20139SGPZ10CHG88
Id:	212111
Type:	NAICS

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STEPHENS PRODUCTION - E.L KIBLER #4 (Continued) **S117233712**

Description:	Bituminous Coal and Lignite Surface Mining
Last Modified:	1/29/2014
Facility Dept:	Not reported
All Chemicals Same As Last Year:	Not reported
Date Signed:	1/29/2014
Dike Or Other Safeguard:	Not reported
Num Of Employees:	0
Failed Validation:	Not reported
Date Modified:	03/27/2014
Fees Total:	Not reported
Mail Address:	Not reported
Mail City/State/Zip:	Not reported
Mail Country:	Not reported
Site Map:	Not reported
Validation Report:	Not reported
Fire District:	Not reported
Submitted By:	Shawn Billing / Authorized Representative
State Label Code:	Not reported
Notes:	Not reported
Site Coord Abbrev:	Not reported
Subject to Chem Accident Prevention Y:	Not reported
Subject to Chem Accident Prevention N:	True
Subject to Emergency Planning Y:	Not reported
Subject to Emergency Planning N:	True
Manned Y:	Not reported
Manned N:	True
Latitude:	35.401
Longitude:	-94.22955
Latlong Location Description:	Not reported
Latlong Method:	Not reported

Contact Info:

Title:	Authorized Representative
Name:	Shawn Billings
EMail:	sbilings@stephenspro.com
Mail Address:	10611 Old Highway 71 South
Mail City/State/Zip:	Fort Smith, AR 72916
Mail Country:	USA
Contact1 Type:	Emergency Contact
Contact2 Type:	Owner / Operator
Contact3 Type:	Not reported
Contact4 Type:	Not reported
Modification Date:	2/19/2014
Title:	Authorized Representative
Phone:	479-788-9900
Type:	Emergency
Phone Last Modified:	1/10/2014
Phone:	479.646.2076
Type:	24-hour
Phone Last Modified:	1/29/2013
Phone:	479.788.9900
Type:	24-hour
Phone Last Modified:	1/10/2014
Phone:	479.788.9900

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STEPHENS PRODUCTION - E.L KIBLER #4 (Continued) **S117233712**

Type:	Emergency
Phone Last Modified:	1/10/2014
Phone:	479-788-9900
Type:	24-hour
Phone Last Modified:	1/10/2014

Contact Info:

Title:	Not reported
Name:	Kim The Enviromental Compliance Group, LLC
EMail:	production@benzolgroup.com
Mail Address:	14909 N. Kelly
Mail City/State/Zip:	Edmond, OK 73013
Mail Country:	USA
Contact1 Type:	Tier II Information Contact
Contact2 Type:	Submitter
Contact3 Type:	Not reported
Contact4 Type:	Not reported
Modification Date:	2/19/2014
Title:	Not reported
Phone:	855.236.9651
Type:	Work
Phone Last Modified:	1/10/2014

Chemical Inventory:

Cheminv Record Id:	CVTR20139SGQ3F0CP9AF
CICAS:	Not reported
EHS Chemical:	Not reported
Acute:	True
Chem Same As Last Yr:	Not reported
Chronic:	True
Last Modified:	3/27/2014
Days On Site:	365
Entered Chem Name:	Crude Oil
Fire:	True
Gas:	True
Liquid:	True
Mixture:	True
Pressure:	True
Pure:	Not reported
Reactive:	Not reported
Solid:	True
Ave Amount Code:	03
Ave Amount:	Not reported
Max Amount Code:	05
Max Amount:	Not reported
Max Amt Container:	Not reported

Chemical Location:

Chem Inv Record Id:	CVTR20139SGQ3F0CP9AF
Type Code:	Above ground tank
Pressure Code:	Ambient pressure
Temperature Code:	Ambient temperature

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STEPHENS PRODUCTION - E.L KIBLER #4 (Continued) **S117233712**

Location:	On Site
Amount:	Not reported
Amount Unit:	pounds
Last Modified:	2/19/2014

Cheminv Record Id:	CVTR20139SGQ4E0CR3Y3
CICAS:	Not reported
EHS Chemical:	Not reported
Acute:	True
Chem Same As Last Yr:	Not reported
Chronic:	True
Last Modified:	3/27/2014
Days On Site:	365
Entered Chem Name:	Produced Water
Fire:	True
Gas:	True
Liquid:	True
Mixture:	Not reported
Pressure:	True
Pure:	True
Reactive:	Not reported
Solid:	True
Ave Amount Code:	03
Ave Amount:	Not reported
Max Amount Code:	05
Max Amount:	Not reported
Max Amt Container:	Not reported

Chemical Location:

Chem Inv Record Id:	CVTR20139SGQ4E0CR3Y3
Type Code:	Above ground tank
Pressure Code:	Ambient pressure
Temperature Code:	Ambient temperature
Location:	On Site
Amount:	Not reported
Amount Unit:	pounds
Last Modified:	2/19/2014

B8 **BLAKE CONST/BORROW PITS** **PERMITS** **S109895857**
Target **HWY 59 & 22** **N/A**
Property **BARLING, AR 72923**

Site 1 of 3 in cluster B

Actual: **438 ft.**
Focus Map: **15**

PERMITS:

Name:	BLAKE CONST/BORROW PITS
Address:	HWY 59 & 22
City,State,Zip:	BARLING, AR 72923
Facility Type Desc:	Standard
Alternate Facility Name:	BORROW PITS-AHTE JOB #040457
Facility Status:	Active
AFIN:	6601600
AFIN Status Date:	Not reported
AFIN Status Desc:	Active
Type Description:	STD

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BLAKE CONST/BORROW PITS (Continued) **S109895857**

Owner Name:	Not reported
Owner ID:	Not reported
Secondary Facility Address:	Not reported
Facility Invoice Billing Month:	07
Facility Invoice Phone Number:	4794786098
Facility Invoice Comments:	Not reported
Facility Invoice Address:	ROD BLAKE
Facility Invoice Address 2:	BLAKE CONSTRUCTION, INC
Facility Invoice Address 3:	PO BOX 23610
Facility Invoice City,St,Zip:	BARLING, AR 72923
Facility Invoice Country:	Not reported
Facility Telephone:	Not reported
Facility Fax:	Not reported
Facility Email:	Not reported
Mailing Address 1:	ROD BLAKE
Mailing Address 2:	BLAKE CONSTRUCTION, INC
Mailing Address 3:	PO BOX 23610
Mailing Country:	Not reported
Other Identifier:	Not reported
Primary SIC Code:	8741
Secondary SIC Code:	Not reported
Tertiary SIC Code:	Not reported
Primary NAIC Code:	Not reported
Secondary NAIC Code:	Not reported
Tertiary NAICS Code:	Not reported
GIS Original Coordinate System:	Lat/Long
GIS Original Datum Code:	NAD27
GIS Current Datum Code:	NAD83
UTM Northing:	3915098.76
UTM Easting:	382646.99
UTM Zone:	15
Section/Township/Range:	Not reported
GIS Date Measured:	Not reported
GIS Source Name:	Submitted by permittee
GIS Collector Staff Code:	Not reported
GIS Certifield Measurment:	No
GPS Receiver Type Name:	Not reported
GPS Receiver Cannels:	Not reported
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Not reported
GIS Huc:	Not reported
GIS Planning Segment:	Not reported
GIS Ark Sen Dist:	Not reported
GIS Ark Rep Dist:	Not reported
Created By:	Not reported
Record Created:	2009-07-23 15:31:00
Modified By:	Not reported
Modified Date:	2009-07-31 15:01:00
Primary SIC Desc:	MANAGEMENT SERVICES
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported

Map ID
Direction
Distance
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number EPA ID Number

BLAKE CONST/BORROW PITS (Continued) **S109895857**

Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	35
Latitude Minute:	22
Latitude Second:	20.35
Longitude Degree:	-94
Longitude Minute:	17
Longitude Second:	30.76
Latitude Decimal:	35.372316
Longitude Decimal:	-94.291879
Comments:	Not reported
Permit Number:	ARR153035
Permit Issued Date:	2009-07-31
Permit Modified Date:	Not reported
Permit Expiration Date:	2012-02-01
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	WN
Permit Type:	S
Permit Staff:	JH
Permit Status:	E
Permit Status Date:	2009-07-31 15:01:40
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	R2
Permit Fee Volume:	.000000
Permit Inventory Comment:	I-49/Taylor Ave; AHTD #040457
Permit Inv Comment Prt:	Y
Permit Inv Single Prt:	N
Permit Inv Single Lbl:	N
Permit Contact Name:	Rod Blake
Permit Contact Telephone:	4794786098
Permit Mail Address 1:	Blake Construction Company Inc
Permit Mail Address 2:	P.O. Box 23610
Permit Mail County Code:	66
Permit Mail County Name:	Sebastian
Permit Mail City,St,Zip:	Barling, AR 72923
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Lat/Long
Permit GIS Original Datum Code:	NAD27
Permit GIS Current Datum Code:	NAD83
Permit UTM Northing:	3915098.76
Permit UTM Easting:	382646.99
Permit UTM Zone:	15
Permit Section Township Range:	Not reported
Permit GIS Date Measured:	Not reported
Permit GIS Source Name:	Submitted by permittee
Permit GIS Collector Staff Code:	Not reported
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Not reported
Permit GPS Receiver Cannels:	Not reported
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BLAKE CONST/BORROW PITS (Continued) **S109895857**

Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Not reported
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	2009-07-28 14:10:57
Permit Media Description:	Water-NPDES
Permit Type:	Storm Runoff
Permit Status Description:	Expired
Permit Fee Description:	Stormwater: Construction
Permit Staff Name:	Jennifer Harmon
Permit History:	Not reported
Permit Comment:	Not reported
Lat/Long (dms):	35 22 20.35 / -94 17 30.76

B9 **CASEY'S GENERAL STORE #3487** **UST** **U004249237**
SSW **107 FORT STREET** **Financial Assurance** **N/A**
< 1/8 **BARLING, AR 72923**
0.002 mi.
11 ft. **Site 2 of 3 in cluster B**

Actual:
439 ft.

Focus Map:
15

UST:

Facility Id:	66001864
ADEQ Facility ID:	66-01790
Active Site:	Yes
Above Ground:	Not reported
Below Ground:	Yes
Aboveground in Use:	UST
Underground in Use:	UST
Date Reg Cert Issued:	07/15/2020
Lust Flag:	UST
Leak ID Number:	Not reported
Date Received:	02/22/2016
Location SIC:	Not reported
Federal Flag:	Yes
Contact Name:	JILL REAMS-WIDDER
Contact Title:	DIRECTOR EPA COMP
Contact Phone:	(515)-965-6238
Certified Name:	JILL REAMS-WIDDER
Certified Title:	DIRECTOR EPA COMP
Date Signed:	02/15/2016
Amended:	No
No Bill:	Not reported
Facility Entry Clerk:	taylord
Facility Update Date:	02/15/2019
Facility Update Clerk:	littler
Latitude:	35.322710
Longitude:	-94.297277

Owner:

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CASEY'S GENERAL STORE #3487 (Continued) **U004249237**

Owner ID: 011344
Owner Name: CASEY'S MARKETING CO
Owner Address: P O BOX 3004
Owner Address 2: ATTN: EPA-LEE LYTLE
Owner City,St,Zip: ANKENY, IA 50021
Owner County: POLK
Owner Phone: 5159656231
Owner Type: Private Industry

AST/UST Eligible:
Facility Id: 66001864
Date Eligible: 2/22/2016
Transaction Code: FAOF
Entry Clerk: taylord
Entry Date: 5/2/2016 4:05:28 PM
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Financial Assurance on file

Facility Id: 66001864
Date Eligible: 8/7/2017
Transaction Code: FAOF
Entry Clerk: taylord
Entry Date: 8/8/2017 2:26:37 PM
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Financial Assurance on file

Facility Id: 66001864
Date Eligible: 8/13/2018
Transaction Code: FAOF
Entry Clerk: taylord
Entry Date: 8/13/2018 3:27:33 PM
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Financial Assurance on file

Tank Info:
Facility ID: 66001864
Record Created By: taylord
Record Created Date: 02/26/2016
Record Modified By: fields
Record Modified Date: 5/6/2016 9:37:29 AM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 04/05/2016
Certificate of Compliance Test Company License: 000938
Certificate of Compliance Tester License: 001258
Certificate of Compliance Installation Date: Not reported
Certificate of Compliance Install Company License: Not reported
Certificate of Compliance Installer License: 001610

Tank ID: 1
Tank Status: **In Use**
Install Date: 01/20/2016
Tank Contents: Gasoline, SPLIT 18000/8000

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

CASEY'S GENERAL STORE #3487 (Continued) **U004249237**

Cerclis Name: Not reported
Tank Material: Fiberglass Reinforced Plastic, Double Walled
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 26000
Number of Compartments: 2
Decode for Tstatus: In Use
Release Detection: Installed, Auto
Release Detection Install Date: Not reported
Tank External Corrosion Protection: Fiberglass Reinforced Plastic
Tank Ext Corrosion Protection Install Date: Not reported
Pipe Material: Fiberglass Reinforced Plastic, Double Walled
Pipe Type: Pressure
Pipe Release Detection: Line Leak, Intersti Flag
Pipe Corrosion Protection: Unknown
Tank Spill and Overfill Protection: Basin, Auto Shutoff
Pipe Repaired: Not reported
Pipe Corrosion Protection: Unknown
Corrosion Protection: Not reported
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

Facility ID: 66001864
Record Created By: taylord
Record Created Date: 02/26/2016
Record Modified By: fields
Record Modified Date: 5/6/2016 9:38:30 AM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 04/05/2016
Certificate of Compliance Test Company License: 000938
Certificate of Compliance Tester License: 001258
Certificate of Compliance Installation Date: Not reported
Certificate of Compliance Install Company License: Not reported
Certificate of Compliance Installer License: 001610

Tank ID: 2
Tank Status: In Use
Install Date: 01/20/2016
Tank Contents: Diesel, Gasoline, SPLIT DIESEL 12,000/GAS 8,000
Cerclis Name: Not reported
Tank Material: Fiberglass Reinforced Plastic, Double Walled
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 20000
Number of Compartments: 2
Decode for Tstatus: In Use
Release Detection: Installed, Auto
Release Detection Install Date: Not reported
Tank External Corrosion Protection: Fiberglass Reinforced Plastic
Tank Ext Corrosion Protection Install Date: Not reported
Pipe Material: Fiberglass Reinforced Plastic, Double Walled
Pipe Type: Pressure
Pipe Release Detection: Line Leak, Intersti Flag

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

CASEY'S GENERAL STORE #3487 (Continued) **U004249237**

Pipe Corrosion Protection: Unknown
Tank Spill and Overfill Protection: Basin, Auto Shutoff
Pipe Repaired: Not reported
Pipe Corrosion Protection: Unknown
Corrosion Protection: Not reported
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

AR Financial Assurance 3:
Name: CASEY'S GENERAL STORE #3487
Address: 107 FORT STREET
City,State,Zip: BARLING, AR 72923
Region: 3
Facility Id: 66001864
Eligible Certification: Financial Assurance on file

Name: CASEY'S GENERAL STORE #3487
Address: 107 FORT STREET
City,State,Zip: BARLING, AR 72923
Region: 3
Facility Id: 66001864
Eligible Certification: Financial Assurance on file

Name: CASEY'S GENERAL STORE #3487
Address: 107 FORT STREET
City,State,Zip: BARLING, AR 72923
Region: 3
Facility Id: 66001864
Eligible Certification: Financial Assurance on file

B10 **US ARMY RESERVE CENTER** **RCRA-VSQG** **1004672716**
SSW **101 FORT ST** **FINDS** **AR2210499818**
< 1/8 **BARLING, AR 72923** **ECHO**
0.002 mi. **PERMITS**
12 ft. **Site 3 of 3 in cluster B**

Actual: **438 ft.**

Focus Map: **15**

RCRA-VSQG:
Date Form Received by Agency: 1996-06-05 00:00:00.0
Handler Name: US ARMY RESERVE CENTER
Handler Address: 101 FORT ST
Handler City,State,Zip: BARLING, AR 72923-0646
EPA ID: AR2210499818
Contact Name: FACILITY OIC/MANAGER
Contact Address: 101 FORT ST
Contact City,State,Zip: BARLING, AR 72923-0646
Contact Telephone: 501-771-7859
Contact Fax: Not reported
Contact Email: Not reported
Contact Title: Not reported
EPA Region: 06
Land Type: Federal
Federal Waste Generator Description: Conditionally Exempt Small Quantity Generator
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Handler Activities

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

State District Owner:	AR
State District:	3
Mailing Address:	FORT ST
Mailing City,State,Zip:	BARLING, AR 72923-0646
Owner Name:	US GOVERNMENT
Owner Type:	Federal
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	The land is federally-owned, The site is federally-owned
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2000-09-02 11:35:23.0
Recognized Trader-Importer:	No

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

Recognized Trader-Exporter: No
Importer of Spent Lead Acid Batteries: No
Exporter of Spent Lead Acid Batteries: No
Recycler Activity Without Storage: Not reported
Manifest Broker: Not reported
Sub-Part P Indicator: No

Hazardous Waste Summary:
Waste Code: D001
Waste Description: IGNITABLE WASTE

Waste Code: F002
Waste Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: US GOVERNMENT
Legal Status: Federal
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: ATZR-EOF
Owner/Operator City,State,Zip: FT SILL, OK 73503-5100
Owner/Operator Telephone: 580-351-4906
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 1996-06-05 00:00:00.0
Handler Name: US ARMY RESERVE CENTER
Federal Waste Generator Description: Conditionally Exempt Small Quantity Generator
State District Owner: AR
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110003392793

Click Here:

Environmental Interest/Information System:
Arkansas Permit Data System (PDS) is a system maintaining data on air quality, mining, tires, solid waste, tank, water and hazardous waste, as well as inspections, invoicing and complaints.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004672716
Registry ID:	110003392793
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110003392793
Name:	US ARMY RESERVE CENTER
Address:	101 FORT ST
City,State,Zip:	BARLING, AR 72923

PERMITS:

Name:	US ARMY RESERVE CENTER
Address:	101 FORT ST
City,State,Zip:	BARLING, AR 72923
Facility Type Desc:	Standard
Alternate Facility Name:	Not reported
Facility Status:	Active
AFIN:	6600726
AFIN Status Date:	Not reported
AFIN Status Desc:	Active
Type Description:	STD
Owner Name:	Not reported
Owner ID:	Not reported
Secondary Facility Address:	Not reported
Facility Invoice Billing Month:	Not reported
Facility Invoice Phone Number:	Not reported
Facility Invoice Comments:	Not reported
Facility Invoice Address:	Not reported
Facility Invoice City,St,Zip:	Not reported
Facility Invoice Country:	Not reported
Facility Telephone:	5017717859
Facility Fax:	Not reported
Facility Email:	Not reported
Mailing Address 1:	FACILITY OIC/MANAGER
Mailing Address 2:	101 FORT ST
Mailing Country:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

Other Identifier:	Not reported
Primary SIC Code:	Not reported
Secondary SIC Code:	Not reported
Tertiary SIC Code:	Not reported
Primary NAIC Code:	Not reported
Secondary NAIC Code:	Not reported
Tertiary NAICS Code:	Not reported
GIS Original Coordinate System:	Not reported
GIS Original Datum Code:	Not reported
GIS Current Datum Code:	Not reported
UTM Northing:	Not reported
UTM Easting:	Not reported
UTM Zone:	Not reported
Section/Township/Range:	Not reported
GIS Date Measured:	Not reported
GIS Source Name:	Not reported
GIS Collector Staff Code:	Not reported
GIS Certifield Measurment:	No
GPS Receiver Type Name:	Not reported
GPS Receiver Cannels:	Not reported
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Not reported
GIS Huc:	Not reported
GIS Planning Segment:	Not reported
GIS Ark Sen Dist:	Not reported
GIS Ark Rep Dist:	Not reported
Created By:	Not reported
Record Created:	2003-05-22 06:31:00
Modified By:	Not reported
Modified Date:	Not reported
Primary SIC Desc:	Not reported
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported
Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	Not reported
Latitude Minute:	Not reported
Latitude Second:	Not reported
Longitude Degree:	Not reported
Longitude Minute:	Not reported
Longitude Second:	Not reported
Latitude Decimal:	Not reported
Longitude Decimal:	Not reported
Comments:	Not reported
Permit Number:	AR2210499818
Permit Issued Date:	Not reported
Permit Modified Date:	Not reported
Permit Expiration Date:	Not reported
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	HE
Permit Type:	Not reported
Permit Staff:	Not reported
Permit Status:	A
Permit Status Date:	Not reported
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	Not reported
Permit Fee Volume:	Not reported
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	Not reported
Permit Inv Single Lbl:	Not reported
Permit Contact Name:	FACILITY OIC/MANAGER
Permit Contact Telephone:	5017717859
Permit Mail Address 1:	US ARMY RESERVE CENTER
Permit Mail Address 2:	101 FORT ST
Permit Mail County Code:	66
Permit Mail County Name:	Sebastian
Permit Mail City,St,Zip:	BARLING, AR 72923-0646
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Lat/Long
Permit GIS Original Datum Code:	NAD83
Permit GIS Current Datum Code:	NAD83
Permit UTM Northing:	3909641.17
Permit UTM Easting:	382152.10
Permit UTM Zone:	15
Permit Section Township Range:	Not reported
Permit GIS Date Measured:	2019-07-22 00:00:00
Permit GIS Source Name:	EPA
Permit GIS Collector Staff Code:	Not reported
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Not reported
Permit GPS Receiver Cannels:	Not reported
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Imported by jacksonw on 7/22/2019. Source datafile unknown.
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	Not reported
Permit Media Description:	Haz Waste EPAID
Permit Type:	Not reported
Permit Status Description:	Active
Permit Fee Description:	Not reported
Permit Staff Name:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

Permit History:	Not reported
Permit Comment:	Not reported
Lat/Long (dms):	35 19 23.02 / -94 17 47.54
Name:	US ARMY RESERVE CENTER
Address:	101 FORT ST
City,State,Zip:	BARLING, AR 72923-064
Facility Type Desc:	Standard
Alternate Facility Name:	Not reported
Facility Status:	Active
AFIN:	6600727
AFIN Status Date:	Not reported
AFIN Status Desc:	Active
Type Description:	STD
Owner Name:	Not reported
Owner ID:	Not reported
Secondary Facility Address:	Not reported
Facility Invoice Billing Month:	Not reported
Facility Invoice Phone Number:	Not reported
Facility Invoice Comments:	Not reported
Facility Invoice Address:	Not reported
Facility Invoice City,St,Zip:	Not reported
Facility Invoice Country:	Not reported
Facility Telephone:	Not reported
Facility Fax:	Not reported
Facility Email:	Not reported
Mailing Address 1:	Not reported
Mailing Address 2:	101 FORT ST
Mailing Country:	Not reported
Other Identifier:	Not reported
Primary SIC Code:	Not reported
Secondary SIC Code:	Not reported
Tertiary SIC Code:	Not reported
Primary NAIC Code:	Not reported
Secondary NAIC Code:	Not reported
Tertiary NAICS Code:	Not reported
GIS Original Coordinate System:	Not reported
GIS Original Datum Code:	Not reported
GIS Current Datum Code:	Not reported
UTM Northing:	Not reported
UTM Easting:	Not reported
UTM Zone:	Not reported
Section/Township/Range:	Not reported
GIS Date Measured:	Not reported
GIS Source Name:	Not reported
GIS Collector Staff Code:	Not reported
GIS Certifield Measurment:	No
GPS Receiver Type Name:	Not reported
GPS Receiver Cannels:	Not reported
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

GIS Huc:	Not reported
GIS Planning Segment:	Not reported
GIS Ark Sen Dist:	Not reported
GIS Ark Rep Dist:	Not reported
Created By:	Not reported
Record Created:	2003-05-22 06:31:00
Modified By:	Not reported
Modified Date:	Not reported
Primary SIC Desc:	Not reported
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported
Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	Not reported
Latitude Minute:	Not reported
Latitude Second:	Not reported
Longitude Degree:	Not reported
Longitude Minute:	Not reported
Longitude Second:	Not reported
Latitude Decimal:	Not reported
Longitude Decimal:	Not reported
Comments:	Not reported
Permit Number:	AR2210199818
Permit Issued Date:	Not reported
Permit Modified Date:	Not reported
Permit Expiration Date:	Not reported
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	HE
Permit Type:	Not reported
Permit Staff:	Not reported
Permit Status:	A
Permit Status Date:	Not reported
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	Not reported
Permit Fee Volume:	Not reported
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	Not reported
Permit Inv Single Lbl:	Not reported
Permit Contact Name:	Not reported
Permit Contact Telephone:	Not reported
Permit Mail Address 1:	US ARMY RESERVE CENTER
Permit Mail Address 2:	101 FORT ST
Permit Mail County Code:	66
Permit Mail County Name:	Sebastian
Permit Mail City,St,Zip:	BARLING, AR 72923-0646
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Not reported
Permit GIS Original Datum Code:	Not reported
Permit GIS Current Datum Code:	Not reported
Permit UTM Northing:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

US ARMY RESERVE CENTER (Continued) **1004672716**

Permit UTM Easting:	Not reported
Permit UTM Zone:	Not reported
Permit Section Township Range:	Not reported
Permit GIS Date Measured:	Not reported
Permit GIS Source Name:	Not reported
Permit GIS Collector Staff Code:	Not reported
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Not reported
Permit GPS Receiver Cannels:	Not reported
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Not reported
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	Not reported
Permit Media Description:	Haz Waste EPAID
Permit Type:	Not reported
Permit Status Description:	Active
Permit Fee Description:	Not reported
Permit Staff Name:	Not reported
Permit History:	Not reported
Permit Comment:	Not reported
Lat/Long (dms):	Not reported

11
SSW
< 1/8
0.066 mi.
350 ft.

MENDENHALL MARVIN J
103 FORT ST
BARLING, AR 72923

EDR Hist Auto **1020961792**
N/A

Actual:
445 ft.

EDR Hist Auto

Focus Map:
15

Year:	Name:	Type:
1971	MENDENHALL MARVIN J	Gasoline Service Stations
1972	MENDENHALL MARVIN J	Gasoline Service Stations
1973	MENDENHALL MARVIN J	Auto And Home Supply Stores
1974	MENDENHALL MARVIN J	Auto And Home Supply Stores
1975	MENDENHALL MARVIN J	Auto And Home Supply Stores
1976	MENDENHALL MARVIN J	Auto And Home Supply Stores
1977	MENDENHALL MARVIN J	Auto And Home Supply Stores
1978	MENDENHALL MARVIN J	Auto And Home Supply Stores
1979	MENDENHALL MARVIN J	Auto And Home Supply Stores
1980	MENDENHALL MARVIN J	Auto And Home Supply Stores
1982	MENDENHALL MARVIN J	Auto And Home Supply Stores
1983	MENDENHALL MARVIN J	Auto And Home Supply Stores

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

12
SW
1/8-1/4
0.126 mi.
664 ft.

MAI NGUYEN
8315 ALMA HWY.
ALMA, AR 72921

SWID **S110828434**
N/A

Actual:
420 ft.

Focus Map:
2

SWID:

Name:	MAI NGUYEN
Address:	8315 ALMA HWY.
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	011685
PDS Compliant ID:	011685
Compliant PDF Filename:	011685-comp.pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	01/18/2011
Inspector:	Sparrow, Justin
Valid:	Yes
Total Score:	21
Date of 1st Letter:	01/28/2011
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	4
Complaint Waste Contents:	3
Complaint Site Assessment:	14
Complaint Site Disposition Description:	Letter sent
Comments:	Just west of Alma on Hwy. 64 on the north side of the road. Just before you cross the second set of bridges.

13
NW
1/8-1/4
0.160 mi.
843 ft.

BARLING, CITY OF
304 CHURCH STREET
BARLING, AR 72923

UST **U002273754**
N/A

Actual:
481 ft.

Focus Map:
15

UST:

Facility Id:	66000044
ADEQ Facility ID:	66-00607
Active Site:	Not reported
Above Ground:	Not reported
Below Ground:	Yes
Aboveground in Use:	UST
Underground in Use:	UST
Date Reg Cert Issued:	08/13/1993
Lust Flag:	UST
Leak ID Number:	Not reported
Date Received:	04/04/1986
Location SIC:	Not reported
Federal Flag:	Yes
Contact Name:	RODNEY AVERY
Contact Title:	CITY ADMINISTRATOR
Contact Phone:	501-452-1556
Certified Name:	RODNEY AVERY

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING, CITY OF (Continued) **U002273754**

Certified Title: CITY ADMINISTRA
Date Signed: 04/02/1986
Amended: No
No Bill: Not reported
Facility Entry Clerk: VAL
Facility Update Date: 04/22/2002
Facility Update Clerk: HARPER
Latitude: Not reported
Longitude: Not reported

Owner:
Owner ID: 001231
Owner Name: BARLING, CITY OF
Owner Address: 304 CHURCH STREET
Owner City,St,Zip: BARLING, AR 72923
Owner County: SEBASTIAN
Owner Phone: 5014521556
Owner Type: State Government

Tank Info:
Facility ID: 66000044
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: SUMMERS
Record Modified Date: 10/13/1993
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: Not reported
Certificate of Compliance Test Company License: Not reported
Certificate of Compliance Tester License: Not reported
Certificate of Compliance Installation Date: Not reported
Certificate of Compliance Install Company License: Not reported
Certificate of Compliance Installer License: Not reported

Tank ID: 1
Tank Status: Permanently Out of Service 06/16/1993
Install Date: 01/01/1983
Tank Contents: Gasoline
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 2000
Number of Compartments: 1
Decode for Tstatus: Permanently Out of Use
Release Detection: Unknown
Release Detection Install Date: Not reported
Tank External Corrosion Protection: Unknown
Tank Ext Corrosion Protection Install Date: Not reported
Pipe Material: Galvanized Steel
Pipe Type: Unknown
Pipe Release Detection: Unknown
Pipe Corrosion Protection: Unknown
Tank Spill and Overfill Protection: Unknown
Pipe Repaired: Not reported
Pipe Corrosion Protection: Unknown

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING, CITY OF (Continued) **U002273754**

Corrosion Protection:	Not reported
Spill and Overflow:	Not reported
Release Detection:	Not reported
Tank Comments:	Not reported

Facility ID:	66000044
Record Created By:	Not reported
Record Created Date:	Not reported
Record Modified By:	SUMMERS
Record Modified Date:	10/13/1993
Site Assessment Date:	Not reported
Site Assessment Leak:	Not reported
Certificate of Compliance Final Test Date:	Not reported
Certificate of Compliance Test Company License:	Not reported
Certificate of Compliance Tester License:	Not reported
Certificate of Compliance Installation Date:	Not reported
Certificate of Compliance Install Company License:	Not reported
Certificate of Compliance Installer License:	Not reported

Tank ID:	2
Tank Status:	**Permanently Out of Service 06/16/1993**
Install Date:	01/01/1983
Tank Contents:	Gasoline
Cerclis Name:	Not reported
Tank Material:	Steel
GIS Location:	Not reported
Federal Flag:	Not reported
Hazardous:	Not reported
Capacity in Gallons:	2000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Unknown
Release Detection Install Date:	Not reported
Tank External Corrosion Protection:	Unknown
Tank Ext Corrosion Protection Install Date:	Not reported
Pipe Material:	Galvanized Steel
Pipe Type:	Unknown
Pipe Release Detection:	Unknown
Pipe Corrosion Protection:	Unknown
Tank Spill and Overfill Protection:	Unknown
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	Unknown
Corrosion Protection:	Not reported
Spill and Overflow:	Not reported
Release Detection:	Not reported
Tank Comments:	Not reported

14
SSE
1/8-1/4
0.187 mi.
989 ft.

STERICYCLE @ SEBASTIAN
6700 MAHOGANY AVE
BARLING, AR 72923

RCRA NonGen / NLR **1018273524**
FINDS **ARR000027011**
ECHO

Actual:
414 ft.

Focus Map:
16

RCRA NonGen / NLR:

Date Form Received by Agency:	2016-03-08 00:00:00.0
Handler Name:	STERICYCLE @ SEBASTIAN
Handler Address:	6700 MAHOGANY AVE
Handler City,State,Zip:	BARLING, AR 72923

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

STERICYCLE @ SEBASTIAN (Continued) **1018273524**

EPA ID:	ARR000027011
Contact Name:	JIMMY D BROWN
Contact Address:	POWELL ST
Contact City,State,Zip:	AVALON, TX 76623
Contact Telephone:	214-802-2862
Contact Fax:	972-627-3415
Contact Email:	JIMMY.BROWN@PSCNOW.COM
Contact Title:	PROJECT MANAGER
EPA Region:	06
Land Type:	County
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	AR
State District:	3
Mailing Address:	POWELL ST
Mailing City,State,Zip:	AVALON, TX 76623
Owner Name:	EXTENSION OFFICE
Owner Type:	Private
Operator Name:	CHEMICAL RECLAMATION SERVICES
Operator Type:	Private
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	Yes
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STERICYCLE @ SEBASTIAN (Continued) **1018273524**

TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2016-03-11 11:28:28.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CHEMICAL RECLAMATION SERVICES
Legal Status:	Private
Date Became Current:	2016-03-18 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	Not reported
Owner/Operator City,State,Zip:	Not reported
Owner/Operator Telephone:	Not reported
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	EXTENSION OFFICE
Legal Status:	Private
Date Became Current:	2015-06-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	301 AR-96
Owner/Operator City,State,Zip:	LAVACA, AR 72941
Owner/Operator Telephone:	497-675-2211
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2016-03-08 00:00:00.0
Handler Name: STERICYCLE @ SEBASTIAN	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	AR
Large Quantity Handler of Universal Waste:	Yes
Recognized Trader Importer:	No
Recognized Trader Exporter:	No

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

STERICYCLE @ SEBASTIAN (Continued) **1018273524**

Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 562112
NAICS Description: HAZARDOUS WASTE COLLECTION

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110067457852

Click Here:

Environmental Interest/Information System:
Arkansas Permit Data System (PDS) is a system maintaining data on air quality, mining, tires, solid waste, tank, water and hazardous waste, as well as inspections, invoicing and complaints.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1018273524
Registry ID: 110067457852
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110067457852
Name: STERICYCLE @ SEBASTIAN
Address: 6700 MAHOGANY AVE
City,State,Zip: BARLING, AR 72923

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15 **BARLING FOOD CENTER** **LTANKS** **U001218293**
WNW **406 CHURCH ST** **UST** **N/A**
1/8-1/4 **BARLING, AR 72923** **PERMITS**
0.242 mi.
1280 ft.

Actual:
487 ft.

Focus Map:
15

LTANKS:
Name: BARLING FOOD CENTER
Address: 406 CHURCH STREET
Address 2: Not reported
City,State,Zip: BARLING, AR 72923
RST Facility ID: 66000066

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Facility Telephone: 4794527585

Owner: FORT SMITH PETROLEUM EQ, INC
Lust Owner: Not reported
Leak Date: Not reported
Leak Volume: Not reported
Substance Stored: Unknown
Release Status: Suspected
Release Confirmed: Not reported
Damage Description: Not reported
Lust Tank Type: Unknown
Lust Dicovery: Other (See Comments Tab)
Notification Date: 2/27/2002 10:50:00 AM
Cleanup Initiated: Not reported
Notification Name: MIKE WITT
Notification Address: P.O. BOX 6687
Notification City,St,Zip: FORT SMITH, AR 72906
Notification Telephone: 4796460597
Notice Number: 660125
Tech Branch: Not reported
AFIN Number: 6600894
Emergency Response: Not reported
Emergency Response 2: Not reported
Hazard Abatement: Not reported
Remedial Action: Not reported
ISC Date: Not reported
Priority Score: Not reported
SAR Date: Not reported
Cap Submit: Not reported
Public Notify: Not reported
Cap Approve: Not reported
NFA Issued: Not reported
Funding Source: Not reported
Cleanup Lead: Not reported
Gis Location: Not reported
Lust Tank Type 2: Unknown
RST Modified Date: Not reported
Leak Damage: UNKNOWN
Memo: METHOD OF DISCOVERY: UNUSUAL AMOUNT OF WATER DISCOVERED IN TANK #3 SUSPECTED RELEASE 02-27-02 BEARD SUSPECTED RELEASE. UNUSUAL AMOUNT OF WATER DISCOVERED IN TANK #3. 03-27-02 BEARD TANK #3 TESTED AND PASSED. FILE CLOSED.

Owner: FORT SMITH PETROLEUM EQ.
Lust Owner: Not reported
Leak Date: Not reported
Leak Volume: Not reported
Substance Stored: Unknown
Release Status: Confirmed
Release Confirmed: 3/20/2002
Damage Description: Sub Surface Soils/Groundwater
Lust Tank Type: Underground Tank
Lust Dicovery: UOC Report
Notification Date: 3/20/2002 10:46:00 AM
Cleanup Initiated: 6/19/2002
Notification Name: MIKE WITT

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Notification Address:	P.O. BOX 6687
Notification City,St,Zip:	FORT SMITH, AR 72906
Notification Telephone:	4796460597
Notice Number:	660126
Tech Branch:	5/16/2002
AFIN Number:	6600894
Emergency Response:	Not reported
Emergency Response 2:	Not reported
Hazard Abatement:	Not reported
Remedial Action:	Not reported
ISC Date:	10/1/2002
Priority Score:	Not reported
SAR Date:	Not reported
Cap Submit:	Not reported
Public Notify:	Not reported
Cap Approve:	Not reported
NFA Issued:	2002-10-01 00:00:00
Funding Source:	Not reported
Cleanup Lead:	Not reported
Gis Location:	Not reported
Lust Tank Type 2:	Underground Tank
RST Modified Date:	Not reported
Leak Damage:	UNKNOWN
Memo:	METHOD OF DISCOVERY: UNUSUAL AMOUNT OF WATER DISCOVERED IN TANK. SUSPECTED RELEASE 03-26-02 BEARD SUSPECTED RELEASE. UNUSUAL AMOUNT OF WATER DISCOVERED IN TANK. 04-08-02 BEARD TANK TIGHTNESS TEST ON DIESEL TANK FAILED. CONFIRMED RELEASE. 04-15-02 BEARD IRR RECEIVED BY ADEQ ON APRIL 8, 2002. 05-16-02 BEARD ISC RECEIVED BY ADEQ ON MAY 9, 2002. REFERRED TO TECHNICAL BRANCH DUE TO SAMPLE BEING ABOVE OUR GUIDELINES. 5/16/02 (James Atchley) Casefile opened with the Technical Branch. 6/19/02 (James Atchley) The O/O has proposed to delay corrective action until the USTs are closed in August. Following the review of the closure assessment report, the need for further action will be determined. Report by 10/25. 9/30/02 (James Atchley) Report of dig-and-haul removal action submitted. 10/1/02 (James Atchley) Remaining soil concentrations below Tier 1 levels. No Further Action this report.

UST:

Facility Id:	66000066
ADEQ Facility ID:	66-00894
Active Site:	Not reported
Above Ground:	Not reported
Below Ground:	Yes
Aboveground in Use:	UST
Underground in Use:	UST
Date Reg Cert Issued:	09/05/2000
Lust Flag:	UST
Leak ID Number:	66-0125,66-0126
Date Received:	09/30/2002
Location SIC:	Not reported
Federal Flag:	Yes
Contact Name:	MIKE WITT
Contact Title:	ENV COMPL OFFICER
Contact Phone:	479-646-0597
Certified Name:	DANNY GODDARD, CONTR
Certified Title:	FT SMITH PET EQ

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Date Signed: 09/15/2002
Amended: Yes
No Bill: Not reported
Facility Entry Clerk: VAL
Facility Update Date: 08/22/2012
Facility Update Clerk: LITTLER
Latitude: 35.325489
Longitude: -94.301247

Owner:
Owner ID: 008832
Owner Name: FORT SMITH PETROLEUM EQ CO INC
Owner Address: PO BOX 180787
Owner City,St,Zip: FORT SMITH, AR 72918-0787
Owner County: SEBASTIAN
Owner Phone: 4796460597
Owner Type: Private Industry

AST/UST Eligible:
Facility Id: 66000066
Date Eligible: 11/14/1991
Transaction Code: CIOU
Entry Clerk: GCRAGG
Entry Date: 11/14/1991
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Certificate issued, original, UST

Facility Id: 66000066
Date Eligible: 7/11/2000
Transaction Code: CIOU
Entry Clerk: BATEMAN
Entry Date: 7/11/2000
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Certificate issued, original, UST

Facility Id: 66000066
Date Eligible: 8/7/2000
Transaction Code: CIOU
Entry Clerk: BATEMAN
Entry Date: 8/7/2000
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Certificate issued, original, UST

Tank Info:
Facility ID: 66000066
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: NORTONC
Record Modified Date: 4/14/2003
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: Not reported
Certificate of Compliance Test Company License: Not reported
Certificate of Compliance Tester License: Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Certificate of Compliance Installation Date: Not reported
Certificate of Compliance Install Company License: Not reported
Certificate of Compliance Installer License: Not reported

Tank ID: 1
Tank Status: Permanently Out of Service 09/14/2002
Install Date: 01/01/1986
Tank Contents: Empty, Gasoline
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 6000
Number of Compartments: 1
Decode for Tstatus: Permanently Out of Use
Release Detection: Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date: Not reported
Tank External Corrosion Protection: Asphalt, CPS Flag
Tank Ext Corrosion Protection Install Date: 12/20/1998
Pipe Material: Bare Steel
Pipe Type: Pressure
Pipe Release Detection: Line Leak
Pipe Corrosion Protection: CPS
Tank Spill and Overfill Protection: Basin
Pipe Repaired: Not reported
Pipe Corrosion Protection: CPS
Corrosion Protection: X
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

Facility ID: 66000066
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: NORTONC
Record Modified Date: 4/14/2003
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: Not reported
Certificate of Compliance Test Company License: Not reported
Certificate of Compliance Tester License: Not reported
Certificate of Compliance Installation Date: Not reported
Certificate of Compliance Install Company License: Not reported
Certificate of Compliance Installer License: Not reported

Tank ID: 2
Tank Status: Permanently Out of Service 09/14/2002
Install Date: 01/01/1986
Tank Contents: Empty, Gasoline
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 6000
Number of Compartments: 1

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Decode for Tstatus:	Permanently Out of Use
Release Detection:	Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date:	Not reported
Tank External Corrosion Protection:	Asphalt, CPS Flag
Tank Ext Corrosion Protection Install Date:	12/20/1998
Pipe Material:	Bare Steel
Pipe Type:	Pressure
Pipe Release Detection:	Line Leak
Pipe Corrosion Protection:	CPS
Tank Spill and Overfill Protection:	Basin
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	CPS
Corrosion Protection:	X
Spill and Overflow:	X
Release Detection:	Yes
Tank Comments:	Not reported

Facility ID:	66000066
Record Created By:	Not reported
Record Created Date:	Not reported
Record Modified By:	NORTONC
Record Modified Date:	4/14/2003
Site Assessment Date:	Not reported
Site Assessment Leak:	Not reported
Certificate of Compliance Final Test Date:	Not reported
Certificate of Compliance Test Company License:	Not reported
Certificate of Compliance Tester License:	Not reported
Certificate of Compliance Installation Date:	Not reported
Certificate of Compliance Install Company License:	Not reported
Certificate of Compliance Installer License:	Not reported

Tank ID:	3
Tank Status:	**Permanently Out of Service 09/14/2002**
Install Date:	01/01/1986
Tank Contents:	Empty, Diesel
Cerclis Name:	Not reported
Tank Material:	Steel
GIS Location:	Not reported
Federal Flag:	Not reported
Hazardous:	Not reported
Capacity in Gallons:	4000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date:	Not reported
Tank External Corrosion Protection:	Asphalt, CPS Flag
Tank Ext Corrosion Protection Install Date:	12/20/1998
Pipe Material:	Bare Steel
Pipe Type:	Suction PVC
Pipe Release Detection:	Line Leak
Pipe Corrosion Protection:	CPS
Tank Spill and Overfill Protection:	Basin
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	CPS
Corrosion Protection:	X
Spill and Overflow:	X
Release Detection:	Yes

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Tank Comments: Not reported

PERMITS:

Name:	BARLING FOOD CENTER
Address:	406 CHURCH ST
City,State,Zip:	BARLING, AR 72923
Facility Type Desc:	Standard
Alternate Facility Name:	Not reported
Facility Status:	Active
AFIN:	6600894
AFIN Status Date:	Not reported
AFIN Status Desc:	Active
Type Description:	STD
Owner Name:	FORT SMITH PETROLEUM EQ CO INC
Owner ID:	008832
Secondary Facility Address:	Not reported
Facility Invoice Billing Month:	Not reported
Facility Invoice Phone Number:	Not reported
Facility Invoice Comments:	Not reported
Facility Invoice Address:	Not reported
Facility Invoice City,St,Zip:	Not reported
Facility Invoice Country:	Not reported
Facility Telephone:	Not reported
Facility Fax:	Not reported
Facility Email:	Not reported
Mailing Address 1:	Not reported
Mailing Country:	Not reported
Other Identifier:	Not reported
Primary SIC Code:	Not reported
Secondary SIC Code:	Not reported
Tertiary SIC Code:	Not reported
Primary NAIC Code:	Not reported
Secondary NAIC Code:	Not reported
Tertiary NAICS Code:	Not reported
GIS Original Coordinate System:	Lat/Long
GIS Original Datum Code:	WGS84
GIS Current Datum Code:	NAD83
UTM Northing:	3909915.47
UTM Easting:	381728.38
UTM Zone:	15
Section/Township/Range:	Not reported
GIS Date Measured:	09/11/2002
GIS Source Name:	ADEQ-GPS (autonomous)
GIS Collector Staff Code:	Beard, Randy
GIS Certifield Measurment:	No
GPS Receiver Type Name:	Garmin GPS III Plus
GPS Receiver Cannels:	12
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Converted from RST Inspection 05/15/2005
GIS Huc:	11110201
GIS Planning Segment:	3H
GIS Ark Sen Dist:	06

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

GIS Ark Rep Dist:	067
Created By:	Not reported
Record Created:	2005-05-15 00:00:00
Modified By:	Not reported
Modified Date:	Not reported
Primary SIC Desc:	Not reported
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported
Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	35
Latitude Minute:	19
Latitude Second:	31.76
Longitude Degree:	-94
Longitude Minute:	18
Longitude Second:	4.49
Latitude Decimal:	35.325489
Longitude Decimal:	-94.301247
Comments:	Not reported
Permit Number:	66000066
Permit Issued Date:	Not reported
Permit Modified Date:	Not reported
Permit Expiration Date:	Not reported
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	R
Permit Type:	Not reported
Permit Staff:	Not reported
Permit Status:	Not reported
Permit Status Date:	Not reported
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	Not reported
Permit Fee Volume:	Not reported
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	N
Permit Inv Single Lbl:	N
Permit Contact Name:	MIKE WITT
Permit Contact Telephone:	4796460597
Permit Mail Address 1:	BARLING FOOD CENTER
Permit Mail Address 2:	406 CHURCH ST
Permit Mail County Code:	66
Permit Mail County Name:	Sebastian
Permit Mail City,St,Zip:	BARLING, AR 72923
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Lat/Long
Permit GIS Original Datum Code:	WGS84
Permit GIS Current Datum Code:	NAD83
Permit UTM Northing:	3909915.47
Permit UTM Easting:	381728.38
Permit UTM Zone:	15
Permit Section Township Range:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

BARLING FOOD CENTER (Continued) **U001218293**

Permit GIS Date Measured:	2002-09-11 00:00:00
Permit GIS Source Name:	ADEQ-GPS (autonomous)
Permit GIS Collector Staff Code:	Beard, Randy
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Garmin GPS III Plus
Permit GPS Receiver Cannels:	12
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Converted from RST Inspection 05/15/2005
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	1986-11-04 00:00:00
Permit Media Description:	RST
Permit Type:	Not reported
Permit Status Description:	Not reported
Permit Fee Description:	Not reported
Permit Staff Name:	Not reported
Permit History:	Not reported
Permit Comment:	Not reported
Lat/Long (dms):	35 19 31.76 / -94 18 4.49

16
NW
1/4-1/2
0.472 mi.
2492 ft.

KEN'S CAR CARE
712 FORT ST
BARLING, AR 72923

LTANKS **U001902414**
UST **N/A**
Financial Assurance
PERMITS

Actual:
463 ft.

Focus Map:
15

LTANKS:

Name:	KEN'S CAR CARE
Address:	712 FORT STREET
Address 2:	Not reported
City,State,Zip:	BARLING, AR 72923
RST Facility ID:	66000247
Facility Telephone:	(479) 629-8720
Owner:	THRIFT, ARLIN
Lust Owner:	011055
Leak Date:	6/24/2009
Leak Volume:	Not reported
Substance Stored:	Diesel
Release Status:	Confirmed
Release Confirmed:	6/29/2009
Damage Description:	Sub Surface Soils/Groundwater
Lust Tank Type:	Underground Tank
Lust Dicovery:	Closure Assessment
Notification Date:	6/29/2009
Cleanup Initiated:	9/16/2009

Map ID
Direction
Distance
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Notification Name:	ARKANSAS TESTING SERVICES
Notification Address:	P.O. BOX 191
Notification City,St,Zip:	AUSTIN, AR 72007
Notification Telephone:	(501) 941-2432
Notice Number:	660182
Tech Branch:	Not reported
AFIN Number:	6601061
Emergency Response:	No
Emergency Response 2:	Not reported
Hazard Abatement:	Not reported
Remedial Action:	Excv Disp
ISC Date:	Not reported
Priority Score:	Not reported
SAR Date:	Not reported
Cap Submit:	Not reported
Public Notify:	Not reported
Cap Approve:	Not reported
NFA Issued:	2010-07-26 00:00:00
Funding Source:	Not reported
Cleanup Lead:	Not reported
Gis Location:	Not reported
Lust Tank Type 2:	Underground Tank
RST Modified Date:	Not reported
Leak Damage:	Contaminated soil in tank pit.

Memo: CONTRACTOR FOUND 3 SOIL SAMPLES THAT EXCEEDED ACCEPTABLE LEVELS FOR TPH IN DIESEL RANGE DURING PRELIMINARY SAMPLING FOR CLOSURE IN PLACE OF FOUR UST'S. I RECOMMENDED REMOVAL OF TANKS AND OVER-EXCAVATION TO DETERMINE THE EXTENT OF THE PROBLEM. [sherrill 7/24/2009 2:34:22 PM]. OVER-EXCAVATION OF SITE WAS SUCCESSFUL AND CONTAMINATED SOILS WERE STAGED ON SITE.PERMANENT CLOSURE REPORT WAS GENERATED ON 9/16/09. THE STAGED SOILS TO BE TESTED AND REMOVED AT A LATER DATE TO BE DETERMINED. [sherrill 3/18/2010 8:56:38 AM]. STAGED SOILS WERE REMOVED TO THE FORT SMITH CITY LANDFILL. RECEIVE THE MANIFEST DATED 7/22/2010. NO FURTHER ACTION REQUIRED. LETTER GENERATED 7/26/2010. LUST CASE CLOSED. [sherrill 8/11/2010 8:27:06 AM]. [sherrill 8/12/2010 1:34:37 PM].

UST:

Facility Id:	66000247
ADEQ Facility ID:	66-01061
Active Site:	Not reported
Above Ground:	Not reported
Below Ground:	Yes
Aboveground in Use:	UST
Underground in Use:	UST
Date Reg Cert Issued:	07/17/2009
Lust Flag:	UST
Leak ID Number:	66-0182
Date Received:	12/05/2009
Location SIC:	Not reported
Federal Flag:	Yes
Contact Name:	ARLIN THRIFT
Contact Title:	OWNER
Contact Phone:	479-629-8720
Certified Name:	ARLIN THRIFT
Certified Title:	OWNER
Date Signed:	09/19/2009

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Amended: Yes
No Bill: Not reported
Facility Entry Clerk: LST
Facility Update Date: 07/28/2010
Facility Update Clerk: SCHENK
Latitude: 35.327862
Longitude: -94.304291

Owner:
Owner ID: 011055
Owner Name: THRIFT, ARLIN
Owner Address: 2205 WEST HILLS DRIVE
Owner City,St,Zip: LAVACA, AR 72941
Owner County: SEBASTIAN
Owner Phone: 4796298720
Owner Type: Private Industry

AST/UST Eligible:
Facility Id: 66000247
Date Eligible: 12/3/1991
Transaction Code: CIOU
Entry Clerk: GCRAGG
Entry Date: 12/3/1991
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Certificate issued, original, UST

Facility Id: 66000247
Date Eligible: 5/26/2009
Transaction Code: FAOF
Entry Clerk: fields
Entry Date: 5/26/2009 11:18:44 AM
Update Clerk: Not reported
Update Date: Not reported
Eligibility Description: Financial Assurance on file

Tank Info:
Facility ID: 66000247
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: SCHENK
Record Modified Date: 7/28/2010 4:30:53 PM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 12/09/1998
Certificate of Compliance Test Company License: 000599
Certificate of Compliance Tester License: 000599
Certificate of Compliance Installation Date: 1998-12-09 00:00:00
Certificate of Compliance Install Company License: 001046
Certificate of Compliance Installer License: 001046

Tank ID: 1
Tank Status: **Permanently Out of Service 09/17/2009**
Install Date: 01/01/1986
Tank Contents: Empty, Gasoline
Cerclis Name: Not reported
Tank Material: Steel

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

GIS Location:	Not reported
Federal Flag:	Not reported
Hazardous:	Not reported
Capacity in Gallons:	4000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date:	12/01/1998
Tank External Corrosion Protection:	Lined, CPS Flag, 1998-12-01 00:00:00
Tank Ext Corrosion Protection Install Date:	12/01/1998
Pipe Material:	NON CORRODIBLE
Pipe Type:	Pressure
Pipe Release Detection:	Ground Water
Pipe Corrosion Protection:	FLEX POLY
Tank Spill and Overfill Protection:	Auto Flow
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	FLEX POLY
Corrosion Protection:	X
Spill and Overflow:	X
Release Detection:	Yes
Tank Comments:	Not reported

Facility ID:	66000247
Record Created By:	Not reported
Record Created Date:	Not reported
Record Modified By:	SCHENK
Record Modified Date:	7/28/2010 4:31:12 PM
Site Assessment Date:	Not reported
Site Assessment Leak:	Not reported
Certificate of Compliance Final Test Date:	12/09/1998
Certificate of Compliance Test Company License:	000599
Certificate of Compliance Tester License:	000599
Certificate of Compliance Installation Date:	1998-12-09 00:00:00
Certificate of Compliance Install Company License:	001046
Certificate of Compliance Installer License:	001046

Tank ID:	2
Tank Status:	**Permanently Out of Service 09/17/2009**
Install Date:	01/01/1986
Tank Contents:	Empty, Gasoline
Cerclis Name:	Not reported
Tank Material:	Steel
GIS Location:	Not reported
Federal Flag:	Not reported
Hazardous:	Not reported
Capacity in Gallons:	4000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date:	12/01/1998
Tank External Corrosion Protection:	Lined, CPS Flag, 1998-12-01 00:00:00
Tank Ext Corrosion Protection Install Date:	12/01/1998
Pipe Material:	NON CORRODABLE
Pipe Type:	Pressure
Pipe Release Detection:	Ground Water
Pipe Corrosion Protection:	FLEX POLY
Tank Spill and Overfill Protection:	Auto Flow

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Pipe Repaired: Not reported
Pipe Corrosion Protection: FLEX POLY
Corrosion Protection: X
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

Facility ID: 66000247
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: SCHENK
Record Modified Date: 7/28/2010 4:31:31 PM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 12/09/1998
Certificate of Compliance Test Company License: 000599
Certificate of Compliance Tester License: 000599
Certificate of Compliance Installation Date: 1998-12-09 00:00:00
Certificate of Compliance Install Company License: 001046
Certificate of Compliance Installer License: 001046

Tank ID: 3
Tank Status: Permanently Out of Service 09/12/2009
Install Date: 01/01/1986
Tank Contents: Empty, Gasoline
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 4000
Number of Compartments: 1
Decode for Tstatus: Permanently Out of Use
Release Detection: Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date: 12/01/1998
Tank External Corrosion Protection: Lined, CPS Flag, 1998-12-01 00:00:00
Tank Ext Corrosion Protection Install Date: 12/01/1998
Pipe Material: NON CORRODABLE
Pipe Type: Pressure
Pipe Release Detection: Ground Water
Pipe Corrosion Protection: FLEX POLY
Tank Spill and Overfill Protection: Auto Flow
Pipe Repaired: Not reported
Pipe Corrosion Protection: FLEX POLY
Corrosion Protection: X
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

Facility ID: 66000247
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: SCHENK
Record Modified Date: 7/28/2010 4:32:00 PM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 12/09/1998

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Certificate of Compliance Test Company License: 000599
Certificate of Compliance Tester License: 000599
Certificate of Compliance Installation Date: 1998-12-09 00:00:00
Certificate of Compliance Install Company License: 001046
Certificate of Compliance Installer License: 001046

Tank ID: 4
Tank Status: Permanently Out of Service 09/17/2009
Install Date: 01/01/1986
Tank Contents: Empty, Gasoline
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported
Capacity in Gallons: 4000
Number of Compartments: 1
Decode for Tstatus: Permanently Out of Use
Release Detection: Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date: 12/01/1998
Tank External Corrosion Protection: Lined, CPS Flag, 1998-12-01 00:00:00
Tank Ext Corrosion Protection Install Date: 12/01/1998
Pipe Material: NON CORRODABLE
Pipe Type: Pressure
Pipe Release Detection: Ground Water
Pipe Corrosion Protection: FLEX POLY
Tank Spill and Overfill Protection: Auto Flow
Pipe Repaired: Not reported
Pipe Corrosion Protection: FLEX POLY
Corrosion Protection: X
Spill and Overflow: X
Release Detection: Yes
Tank Comments: Not reported

Facility ID: 66000247
Record Created By: Not reported
Record Created Date: Not reported
Record Modified By: SCHENK
Record Modified Date: 7/28/2010 4:32:22 PM
Site Assessment Date: Not reported
Site Assessment Leak: Not reported
Certificate of Compliance Final Test Date: 12/09/1998
Certificate of Compliance Test Company License: 000599
Certificate of Compliance Tester License: 000599
Certificate of Compliance Installation Date: 1998-12-09 00:00:00
Certificate of Compliance Install Company License: 001046
Certificate of Compliance Installer License: 001046

Tank ID: 5
Tank Status: Permanently Out of Service 09/17/2009
Install Date: 01/01/1986
Tank Contents: Empty, Diesel
Cerclis Name: Not reported
Tank Material: Steel
GIS Location: Not reported
Federal Flag: Not reported
Hazardous: Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Capacity in Gallons:	3000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Ground Water Monitoring, Ground Water Monitoring
Release Detection Install Date:	12/01/1998
Tank External Corrosion Protection:	Lined, CPS Flag, 1998-12-01 00:00:00
Tank Ext Corrosion Protection Install Date:	12/01/1998
Pipe Material:	NON CORRODABLE
Pipe Type:	Pressure
Pipe Release Detection:	Ground Water
Pipe Corrosion Protection:	FLEX POLY
Tank Spill and Overfill Protection:	Auto Flow
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	FLEX POLY
Corrosion Protection:	X
Spill and Overflow:	X
Release Detection:	Yes
Tank Comments:	Not reported

Facility ID:	66000247
Record Created By:	Not reported
Record Created Date:	Not reported
Record Modified By:	MARSH
Record Modified Date:	9/1/2000

Site Assessment Date:	Not reported
Site Assessment Leak:	Not reported
Certificate of Compliance Final Test Date:	Not reported
Certificate of Compliance Test Company License:	Not reported
Certificate of Compliance Tester License:	Not reported
Certificate of Compliance Installation Date:	Not reported
Certificate of Compliance Install Company License:	Not reported
Certificate of Compliance Installer License:	Not reported

Tank ID:	6
Tank Status:	**Permanently Out of Service 08/25/1999**
Install Date:	01/01/1979
Tank Contents:	Used Oil
Cerclis Name:	Not reported
Tank Material:	Steel
GIS Location:	Not reported
Federal Flag:	Not reported
Hazardous:	Not reported

Capacity in Gallons:	1000
Number of Compartments:	1
Decode for Tstatus:	Permanently Out of Use
Release Detection:	Unknown
Release Detection Install Date:	Not reported
Tank External Corrosion Protection:	Asphalt
Tank Ext Corrosion Protection Install Date:	Not reported
Pipe Material:	Galvanized Steel
Pipe Type:	Unknown
Pipe Release Detection:	Unknown
Pipe Corrosion Protection:	Unknown
Tank Spill and Overfill Protection:	Unknown
Pipe Repaired:	Not reported
Pipe Corrosion Protection:	Unknown
Corrosion Protection:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Spill and Overflow: Not reported
Release Detection: Not reported
Tank Comments: Not reported

AR Financial Assurance 3:
Name: KEN'S CAR CARE
Address: 712 FORT ST
City,State,Zip: BARLING, AR 72923
Region: 3
Facility Id: 66000247
Eligible Certification: Financial Assurance on file

PERMITS:
Name: KEN'S CAR CARE
Address: 712 FORT STREET
City,State,Zip: BARLING, AR 72923
Facility Type Desc: Standard
Alternate Facility Name: Not reported
Facility Status: Active
AFIN: 6601061
AFIN Status Date: Not reported
AFIN Status Desc: Active
Type Description: STD
Owner Name: THRIFT, ARLIN
Owner ID: 011055
Secondary Facility Address: Not reported
Facility Invoice Billing Month: Not reported
Facility Invoice Phone Number: Not reported
Facility Invoice Comments: Not reported
Facility Invoice Address: Not reported
Facility Invoice City,St,Zip: Not reported
Facility Invoice Country: Not reported
Facility Telephone: Not reported
Facility Fax: Not reported
Facility Email: Not reported
Mailing Address 1: Not reported
Mailing Country: Not reported
Other Identifier: Not reported
Primary SIC Code: Not reported
Secondary SIC Code: Not reported
Tertiary SIC Code: Not reported
Primary NAIC Code: Not reported
Secondary NAIC Code: Not reported
Tertiary NAICS Code: Not reported
GIS Original Coordinate System: Lat/Long
GIS Original Datum Code: WGS84
GIS Current Datum Code: NAD83
UTM Northing: 3910182.30
UTM Easting: 381455.16
UTM Zone: 15
Section/Township/Range: Not reported
GIS Date Measured: 07/16/2003
GIS Source Name: ADEQ-GPS (autonomous)
GIS Collector Staff Code: Beard, Randy
GIS Certifield Measurment: No
GPS Receiver Type Name: Garmin GPS III Plus

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

GPS Receiver Cannels:	12
GIS Base Station Name:	Not reported
GIS Base Station Distance:	Not reported
GIS Min Point Positions:	Not reported
GIS Pdop Mask:	Not reported
GIS Snr Mask:	Not reported
GIS Horizontal Accuracy:	Not reported
GIS Comment:	Converted from RST Inspection 05/15/2005
GIS Huc:	11110201
GIS Planning Segment:	3H
GIS Ark Sen Dist:	06
GIS Ark Rep Dist:	067
Created By:	Not reported
Record Created:	2005-05-15 00:00:00
Modified By:	Not reported
Modified Date:	2009-04-27 10:42:00
Primary SIC Desc:	Not reported
Secondary SIC Desc:	Not reported
Tertiary SIC Desc:	Not reported
Primary NAICS Desc:	Not reported
Secondary NAICS Desc:	Not reported
Tertiary NIACS Desc:	Not reported
Latitude Degree:	35
Latitude Minute:	19
Latitude Second:	40.30
Longitude Degree:	-94
Longitude Minute:	18
Longitude Second:	15.45
Latitude Decimal:	35.327862
Longitude Decimal:	-94.304291
Comments:	Not reported
Permit Number:	66000247
Permit Issued Date:	Not reported
Permit Modified Date:	Not reported
Permit Expiration Date:	Not reported
Permit Void Date:	Not reported
Permit Notice of Intent Date:	Not reported
SW Div Fac Open Closed Code:	Not reported
SW Div Fac Open Closed Desc:	Not reported
Permit Post Closure Date:	Not reported
Permit Media:	R
Permit Type:	Not reported
Permit Staff:	Not reported
Permit Status:	Not reported
Permit Status Date:	Not reported
Initial Payment Fee Inventory Number:	Not reported
Permit Fee Code:	Not reported
Permit Fee Volume:	Not reported
Permit Inventory Comment:	Not reported
Permit Inv Comment Prt:	N
Permit Inv Single Prt:	N
Permit Inv Single Lbl:	N
Permit Contact Name:	ARLIN THRIFT
Permit Contact Telephone:	4796298720
Permit Mail Address 1:	KEN'S CAR CARE
Permit Mail Address 2:	712 FORT ST
Permit Mail County Code:	66

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

KEN'S CAR CARE (Continued) **U001902414**

Permit Mail County Name:	Sebastian
Permit Mail City,St,Zip:	BARLING, AR 72923
Permit Contact Fax Number:	Not reported
Permit Contact Email Address:	Not reported
Permit GIS Original Coordinate System:	Lat/Long
Permit GIS Original Datum Code:	WGS84
Permit GIS Current Datum Code:	NAD83
Permit UTM Northing:	3910182.30
Permit UTM Easting:	381455.16
Permit UTM Zone:	15
Permit Section Township Range:	Not reported
Permit GIS Date Measured:	2003-07-16 00:00:00
Permit GIS Source Name:	ADEQ-GPS (autonomous)
Permit GIS Collector Staff Code:	Beard, Randy
Permit GIS Certified Measurment:	No
Permit GPS Receiver Type Name:	Garmin GPS III Plus
Permit GPS Receiver Cannels:	12
Permit GIS Base Station Name:	Not reported
Permit GIS Base Station Distance:	Not reported
Permit GIS Min Point Positions:	Not reported
Permit GIS PDOP Mask:	Not reported
Permit GIS SNR Mask:	Not reported
Permit GIS Hoizontal Accuracy:	Not reported
Permit GIS Comment:	Converted from RST Inspection 05/15/2005
Permit GIS Huc:	Not reported
Permit GIS Planning Segment:	Not reported
Permit GIS Ark Sen Dist:	Not reported
Permit GIS Ark Rep Dist:	Not reported
Permit Prior Permit Number:	Not reported
Permit Other Identifier:	Not reported
Permit Primary SIC Code:	Not reported
Permit Secondary SIC Code:	Not reported
Permit Record Created:	1987-06-22 00:00:00
Permit Media Description:	RST
Permit Type:	Not reported
Permit Status Description:	Not reported
Permit Fee Description:	Not reported
Permit Staff Name:	Not reported
Permit History:	Not reported
Permit Comment:	Not reported
Lat/Long (dms):	35 19 40.30 / -94 18 15.45

C17
NE
1/4-1/2
0.495 mi.
2615 ft.

UNKNOWN (CRAWFORD COUNTY)
2925 OLD MACEDONIA ROAD
ALMA, AR 72921

Site 1 of 3 in cluster C

SWID **S127000036**
N/A

Actual:
422 ft.

Focus Map:
5

SWID:

Name:	UNKNOWN (CRAWFORD COUNTY)
Address:	2925 OLD MACEDONIA ROAD
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	021049
PDS Compliant ID:	021049
Compliant PDF Filename:	021049-comp.pdf
AFIN:	17-00000

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

UNKNOWN (CRAWFORD COUNTY) (Continued) **S127000036**

Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	01/04/2017
Inspector:	Wallace, Alana
Valid:	Yes
Total Score:	Not reported
Date of 1st Letter:	01/09/2017
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	Letter sent
Comments:	Take exit 13 off I-40 E toward Alma. Turn right onto US-71 N. Continue onto AR-162 W/Southfork St. Turn right onto Fayetteville Ave. Fayetteville Ave. turns left and becomes E. Main St. Turn right onto AR-162 W/Henry St. Turn lefft onto Hamer Road. Turn left onto Airport Rd/Old Macedonia Road.

C18 **ROY BOWLES** **SWID** **S127000062**
NE **2925 OLD MACEDONIA ROAD** **N/A**
1/4-1/2 **ALMA, AR 72921**
0.495 mi.
2615 ft. **Site 2 of 3 in cluster C**

Actual: **422 ft.**

Focus Map: **5**

SWID:

Name:	ROY BOWLES
Address:	2925 OLD MACEDONIA ROAD
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	023073
PDS Compliant ID:	023073
Compliant PDF Filename:	023073-comp.pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	10/30/2017
Inspector:	Wallace, Alana
Valid:	Yes
Total Score:	Not reported
Date of 1st Letter:	11/08/2017
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	Letter sent
Comments:	Take exit 13 off I-40 E toward Alma. Turn right onto US-71 N. Continue

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

ROY BOWLES (Continued) **S127000062**

onto AR-162 W/Southfork St. Turn right onto Fayetteville Ave. Fayetteville Ave. turns left and becomes E. Main St. Turn right onto AR-162 W/Henry St. Turn left onto Hamer Road. Turn left onto Airport Rd/Old Macedonia Rd.

Name:	ROY BOWLES
Address:	2925 OLD MACEDONIA ROAD
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	023073
PDS Compliant ID:	023073
Compliant PDF Filename:	023073-comp (Follow-up 8.17.2020).pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	10/30/2017
Inspector:	Wallace, Alana
Valid:	Yes
Total Score:	Not reported
Date of 1st Letter:	11/08/2017
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	Letter sent
Comments:	Take exit 13 off I-40 E toward Alma. Turn right onto US-71 N. Continue onto AR-162 W/Southfork St. Turn right onto Fayetteville Ave. Fayetteville Ave. turns left and becomes E. Main St. Turn right onto AR-162 W/Henry St. Turn left onto Hamer Road. Turn left onto Airport Rd/Old Macedonia Rd.

Name:	ROY BOWLES
Address:	2925 OLD MACEDONIA ROAD
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	023073
PDS Compliant ID:	023073
Compliant PDF Filename:	023073-Follow-up 1.6.2020.pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	10/30/2017
Inspector:	Wallace, Alana
Valid:	Yes
Total Score:	Not reported
Date of 1st Letter:	11/08/2017
Date of 2nd Letter:	Not reported

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

ROY BOWLES (Continued) **S127000062**

Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	Letter sent
Comments:	Take exit 13 off I-40 E toward Alma. Turn right onto US-71 N. Continue onto AR-162 W/Southfork St. Turn right onto Fayetteville Ave. Fayetteville Ave. turns left and becomes E. Main St. Turn right onto AR-162 W/Henry St. Turn left onto Hamer Road. Turn left onto Airport Rd/Old Macedonia Rd.

C19 **ROY BOWLES** **SWID** **S127000109**
NE **2925 OLD MACEDONIA ROAD** **N/A**
1/4-1/2 **ALMA, AR 72921**
0.495 mi.
2615 ft. **Site 3 of 3 in cluster C**

Actual:
422 ft.

Focus Map:
5

SWID:

Name:	ROY BOWLES
Address:	2925 OLD MACEDONIA ROAD
City,State,Zip:	ALMA, AR 72921
Compliant Web Ready Code:	False
Compliant NBR Formatted:	024911
PDS Compliant ID:	024911
Compliant PDF Filename:	024911-comp.pdf
AFIN:	17-00000
Compliant Name:	ANONYMOUS
Complaint Address:	Not reported
Complaint Address 2:	Not reported
Complaint City:	Not reported
Complaint State:	Not reported
Complaint Zip:	Not reported
Date Received:	01/14/2019
Inspector:	Goheen, Mason
Valid:	Yes
Total Score:	Not reported
Date of 1st Letter:	Not reported
Date of 2nd Letter:	Not reported
Date of 3rd Letter:	Not reported
Site Visit:	1
Complaint Waste Size:	Not reported
Complaint Waste Contents:	Not reported
Complaint Site Assessment:	Not reported
Complaint Site Disposition Description:	Valid
Comments:	Take exit 13 off I-40 toward Alma. Turn right onto US-71 N. Continue onto AR-162 W/Southfork St. Turn right onto Fayetteville Ave. Fayetteville Ave. turns left an dbecomes E. Main St. Turn right onto AR-162 W/Henry St. Turn left onto Hamer Road. Turn left onto Airport Rd./Old Macedonia Road.

Count: 158 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
2 MI. WEST OF ALMA	S105214507		2 MI. WEST OF ALMA ON MAIN ST.	72921	SPILLS
ALMA	2011991735		7521 ALMA HWY	72921	ERNS
ALMA	93196284		JUNCTION OF US-71 AND		ERNS
ALMA	2002600518		6918 ALMA HWY (ST HWY 64)		ERNS
ALMA	S126999832	VAN-ALMA SANITATION	6741 ALMA HWY. (HWY. 64)	72921	SWID
ALMA	S126999845	VAN-ALMA SANITATION	6741 ALMA HWY. (HWY. 64)	72921	SWID
ALMA	S118941880	A J PLUMBING	7530 ALMA HWY.		SWID
ALMA	U001900555	BALLENTINE PRODUCE INC.	HIGHWAY 64-71, BOX 454	72921	UST
ALMA	S111118626		119 COLLUM UNIT 32	72921	CDL
ALMA	2007434150	I-40 EXIT 20	I-40 EXIT 20		HMIRS
ALMA	S107695117		CLEAR CREEK ROAD		SPILLS
ALMA	S105216280		7.5 MI. MARKER, I-40 NEAR ALMA WEIGHT ST		SPILLS
ALMA	S124504917	UNKNOWN (CRAWFORD COUNTY)	COLLUM LANE & 64		SPILLS
ALMA	S109980426		I-40 EB 13 MM		SPILLS
ALMA	S106631827		ALMA TRUCK STOP		SPILLS
ALMA	S106633533		I-540 JUNCTION WITH I-40		SPILLS
ALMA	S118941078	ALMA WATER/SEWER/STREET DEPT.	COLLUM LANE		SPILLS
ALMA	S108117683		I-40 & 540 SPLIT		SPILLS
ALMA	S116412975	UNKNOWN (CRAWFORD COUNTY)	I-40 EB 13 MM		SPILLS
ALMA	S116237578	UNKNOWN (CRAWFORD COUNTY)	I-40, MILE MARKER 14WB		SPILLS
ALMA	S116412998	UNKNOWN (CRAWFORD COUNTY)	NEAR 5225 PEACH DRIVE, ALMA		SPILLS
ALMA	S119778046	UNKNOWN (CRAWFORD COUNTY)	I-40 @ MM 14		SPILLS
ALMA	S117719191	UNKNOWN (CRAWFORD COUNTY)	I-40 MM 12		SPILLS
ALMA	S111287590	UNKNOWN (CRAWFORD COUNTY)	6800 BLOCK, HWY 64 WEST, ALMA		SPILLS
ALMA	1000105876	M S C INC	HWY71 N 3MI N OF ALMA	72921	RCRA NonGen / NLR
ALMA	1017384913	ALLEN CANNING COMPANY	FAYETTEVILLE & ELM STRETS	72921	ICIS, FINDS, ECHO
ALMA	1012069613	CROSS TIMBERS-LAISTER 2, 8 & 9 COMPRESS	CLEAR CREEK RD TO YOESTOWN RD	72921	FINDS, ECHO
ALMA	1009571062	ARKLA - LINDSEY HATCHETT	0.5 M SE OF KIBLER	72921	FINDS
ALMA	1016782668	ENABLE MIDSTREAM/ALMA COMPRESS	6.5M SE OF ALMA ON YOESTOWN RD	72921	FINDS
ALMA	1009592893	PHILLIPS 66 COMPANY #023622	US 71 & I-40	72921	FINDS
ALMA	1009585816	ALMA SELF-SERVE	HWY 64 & RUDY ROAD	72921	FINDS
ALMA	1010704855	MSC, INC	3 MI N OF ALMA ON HWY 71	72921	FINDS
ALMA	S106412691	ARKLA - LINDSEY HATCHETT	0.5 M SE OF KIBLER		AIRS, PERMITS
ALMA	S106412692	ARKLA - MCCARTY	1.5 SE OF ALMA		AIRS, PERMITS
ALMA	S107262072	ALMA SELF-SERVE	HWY 64 & RUDY ROAD	72921	PERMITS
ALMA	S108989686	EXXON #50442	I-40 & US HWY 71	72921	PERMITS
ALMA	S108990179	MSC, INC	3 MI N OF ALMA ON HWY 71	72921	PERMITS
BARLING	S123691770	UNITED STATES DPDO FORT CHAFEE	BLDG 2033 1ST AVE	72923	MANIFEST
BARLING	1010783578	ARI TECHNOLOGIES, INC FORT CHAFFEE AR	BLDG 2033 1ST AVE	72923	RCRA-VSQG
BARLING	98464042		LOCK AND DAM 13 /		ERNS
BARLING	U004127210	SPEEDY MART MOVIELAND	RE:660017441804 FORT ST	72923	UST
BARLING	S110825323		FORT CHAFFEE SITE 13	72923	ASBESTOS
BARLING	S107767734		FORT SMITH BLVD.	72923	ASBESTOS

Count: 158 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BARLING	S112205779		FORT CHAFFEE	72923	ASBESTOS
BARLING	S114002656		FORT CHAFFEE	72923	ASBESTOS
BARLING	S125406768		BUILDING 1370 FORT SMITH BLVD	72905	ASBESTOS
BARLING	S125715183		BUILDING 1370 FORT SMITH BLVD	72905	ASBESTOS
BARLING	S125715292		BUILDING 1370 FORT SMITH BOULEVARD	72905	ASBESTOS
BARLING	S125715166		BUILDING 1370 FORT SMITH BLVD	72905	ASBESTOS
BARLING	S116381203		FORT CHAFFEE		ASBESTOS
CRAWFORD COUNTY	S118255256	CARL'S TIRE SHOP	HWY. 71 NORTH OF ALMA		SWID
CRAWFORD COUNTY	S106630824		LINE #B-107, NEAR KIBLER, CRAWFORD CO.		SPILLS
CRAWFORD COUNTY	S106632098		SEC10-15,T9N,R30W;KIBLER-WILLIAMS FIELD		SPILLS
CRAWFORD COUNTY	S105217243		1 MI. MARKER, I-40		SPILLS
CRAWFORD COUNTY	S105217399		7.5 MI. MARKER, I-40		SPILLS
CRAWFORD COUNTY	S105215088		21 MI. N. OF ALMA ON U.S. HWY. 71		SPILLS
CRAWFORD COUNTY	S106631782		U.S. HWY. 71, 19 MI. N. OF I-40		SPILLS
CRAWFORD COUNTY	S106772266		MI. MARKER 6.5, I-40		SPILLS
CRAWFORD COUNTY	M300003024	APAC, INC.	ARKHOLA DREDGE & PLANT		US MINES
FORT CHAFEE	S123276670		FORT CHAFEE	72905	ASBESTOS
FORT CHAFEE	S123276669		FORT CHAFEE	72905	ASBESTOS
FORT CHAFFEE	S100996628	BUILDING #145	FORT CHAFFEE	72905	LTANKS
FORT CHAFFEE	S109979667		FORT CHAFFEE		SPILLS
FORT CHAFFEE	S116412206	FORT CHAFFEE	FORT CHAFFEE		SPILLS
FORT CHAFFEE	1026268875	FCMTC WATERWORKS-FCMTC WTP #2	CMTC BLDG 1370 FORT SMITH BLVD	72905	FINDS
FORT CHAFFEE	1012074519	CROSS TIMBERS-MO IMP #I-28,CENTRAL POINT	GATE #9 ON FORT CHAFFEE;TURN S	72905	FINDS, ECHO
FORT CHAFFEE	S110297690		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S110825284		B1389 FORT SMITH	72905	ASBESTOS
FORT CHAFFEE	S123044129		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025147		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025148		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025149		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025177		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025178		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S119025229		FORT CHAFFEE	72905	ASBESTOS
FORT CHAFFEE	S118941294		FORT CHAFFEE	72905	ASBESTOS
FORT SMITH	1010312406	R2 CONSTRUCTION SALVAGE SITE-RON WEBSTER	12508 FORT SMITH BLVD.	72923	RCRA-VSQG
FORT SMITH	S125690421	US ARMY CORPS ENG-TRIMBLE LOCK	BARLING LOCK AND DAM		SPILLS
FORT SMITH	S106630752		FORT CHAFFEE	72905	SPILLS, ASBESTOS
FORT SMITH	S116692704	FORT SMITH AIRPORT	FORT SMITH ANG AIRPORT		SPILLS
FORT SMITH	S107767732		FORT CHAFFEE - BLDG. 1495	72923	ASBESTOS
FORT SMITH	S110297691		FORT CHAFFEE MANEUVER TRAINING CENTER	72905	ASBESTOS
FORT SMITH	S118255033		FORT CHAFFEE MANEUVER TRAINING CENTER	72905	ASBESTOS
FORT SMITH	S118255034		FORT CHAFFEE TRAINING CENTER	72905	ASBESTOS
FORT SMITH	S118466299		FORT CHAFFEE MANEUVER TRAINING CENTER	72905	ASBESTOS
FORT SMITH	S123044220		FORT CHAFFEE	72905	ASBESTOS
FORT SMITH	S123044221		FORT CHAFFEE	72905	ASBESTOS
FORT SMITH	S122220935		FORT CHAFFEE	72905	ASBESTOS
FORT SMITH	S122220936		FORT CHAFFEE	72905	ASBESTOS
FORT SMITH	S117279685		FORT CHAFFEE-4TH AVENUE	72905	ASBESTOS

Count: 158 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
FORT SMITH	S117279724		FORT CHAFFEE JMTC	72905	ASBESTOS
FORT SMITH	S110476579		FORT SMITH MUNICIPAL AIRPORT		ASBESTOS
FORT SMITH	S110476815		FORT CHAFFEE		ASBESTOS
FORT SMITH	S116237391	FORT CHAFFEE MANEUVER TRAINING	CTR (FCJMTC BULK FUEL SITE)BLDG 7050 FORT SMITH BLVD	72905	Financial Assurance
FORT SMITH	S116237392	FORT CHAFFEE MANEUVER TRAINING	CTR (FCJMTC RETAIL FUEL SITE)BLDG 7040 FORT SMITH BLVD	72905	Financial Assurance
FORT SMITH	S106418471	UNITED STATES DEPT.OF ARMY	5 MI SE OF FORT SMITH		PERMITS
FT. CHAFFEE	S101152536	FT. CHAFFEE BLDG. #2350	COMMANDER USAG, FT. CHAFFEE	72905	LTANKS
KIBLER	1015739227	STEPHENS PRODUCTION COMPANY - KIBLER WILLIAMS SHALLOW	THORNHILL ROAD	72921	US AIRS, FINDS, ECHO
KIBLER	1009573041	EL RIO SAND,SHALE & GRAVEL CO	APP. 2.5 MILES E OF KIBLER	72956	FINDS
KIBLER	1026062039	KIBLER TANK 3	3.25 MI SE OF KIBLER ON CROSSLANES RD, 0.1 MI S	72921	FINDS
VAN BURAN	S118941372		6136, 6315, 6406 ARKHOLA ROAD & 2541 CHICKPEE	72956	ASBESTOS
VAN BUREN	2008876909		#5 MAIN ST.	72956	ERNS
VAN BUREN	95302693		END OF MAIN ST & VAN		ERNS
VAN BUREN	98455740		MAIN ST		ERNS
VAN BUREN	2018205250		2720 ALMA HWY	72956	ERNS
VAN BUREN	97382675		I-40 WEST, NEAR THE		ERNS
VAN BUREN	S110828558	RYAN ROWLS	FIELD BEHIND 4766 KIBLER RD.		SWID
VAN BUREN	1009580600	MID CONTINENT TRUCK STOP	I-40 HWY 59 P. O. BOX 648	72956	UST, FINDS
VAN BUREN	U001900585	BELL'S FINA STATION	ALMA HIGHWAY	72956	UST, PERMITS
VAN BUREN	1025442230	DOWNTOWN ART BUILDINGS	415 & 417 MAIN STREET	72956	US BROWNFIELDS
VAN BUREN	9998101192		MAIN AT RAIL ROAD		HMIRS
VAN BUREN	94121012		I-40 MM 25		HMIRS
VAN BUREN	2001031354		I-40 EAST		HMIRS
VAN BUREN	S123480810	UNION PACIFIC RAILROAD	KIBLER AND N 30TH		SPILLS
VAN BUREN	S106633349		NUMBER 5 MAIN ST.	72956	SPILLS
VAN BUREN	S105215979		7 MI. E. OF VAN BUREN TO E. MAIN ST.		SPILLS
VAN BUREN	S106633192		MAIN STREET		SPILLS
VAN BUREN	S110995079		MAIN ST & 2ND AVE.		SPILLS
VAN BUREN	S117396994	UNION PACIFIC RAILROAD	MAIN AND SECOND		SPILLS
VAN BUREN	S116412994	UNKNOWN (CRAWFORD COUNTY)	MAIN ST & 2ND AVE.		SPILLS
VAN BUREN	S126309419	APAC CENTRAL, INC/PRESTON	HWY 60 AND ARKHOLA ROAD		SPILLS
VAN BUREN	S110123263		I-40, MILE 3 ENTRY RAMP		SPILLS
VAN BUREN	S109980502		I-540 & I-40		SPILLS
VAN BUREN	S118941076	UNKNOWN (CRAWFORD COUNTY)	I-40 EB EXIT 7		SPILLS
VAN BUREN	S116412981	UNKNOWN (CRAWFORD COUNTY)	I-40, MILE 8 (AHTD WEIGH STA)		SPILLS
VAN BUREN	S106632066		I-540 AND I-40 INTERSECTION		SPILLS
VAN BUREN	S106633582		MI. MARKER 3, I-40		SPILLS
VAN BUREN	S110995038		I-40 MM 8		SPILLS
VAN BUREN	S106772313		OFF-RAMP AT I-540 TO I-40		SPILLS
VAN BUREN	S127321073	UNKNOWN (CRAWFORD COUNTY)	I-40 MM12		SPILLS
VAN BUREN	S116237574	MJC TRUCKING	I-40 WESTBOUND 2 MM		SPILLS
VAN BUREN	S116412977	UNKNOWN (CRAWFORD COUNTY)	I-40 MM 8		SPILLS
VAN BUREN	S116412980	UNKNOWN (CRAWFORD COUNTY)	I-40, MILE 3 ENTRY RAMP		SPILLS
VAN BUREN	S116412978	UNKNOWN (CRAWFORD COUNTY)	I-40 WESTBOUND 2 MM		SPILLS
VAN BUREN	S116412974	UNKNOWN (CRAWFORD COUNTY)	I-40 & LEE CREEK ROAD		SPILLS
VAN BUREN	S117232477	UNKNOWN (CRAWFORD COUNTY)	I-40 RIVER BRIDGE		SPILLS

Count: 158 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
VAN BUREN	S118941077	UNKNOWN (CRAWFORD COUNTY)	WESTBOUND I-40 AT MILE 7		SPILLS
VAN BUREN	S116412987	UNKNOWN (CRAWFORD COUNTY)	I-540 & I-40		SPILLS
VAN BUREN	S121318170	UNKNOWN (CRAWFORD COUNTY)	5400 BLOCK ALMA BLVD		SPILLS
VAN BUREN	1014625868	VAN BUREN, AR SUBSTATION 72946	1/2 MILES EAST OF AND 1 MILE NORTH OF I-40		PCB TRANSFORMER
VAN BUREN	1024235552	MERIT ENERGY COMPANY, LLC - MAJOR HENRY 1-24	MAJOR HENRY ROAD	72956	FINDS
VAN BUREN	1024598142	DOWNTOWN ART BUILDINGS	415 & 417 MAIN STREET	72956	FINDS
VAN BUREN	1024049012	LEGACY VALLEY 5	I-40, .9M N ON HWY 59, THEN .8	72956	FINDS
VAN BUREN	1009583941	BELL S FINA STATION	ALMA HIGHWAY	72956	FINDS
VAN BUREN	1009582164	MARCHBANKS	ALMA HWY 64	72956	FINDS
VAN BUREN	1024606957	ARDOT JOB# BB0401	HWAD NE ON I-40 FOR APPROX 17M	72956	FINDS
VAN BUREN	1016264101	AHTD-I540 & I40 BRDG 3452	I-540 & I-40	72956	FINDS, ECHO
VAN BUREN	1026113976	MERIT ENERGY COMPANY, LLC - MAJOR HENRY 1-24	MAJOR HENRY ROAD	72956	ECHO
VAN BUREN	1022934076	NORTHRIDGE SUBDIVISION	I-40 & HWY 59 N TO RENA RD	72956	ECHO
VAN BUREN	S118731408		6125, 6143, 6221, ARKHOLA ROAD & 5227 HIGHWAY 60	72956	ASBESTOS
VAN BUREN	S119025127		6104, 6126, 6136, 6204,6315, AND 6406 ARKHOLA RD	72956	ASBESTOS
VAN BUREN	S107767006		2915 I-40	72956	ASBESTOS
VAN BUREN	S127320989	HYDROAG ENVIRONMENTAL LLC	FROM PARKS RD T/R ON WESTVILLE	72956	PERMITS
VAN BUREN	S123190076	ARDOT JOB# BB0401	HWAD NE ON I-40 FOR APPROX 17M	72956	PERMITS
VAN BUREN, TOWNSHIP C	1024228826	MERIT ENERGY COMPANY, LLC - STRATTON A 1-28	OFF KIBLER ROAD	72956	FINDS
VAN BUREN, TOWNSHIP C	1025811026	JOB BB0401, OKLAHOMA STATE LINE-EAST(I-40 & I-540)(SEL. SECS.)(S)	HEAD NORTHEAST ON I-40 FOR APPROXIMATELY 17 MILES	72956	FINDS
VAN BUREN, TOWNSHIP C	1026113974	MERIT ENERGY COMPANY, LLC - STRATTON A 1-28	OFF KIBLER ROAD	72956	ECHO
VAN BUREN, TOWNSHIP C	1025471512	JOB BB0401, OKLAHOMA STATE LINE-EAST(I-40 & I-540)(SEL. SECS.)(S)	HEAD NORTHEAST ON I-40 FOR APPROXIMATELY 17 MILES	72956	ECHO

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: N/A
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: N/A
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: N/A
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/30/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/09/2021
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 39

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/05/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 02/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 02/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/15/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 7

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

SHWS: Hazardous Substance Remedial Action Trust Fund Priority List

A partial prioritized listing of sites at which remedial actions and/or investigations shall be provided by the Hazardous Substance Remedial Action Trust Fund.

Date of Government Version: 03/08/2021
Date Data Arrived at EDR: 03/09/2021
Date Made Active in Reports: 05/26/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0850
Last EDR Contact: 06/03/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Permit Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/01/2021
Date Data Arrived at EDR: 02/02/2021
Date Made Active in Reports: 04/20/2021
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 501-682-0597
Last EDR Contact: 04/30/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Quarterly

SWID: Solid Waste Illegal Dumps Database

A listing of illegal solid waste dumps.

Date of Government Version: 01/31/2021
Date Data Arrived at EDR: 02/02/2021
Date Made Active in Reports: 04/20/2021
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 501-682-0600
Last EDR Contact: 04/30/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LTANKS: Leaking Underground Storage Tank Data

A listing of leaking underground and aboveground storage tank locations.

Date of Government Version: 03/15/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/02/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0984
Last EDR Contact: 06/10/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 12/22/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 80

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 12/18/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 84

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/07/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/29/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 33

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/05/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Varies

UST: Underground Storage Tank Data
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/15/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/02/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0984
Last EDR Contact: 06/10/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Quarterly

AST: Aboveground Tank Database
Aboveground storage tank locations.

Date of Government Version: 03/15/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/02/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0984
Last EDR Contact: 06/10/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 12/18/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 84

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 12/22/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 80

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/07/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Sites Listing
A listing of sites with engineering controls in place.

Date of Government Version: 02/07/2021
Date Data Arrived at EDR: 02/09/2021
Date Made Active in Reports: 05/03/2021
Number of Days to Update: 83

Source: Department of Environmental Quality
Telephone: 501-682-0867
Last EDR Contact: 05/07/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

INST CONTROL: Institutional Control/Land Use Restriction Sites
Sites that have institutional controls and/or land use restrictions in place.

Date of Government Version: 02/07/2021
Date Data Arrived at EDR: 02/09/2021
Date Made Active in Reports: 05/03/2021
Number of Days to Update: 83

Source: Department of Environmental Quality
Telephone: 501-682-0867
Last EDR Contact: 05/07/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Sites
A listing of Voluntary Cleanup Program projects.

Date of Government Version: 02/12/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 05/07/2021
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 501-682-0867
Last EDR Contact: 05/10/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/22/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Projects
Projects that the Department of Environmental Quality has received Brownfields applications for.

Date of Government Version: 02/07/2021
Date Data Arrived at EDR: 02/09/2021
Date Made Active in Reports: 05/03/2021
Number of Days to Update: 83

Source: Department of Environmental Quality
Telephone: 501-682-0867
Last EDR Contact: 05/07/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/15/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/10/2021
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/10/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Directory

A listing of recycling facilities.

Date of Government Version: 02/01/2021
Date Data Arrived at EDR: 02/02/2021
Date Made Active in Reports: 04/20/2021
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 501-682-0865
Last EDR Contact: 04/30/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Semi-Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/22/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/14/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/29/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 83
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/22/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: No Update Planned

CDL: Methamphetamine Contaminated Properties Listing
A listing of properties believed to be contaminated by the illegal manufacture of drugs.

Date of Government Version: 01/19/2021
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 76
Source: Department of Environmental Quality
Telephone: 501-683-1552
Last EDR Contact: 04/20/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 83
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Quarterly

PFAS: Per- and Polyfluoroalkyl Substances
A listing of PFAS contaminated sites. PFAS is a class of chemicals that includes PFOA (perfluorooctanoic acid), PFOS (perfluorooctanesulfonic acid), PFNA (perfluorononanoic acid) and PFHxA (perfluorohexanoic acid). PFOA and PFOS, are the most commonly found and potent PFASs at contamination sites.

Date of Government Version: 09/10/2020
Date Data Arrived at EDR: 09/15/2020
Date Made Active in Reports: 12/07/2020
Number of Days to Update: 83
Source: Department of Environmental Quality
Telephone: 501-683-6977
Last EDR Contact: 06/10/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Varies

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/16/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 85

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/24/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

SPILLS: Emergency Response Incidents
Spills and releases notified to the Department of Environmental Quality

Date of Government Version: 04/04/2021
Date Data Arrived at EDR: 04/06/2021
Date Made Active in Reports: 05/26/2021
Number of Days to Update: 50

Source: Department of Environmental Quality
Telephone: 501-682-0716
Last EDR Contact: 04/06/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/08/2011
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch
Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 214-665-6444
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 04/05/2021
Number of Days to Update: 47

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/16/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/05/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/30/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/07/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/17/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/20/2021
Date Data Arrived at EDR: 01/21/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 60

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/20/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 01/22/2021
Date Data Arrived at EDR: 02/18/2021
Date Made Active in Reports: 05/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/19/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 03/05/2021
Number of Days to Update: 50

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/19/2020
Date Data Arrived at EDR: 01/08/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 73

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/09/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/31/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/08/2021
Date Data Arrived at EDR: 03/11/2021
Date Made Active in Reports: 05/11/2021
Number of Days to Update: 61
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/16/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 70
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 05/27/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 05/27/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/07/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/25/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/27/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/13/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 68

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 151

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Biennially

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/06/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/28/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/21/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/27/2021
Date Data Arrived at EDR: 05/03/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 16

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 05/27/2021
Date Data Arrived at EDR: 05/27/2021
Date Made Active in Reports: 06/10/2021
Number of Days to Update: 14

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 05/26/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Quarterly

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/01/2021
Date Data Arrived at EDR: 02/24/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/25/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing
Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/11/2020
Date Data Arrived at EDR: 12/11/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 81
Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/02/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/03/2021
Date Data Arrived at EDR: 03/03/2021
Date Made Active in Reports: 04/05/2021
Number of Days to Update: 33
Source: EPA
Telephone: (214) 665-2200
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/13/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/02/2021
Date Data Arrived at EDR: 01/08/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 73
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/06/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/17/2020
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/21/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 33
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/14/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Quarterly

AIRS: Permitted Facility Emission & Stack Data

Permitted facility emissions and stack data for the state.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/22/2021
Date Data Arrived at EDR: 03/23/2021
Date Made Active in Reports: 06/10/2021
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 501-682-0726
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

ASBESTOS: Asbestos Notification of Intent Database

The database contains all properties/facilities that have submitted a Notice of Intent for renovation or demolition activities.

Date of Government Version: 01/19/2021
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 76

Source: Department of Environmental Quality
Telephone: 501-682-0717
Last EDR Contact: 04/20/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Quarterly

COAL ASH: Coal Ash Disposal Site Listing

A listing of coal ash disposal site locations.

Date of Government Version: 04/23/2020
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/16/2020
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0600
Last EDR Contact: 04/27/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

ENFORCEMENT: Consent Administrative Order, Notice of Violation Information Database

Violations issued to facilities in various Department of Environmental Quality programs, including Air, Hazardous Waste, Storage Tanks, Solid Waste and Water.

Date of Government Version: 01/20/2021
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0892
Last EDR Contact: 04/20/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 09/16/2019
Date Data Arrived at EDR: 09/18/2019
Date Made Active in Reports: 11/19/2019
Number of Days to Update: 62

Source: Department of Environmental Quality
Telephone: 501-682-0876
Last EDR Contact: 06/08/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/18/2014
Date Made Active in Reports: 05/13/2014
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 501-682-0589
Last EDR Contact: 03/31/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Quarterly

Financial Assurance 3: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities.

Date of Government Version: 03/15/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/02/2021
Number of Days to Update: 78

Source: Department of Environmental Quality
Telephone: 501-682-0979
Last EDR Contact: 06/09/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PERMITS: Permit Data System
A list of sites permitted by the Department of Environmental Quality, including Air, Mining, Solid Waste and Water.

Date of Government Version: 03/08/2021
Date Data Arrived at EDR: 03/09/2021
Date Made Active in Reports: 05/26/2021
Number of Days to Update: 78
Source: Department of Environmental Quality
Telephone: 501-682-0673
Last EDR Contact: 06/03/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Quarterly

SLUDGE: Poultry Sludge Permit Sites
Broiler fryer roast chickens, chicken eggs, poultry hatcheries, poultry and egg processing sites.

Date of Government Version: 03/08/2021
Date Data Arrived at EDR: 03/09/2021
Date Made Active in Reports: 05/26/2021
Number of Days to Update: 78
Source: Department of Environmental Quality
Telephone: 501-682-0673
Last EDR Contact: 06/03/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Quarterly

TIER 2: Tier 2 Information Listing
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 09/24/2014
Date Made Active in Reports: 10/29/2014
Number of Days to Update: 35
Source: Department of Environmental Management
Telephone: 501-683-6700
Last EDR Contact: 05/05/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Varies

UIC: Underground Injection Wells Database Listing
A listing of wells identified as Underground Injection Wells, in the Arkansas Oil and Gas Wells data base.

Date of Government Version: 12/29/2020
Date Data Arrived at EDR: 01/12/2021
Date Made Active in Reports: 03/24/2021
Number of Days to Update: 71
Source: Arkansas Oil & Gas Commission
Telephone: 870-862-4965
Last EDR Contact: 04/13/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/31/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29
Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/31/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3
Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/27/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/31/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Arkansas.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 185

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Arkansas.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 199

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Arkansas.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 187

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 10/05/2020
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 05/10/2021
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/11/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/30/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/09/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 02/24/2021
Number of Days to Update: 13

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/13/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/03/2021
Next Scheduled EDR Contact: 09/20/2021
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: US Fish & Wildlife Service
Telephone: 703-358-2171

STREET AND ADDRESS INFORMATION

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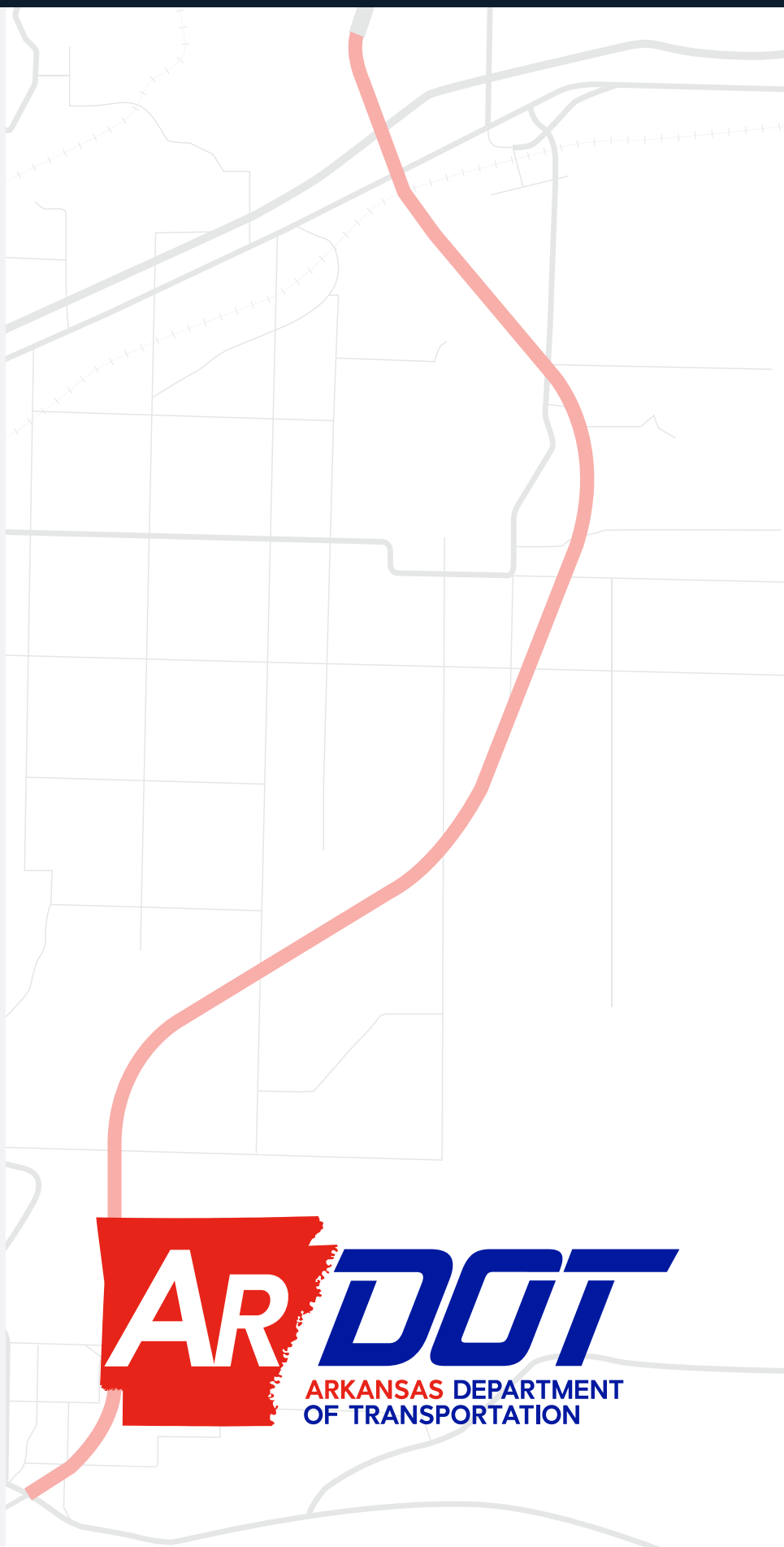
APPENDIX I

Biological Assessment



I-49 Biological Assessment

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

January 2023
Job 001747

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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DEFINITIONS

Action Area: All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action [50 CFR 402-02].

Diapause: A period of suspended development in an insect, other invertebrate, or mammal embryo, especially during unfavorable environmental conditions.

Direct Effects: Direct or immediate effects of the project on the species or its habitat. Direct effects include those resulting from interdependent or interrelated actions.

Disturb: To "agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (according to the Bald and Golden Eagle Protection Act (BGEPA)).

ESA Section 4(d) Rule: A "4(d) Rule" is one of many tools in the Endangered Species Act (ESA) for protecting threatened species. This rule gets its name from section 4(d) of the ESA, which directs the Secretary of Interior (and therefore the U.S. Fish and Wildlife Service) to issue regulations deemed "necessary and advisable to provide for the conservation of" threatened species (Source: fws.gov).

Incidental Take: Takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.

Indirect Effects: Those effects that are caused by or will result from the proposed action and are later in time, but still reasonably certain to occur.

NEPA Environmental Study Footprint (Footprint): Area of proposed project action that includes temporary and permanent impacts to existing habitat.

Take: To “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (according to the BGEPA).

1.0 OVERVIEW AND PROJECT DESCRIPTION

1.1 Introduction

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 14 miles. The project location is depicted in **Figure 1-1** below.

Figure 1-1: Project Location Map

Source: Project Team, 2022

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 corridor extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed (**Figure 1-2**). From Highway 71 to Highway 22 and north of Interstate 40, the corridor currently consists of a median-separated highway with two main lanes in each direction and no frontage roads. North of I-40 the existing roadway includes two southbound lane and two northbound lanes.

Figure 1-2: Overview Map

Source: Project Team, 2022

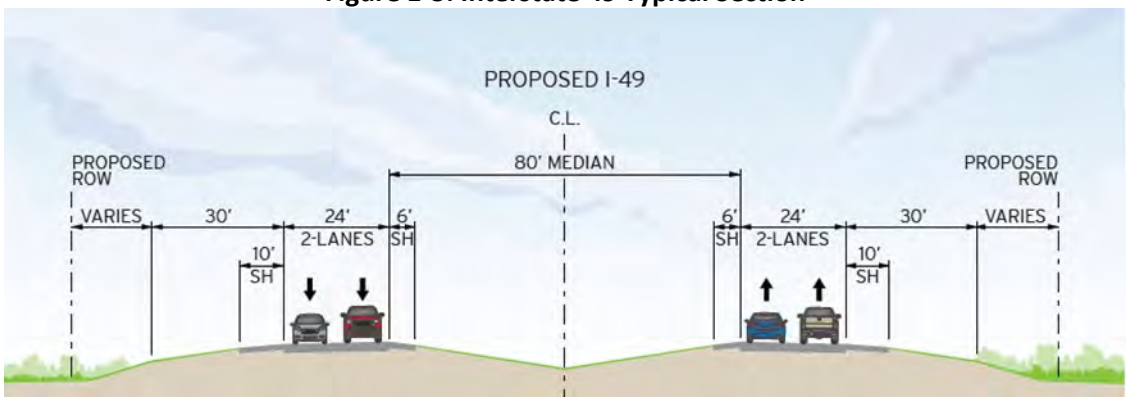
1.2 Existing Facility

The proposed project consists of a new location highway in a predominantly rural area. Existing roadways in the study area are rural farm-to-market roadways and neighborhood streets, aside from the two termini, Highway 22 and Interstate 40.

1.3 Proposed Facility

The proposed project would generally follow the selected alignment from the 1997 FEIS. The proposed typical section would consist of four 12-foot-wide travel lanes (two in each direction), an approximately 80-foot wide median between the inside edges of travel lanes, and 6-foot wide inside and 10-foot wide outside shoulders, as shown in **Figure 1-3**. The average right of way width is 300 feet, except at interchanges, where the right of way width would be greater. The majority of the right of way through Fort Chaffee area was previously deeded to the Arkansas Highway Commission from the United States Department of the Army.

Figure 1-3: Interstate 49 Typical Section



Source: Project Team, 2022

Interchanges are proposed with slip/loop ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade-separated intersections without ramps to maintain local access are proposed for Thornhill Street, Highway 162 (Henry Street), the Union Pacific Railroad (UPRR), Westville Road, Waterfront Road, and Highway 64. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements were extended west to Highway 162 to allow for increased access and mobility to Highway 162. **Exhibit 1** in **Appendix A** is a United States Geological Survey (USGS) topographic map showing the project location. **Exhibit 2** in **Appendix A** is an aerial image showing the project location.

The entire footprint of the project is approximately 1,546 acres which includes permanent and temporary impacts. Geotechnical soil borings to assist in final highway design are to begin early-fall 2022. Construction will be phased over several years with some initial roadway clearing beginning Fall 2022, and final phases of construction to begin Spring 2026. Additional details

regarding the scheduled phases of the roadway construction can be found in the Preliminary Project Schedule (**Appendix A, Exhibit 3**).

Under the No Build Alternative, the improvements outlined above would not be constructed.

2.0 PROJECT HABITAT

The project is located within the USGS Alma, Barling, and Van Buren, Arkansas, 7.5-minute topographic quadrangle maps, and the project's footprint (both temporary and permanent impacts) totals 1,546 acres. The project is located within the USGS HUC 8 hydrological unit code (HUC) 1110104 (Robert S. Kerr Reservoir) of the Lower Arkansas River (HUC 1111). The most prominent ecological feature in the vicinity of the project is the Arkansas River, its associated forested floodplains, and smaller tributaries, including Frog Bayou.

The project site is in the Level IV ecoregions Arkansas River Floodplain (37b), Arkansas Valley Hills (37c), and Arkansas Valley Plains (37d) of the Level III ecoregion Arkansas Valley (37). These ecoregions are described as following by Woods et.al. 2004:

> *"Ecoregion 37 is a synclinal and alluvial valley lying between the Ozark Highlands (39) and the Ouachita Mountains (36). The Arkansas Valley (37) is, characteristically, diverse and transitional. It generally coincides with the Arkoma Basin, an oil and gas province, that developed as sand and mud were deposited in a depression north of the rising Ouachita Mountains during the Mississippian and Pennsylvanian eras. The Arkansas Valley (37) contains plains, hills, floodplains, terraces, and scattered mountains. It is largely underlain by interbedded Pennsylvanian sandstone, shale, and siltstone. Prior to the 19th century, uplands were dominated by a mix of forest, woodland, savanna, and prairie whereas floodplains and lower terraces were covered by bottomland deciduous forest. Today, less rugged upland areas have been cleared for pastureland or hayland. Poultry and livestock farming are important land uses. Water quality is generally good and influenced more by land use activities than by soils or geology; average stream gradients and dissolved oxygen levels are lower in the Arkansas Valley (37) than in the Ouachita Mountains (36) or Ozark Highlands (39), whereas turbidity, total suspended solids, total organic carbon, total phosphorus, and biochemical oxygen demand values are typically higher. The Arkansas River is continuously turbid. Summer flow in smaller streams is typically limited or nonexistent. Fish communities characteristically contain a substantial proportion of sensitive species; a sunfish- and minnow dominated community exists along with substantial proportions of darters and catfishes (particularly madtoms).*
>
> *The Arkansas River Floodplain [37b] is characteristically veneered with Holocene alluvium and includes natural levees, meander scars, oxbow lakes, point bars, swales, and backswamps. It is lithologically and physiographically distinct from the surrounding uplands of the Arkansas Valley (37). Mollisols, Entisols, Alfisols, and Inceptisols are common; the soil mosaic sharply contrasts with nearby, higher*

elevation ecoregions where Ultisols developed under upland oaks, hickory, and pine. Potential natural vegetation is southern floodplain forest. Bottomland oaks including bur oak, American sycamore, sweetgum, willows, eastern cottonwood, green ash, pecan, hackberry, and elm were once extensive. They have been widely cleared for pastureland, hayland, and cropland. However, some forest remains in frequently flooded or poorly drained areas. In Arkansas, bur oak is most dominant in Ecoregion 37b.

The Arkansas Valley Hills [37c] are underlain by Pennsylvanian sandstone and shale and are lithologically distinct from Ecoregions 37b and 39. Ecoregion 37c is more hilly than the Arkansas Valley Plains (37d) and less rugged than Ecoregions 36, 37a, and 38. Ultisols are common and support a potential natural vegetation of oak–hickory forest or oak–hickory–pine forest; both soils and natural vegetation contrast with those of Ecoregion 37b. Today, pastureland is extensive, but rugged areas are wooded; overall, trees are much less extensive than in neighboring Ecoregions 36d, 37a, and 38 but more widespread than in Ecoregions 37b and 37d. Poultry operations, livestock farming, and logging are important land uses.

The Arkansas Valley Plains [37d] are in the rain shadow of the Fourche Mountains and were once covered by a distinctive mosaic of prairie, savanna, and woodland. Ecoregion 37d is mostly undulating but a few hills and ridges occur. Westward, Ecoregion 37d becomes flatter, drier, more open, and has fewer topographic fire barriers. Prior to the 19th century, frequently burned western areas had extensive prairie on droughty soils; scattered pine–oak savanna also occurred. Elsewhere, potential natural vegetation is primarily oak–hickory forest or oak–hickory–pine forest. Today, pastureland and hayland are extensive but remnants of prairie, particularly the Cherokee Prairie near Fort Smith, and woodland occur. Poultry and livestock farming are primary land uses. Cropland agriculture in the Arkansas Valley Plains (37d) is less important than in Ecoregion 37b, and wooded areas are not as extensive as in more rugged Ecoregions 36, 37a, 37c, and 38. Stream turbidity generally remains low except during storm events."

During the summer of 2021 and 2022, vegetation assessment data was collected at 62 different plots in the project footprint. The plot locations were selected to represent the different vegetation communities observed in aerial imagery and general hiking through the project footprint area. Each data point was sampled using the following radius plot sizes as recommended for this region for each respective stratum: herbaceous, 5-foot; sapling/shrub, 15-foot; tree, 30-foot; and woody vine, 30-foot (Cox 1990; Barbour et al. 1999). The strata definitions were as follows:

1. Tree stratum – consists of woody plants, excluding vines, 3 inches or more in diameter at breast heigh (DBH), regardless of height.

2. Sapling/shrub stratum – consists of woody plants, excluding vines, less than 3 inches DBH and greater than or equal to 3.28 feet tall.
3. Herb stratum – consists of herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 feet tall.
4. Woody vines – consists of all woody vines greater than 3.28 feet in height.

Table 2-1 summarizes the general land use, vegetation communities, and water features found within the project footprint, which is based on the plot data and additional field data collected by the project's wetland delineation teams.

Table 2-1: Habitat and General Land Use Area based on Vegetation Assessment Plots Within the Project Footprint

Total Acres	Developed	Agriculture	Forested Uplands	Herbaceous Uplands	Sapling/ Shrub	Forested Wetlands	Herbaceous Wetlands	Streams	Open Water Features
1,546	215.5	712.6	413.3	69.5	56.6	40.0	5.9	26.7 (8.3 miles)	5.9

Source: Quantification of streams, open water features, and wetlands provided by the Project Team who conducted wetland delineations in the summer of 2021 and 2022.

Exhibits 4 – 6 in **Appendix A** illustrate the location and quantification of field findings regarding vegetation communities and general land use within the project footprint. Also noteworthy, approximately 105 acres of property managed and owned by the U.S. Army Corps of Engineers (USACE) and Fort Chaffee Joint Maneuver Training Center (FCJMTC) is within the project footprint. The FCJMTC property within the project footprint introduces a potential regulatory aspect due to the American Burying Beetle (ABB) which is a protected federally listed insect found within the FCJMTC boundaries.

2.1 Other Agency Partners and Interested Partners

FHWA is the lead federal agency for the project, working in conjunction with ARDOT. The following agencies are cooperating agencies on the project: USACE, United States Coast Guard, Environmental Protection Agency, United States Fish and Wildlife Service, and the State Historic Preservation Officer.

3.0 IDENTIFICATION OF LISTED SPECIES

3.1 Consultation to Date

Due to the size, complexity and design refinements that have been incorporated, the USFWS ECOS-IPaC system has been accessed multiple times since the spring of 2021 to identify threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat that may occur within the boundary of the project footprint and/or

may be affected by the proposed project as per section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.). Based on those results and the challenges of a project of this nature, informal consultation for technical assistance and regulatory advice has been on-going.

The latest IPaC results (January 17, 2023; Project Code: 2022-0010163) as provided by the Arkansas Ecological Services Field Office, Conway, Arkansas, listed a total of eleven threatened, endangered, or candidate species on the species list in **Table 3-1**.

Table 3-1: USFWS ECOS-IPaC List of Threatened, Endangered, Proposed and Candidate Species

Species Name (Common)	Scientific Name	Federal Listing Status
Gray Bat	*Myotis grisescens*	Endangered
Indiana Bat	*Myotis sodalis*	Endangered
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered
Ozark Big-eared Bat	*Corynorhinus townsendii ingens*	Endangered
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Rufa Red Knot	*Calidris canutus rufa*	Threatened
American Burying Beetle	*Nicrophorus americanus*	Threatened
Monarch Butterfly	*Danaus plexippus*	Candidate
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened
Missouri Bladderpod	*Physaria filiformis*	Threatened

Note: This includes proposed and final designated critical habitat, that may occur within the boundary of the proposed project and/or may be affected by the proposed project from letter dated January 17, 2023.
Source: USFWS ECOS-IPaC Letter dated January 17, 2023. Project Code: 2022-00101163. The USFWS announced proposal for listing the tricolored bat as endangered on September 13, 2022; 60-day public comment period ends November 14, 2022; Federal Register Number 2022-18852, FWS-R5-ES-2021-0163-0001, pages 56381 – 56393.

Based on the size of this project, its location being more than 300 feet from existing roadway, and the habitat impact summary indicating tree removal to exceed 20 acres per five miles of roadway, this project falls outside the FHWA Programmatic *Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat* (USFWS 2018). Additional technical assistance request occurred via letter with a response from the USFW received in May 2022 as documented in **Appendix B**.

3.2 Critical Habitat

There are no critical habitats within the project footprint under the USFWS Arkansas Ecological Services Field Office's jurisdiction.

3.3 Action Area

To determine the action area of this proposed project, the following geographic areas were used to analyze for direct and indirect effects to the following organisms:

- Bats – 300-foot area surrounding the project footprint.
- Birds – 0.25-mile area surrounding the project footprint.
- American burying beetle – project footprint.
- Monarch butterfly – project footprint.
- Missouri bladderpod – project footprint.
- Alligator snapping turtle – project footprint.

Combining all geographic areas produced an action area with a 0.25-mile area beyond the project footprint of 1,546 acres, creating a total area of 7,983 acres as depicted in **Exhibits 4 – 6** in **Appendix A**.

3.4 Additional Species

Previous IPaC results included the scaleshell mussel, *Leptodea leptodon*, federally listed as endangered, and *Geocarpon minimum*, federally listed as threatened. These two species will be covered briefly in this section, but no effects analyses are included since they are no longer included on the most recent IPaC list for the proposed project.

Scaleshell Mussel *Leptodea leptodon*

The scaleshell mussel is a species that once occurred in 56 rivers in the Mississippi River Drainage. This species is believed to be extirpated from 9 of the 13 states it historically occurred in. The scaleshell occurs in medium to large rivers with low to medium gradients primarily inhabiting stable riffles and runs with gravel or mud substrate and moderate current velocity. This mussel requires good water quality and is usually found where a diversity of other mussel species are concentrated (USFWS 2010). An initiation of the 5-year status review for this species was published on August 31, 2020, but no additional status information has developed since then. The scaleshell was last observed in Frog Bayou in 1979 (USFWS 2010).

Approximately 350 feet upstream of the project on the north end of the project and over 1.5 miles downstream of where the project footprint crosses Frog Bayou, field surveys occurred in the summer of 2021 to identify the current mussel populations in Frog Bayou; no scaleshell mussels were found. A copy of the mussel survey report is included in **Appendix E** that contains more details of this recent survey effort.

Geocarpon minimum

Belonging in the pink family or carnation family (Caryophyllaceae), Geocarpon (no common name) is a specialist only growing in salt prairies and sandstone glade with characteristically high magnesium or sodium concentrations. All the Geocarpon sites currently known from Arkansas occur on saline soil prairies on natric or saline soils. Of the six saline soil series in Arkansas, Geocarpon has been found only on the Lafe (Glossic Natrudalfs), Foley (Albic Glossic Natraqualfs), and Wing (Aquic Nastrustalfs) soil series to date, with the Lafe series supporting the best-known populations (USFWS 2015[a]). In highly localized areas on the saline soils, "slick spots" exist which are virtually devoid of vegetation. All the Geocarpon found to date in Arkansas are associated with these slick spots on saline soils (NatureServe Explorer website, https://explorer.natureserve.org/, accessed 8-23-22). An initiation of the five-year status review for this species was published on July 14, 2021, but no additional federal status information has developed since then.

In 2014, a Geocarpon site was discovered and located on Fort Chaffee property. This population appeared rather small, and investigations at this site have been limited so far (USFWS 2015[a]). This Geocarpon population was discovered within the Wing soil series on a small, cedar-encroached saline slick area just inside a permanent plowed fire line (USFWS 2015[a]). No area of the Fort Chaffee property impacted within the project footprint contains the Wing soil series, therefore, no likely impacts to Geocarpon on Fort Chaffee property will occur due to the proposed project.

Arkansas Natural Heritage Commission

A request was submitted to the Arkansas Natural Heritage Commission (ANHC) in 2021 (and an update request in 2022) for information regarding additional rare species within or near the project footprint because such species may become federally listed in the future. To date, only one of these species is federally listed, another is protected by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA), and the remaining state species of conservation concern in the vicinity of the proposed project are not candidates, nor proposed for federal listing; therefore, they will not be discussed outside this section of the BA. **Table 3-2** below lists these additional state concern species identified by the ANHC.

Table 3-2: Arkansas Natural Heritage Commission Occurrence List of State-listed Species of Conservation Concern

Species Name (Common)	Scientific Name	Organism Type	State Status Code	State Rank Code
Elktoe	*Alasmidonta marginata*	mussel	INV	S3
Texas bergia	*Bergia texana*	plant	INV	S2
Rain-lily	*Cooperia drummondii*	plant	INV	S1, S2
Lindheimer's Croton	*Croton lindheimerianus* var. *lindheimerianus*	plant	INV	S1
Woolly Prairie-Clover	*Dalea lanata var. lanata*	plant	INV	S2, S3
Six-angle Spurge	*Euphorbia hexagona*	plant	INV	S2
Missouri spurge	*Euphorbia missurica*	plant	INV	S2
Bald Eagle	*Haliaeetus leucocephalus*	bird	INV	S3B, S4
Phlox Heliotrope	*Heliotropium convolvulaceum*	plant	INV	S2
Goldeye	*Hiodon alosoides*	fish	INV	S2
"Arkoma" Fatmucket	*Lampsilis* sp. A cf *hydiana*	mussel	INV	S3
Swainson's Warbler	*Limnothlypis swainsonii*	bird	INV	S3B, S4
Little Brown Bat	*Myotis lucifugus*	bat	INV	S1
Northern Long-Eared Bat	*Mytois septentrionalis*	bat	INV	S1
Strecker's Chorus Frog	*Pseudacris streckeri*	amphibian	INV	S2
Southern Mapleleaf	*Quadrula apiculata*	mussel	INV	S3
Fawnsfoot	*Truncilla donaciformis*	mussel	INV	S3

Note: In the vicinity of the proposed Interstate 49, Highway 22 – I-40 action in Sebastian and Crawford Counties, Arkansas.

S1 = Critically imperiled in the state. At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2 = Imperiled in the state. At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3 = Vulnerable in the state. At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S3B = Vulnerable in the state. At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. B refers to the breeding population of a species in the state.

S4 = Apparently secure in the state. At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

INV = Inventory; the ANHC is currently conducting active inventory work on these elements.

Source: Arkansas Natural Heritage Commission Letter dated August 24, 2022.

The complete set of information received from the ANHC can be found in **Appendix F**, along with a map indicating the general location of these species of concern.

National Workplan to Complete Five-Year Reviews for Species Listed Under the ESA

The National Workplan to Complete Five-Year Reviews for Species Listed Under the Endangered Species Act (Fiscal Year (FY) 2022-2025; March 2022 Version) (USFWS 2022[g]) was reviewed to anticipate future actions by the USFWS due to this project's construction timeline. Eight species are scheduled to be reviewed by the Arkansas Ecological Services Field Office. The following is a list of these species and the five-year review completion target fiscal year or actual date: *Geocarpon minimum*, FY2022; Ozark cavefish, *Amblyopsis rosae*, FY2024; yellowcheek darter, *Etheostoma moorei*, FY2024; Benton County cave crayfish, *Cambarus aculabrum*, FY2024; Hell Creek cave crayfish, *Cambarus zophonastes*, FY2024; rabbitsfoot, *Quadrula cylindrica cylindrica*, FY2025; Arkansas fatmucket, *Lampilis powellii*, FY2025; Neosho mucket, *Lampsilis rafinesqueana*, FY2025; and speckled pocketbook, *Lampsilis strecki*, 9/7/21. None of the above listed species are appearing on the current IPaC for this project, and none of the mussels listed above were found in the summer 2021 Frog Bayou mussel survey (**Appendix E**).

The National Workplan does have plans to review the status of all the bat species that are found on this project's current IPaC. The bat species are listed as following with the review completion target fiscal year, along with the lead USFWS ecological services field office (ESFO): Northern long-eared bat, *Myotis septentrionalis*, FY2022, Tennessee ESFO; gray bat, *Myotis grisescens*, FY2023, Missouri ESFO; Ozark big-eared bat, *Corynorhinus townsendii ingens*, FY2025, Oklahoma ESFO; and the Indiana bat, *Myotis sodalis*, FY2025, Indiana ESFO.

The remaining species on the current project IPaC that are listed on this National Workplan, the review completion target fiscal year (or actual date) and lead USFWS office are: the piping plover, *Charadrius melodus*, FY2025, Office of the Regional Director; the rufa red knot, *Calidris canutus rufa,* 12/6/2021, New Jersey ESFO; and the American burying beetle, *Nicrophorus americanus*, FY2024, Oklahoma ESFO.

National Workplan to Address Downlisting and Delisting Recommendations

The National Workplan to Address Downlisting and Delisting Recommendations (3-Year Workplan; September 2022 Version) (USFWS 2022[h]) was also reviewed to anticipate future actions by the USFWS. Only two species on this workplan have a current distribution or range within Arkansas: *Geocarpon minimum* and the red-cockaded woodpecker, *Picoides borealis. Geocarpon minimum* may be delisted due to recovery with a final determination planned for FY2024. The red-cockaded woodpecker is currently listed as endangered and may be downlisted to threatened with a final determination planned for FY2023. Neither of those species are listed on the current project IPaC.

National Domestic Listing Workplan

The National Domestic Listing Workplan, FY22-27 Workplan (March 2022 Version) (USFWS 2022[f]), lists the Alligator Snapping Turtle (*Macrochelys temminckii*) with the Action Type - 12M/PLPCH. The PLPCH action type is used for species that are already candidates for listing

where a proposed listing determination would either propose the species for listing or provide notice of a not warranted finding. On November 9, 2021, the USFWS published an ESA Section 4(d) rule proposing this species to be listed as threatened and stated that designation of critical habitats was not determinable at that time (USFWS 2021[d]). The public comment period for this 4(d) rule ended January 10, 2022. With the anticipation of the alligator snapping turtle to be federally listed as threatened within the span of the construction of this project, the alligator snapping turtle is included in the effects analyses of this biological assessment.

4.0 SPECIFIC SPECIES AND LIFE HISTORY

4.1 Mammals

A total of four mammal species, all ESA-listed bat species, were included in the IPaC report for the project footprint. Additionally, the tricolored bat *(Perimyotis subflavus*) was also proposed for listing under the ESA on September 13, 2022. The species is included in the biological assessment due to its pending status, which is likely to be decided prior to the completion of the proposed project. Past occurrence data for the project footprint was requested from ANHC. The only mammals with documented presence near the vicinity of the action area were the little brown bat (*Myotis lucifugus*) and the northern long-eared bat (*Myotis septentrionalis*), both less than 1,000 meters (m) east or southeast of the project footprint near the Arkansas River. Both species were captured in 2015 in the Fort Chaffee Wildlife Management Area (ANHC 2022). Information about each ESA-listed bat species that could potentially occur within the project footprint is summarized below.

4.1.1 Gray Bat (*Myotis grisescens)*

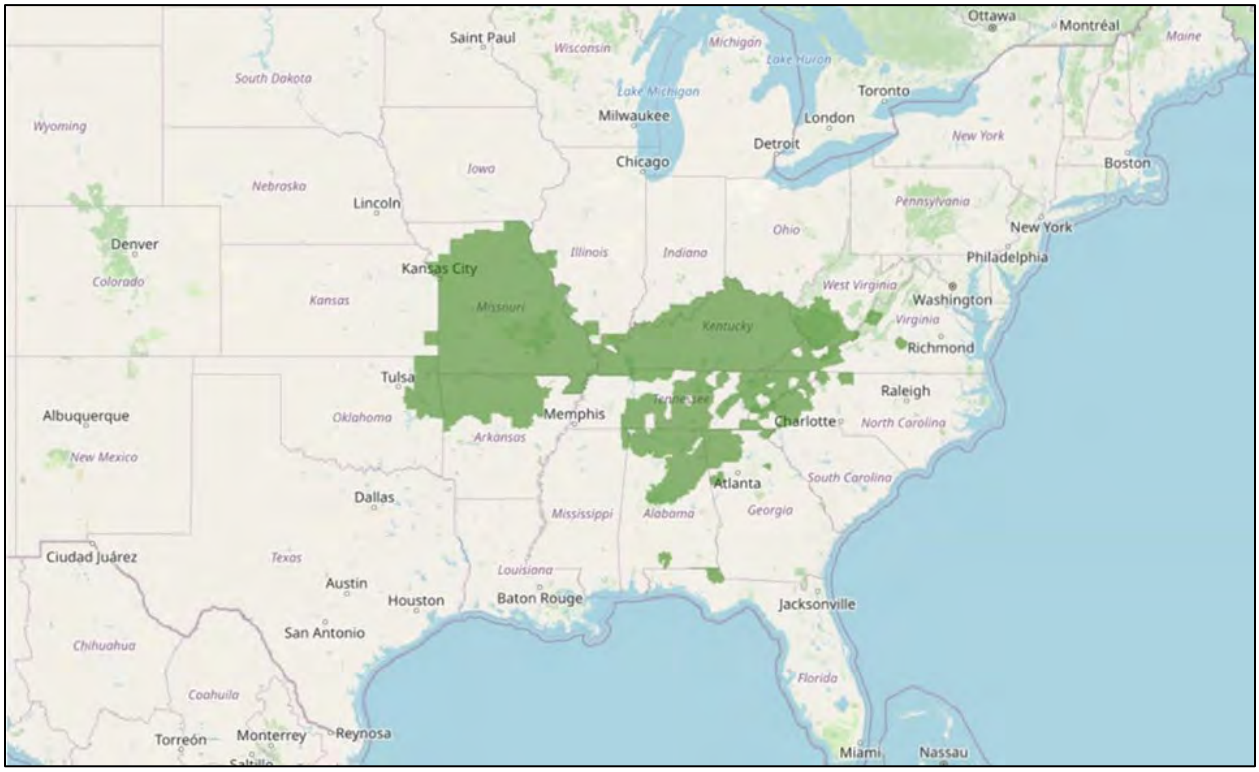
Description – Gray bats are the largest of the Arkansas *Myotis* species according to forearm length and have a total length measurement between 3.25 and 3.75 inches. The fur is a glossy, gray to brown color that is uniformly colored from base to tip. The wing membrane is attached to the ankle rather than the toes and the calcar is keeled (USFWS 2022[a]). Gray bats also have a distinctive notch on the underside of their claws (Sasse et. al. 2019).

Resource Needs (Habitat) – Gray bats are generally considered a year-round, cave-obligate species, roosting in limestone caves throughout southeastern United States, although summer colonies have also been documented in other man-made structures, such as mines, quarries, dams, and bridges. The species has a restrictive roost requirement, such that 98 percent (%) of gray bats roost in as few as 15 winter hibernacula. Winter caves must be cold and usually have deep, vertical passages to large rooms that trap cold air. In contrast, summer caves must be warm, often with doomed rooms that trap in body heat for developing pups. Summer caves are also typically near lakes or rivers, as gray bats feed primarily on emerging aquatic insects, traveling up to 20 miles from roosts during nightly foraging. Because suitable caves are limited, gray bats can travel a few hundred miles between summer and winter caves, although distances are usually less than 200 miles.

Life History – Male and female gray bats typically hibernate together, but due to limited availability of suitable habitat, sexes segregate during summer. Pregnant females form large maternity colonies up to several thousand individuals, whereas males and non-reproductive females form much smaller colonies separate from the maternity group. Gray bats mate during fall when both sexes arrive at winter hibernacula. Females store sperm over-winter and eggs are fertilized in spring after ovulation. A single pup is born in late May or early June, becoming volant approximately one month after birth. Gray bats take two years to reach sexual maturity.

Distribution – Winter distribution of gray bats is more restricted, with hibernating populations in caves across Kentucky, Missouri, Tennessee, and the northern portions of Arkansas and Alabama. In summer months, gray bats extend their range west into eastern Oklahoma and southeastern Kansas, north into southern Illinois and Indiana, and east into western portions of Virginia, North Carolina, and Georgia (**Figure 4-1**).

Figure 4-1: Range of gray bat, *Myotis grisescens*



Source: USFWS 20229(a)

Stressors – The gray bat was listed under the ESA in 1976, and at the time of listing, the greatest threats were human disturbance to roosting bats or roost site destruction. Impounding of waterways and environmental contamination were also contributing factors. Efforts to gate cave entrances and better regulation of commercial and recreational cave operations have lessened impacts from human disturbance, but additional threats from wind-turbine collisions and climate change have been added. Because gray bats typically roost in caves near water sources, they are still susceptible to natural calamities, namely flooding or cave collapse. Conservation measures

also include protecting woodlands surrounding caves and wooded riparian corridors where gray bats forage. Unlike other Myotis species, gray bats appear to be more resistant to white-nose syndrome and no mass fatalities form infections have been documented (USFWS 2022[a]).

4.1.2 Indiana Bat (*Myotis sodalis)*

Description – Indiana bats are 3 to 4 inches in total body length, having light colored ears and nose that does not contrast with their dull, chestnut brown fur. The feet of Indiana bats are small with short toes hairs that do not extend beyond the length of the claws. The calcar is distinctly keeled. Species descriptions and information are taken from USFWS (2022 [b]) and the references within.

Resource Needs (Habitat) – Indiana bats hibernate over winter in underground caves or cave-like structures, such as mines. Ideal winter hibernacula are caves or mines in which temperatures are relatively stable and remain above freezing, but below 10° Celsius (C). Few caves meet these conditions; thus, 72% of the population hibernates at only four sites. During summer months, Indiana bats roost in dead or dying trees with DBH ≥ 5 inches that have cavities or exfoliating bark. Although uncommon, man-made structures such as bridges and barns may also serve as roost sites. Ideal roosts should receive direct sunlight for half of the day and are usually in forested areas with canopy openings. Maternity colonies may occur in riparian zones, bottomland forests, or upland habitat, but foraging usually occurs in semi-open forested habitats, closed canopies with open understory, along forest edges, or within riparian corridors. Male and female Indiana bats occupy similar habits and roosting sites, but sexes are segregated during summer maternity season.

Life History – In late summer or early fall, Indiana bats leave summer roost sites to return to winter hibernacula. Mating occurs during fall swarming prior to hibernation. Females store sperm over winter and fertilization occurs the following spring when bats arouse from hibernation. In spring, females typically return to the same summer roost site, establishing small summer maternity colonies of less than 100 individuals, although larger colonies have been documented. Females give birth to a single pup between mid-June to early July. Communal roosting helps regulate the temperature of females during pregnancy and for the pups during development. Young bats become volant and begin foraging approximately one month after birth. Indiana bats feed on the wing and eat a variety of insects, including beetles, moths, flies, and caddisflies. Dietary composition varies geographically, seasonally, and respectively to reproductive status.

Distribution – While the majority of the Indiana bat population hibernates at only four sites within Indiana, Missouri, and Kentucky, a total of 281 hibernacula across 19 states have been documented. Those states include Alabama, Arkansas, Connecticut, Illinois, Indiana, Kentucky, Maryland, Michigan, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, Virginia and West Virginia (**Figure 4-2**). Since the initial listing of the Indiana bat, the extent of the geographic range for the species has remained stable; however, population declines in the last decade have considerably modified the spatial distribution and abundance within that range. In Arkansas, the geographic range was recently

expanded on 7 March 2022 to cover the entire western portion of the state, nearly doubling the counties included within their intrastate range. This expansion was due to radio telemetry studies that tracked Indiana bats from north-central Arkansas down to Columbia County, Arkansas, as well as McCurtain County, Oklahoma (Custer 2021). The summer range of the species is similar to that of winter range as males and non-reproductive females typically inhabit forests near winter hibernacula. Females may travel further but stay within the same geographic region. Maternity sites have their highest concentration in the Midwest (**Figure 4-2**).

Figure 4-2: Range of the Indiana bat, *Myotis sodalis*

Source: USFWS 2022[b]

Stressors – The Indiana bat was already under federal protection at the time the ESA was created, and it has been listed as endangered since its inception in 1973. Initial threats to the species were mostly related to human disturbance of caves and hibernating bats, loss of suitable summer habitat, and use of pesticides and other environmental contaminants. However, white-nose syndrome is a serious new threat to species survival, causing population declines of approximately 20% since its introduction in 2006. Since the Indiana bat was listed under the ESA, the population has declined by half.

4.1.3 Northern Long-Eared Bat (*Myotis septentrionalis)*

Description – The northern long-eared bat has a total body length of 3.0 to 3.7 inches. Its dorsal fur is a medium to dark brown with a tawny, pale underside. It is distinguished from other Myotis in having a long, pointed tragus and ears that extend beyond the tip of the nose when laid forward. Species descriptions and information are taken from USFWS (2022 [c]) and the references within.

Resource Needs (Habitat) – Similar to Indiana bats, northern long-eared bats also hibernate in caves during winter, but roost in dead and dying trees with DBH ≥ 3 inches during the summer maternity season. Winter hibernacula for northern long-eared bats are caves or mines with a constant temperature, high humidity, no air currents, and small crevices. Rather than roosting on open surfaces, northern long-eared bats hibernate within crevices where very little of the bat is exposed. After spring emergence, bats relocate to forested habitat, roosting in trees with cavities, crevices, or exfoliating bark. Manmade structures such as bridges and barns may also be used as summer roost sites. Northern long-eared bats may choose solitary roosts or form small maternity colonies of about 50 individuals. Unlike Indiana bats, northern long-eared bats have low roost fidelity and even move roosts several times within a single summer season. Their foraging is associated more with forest interior than edge habitat. The bat has high maneuverability in cluttered habit and feeds by gleaning insects off the surface of vegetation.

Life History – Mating occurs in late summer or early fall when northern long-eared bats begin swarming at the winter hibernacula site. After copulation, females have delayed fertilization by storing sperm over winter and not ovulating until spring emergence. After fertilization, pregnant females migrate to summer roost sites, where they may form small maternity colonies. Pups within a colony are born around the same time, but the timing varies geographically, ranging from late May to late July. Females give birth to single pups, which become volant approximately 3 weeks after birth. By early fall, the species begins to migrate back to winter hibernacula.

Distribution – The northern-long eared bat occurs throughout most of the northeastern United States extending as far south as the northern portions of Louisiana, Mississippi, Alabama, and Georgia (**Figure 4-3**). It has been documented at least portions of 37 states and the District of Columbia. In addition to those listed above, it also occurs in Arkansas, Connecticut, Delaware, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin and Wyoming (**Figure 4-3**).

Figure 4-3: Range of the northern long-eared bat, *Myotis septentrionalis*

Source: USFWS 2022[c]

Stressors – The northern long-eared bat was listed under the ESA in 2015 as threatened, but was recently reclassified as endangered by USFWS, which goes into effective on 30 January 2023 (USFWS 2022 [d]) The main threat to the northern long-eared bat is white-nose syndrome. The species has experienced dramatic declines since white-nose syndrome was first discovered in 2006, with hibernaculum counts throughout its range declining 97 to 100%. Because white-nose syndrome is such a significant threat, any additional sources of mortality are a concern; therefore, the northern long-eared bat also faces threats from wind-turbine fatalities, summer habitat loss, disturbance to winter hibernacula, and climate change.

4.1.4 Ozark Big-Eared Bat (*Corynorhinus townsendii ingens)*

Description – The Ozark big-eared bat is the largest of the sub-species of *C. townsendii*, with total body length measuring 3.5 to 4.5 inches. Their fur is light to dark brown, depending on age, with a paler ventral side. Their large ears, over 1 inch in length, and protruding glands on each side of the nose are distinctive characteristics of the species. Descriptions and the following information are summarized from USFWS (2022 [e]) and the references within.

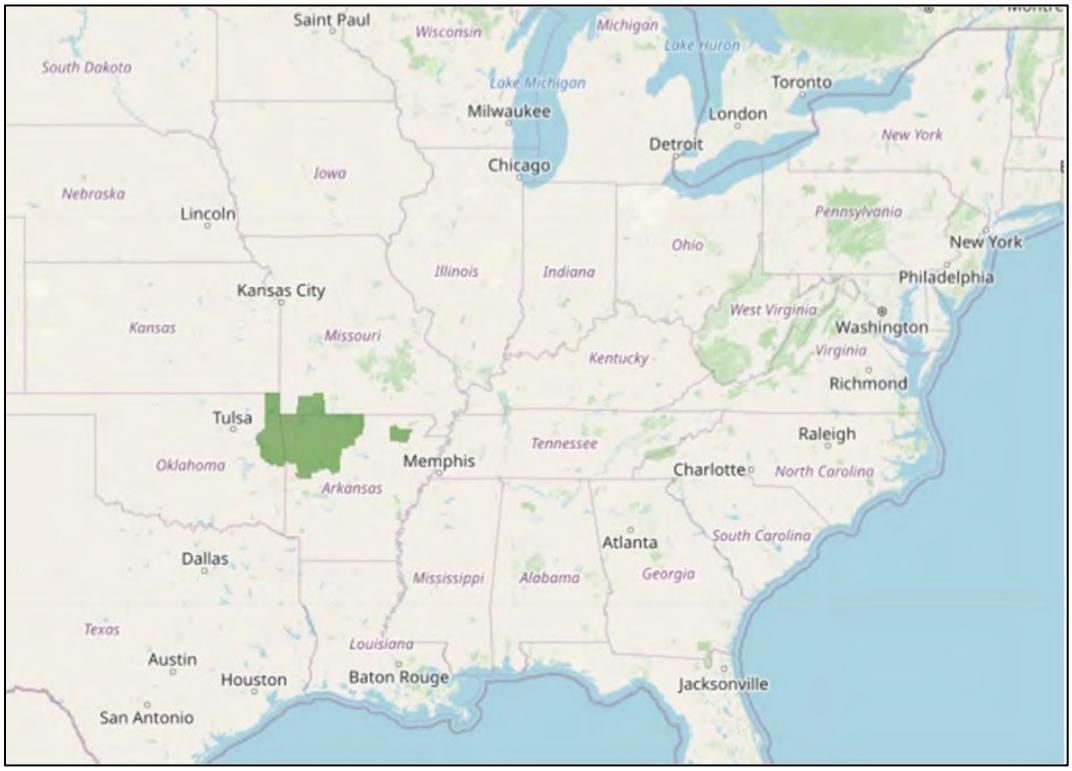
Resource Needs (Habitat) – The Ozark big-eared bat is a cave-obligate species that roosts in limestone or sandstone talus caves year-round that are surrounded by oak-hickory hardwood forest. Their roosting habits are based on cave microclimates, and they adjust their roost site accordingly; thus, they may be found near the entrance, deep within the darkest, coldest regions, or they may move roost sites during hibernation period. For hibernation, roost sites selected range between 4 to 11°C with high humidity between 83 to 95%. Ozark big-eared bats migrate

short distances to summer caves usually within 40 miles of the winter hibernacula. They feed primarily on moths and forage within forested habitat, along the forest edge, or within open landscapes adjacent to woodlands. They have a small home-range size, foraging within 5 miles of their roost site, usually returning several times per night to attend to young.

Life History – Like other bat species, the Ozark big-eared bat mates during fall and winter and has delayed fertilization the following spring. Male and females hibernate together in clusters ranging from a few bats to over 100. Hibernating colonies begin to break-up in spring and females leave to establish maternity colonies at warmer cave sites. The species has strong roost fidelity, using the same hibernaculum and maternity sites year after year. Females become reproductively active during their first fall, while young males do not reach sexual maturity until their second year. Females give birth to a single pup in May or June, which are volant by three weeks of age and fully weaned by six weeks of age.

Distribution – The Ozark big-eared bat is endemic to the Ozark Highlands and Boston Mountains of northwest Arkansas, northeast Oklahoma, and southwestern Missouri, although the Missouri populations are assumed to be extirpated (**Figure 4-4**). In Oklahoma, records are known for Adair, Cherokee and Sequoyah counties, as well as historical sites in Delaware county. In Arkansas, the bats are known to primarily occur in Crawford, Franklin and Washington counties, as well as an isolated remnant in north-central Arkansas within Marion County (**Figure 4-4**).

Figure 4-4: Range of the Ozark big-eared bat, *Corynorhinus townsendii ingens*



Note: The species is believed to be now extirpated from Missouri
Source: USFWS 2022[d]

Stressors – The Ozark big-eared bat is a subspecies of the Townsend's big-eared bat that is geographically isolated as a population of less than 2,000 individuals. Human disturbance is the greatest risk to Ozark big-eared bats as individuals may abandon roost sites during critical periods of hibernation or lactation. Human disturbance and encroachment are assumed to be the reason for extirpation from Missouri. In addition to human impacts, the bat faces threats typical of all species with small population size, namely potential loss of genetic diversity or genetic drift. Additionally, the species has tested positive for the white-nose syndrome fungus, but progression to disease symptoms has not been documented.

4.1.5 Tricolored Bat (*Perimyotis subflavus*)

Description - The tricolored bat is one of the smallest North Amercian bat species, named for its individual hairs being distinctively tricolored from root to tip. Its overall surface color appears to have a yellow to orange hue. It has short round ears with a straight tragus, and its small size and tricolored fur make it easily distinguishable from other species.

Resource Needs –The tricolored bat roosts in trees during the summer and hibernates in caves during the winter which is similar to that of Indiana bat and Northern long-eared bat. But the tricolored bat roosting ecology differs considerably from the Indiana bat or Northern long-eared bat. Rather than roosting under peeling bark or in tree cavities, tricolored bats usually roost in foliage. Roost sites are typically within clusters of dead leaves, but living foliage may also be used. Oaks and maples are among the most commonly used tree species, at least in temperate deciduous forest (Veilleux et al. 2003). Given the temporary nature of dead leaves, tricolored bats move roost sites several times throughout the maternity season, with a mean of 6 days at each site (Veilleux et al. 2003). While the species has low fidelity to a specific site, they have high fidelity to the same small area of forest (Hammesfahr et al. 2022). The furthest distance recorded for travel between roost site to foraging area was 4.3 km (Veilleux et al. 2003). Tricolored bats are insect generalist, feeding on various species of beetles, moths, and flies (Fujita and Kunz 1984).

Life History - Males and females roost separately in summer, but females may form small maternity colonies of up to 30 individuals (Whitaker 1998). Tricolored bats typically give birth to two pups in June, with young becoming volant within three weeks (Fujita and Kunz 1984). In fall, tricolored bats are among the first to arrive at winter hibernaculum, as early as the beginning of August, but are also among the last to leave in spring, being captured at hibernaculum sites as late as the end of May (Fujita and Kunz 1984). Like most bat species, tricolored bats mate during fall swarming and store sperm throughout the winter until the females ovulate the following spring.

Distribution - The tricolored bat occurs throughout the entire eastern half of the United States wherever suitable habitat is found. Their range extends as far west as the Rocky Mountains (**Figure 4-5**).

Figure 4-5: Range of the tricolored bat, *Perimyotis subflavus*

Source: USFWS 2022[e]

Stressors – The tricolored bat was once one of the most commonly encountered bats across its range; however, white-nose syndrome has caused population declines of 90-100% in caves that are infected with the fungus (USFWS 2020[f]). The disease is present across approximately 59% of the species range, which has led to a precipitous decline in the population since the fungus was first discovered in 2006. Due to the serious threat of white-nose syndrome, any additional fatalities due to wind energy developments are also of concern.

4.2 Birds

According to the Arkansas Audubon Society, Fort Chaffee, an Arkansas National Guard Training Center, is one of Arkansas' important bird areas. Arkansas National Guard training activities maintain exceptional shrub, prairie, and oak savanna habitat. The Fort Chaffee training area supports exceptionally large numbers of birds' characteristic of these habitats. Bird count activities have documented the following populations at Fort Chaffee: Bell's Vireo (2,400 – may be largest in state), Northern Bobwhite (4,100), Prairie Warbler (1,300), Painted Bunting (1,800), Bachman's Sparrow (1,800), Smith's Longspur (up to 100), and Bewick's Wren (10-20) (Arkansas Audubon Society 2022).

Other areas near or within this project footprint have habitat that may be utilized by the federally listed bird species that may be potentially impacted by this proposed project. The federally listed birds of this project are habitat dependent on different types of wetlands. Dense herbaceous wetlands, sand bars (sparsely vegetated), mudflats, grassy fresh marsh areas are a few of the wetland types used by these birds. More specific habitat details for each bird species pertaining

to this project's current IPaC list, along with known life history information and distribution, are described below.

4.2.1 Eastern Black Rail (*Laterallus jamaicensis* ssp. *jamaicensis)*

Description – The black rail is the smallest rail in North America. Adults range from 10 to 15 centimeters (cm) in total length and have a wingspan of 22 to 28 cm (Eddleman et al. 1994). Eastern black rails weigh 35 grams on average and are larger but have less brightly colored plumage than California black rails. Males and females are similar in size, and adults are generally pale to blackish gray, with a small blackish bill and bright red eyes. The underparts from chin to abdomen are uniformly colored but are lighter on the chin and throat. The nape and upper back are chestnut and the remaining back, upper tail feathers, and wing flight feathers are dark gray to blackish with small white spots and sometimes washed with chestnut brown. The lower abdomen, undertail feathers and flanks are blackish streaked with narrow white and dark gray barring, washed with chestnut. Overall, males are darker and have pale to medium gray throats, while females are lighter and have pale gray to white throats (USFWS 2019[b]).

Resource Needs (Habitat) – According to the Species Status Assessment (SSA) Report (USFWS 2019[b]) of the eastern black rail, the eastern black rail is a wetland dependent bird requiring dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water (typically ≤ 1.2 inches) to support its resource needs. Eastern black rails occur across an elevational gradient that lies between lower and wetter portions of the marsh and their contiguous uplands. These habitat gradients have gentle slopes so that wetlands are likely to have large areas of shallow inundation (sheet water). These wetlands can shrink and expand based on hydrologic conditions, and thus provide dependable foraging habitat across the wetted areas and wetland-upland transition zone for the subspecies. Eastern black rails forage on a variety of small (< 0.3 inches) aquatic and terrestrial invertebrates, especially insects, and seeds (e.g., *Typha* spp., *Scirpus* spp., *Spartina* spp.) by gleaning or pecking at individual items.

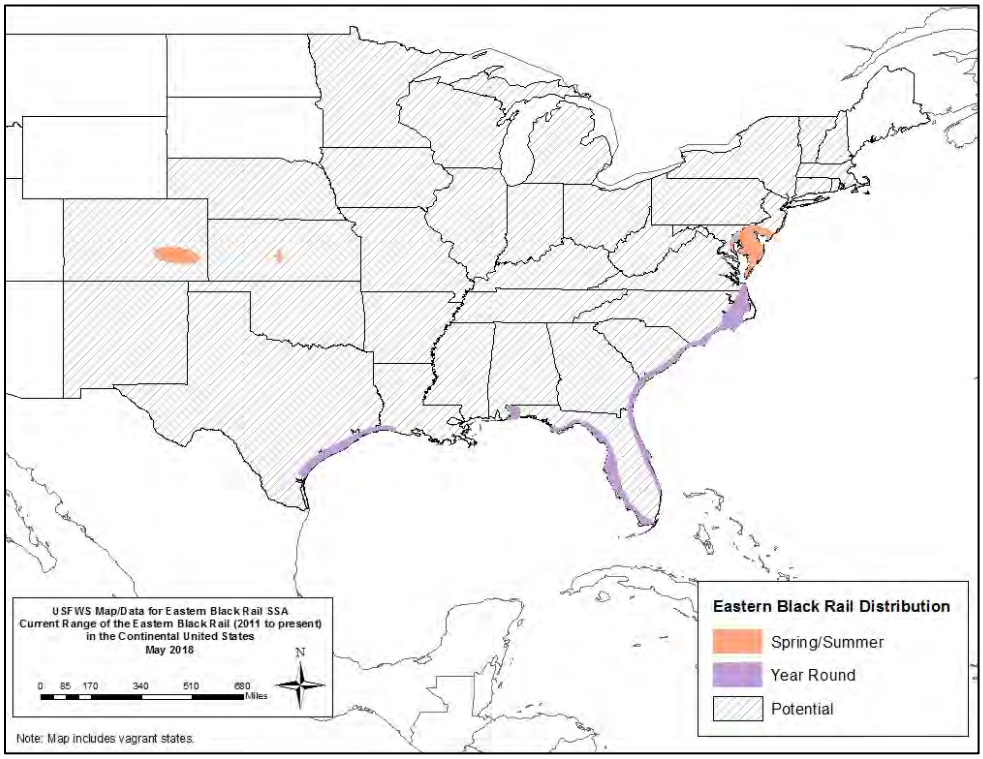
Eastern black rails also require adjacent higher elevation areas (i.e., the wetland-upland transition zone) with dense cover to survive high water events due to the propensity of juvenile and adult black rails to walk and run rather than fly and chicks' inability to fly. The subspecies requires dense vegetative cover that allows movement underneath the canopy, plant structure is considered more important than plant species composition in predicting habitat suitability (USFWS 2019[b]).

Life History – The eastern black rail has four life stages: egg, chick, juvenile (hatch-year), and adult. Eastern black rail egg-laying and incubation primarily occur from May to August with some early nesting in March and April (Watts 2016). Once an egg hatches, the chick stage begins and lasts for approximately 1.5 months until the chick enters the juvenile stage. The juvenile (hatch-year) stage begins when a chick has fledged and is independent from the parents. Juveniles undergo a partial post juvenile (also known as pre-formative or first pre-basic) molt and obtain immature plumage by approximately 3 months of age (Pyle 2008). This molt takes place between

June and November on the breeding grounds. The juvenile stage may last up to 10.5 months, until an individual obtains its first breeding plumage and becomes sexually mature at approximately 1 year of age (Eddleman et al. 1994). The species lifespan is unknown.

Distribution – Spring and summer populations of eastern black rail are known in Colorado and Kansas with most of the year-round populations along the eastern coastlines of North Carolina, South Carolina, Georgia, Florida, and Texas. Approximately 90% of documented breeding-season occurrence records occurred at coastal locations, while interior records accounted for less than 10% of total occurrences; and over 60% of the interior records occurred before 1950 (Watts 2016). The distribution of sub-populations of the eastern black rail appears to occur in a clumped or aggregate fashion within areas of apparently suitable habitat (USFWS 2019[b]). Though the eastern black rail appears to technically occur at varying latitudes, its resiliency is so low that the subspecies currently has a low level of representation across its range. When considering habitat variability, the eastern black rail has a level of adaptive potential by using similar habitats elements (i.e., higher elevation areas within wetlands with dense vegetation, moist soils, and shallow flood depth) within different wetland types within different analysis units. Despite having a high adaptive capacity for habitat variability, understanding of eastern black rails is incomplete since there is low occupancy rates and not all apparent suitable wetland habitat is occupied (USFWS 2019[b]). The range of the eastern black rail is illustrated in **Figure 4-6**..

Figure 4-6: Range of the eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*)



Note: Range is based on current understanding of the subspecies' distribution. The orange and purple shaded areas show where eastern black rails are known to primarily occur. Birds may be detected outside of the shaded areas as indicated by the gray hatching. Eastern black rail occurrence in the hatched areas is poorly known and often dynamic; large portions of these states are not thought to support the eastern black rail. Source: USFWS 2019[b]

Migration Pattern – The eastern black rail has the adaptive capacity to occupy northern latitudes and migrate south during the winter while some portions of the population do not migrate and reside in habitats year-round in southerly latitudes, yet the nature of migration for the subspecies is poorly understood. Preliminary results using stable isotopes suggest there are two populations of eastern black rail in the south-central United States: a migratory population breeding in Colorado and Kansas and wintering in Texas, and a non-migratory year-round population in Texas (USFWS 2019[b]).

States' studies in a 2012 interior assessment are collectively not presumed to support a high abundance of eastern black rails historically or currently, relative to the Atlantic and Gulf Coast states. The 2012 interior assessment concluded that eastern black rails are currently vagrants (casual or accidental vagrants) in Arkansas, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, New Mexico, Ohio, and Wisconsin (USFWS 2019[b]).

Stressors – Historically, the primary stressors to the eastern black rail included habitat degradation and fragmentation from conversion of marshes and wetlands to agricultural lands or urban areas. Current stressors include the loss, degradation, and fragmentation of wetland habitats resulting from sea level rise along the coast, and groundwater and surface-water withdrawals across the subspecies' range. Incompatible land management techniques, such as poorly timed and planned prescribed fires, grazing, or mechanical treatment activities, also have negative impacts on the eastern black rail and its habitat, especially when conducted at sensitive times, such as the breeding season or the flightless molt period (USFWS 2020[b]).

4.2.2 Piping Plover (*Charadrius melodus)*

Description – The piping plover is a small sand-colored, sparrow-sized shorebird that nests and feeds along coastal sand and gravel beaches in North America. The adult has yellow-orange legs, a black band across the forehead from eye to eye, and a black ring around the neck during the summer (winter plumage is without the black ring around its neck).

Resource Needs (Habitat) – In the Northern Great Plains, piping plovers breed and raise young on sparsely vegetated sandbars and reservoir shorelines on river systems as well as on the shorelines of alkaline lakes. On the wintering grounds, piping plovers forage and roost along barrier and mainland beaches, sand, mud, and algal flats, washover passes, salt marshes, and coastal lagoons. Piping plovers forage by gleaning various macroinvertebrates from the substrate or running and pecking on the substrate with short runs between pecks (Elliott-Smith and Haig 2004).

Life History – Piping plovers begin to arrive on the breeding grounds in the first half of April, with courtship, followed by nesting, beginning in mid-to-late April. The male creates a shallow depression on the ground which both adults line with small pebbles, and both adults share incubation duties which last 25 to 28 days. Hatching begins in late May to early June, generally peaking in June and early July. The young leave the nest within hours of hatch and begin to forage almost immediately. Chicks may be brooded for up to 21 days post-hatch. Chicks fledge 25 to 35

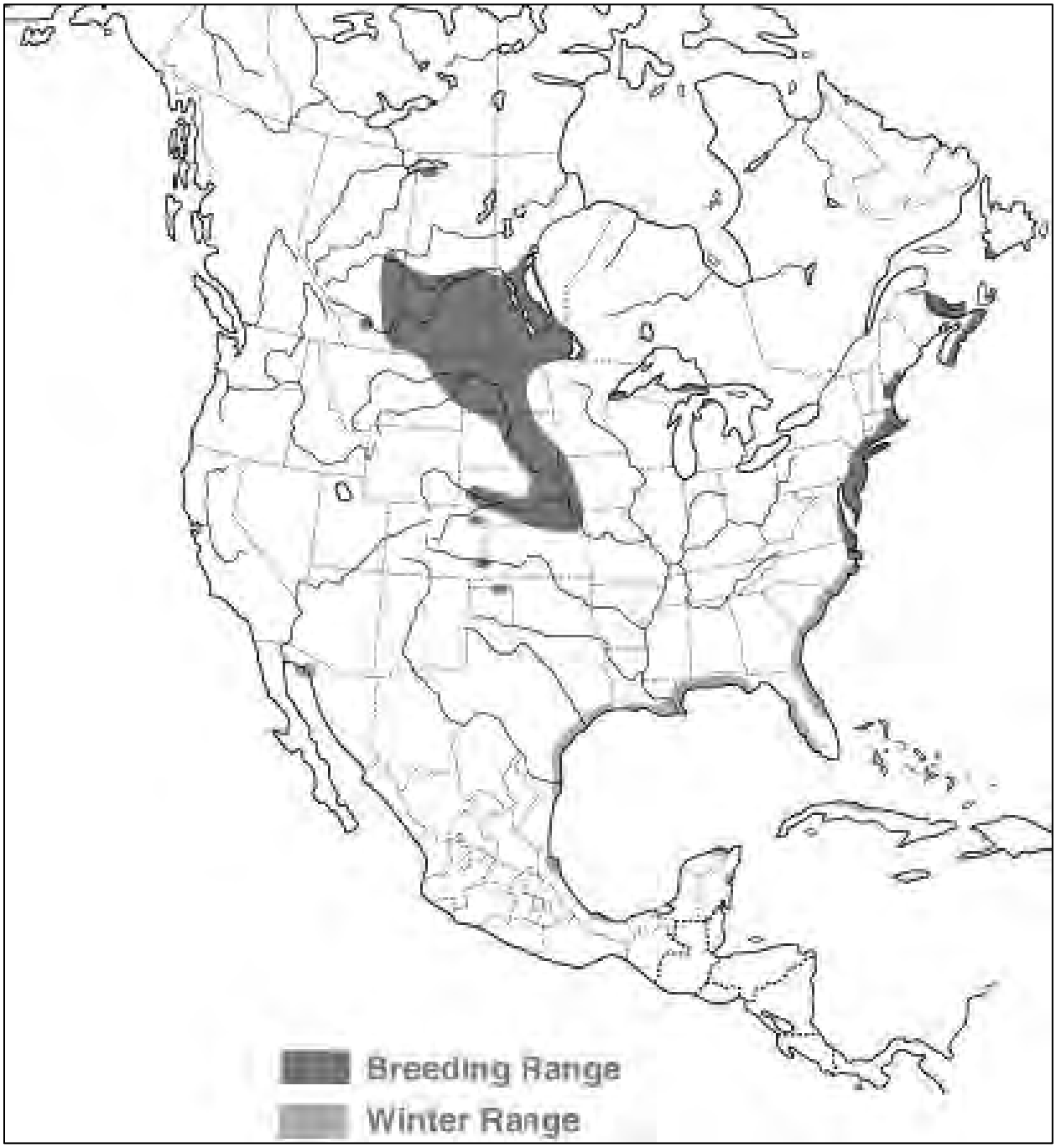
days after hatching and are capable of sustained flight soon after fledging. Piping plovers generally only raise one brood a season, although they have been documented to raise two broods on rare occasions. Piping plovers begin to leave the breeding grounds as early as mid-July (USFWS 2015[b]).

Distribution – The breeding population of the Northern Great Plains piping plover extends from Nebraska north along the Missouri River through South Dakota, North Dakota, and eastern Montana, and on alkaline (salty) lakes along the Missouri River Coteau (a large plateau extending north and east of the Missouri River) in North Dakota, Montana, and extending into Canada. Most piping plovers from Prairie Canada winter along the south Texas coast, while breeding piping plovers from the U.S. are more widely distributed along the Gulf Coast from Florida to Texas. **Figure 4-7** below illustrates the winter range and breeding regions of North America: beaches of the Atlantic Coast from South Carolina to Newfoundland, shorelines of the Great Lakes, and along alkaline wetlands and major rivers and reservoirs of the Northern Great Plains (USFWS 2015[b]).

Migration Patterns – Piping plover migration is not well-defined. Piping plovers appear to be low-density migrants throughout the midcontinent, often observed singly or in small groups. They appear to use sites opportunistically, and therefore do not have frequently used stopover sites in the central portion of the country, making management for piping plovers during migration difficult (Pompei and Cuthbert undated). It has been reported that one banded bird migrated more than 1,200 miles from North Dakota to the Texas coast in less than five days which indicates that migration may occur over very short periods. There are few sightings of plovers in migration which makes it difficult to measure survival during migration versus during the breeding or winter seasons (USFWS 2015[b]).

Stressors – Changes in the quality and quantity of riverine habitat due primarily to damming and water withdrawals are a primary threat to the piping plover. Habitat destruction and degradation are also pervasive and have reduced suitable habitat. Human disturbance, predation, and invasive plants further reduce breeding and wintering habitat quality and affect survival of the piping plover (USFWS 2015[b]).

Figure 4-7: Range of piping plover, *Charadrius melodus*



Source: Birds of North America Online http://bna.birds.cornell.edu/bna maintained by the Cornell Lab of Ornithology

4.2.3 Rufa Red Knot (*Calidris canutus rufa)*

Description – The rufa red knot is a medium-sized shorebird about 9 to 11 inches in length. It is easily recognized during the breeding season by its distinctive red plumage (feathers). The face, prominent stripe above the eye, breast, and upper belly are a rich red to a brick or salmon red,

sometimes with a few scattered light feathers mixed in. The feathers of the lower belly and under the tail are whitish with dark flecks. Upper parts are dark brown with white and rufous feather edges; outer primary feathers are dark brown to black. Females are similar in color to males, though the rufous colors are typically less intense, with more buff or light gray on the dorsal parts (USFWS 2020[c]).

Resource Needs (Habitat) – Rufa red knots generally nest in dry, slightly elevated tundra locations with little vegetation. Best available limited information indicates nest sites are within 600 feet of a freshwater wetland. It is possible that a greater diversity of nesting and foraging habitats are utilized across the breeding range but not yet documented. Nests are scraped into low spreading vegetation on hummocky ground containing lichens, leaves, and moss. After the eggs hatch, rufa red knot chicks and adults quickly move away from high nesting terrain to lower, freshwater wetland habitats. On the breeding grounds, the rufa red knot's diet consists mostly of terrestrial invertebrates such as insects and other arthropods with a diet of grass shoots, seed, and other vegetable matter in the early breeding season (USFWS 2020[c]).

Life History – The rufa red knot's typical life span is at least 7 years, with the oldest known wild bird at least 21 years old. Age of first breeding is at least 2 years. Pair bonds form soon after the birds arrive on the breeding grounds, in late May or early June, and remain so until shortly after the eggs hatch. Female rufa red knots lay only one clutch per season. The typical clutch size is four eggs. The incubation period lasts approximately 22 days from the last egg laid to the last egg hatched, and both sexes participate equally in egg incubation. Young can feed themselves almost immediately and usually leave the nest within 24 hours of hatching to forage for themselves. Female rufa red knots usually leave the breeding grounds and start moving south soon after the chicks hatch in mid-July. After the female leaves, parental care is provided solely by the males, but about 25 days later (around August 10) males also abandon the newly fledged juveniles and move south. The male rufa red knots are followed shortly by the juveniles (USFWS 2020[c]).

Distribution

Breeding Range: The rufa red knot breeds in the central Canadian Arctic, from the islands of northern Hudson Bay to the Foxe Basin shorelines of Prince Charles and Baffin Islands, and west to Victoria Island (USFWS 2020[c]).

Nonbreeding Range: Data show definitively that the rufa red knot nonbreeding range includes nearly the entire Atlantic and Caribbean coasts of South America and the Caribbean islands; Chiloé Island on the south-central Pacific coast of Chile; the Pacific coast of Panama; the North American Gulf and Atlantic coasts from Tamaulipas, Mexico through Quebec, Canada; the interior of South America; and the interior of the United States and Canada west at least as far as the Great Plains.

Wintering Areas: Wintering areas for the rufa red knot include the Atlantic coasts of Argentina and Chile; the northern coast of South America; the western Gulf of Mexico from Tamaulipas (a Mexican state) through Texas to Mississippi and extending south along both coasts of Central

America; and the Southeast United States from Florida to North Carolina with additional birds throughout the Caribbean (including the Bahamas) (USFWS 2020[c]).

Migration Patterns – Each year some rufa red knots make one of the longest distance migrations known in the animal kingdom, traveling up to 19,000 miles annually. The rufa red knot migrates annually between its breeding grounds in the central Canadian Arctic and their four wintering regions: the Southeast United States and through the Caribbean; the Western Gulf of Mexico from Mississippi through Central America; northern Brazil and extending west along the northern coast of South America; and Tierra del Fuego at the southern tip of South America (mainly in Chile) and extending north along the Patagonian coast of Argentina (**Figure 4-8**). Migration patterns are divided into three categories: northbound migration which occurs in the spring, southbound migration which occurs in the fall, and mid-continental migration of wintering Texas populations. The wintering Texas rufa red knots typically use a central, overland flyway across the midcontinental United States, with birds departing Texas between May 16 and May 21, and use stopover areas in the Northern Great Plains and along the southern Hudson Bay. During both the northbound and southbound migrations, rufa red knots use key staging and stopover areas (**Figure 4-9**) to rest and feed. Migration stopovers have variable sizes with no predictable prey quantities or qualities. Geolocator results indicate a complicated and fluid ability of the rufa red knot to migrate north or south using multiple avenues with some to no fidelity to previous routes (USFWS 2020[c]).

Stressors – In the final listing rule of the rufa red knot, the USFWS determined that the rufa red knot is threatened under the ESA due to the following primary reasons: loss of breeding and nonbreeding habitat (including sea level rise, coastal engineering, coastal development, and arctic ecosystem change); likely effects related to disruption of natural predator cycles on the breeding grounds; reduced prey availability throughout the nonbreeding range; and increasing frequency and severity of asynchronies (mismatches) in the timing of the birds' annual migratory cycle relative to favorable food and weather conditions (USFWS 2020[c]).

Critical habitat has been proposed by the USFWS as published in the CFR, July 15, 2021; those critical habitat areas proposed for the rufa red knot are specific coastal areas along the east coast and southern U.S. states of Georgia, Florida, Alabama, Louisiana, Mississippi, and Texas (USFWS 2021[a]). Comments were received until September 13, 2022.

Figure 4-8: Wintering Regions of the Rufa Red Knot, *Calidris canutus rufa*.

Source: USFWS 2020[c]

Figure 4-9: Important Rufa Red Knot, *Calidris canutus rufa*, Migration Stopovers.

Source: USFWS 2020[c]

4.3 Insects

4.3.1 American Burying Beetle (*Nicrophorus americanus)*

Description – The ABB is the largest silphid (carrion beetle) in North America, reaching 1.0 to 1.8 inches in length. The beetles are black with brilliant orange-red markings. Their hardened elytra (wing coverings) are smooth, shiny black, and each elytron has two scallop shaped orange-red markings. The pronotum over the mid-section between the head and wings is circular in shape with flattened margins and a raised central portion. The most diagnostic feature of the ABB is the large orange-red marking on the raised portion of the pronotum, a feature shared with no other members of the genus in North America (USFWS 1991). The ABB also has an orange-red frons (the upper, anterior part of the head), and a single orange-red marking on the clypeus, which can be viewed/considered as the lower "face" located just above the mandibles. Antennae are large, with notable orange club-shaped tips for chemoreception (USFWS 2019[a]).

Resource Needs (Habitat) – The ABB is considered a generalist in terms of the vegetation types where it is found, as it has been successfully live-trapped in a wide range of habitats, including

wet meadows, partially forested loess canyons, oak-hickory forests, shrub land and grasslands, lightly grazed pasture, riparian zones, coniferous forest, and deciduous forests with open understory (USFWS 2019[c]).

While the ABB uses a wide variety of habitats, the USFWS currently believes that areas exhibiting the following characteristics are not of conservation value to ABBs. Areas exhibiting these characteristics are considered unfavorable for use by ABBs based on disturbance regime, vegetation structure, unsuitable soil conditions, and carrion availability (USFWS 2019[c]):

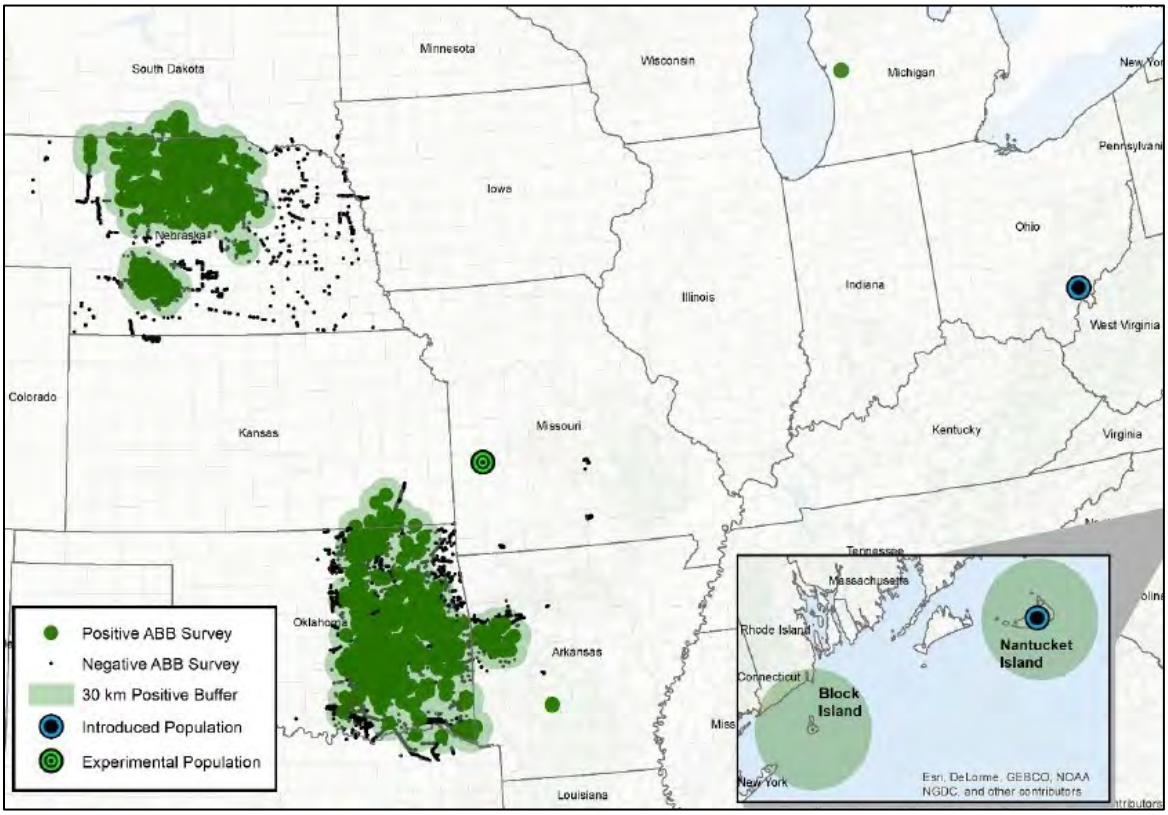
1. Land that is tilled on a regular basis, planted in monoculture, and does not contain native vegetation.
2. Pasture or grassland that has been maintained through frequent mowing, grazing, or herbicide application at a height of 8 inches or less.
3. Land that has already been developed and no longer exhibits topsoil, leaf litter, or vegetation.
4. Urban areas with maintained lawns, paved surfaces, or roadways.
5. Stockpiled soil without vegetation.
6. Wetlands or permanent waterbodies with standing water or saturated soils. Areas adjacent to wetlands and/or riparian areas are not considered unfavorable for the ABB, as they may be important for ABBs seeking moist soils during dry conditions.

Life History – The life history of the ABB is like that of other burying beetles. The ABB is a nocturnal species that lives for only about one year. American burying beetles are active from late spring through early fall, occupying a variety of habitats and bury themselves in the soil to hibernate for the duration of the winter. Reproduction occurs in the spring-early summer. New adult beetles or offspring, usually emerge in summer, over-winter (hibernate) as adults, and comprise the breeding population the following summer. Adults and larvae depend on dead animals for food, moisture, and reproduction. (USFWS 2019[a]).

Distribution – The ABB once occurred throughout much of temperate eastern North America, including 35 U.S. states (USFWS 1991). Its absence throughout much of its former range became apparent in the 1980s, and by 1989, the ABB was thought to occur only on Block Island, Rhode Island, and at one location in Oklahoma. Currently, the ABB can be found in less than 10% of its historic range, with localized, extant populations discovered in six states (**Figure 4-10**). These locations include eastern Oklahoma, western Arkansas, northeastern Texas, the Sand Hills and Loess Hills regions in Nebraska, the Chautauqua Hills region of southeastern Kansas, south-central South Dakota, and Block Island off the coast of Rhode Island. A reintroduced population on Nantucket Island off the coast of Massachusetts and recent reintroduction attempts in Ohio and Missouri have reported successful brood rearing and overwintering (USFWS 2019[a]). Based on current understanding of the ABBs habitat and following broad geographic and ecological patterns, the current range of the American burying beetle is organized into the following three

analysis areas: Northern Plains Analysis Area, Southern Plains Analysis Area, and the New England Analysis Area (USFWS 2020[a]). The proposed action of this BA is located in the Southern Plains Analysis Area.

Figure 4-10: Current known distribution of the American burying beetle, *Nicrophorus americanus*



Note: Based on 2001-2015 survey efforts except for 2017 Michigan occurrence.
Source: Species Status Assessment Report, USFWS February 2019.

Stressors – The American Burying Beetle Recovery Plan (USFWS 1991) and the 5-year Status Review of the species (USFWS 2008) identify the following factors as potential threats to ABB: direct habitat loss and alteration, increase in competition for prey, inter and intra-specific competition, increase in edge habitat, decrease in abundance of prey, loss of genetic diversity in isolated populations, disease/pathogens, DDT, agricultural and grazing practices, and invasive species. Specific reasons for the burying beetles' lack of success in the Southern Plains analysis area include increased competition with ants, flies, and perhaps vertebrates, as well as increased temperatures and rates of carcass decomposition (USFWS 2019[a]).

Regulatory Status – As recently as October 2020, the ABB was federally listed as Endangered. Due to a petition to the USFWS in August 2015 (petitioners: American Stewards of Liberty, the Independent Petroleum Association of America, the Texas Public Policy Foundation, and Dr. Steven W. Carothers [USFWS 2016]) and species status review activities since, an ESA Section 4(d) rule became effective November 16, 2020, which down listed the species to Threatened and redefined ‘‘conservation lands’’ where incidental take would continue to be prohibited within

the Southern Plains populations. The three conservation lands where incidental take is prohibited in the Southern Plains analysis area according to the ABB 4(d) rule are lands included within the existing boundaries of Fort Chaffee (approximately 64,000 acres), Arkansas, and McAlester Army Ammunition Plant (approximately 45,000 acres), Oklahoma, and Camp Gruber/Cherokee Wildlife Management Area (approximately 64,000 acres), Oklahoma. Determining suitability of habitat within these defined conservation lands is an important step in the regulatory process for a proposed project. Outside of these defined conservation lands, incidental take is not prohibited because the Southern Plains Analysis Area currently has low risks to the species associated with land development (USFWS 2020[a]).

On March 25, 2021, the Center for Biological Diversity filed a complaint against the USFWS challenging the ABB down listing action (Case Number: 1:21-cv-00791, Court: District of Columbia), and no further developments have occurred since.

4.3.2 Monarch Butterfly (*Danaus plexippus)*

Description – The monarch, (Linneaus, 1758), is a species of butterfly in the order Lepidoptera (family Nymphalidae) found globally throughout 90 countries, islands, and island groups. Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side and lower side of forewings and hindwings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches (USFWS 2020[b]).

Resource Needs (Habitat) – Adult monarch butterflies during breeding and migration require a diversity of blooming nectar resources, which they feed on throughout their migration routes and breeding grounds (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within a diverse nectaring habitat. The correct phenology, or timing, of both monarchs and nectar plants and milkweed is important for monarch survival (USFWS 2020[b]).

According to the monarch butterfly's Species Status Assessment report (USFWS 2020[b]), individual-level requisites for monarch breeding and survival are:

1. Eggs, Larvae, and Adults – breeding: Healthy and abundant milkweed is needed for oviposition and larval consumption.
2. Adult – breeding and migration: Sufficient quality and quantity of nectar from flowers is needed for adult feeding throughout the breeding and migration seasons. Nectar and milkweed resources along the migration route when butterflies are present; the size and spatial arrangement of habitat patches are generally thought to be important aspects, but currently unknown. Roosting sites may also be important for monarchs along their fall migration route.

Life History – During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.), and larvae emerge after two to five days. Larvae develop

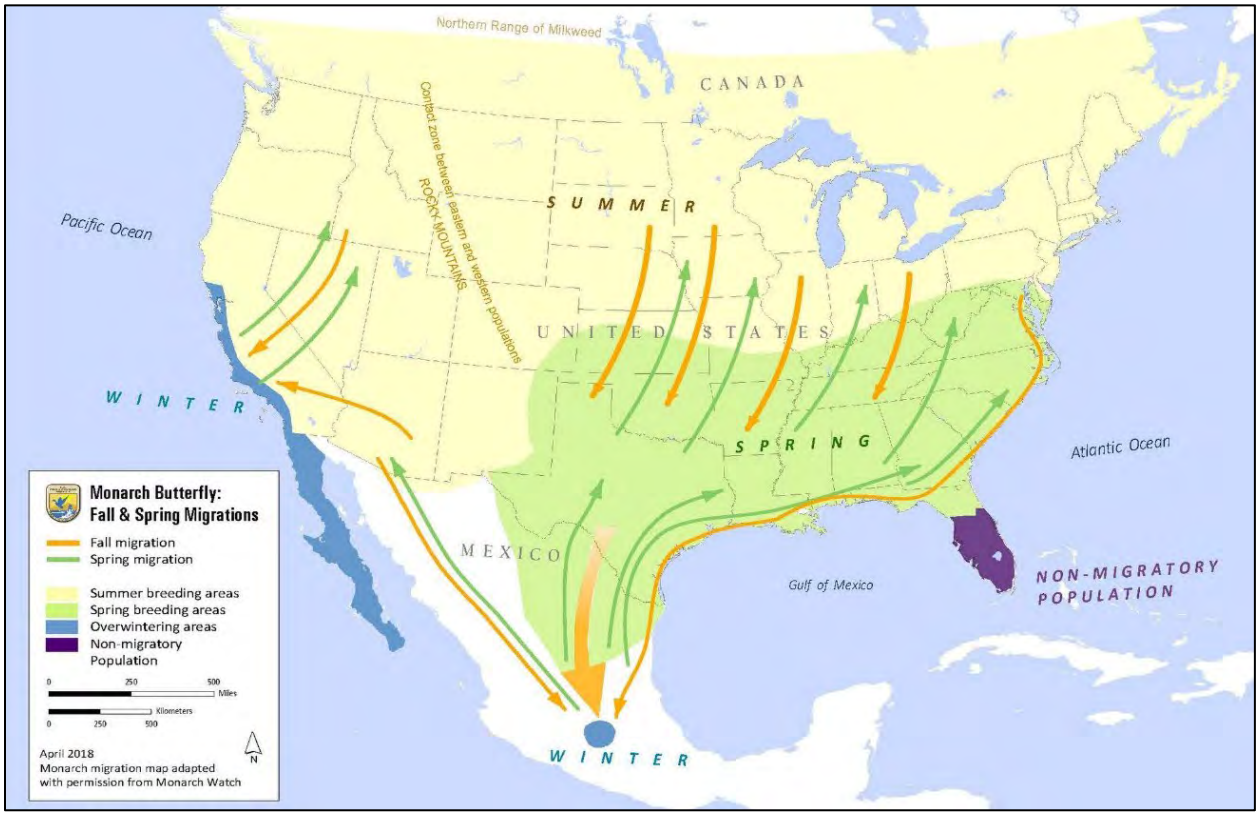
through five larval instars (intervals between molts) over a period of nine to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging six to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months. In many regions where monarchs are present, monarchs breed year-round. (Source: https://ecos.fws.gov/ecp/species/9743; accessed 8/27/22.)

Distribution – Two North American populations, the migratory populations located east and west of the Rocky Mountains, have been monitored at their respective overwintering sites in Mexico and California since the mid-1990s. While these populations fluctuate year-to-year with environmental conditions, census data indicate long-term declines in the population abundance at the overwintering sites in both populations. These declining trends led to the petition of the U.S. Fish and Wildlife Service to list the monarch butterfly for protection under the ESA of 1973, as amended.

Migration Patterns – Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites (**Figure 4-11**). This migration can take monarchs distances of over 3,000 kilometers and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds, and their offspring start the cycle of generational migration over again (USFWS 2020[b]).

Stressors – The primary stressors affecting the health of the two North American migratory populations are primarily: loss and degradation of habitat (from conversion of grasslands to agriculture, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought), continued exposure to insecticides, and effects of climate change (USFWS 2020[b]).

Figure 4-11: Monarch Butterfly, *Danaus plexippus,* Fall and Spring Migration



Source: USFWS Aug 2017

Regulatory Status – The ECOS IPaC currently identifies the monarch as a candidate species, and project developers, particularly federal agencies, may choose to voluntarily add conservation actions to conserve monarchs to their projects. The USFWS must propose the monarch for listing as either an endangered or threatened species, gather and analyze public comments and any new information, and using the best available science, make a final decision and publish a final rule.

A petition for rulemaking for an ESA section 4(d) rule for the monarch butterfly to be listed as threatened was received by the USFWS on November 24, 2020. The petition was submitted by the University of Chicago in its capacity as Program Administrator of the Nationwide Candidate Conservation Agreement (CCA) for Monarch Butterfly on Energy and Transportation Lands in efforts to ensure their agreement program has the opportunity to create a conservation benefit for monarchs and prevent take prohibitions for activities covered by the agreement's authorized activities. After reviewing this petition, the USFWS agreed with the potential need for listing, but is currently deferring the process while they work on higher-priority listing actions.

ARDOT has entered into a Voluntary Prelisting Species Conservation Program (VPL), which proposes to implement mowing and herbicide efforts, wildflower plantings in ARDOT right of way to benefit the monarch. On January 25, 2021, USFWS issued a Programmatic Conference Opinion (PCO) that concluded the actions proposed in the VPL are not likely to jeopardize the continued

existence of these species. ARDOT's VPL, when implemented, would provide additional host plants and nectar plants for the monarch butterfly, allowing for increased abundance and distribution of the species with the intent the VPL will provide an overall net benefit to monarchs. Details of the conservation measures are provided in the USFWS PCO (USFWS 2021[c]). Additionally, after construction, ARDOT will sow six native wildflowers at a rate of four pounds per acre as a conservation measure. Approximately 397 acres of right of way resulting from this project would be maintained for the monarch as specified in the 2021 PCO for ARDOT's VPL.

4.4 Flowering Plants

4.4.1 Missouri Bladderpod (*Physaria filiformis)*

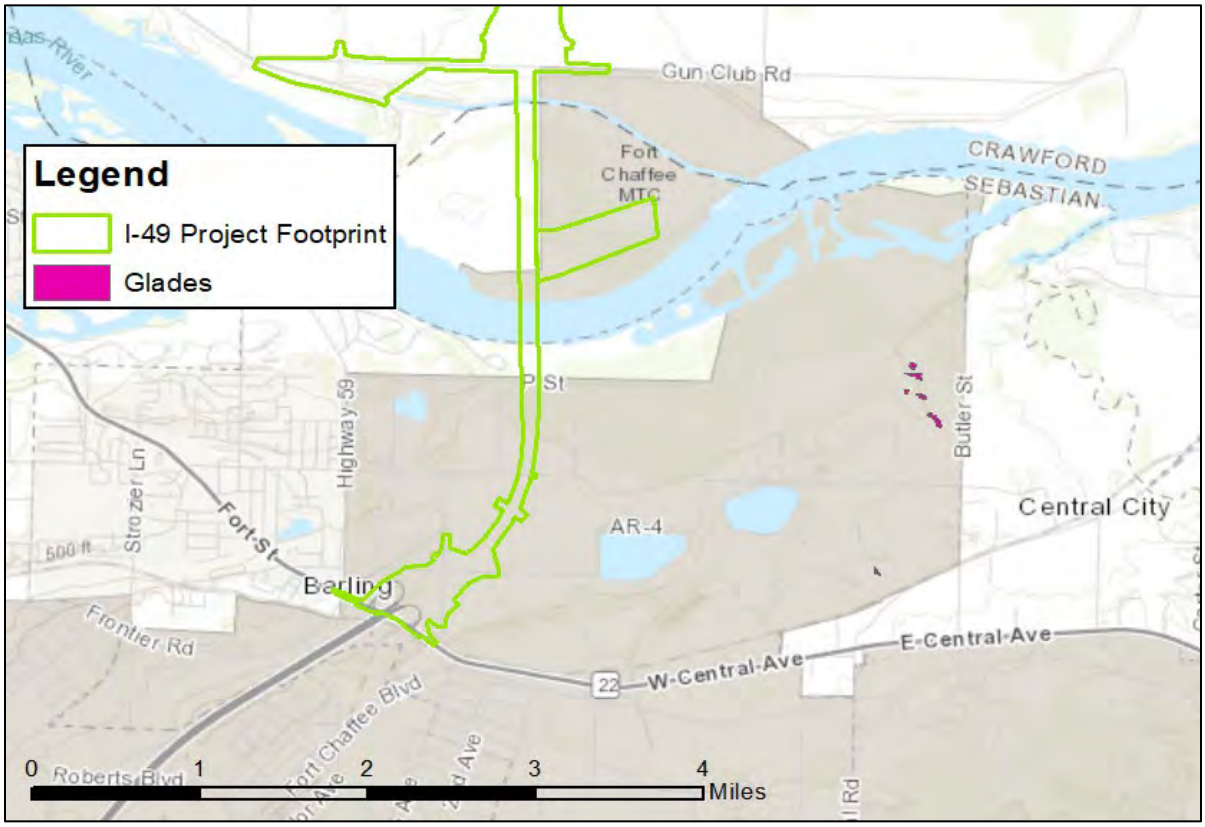
Description – Missouri bladderpod is a non-woody, annual plant that produces numerous slender stems from its base. Leaves are less than an inch long and taper toward the stems. Both the leaves and the stems have a dense covering of fine hairs, which gives the plant a silvery-gray appearance. The plant blooms April through May and includes typical mustard flowers, with four petals and four sepals. The petals are yellow (Source: https://mdc.mo.gov, accessed 6-19-2021).

Resource Needs (Habitat) – Missouri bladderpod populations are found growing on limestone glades and rocky outcroppings. Many populations have persisted in grazed pastures, rocky open woods, and limestone outcrops along roadsides (USFWS 2020[d]).

Glades are open, rocky, barren areas with shallow soils that support unique communities of drought-adapted forbs, warm-season grasses, and a specialized fauna. Glades are most often located on western or southern exposures or on the high summits of ridges, knobs, domes, or escarpments where soils are thin and moisture conditions favor drought-tolerant species (Nelson et al. 2013).

The glade assessment region from Nelson's 2013 Central Hardwoods Joint Venture Glade Conservation Assessment study that pertains to this proposed project is the Western Arkansas Valley and Ridges subsection (located in western central Arkansas and eastern central Oklahoma). This subsection consists of plains, low hills, and ridges 90 to 300 m in elevation underlain by Pennsylvanian sandstone and shale with sandy and clayey residuum and Holocene sandy alluvium. The matrix vegetation is shortleaf pine-oak and oak woodland and forest in upland areas and bottomland forest and prairie in valleys. It was not considered a major subsection for glades but does include some gladey shale outcrops in tallgrass prairie remnants. These sites support several plant species of conservation concern including rain lily (*Cooperia drummondii*), narrowleaf puccoon (*Lithospermum incisum*), and wild hyacinth (*Camassia angusta*). Examples of these shale outcrops occur on Fort Chaffee Military Reservation (Nelson et al. 2013). **Figure 4-12** below shows known glade locations in Arkansas.

Figure 4-12: Location of Glades or Gladey Outcrops on Fort Chaffee Military Training Center



Source: Natural Glades in Missouri and Arkansas (2016), https://gcpolcc.databasin.org/datasets/a817fa247dd3440e814282f3063c51d0/
Credits: generated using ESRI ArcMap 10.8.7, Layers: AR MO glades

There has been tremendous response of bladderpod to active management efforts for the known population at a small limestone glade at Beaver Lake in northwest Arkansas. The glade was overgrown with cedars and other hardwoods that shaded out the glade. Following thinning operations, prescribed fire, and control of exotics by the USACE, the population at this site increased from a handful of plants to several thousand. Another example in Missouri illustrated the same effect of active management and demonstrated that this species can thrive with proper management (USFWS Recovery Plan Implementation Progress Report for the Missouri bladderpod; https://ecos.fws.gov/ecp/species/5361; accessed 8-28-22).

Consistent glade management maintains suitable habitat for *P. filiformis* and is considered vital to the survival and recovery of populations in Arkansas and Missouri. Removal of Eastern red cedar (*Juniperus virginiana*), prescribed fire, and control of exotic species allow for the persistence and expansion of populations (USFWS 2020[d]).

Life History – Missouri bladderpod is a winter annual which germinates in the fall and overwinters in the form of basal rosettes (USFWS 1988). It flowers from April to May, producing 4-petaled, bright yellow blossoms clustered at the tops of the stems. The small (1/8-inch diameter), round

green fruits appear from May to early June and gradually turn brown. Each fruit contains 4 flattened brown seeds. These drop in late May and early June, lie dormant through summer, and germinate in fall. They grow in a rosette, which appears as a tiny, button-sized cluster of leaves, and remains throughout the winter until spring (Source: https://mdc.mo.gov, accessed 6-19-2021).

Distribution – Ten populations of *P. filiformis* occur in Arkansas. Known populations in Arkansas are located near Beaver Lake in northwest Arkansas and the Ouachita Mountains (Cedar Fourche Glade complex and Jack Mountain Wildlife Management Area) in central Arkansas west of Hot Springs, Arkansas (USFWS 2020[d]).

Stressors – Three primary stressors threatened the Missouri bladderpod: habitat loss, fire control and roadside maintenance. The natural glade habitat of the Missouri bladderpod is threatened with residential development, overgrazing, and competition from encroaching woody vegetation and non-native grasses. Historically, natural disturbances such as fire kept the glades open and free of trees and shrubs. With aggressive control and prevention of wildfires, woody plants and introduced grasses have invaded glades. The Missouri bladderpod can only grow in open areas; it cannot compete with these plants. Thus, it dies out when glades are overgrown with species such as red cedar, cheat grass, and fescue. Some bladderpod populations are found on roadsides and could be threatened by herbicides or mowing (USFWS 2003).

4.5 Reptiles

4.5.1 Alligator Snapping Turtle (*Macrochelys temminckii*)

Description - With a maximum carapace length of nearly 24 inches and weight of over 200 lbs, the alligator snapping turtle (*Macrochelys temminckii*) is the largest freshwater turtle in North America. The shell of the turtle is rough, dark olive brown, with three prominent longitudinal coarsely serrate keels. The alligator snapping turtle has a massive head with an elongated snout terminating in a strongly hooked beak. They have muscular legs and webbed toes with long, pointed claws. The eyes are directed laterally; and the neck and chin have numerous papillae (Trauth et al. 2004).

Resource Needs (Habitat) - The alligator snapping turtle are generally found in deeper waters of large rivers and their major tributaries, but are also known to inhabit small streams, bayous, canals, swamps, lakes, reservoirs, ponds, and oxbows. Alligator snapping turtles more often select structure (e.g., tree root masses, stumps, submerged trees, etc.) than open water and may select sites with a high percentage of canopy cover (USFWS 2021[e]). The turtle spends most of its time immobile or walking around on the bottom, with only adult females apparently leaving the water to nest. Nests have been observed approximately 8 to 656 feet landward from the nearest water (USFWS 2021[e]) and only nesting females or hatchlings returning to the water would normally be found in this zone. In general, the species uses shallower water in early summer and deeper depths in late summer and mid-winter. Studies in Louisiana approximated

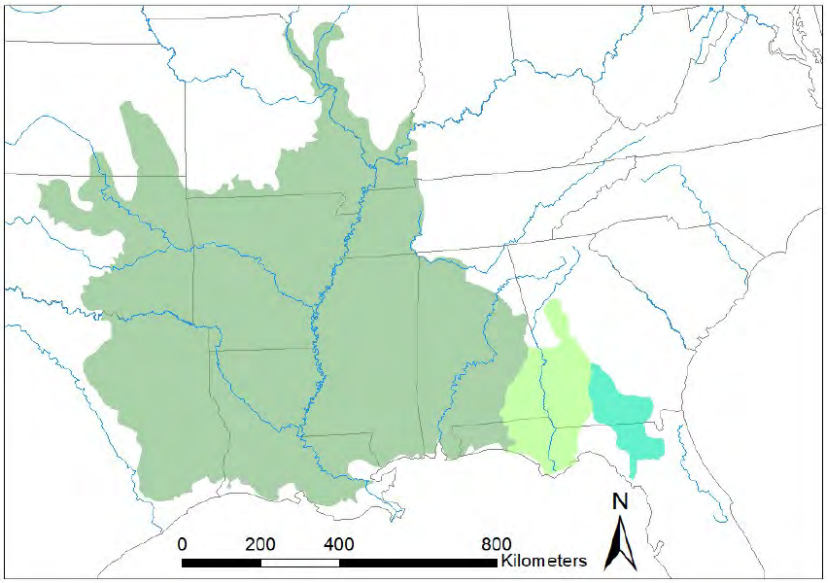
home range sizes as approximately 70 acres for males and approximately 110 acres for females (Carr et al. 2010).

Using a unique structure within their mouth which appears to prey as a luring device, the alligator snapping turtle is known to eat virtually anything it actively encounters – fish, carrion, plant matter, nuts, small mammals, birds, and other turtles. Both adults and juveniles use this lure to attract fish into striking range. This ambush foraging technique can last up to 5-6 minutes per attempt (Ernst and Lovich 2009).

Life History - The general life cycle of the alligator snapping turtle is adult, egg, hatchling, juvenile to adult. The alligator snapping turtle reaches sexual maturity between 11 and 21 years of age, and once mature, can live for 6-7 decades, if not captured by trappers. Females ovulate in spring and apparently breed yearly producing no more than one clutch per year per female in the wild. Most nesting occurs May-July with some regional variation (USFWS 2021[e]).

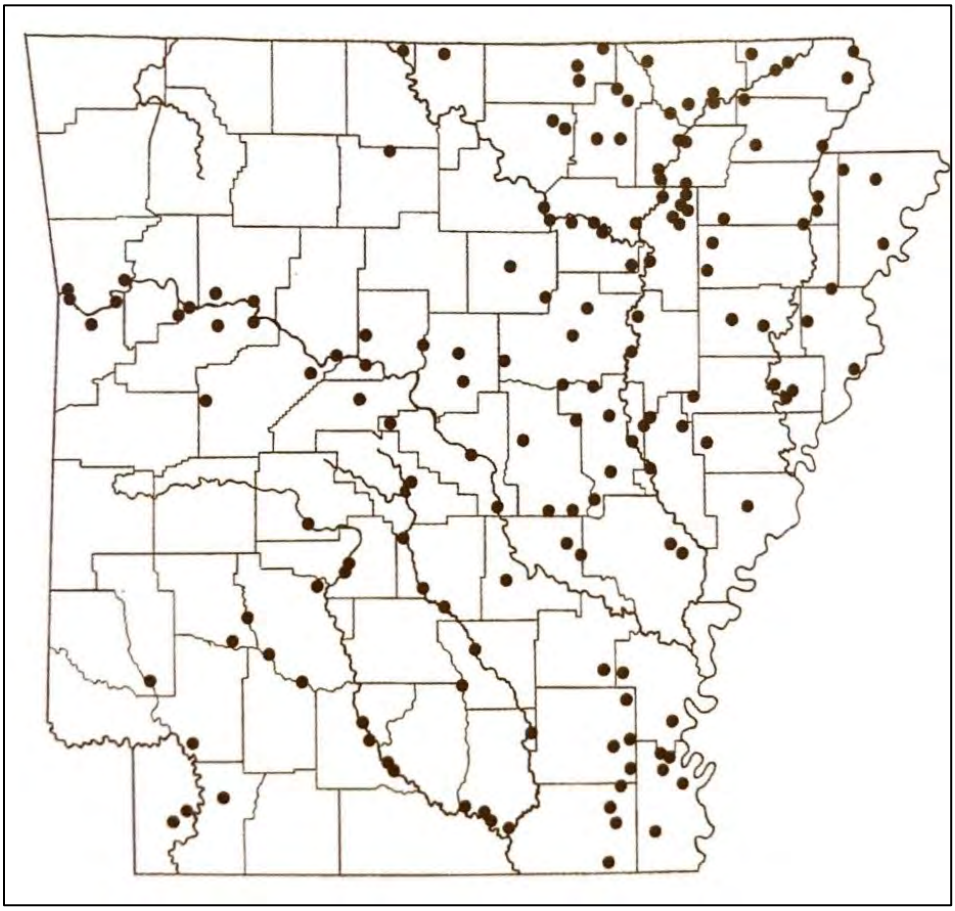
Distribution - The known distribution of the alligator snapping turtle is riverine systems that flow into the Gulf of Mexico, extending from the Suwannee River in Florida to the San Antonio River in Texas (**Figure 4-13**). In the state of Arkansas, it is widely distributed within nearly all its major rivers (**Figure 4-14**). According to a state-wide status and distribution study in Arkansas, alligator snapping turtles have been captured in Crawford and Sebastian counties (Wagner et al., 1996). Range contraction of the alligator snapping turtle continues as documented by surveys and monitoring activities, and despite state protections at different levels in its range. Range contractions have been noted in Illinois, Tennessee, Kentucky, Missouri, Kansas, and possibly Oklahoma.

Figure 4-13: Range of the Alligator Snapping Turtle (Macrochelys temminckii)



Source: Species Status Assessment Report, USFWS 2021[e]; different shades represent three possible main genetic lineages.

Figure 4-14: Distribution of the Alligator Snapping Turtle (*Macrochelys temminckii*) in Arkansas



Source: Trauth et al. 2004.

Stressors - The alligator snapping turtle has several primary stressors which include habitat loss or modification, harvest and collection, nest predation, and hook ingestion, entanglement, and drowning due to bycatch associated with freshwater fishing (USFWS 2021[d]).

Regulatory Status - On November 9, 2021, the USFWS published a Section 4(d) rule which proposed this species to be listed as threatened and stated that designation of critical habitats was not determinable at that time. The 4(d) rule proposed exception to the prohibitions of take incidental to construction, operation, and maintenance activities that occur near and in a stream when implemented with industry and/or State-approved BMPs for construction. The public comment period for this 4(d) rule ended January 10, 2022 (USFWS 2021[d]). No further actions have occurred since.

5.0 EFFECTS ANALYSIS OF THE PROPOSED ACTION

5.1 Mammals

5.1.1 Gray Bat (*Myotis grisescens)*

The project footprint is outside the range of Arkansas' karst topography, but the ecoregion transitions to the Boston Mountains approximately 5 miles north of the northern terminus of the project. The Boston Mountains contain karst features that can serve as roosting sites for gray bats, and they may be in close enough proximity to the action site that the project footprint contains foraging habitat for the gray bat. Gray bats typically forage over open water or along riparian edges, feeding primarily on emerging aquatic insects, such as mayflies, stoneflies, and caddisflies. These prey species are known as indicator species for water quality and are sensitive to pollution. Water contamination from work below the ordinary high-water mark could reduce prey abundance and pollute drinking water for gray bats.
Foraging habitat for gray bats occurs within the riparian corridors of the Arkansas River, Flat Rock Creek, Mays Branch, and Frog Bayou. The removal of riparian forest along these water ways will degrade foraging habitat and may alter foraging behavior by disrupting flyway connectivity. The removal of vegetation is permanent as a new right of way alignment is being constructed. Noise and artificial light from a high-traffic interstate may cause gray bats to avoid the area, both during construction and after project completion.

The nearest gray bat maternity colony is approximately 30 miles east of the project footprint in Adair County, Oklahoma. Acoustic surveys have already been conducted indicating gray bat presence at 17 of the 25 bat survey sites (see **Appendix D** for full bat survey report). Six of those sites were mist net surveys with the remainder being acoustic surveys. Prior to the BA survey effort, there were no previous records of gray bats in the project footprint, according to ANHC records. Communication with other bat specialists post-survey effort revealed other acoustic recordings of gray bats were documented within Fort Chaffee Wildlife Management Area in 2015 (Ron Redman, personal communication, 2022).

With assistance from USFWS, mist-nets were set up for three nights at six different locations with an attempt to capture a gray bat and place a radio transmitter on it to track back to the roost location. However, no gray bats were captured despite acoustic recordings indicating they were present. Acoustic recordings were manually reviewed, and calls were highly consistent for gray bats. The species is likely present, but the location of their summer roost site is unknown. Gray bats are known to travel up to 20 miles from roost sites during nightly foraging. The distance traveled for foraging from the maternity cave in Oklahoma is at the outer limit of what would be expected for this species. Therefore, it is possible an unknown colony exists somewhere closer to the project site, but it is unlikely to be nearby. The earliest gray bat calls recorded were approximately 2 hours after sunset, indicating a travel delay in arrival. While habitat modifications made by the proposed action will destroy gray bat foraging habitat, the habitat is likely on the edge of their home range and outside any critical buffer area (i.e., typically 10 miles

from maternity site) needed to minimize stress during their pup rearing stage. Therefore, the proposed action may affect, but is not likely to adversely affect (NLAA) the gray bat.

5.1.2 Indiana Bat (*Myotis sodalis)*

The project footprint is outside the area of karst topography; thus, no winter hibernacula for Indiana bats are within the action area. There are 453.3 acres of forested habitat within the project footprint that contain both live and dead trees with DBH ≥ 5 inches and a few man-made structures (e.g., barns, sheds, and/or culverts) that serve as potential roosting sites. The riparian corridors of the Arkansas River, Flat Rock Creek, Mays Branch, and Frog Bayou also serve as foraging habitat and are a source of flyway connectivity to additional suitable habitat within the action area and surrounding landscape. All 453.3 acres of suitable summer habitat will potentially be removed by the proposed action, with much of it being permanently converted to paved roadways and maintained right of way. See **Appendix C** for the vegetation assessment plot forms that characterize the species composition, size, and number of trees in each respective sample. Acoustic bat surveys have already been conducted, which indicate Indiana bats are likely absent from the project site (see **Appendix D** for full bat survey report). The removal of trees will destroy potential summer-roost sites, yet such action should not result in incidental take given the species' absence.

Because the species is likely absent, direct impacts are also expected to be minimal. The removal of trees and construction activities may prevent bats from occupying the area in subsequent years as construction and disturbance continues. Indirect impacts will continue indefinitely as suitable summer habitat will be permanently converted to transportation use, reducing available habitat, and inhibiting future occupancy. In areas where suitable habitat remains, the forest fragmentation, as well as noise and light disturbance from vehicular traffic, may cause bats to avoid the area for summer maternity sites. The proposed action may affect but is NLAA the Indiana bat.

5.1.3 Northern Long-Eared Bat (*Myotis septentrionalis)*

There are no karst features within the 5 miles of the action area; thus, no winter hibernacula for northern long-eared bat are present. There are 453.3 acres of forested habitat within the project footprint that contain both live and dead trees with DBH ≥ 3 inches. See **Appendix C** for the vegetation assessment data forms that characterize the species composition, size, and number of trees in each respective sample. There are also as a few man-made structures (e.g., barns, sheds, and/or culverts) that serve as potential roosting sites. The riparian corridors of the Arkansas River, Flat Rock Creek, Mays Branch, and Frog Bayou also serve as foraging habitat and as a source of flyway connectivity to additional suitable habitat within the action area and surrounding landscape. All 453.3 acres of suitable summer habitat will potentially be removed by the proposed action, with much of it being permanently converted to paved roadways and maintained right of way. Acoustic bat surveys have already been conducted, which indicate northern long-eared bats are likely absent from the project footprint (see **Appendix D** for full bat

survey report). The removal of trees will destroy potential summer-roost sites, yet such action should not result in incidental take given its probable absence.

Because the species is likely absent, direct impacts are also expected to be minimal. The removal of trees and construction activities may prevent bats from occupying the area in subsequent years as construction and disturbance continues. Indirect impacts will continue indefinitely as suitable summer habitat will be permanently converted to transportation use, reducing available habitat and inhibiting future occupancy as USFWS works toward species recovery. In areas where suitable habitat remains, the forest fragmentation as well as noise and light disturbance from vehicular traffic, may prevent bats from establishing summer maternity colonies in the area, especially since the species exhibits low roost-site fidelity.

There are two known records of northern long-eared bat within 1,000 m of the eastern edge of the project footprint along the Arkansas River (ANHC 2021). One was documented on the northern side of the Arkansas River in 2015 and another on the southern side of the Arkansas River in 2005, both within Fort Chaffee Wildlife Management Area. Despite fairly recent capture records, the current data suggests the species is currently absent. Unfortunately, populations of northern long-eared bats have declined considerably in recent years due to the continued threat of white nose syndrome; therefore, their current absence is not surprising. Given species absence, the proposed action is NLAA the northern long-eared bat.

5.1.4. Ozark Big-Eared Bat *Corynorhinus townsendii ingens)*

The action area is outside the karst region of Arkansas, but the ecoregion transitions to the Boston Mountains approximately 5 miles north of the northern terminus of the project. The Boston Mountains contain karst features that can serve as roosting sites for Ozark big-eared bats. The nearest known maternity colony is approximately 10 miles northwest of the northern end of the project footprint. While no suitable roosting sites occur within the action area, the habitat is suitable for foraging. Ozark big-eared bats typically forage within or along the edge of oak-hickory forest. A total of 453.3 acres of suitable foraging habitat will be removed by the proposed action, much of it being converted to paved roadways and maintained right of way. The removal of vegetation may reduce overall prey abundance and alter foraging behavior of Ozark big-eared bats.

Acoustic surveys have already been conducted and suggest that Ozark big-eared bats are absent from the project footprint. See **Appendix D** for the full bat survey report and **Appendix C** of the vegetation assessment data forms that describe the species composition, size, and number of trees present in each sample plot. Studies have shown that Ozark big-eared bats rarely travel more than five miles during nightly foraging activity, returning to the roost multiple times in a night to nurse young (Wethington et al. 1996). Given species absence and the distance of the project from the nearest known roost site, it is believed that the proposed action may affect, but is not likely to adversely affect Ozark big-eared bats. According to ANHC, there are no known records of the species within the vicinity of the action area.

5.1.5. Tricolored Bat (*Perimyotis subflavus*)

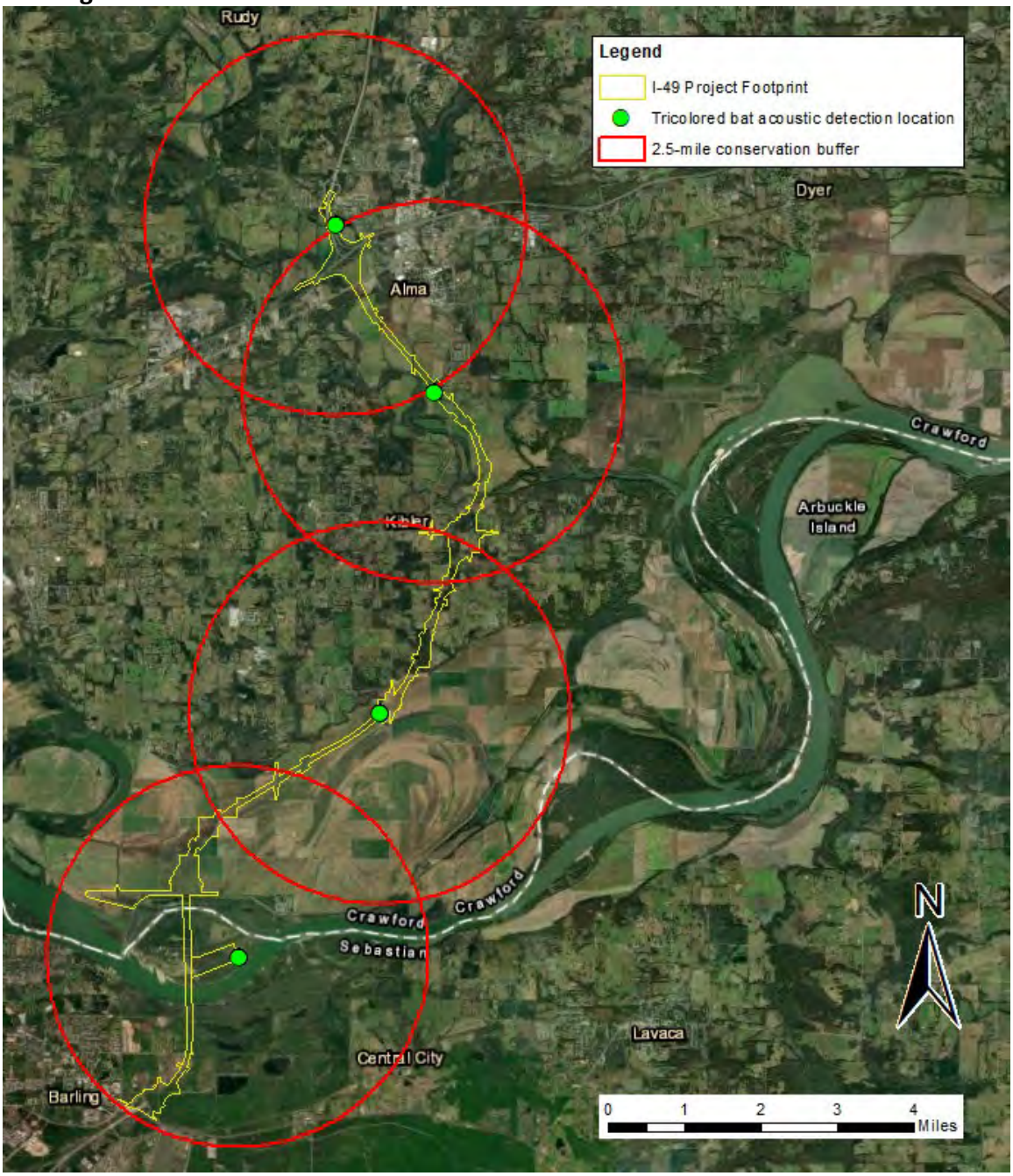
The project footprint is outside the range of Arkansas' karst topography, so no winter hibernaculum will be affected. However, 453.3 acres of forested habitat may be used by tricolored bats during summer maternity season. Tree species commonly used as roost sites, such as oaks and maples, are found through the project footprint, especially along riparian corridors where insect abundance is also likely ideal for foraging. See **Appendix C** for the vegetation assessment data forms. Farrow and Broders (2011) found that the forest cover was the greatest predictor of tricolored bat activity, suggesting that forest removal negatively impacts the distribution of the species. Additionally, tree removal also has the potential to result in incidental take. Acoustic bat surveys have already been conducted, which indicate probable species presence at four sites within the project area (**Figure 5-1**; **Appendix D** for the full bat survey report). Because tricolored bats change roosts sites frequently, trying to capture tricolored bats and radio-track them to a specific roost tree would be ineffective for long-term management decisions regarding tree removal.

If bats are captured, but not tracked to a roost tree, a conservation buffer is often assigned around the point of capture to cover the area in which the roost tree is likely to occur. For Indiana bats, it is a 2.5 mile radius around the site of capture - a measure which is used herein as a proxy for the tricolored bat until federal guidelines for this species are established (**Figure 5-1**). Evidence suggests that this is a reasonable approximation as Veilleux et al. (2003) found the maximum distance traveled by reproductive females while foraging was 4.3 kilometers (2.67 miles). Therefore, it is reasonable to assume that roost trees used by tricolored bats would be located within 2.5 miles of the acoustic sites in which they are detected. A map showing the acoustic sites in which tricolored bats had probable presence is depicted in **Figure 5-1**, as well as the associated conservation buffers around each site. Because the acoustic sites with species presence are regularly spaced across the project area, the entire project footprint falls with these conservation buffers; therefore, avoidance and minimization measures (AMM) regarding tree removal will be implemented project wide. In order for the project to avoid adverse effects, tree removal will be restricted during the active maternity season between April 1st to October 15th. These are the dates used for Indiana and northern-long-eared bats, but potential forthcoming regulations may alter these timeframes. Tricolored bats have been documented as the first and last species to leave hibernaculum sites (Fujita and Kunz, 1984); therefore, USFWS may deem that a shorter summer active season is appropriate for this species.

Tree clearing that occurs only in the winter months will prevent incidental take; however, the conversion of forested land to paved roadways and maintained right of way will permanently remove suitable summer habitat for tricolored bats. Tricolored bats show high fidelity in returning to the same forest area each year (Hammesfahr et al. 2022), thus, individuals are likely to be displaced in subsequent maternity seasons. Because tricolored bats have low fidelity to specific roost trees, other forested habitat within the adjacent landscape is likely to be suitable. This suitability may be ameliorated by forest fragmentation, which could negatively impact the occupancy of tricolored bats within the action area (Farrows and Broders 2011). Tricolored bats

use multiple roost trees in a single season and have general forest requirements, thus, the removal of suitable habitat within the project footprint is not likely to jeopardize the continued existence of the species. With AMMs implemented to avoid incidental take, the project may affect, but is NLAA tricolored bats.

Figure 5-1: Conservation Buffers Around tricolored bats Acoustic Sites



Source: Project Team, 2022

5.2 Birds

5.2.1 Eastern Black Rail (*Laterallus jamaicensis* ssp. *jamaicensis)*

According to wetland delineation findings for the project footprint, only 5.9 acres of herbaceous wetlands could be potential habitat for the eastern black rail within the project's footprint (less than 0.3% of the entire footprint). The ANHC element lists for Crawford and Sebastian counties did not list the eastern black rail as having recorded observations within 1 or 5 miles of the project footprint. In reviewing possible Arkansas Audubon Society Significant Bird Sightings records, no eastern black rails were listed; only recorded sightings were of the Virginia rail and King rail in Benton and Pulaski counties from the early 1990's (Arkansas Audubon Society, 2022). With their high adaptive capacity for habitat variability and low occupancy rates of apparently suitable wetland habitat by eastern black rails, direct and indirect effects of this project on the eastern black rail are difficult to assess. Since there is no known documentation of eastern black rails within the action area and little suitable habitat, along with the research indicating that any sightings would likely be vagrants from a migratory population, the effects determination for the eastern black rail is may affect, not likely to adversely affect (NLAA).

5.2.2 Piping Plover (*Charadrius melodus)*

According to field observations documented in the photos in **Figure 5-2** below, potentially suitable habitat in the form of sparsely vegetated sandbars or mudflats and open sandy beaches were observed along the north bank of the Arkansas River and along Frog Bayou. Suitable habitat on the south side is minimal and would not be expected to be ideal for piping plovers.

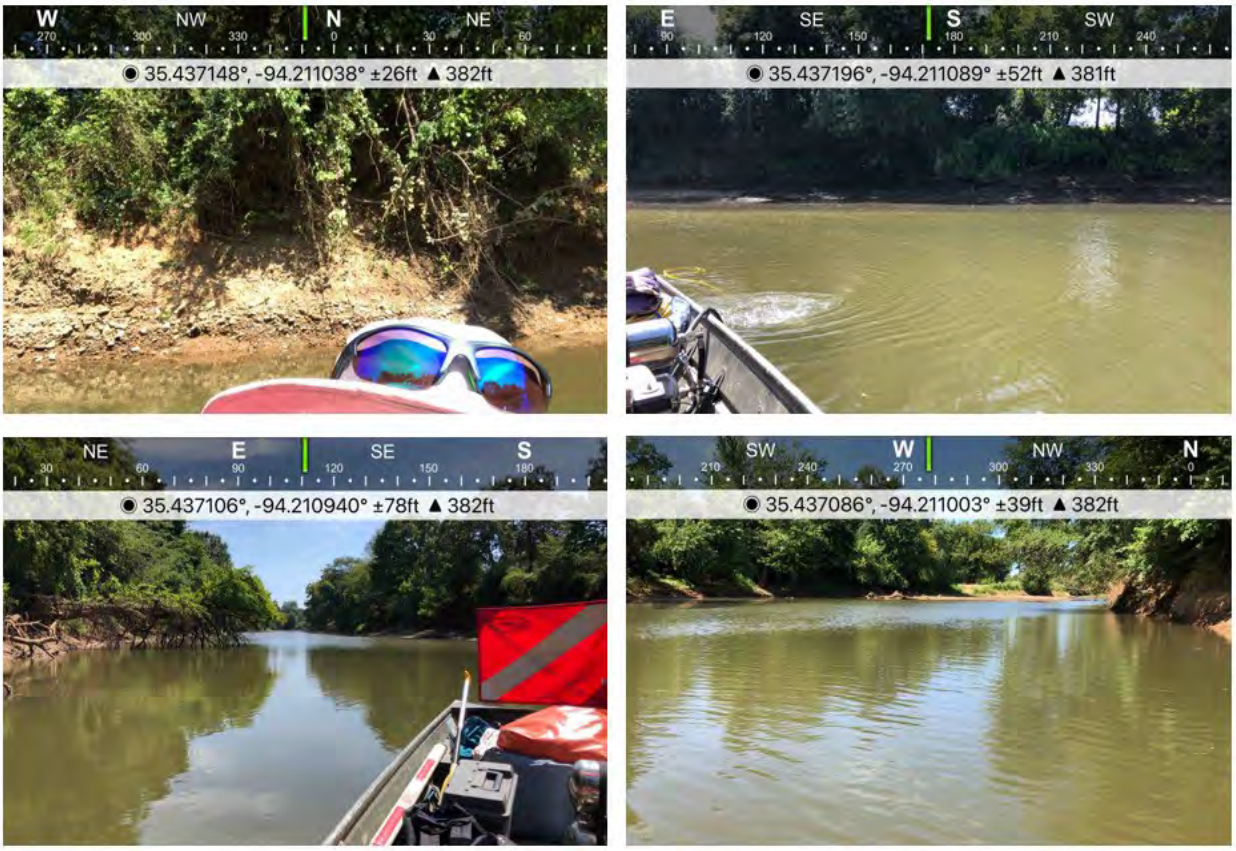
As such, the permanent impacts to potential piping plover habitat from construction and subsequent public use of the bridge should only occur on the north side of the Arkansas River. Additionally, the quality and amount of potentially suitable habitat is highly dependent on fluctuating river levels.

Figure 5-2: Interstate-49 Bridge Crossing Right of Way, Arkansas River

Note: Note lack of suitable habitat for piping plover within the project footprint of the proposed action on the south banks of the Arkansas River (Photos A and B; Photo A looking north). The north bank of the Arkansas River (Photos C and D) is a sandy open beach, but the relatively steep slope of the beach does not indicate the best potential quality of suitable habitat, since flatter slopes in shallower water are more conducive to higher quality forage areas for migratory individuals of piping plover.
Source: Project Team, 2021.

The action area added 3.5 miles of potentially suitable habitat from Frog Bayou which flows within the 0.25-mile buffer area north-south of the proposed action and an additional 1.7 miles of potentially suitable habitat from the north bank of the Arkansas River. The temporary effects from the proposed action on this potentially suitable habitat could be decreasing suitability due to construction noise and potentially decreased water quality during construction which is likely to affect the quality of potential forage areas of migrating individuals; but the effect would be minor since piping plover sightings are rare (**Figure 5-3**).

Figure 5-3: Interstate-49 Bridge Crossing Right of Way, Frog Bayou



Note: Note the lack of suitable habitat for piping plover within the construction footprint of the proposed action. The north and south banks of Frog Bayou are not sandy open beaches nor sparsely vegetated sandbars or mudflats. Bedrock (or large areas of flat shale) was noted on the south bank of the project's Frog Bayou crossing.
Source: Project Team, August 11, 2021

The ANHC element lists for Crawford and Sebastian counties did not list the piping plover as having recorded observations within 1 or 5 miles of the project footprint. In reviewing possible Arkansas Audubon Society Significant Bird Sightings records, a piping plover was last reported in Sebastian County in 1963 with other county sightings dating back to 1956; no records of piping plover sightings in Crawford County were found (Arkansas Audubon Society, 2022). Based on the transient nature of any potential occupancy of the potential suitable habitat within this project's action area and since there is no documentation of piping plover sightings within Sebastian County since 1963 (none in Crawford County), the effects determination for the piping plover is may affect, not likely to adversely affect (NLAA).

5.2.3 Rufa Red Knot (*Calidris canutus rufa)*

Based on the habitat needs and migratory nature of the rufa red knot, the action area of this project does not appear to have much suitable habitat to support migrating populations of rufa red knots.

The ANHC element lists for Crawford and Sebastian counties did not list the rufa red knot as an element of special concern for this proposed action. In reviewing possible Arkansas Audubon Society Significant Bird Sightings records, no rufa red knot sightings have been reported for Crawford County or Sebastian County (Arkansas Audubon Society, 2022). Since there is no known documentation of rufa red knots within the action area of the project site and little suitable habitat, the effects determination for the rufa red knot is may affect, not likely to adversely affect (NLAA).

5.3 Insects

5.3.1 American Burying Beetle (*Nicrophorus americanus)*

The proposed action of this project does occur on one of the three conservation areas where take is prohibited under the current ABB 4(d) rule, and approximately 105 acres of Fort Chaffee property falls within the project footprint. The Environmental Division of the Chaffee Maneuver Training Center (CMTC) has been conducting annual ABB surveys for presence/absence of this species since 1992 and the CMTC Conservation Plan for the American Burying Beetle (2010) contains specific analysis of ABB habitat characteristics for areas within the Fort Chaffee boundaries that have high populations of ABB versus little to no positive survey results. The 2010 CMTC conservation plan summary findings for the area impacted by this proposed project were:

1. Soil types were significantly negatively correlated to ABB abundance.
2. Vegetative communities were significantly negatively correlated to ABB abundance.

And, according to personal communication with Beth Phillips, CMTC Ecologist Coordinator, no positive presence/absence surveys have occurred in the Fort Chaffee property north of the Arkansas River (in the vicinity of the proposed project) since 2011 (Beth Phillips, personal communication, 2022).

According to a letter dated May 4, 2022 (**Appendix B**), in response to a technical assistance request for clarification on the implementation of the ABB 4(d) rule and any required species surveys, the USFWS Arkansas Ecological Service Field Office reviewed the habitat assessment, performed site visits to the area, and reviewed all available data related to previous surveys and current guidance for the ABB. The USFWS does not believe that the habitat within the affected area of this action is suitable for ABB and that since there have been no captures from trapping surveys in the area over the last 11 years, they thought it unlikely the species is present on Fort Chaffee property north of the Arkansas River. Therefore, based on those two factors, the USFWS did not believe that additional surveys for ABB are necessary, therefore no ABB surveys were conducted to assist in assessing the potential impacts of this proposed project.

Artificial light at night for these nocturnal beetles could be a direct effect of the proposed project on the ABB. Circumstantial support for artificial lights as a factor in the ABB decline could be derived from the fact that most extant populations of ABB occur in relatively remote, lightless areas, and artificial lighting was becoming widespread during the late 1800s, concurrent with the

beginning of *N. americanus*' disappearance from the Northeast. While it is difficult to separate the effects of lights and the related land use changes and fragmentation that usually coincide with the lights, other *Nicrophorus* spp. remain abundant in some areas with lights. It does remain possible that artificial lights from passing traffic, roadway design, or roadway construction during the evenings, if they are responsible for a chronic, albeit low, level of adult attrition, could have a potential direct effect (though minor effect relative to other effects) (USFWS 2019[a]).

Herbicides used to reduce forbs in highway maintenance areas of the proposed project could reduce habitat diversity and food sources for potential carrion sources. This could indirectly reduce habitat suitability for reproduction and feeding for ABBs.

Based on the factors that the project footprint within the Fort Chaffee boundaries has likely unsuitable habitat for the ABB and there have been negative presence/absence surveys in the area since 2011, the effects determination for the ABB is may affect, not likely to adversely affect (NLAA).

5.3.2 Monarch Butterfly (*Danaus plexippus)*

This project footprint falls within the spring breeding area and fall and spring migration paths of the monarch butterfly. While no formal method was employed to evaluate the project footprint for suitable monarch habitat, herbaceous areas containing a significant milkweed component (necessary for quality breeding habitat) were not observed during any of the field visits. Monotypic agricultural areas are considered poor monarch butterfly habitat and comprised 712.7 acres of the project footprint. Unfarmed, herbaceous field edges with flowering forbs were noted within the project footprint. General flowering forbs providing nectaring habitat in herbaceous areas were observed in the project footprint; the project footprint contained 75.4 herbaceous acres. Direct effects to the monarch butterfly are loss of nectaring habitat provided by herbaceous vegetation and potential roosting locations by adjacent forested areas. An indirect effect to the monarch butterfly is habitat fragmentation due to the conversion of vegetated lands to permanent transportation-related urban land.

Conservation measures to ameliorate loss of nectaring habitat from the action of this proposed action could be employed, such as replanting temporarily impacted areas within the construction footprint with milkweed plants and nectaring plants. Artificial disturbances (e.g., brush management or light disking) could be periodically used in maintenance areas of the project footprint to achieve and/or sustain the desired habitat condition of a mid-successional grassland plant community which are important to the monarch butterfly.

While there will be a permanent loss of herbaceous areas that could support breeding and migrating monarch butterflies, if efforts are made to replant monarch habitat supporting forbs, the effects determination for the monarch butterfly is may affect, not likely to adversely affect (NLAA).

5.4 Flowering Plants

5.4.1 Missouri Bladderpod (*Physaria filiformis)*

The ANHC element lists for Crawford and Sebastian counties did not list the Missouri bladderpod as an element of special concern. No glade habitats were observed during project site visits during 2021 and 2022. The closest glade habitat on Fort Chaffee property is well outside the project footprint and not known to support Missouri bladderpod. The closest known population of Missouri bladderpod is near Beaver Lake in northwest Arkansas. For those listed reasons, the proposed action is likely to have no effect (NE) on the Missouri bladderpod.

5.5 Reptiles

5.5.1 Alligator Snapping Turtle (*Macrochelys temminckii*)

This project footprint contains areas of suitable habitat for mature alligator snapping turtles, primarily at the crossings of the Arkansas River (14 acres of suitable nesting habitat/forested wetlands and 12 acres of open water) and Frog Bayou (2 acres of open water). Steep bank slopes along Frog Bayou in the project footprint and adjacent agricultural activity eliminate nesting habitat suitability for the turtles in the adjacent fields. With known occurrences recorded for Sebastian and Crawford counties from a statewide study conducted in 1994-1995 (Wagner et al., 1996), the species is likely present within or near the project area.

The most impactful activity of the proposed action to the alligator snapping turtle would be the potential habitat degradation and loss. Changes in the riparian or nearshore areas along the Arkansas River could change the amount of suitable soils for nesting sites, since the species nests on land within a 650-foot distance of the water's edge. Loss of riparian cover at the Frog Bayou crossing which increase instream water temperatures and lower dissolved oxygen levels could affect the distribution and abundance of the alligator snapping turtle's prey species. Higher water temperatures and lower dissolved oxygen levels could also decrease the ambush foraging opportunities of the species, since those factors allow the turtles to remain stationary on the stream bottom for longer periods of time when water temperatures are cooler and dissolved oxygen levels are higher. Other activities and processes that can negatively alter habitat are stream bank erosion and siltation. Use of appropriate BMPs during instream and riparian area construction could decrease the impacts of the proposed action to alligator snapping turtle habitat.

With the use of appropriate BMPs for construction in and near streams, the effects determination for the alligator snapping turtle is may affect, not likely to adversely affect (NLAA).

5.6 Potential Direct Effects and Potential Indirect Effects

Table 5-1 summarizes the potential Direct Effects and potential Indirect Effects to the federally listed species as a result of the proposed project.

Table 5-1: Description of Potential Direct and Indirect Effects

Species Name (Common)	Scientific Name	Listing Status	Direct Effects	Indirect Effects
Gray Bat	*Myotis grisescens*	Endangered	Destruction of foraging habitat along riparian corridors of the Arkansas River, Flat Rock Creek, Mays Branch, and Frog Bayou; Work within the ordinary-water mark may impact water quality, lowering prey species abundance, and contaminating drinking water; Construction activities may alter foraging patterns and behavior.	Permanently removal of foraging habitat and replacement with new right of way alignment; Disruption to riparian connectivity, as well as noise and light disturbance from vehicular traffic, may alter long-term foraging behavior.
Indiana Bat	*Myotis sodalis*	Endangered	Project footprint contains 453.3 acres suitable summer habitat in the form of live and dead trees ≥ 5-inch DBH, tree-lined, riparian corridors, and a few barn or shed structures; Removal of trees should not result in incidental take because species is absent from the project footprint. Permanent destruction of suitable foraging and roosting habitat may prevent future occupancy, especially during construction, but new bridge construction may provide new roosting habitat.	Destruction of suitable habitat and replacement with new right of way alignment may prevent any future occupancy; Where suitable habitat still exists, noise and artificial light disturbance from vehicular traffic may cause bats to avoid the area or abandon roosts.
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	Project footprint contains 453.3 acres suitable summer habitat in the form of live and dead trees ≥ 3-inch DBH, tree-lined, riparian corridors, and a few barn or shed structures; Removal of trees should not result in incidental take because species is absent from the project footprint. Permanent destruction of suitable foraging and roosting habitat may prevent future occupancy,	Destruction of suitable habitat and replacement with new right of way alignment may prevent any future occupancy; Where suitable habitat still exists, noise and artificial light disturbance from vehicular traffic may cause bats to avoid the area or abandon roosts.

Species Name (Common)	Scientific Name	Listing Status	Direct Effects	Indirect Effects
			especially during construction, but new bridge construction may provide new roosting habitat.	
Ozark Big-eared Bat	*Corynorhinus townsendii ingens*	Endangered	Project footprint contains 453.3 acres of forested habitat that may be used for forging, most of which is near the Arkansas River and along the riparian corridor of Frog Bayou. Species is absent from the project footprint. Permanent removal of suitable foraging habitat prevents future use of the action area.	Destruction of oak-hickory forest and replacement with new right of way alignment will permanently remove suitable foraging habitat and may prevent any future use of the project footprint.
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Project footprint contains 453.3 acres of forested habitat that may be used as summer roost sites. Species are potentially present throughout the entire project footprint. To prevent incidental take, tree removal will be restricted from April 1st to October 15th. Permanent removal of forested habitat may cause stress and displacement of individuals returning to the same forest area in subsequent years.	The destruction of forest and the associated replacement of new roadway will permanently remove roosting and foraging habitat. The species may be permanently displaced from the project footprint.
Eastern Black Rail	*Laterallus jamaicensis* ssp. *jamaicensis*	Threatened	No known direct effects since little suitable habitat and no known occurrences in the action area.	No known indirect effects since little suitable habitat and no known occurrences in the action area.
Piping Plover	*Charadrius melodus*	Threatened	Permanent loss or alteration of potentially suitable habitat along north bank of Arkansas River; temporary loss of suitability of habitat within action area during construction of Arkansas River and Frog Bayou bridge crossings due to construction noise.	No known indirect effects.
Rufa Red Knot	*Calidris canutus rufa*	Threatened	No known direct effects since little suitable habitat	No known indirect effects since little suitable habitat

Species Name (Common)	Scientific Name	Listing Status	Direct Effects	Indirect Effects
			and no known occurrences in the action area.	and no known occurrences in the action area.
American Burying Beetle	*Nicrophorus americanus*	Threatened	Loss of potentially suitable habitat; artificial lighting from construction activity could affect chronic level of adult attrition.	Long, term highway lights (artificial lighting) could affect chronic level of adult attrition.
Monarch Butterfly	*Danaus plexippus*	Candidate	Negative effects are loss of nectaring habitat and protective roosting habitat in adjacent forested areas. Potential positive effects are if transportation right of way is maintained and managed for breeding habitat and nectaring habitat.	Habitat fragmentation due to land use conversion from vegetated land to permanent transportation-related urban land.
Missouri Bladderpod	*Physaria filiformis*	Threatened	None.	None.
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened	Decreased water quality and higher water temperatures due to lack of riparian cover within Frog Bayou would decrease open water habitat suitability and foraging success of the turtles. Permanent loss of 14 acres of suitable nesting habitat near the Arkansas River with conversion from forested wetlands to roadway could impact reproductive success.	Decreased water quality and higher water temperatures due to lack of riparian cover may reduce the health and availability of prey species at the Frog Bayou crossing. Decreased water quality from runoff from road into the adjacent stream system could result in pulses of contaminants and pollutants (e.g., petroleum products, heavy metals) that may reduce the species' viability.

Source: Project Team, 2022

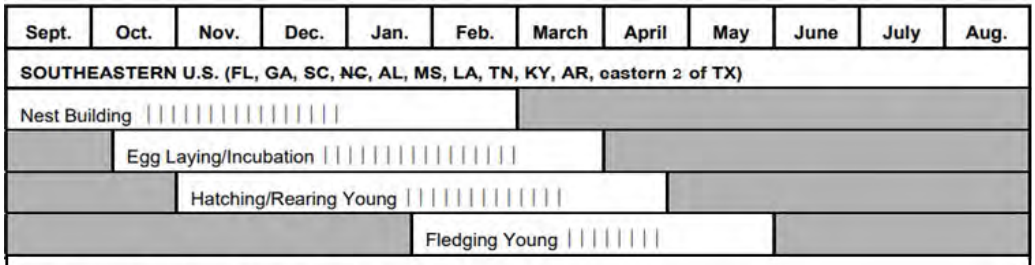
6.0 BALD EAGLE AND MIGRATORY BIRD ASSESSMENT

6.1 Bald Eagle

The bald eagle is a migratory bird that is found in Arkansas most commonly in the winter. In the southeastern United States, nest building and breeding season can begin as soon as early fall and may continue through May until young have fully fledged (**Figure 6-1**). Bald eagles mate for life and return to the same nest every year to breed and raise their young, typically adding new

nesting material each year to grow it larger. Eagles prefer to build nests in tall, sturdy trees near water sources where plenty of fish are available to sustain them throughout the winter. Suitable habitat for the bald eagle occurs along the Arkansas River in Fort Chaffee Wildlife Management Area. Most vegetation plots sampled near the Arkansas River contained mature Cottonwood trees (*Populus deltoides*), a species ideal for nest construction, and the Arkansas River provides sufficient prey abundance. The sensitivity to human disturbance varies depending on the reproductive phase, which is summarized in **Figure 6-1**.

Figure 6-1: Timing of Bald Eagle Reproductive Phases in the Southeastern United State and Sensitivity to Disturbance During Each Phase



Nesting Bald Eagle Sensitivity to Human Activities

Phase	Activity	Sensitivity to Human Activity	Comments
I	Courtship and Nest Building	Most sensitive period; likely to respond negatively	Most critical time period. Disturbance is manifested in nest abandonment. Bald eagles in newly established territories are more prone to abandon nest sites.
II	Egg laying	Very sensitive period	Human activity of even limited duration may cause nest desertion and abandonment of territory for the breeding season.
III	Incubation and early nestling period (up to 4 weeks)	Very sensitive period	Adults are less likely to abandon the nest near and after hatching. However, flushed adults leave eggs and young unattended; eggs are susceptible to cooling, loss of moisture, overheating, and predation; young are vulnerable to elements.
IV	Nestling period, 4 to 8 weeks	Moderately sensitive period	Likelihood of nest abandonment and vulnerability of the nestlings to elements somewhat decreases. However, nestlings may miss feedings, affecting their survival.
V	Nestlings 8 weeks through fledging	Very sensitive period	Gaining flight capability, nestlings 8 weeks and older may flush from the nest prematurely due to disruption and die.

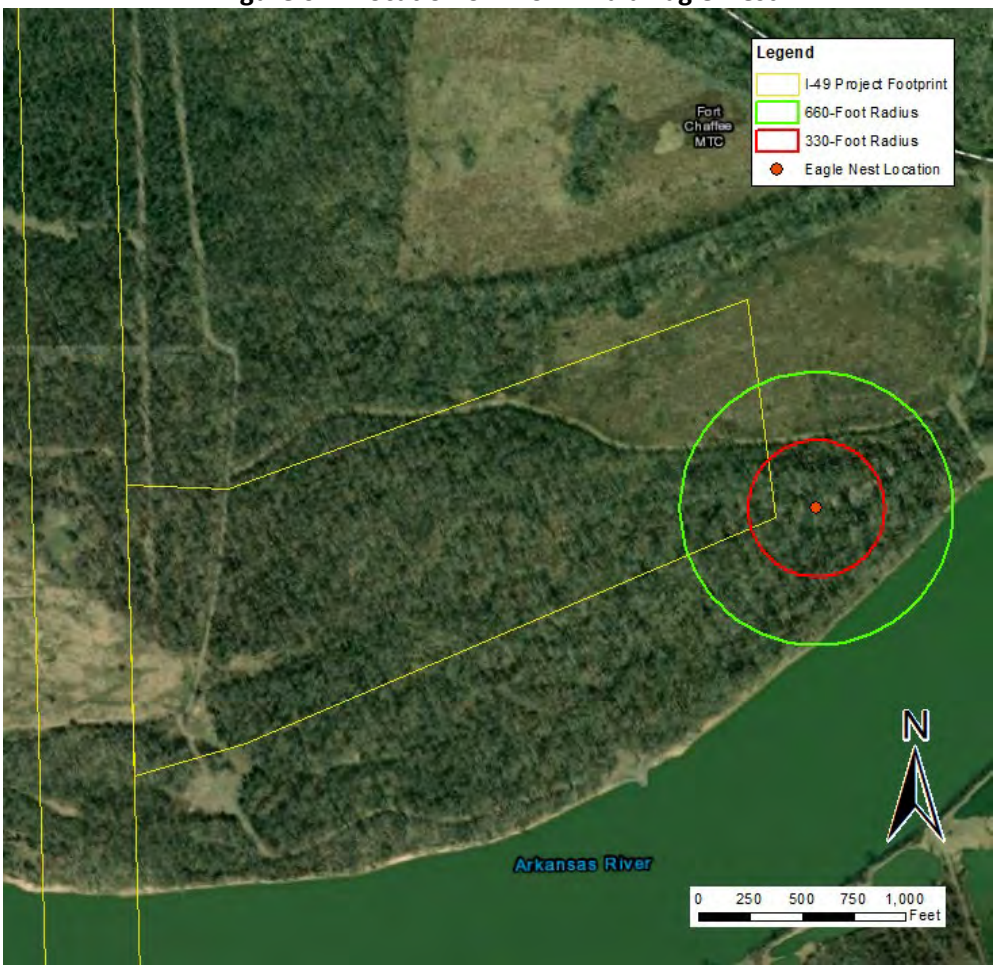
Source: Figure modified from USFWS (2007)

According to the ANHC (2022), a bald eagle element was recorded within a 1-mile radius of the final project footprint, but the type of observation and location was unknown. Coordination with Fort Chaffee Environmental Branch revealed the location of one bald eagle nest within the action area (Beth Phillips, personal communication, 2022; **Figure 6-2**). It is located on the northern bank of the Arkansas River and lies approximately 200 feet east of the project footprint. National Bald Eagle Management Guidelines (USFWS 2007[a]) state that vegetation clearing for road construction projects should not be conducted within 660 feet of a bald eagle nest during nesting season, typically designated as October 1st to May 15th in the southeastern region of the United States, unless nest failure and/or abandonment can be documented. The nest has been active in previous years. Additionally, the site was visited on November 7, 2022 and indirect evidence of occupancy was observed in guano piles around the base of the trunk (Douglas Cobb, personal communication, 2022). The National Bald Eagle Management Guidelines prohibit all tree clearing of overstory trees within 330 feet of the nest to maintain a landscape buffer and provide a natural protective barrier around the nest. A small area of forest (0.66 acres) lies within 330 feet of the nest (**Figure 6-2**), but this area is within a portion of the project in which trees only need to be thinned, not clear cut, and such thinning would neither remove overstory trees nor occur during the active season while eagles are nesting. There are also 4.2 acres of forested habitat within 660

feet of the nest where tree clearing is likely necessary (**Figure 6-2**). All attempts will be made to remove trees within the 660-foot buffer outside of the Bald Eagle nesting period.

Following guidance from the USFWS, Fort Chaffee has established regulatory measures related to the Bald Eagle and military activities that may occur on the property (**Appendix H**). Fort Chaffee's regulatory measures specify no activity, including off-road vehicles or human entry, is permitted between December 15th to June 30th, the Bald Eagle nesting period used for the state of Arkansas, unless confirmation is obtained that the nest has failed or young have already fledged the nest. However, Bald Eagles may begin nesting prior to this date. For tree clearing that will occur after October 1st but prior to December 15th, the nest will be monitored following the southeastern United States Bald Eagle Monitoring Guidelines (USFWS 2007 [b]) to ensure the nest is inactive prior to tree clearing. If eagles have already began nesting prior to December 15th and impacts cannot be avoided during the nesting season, namely due to the overlap in tree removal restrictions for the tricolored bat, an incidental take permit may be obtained in order to remove the trees within the 660-foot buffer area.

Figure 6-2: Location of Known Bald Eagle Nest



Note: Located on Fort Chaffee property on north bank of Arkansas River. Source: Douglas Cobb – Fort Chaffee Joint Maneuver Training Center - Environmental Branch, Personal Communication, 2022.

6.2 Migratory Birds

Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*) are small colonial and semi-colonial nesting birds protected by the federal Migratory Bird Treaty Act. Both species commonly use man-made structures for nesting, including bridges and culverts. Other migratory birds, such as Eastern Phoebe (*Sayornis phoebe*), can also nest in bridges. Bridge structures and culverts were surveyed for migratory bird nests and is summarized in **Table 6-1** below.

Table 6-1: Bridge Surveys for Migratory Birds and Bats

Structure Surveyed	Construction Type	Location (Latitude & Longitude)	Migratory Bird Nest			Evidence of Bat Use
			Cliff Swallow	Barn Swallow	Eastern Phoebe	
I-40 Bridge (Frog Bayou)	*Steel I-beam*	35.480551° -94.245876°	-	-	-	None
I-40 Bridge (Frog Bayou)	*Steel I-beam*	35.480233° -94.245869°	-	-	-	None
I-49 Ramp (Frog Bayou)	*Steel I-beam*	35.479899° -94.245740°	Many	-	-	None
Culvert	*Corrugated pipe*	35.455280° -94.217375°	-	-	-	None

Source: USFWS 2007 (modified)

Because the majority of the project footprint is within new right of way, few of these structures exist within the project footprint. However, the I-49 ramp off of I-40 near Alma is used extensively by cliff swallows (**Figure 6-3**).

Figure 6-3: Cliff Swallow Nests on the I-49 Ramp off of I-40 over Frog Bayou

Source: Project Team, July 22, 2021.

If structures are being used by these birds, any activities that may destroy active nests, eggs or birds, will only be conducted between September 1 and February 28, when nests are not occupied. If seasonal avoidance cannot be accomplished, exclusion measures that do not result in death or injury, such as netting, should be added to protect the structure from new nest establishment prior to March 1. A thorough explanation of ARDOT's policies for avoidance and minimization measures related to nesting of migratory birds is provided in **Appendix H**. The special provisions detailed in the document will be implemented as needed to avoid impacts to migratory birds.

7.0 CONCLUSION AND DETERMINATION OF EFFECTS

Table 7-1 summarizes the potential effects to federally listed species as a result of the proposed project.

Table 7-1: Determination of Potential Effects to Federally Listed Species

Species Name (Common)	Scientific Name	Listing Status	Present In Action Area	Effect Determination			Assumptions Used To Reach Determinations
				NE	NLAA	LAA	
Gray Bat	*Myotis grisescens*	Endangered	Yes		X		Impacts to foraging habitat only, which BMPs will reduce. Action site is likely more than 10 miles from roost site.
Indiana Bat	*Myotis sodalis*	Endangered	No		X		Species not present, but suitable habitat available.
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	No		X		Species not present, but suitable habitat available.
Ozark Big-eared Bat	*Corynorhinus townsendii ingens*	Endangered	No		X		Species not present, but suitable habitat available.
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Yes		X		Winter tree clearing will prevent incidental take. No critical habitat is affected.
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	Threatened	No		X		Very little suitable habitat and distance to known populations.
Piping Plover	*Charadrius melodus*	Threatened	No		X		Migratory bird that spends little time in the area. Distance to known populations.
Rufa Red Knot	*Calidris canutus rufa*	Threatened	No		X		Migratory bird that spends little, if any, time in the area. Distance to known wintering sites and key staging and stopover areas.
American Burying Beetle	*Nicrophorus americanus*	Threatened	No		X		Negative survey results in area over last decade and distance to known populations.

Species Name (Common)	Scientific Name	Listing Status	Present In Action Area	Effect Determination			Assumptions Used To Reach Determinations
				NE	NLAA	LAA	
Monarch Butterfly	*Danaus plexippus*	Candidate	Yes		X		Limited suitable breeding habitat present in project footprint. General nectaring habitat present, but minimization measures to create better monarch habitat will offset loss of current habitat.
Missouri Bladderpod	*Physaria filiformis*	Threatened	No	X			Lack of habitat and distance to known populations.
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened	Yes		X		Suitable habitat present in project footprint and known occurrences in area. Implementation of appropriate BMPs would avoid impacts to species.

Notes: NE = No Effect; NLAA = May Affect, Not Likely to Adversely Affect; LAA - Likely to Adversely Affect
Source: Project Team, 2022

8.0 LIST OF PREPARERS AND THOSE CONTACTED

Multiple individuals were utilized and/or contacted in the preparation of this biological assessment. These individuals are summarized in **Table 8-1** below. Preparers' credentials are available in **Appendix G**.

Table 8-1: List of Preparers and Those Contacted

Name	Company	Experience/Title
Burba, Elizabeth	ECHO, LLC	Bat Specialist
Burns, Jodie Murray	Cattails Environmental, LLC	ABB Specialist/Field Biologist
Harris, John	Welch/Harris, Inc.	Mussel Specialist
Huetter, Tom	HARBOR	GIS Specialist/Geologist
Inglish, Scott	HNTB	Lead Wetland Delineator
Phillips, Beth	Fort Chaffee Joint Maneuver Training Center - Environmental Branch	Ecologist Coordinator
Cobb, Douglas	Fort Chaffee Joint Maneuver Training Center - Environmental Branch	GIS Analyst
Redman, Ron	Mitigation Surveying Services, LLC	Bat Specialist

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Appendix A: Exhibits

Exhibit 1. Topographic Map

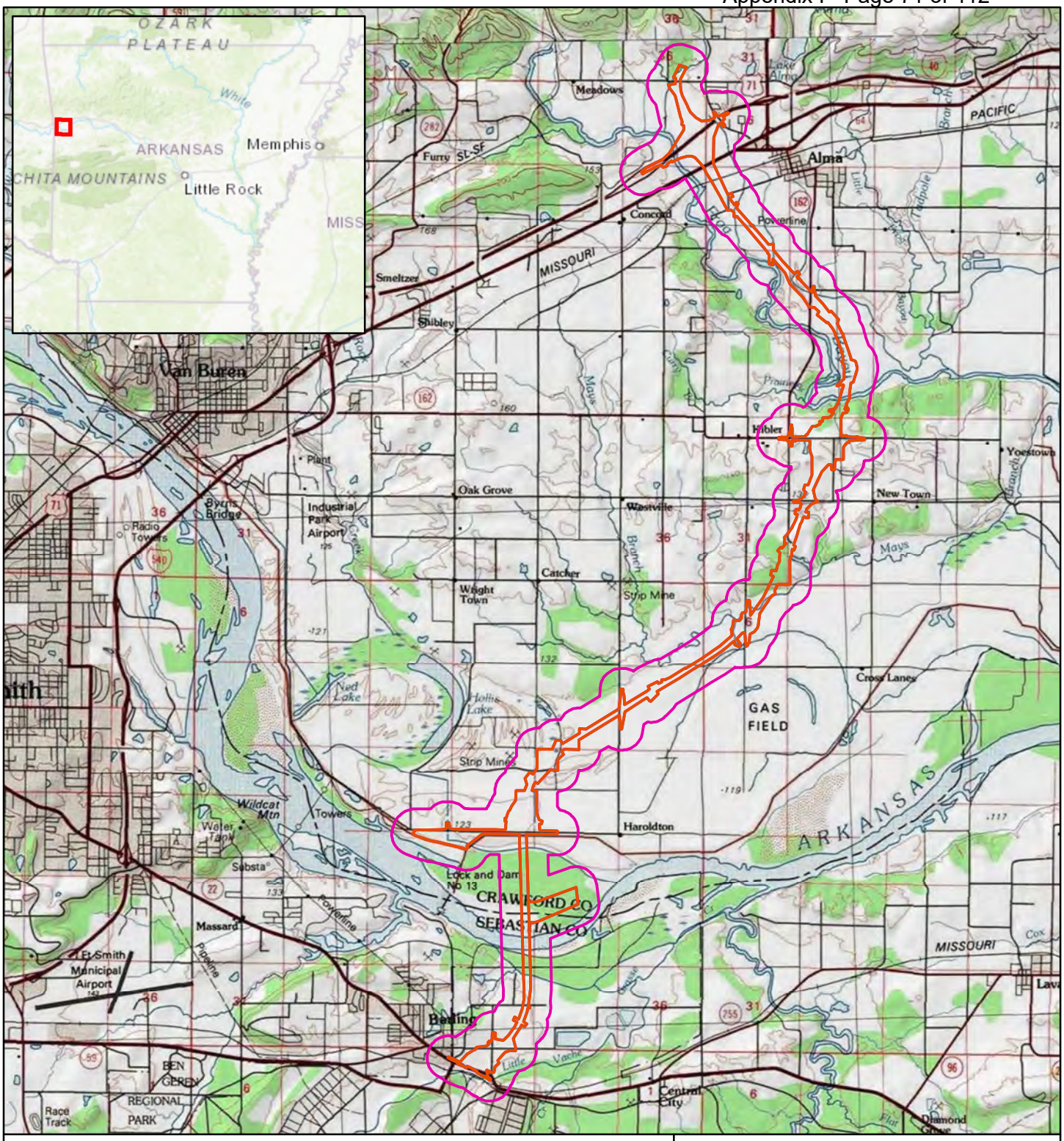
Exhibit 2. Aerial Map

Exhibit 3. Preliminary Project Schedule

Exhibit 4. Habitat Types North

Exhibit 5. Habitat Types Central

Exhibit 6. Habitat Types South



0 1 2 3 4 Miles

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Legend

I-49 Project Footprint

I-49 Project Action Area (0.25-Mile Buffer)

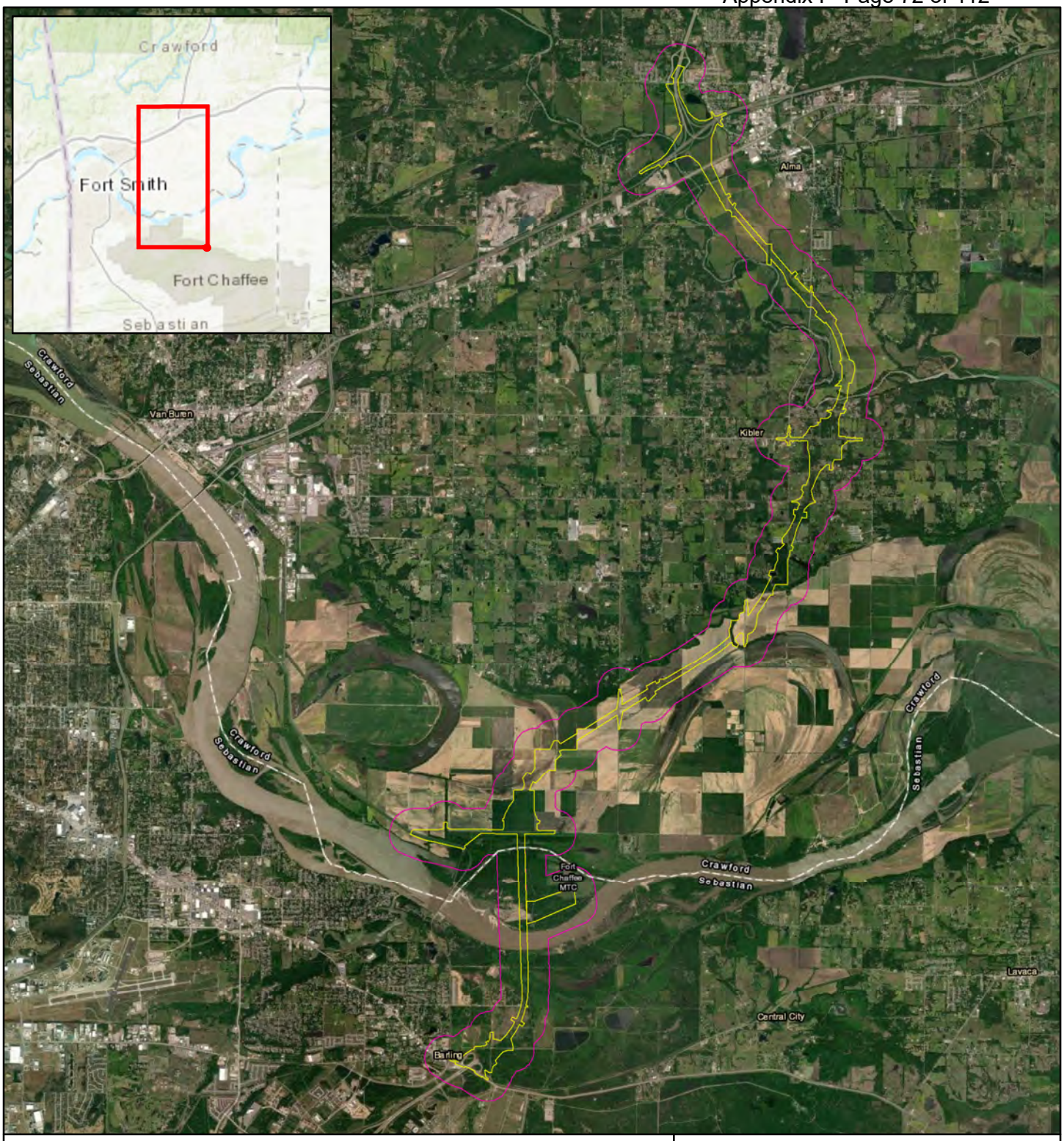
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

I-49 PROJECT REEVALUATION
Exhibit 1 - Topographic Map

From SH 22 to I-40

Biological Assessment Report

Crawford and Sebastian Counties, Arkansas



0 1 2 3 4 Miles

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Legend

I-49 Project Footprint

I-49 Project Action Area (0.25-Mile Buffer)

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

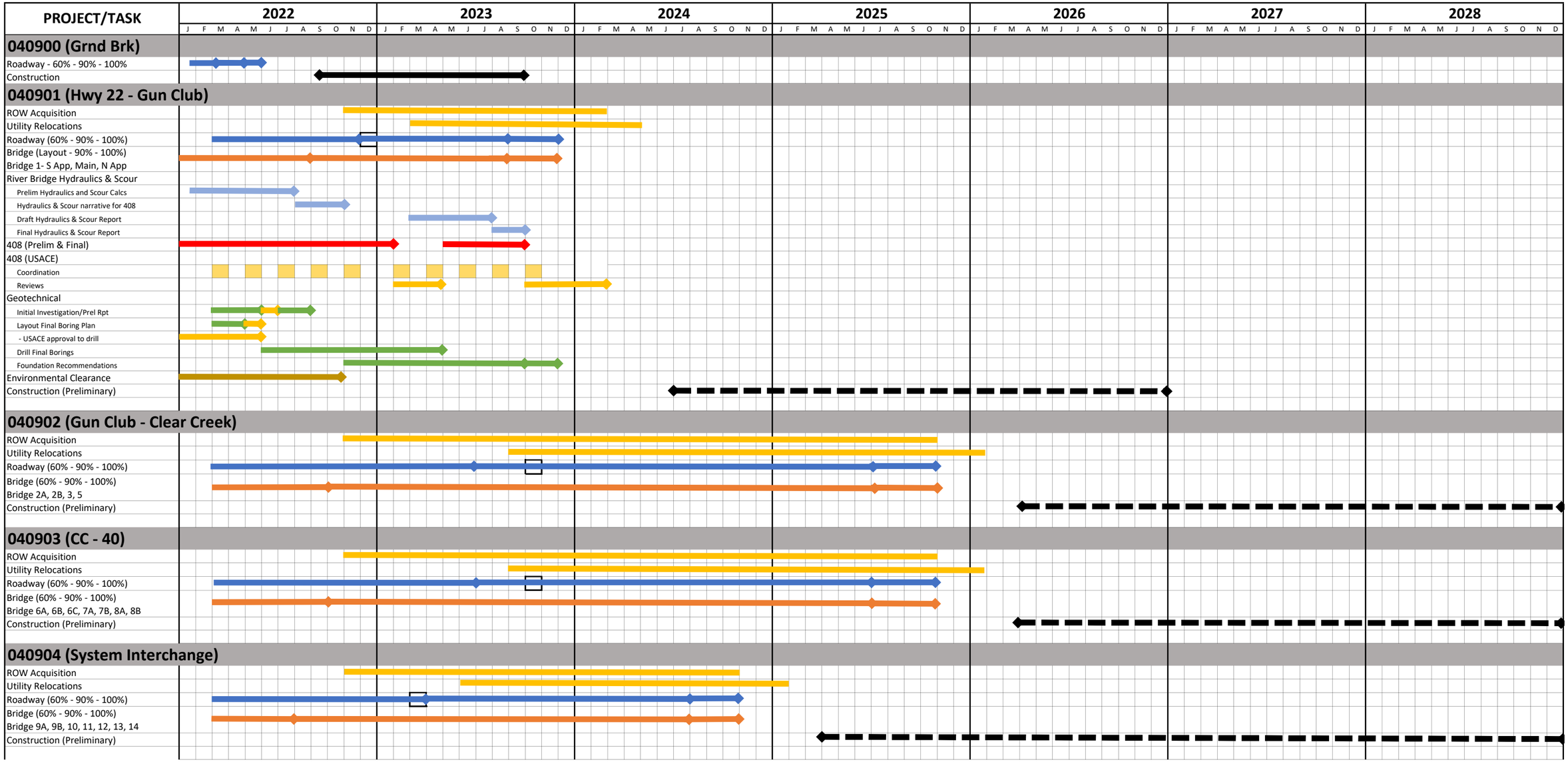
I-49 PROJECT REEVALUATION
Exhibit 2 - Aerial Map

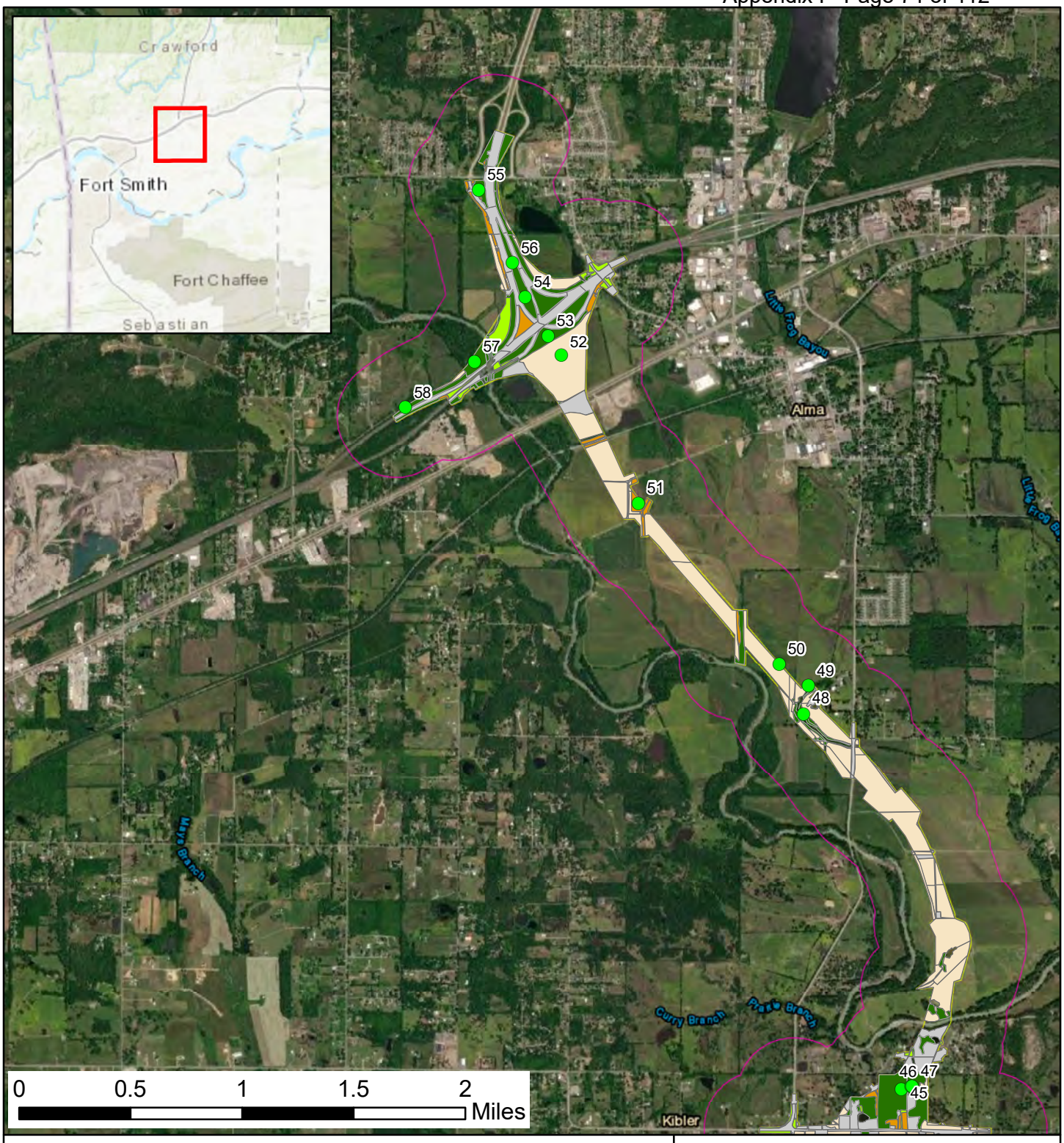
From SH 22 to I-40

Biological Assessment Report

Crawford and Sebastian Counties, Arkansas

Job No. 040748 TO 161 - I-49, Hwy 22 to I-40
HNTB 63136-DS-004
PRELIMINARY PROJECT SCHEDULE (SUBJECT TO CHANGE)
March 2022





Legend

- I-49 Project Footprint
- I-49 Project Action Area (0.25-Mile Buffer)
- Plot Locations
- Sapling Shrub
- Agricultural
- Herbaceous
- Forested
- Developed Areas

N

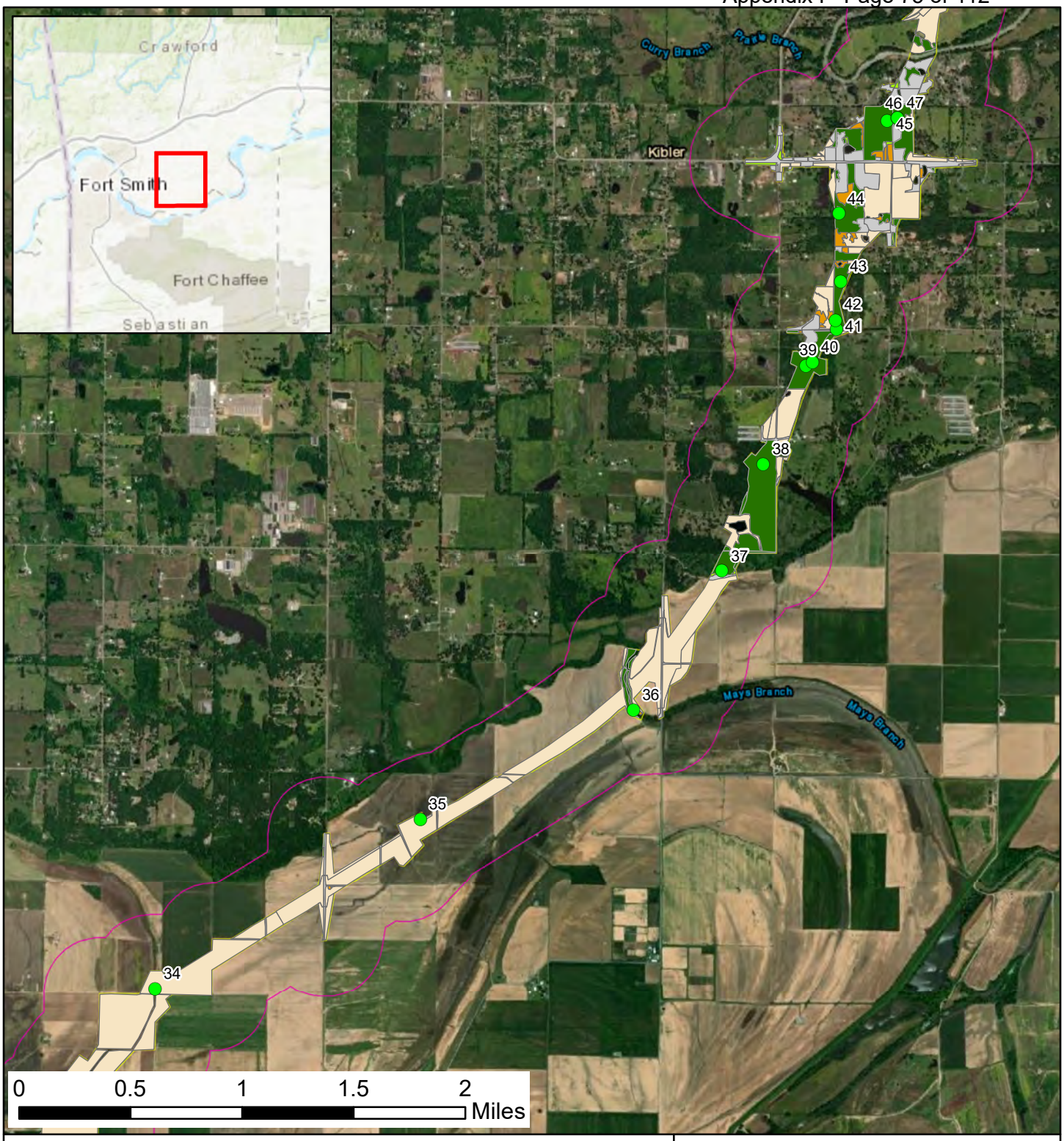
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

I-49 PROJECT REEVALUATION
Exhibit 4 - Habitat Types North

From SH 22 to I-40

Biological Assessment Report

Crawford and Sebastian Counties, Arkansas



Legend

- I-49 Project Footprint
- I-49 Project Action Area (0.25-Mile Buffer)
- Plot Locations
- Sapling Shrub
- Agricultural
- Herbaceous
- Forested
- Developed Areas

N

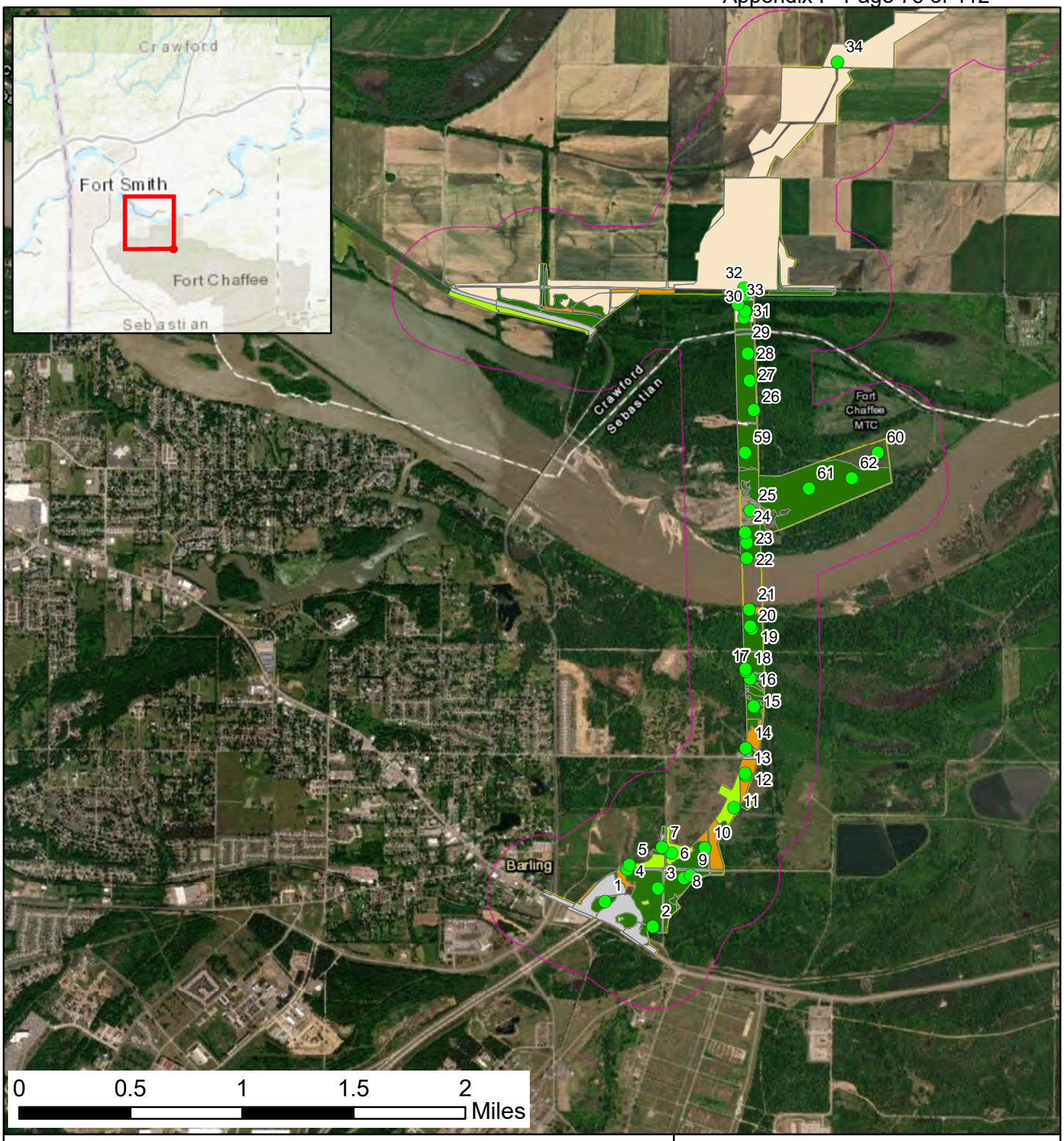
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

I-49 PROJECT REEVALUATION
Exhibit 5 - Habitat Types Central

From SH 22 to I-40

Biological Assessment Report

Crawford and Sebastian Counties, Arkansas



Legend

- I-49 Project Footprint
- I-49 Project Action Area (0.25-Mile Buffer)
- Plot Locations
- Sapling Shrub
- Agricultural
- Herbaceous
- Forested
- Developed Areas

N

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

I-49 PROJECT REEVALUATION
Exhibit 6 - Habitat Types South

From SH 22 to I-40

Biological Assessment Report

Crawford and Sebastian Counties, Arkansas

Appendix B: Agency Correspondence

ECOS IPaC Letter, 1-17-23 (Project Code: 2022-0010163)

USFWS Letter, 5-4-22

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: January 17, 2023
Project Code: 2022-0010163
Project Name: ARDOT Job 040748 Interstate 49, Highway 22 – I-40 (Arkansas River) (S)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Project Code: 2022-0010163

Project Name: ARDOT Job 040748 Interstate 49, Highway 22 – I-40 (Arkansas River) (S)

Project Type: Road/Hwy - New Construction

Project Description: The proposed project is intended for the Highway 22 to Interstate 40 future segment of Interstate 49, approximately 13.7 miles. The new location facility will connect from Highway 22 in Sebastian County to the Interstate 40 and Interstate 49 interchange in Crawford County. The entire footprint of the project is approximately 1,546 acres which includes permanent and temporary impacts. Geotechnical soil borings to assist in final highway design to begin late-summer 2022. Construction will be phased over several years with the initial roadway clearing occuring Fall 2022 and final phases of construction to begin Spring 2026.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.4064255,-94.22512220997825,14z

Counties: Crawford and Sebastian counties, Arkansas

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.	
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
There is **proposed** critical habitat for this species.	
Species profile: https://ecos.fws.gov/ecp/species/1864	

Reptiles

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii*	Proposed Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/4658	

Insects

NAME	STATUS
American Burying Beetle *Nicrophorus americanus*	Threatened
Population: Wherever found, except where listed as an experimental population	
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/66	
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9743	

Flowering Plants

NAME	STATUS
Missouri Bladderpod *Physaria filiformis*	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/5361	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Cattails Environmental, LLC
Name: Jodie Murray Burns
Address: 278 Greenhouse Road
City: Bentonville
State: AR
Zip: 72713
Email jodieburns@cattailsenvironmental.com
Phone: 4796594380

Lead Agency Contact Information

Lead Agency: Department of Transportation

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032

IN REPLY REFER TO:

May 4, 2022

Mr. John Fleming
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, Arkansas 72209

Project Code: 2022-0010163

Dear Mr. Fleming:

The U.S. Fish and Wildlife Service (Service) has reviewed your request for technical assistance related to the Arkansas Department of Transportation (ARDOT) preparing a draft re-evaluation of the 1997 final environmental impact statement (EIS) for the proposed construction of I-49 from Highway 22 north to Alma at I-40 and I-49 interchange in Sebastian and Crawford Counties, Arkansas. We received your letter on April 21, 2022.

The Service appreciates the opportunity to provide technical assistance in the form of comments and recommendations for this action early in the planning process. These comments are not the final opinion of the Service and may be revised or amended based on further coordination and new information obtained through the planning and assessment process. We will provide formal comments, as appropriate, in response to future requests. At this time, we offer the following for your consideration in accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.)

The following are the items you requested assistance with and our responses:

1. Determine habitat suitability for the American Burying Beetle (ABB) on the 9.0-acre area of the project footprint that falls within the boundaries of Ft. Chaffee, and likelihood of required presence/absence surveys, if it is agreed that the impacted habitat is determined suitable.

Service Response: The Service has reviewed the habitat assessment, performed site visits to the area, and reviewed all available data related to previous surveys and current guidance for the ABB. We do not believe that the habitat within the affected area of this action is suitable for ABB. Furthermore, with no captures from trapping surveys in the area over the last 11 years, it seems unlikely the species is in the area. Therefore, based on these two factors, the Service does not believe that additional surveys for ABB are necessary.

2. Considering the project does not follow the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern

Long-Eared Bat and plans to conduct bat surveys are known, are there any other AMMs that a project of this scope would need to adhere to.

Service Response: The Service recommends avoiding active season clearing by removing trees during the winter months in accordance with species conservation guidance and Avoidance and Minimization Measures (AMMs). Surveys are not required if the clearing occurs during the inactive season; however, performing surveys on the site could provide important information about the listed bat species in the area and potentially allow for active season clearing if there are no listed bats found. Additional AMMs are not currently necessary; however, if surveys indicate that listed bats are in the area, the Service should be contacted immediately, and additional consultation and consideration of AMMs may be necessary.

3. Use of the Consultation Package Builder within the IPaC website for a project of this size.

Service Response: Whether or not ARDOT chooses to use the Consultation Package Builder within IPaC is entirely at your discretion. For a project of this size and complexity, our office does not recommend its use at this time.

Thank you for this opportunity to provide technical assistance early in the planning and assessment process. For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or lindsey_lewis@fws.gov.

Sincerely,

Melvin L. Tobin
Field Supervisor

cc: Project File
Read File
Filename: C:\Users\lilewis\Documents\PROJECTS\FY2022\ARDOT\I-49\20220502_Ltr_ARDOT Job 040748 - I-49 - TA - LCL.docx

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: August 26, 2022
Project Code: 2022-0010163
Project Name: ARDOT Job 040748 Interstate 49, Highway 22 – I-40 (Arkansas River) (S)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Project Code: 2022-0010163

Project Name: ARDOT Job 040748 Interstate 49, Highway 22 – I-40 (Arkansas River) (S)

Project Type: Road/Hwy - New Construction

Project Description: The proposed project is intended for the Highway 22 to Interstate 40 future segment of Interstate 49, approximately 13.7 miles. The new location facility will connect from Highway 22 in Sebastian County to the Interstate 40 and Interstate 49 interchange in Crawford County. The entire footprint of the project is approximately 1, 539 acres which includes permanent and temporary impacts. Geotechnical soil borings to assist in final highway design to begin late-summer 2022. Construction will be phased over several years with the initial roadway clearing occuring Fall 2022 and final phases of construction to begin Spring 2026.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.4064255,-94.22512220997825,14z

Counties: Crawford and Sebastian counties, Arkansas

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1864	

Insects

NAME	STATUS
American Burying Beetle *Nicrophorus americanus*	Threatened
Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	

Flowering Plants

NAME	STATUS
Missouri Bladderpod *Physaria filiformis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5361	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Cattails Environmental, LLC
Name: Jodie Murray Burns
Address: 278 Greenhouse Road
City: Bentonville
State: AR
Zip: 72713
Email jodieburns@cattailsenvironmental.com
Phone: 4796594380

Lead Agency Contact Information

Lead Agency: Department of Transportation

Appendix C: Vegetation Assessment Data Forms and Photographs

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-21-2011	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sprinkling rain			**Latitude:**	35.32295	**Longitude:**	-94.29262
Map ID Number:	165	**Plot Number:**	01	**Plot Size:**	30 FT radius	**Percent Canopy:**	90 - 100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Liquidambar styraciflua	6	Y	20-30	5.2 - 25.5	11.6	*Juniperus virginiana*	30	*Liquidambar styraciflua*	3
Juniperus virginiana	3	Y	20-25	2.4 - 4.4	3.5	*Liquidambar styraciflua*	20	*Ligustrum sinense*	2
Acer rubrum	1	N	25	8.5	8.5			*Quercus nigra*	2
Prunus serotina	1	N	25	5.9	5.9			*Parthenocissus quinquefolia*	3
								Smilax rotundifolia	3
								Lonicera japonica	3
								Fraxinus pennsylvanica	2
								Diospyros virginiana	2

Comments: Small tree with deer rubbings.

Photo 1 –Plot 1 looking north

Photo 2 –Plot 1 looking east

Photo 3 – Plot 1 looking south

Photo 4 – Plot 1 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-21	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Clear and cool			**Latitude:**	35.321268	**Longitude:**	-94.288825
Map ID Number:	165	**Plot Number:**	02	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	7	Y	20-40	3.7 - 6.0	4.8	*Ligustrum sinense*	30	*Ligustrum sinense*	50
Fraxinus pennsylvanica	3	Y	20-40	5.7 – 23.2	12.5	*Ilex decidua*	20	*Parthenocissus quinquefolia*	5
Prunus serotina	3	Y	20-40	8.0 – 9.0	8.4			*Lonicera japonica*	5
Diospyros virginiana	2	N	15-20	4.5 – 5.0	4.75			*Toxicodendron radicans*	5
Ulmus americana	4	N	20-40	4.8 – 8.5	7				
Gleditsia triacanthos	1	N	30	10.2	10.2				
								Vines:	
								Lonicera japonica	

Comments: Mid-successional forest, deer rubs, rabbit trails

Photo 1 –Plot 2 looking north

Photo 2 –Plot 2 looking east

Photo 3 – Plot 2 looking south

Photo 4 – Plot 2 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Clear and cool			**Latitude:**	35.32373	**Longitude:**	-94.288374
Map ID Number:	165	**Plot Number:**	03	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus nigra	6	Y	40-80	6.0 – 15.4	9.9	*Ligustrum sinense*	20	*Ligustrum sinense*	50
Fraxinus pennsylvanica	2	N	20-30	12.4 – 17.0	14.7			*Parthenocissus quinquefolia*	5
Carya illinoinensis	3	Y	30-60	10.3 – 45.2	24.1			*Impatiens capensis*	5
Gleditsia triacanthos	1	N	30	19.8	19.8				
Ulmus americana	4	N	20-30	4.0 – 9.7	7.45				
								Vines:	
								Berchemia scandens	

Comments: Gray squirrels observed in this area.

Photo 1 –Plot 3 looking north

Photo 2 –Plot 3 looking east

Photo 3 – Plot 3 looking south

Photo 4 – Plot 3 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.324980	**Longitude:**	-94.290815
Map ID Number:	163	**Plot Number:**	04	**Plot Size:**	15 FT radius	**Percent Canopy:**	120

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Liquidambar styraciflua	10	*Lonicera japonica*	50
						Ulmus americana	3	*Lespedeza* spp.	20
						Ilex vomitoria	10	*Rubus trivialis*	20
								Vines:	

Comments: Road border

Photo 1 –Plot 4 looking north

Photo 2 –Plot 4 looking east

Photo 3 – Plot 4 looking south

Photo 4 – Plot 4 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.325282	**Longitude:**	-94.290639
Map ID Number:	163	**Plot Number:**	05	**Plot Size:**	15 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Rhus copallinum	70	*Ampelopsis arborea*	10
						Platanus occidentalis	5	*Lespedeza* spp.	10
						Ligustrum sinense	20	*Ligustrum sinense*	10
								Ligustrum sinense	10
								Vines:	

Comments:

Photo 1 –Plot 5 looking north

Photo 2 –Plot 5 looking east

Photo 3 – Plot 5 looking south

Photo 4 – Plot 5 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.326029	**Longitude:**	-94.287247
Map ID Number:	163	**Plot Number:**	06	**Plot Size:**	15 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Juncus interior	10
								Boltonia diffusa	5
								Helenium flexuosum	5
								Mimosa nuttallii	2
								Prunella vulgaris	3
								Pycnanthemum tenuifolium	5
								Ptilimnium nuttallii	5
								Vines: None	

Comments: Area appears to have been mowed regularly. Great diversity of vegetation and the above list includes only a few of those species.

Photo 1 –Plot 6 looking north

Photo 2 –Plot 6 looking east

Photo 3 – Plot 6 looking south

Photo 4 – Plot 6 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.326385	**Longitude:**	-94.288026
Map ID Number:	163	**Plot Number:**	07	**Plot Size:**	15 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Ligustrum sinense	1	Yes	20	6	6			*Ligustrum sinense*	25
Ulmus americana	1	No	20	6	6				
Diospyros virginiana	1	No	20	6	6				
								Vines: None	

Comments: Appears to have been cleared within the last 15 years.

Photo 1 –Plot 7 looking north

Photo 2 –Plot 7 looking east

Photo 3 – Plot 7 looking south

Photo 4 – Plot 7 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.324341	**Longitude:**	-94.286311
Map ID Number:	165	**Plot Number:**	08	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Liquidambar styraciflua	11	Yes	20-70	3.2 – 13.1	5.6	*Liquidambar styraciflua*	40	*Ligustrum sinense*	10
Ulmus americana	1	No	15	7	7	*Ligustrum sinense*	10	Diospyros virginiana	10
Juniperus virginiana	1	No	15	5.5	5.5	*Quercus nigra*	5	*Toxicodendron radicans*	30
Fraxinus pennsylvanica		Yes	25	12.2	12.2			*Campsis radicans*	5
								Parthenocissus quinquefolia	3
								Vines: None	

Comments:

Photo 1 –Plot 8 looking north

Photo 2 –Plot 8 looking east

Photo 3 – Plot 8 looking south

Photo 4 – Plot 8 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.324570	**Longitude:**	-94.285815
Map ID Number:	165	**Plot Number:**	09	**Plot Size:**	30 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Pinus taeda	8	Yes	100-120	10.7-23.6	18.3	*Liquidambar styraciflua*	60	*Ligustrum sinense*	5
Quercus rubra	1	No	30	8.7	8.7	*Ulmus americana*	20	*Lonicera japonica*	2
Liquidambar styraciflua	4	No	25	6.1-11.2	8			*Toxicodendron radicans*	2
								Parthenocissus quinquefolia	2
								Vines: None	

Comments:

Photo 1 –Plot 9 looking north

Photo 2 –Plot 9 looking east

Photo 3 – Plot 9 looking south

Photo 4 – Plot 9 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.326311	**Longitude:**	-94.284614
Map ID Number:	162	**Plot Number:**	10	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Liquidambar styraciflua	41	Yes	50-60	3-25.8	6.6	*Liquidambar styraciflua*	30	*Ligustrum sinense*	3
								Lonicera japonica	10
								Diospyros virginiana	3
								Parthenocissus quinquefolia	5
								Liquidambar styraciflua	5
								Rubus spp.	10
								Vines: None	

Comments:

Photo 1 –Plot 10 looking north

Photo 2 –Plot 10 looking east

Photo 3 – Plot 10 looking south

Photo 4 – Plot 10 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.328898	**Longitude:**	-94.282240
Map ID Number:	162	**Plot Number:**	11	**Plot Size:**	5 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Pyrus calleryana	3	*Conyza canadensis*	60
								Lonicera flava	50
								Rubus armeniacus	5
								Hordeum vulgare	2
								Triodanis perfoliata	1
								Vines: None	

Comments:

Photo 1 –Plot 11 looking north

Photo 2 –Plot 11 looking east

Photo 3 – Plot 11 looking south

Photo 4 – Plot 11 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.331018	**Longitude:**	-94.281293
Map ID Number:	162	**Plot Number:**	12	**Plot Size:**	5 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Diospyros virginiana	5	*Andropogon virginicus*	10
						Rhus copallinum	5	*Lespedeza cuneata*	5
								Mimosa quadrivalvis	5
								Plantago spp.	5
								Eryngium yuccifolium	2
								Apocynum cannabinum	2
								Prunella vulgaris	3
								Vines: None	

Comments:

Photo 1 –Plot 12 looking north

Photo 2 –Plot 12 looking east

Photo 3 – Plot 12 looking south

Photo 4 – Plot 12 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.331118	**Longitude:**	-94.281346
Map ID Number:	162	**Plot Number:**	13	**Plot Size:**	15 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Diospyros virginiana	10	*Lonicera japonica*	20
						Rhus copallinum	5		
						Ulmus alata	60		
						Gleditsia triacanthos	2		
								Vines: None	

Comments:

Photo 1 –Plot 13 looking north

Photo 2 –Plot 13 looking east

Photo 3 – Plot 13 looking south

Photo 4 – Plot 13 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-22-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.332775	**Longitude:**	-94.281262
Map ID Number:	162	**Plot Number:**	14	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus nigra	13	Yes	30-40	3.6-15.1	7.1	*Diospyros virginiana*	3	*Diospyros virginiana*	1
Juniperus virginiana	20	Yes	25-35	3.1-7.4	5.0	*Quercus nigra*	3	*Ligustrum sinense*	1
Ulmus americana	7	No	30-45	3.4-7.5	5.9	*Juniperus virginiana*	10		
								Vines: None	

Comments:

Photo 1 –Plot 14 looking north

Photo 2 –Plot 14 looking east

Photo 3 – Plot 14 looking south

Photo 4 – Plot 14 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny and clear			**Latitude:**	35.335500	**Longitude:**	-94.280548
Map ID Number:	162	**Plot Number:**	15	**Plot Size:**	15 FT radius	**Percent Canopy:**	60

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Gleditsia triacanthos	1	No	40	14	14	*Diospyros virginiana*	30	*Boehmeria cylindrica*	20
Diospyros virginiana	1	No	25	6	6	*Ligustrum sinense*	30	*Ligustrum sinense*	30
Acer negundo	1	No	30	3	3	*Cornus foemina*	5	*Rubus spp*	20
								Potentilla indica	10
								Impatiens capensis	5
								Toxicodendron radicans	5
								Lonicera japonica	5
								Rosa spp	2
								Vines: None	

Comments:

Photo 1 –Plot 15 looking north

Photo 2 –Plot 15 looking east

Photo 3 – Plot 15 looking south

Photo 4 – Plot 15 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.337286	**Longitude:**	-94.280847
Map ID Number:	162	**Plot Number:**	16	**Plot Size:**	15 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Acer negundo	3	Yes	30	5.4-10.6	8.8	*Acer negundo*	30	*Parthenocissus quinquefolia*	5
						Ligustrum sinense	20	*Ligustrum sinense*	3
						Cornus florida	3	*Toxicodendron radicans*	3
						Ilex decidua	3		
								Vines: None	

Comments:

Photo 1 –Plot 16 looking north

Photo 2 –Plot 16 looking east

Photo 3 – Plot 16 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.337916	**Longitude:**	-94.281207
Map ID Number:	162	**Plot Number:**	18	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Acer negundo	6	Yes	30-60	4.2-17.4	8.9			*Parthenocissus quinquefolia*	2
Celtis laevigata	9	Yes	30-40	3.2-13	5.6			*Bignonia capreolata*	2
Acer saccharinum	3	No	20-30	5.3-11.8	9.1			*Hordeum vulgare*	10
Fraxinus pennsylvanica	5	Yes	80-110	4.9-27	14.8				
Ilex decidua	1	No	15	6.5	6.5				
Ulmus americana	2	No	15	5.4-8.9	7.2				
								Vines: None	

Comments:

Photo 1 –Plot 18 looking north

Photo 2 –Plot 18 looking east

Photo 3 – Plot 18 looking south

Photo 4 – Plot 18 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.340656	**Longitude:**	-94.280772
Map ID Number:	159	**Plot Number:**	20	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Acer negundo	14	Yes	40-80	3.8-25.9	7.5	*Celtis laevigata*	2	*Parthenocissus quinquefolia*	5
Celtis laevigata	9	No	30-50	4.6-6.6	5.5	*Ligustrum sinense*	2	*Boehmeria cylindrica*	5
						Sambucus canadensis	2	*Lonicera japonica*	3
								Ampelopsis arborea	5
								Potentilla indica	5
								Vines: None	

Comments:

Photo 1 –Plot 20 looking north

Photo 2 –Plot 20 looking east

Photo 3 – Plot 20 looking south

Photo 4 – Plot 20 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.341772	**Longitude:**	-94.280804
Map ID Number:	159	**Plot Number:**	21	**Plot Size:**	15 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Populus deltoides	30	*Acer negundo*	15
						Fraxinus pennsylvanica	5	*Boehmeria cylindrica*	5
						Cephalanthus occidentalis	1	*Rubus trivialis*	40
						Forestiera acuminata	3	*Ampelopsis arborea*	10
						Morus rubra	10	*Lespedeza cuneata*	5
								Vines: None	

Comments: Sandy soil. Site near the Arkansas River.

Photo 1 –Plot 20 looking east

Photo 2 –Plot 20 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.345100	**Longitude:**	-94.280931
Map ID Number:	142	**Plot Number:**	22	**Plot Size:**	15 FT radius	**Percent Canopy:**	10

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Forestiera acuminata	20		
								Vines: None	

Comments: Beach area along the Arkansas River.

Photo 1 –Plot 22 looking north from water's edge

Photo 2 –Plot 22 looking west and upstream

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.346102	**Longitude:**	-94.280927
Map ID Number:	142	**Plot Number:**	23	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Cynodon dactylon	80
								Phyla lanceolata	30
								Diodia virginiana	20
								Ampelopsis arborea	10
								Vines: None	

Comments: Site in a depression with no canopy/tree cover.

Photo 1 –Plot 23 looking north

Photo 2 –Plot 23 looking east

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.346790	**Longitude:**	-94.281070
Map ID Number:	142	**Plot Number:**	24	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Populus deltoides	1	Yes	70	55.3	55.3			*Toxicodendron radicans*	10
Ulmus americana	5	Yes	70	6.3-16.9	10.5			*Berchemia scandens*	10
Acer negundo	1	No	60	8.9	8.9			*Hordeum vulgare*	10
Celtis laevigata	1	No	60	11.8	11.8				
								Vines: None	

Comments:

Photo 1 –Plot 24 looking north

Photo 2 –Plot 24 looking east

Photo 3 – Plot 24 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.348196	**Longitude:**	-94.280631
Map ID Number:	154	**Plot Number:**	25	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Oenothera laciniata	5
								Vines: None	

Comments: Gravel and sand field, possibly the site of dredged material disposal. Widely scattered herbaceous plants.

Photo 1 –Plot 25 looking east

Photo 2 –Plot 25 looking south

Photo 3 – Plot 25 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-23-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.354762	**Longitude:**	-94.280206
Map ID Number:	154	**Plot Number:**	26	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	5	Yes	30-50	6.8-16.5	11.8	*Ilex decidua*	10	*Parthenocissus quinquefolia*	15
Celtis laevigata	1	No	40	10.3	10.3	*Ligustrum sinense*	2	*Ampelopsis arborea*	2
Ulmus americana	4	Yes	30	5.2-12.7	7.5				
								Vines: None	

Comments:

Photo 1 –Plot 26 looking north

Photo 2 –Plot 26 looking east

Photo 3 – Plot 26 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Partly cloudy & warm			**Latitude:**	35.356647	**Longitude:**	-94.280515
Map ID Number:	155	**Plot Number:**	27	**Plot Size:**	30 FT radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Carya illinoiensis	9	Y	50-60	5.0 – 16.0	10.0	*Acer negundo*	15	*Parthenocissus quinquefolia*	20
Populus deltoides	1	Y	95	34.9	34.9	*Ilex decidua*	15	*Phytolacca americana*	20
Fraxinus pennsylvanica	4	N	25-30	3.8 – 7.3	5.3	*Celtis occidentalis*	10	*Bidens aristosa*	20
Celtis laevigata	1	N	25	3.5	3.5	*Lonicera maackii*	10	*Laportea canadensis*	15
Ulmus americana	1	N	20	7.0	7.0	*Ligustrum sinense*	10	*Pilea pumila*	10
								Vines:	
								Smilax bona-nox	
								Toxicodendron radicans	
								Vitis spp.	

Comments:

Photo 1 –Plot 27 looking north

Photo 2 –Looking north near Plot 27

Photo 3 – Looking southwest near Plot 27

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & clear			**Latitude:**	35.358408	**Longitude:**	-94.280606
Map ID Number:	155	**Plot Number:**	28	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Celtis occidentalis	7	Y	25-40	3.4 – 6.1	6.8	*Acer negundo*	20	*Toxicodendron radicans*	15
Populus deltoides	2	Y	80-90	33.7 – 35.5	34.6	*Rubus* spp.	10	*Carex* spp.	15
Fraxinus pennsylvanica	4	N	40	3.8 – 14.1	8.9			*Galium aparine*	10
Carya illinoiensis	2	N	60-75	15.7 – 25.9	20.8			*Lespedeza cuneata*	5
								Vines:	
								Parthenocissus quinquefolia	

Comments:

Photo 1 –Plot 28 looking northwest

Photo 2 –Plot 28 looking southwest

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Overcast			**Latitude:**	35.360757	**Longitude:**	-94.280885
Map ID Number:	154	**Plot Number:**	29	**Plot Size:**	5 FT radius	**Percent Canopy:**	30

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Sorghum halepense	10
								Rubus trivialis	5
								Mollugo verticillata	5
								Ranunculus sardous	3
								Vines: None	

Comments: Old soybean field that wasn't cultivated this year.

Photo 1 –Plot 29 looking north

Photo 2 –Plot 29 looking east

Photo 3 – Plot 29 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Overcast			**Latitude:**	35.361162	**Longitude:**	-94.280786
Map ID Number:	154	**Plot Number:**	30	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Ulmus americana	3	Yes	20-30	5.1-13.4	8.9	*Ilex decidua*	5	*Celtis laevigata*	1
Populus deltoides	1	Yes	50	33.7	33.7				
Fraxinus pennsylvanica	3	Yes	20-30	9.2-18	12.8				
Celtis laevigata	4	Yes	15-25	3.5-11.1	7				
								Vines: Toxicodendron radicans	5

Comments: Site in a depression, possible borrow area for adjacent levee.

Photo 1 –Plot 30 looking north

Photo 2 –Plot 30 looking east

Photo 3 – Plot 30 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Overcast			**Latitude:**	35.362250	**Longitude:**	-94.280836
Map ID Number:	154	**Plot Number:**	31	**Plot Size:**	15 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Fraxinus pennsylvanica	30	*Lonicera japonica*	60
						Juniperus virginiana	10	*Conyza canadensis*	20
						Pyrus calleryana	5	*Toxicodendron radicans*	10
								Rumex crispus	
								Vines: None	

Comments:

Photo 1 –Plot 31 looking east

Photo 2 –Plot 31 looking south

Photo 3 – Plot 31 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.362667	**Longitude:**	-94.280827
Map ID Number:	108	**Plot Number:**	32	**Plot Size:**	5 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Triticum aestivum	80
								Oenothera laciniata	3
								Sorghum halepense	3
								Ampelopsis arborea	3
								Vines: None	

Comments: Site in winter wheat field that has recently been harvested.

Photo 1 –Plot 32 looking east

Photo 2 –Plot 32 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Overcast			**Latitude:**	35.361587	**Longitude:**	-94.281345
Map ID Number:	154	**Plot Number:**	33	**Plot Size:**	15 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Fraxinus pennsylvanica	2	Yes	30	10-15	12.5	*Cephalanthus occidentalis*	40		
								Vines: None	

Comments: Site along the edge of a buttonbush swamp with open water. Likely the site of borrow for the adjacent levee.

Photo 1 –Plot 33 looking north

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.377247	**Longitude:**	-94.273165
Map ID Number:	110	**Plot Number:**	34	**Plot Size:**	5 FT radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Cephalanthus occidentalis	40	*Hibiscus spp.*	30
								Sorghum halepense	20
								Ambrosia trifida	40
								Vines: Vitis spp.	

Comments: Site along an intermittent stream/ditch.

Photo 1 –Plot 34 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.387987	**Longitude:**	-94.251915
Map ID Number:	117	**Plot Number:**	35	**Plot Size:**	5 FT radius	**Percent Canopy:**	50

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Scirpus spp.	50
								Glycine max	20
								Vines: None	

Comments: Site in a depression, possibly a farmed wetland with old soybean stubble.

Photo 1 –Plot 35 looking east

Photo 2 –Plot 35 looking south

Photo 3 – Plot 35 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.394891	**Longitude:**	-94.234843
Map ID Number:	71	**Plot Number:**	36	**Plot Size:**	15 FT wide border	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Acer saccharinum	50	*Ambrosia trifida*	50
								Vines: None	

Comments: Site along Mays Branch.

Photo 1 –Plot 36 view of vegetation along stream

Photo 2 –Plot 36 looking north along Mays Branch

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.403843	**Longitude:**	-94.227649
Map ID Number:	73	**Plot Number:**	37	**Plot Size:**	15 FT Radius	**Percent Canopy:**	100

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Ligustrum sinense	5	*Smilax rotundifolia*	15
						Ulmus alata	5	*Smilax bona-nox*	10
						Fraxinus pennsylvanica	1	*Toxicodendron radicans*	10
								Rubus spp.	10
								Ampelopsis arborea	10
								Hordeum vulgare	5
								Lonicera japonica	30
								Juncus effusus	2
								Thyrsanthella difformis	5
								Vines: None	

Comments: Site appears to have been logged within the last 10 years and along the side of a hill.

Photo 1 –Plot 37 looking north

Photo 2 –Plot 37 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-24-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Partly cloudy			**Latitude:**	35.410756	**Longitude:**	-94.224231
Map ID Number:	87	**Plot Number:**	38	**Plot Size:**	30 FT Radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	3	Yes	20-30	3.2-6.2	4.3	*Ligustrum sinense*	20	*Ligustrum sinense*	10
Quercus stellata	8	Yes	40-60	7.4-18.2	12.5	*Fraxinus pennsylvanica*	10	*Smilax bona-nox*	3
Ulmus americana	1	No	20	4.1	4.1			*Toxicodendron radicans*	3
Carya spp.	1	No	45	8.6	8.6			*Lonicera japonica*	10
								Parthenocissus quinquefolia	5
									5
									30
								Vines: None	

Comments:

Photo 1 –Plot 38 looking north

Photo 2 –Plot 38 looking east

Photo 3 – Plot 38 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.417116	**Longitude:**	-94.220733
Map ID Number:	91	**Plot Number:**	39	**Plot Size:**	30 FT Radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	3	Yes	20-30	7.6-11.7	4.3	*Ligustrum sinense*	50	*Viola spp.*	10
Fraxinus pennsylvanica	1	No	50	17.2	12.5	*Philadelphus hirsutus*	5	*Lonicera japonica*	20
Ulmus americana	1	No	20	4.9	4.9			*Impatiens capensis*	5
Carya illinoinensis	3	Yes	20-30	12.7-14	13.2				
Quercus nigra	2	Yes	20-30	9.6-12.5	11				
								Vines: Berchemia scandens	5
								Lonicera japonica	10
								Toxicodendron radicans	5
								Vitis spp	5

Comments:

Photo 1 –Plot 39 looking north

Photo 2 –Plot 39 looking east

Photo 3 – Plot 39 looking south

Photo 4 – Plot 39 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.419461	**Longitude:**	-94.218261
Map ID Number:	81	**Plot Number:**	41	**Plot Size:**	5 x 10 feet	**Percent Canopy:**	50

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Lemna aequinoctialis	25
								Persicaria spp.	10
								Vines: None	

Comments: Open water area under powerline caused by beaver dam stopping flow at road culvert.

Photo 1 –Plot 41 looking north

Photo 2 –Plot 41 looking east

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Overcast			**Latitude:**	35.420041	**Longitude:**	-94.218329
Map ID Number:	81	**Plot Number:**	42	**Plot Size:**	30 ft radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus nigra	3	Yes	10-30	3.3-14.6	9.6	*Ilex decidua*	30	*Symphoricarpos orbiculatus*	1
Fraxinus pennsylvanica	9	Yes	10-40	3.3-24.1	9.5	*Ligustrum sinense*	30		
Celtis laevigata	2	Yes	10-15	6.8-7.8	7.3				
Ulmus americana	3	Yes	10-12	3.5-12	7.0				
Diospyros virginiana	1	No	10	5.7	5.7				
Carya illinoinensis	1	No	10	7.7	7.7				
Carya spp	1	No	10	7.4	7.4				
								Vines: Berchemia scandens	30

Comments:

Photo 1 –Plot 42 looking north

Photo 2 –Plot 42 looking west

Photo 3 – Plot 42 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Partly cloudy			**Latitude:**	35.422535	**Longitude:**	-94.217847
Map ID Number:	81	**Plot Number:**	43	**Plot Size:**	30 ft radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	16	Yes	10-50	3.8-17.8	8.3	*Ligustrum sinense*	30	*Ligustrum sinense*	10
Quercus stellata	4	Yes	15-50	6.8-24.3	15.6			*Parthenocissus quinquefolia*	10
Carya tomentosa (alba)	1	No	15	3.5	3.5			*Smilax rotundifolia*	10
								Lonicera japonica	10
								Toxicodendron radicans	3
								Vines:	

Comments: Upland evergreen/deciduous forest.

Photo 1 –Plot 43 looking north

Photo 2 –Plot 43 looking east

Photo 3 – Plot 43 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.426961	**Longitude:**	-94.217926
Map ID Number:	63	**Plot Number:**	44	**Plot Size:**	30 ft radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Juniperus virginiana	4	Yes	10-40	5-12.9	9.3	*Ligustrum sinense*	5	*Ampelopsis arborea*	5
Pyrus calleryana	1	No	40	12.2	12.2	*Symphoricarpos orbiculatus*	40	*Parthenocissus quinquefolia*	40
Morus spp	1	No	15	3	3			*Lonicera japonica*	5
Ligustrum sinense	4	Yes	20	4-8.5	6.4				
Ulmus alata	1	No	15	3.1	3.1				
								Vines: Lonicera japonica	30
								Smilax rotundifolia	5

Comments:

Photo 1 –Plot 44 looking north

Photo 2 –Plot 44 looking east

Photo 3 – Plot 44 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.432925	**Longitude:**	-94.213971
Map ID Number:	96	**Plot Number:**	45	**Plot Size:**	30 ft radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus falcata	8	Yes	10-70	3.9-33.5	12			*Lonicera japonica*	30
Quercus nigra	3	Yes	25-35	6.5-11.7	9			*Parthenocissus quinquefolia*	10
Carya tomentosa	6	Yes	15-25	3-6.6	4.2				
Quercus marilandica	1	No	20	7.5	7.5				
Ulmus americana	6	Yes	20-30	6.1-10.2	8.7				
Juniperus virginiana	1	No	30	12	12				
								Vines:	

Comments:

Photo 1 –Plot 45 looking north

Photo 2 –Plot 45 looking east

Photo 3 – Plot 45 looking south

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	6-25-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.433110	**Longitude:**	-94.213128
Map ID Number:	128	**Plot Number:**	47	**Plot Size:**	30 ft radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Ulmus americana	1	Yes	30	9.8	9.8	*Ligustrum sinense*	60	*Ligustrum sinense*	50
Fraxinus pennsylvanica	1	Yes	40	15.1	15.1			*Impatiens capensis*	15
								Chasmanthium latifolium	20
								Vines: None	

Comments: Mostly a privet thicket, with a few trees, in a floodplain of a small stream. Site is east of the stream.

Photo 1 –Plot 47 looking north

Photo 2 –Plot 47 looking east

Photo 3 – Plot 47 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & clear			**Latitude:**	35.457432	**Longitude:**	-94.221277
Map ID Number:	37	**Plot Number:**	48	**Plot Size:**	30 FT radius	**Percent Canopy:**	55

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus nigra	4	Y	45-50	4.25 – 13.0	7.3	*Ligustrum sinense*	30	*Chasmanthium latifolia*	10
Celtis occidentalis	1	N	50	6.0	6.0	*Acer saccharinum*	10	*Nymphaea odorata*	10
Fraxinus pennsylvanica	1	N	40	5.75	5.75	*Fraxinus pennsylvanica*	10	*Rubus* spp.	40
						Celtis occidentalis	10		
								Vines:	85
								Smilax bona-nox	
								Lonicera japonica	
								Vitis spp.	
								Parthenocissus quinquefolia	
								Campsis radicans	
								Smilax rotundifolia	

Comments:

Photo 1 –Plot 48 looking north

Photo 2 –Plot 48 looking east

Photo 3 – Plot 48 looking southeast

Photo 4 – Plot 48 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & clear			**Latitude:**	35.459235	**Longitude:**	-94.220860
Map ID Number:	37	**Plot Number:**	49	**Plot Size:**	30 FT radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Salix nigra	3	Y	60-65	35	35	*Ligustrum sinense*	40	*Impatiens capensis*	20
Quercus phellos	4	Y	45-50	6.75 – 12.9	8.9	*Celtis occidentalis*	10	*Persicaria* spp.	20
Fraxinus pennsylvanica	2	N	35-40	7.5 – 8.0	7.75			*Rubus* spp.	15
Celtis occidentalis	4	Y	35-40	5.9 – 10.2	7.4			*Pilea pumila*	10
Acer saccharinum	1	N	35	11.6	11.6			*Phytolacca americana*	5
Morus rubra	1	N	20	9.7	9.7				
								Vines:	
								Smilax bona-nox	20
								Vitis spp.	15

Comments:

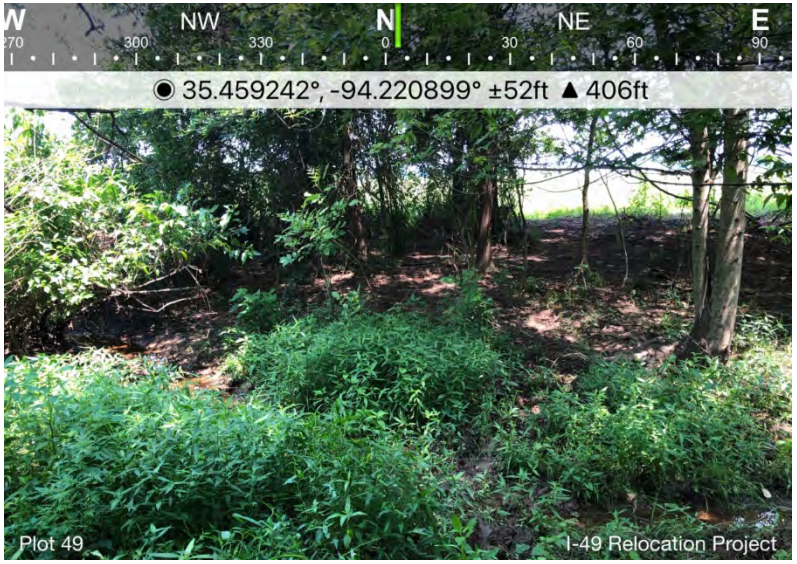

Photo 1 –Plot 49 looking north

Photo 2 –Plot 49 looking east

Photo 3 – Plot 49 looking south

Photo 4 – Plot 49 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & cloudless			**Latitude:**	35.460671	**Longitude:**	-94.223149
Map ID Number:	35	**Plot Number:**	50	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Trifolium repens	15
								Schedonorus arundinaceus	80
								Rumex crispus	15
								Cynodon dactylon	25
								Vines:	

Comments: Plot within a recently, cut hayfield.

Photo 1 –Plot 50 looking north

Photo 2 –Plot 50 looking east

Photo 3 – Plot 50 looking south

Photo 4 – Plot 50 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & cloudless			**Latitude:**	35.471267	**Longitude:**	-94.234141
Map ID Number:	31	**Plot Number:**	51	**Plot Size:**	15 FT radius	**Percent Canopy:**	35

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
						Pyrus calleryana	35	*Lespedeza cuneata*	40
						Fraxinus pennsylvanica	20	*Juncus effusus*	30
						Cephalanthus occidentalis	10	*Ludwigia alternifolia*	15
						Acer rubrum	2	*Rubus* spp.	10
						Liquidambar styraciflua	1	*Cyperus strigosus*	5
								Coreopsis lanceolata	25
								Solidago spp.	10
								Vines:	

Comments:

Photo 1 –Plot 51 looking northeast

Photo 2 –Plot 51 looking east

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & hot			**Latitude:**	35.480981	**Longitude:**	-94.240084
Map ID Number:	21	**Plot Number:**	52	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Plantago lanceolata	30
								Gaillardia pulchella	5
								Coreopsis tinctoria	10
								Erigeron strigosus	5
								Solanum carolinense	10
								Diodia virginiana	30
								Cyperus strigosus	5
								Ampelopsis arborea	5
								Vines:	

Comments:

Photo 1 –Plot 52 looking north

Photo 2 –Plot 52 looking east

Photo 3 – Plot 52 looking south

Photo 4 – Plot 52 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-20-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & clear			**Latitude:**	35.482222	**Longitude:**	-94.241113
Map ID Number:	18	**Plot Number:**	53	**Plot Size:**	30 FT radius	**Percent Canopy:**	85

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Ulmus americana	3	Y	40-45	10.85 – 30.0	17.3	*Acer negundo*	5	*Toxicodendron radicans*	20
Quercus phellos	2	Y	65-70	16.5 – 22.4	19.5	*Ligustrum sinense*	30	*Persicaria* spp.	15
Juniperus virginiana	8	Y	20-25	4.0 – 8.7	6.0	*Celtis laevigata*	15	*Phytolacca americana*	10
Gleditsia triacanthos	1	N	30	12.5	12.5	*Ilex vomitoria*	10		
Acer negundo	1	N	45	9.0	9.0				
								Vines:	
								Parthenocissus quinquefolia	10
								Lonicera japonica	10
								Ampelopsis arborea	5

Comments: Snags present in or near this plot – 4 PRT/snags with DBHs of 9.0", 12.2", 6.2" and 11.0"

Photo 1 –Plot 53 looking north

Photo 2 –Plot 53 looking east

Photo 3 – Plot 53 looking south

Photo 4 – Plot 53 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny & partly cloudy			**Latitude:**	35.484774	**Longitude:**	-94.242876
Map ID Number:	14	**Plot Number:**	54	**Plot Size:**	30 FT radius	**Percent Canopy:**	95

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Quercus rubra	8	Y	80-85	7.0 – 11.0	9.0	*Fraxinus pennsylvanica*	3	*Chasmanthium latifolia*	5
Quercus phellos	6	Y	75-80	12.0 – 15.3	13.7	*Ligustrum sinense*	5		
Ulmus americana	1	N	80	16.8	16.8	*Liquidambar styraciflua*	3		
Liquidambar styraciflua	1	N	80	5.5	5.5	*Rubus* spp.	2		
						Cercis canadensis	2		
								Vines:	
								Vitis spp.	
								Parthenocissus quinquefolia	
								Campsis radicans	
								Ampelopsis arborea	

Comments: Burrow present near this plot – coyote/fox size. Deer tracks noted.

Photo 1 –Plot 54 looking north

Photo 2 –Plot 54 looking east

Photo 3 – Plot 54 looking south

Photo 4 – Plot 54 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.491808	**Longitude:**	-94.246438
Map ID Number:	7	**Plot Number:**	55	**Plot Size:**	30 FT radius	**Percent Canopy:**	95

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Liquidambar styraciflua	55	Y	45-50	7.0 – 11.0	9.0	*Ligustrum sinense*	15	*Phytolacca americana*	5
Ulmus americana	1	N	40	7.6	7.6			*Carex* spp.	3
Pyrus calleryana	1	N	25	4.5	4.5				
								Vines:	
								Smilax rotundifolia	
								Lonicera japonica	
								Vitis spp.	
								Parthenocissus quinquefolia	
								Campsis radicans	
								Ampelopsis arborea	

Comments: Dead Eastern redcedars (Juniperus virginiana) everywhere in this plot – sapling (< 3" DBH) and tree (>3" DBH) sizes.

Photo 1 –Plot 55 looking north

Photo 2 –Plot 55 looking east

Photo 3 – Plot 55 looking south

Photo 4 – Plot 55 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.487008	**Longitude:**	-94.243856
Map ID Number:	12	**Plot Number:**	56	**Plot Size:**	30 FT radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Fraxinus pennsylvanica	6	Y	65-70	6.9 – 26.7	14.3	*Rubus* spp.	30	*Chasmanthium latifolia*	20
Ulmus americana	1	N	25	3.4	3.4	*Ulmus americana*	20	*Persicaria* spp.	20
Pyrus calleryana	1	N	35	10.0	10.0	*Liquidambar styraciflua*	20	*Lespedeza cuneata*	10
Celtis laevigata	1	N	50	12.5	12.5	*Celtis laevigata*	5	*Carex frankii*	30
Juniperus virginiana	2	N	45-50	10.5 – 12.0	11.3				
								Vines:	
								Vitis spp.	
								Lonicera japonica	

Comments: Birds noted in field: *Cyanocitta cristata*, blue jay; *Cardinalis cardinalis*, Northern cardinal. Deer tracks seen.

Photo 1 –Plot 56 looking north

Photo 2 –Plot 56 looking east

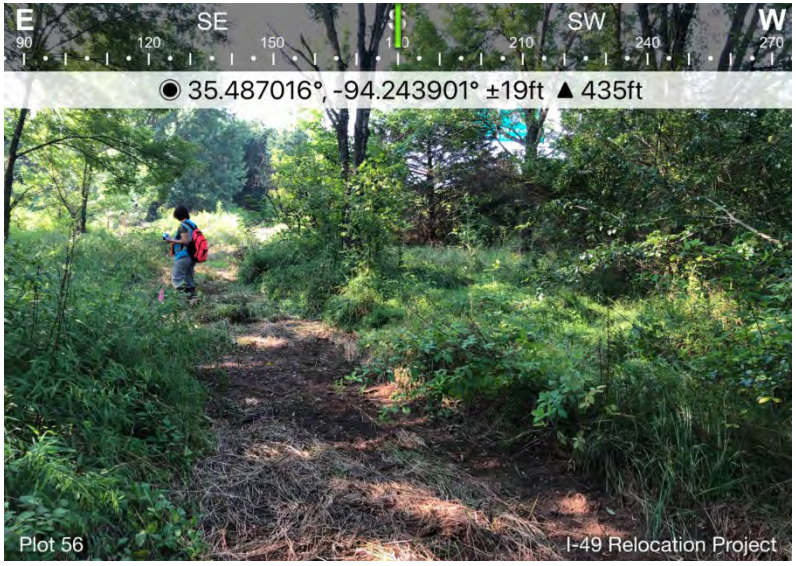

Photo 3 – Plot 56 looking south

Photo 4 – Plot 56 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.480614	**Longitude:**	-94.246988
Map ID Number:	16	**Plot Number:**	57	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Fraxinus pennsylvanica	5	Y	60-65	5.0 – 22.2	16.4	*Ligustrum sinense*	25	*Laportea canadensis*	50
Acer negundo	2	Y	65-70	11.7 - 13.9	12.8			*Persicaria* spp.	30
Ulmus americana	1	N	70	13.4	13.4			*Botrychium dissectum*	15
Acer saccharinum	1	N	45	5.7	5.7			*Impatiens capensis*	10
Gleditsia triacanthos	1	N	25	5.0	5.0			*Commelina caroliniana*	5
Platanus occidentalis	1	N	40	6.4	6.4				
								Vines:	

Comments: Lots of downed trees and broken branches making suitable snags for bats.

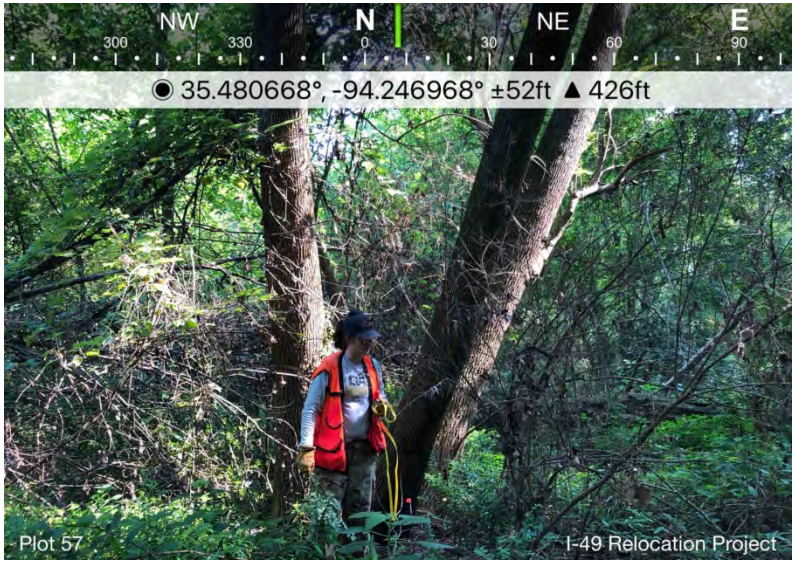

Photo 1 –Plot 57 looking north

Photo 2 –Plot 57 looking east

Photo 3 – Plot 57 looking south

Photo 4 – Plot 57 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny			**Latitude:**	35.477720	**Longitude:**	-94.252539
Map ID Number:	NA, see comments	**Plot Number:**	58	**Plot Size:**	30 FT radius	**Percent Canopy:**	70

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Ulmus alata	2	N	20-25	5.4 – 5.7	5.6	*Ligustrum sinense*	40		
Ulmus americana	10	Y	65-70	3.6 – 12.4	6.6	*Quercus phellos*	5		
Pyrus calleryana	1	N	25	18.4	18.4	*Liquidambar styraciflua*	20		
						Ulmus americana	20		
						Quercus nigra	5		
								Vines:	
								Lonicera japonica	
								Smilax bona-nox	
								Campsis radicans	
								Smilax rotundifolia	

Comments: Shrub-Sapling/Forested area with lots of vines.

No map ID assigned in information provided; S12 T09 R32; Tax Code 300; Owner Name AR Hwy Comm; Parcel ID 001-03345-000-E

Photo 1 –Plot 58 looking north

Photo 2 –Plot 58 looking east

Photo 3 – Plot 58 looking south

Photo 4 – Plot 58 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-21-2021	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Sunny, very humid			**Latitude:**	35.351973	**Longitude:**	-94.280966
Map ID Number:	155	**Plot Number:**	59	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Populus deltoides	1	Y	80	26.2	26.2	*Ligustrum sinense*	25	*Bidens aristosa*	10
Celtis occidentalis	3	N	25-30	4.6 – 13.1	7.9	*Acer negundo*	15	*Phytolacca americana*	10
Acer negundo	13	Y	30-40	3.0 – 7.4	4.4	*Quercus phellos*	15	*Passiflora incarnata*	3
Carya illinoiensis	2	Y	70	4.6 – 26.7	15.65	*Ulmus americana*	15		
								Vines:	
								Parthenocissus quinquefolia	
								Smilax spp.	
								Vitis spp.	
								Ampelopsis arborea	

Comments: Additional data collected between plots 25 & 26.

Photo 1 –Plot 59 looking north

Photo 2 –Plot 59 looking east

Photo 3 – Plot 59 looking south

Photo 4 – Plot 59 looking west

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy, sunny			**Latitude:**	35.351837	**Longitude:**	-94.270412
Map ID Number:	157	**Plot Number:**	60	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Sorghum halepense	98
								Nekemias arborea	1
								Apocynum cannabinum	1
								Vines:	

Comments:
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

Photo 1 –Plot 60 looking north

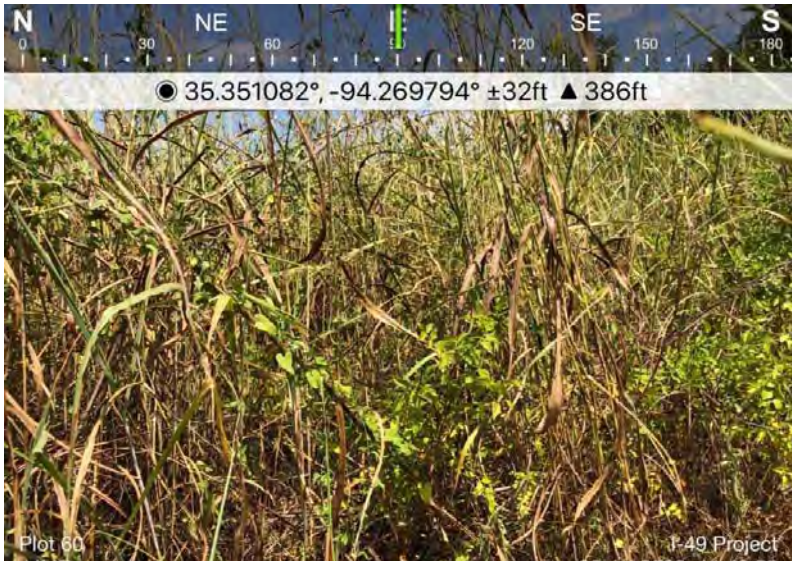

Photo 2 –Plot 60 looking east

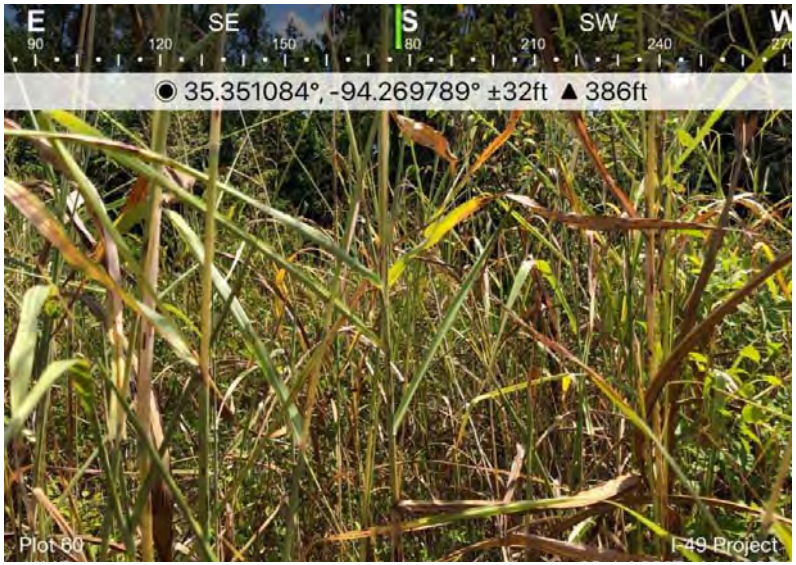

Photo 3 – Plot 60 looking south

Photo 4 – Plot 60 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy			**Latitude:**	35.349594	**Longitude:**	-94.275935
Map ID Number:	157	**Plot Number:**	61	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Acer negundo	7	Y	20-50	4-26	9.7	*Acer negundo*	80	*Parthenocissus quinquefolia*	20
Celtis occidentalis	1	N	25	5	5	*Gleditsia triacanthos*	2	*Rubus trivialis*	15
Platanus occidentalis	1	Y	60	42	42	*Ligustrum sinense*	16	*Ligustrum sinense*	10
Juglans nigra	2	Y	50-60	21-25	23	*Ulmus americana*	2	*Ilex decidua*	15
Populus deltoides	1	Y	65	36	36				
Fraxinus pennsylvanica	1	N	50	15	15				
								Vines:	
								Nekemias arborea	3

Comments:
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

Photo 1 –Plot 61 looking north

Photo 2 –Plot 61 looking east

Photo 3 – Plot 61 looking south

Photo 4 – Plot 61 looking west

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy, overcast			**Latitude:**	35.350191	**Longitude:**	-94.272536
Map ID Number:	157	**Plot Number:**	62	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Celtis laevigata	6	Y	25-40	4-10	6.8	*Fraxinus pennsylvanica*	15	*Chasmanthium latifolia*	15
Celtis occidentalis	2	N	30	6-9	7.5	*Celtis occidentalis*	5	*Ilex decidua*	5
Morus rubra	1	N	40	31	31	*Celtis laevigata*	5	*Rubus trivialis*	3
Populus deltoides	2	Y	50-65	9-38	23.5	*Ilex decidua*	3		
Fraxinus pennsylvanica	11	Y	30-60	7-20	11.6				
Acer negundo	1	N	30	7	7				
								Vines:	
								Nekemias arborea	5
								Vitis spp.	2

Comments:
Roost tree noted within 30-FT plot.
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

Photo 1 –Plot 62 looking north

Photo 2 –Plot 62 looking east

Photo 3 – Plot 62 looking south

Photo 4 – Plot 62 looking west

Appendix D: Bat Survey Reports

Acoustic Presence/Absence Survey for ESA listed bats for I-49 Relocation over Arkansas River in Crawford and Sebastian Counties, Arkansas

Prepared for:

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And

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Notice: This report has been prepared by Dr. Elizabeth A. Burba of ECHO, LLC acting as an independent contractor for HNTB. It is solely for the benefit of its client, the Arkansas Department of Transportation, in accordance with an approved scope of work. This report is in the best judgement based on information available at the time of preparation. ECHO, LLC assume no liability for the decisions or actions made by a third party based on the information obtained within this report.

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Acoustic Presence/Absence Survey for ESA listed bats for I-49 Relocation over Arkansas River in Crawford and Sebastian Counties, Arkansas

EXECUTIVE SUMMARY

The Arkansas Department of Transportation (ARDOT) is proposing a new road construction project for the relocation of I-49 extending from Highway 22 north near Barling to the I-40 interchange in Alma, crossing over the Arkansas River (Job 040748). In order to determine the potential effects of the project on endangered bat species, a presence/absence survey was conducted, which followed a study plan approved by the Arkansas Ecological Services Field Office of the USFWS consistent with their summer survey guidelines. This report outlines the results of the survey. The project length is 23 km of which 13.8 km are considered suitable bat habitat (or 413 acres). The proposed action includes extensive clearing of habitat and in-water work for the construction of new bridges. The implementation of the proposed project would result in the permanent removal of potential roosting sites, degradation of foraging habitat, and disruption of flyway connectivity. The project will be completed in phases, each with its own unique job number identifier. The southern-most section of the project (Section A) was not included in this study as it was surveyed independently of this effort (Job 040900). This survey effort includes the remainder of the project under Jobs 040901, 040902, 040903, and 040904. ECHO, LLC, an independent contractor of HNTB, previously supplied ARDOT and USFWS a habitat assessment and a proposed acoustic survey study plan for the area of interest. USFWS subsequently approved the proposal, and an acoustic presence-absence survey was conducted from 25 May – 4 June 2022. The survey consisted of 16 acoustic monitoring

REPORT HIGHLIGHTS

Project: ARDOT Job 040748 Acoustic Bat Survey

Counties: Crawford & Sebastian

Roadway: 23 km for I-49 relocation between Barling and Alma, AR

Survey Dates: 25 May – 4 June 22

No. of Survey Sites: 16

No. of Survey Nights: 73

No. of Identified Bat Calls: 19,189

MLE for ESA listed species (consolidated data):

Indiana bat: 96 call sequences
MLE ≥ 0.3977
NLEB: 51 call sequences
MLE ≥ 0.3245
Gray bat: 1509 call sequences
MLE ≥ 0.0000
Ozark big-eared bat: 4 call sequence
MLE ≥ 0.4660

ESA listed species with probable presence:

Gray bats (*Myotis grisescens*)

sites being monitored for at least 4 nights each during suitable conditions. The survey resulted in the recording of 19,189 bat call sequences that were identified to species. Automated classification software, Kaleidoscope Pro v 5.4.0, classified 96 call sequences as Indiana bat (MLE ≥ 0.3977), 51 call sequences as northern long-eared bat (NLEB; MLE ≥ 0.3245), 1509 call sequences as gray bats (MLE ≥ 0.0000), and 4 call sequences as Ozark big-eared bat (MLE ≥ 0.4660). Gray bats are the only endangered species with probable species presence. Gray bats had MLE values indicative of probable species presence at 14 of the 16 acoustic sites. Manual review of the calls supports the results of automated analysis.

1.0 INTRODUCTION

The Arkansas Department of Transportation (ARDOT) is proposing a new road construction project for the relocation of I-49 extending from Highway 22 north near Barling to the I-40 interchange in Alma, crossing over the Arkansas River (Job 040748). The proposed project occurs in Sebastian and Crawford Counties and will construct approximately 22 km of new, four-lane interstate with 12-ft main lanes (2 in each direction) within a new right-of-way. There are also several interchanges at existing road crossings, and construction is proposed to occur in phases. ARDOT contracted HNTB as construction engineers, which subcontracted environmental work for bat surveys to ECHO, LLC. This survey is in compliance with ESA section 7 consultation in order to assist with the drafting of a biological assessment and to determine the effects of the project on endangered bat species. The Information Planning and Consultation (IPAC) generated by USFWS lists four threatened or endangered bat species that potentially occur within the geographic range of the proposed project: the Indiana bat (*Myotis sodalis*), the northern long-eared bat (*Myotis septentrionalis*), the gray bat (*Myotis grisescens*), and the Ozark big-eared bat (*Corynorhinus townsendii ingens*). The NLEB is currently listed as threatened, but in March 2022 the USFWS proposed the species to be reclassified as endangered. For the purposes of this report, the word endangered is used to describe all four of these species

A habitat assessment of the study area was previously conducted by ECHO, LLC (submitted to USFWS on 21 April 2022), which concluded the 1357-acre project area contains 413 acres of suitable roosting and foraging habitat for Indiana bats and NLEB. Given the project requires new right-of-way more than 300 ft from existing roadway, extensive tree clearing is a necessary component of the proposed action. The length of the entire study area is approximately 23 km of which 13.8 km are considered suitable bat habitat. The habitat impacts exceed more than 20 acres per 5-mile section, and its location more than 300 ft from existing roadway preclude the project from being covered by the Programmatic Biological Opinion for Transportation Projects (USFWS 2018). Projects outside the limits of the programmatic are evaluated on a case-by-case basis by USFWS. This proposal still follows the procedural guidelines of the programmatic and aligns with the requirements of summer survey guidelines (USFWS 2022a).

While suitable roosting habitat is available for Indiana bats and NLEB, there were no suitable cave or cave-like structures that would be used as roosting sites for gray bats or Ozark big-eared bats. However, it is possible these cave species could forage within the project area. The riparian corridors of Frog Bayou, Mays Branch, and the Arkansas River are important source of flyway connectivity to the surrounding landscape. Indiana bats and NLEB rely heavily on dead or dying trees during summer maternity season but also may roost in man-made structures, such as bridges and barns. The proposed action will remove potential roosting sites and degrade foraging habitat which could adversely affect either species, if they are present within the study area.

Unlike Indiana bats and NLEB, gray bats are generally year-round cave obligate species, but their foraging behavior is highly associated with foraging over open water. The Arkansas River provides a riparian green belt that connects wetlands and forested habitat on the southern end of the proposed project. Frog Bayou, a tributary of the Arkansas River, runs along the western edge of the northern half of the project before crossing through the central portion and emptying into the Arkansas River, approximately 6 km west of the study area. At the convergence of Frog Bayou and the Arkansas River is Ozark Lake Wildlife Management Area (WMA). The southern portion of the study area is also located within Fort Chaffee WMA.

A copy of the habitat assessment and a proposed study plan for an acoustic presence/absence survey were supplied to ARDOT and USFWS on 21 April 2022. The USFWS subsequently approved the study plan without modification on 02 May 2022. This report outlines the results of the acoustic presence/absence survey conducted from 25 May – 04 June 2022 following an approved plan of study. All deviations from the proposed study plan are noted and the reasons justified in section 5.0 SITE SPECIFIC RESULTS. Some minor modifications were needed due to environmental conditions, land owner conflicts, or simply to improve detector placement based on site characteristics. None of the changes affect survey effort or the habitat features being surveyed but were placement adjustments within 300 m or less of what was approved in the study plan.

2.0 HABITAT SUMMARY

The action site is located in the Arkansas Valley ecoregion and crosses three level IV ecoregions: the Arkansas Valley Plains, the Arkansas Valley Floodplains, and the Arkansas Valley Hills (EPA 2022). As is typical for this region, the majority of the floodplains have been converted to agricultural lands and hayfields. The undulating landscape of Arkansas Valley Plains has more intact stands of oak-hickory forest, but pastureland and hayfields are still extensive in this region. The Arkansas Valley Hills, which are hillier than the former ecoregions, occur at the northern portion of the study area and retain more remnants of oak-hickory forest. Frog Bayou runs along the western edge of the project, providing a year-round water source and creating several

associated wetlands. Mays Branch also runs through the center of the project and is an important source of connectivity to suitable bat habitat in an otherwise agricultural landscape.

Native forest remains along riparian corridors. Tree species typically found in the region are as follows: eastern cottonwood, sycamore, southern red oak, green ash, hackberry, pecan, sweetgum, black willow, white oak, and water oak. The project area covers 1357 acres of which 413 acres are still forested. There are several forest fragments in the project area, especially on the southern end of the project near the Arkansas River. Of the 23 km within the study area, 13.8 km are considered suitable bat habitat for roosting and/or foraging. There have been no documented captures of Indiana bats within the vicinity of the project, but two captures of NLEB have been documented along the Arkansas River approximately 1 mi west of the study area (ANHC 2021.) The removal of trees during the active maternity season has the potential to adversely affect Indiana bats and/or NLEB if they are present within the project area. A survey is needed to properly determine the effects of the project on any endangered bat species and prevent any incidental take.

3.0 METHODS

3.1 Acoustic Site Selection

An acoustic survey study plan was previously provided to USFWS and ARDOT on 21 April 2022 and was approved by USFWS on 2 May 2022. This survey followed that which was proposed, except where noted. The USFWS requires at least one sample site be monitored for four survey nights for every 1 km of suitable summer habitat (USFWS 2022a). The entire length of suitable habitat was 13.8 km and was arranged in such a way that 18 survey sites were needed to adequately survey all areas of suitable habitat. Two survey sites on the southern end of the project (Section A of the study plan) were omitted from this survey because another firm is surveying that section and duplication of survey efforts was to be avoided. There are two interchanges with existing roadways in which construction does not have a linear footprint (section E and G); thus, the survey effort was also designed to exceed minimum survey efforts for non-linear acreage of 14 survey nights for every 123 acres of suitable habitat, a requirement for NLEB. The sites were selected for features that are associated with bat activity and are in areas where calls can be collected in uncluttered habitat. Figure 1 shows the placement of the bat detectors within the study area. The study area was further divided into seven sections, sections A through G from south to north. In addition to section A being omitted, section C is also not shown because no suitable habitat occurs within this section and therefore, no survey sites were placed within it. The remaining sections are shown in Figures 2-23 as they are discussed within section 5.0 SITE SPECIFIC RESULTS.

Three different Wildlife Acoustics detector types were used during the survey: two SM3 bat detectors, four SM4 bat detectors, and two song meter minis. GPS coordinates for each site were recorded with an external Garmin 64S. Additionally, the SM4 bat detector was paired with GPS module that automatically sets the GPS coordinates on the detector and applies them to every bat call file. For the song meter mini, the GPS coordinates for call files are set through an app that uses the coordinates of a paired mobile device. There may be slight variation between GPS coordinates recorded with the Garmin 64S and those applied to bat call files due to resolution differences between devices and that fact that the GPS module plugs into the detector, not the microphone which may be several meters away. For the SM3 detectors, GPS coordinates are manually entered into call file notes.

A total of 73 survey nights were conducted for the project over a 10-day period. The northern sites of E2 through G4 were surveyed simultaneously between 25 May 2022 and 30 May 2022. The detectors were then taken down and reset to sample acoustic sites B1-E1 simultaneously between 30 May 2022 and 4 June 2022. Acoustic site B2 was started a day later than the other sites surveyed concurrently because recent flooding made the last site inaccessible from the expected access point. Neither another access route nor an alternative suitable site with appropriate vegetation clearance could be found before sunset. Therefore, site B2 was placed the subsequent day. Additionally, site D3 was moved in the middle of the survey due to landowner request. While permission was initially given for placement, after the second night of the survey the land owner's mother expressed distrust of surveyors being on the property and asked for the bat detectors to be removed. It was relocated to another suitable location that surveyed the same forested area. The location, survey dates, and habitat type for each acoustic monitoring site are provided in Table 1.

Table 1. Acoustic monitoring site information for I-49 Relocation (ARDOT Job 040748).

Site ID	GPS Coordinates	GPS Accuracy	No. Nights Surveyed	Start Date	End Date	Habitat Type
I-49 B1	35.33286°, -94.28084°	3m	4	30-May-22	3-Jun-22	Woodland edge, gas-line corridor
I-49 B2	35.34134°, -94.27960°	3m	4	31-May-22	4-Jun-22	Riparian edge of Arkansas River
I-49 B3	35.34633°, -94.27922°	3m	4	30-May-22	3-Jun-22	Riparian forest edge near Arkansas River
I-49 B4	35.36079°, -94.27961°	3m	4	30-May-22	3-Jun-22	U-shaped woodland edge near creek
I-49 D1	35.39621°, -94.23512°	3m	5	30-May-22	4-Jun-22	Riparian corridor of Mays Branch
I-49 D2	35.40622°, -94.22513°	3m	4	30-May-22	3-Jun-22	U-shaped forest clearing near pond
I-49 D3-a	35.42069°, -94.21852°	3m	2	30-May-22	1-Jun-22	Woodland edge on gas-line corridor
I-49 D3-b	35.41563°, -94.22090°	3m	2	1-Jun-22	3-Jun-22	Woodland edge near pond
I-49 E1	35.42079°, -94.21902°	3m	4	30-May-22	3-Jun-22	Woodland edge near creek
I-49 E2	35.43684°, -94.21241°	3m	5	25-May-22	30-May-22	Woodland edge near pond
I-49 E3	35.43684°, -94.21242°	3m	5	25-May-22	30-May-22	Riparian corridor of Frog Bayou
I-49 F1	35.45713°, -94.22153°	3m	5	25-May-22	30-May-22	Riparian forest edge near creek
I-49 F2	35.46083°, -94.22569°	3m	5	25-May-22	30-May-22	Riparian edge of Frog Bayou
I-49 G1	35.47551°, -94.23972°	3m	5	25-May-22	30-May-22	Woodland edge near Frog Bayou
I-49 G2	35.48221°, -94.24571°	3m	5	25-May-22	30-May-22	Riparian edge of Frog Bayou
I-49 G3	35.48606°, -94.23823°	3m	5	25-May-22	30-May-22	Woodland edge near pond
I-49 G4	35.48929°, -94.24377°	3m	5	25-May-22	30-May-22	Woodland edge, wetland near pond

3.2 Field Methods for Acoustic Survey

Acoustic monitoring set-up was performed by Elizabeth Burba of ECHO (Permit No. TE33639D-0; CV provided in Appendix A). The equipment used were Wildlife Acoustics SM3 and SM4 full-spectrum bat detectors equipped with either a SMM-U1 or SMM-U2 external microphone. The microphones are attached by cables and are mounted on telescoping poles and raised up to 7m above the ground. Two song meter minis were also used for the project which have built-in, internal microphones that have the same components as the SMM-U2 microphone. These require the entire detector to be mounted on top of telescoping pole, such that set-up differs between the equipment, but recording quality is equivalent to other detectors. The SMM-U2 microphone is designed in a disk-like shape and intended to be mounted with the sensor pointed vertically. SMM-U1 microphones are typically mounted horizontally, pointed in direction of the feature being surveyed. However, both microphone types are omni-directional.

Prior to deployment, the microphones were tested for proper functioning and to assess current sensitivity level. All were above acceptable sensitivity levels. The microphones were placed at least 5 m from all vegetation (excluding ground vegetation), although the clearance in most directions was at least 10 m. This allows microphones to collect calls with minimal interference from vegetative clutter, which is an important component for proper species identification. The detectors were set to record continuously so that proper recording could be verified with a 40 kHz ultrasonic calibrator both before and after the survey. This ensures that the detectors were recording throughout the entire survey night. Even though the detector was recording on a 24 hr

schedule, the survey start and end time was considered sunset to sunrise each night. Any sound files collected outside of this survey window were omitted from analysis. The detector and microphone information for the monitoring sites are provided in Table 2.

Table 2. Acoustic detector and microphone specifications for monitoring sites of I-49 relocation project.

Site ID	Detector Type	Mic Type	Horizontal Oreintation	Vertical Oreintation	Microphone Height	Microphone Sensitivity [1]	Distance to Vegatation	Recording Type	Recording Verification Method
I-49 B1	SM4 bat	SMM-U2	N/A	90°	5m	-28.7 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 B2	SM3 bat	SMM-U1	90°	20°	5m	-26.3 db	10m	Full spectrum	Ultrasonic callibrator
I-49 B3	SM4 bat	SMM-U2	N/A	90°	4m	-27.4 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 B4	SM mini	SMM-U2	N/A	90°	4m	-23.9 dB	15m	Full spectrum	Ultrasonic callibrator
I-49 D1	SM4 bat	SMM-U2	N/A	90°	7m	-27.2 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 D2	SM mini	SMM-U2	N/A	90°	4m	-19.7 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 D3-a	SM3 bat	SMM-U2	N/A	90°	4m	-28.9 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 D3-b	SM3 bat	SMM-U2	N/A	90°	4m	-28.9 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 E1	SM4 bat	SMM-U2	N/A	90°	4m	-24.9 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 E2	SM4 bat	SMM-U2	N/A	90°	4m	-32.9 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 E3	SM4 bat	SMM-U2	N/A	90°	5m	-25.0 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 F1	SM mini	SMM-U2	N/A	90°	4m	-23.9 dB	5m	Full spectrum	Ultrasonic callibrator
I-49 F2	SM mini	SMM-U2	N/A	90°	4m	-20.6 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 G1	SM4 bat	SMM-U2	N/A	90°	4m	-29.40 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 G2	SM3 bat	SMM-U1	270°	10°	6m	-26.1 dB	5m	Full spectrum	Ultrasonic callibrator
I-49 G3	SM4 bat	SMM-U2	N/A	90°	4m	-28.3 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 G4	SM4 bat	SMM-U2	N/A	90°	4m	-26.9 dB	10m	Full spectrum	Ultrasonic callibrator

[1] The acceptable limit for microphone sensitivity is anything greater (less negative) than -38 dB for SMM-U1 and -47 dB for SMM-U2 microphones

Data sheets for the acoustic monitoring site are provided in Appendix B. The detector settings were left on recommended, default settings for recordings as shown in Table 3. The detector setting files generated by Kaleidoscope v5.4.0 are also provided for each detector night in the supplemental information that was submitted concurrently with this report.

Table 3. Detector settings used for recordings.

Parameter	Value
Gain	12 dB
High pass filter	Off
Sample rate	256 kHz
Minimum duration (signal)	1.5 ms
Maximum duration (signal)	none
Minimum trigger frequency	16 kHz
Trigger level	12 dB
Trigger window	3 sec
Maximum length (recording)	15 sec

Nightly weather conditions were monitored via Weather Underground (2022) using two different monitoring stations. The study plan had proposed to use data from the KARVANBUR33 weather station, located off McClure Rd. It is 5 mi north of the Arkansas River and 2 km west of the project footprint. This is the closest weather station for the southern half of the project. However, another weather station off Clear Creek Road (KARALMA12) was found to be closer for the northern acoustic sites (only 300 m from site E2), so this station was used for the northern half of the project, and KARVANBUR33 was used for the southern half of the project. The only exception was on the night of 1 June 2022 when the Fort Smith Airport was the only nearby site with data available. An abnormality occurred on the Wunderground website in that no weather data was ever loaded from the rural stations between 17:19 on 1 June 2022 and 11:04 on 2 June 2022. As of 13 June 2022, data from the four nearest rural sites was still unavailable during those times, so data from Fort Smith was used instead. Weather conditions that invalidate a survey night are (a) the temperature falls below 50°F (10°C) during the first 5 hours of survey period, (b) precipitation, including rain and/or fog, exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period, or (c) sustained wind speeds are greater than 9 mph (4 m/s; 3 on Beaufort scale) for more than 30 minutes during the first 5 hours of the survey period. There were no invalid nights due to weather, although it was initially believed that one invalid night occurred on 25 May 2022. The confusion occurred because when past data files were accessed via the KARALMA12 station, the website automatically changed the weather data to a Fort Smith site without the change being noticed. The conditions at the Fort Smith site where invalid due to wind exceeding 9 mph at an incorrect site. Once the discrepancy between sites was noticed, the data was retrieved from the correct site. Wind speeds on 25 May 2022 were lower at KARALMA12 than the Fort Smith station and did not exceed 9 mph. Repeating the survey night was not required, but detectors were already set up for the final night when the discrepancy was noticed. It was repeated anyway. This did not increase the number of days surveyors were on site because a technical difficulty at site F1 (see section 5.5.1 for details) required that one survey night be repeated at this site; thus all northern sites were surveyed an additional day and kept on the

same schedule. Weather condition datasheets for each survey night are provided in Appendix B and the conditions are summarized in Table 4.

Table 4. Weather conditions during the first 5 hours of each survey night for ARDOT Job 040748.

Weather Station	Survey Night	Sunset Time	Sunrise Time	Temperature		Wind		Rainfall		Valid Survey Night
				Max	Min	> 9 mph	Time (min)	Amount (in)	Time (min)	
KARALMA12	25-May-22	20:22	6:05	61.3	58.4	No	–	0.00	–	Yes
KARALMA12	26-May-22	20:22	6:05	61.1	55.5	No	–	0.00	–	Yes
KARALMA12	27-May-22	20:23	6:04	72.4	59.5	No	–	0.00	–	Yes
KARALMA12	28-May-22	20:24	6:04	76.8	65.6	No	–	0.00	–	Yes
KARALMA12	29-May-22	20:25	6:03	81.5	65.8	No	–	0.00	–	Yes
KARVANBUR33	30-May-22	20:25	6:03	82.4	77.0	No	–	0.00	–	Yes
KARVANBUR33	31-May-22	20:26	6:02	84.0	72.6	No	–	0.00	–	Yes
Fort Smith Airport[1]	1-Jun-22	20:26	6:02	78.0	72.0	No	–	0.00	–	Yes
KARVANBUR33	2-Jun-22	20:27	6:02	71.2	61.8	No	–	0.00	–	Yes
KARVANBUR33	3-Jun-22	20:28	6:02	68.0	61.3	No	–	0.00	–	Yes

[1] Fort Smith site was used because data was not available for the survey night from any other closer station

3.3 Acoustical Analysis

After each night of monitoring, the collected data were downloaded from the SD cards and imported into Kaleidoscope v5.4.8 to view data files. Using the Bats of North America v5.4.0 classifier, the program was set to specify the signals of interest to include in automated analysis (Table 5). Identification sensitivity was set at -1 to align with USFWS software approval (USFWS 2022b). Recordings that did not fit these specifications were filtered as noise and automatically sent to a separate sub-directory folder. Kaleidoscope allows the user to select which species to include in automated analysis to minimize false identifications of species that do not even occur in the area. Species included in the identification list are those presented with the results (see Tables 7-23). Along with species identification, Kaleidoscope also generates maximum likelihood estimates (MLE) ranging from 0.0 to 1.0 that give the probability that calls identified to a particular species are misidentified. The closer the MLE value is to 0.0, the higher the confidence in correct species identification and probable species presence. A significant likelihood for species presence is MLE ≤ 0.05. Results are compiled into a table for each survey site, and species that have a significant MLE are highlighted in gray.

Table 5. Kaleidoscope Pro v5.4.0 software settings for automated species identification.

Parameter	Value
Sensitivity level	- 1 (liberal)
Frequency Range	8 - 120 kHz
Pulse Duration	2-500 ms
Maximum inter-syllable gap	500 ms
Minimum number of pulses	5

In addition to the automated species identification, Kaleidoscope also calculates the number of call pulses recorded in a call sequence and the number of pulses in a sequence that match the characteristics of the species identified. The number of pulses identified to a particular species divided by the total number of pulses recorded in a sequence, results in a value called the pulse match ratio (PMR). In general, the more pulses in a sequence and higher PMR indicates higher quality of the call sequence recording. These values can be helpful in manual call analysis to further support the reliability of species identification.

Because detectors were set to record 24 hours, occasionally day-time environmental noise can be misidentified as a bat species. For example, the ultrasonic calibrator used to verify recordings emits a 40 kHz pulse. Because it is typically within the limits of the parameter settings for call identification, it is often included as a bat call file. It is usually classified as a "no identification", but sometimes it is misidentified as a Tri-colored bat (*Perimyotis subflavus*) or Evening bat (*Nycticeius humeralis*). After all files had been imported into Kaleidoscope, they were checked and any day-time noise that was misidentified as a bat species was manually moved to the noise folder to remove them from the dataset. This allows for the maximum likelihood estimates (MLE) to be adjusted correctly with false bat identifications removed from the dataset.

Call sequences identified as an endangered species were manually analyzed using the acoustic software Kaleidoscope Viewer. The calls were assessed in comparison to the expected values of each species as outlined in Table 6. A professional opinion is given about the reliability of the automated analysis in section 6.0 BIOLOGICAL DISCUSSION. Without any further qualitative analysis conducted by a recognized USFWS specialist, species presence must be assumed for any species with significant MLE ≤ 0.05 regardless of any discrepancy with the professional opinion. Based on the professional opinion in this report, ARDOT can decide whether further qualitative analysis is desired or if additional services are desired, such as radio telemetry of bats to identify roost sites.

Table 6. Call characteristics used to manually ID calls in comparison to the expected values ± SD for Indiana bats and NLEB. Expected values from Britzke et al. (2011).

Abbreviation	Definition of characteristic	Expected Indiana Bat Value	Expected NLEB Value	Expected Gray Bat Value
Dur	Duration of the call (ms)	3.49 ± 0.63	2.37 ±0.70	4.96 ± 1.28
Fmax	Maximum frequency of the call (kHz)	68.75 ± 9.98	76.33 ± 14.97	65.64 ± 8.79
Fmin	Minimum frequency of the call (kHz)	41.34 ± 1.68	43.03 ± 3.22	45.36 ± 1.71
Fmean	Mean frequency of the call (kHz)	50.03 ± 3.22	54.38 ± 6.49	51.45 ± 2.52
Fk	Frequency at the inflection point of the slope, known as the knee (kHz)	47.81 ± 3.66	54.80 ± 11.19	51.43 ± 1.60
Fc	Characteristic frequency, frequency of the flattest part of the call (kHz)	43.61 ± 3.24	51.04 ± 10.31	46.88 ± 1.68
S1	Initial slope of call, octaves per second (OPS)	428.07 ± 130.05	509.09 ± 141.83	299.93 ±113.07
Sc	Characteristic slope, slope of the flattest section of the call (OPS)	143.73 ± 30.32	303.50 ± 108.05	52.85 ± 21.50
Tk	Time into the call when Fk (defined above) is reached (ms)	2.03 ± 0.70	1.25 ± 0.70	1.86 ± .081
Tc	Time into the call when Fc (defined above) is reached (ms)	3.02 ± 0.80	1.60 ± 0.75	4.57 ± 1.25

4.0 CUMULATIVE RESULTS

For all sites and survey nights combined, a total of 19,628 sound files met the criteria outlined in Table 5 to be include in automated species analysis. Of those recorded sound files, 19,189 were identified to a bat species (Table 7). Automated call analysis uses the abbreviations of scientific names to display results. Therefore, in the results section the same abbreviations in result tables may be used to simplify written results. This means that MYSE may be used for northern long-eared bat rather than the NLEB abbreviation of the common name used earlier in the report. There were 14 potential species included in automated analysis; these are listed in Table 7. There was at least one call sequence identified as each of the 14 possible species, although only nine species had significant MLE that indicate probable species presence. Species that are likely present within the project area (i.e., MLE < 0.05 from at least one survey site) are: big brown bats (*Eptesicus fuscus*), red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), Seminole bat (*Lasiurus seminolus*), gray bat (*Myotis grisescens*), southeastern myotis (*Myotis austroriparius*), little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*), and Mexican free-tailed bat (*Tadarida brasiliensis*). Red bats had the highest percent composition, representing 28.41% of all bat calls identified. Of the call sequences recorded, 1,660 were classified as an endangered species, the vast majority being gray bats. Gray bats were the only endangered species with probable species presence and had MLE < 0.05 at 14 of the 16 survey sites. Sites B4 and E3 were the only sites without significant MLE for gray bat presence. All other endangered species can be

viewed as probably absent. The lowest MLE values for the other endangered species were: *Corynorhinus townsendii* (COTO, MLE = 0.4660 at site G2), *Myotis septentrionalis* (MYSE, MLE = 0.3245 at site G1), and *Myotis sodalis* (MYSO, MLE = 0.3977 at site F1). Species composition for each individual site by survey night are provided in the following section 5.0 SITE SPECIFIC RESULTS. Cumulative results for the entire project are summarized below in Table 7.

Table 7. Cumulative summary of automated species identification and percent species composition for all sites and survey nights combined.

All Survey Sites		All survey nights	
Species Name	Species Abbreviation [1]	No. calls	% Species Composition
Corynorhinus townsendii	COTO	4	0.02%
Eptesicus fuscus	EPFU	1459	7.60%
Lasiurus borealis	LABO	5451	28.41%
Lasiurus cinereus	LACI	1411	7.35%
Lasionycteris noctivagans	LANO	620	3.23%
Lasiurus seminolus	LASE	1975	10.29%
Myotis austroriparius	MYAU	323	1.68%
Myotis grisescens	MYGR	1509	7.86%
Myotis leibii	MYLE	2	0.01%
Myotis lucifugus	MYLU	1276	6.65%
Myotis septentrionalis	MYSE	51	0.27%
Myotis sodalis	MYSO	96	0.50%
Nycticeius humeralis	NYHU	1188	6.19%
Perimyotis subflavus	PESU	983	5.12%
Tadarida brasiliensis	TABR	2841	14.81%
No identification	NoID	439	–
Total No. of Identified Call Sequences		19189	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB

5.0 SITE SPECIFIC RESULTS

5.1 Section A

Section A was the southern-most section of the I-49 relocation project. It was not surveyed under this approved study plan as ARDOT plans to have another contractor survey this section. To avoid duplicated effort and costs, it was omitted from the survey. It was noted in the study plan that this was a likely scenario, and thus, does not deviate from original study plan. Because it was not included in this survey, this section is not shown in any detail other than inclusion in the project footprint in Figure 1.

5.2. Section B

Section B includes the area of the project between H street and Gun Club Rd, crossing over the Arkansas River (Figure 2). It includes four survey sites and contains 3.36 km of suitable bat habitat. The section lacks good flight corridors other than Arkansas River, but has high quality bat habitat with associated wetlands and large forest stands within the Fort Chaffee WMA. Site B3 and B4 are on Fort Chaffee property so detector placement outside of project footprint was allowed to optimize detector placement in uncluttered habitat near the forest edge. Similarly, site B2 was within public access area of Springhill Park, so detector was placed slightly outside of project footprint to optimize placement in riparian area along the Arkansas River.

5.2.1. Acoustic Site B1

Acoustic Site B1 was placed in the area proposed in the study plan. It was positioned along a gas-line corridor on the woodland edge. It is the southern-most acoustic site. Photos of the site with the detector set-up are provided in Figure 3. The acoustic equipment used and additional survey details for site B1 were provided above in Tables 1 and 2 and corresponding datasheet is provided in Appendix B. The site was surveyed for four consecutive nights without any disturbances or invalid conditions. The automated species identifications for site B1 are shown in Table 8. There were no call sequences identified as COTO, MYSO, or MYSE (MLE = 1.0000). There were 46 call sequences identified as MYGR resulting in significant MLE = 0.0000 on all four survey nights. Gray bats should be considered present at this site.

Table 8. Automated species identification and MLE results for acoustic site B1 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site B1		Survey Night							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	4	0.1315	3	0.7857	18	0.0000	10	0.0000
Lasiurus borealis	LABO	41	0.0000	39	0.0000	24	0.0000	11	0.0000
Lasiurus cinereus	LACI	3	0.3796	2	0.9902	2	0.9960	2	0.9377
Lasionycteris noctivagans	LANO	0	1.0000	6	0.5545	2	1.0000	0	1.0000
Lasiurus seminolus	LASE	12	1.0000	38	0.0092	12	1.0000	4	1.0000
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	1	0.9989	1	1.0000
Myotis grisescens	MYGR	17	0.0000	29	0.0000	11	0.0000	12	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	1	1.0000	6	1.0000	6	0.9937	3	0.9843
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	24	1.0000	8	1.0000	2	1.0000	0	1.0000
Perimyotis subflavus	PESU	13	0.9900	12	1.0000	9	0.7455	6	0.3150
Tadarida brasiliensis	TABR	7	0.0016	12	0.0000	6	0.0942	8	0.0014
No identification	NoID	8	–	2	–	1	–	1	–
Total No. of Identified Call Sequences		122		155		93		57	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.2.2 Acoustic Site B2

Acoustic Site B2 was placed as originally proposed in a flood plain of the Arkansas River. Detector was placed along the forest edge approximately 40 m south of the river. Its placement within the project area and photos of the acoustic site with the detector in place are provided in Figure 4. The corresponding datasheet is in Appendix B. The acoustic equipment used and survey details for site B2 were already summarized above in Tables 1 and 2. The site was surveyed for 4 nights with no disturbance issues; however, the survey began a day later than the other surrounding sites due to access issues related to recent flooding. Automated species identifications and MLE estimates for site B2 are given in Table 9. There were no call sequences identified as COTO, one call sequence identified as MYSE, and two call sequences identified as MYSO, but the MLE remained 1.0000 for all three species, indicating probable species absence. There were 17 call sequences identified as MYGR, but the MLE was only significant on the first survey night (MLE = 0.0221). Based on the data, gray bats should be viewed as likely present.

Table 9. Automated species identification and MLE results for acoustic site B2 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site B2		Survey Night							
		31-May-22		1-Jun-22		2-Jun-22		3-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	9	0.0743	7	0.1425	11	0.0003	15	0.0000
Lasiurus borealis	LABO	23	0.0000	113	0.0000	72	0.0000	65	0.0000
Lasiurus cinereus	LACI	8	0.1963	8	0.0478	4	0.6588	7	0.0546
Lasionycteris noctivagans	LANO	6	1.0000	7	0.9993	5	1.0000	3	1.0000
Lasiurus seminolus	LASE	41	0.0000	32	1.0000	10	1.0000	19	1.0000
Myotis austroriparius	MYAU	0	1.0000	2	0.2362	0	1.0000	0	1.0000
Myotis grisescens	MYGR	5	0.0221	4	1.0000	4	0.8225	4	0.8908
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	2	1.0000	20	0.8738	4	1.0000	17	0.3139
Myotis septentrionalis	MYSE	0	1.0000	1	1.0000	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.0000	1	1.0000	1	1.0000	0	1.0000
Nycticeius humeralis	NYHU	9	1.0000	22	1.0000	7	1.0000	7	1.0000
Perimyotis subflavus	PESU	1	1.0000	7	1.0000	2	1.0000	1	1.0000
Tadarida brasiliensis	TABR	29	0.0000	20	0.0000	15	0.0000	11	0.0017
No identification	NoID	5	–	20	–	11	–	9	–
Total No. of Identified Call Sequences		133		244		135		149	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.2.3 Acoustic Site B3

Acoustic Site B3 was placed as originally proposed in a vegetation clearing on the forest edge, 150 m north of the Arkansas River. It is located in Fort Chaffe WMA. The datasheet for the site is provided in Appendix B. Its placement within the project area is shown in Figures 2 and 5. Photos of acoustic site B3 with the detector deployed are also provided in Figure 5. The acoustic equipment used and additional survey details for site were provided above in Tables 1 and 2. The site was surveyed for four consecutive nights with no incidents of disturbance. The automated species identifications and MLE estimates for site B3 are shown in Table 10. There were no call sequences identified as COTO, MYSO, or MYSE (MLE = 1.0000 for each). There were 14 call sequences identified as MYGR, but only the last survey night reached significance (MLE = 0.0033); therefore, gray bat presence should also be assumed at site B3.

Table 10. Automated species identification and MLE results for acoustic site B3 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site B3		Survey Night							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.00000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.00000	4	0.6548	4	0.3427	1	1.0000
Lasiurus borealis	LABO	37	0.00000	28	0.0000	37	0.0000	33	0.0000
Lasiurus cinereus	LACI	7	0.00691	8	0.0165	7	0.0103	6	0.0287
Lasionycteris noctivagans	LANO	1	1.00000	3	1.0000	3	1.0000	2	1.0000
Lasiurus seminolus	LASE	18	0.68780	28	0.0065	36	0.0116	32	0.0044
Myotis austroriparius	MYAU	1	0.48440	0	1.0000	2	0.2497	0	1.0000
Myotis grisescens	MYGR	2	0.98551	0	1.0000	4	0.5007	8	0.0033
Myotis leibii	MYLE	0	1.00000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	2	1.00000	6	1.0000	6	1.0000	3	1.0000
Myotis septentrionalis	MYSE	0	1.00000	0	1.0000	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.00000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	9	1.00000	15	1.0000	8	1.0000	8	1.0000
Perimyotis subflavus	PESU	4	1.00000	13	0.5552	12	1.0000	5	1.0000
Tadarida brasiliensis	TABR	12	0.00001	17	0.0000	11	0.0001	12	0.0000
No identification	NoID	4	–	5	–	6	–	3	–
Total No. of Identified Call Sequences		93		122		130		110	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.2.4 Acoustic Site B4

Acoustic site B4 was placed in the general area which was proposed in the study plan, but it was moved approximately 100 m east of the project area to allow the detector to be closer to the clutter and have forest edge on three sides of the detector. At the time of the study plan, it was unknown who owned the property as it was outside of the project footprint. When it was learned the adjoining property was part of Fort Chaffee Maneuver Training Area, we knew access clearance was available. The detector site was moved because habitat characteristics were more ideal for bat activity. Its placement within the project area is shown in Figures 2 and 6. Photos of acoustic site B4 with the detector deployed are also provided in Figure 6. The datasheet for the site is in Appendix B. The acoustic equipment used and additional survey details for site were provided above in Tables 1 and 2. The site was surveyed for four consecutive nights with no incidents of disturbance. The results of the automated species identifications and MLE estimates for site B4 are summarized in Table 11. Bat activity was high at this site, but no call sequences were identified as COTO, MYSO, or MYSE (MLE = 1.0000 for each). There were a few sequences identified as gray bats (n = 6, MLE ≥ 0.07669), but none of the survey nights reached significant MLE for species presence. Endangered species can be considered absent from this site.

Table 11. Automated species identification and MLE results for acoustic site B4 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site B4		Survey Night							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	100	0.0000	66	0.0000	72	0.0000	93	0.0000
Lasiurus borealis	LABO	26	0.3497	46	0.0045	27	0.0054	27	0.0011
Lasiurus cinereus	LACI	49	0.0000	45	0.0065	53	0.0000	72	0.0000
Lasionycteris noctivagans	LANO	29	1.0000	28	1.0000	35	1.0000	34	1.0000
Lasiurus seminolus	LASE	131	0.0000	226	0.0000	118	0.0000	99	0.0000
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis grisescens	MYGR	3	0.0769	2	0.6951	1	1.0000	0	1.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	0	1.0000	1	1.0000	1	1.0000	0	1.0000
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	98	1.0000	100	1.0000	41	1.0000	18	1.0000
Perimyotis subflavus	PESU	6	1.0000	7	1.0000	9	1.0000	5	1.0000
Tadarida brasiliensis	TABR	133	0.0000	203	0.0000	165	0.0000	148	0.0000
No identification	NoID	24	–	17	–	15	–	15	–
Total No. of Identified Call Sequences		575		724		522		496	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.3 Section C

Section C crosses a large agricultural area and does not contain any suitable bat habitat; therefore, no surveys were conducted in this area. Maps of the area are not shown other than its portion within the overall project footprint in Figure 1.

5.4 Section D

Section D represents a 3 km section of I-49 relocation extending from Mays Branch to New Town Road. Only 1.6 km of the section contains suitable bat habitat, but it is not consecutive and occurs in two patches (Figure 7). There were three acoustic sites needed to cover all the areas of suitable habitat. Site D1 and D2 were placed as proposed in study plan. The survey site for D3 was changed mid-survey by landowner request. Site D3-a was originally placed as proposed with knowledge and consent of landowner, but after two nights of survey another family member expressed uneasiness with surveyors walking throughout the property to access detector and requested it be removed. The detector was then relocated approximately 300 m south to a different property that effectively samples the same forest patch (Site D3-b). Datasheets for each site are provided in Appendix B.

5.4.1 Acoustic Site D1

Acoustic site D1 was placed according to the study plan within the riparian corridor of Mays Branch. The detector was placed 2 m east of the creek edge. In this area, Mays branch is the only suitable bat habitat in an otherwise agricultural landscape. Its placement within the project area is shown in Figures 7and 8. Photos of acoustic site D1 with the detector deployed are also provided in Figure 8. The acoustic equipment used and additional survey details for the site are listed in Tables 1 and 2 above. The site was surveyed for five nights, but data is only available for four of them. The SD card from the survey night of 30 May 2022 was somehow corrupted between the time it was removed from the detector and the time it was attempted to be downloaded to the computer for analysis. While in the detector, the SD card had shown a few GB of data were recorded, but no device could read the SD card after removal, not even the bat detector when it was reinserted the next morning. The SD card had to be reformatted, which clears the data. Recovery software was used in an attempt to recover the data after reformatting, which was somewhat successful, but time stamps were lost and the MLE files could not be opened. Thus, the survey night was repeated and data for lost survey night are not shown. The results of the automated species identifications and MLE estimates for site D1 are summarized in Table 12. Bat activity was highest at this site compared to all other survey sites within the project area (n = 2,967 identified call sequences). This demonstrates the riparian corridor of Mays Branch is important connectivity to other suitable habitat. Despite its high bat activity, there were no call sequences identified as MYSO and only one identified as MYSE and COTO, each respectively (MLE = 1.000 for all three species). There were some call sequences identified as MYGR on each survey night (n = 39), resulting in MLE < 0.0500 on all survey nights except 31 May 2022. Gray bat presence at the site should be assumed.

Table 12. Automated species identification and MLE results for acoustic site D1 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site D1		Survey Night							
		31-May-22		1-Jun-22		2-Jun-22		3-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	1	1.0000	0	1.0000	0	1.0000	0	1.00000
Eptesicus fuscus	EPFU	83	0.3113	201	0.0000	206	0.0000	87	0.00000
Lasiurus borealis	LABO	26	0.0000	48	0.0000	17	0.0000	19	0.00000
Lasiurus cinereus	LACI	231	0.0000	126	0.0000	52	0.0002	210	0.00000
Lasionycteris noctivagans	LANO	153	1.0000	80	1.0000	29	1.0000	40	1.00000
Lasiurus seminolus	LASE	46	0.0000	24	1.0000	20	0.0321	22	0.00524
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	0	1.0000	1	1.00000
Myotis grisescens	MYGR	4	0.1647	15	0.0000	8	0.0002	12	0.00000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.00000
Myotis lucifugus	MYLU	1	1.0000	3	1.0000	3	1.0000	1	1.00000
Myotis septentrionalis	MYSE	0	1.0000	1	1.0000	0	1.0000	0	1.00000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.00000
Nycticeius humeralis	NYHU	6	1.0000	10	1.0000	4	1.0000	7	1.00000
Perimyotis subflavus	PESU	30	0.0000	11	1.0000	13	0.0505	20	0.00024
Tadarida brasiliensis	TABR	531	0.0000	243	0.0000	115	0.0000	207	0.00000
No identification	NoID	7	–	12		4		1	
Total No. of Identified Call Sequences		1112		762		467		626	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.4.2 Acoustic Site D2

Acoustic site D2 was placed as proposed in the study plan, located in a U-shaped forest clearing 50 m southeast of a pond. A snag still stands near the pond, approximately 100 m west of the detector. The clearing creates an open flyway through forest. Its placement within the project area is shown in Figures 7 and 9. Figure 9 also shows photos of the detector set-up. GPS coordinates and additional survey details are listed in Tables 1 and 2. The site was surveyed for four nights without any disturbance. The automated species identifications and MLE results for site D2 are shown in Table 13. There were no call sequences identified as COTO (MLE = 1.0000), but a few were identified as other endangered species as follows: MYSE (n = 3, MLE = 0.8244), MYSO (n = 1, MLE = 1.0000), and MYGR (n = 207, MLE = 0.0000). Gray bats are the only endangered species in which presence should be assumed.

Table 13. Automated species identification and MLE results for acoustic site D2 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site D2		Survey Night							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	147	0.0000	54	0.0000	61	0.0000	20	0.0003
Lasiurus borealis	LABO	104	0.0000	175	0.0000	212	0.0000	130	0.0000
Lasiurus cinereus	LACI	69	0.0000	38	0.0001	28	0.0001	42	0.0000
Lasionycteris noctivagans	LANO	18	1.0000	24	1.0000	5	1.0000	10	1.0000
Lasiurus seminolus	LASE	29	1.0000	20	1.0000	21	1.0000	20	1.0000
Myotis austroriparius	MYAU	0	1.0000	2	1.0000	0	1.0000	3	1.0000
Myotis grisescens	MYGR	13	0.0213	90	0.0000	39	0.0000	65	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	28	0.1118	17	1.0000	8	1.0000	12	1.0000
Myotis septentrionalis	MYSE	1	1.0000	2	0.8244	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.0000	1	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	12	1.0000	9	1.0000	15	1.0000	4	1.0000
Perimyotis subflavus	PESU	15	1.0000	14	1.0000	20	1.0000	16	1.0000
Tadarida brasiliensis	TABR	135	0.0000	132	0.0000	69	0.0000	35	0.0000
No identification	NoID	5		5		3		5	
Total No. of Identified Call Sequences		571		578		478		357	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.4.3 Acoustic Site D3

The placement of acoustic site D3 originally followed what was proposed in the study plan and is denoted as D3-a in Figures 7 and 10. Figure 10 also shows photos of site D3-a while the detector was deployed. GPS coordinates and additional survey details are provided in Tables 1 and 2. The site was surveyed for two nights between 30 May 2022 and 1 June 2022 without any disturbance. Upon landowner request, the detector was moved to a new location from 1 June 2022 to 3 June 2022, which is labeled as D3-b in Figures 7 and 11. Site photos of the detector set-up for D3-b are also shown in Figure 11. The automated species identifications and MLE results for site D3-a and D3-b are present together in Table 14. There were call sequences identified as every endangered species of interest as follows: COTO (n = 1, MLE = 0.7706), MYGR (n = 50, MLE ≥ 0.0000), MYSE (n = 6, MLE ≥ 0.6531, and MYSO (n = 8, MLE = 0.9665). Gray bats were the only species that reached significant MLE that indicates species present at both Sites D3-a and D3-b.

Table 14. Automated species identification and MLE results for acoustic site D3 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site D3		Survey Night [2]							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	1	0.7706	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	14	0.0001	39	0.0000	2	0.6378	0	1.0000
Lasiurus borealis	LABO	38	0.0000	13	0.0000	33	0.0000	24	0.0000
Lasiurus cinereus	LACI	4	0.9177	9	0.0951	2	0.6234	7	0.0010
Lasionycteris noctivagans	LANO	9	0.9213	7	1.0000	0	1.0000	5	0.6850
Lasiurus seminolus	LASE	3	1.0000	11	0.1214	22	0.1937	11	0.9002
Myotis austroriparius	MYAU	3	0.9965	2	0.3069	1	0.9037	0	1.0000
Myotis grisescens	MYGR	35	0.0000	5	0.0064	7	0.0156	3	0.8101
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	12	0.1094	1	1.0000	6	1.0000	42	0.0000
Myotis septentrionalis	MYSE	2	0.6531	0	1.0000	0	1.0000	4	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	1	0.9655	7	1.0000
Nycticeius humeralis	NYHU	6	1.0000	16	1.0000	14	1.0000	7	1.0000
Perimyotis subflavus	PESU	1	1.0000	2	1.0000	3	1.0000	2	1.0000
Tadarida brasiliensis	TABR	20	0.0000	10	0.1764	7	0.0003	7	0.0199
No identification	NoID	2	–	9	–	9	–	5	–
Total No. of Identified Call Sequences		148		115		98		119	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

[2] May 30-31 were conducted at site D3-a and June 1-2 were conducted at site D3-b.

5.4. Section E

Section E represents a 2.8 km section of suitable bat habitat extending from New Town Road to the edge of woodland habitat on the north side of Frog Bayou. The project footprint does not maintain typical linear footprint in section E as additional crossroads are included. The suitable habitat in section E is connected to the suitable habitat located in the northern part of section D that was sampled by acoustic site D3-a and D3-b. Together they result in a 3.3 km section of suitable habitat covering 122 ac. There were three acoustic sites within section E that surveyed this habitat. With site D3 included, the survey design not only meets survey effort requirements for linear projects, but also meets requirements for non-linear projects. Site E1 and E2 were generally placed as proposed in the study plan. The position of acoustic site E3 had to be relocated from the north side of Frog Bayou to the south side of frog Bayou due to land owner conflicts with surveyors being on his property. The new location was 140 m southwest of what was originally proposed, but it still surveys the riparian edge of Frog Bayou on the opposite side of the river. The locations of the acoustic sites are shown in Figure 12 and datasheets for all sites are in Appendix B.

5.4.1 Acoustic Site E1

Acoustic site E1 was placed according the study plan with minor modifications. A potential roost tree was located where it had been sited; therefore, the detector was placed 50 m south to give proper clearance to potential roost site. It was placed on the woodland edge, 10 m east of an intermittent creek that had water in it at the time of survey. Its location is shown in Figure 12 and 13. Photos of the site while the detector was deployed are also included in Figure 13. GPS coordinates and additional survey details are listed in Tables 1 and 2. The site was surveyed for four nights without any disturbance. The automated species identifications and MLE results for site E1 are shown in Table 15. There were no call sequences identified as COTO (MLE = 1.0000), n=1 for MYSE (MLE = 1.0000), n=15 for MYSO (MLE ≥ 0.7750), and n = 237 for MYGR (MLE = 0.0000). Due to high activity of many *Myotis* bats, notably the prevalence of southeastern myotis, the MLE for Indiana bats indicates that confusion with other similar species is likely. Data indicates gray bats were likely present on all four survey nights.

Table 15. Automated species identification and MLE results for acoustic site E1 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site E1		Survey Night							
		30-May-22		31-May-22		1-Jun-22		2-Jun-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	5	0.2105	0	1.0000	0	1.0000	0	1.0000
Lasiurus borealis	LABO	111	0.0000	27	0.0000	27	0.0000	32	0.0000
Lasiurus cinereus	LACI	2	1.0000	1	1.0000	1	0.6797	4	0.0110
Lasionycteris noctivagans	LANO	4	1.0000	2	1.0000	0	1.0000	3	0.6541
Lasiurus seminolus	LASE	24	1.0000	23	0.0168	10	0.9949	7	1.0000
Myotis austroriparius	MYAU	52	0.0000	36	0.0000	27	0.0000	103	0.0000
Myotis grisescens	MYGR	140	0.0000	28	0.0000	9	0.0010	60	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	77	0.0000	47	0.0000	14	0.0310	33	0.0000
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	1	1.0000	0	1.0000
Myotis sodalis	MYSO	3	1.0000	2	1.0000	4	0.7750	6	1.0000
Nycticeius humeralis	NYHU	19	1.0000	15	1.0000	13	1.0000	4	1.0000
Perimyotis subflavus	PESU	2	1.0000	2	1.0000	2	1.0000	7	1.0000
Tadarida brasiliensis	TABR	16	0.0000	10	0.0000	3	0.0289	3	0.3112
No identification	NoID	5	–	3	–	2	–	2	
Total No. of Identified Call Sequences		455		193		111		262	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.4.2 Acoustic Site E2

Acoustic site E2 was placed as originally proposed in the study plan on a woodland edge, 20 m east of a pond (Figure 14). The acoustic equipment used and additional survey details were provided above in Tables 1 and 2. Its location within the project area can be seen in Figure 12 and photos with the detector deployed in Figure 14. The site was surveyed for 5 nights of suitable conditions without disturbance. The automated species identifications and MLE values for site E2 are provided in Table 16. There were no call sequences identified as COTO (MLE = 1.0000). Call sequences identified as endangered species are as follows: MYSE (n = 9, MLE = 1.0000), MYSO (n = 13, MLE = 1.0000), and MYGR (n = 127, MLE = 0.0000). The vast majority of gray bat calls were recorded on the last three survey nights and these were the only nights with significant MLE.

Table 16. Automated species identification and MLE results for acoustic site E2 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site E2		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	0	1.0000	1	0.8898	0	1.0000	1	0.1820
Lasiurus borealis	LABO	60	0.0000	13	0.0000	40	0.0000	57	0.0000	23	0.0000
Lasiurus cinereus	LACI	1	0.3521	0	1.0000	0	1.0000	1	0.3520	0	1.0000
Lasionycteris noctivagans	LANO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Lasiurus seminolus	LASE	1	1.0000	0	1.0000	7	1.0000	6	1.0000	1	1.0000
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	1	1.0000	0	1.0000	1	1.0000
Myotis grisescens	MYGR	6	0.2220	1	0.9041	33	0.0000	47	0.0000	40	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	35	0.0000	13	0.0000	56	0.0000	33	0.0000	19	0.0000
Myotis septentrionalis	MYSE	2	1.0000	0	1.0000	5	1.0000	1	1.0000	1	1.0000
Myotis sodalis	MYSO	3	1.0000	0	1.0000	8	1.0000	2	1.0000	0	1.0000
Nycticeius humeralis	NYHU	5	1.0000	0	1.0000	9	1.0000	2	1.0000	1	1.0000
Perimyotis subflavus	PESU	3	1.0000	1	1.0000	5	1.0000	3	1.0000	1	1.0000
Tadarida brasiliensis	TABR	1	0.5208	3	0.0050	5	0.0002	1	0.5199	0	1.0000
No identification	NoID	1	–	0	–	12	–	3	–	2	–
Total No. of Identified Call Sequences		117		31		170		153		88	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.4.3 Acoustic Site E3

The placement of acoustic site E3 was modified from what was originally proposed. The site was initially planned to be on the north riparian edge of Frog Bayou. However, the land owner did not want surveyors on the property, so the detector was placed on the southern riparian edge of Frog Bayou instead, approximately 140 m southwest of the original site. The placement of the detector can be seen in Figures 12 and 15. The acoustic equipment used as well as additional

survey details were provided above in Tables 1 and 2. The site was surveyed for five consecutive nights with no issues of disturbance or invalid weather conditions. The automated species identifications and MLE estimates for site E3 are shown in Table 17. While there were a few calls classified as an endangered species, none of the classifications reached MLE significance for species presence. The data was as follows: COT0 (n = 0, MLE = 1.0000), MYSE (n = 1, MLE = 0.6754), MYSO (n = 0, MLE = 1.0000), and MYGR (n = 14, MLE = 0.1865).

Table 17. Automated species identification and MLE results for acoustic site E3 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

Table 7: Summary of automated species identification and maximum likelihood estimates (MLE) by survey night for…

I-49 Site E3		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	2	1.0000	2	0.9041	1	1.0000	3	1.0000	4	0.7563
Lasiurus borealis	LABO	85	0.0000	17	0.0000	47	0.0000	40	0.0000	56	0.0000
Lasiurus cinereus	LACI	13	0.0000	2	0.9175	20	0.0000	13	0.0006	6	0.2176
Lasionycteris noctivagans	LANO	0	1.0000	2	1.0000	2	1.0000	4	1.0000	3	1.0000
Lasiurus seminolus	LASE	64	0.0004	21	0.0016	35	0.0142	39	0.0000	36	0.0151
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis grisescens	MYGR	1	1.0000	1	0.9690	3	0.8748	5	0.1865	4	0.8075
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	1	1.0000	0	1.0000	0	1.0000	1	1.0000	1	1.0000
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	0	1.0000	1	0.6774	0	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	10	1.0000	5	1.0000	9	1.0000	19	1.0000	23	1.0000
Perimyotis subflavus	PESU	5	1.0000	2	1.0000	4	1.0000	3	1.0000	6	1.0000
Tadarida brasiliensis	TABR	11	0.0018	12	0.0000	13	0.0032	27	0.0000	21	0.0000
No identification	NoID	4	–	2	–	6	–	8	–	3	–
Total No. of Identified Call Sequences		192		64		134		155		160	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.5 Section F

Section F represents a 2.7 km section of the project area that contains 0.7 km of suitable habitat in two different patches (Figure 16). The habitat was more than 1 km apart; thus, two survey sites were needed for this section of the project. Due to recent flooding, the sites in section F that were proposed for acoustic surveys could not be accessed and minor modifications to the study plan were essential. For acoustic site F1, the water level was too high, and the proposed area was underwater. The new site was placed 125 m northwest of the proposed site to survey the riparian edge rather than within the riparian corridor. Acoustic site F2 was proposed to be on the western side of an unnamed drainage creek at its confluence with Frog Bayou. However, the site had to be accessed from the eastern side. The creek had deep, fast-flowing water with 20-ft high cliff

embankments. The creek could not be safely crossed, so the detector was placed on the eastern side of creek rather than the west, approximately 80 m east of the proposed location. Datasheets for acoustic sites are provided in Appendix B.

5.5.1 Acoustic Site F1

As explained above in Section F, acoustic site F1 was modified from what was proposed in the study plan. The same habitat feature was surveyed but relocated 125 m northwest of original proposed site. The placement can be seen in Figures 16 and 17. On-site photos while the detector was in use are also included in Figure 17. It was placed on the edge of riparian forest in U-shaped clearing approximately 10 m west of creek. Additional details about GPS location and the acoustic equipment used were provided in Tables 1 and 2. The site was surveyed for five consecutive nights, but the survey night of 28 May 2022 was not valid. The detector did not appear to record the entire survey night as no sound files were detected after 01:08 am. An ultrasonic calibrator is used to verify recordings and the pulses from the calibrator the morning after the survey were not among the data files. The issue causing the failure is unclear. It was set to record 24 hrs and the batteries had been replaced the night before. The detector used was a song meter mini which only holds a single SD card. It is assumed that it was an SD card issue and because there is no SD card back-up to compensate for technical issues, sound files stopped recording. The survey night was repeated, but the available data from that night is still included in analysis. The automated species identifications and MLE estimates for site F1 are shown in Table 18. No call sequences were classified as COTO (MLE = 1.0000). For MYSO, five call sequences were identified, but MLE = 1.0000 on all survey nights. For MYSE, 15 call sequences were attributed to them (MLE = 0.3977) and n = 144 were classified as MYGR (MLE = 0.0000 on all four valid survey nights). Gray bat is the only species with probable presence at this site.

Table 18. Automated species identification and MLE results for acoustic site F1 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site F1		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22 [2]		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	3	0.1147	30	0.0000	1	1.0000	27	0.0000
Lasiurus borealis	LABO	47	0.0000	16	0.0000	101	0.0000	24	0.0000	57	0.0000
Lasiurus cinereus	LACI	19	0.0000	7	0.0000	0	1.0000	2	0.8384	8	0.1979
Lasionycteris noctivagans	LANO	4	1.0000	1	1.0000	4	1.0000	1	1.0000	4	1.0000
Lasiurus seminolus	LASE	7	1.0000	3	1.0000	26	1.0000	9	0.8118	15	1.0000
Myotis austroriparius	MYAU	1	1.0000	0	1.0000	38	0.0000	0	1.0000	3	0.3831
Myotis grisescens	MYGR	17	0.0000	6	0.0066	102	0.0000	4	0.2324	15	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	29	0.0000	11	0.0038	156	0.0000	2	1.0000	8	1.0000
Myotis septentrionalis	MYSE	5	0.3977	2	0.7049	7	1.0000	0	1.0000	1	0.9861
Myotis sodalis	MYSO	1	1.0000	1	1.0000	2	1.0000	1	0.8927	0	1.0000
Nycticeius humeralis	NYHU	7	1.0000	8	1.0000	5	1.0000	15	1.0000	17	1.0000
Perimyotis subflavus	PESU	22	0.0210	3	1.0000	17	1.0000	2	1.0000	4	1.0000
Tadarida brasiliensis	TABR	8	0.1575	1	1.0000	6	0.4109	11	0.0000	18	0.0000
No identification	NoID	3	–	0	–	7	–	2	–	9	–
Total No. of Identified Call Sequences		167		62		494		72		177	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

[2] Survey night 5/28/22 was invalid at this site because no calls were recorded after 01:08 am.

5.5.2 Acoustic Site F2

Compared to the study plan, the placement of acoustic site F2 was moved 80 m from the western side of a drainage creek to the eastern side due in inaccessibility issues. It was placed 20 m north of Frog Bayou and 20 m east of the creek draining into Frog Bayou (Figures 16 and 18). Tables 1 and 2 summarize the acoustic equipment used and the acoustic site details. Site photos taken during the survey are provided in Figure 18. The site was surveyed for five consecutive nights with no issues of disturbance or invalid weather conditions. The automated call analysis results and associated MLE for site F2 are shown in Table 19. The data for each endangered species is as follows: COTO (n = 1, MLE = 1.0000), MYGR (n = 129, MLE ≥ 0.0000), MYSE (n = 3, MLE = 1.0000), and MYSO (n = 19, MLE = 1.0000). Based on MLE results, gray bats are the only endangered species with probable presence at this site.

Table 19. Automated species identification and MLE results for acoustic site F2 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site F2		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	1	0.8274	0	1.0000
Eptesicus fuscus	EPFU	6	0.5373	0	1.0000	3	0.9303	13	0.2071	3	1.0000
Lasiurus borealis	LABO	277	0.0000	43	0.0000	178	0.0000	97	0.0000	107	0.0000
Lasiurus cinereus	LACI	20	0.0000	28	0.0000	4	0.5933	19	0.0033	17	0.0003
Lasionycteris noctivagans	LANO	0	1.0000	0	1.0000	2	1.0000	5	1.0000	1	1.0000
Lasiurus seminolus	LASE	13	1.0000	21	1.0000	49	1.0000	29	1.0000	18	1.0000
Myotis austroriparius	MYAU	0	1.0000	1	1.0000	7	1.0000	1	1.0000	0	1.0000
Myotis grisescens	MYGR	36	0.0000	13	0.0000	71	0.0000	7	0.6127	2	1.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	156	0.0000	15	0.0296	76	0.0000	44	0.0000	4	1.0000
Myotis septentrionalis	MYSE	0	1.0000	1	1.0000	1	1.0000	1	1.0000	0	1.0000
Myotis sodalis	MYSO	9	1.0000	2	1.0000	7	1.0000	1	1.0000	0	1.0000
Nycticeius humeralis	NYHU	28	1.0000	1	1.0000	14	1.0000	15	1.0000	13	1.0000
Perimyotis subflavus	PESU	17	1.0000	3	1.0000	11	1.0000	3	1.0000	4	1.0000
Tadarida brasiliensis	TABR	20	0.0000	2	1.0000	19	0.0000	60	0.0000	43	0.0000
No identification	NoID	3	–	0	–	5	–	2		6	–
Total No. of Identified Call Sequences		582		130		442		296		212	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.6 Section G

Section G is the most northern section of the project and covers the portion from the unnamed creek to the interchange with I-40 in Alma, AR. Only the suitable habitat section is included in Figure 19, which shows the arrangement of acoustic sites in section G. Because this section does not follow a standard linear alignment, the number of survey nights also exceeds the survey effort requirements for non-linear projects (14 nights per 123 acres of suitable habitat). Including both highway alignments, there is 4 km of suitable habitat (2 km in each direction), but only 69 acres are still forested. There were no deviations from the acoustic study plan and all acoustic sites were placed in the locations proposed. All sites in section G were surveyed for 5 nights with no issues of disturbance. As previously explained in methods, the extra night was not required, but was kept for consistency with the survey schedule from site F1 that did require an extra survey night. Data sheets for each acoustic site are provided in Appendix B.

5.6.1 Acoustic Site G1

Site G1 was placed according to proposed study plan on the forest edge 30 m east of Frog Bayou and 100 m north of the railroad (Figures 19 and 20). The site had recently been cleared of underbrush and small trees. GPS coordinates and survey details are provided in Tables 1 and 2. Site photos at the time of detector deployment are provided in Figure 20. It was surveyed for

five nights without any disturbance. The automated call analysis results and associated MLE for site G2 are shown in Table 20. No call sequences were identified as COTO (MLE = 1.0000), one call sequence was identified as MYSE (MLE = 1.0000), and seven call sequences were classified as MYSO (MLE = 0.3245). Gray bats were the only endangered species with probable presence on four of the five survey nights (n = 248, MLE = 0.0000), but the 13 MYGR call sequences on the last survey night did not reach significance (MLE = 0.1622). Gray bat presence should be assumed at this site.

Table 20. Automated species identification and MLE results for acoustic site G1 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site G1		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	0	1.0000	1	1.0000	1	1.0000	5	0.5423
Lasiurus borealis	LABO	91	0.0000	32	0.0000	483	0.0000	204	0.0000	196	0.0000
Lasiurus cinereus	LACI	16	0.0000	10	0.0000	3	0.3075	10	0.0002	5	0.5199
Lasionycteris noctivagans	LANO	0	1.0000	0	1.0000	4	0.7168	7	0.7550	2	1.0000
Lasiurus seminolus	LASE	7	1.0000	2	1.0000	26	1.0000	43	1.0000	18	1.0000
Myotis austroriparius	MYAU	1	1.0000	0	1.0000	1	1.0000	0	1.0000	0	1.0000
Myotis grisescens	MYGR	28	0.0000	8	0.0003	106	0.0000	103	0.0000	13	0.1622
Myotis leibii	MYLE	0	1.0000	1	0.2793	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	22	0.0433	5	0.9518	21	1.0000	4	1.0000	10	1.0000
Myotis septentrionalis	MYSE	1	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	1	1.0000	6	0.3245
Nycticeius humeralis	NYHU	4	1.0000	0	1.0000	209	1.0000	66	1.0000	12	1.0000
Perimyotis subflavus	PESU	3	1.0000	2	1.0000	56	1.0000	69	0.0904	7	1.0000
Tadarida brasiliensis	TABR	16	0.0000	4	0.4551	8	0.0005	13	0.0001	23	0.0000
No identification	NoID	1	–	1	–	17	–	28	–	3	–
Total No. of Identified Call Sequences		189		64		918		521		297	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB and COTO rather than OBEB

5.6.2 Acoustic Site G2

The location of acoustic site G2 was along the riparian edge of Frog Bayou. It was placed 10 m east of Frog Bayou and 15 m south of a pond (Figures 19 and 21). GPS coordinates and survey details were listed in Tables 1 and 2, and the automated call analysis is provided in Table 21. The site was survey for five valid nights. One call sequence was identified as COTO (MLE = 0.4660), two call sequences were identified as MYSE (MLE = 0.5229), and eight call sequences were identified as MYSO (MLE = 0.7938). Gray bats were the only endangered species with probable species presence (n = 65, MLE = 0.0000).

Table 21. Automated species identification and MLE results for acoustic site G2 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site G2		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	1	0.4660	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	0	1.0000	1	1.0000	3	1.0000	0	1.0000
Lasiurus borealis	LABO	46	0.0000	7	0.0213	38	0.0000	45	0.0000	34	0.0000
Lasiurus cinereus	LACI	10	0.0000	15	0.0000	4	0.0369	13	0.0027	3	0.3265
Lasionycteris noctivagans	LANO	1	1.0000	0	1.0000	3	0.8062	4	1.0000	0	1.0000
Lasiurus seminolus	LASE	16	1.0000	15	0.0024	30	0.0478	29	0.3096	29	0.0498
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	3	0.9893	0	1.0000	0	1.0000
Myotis grisescens	MYGR	9	0.0077	4	0.0159	35	0.0000	12	0.0006	5	0.1261
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	1	0.6296	0	1.0000
Myotis lucifugus	MYLU	13	0.2633	8	0.0126	10	0.7246	14	0.3639	2	1.0000
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	2	0.5229	0	1.0000	0	1.0000
Myotis sodalis	MYSO	3	0.7938	1	1.0000	1	1.0000	2	0.9992	1	0.9721
Nycticeius humeralis	NYHU	5	1.0000	7	1.0000	18	1.0000	17	1.0000	2	1.0000
Perimyotis subflavus	PESU	7	1.0000	7	0.2001	7	1.0000	8	1.0000	4	1.0000
Tadarida brasiliensis	TABR	5	0.2177	8	0.0713	5	0.0351	33	0.0000	9	0.0000
No identification	NoID	3	–	1	–	9	–	14	–	8	–
Total No. of Identified Call Sequences		115		72		157		182		89	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB

5.6.3 Acoustic Site G3

Acoustic site G3 was placed according to the study plan on a woodland edge, 20 m south of a pond and 25 m east of an intermittent creek (Figures 19 and 22). It was surveyed for five valid nights. Tables 1 and 2 summarize the acoustic equipment used and the acoustic site details. Site photos at the time of detector deployment are provided in Figure 22. The automated call analysis results and associated MLE for site G3 are shown in Table 22. The data for each endangered species is as follows: COTO (n = 0, MLE = 1.0000), MYGR (n = 60, MLE = 0.0000), MYSE (n = 7, MLE = 0.5774), and MYSO (n = 4, MLE = 0.7655). Based on MLE results, gray bats are the only endangered species with probable presence at this site.

Table 22. Automated species identification and MLE results for acoustic site G3 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site G3		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	0	1.0000	1	0.9485	10	0.0377	0	1.0000
Lasiurus borealis	LABO	56	0.0000	15	0.0000	48	0.0000	155	0.0000	125	0.0000
Lasiurus cinereus	LACI	2	0.2022	4	0.0271	2	0.4088	8	0.2115	0	1.0000
Lasionycteris noctivagans	LANO	0	1.0000	0	1.0000	0	1.0000	8	1.0000	0	1.0000
Lasiurus seminolus	LASE	11	1.0000	12	0.4173	16	1.0000	34	1.0000	24	1.0000
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	3	0.3700	8	0.0058	4	0.4498
Myotis grisescens	MYGR	2	1.0000	1	0.9870	14	0.0000	20	0.0001	23	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	3	1.0000	0	1.0000	5	1.0000	13	1.0000	29	0.0678
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	1	0.9759	4	0.5774	2	1.0000
Myotis sodalis	MYSO	1	1.0000	0	1.0000	2	0.7655	1	1.0000	0	1.0000
Nycticeius humeralis	NYHU	3	1.0000	0	1.0000	8	1.0000	13	1.0000	10	1.0000
Perimyotis subflavus	PESU	7	1.0000	4	1.0000	18	0.3526	8	1.0000	4	1.0000
Tadarida brasiliensis	TABR	3	0.0748	5	0.0215	5	0.0044	29	0.0000	4	0.0008
No identification	NoID	4	–	2	–	4	–	7	–	9	–
Total No. of Identified Call Sequences		88		41		123		311		225	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.6.4 Acoustic Site G4

Acoustic site G4 was placed on the woodland edge in field that was flooded at the time of survey. (Figures 18 and 23). A pond sits 20 m east of the detector. Tables 1 and 2 summarize the acoustic equipment used and survey details. Site photos at the time of detector deployment are provided in Figure 23. The site was surveyed for five consecutive nights with no issues of disturbance or invalid weather conditions. The automated call analysis results and associated MLE for site G4 are shown in Table 23. The data for each endangered species is as follows: COTO (n = 0, MLE = 1.0000), MYGR (n = 73, MLE = 0.0000), MYSE (n = 1.0000), MLE = 0.5774), and MYSO (n = 14, MLE = 0.4123). Based on MLE results, gray bats are the only endangered species with probable presence at this site.

Table 23. Automated species identification and MLE results for acoustic site G4 for the ARDOT I-49 relocation project. Species with significant MLE on at least one survey night are highlighted.

I-49 Site G4		Survey Night									
		25-May-22		26-May-22		27-May-22		28-May-22		29-May-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	0	1.0000	0	1.0000	0	1.0000	1	1.0000	0	1.0000
Lasiurus borealis	LABO	42	0.0000	9	0.0000	48	0.0000	267	0.0000	440	0.0000
Lasiurus cinereus	LACI	10	0.0000	5	0.0233	0	1.0000	2	0.8814	0	1.0000
Lasionycteris noctivagans	LANO	1	1.0000	1	1.0000	2	0.8601	1	1.0000	0	1.0000
Lasiurus seminolus	LASE	14	1.0000	2	1.0000	22	1.0000	32	1.0000	24	1.0000
Myotis austroriparius	MYAU	0	1.0000	0	1.0000	3	0.5201	9	0.0574	1	1.0000
Myotis grisescens	MYGR	7	0.0498	1	0.8909	16	0.0000	39	0.0000	10	1.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	5	1.0000	1	1.0000	8	1.0000	44	0.9471	16	1.0000
Myotis septentrionalis	MYSE	0	1.0000	0	1.0000	0	1.0000	1	1.0000	0	1.0000
Myotis sodalis	MYSO	2	0.7923	0	1.0000	0	1.0000	10	0.4123	2	1.0000
Nycticeius humeralis	NYHU	7	1.0000	7	1.0000	10	1.0000	20	1.0000	27	1.0000
Perimyotis subflavus	PESU	30	0.0001	22	0.0000	51	0.0000	144	0.0000	134	0.0000
Tadarida brasiliensis	TABR	9	0.0043	8	0.0007	5	0.0012	12	0.0000	3	0.0023
No identification	NoID	2	–	0	–	9	–	7	–	7	–
Total No. of Identified Call Sequences		127		56		165		582		657	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB

6.0 BIOLOGICAL DISCUSSION

This data set presents several challenges in interpreting the results. The first is the sheer volume of bat call data to be summarized in a way that is representative of all the data. To help isolate call files of particular interest, the data was also processed through Kaleidoscope on a "0" (balanced) sensitivity setting, which has higher standards for assigning species ID than the "-1" sensitivity used for USFWS surveys. On the "0" sensitivity setting much fewer call sequences are identified to species. For the endangered species that could potentially occur within the project area, the difference in the number of call sequences identified to each species is as follows (ratio is -1:0 sensitivity): COTO (4:1), MYSE (51:1), MYSO (96:8), and MYGR (1509:370). On average, this is an 85% reduction in identified calls. Overall, this indicates that the majority of calls identified as endangered species are identifications of low confidence. While the number and classification of species differs between the two sensitivities, the overall results of probable absence of all endangered species other than gray bat is consistent.

The most common reason for low confidence in call identification is low pulse match ratios, meaning that while some pulses in a sequence match that particular species, many others do not. As an example, Figure 24 shows a call file from site F1 that was identified as a NLEB. The first portion of the call has characteristics the closely match the expected values for NLEB. However,

the last portion of the call has a noticeable shift in call characteristics that include pulses NLEB is not known to make. This is likely a misidentified call due to a different species making approach-phase or attack-phase calls. Bat call identifications are based on search-phase calls (i.e. when the bat is in an open uncluttered environment). When a bat needs more information about its environment, such as locating and attacking prey, all bats change their calls to higher frequency, steeper slope, and lower duration calls (characteristics similar to search-phase calls of NLEB). This results in calls with low pulse match ratios. If enough pulses in the sequence are these steep, high frequency calls, then automated classification may erroneously identify the call as NLEB. The change in call profile across the sequence as demonstrated in Figure 24, was an issue seen repeatedly in the call sequences identified as NLEB.

The other issue with calls that were likely misidentified as NLEB, was the occurrence of short, steep calls (Sc > 300 OPS) that matched values expected of NLEB, but the characteristic frequency was much lower than expected for NLEB (less than 40kHz). Similarly, these are more likely misidentified approach-phase calls of non-myotis species. Manual review of calls collected supports the MLE conclusion that NLEB is likely absent from the project area. This opinion does not represent formal qualitative analysis and is used only to increase confidence in reliability of the automated results.

Similar issues occur with the four call sequences identified as COTO. A manual review of these calls shows that the whole sequence is not consistent with expected COTO call characteristics. No second harmonics were seen in any of the call sequences (a characteristic indicative of COTO), and variability exists in sequences that suggest approach-phase calls of low frequency bats, such as hoary bats, is likely the cause of these identifications. Manual review concurs with automated MLE results of Ozark big-eared bats likely being absent from the project area. A cave in which COTO are known to roost occurs within 10 miles of the northern terminus of the project, but in telemetry studies COTO have not traveled more than 8 km (5 mi) during nightly foraging (Wethington et al. 1996). Therefore, their absence is not surprising.

Although there were 96 call sequences identified as MYSO, none of the sites or survey nights had MLE values that indicate probable species presence (MLE ≥ 0.3977). The issue with reliability of MYSO call identifications differs from that of MYSE complications. For MYSO, there is significant overlap in call characteristics with the little brown bat (MYLU), and the issue is more about probability rather than recognition of the call structure. The highest PMR for call sequences identified as MYSO was 0.389, meaning the highest quality call still had fewer than 40% of their pulses matching MYSO more than another species. Manual review of MYSO calls reveals justification for why some calls could have been identified as MYSO, but MYLU is also capable of producing the same call parameters; they simply do so less frequently than MYSO. However, sites with the highest MYSO identifications also had high MYLU identifications. The ratio of MYSO to

MYLU call sequences is so unbalanced that the data suggests a MYLU producing an outlier call is more probable than MYSO being present and capturing so few calls of the species. Thus, manual review of calls further supports probable absence of Indiana bats within the project area.

Gray bat calls represented 7.9% of all call sequences identified, having MLEs that indicate probable presence at 14 of the 16 acoustic sites. Gray bats are generally considered cave obligate species, although they have rarely been found in bridges and cave-like structures. Because this is a new right-of-way alignment, these alternative structures are largely absent from the project area. It is very unlikely that gray bats would be roosting in the project area. However, gray bats travel an average of 12.5 km from their roost site each night (La Val et al. 1977), but distances up to 70 km have been recorded (Tuttle 1976). The Arkansas ecoregion changes to the Boston Mountains 5 km north of the project area (EPA 2022), and karst features are one of their characteristics. Known gray bat maternity colonies occur in southern Adair County, Oklahoma, which borders Crawford County along the state line. Gray bats may be traveling into the project area for foraging from caves in northwest Arkansas or eastern Oklahoma. Specifically, gray bats are known for foraging over open water and feeding on emerging aquatic insects. Frog Bayou enters the northern project area, flowing from northwest Arkansas, and continues until it converges with the Arkansas River approximately 6 km west of the study area. Gray bats may be using Frog Bayou as a travel corridor during nightly foraging.

The difficulty with call analysis of gray bats is that they have a low confusion rate in studies that are used to develop automated identification software. In controlled studies of known calls, automated software is generally accurate in identifying gray bats correctly. With a low confusion rate entered into the programs, it takes very few gray bat calls to return a significant MLE value. From manual review of the calls, the call parameters of the MYGR sequences generally match the expected values for gray bats; yet, the calls do not look like the expected call shape of gray bat calls. Most notably is the absence of downward tails at the end of the calls. Gray bat calls have a strong inflection at the knee of the call, which is often followed by a downward trailing end. While gray bat calls do not always have downward tails, their stark absence in so many calls is unexpected (see Figure 25 for an example). Additionally, the majority of gray bat calls are poor quality recordings. They are short sequences (few pulses captured) with poor PMRs. Given the number of calls recorded (n = 1509) and automated software's reputation in identifying gray bat calls with high accuracy, gray bats are likely present in the project area, but it is possible that their abundance is over-estimated.

Call sequences identified as gray bats outside of their expected range has been an issue in several surveys ECHO, LLC has previously conducted in Oklahoma. This was an issue that was discussed preemptively with USFWS in a technical assistance meeting on 28 October 2021. At that time, Arkansas USFWS personnel indicated that calls may be misidentified *Myotis leibii* (MYLE). It is

worth noting that MYLE was the species with the fewest call sequences attributed to them (n = 2 or 0.01% of calls). However, the habitat typically associated with MYLE is caves or rocky terrain that creates a lot of small crevices. Such features are rare in the project area, so absence of MYLE is not surprising. Gray bat occurrence in the project area is not unexpected given its proximity to karst features within the home-range size of the species, especially considering the occurrence of riparian corridors within the project area. Skepticism of the MYGR call identifications is not related to their ecology, but to the call structures themselves. Given the consistency of the call parameters to the expected values for gray bats, there is no reason to reject species identification, but calls are often missing key features that would definitively identify them as such. Regardless of any species identification concerns, due to significant MLE ≤ 0.05 for gray bats, species presence must be assumed throughout most of the project area.

7.0 FUTURE RECOMMENDATION

In addition to a written report, all data will be entered into USFWS Region 4 Bat Reporting Spreadsheets and submitted to USFWS at the end of the survey season under permit TE33639D-0. The results of this study will be used to write a formal biological assessment for the project and to determine the effects of the project on endangered species. Given a negative survey for Indiana bats and NLEB, projects can generally proceed without implementing avoidance and minimization measures (AMM) for these two species under the Programmatic Biological Opinion (PBO, USFWS 2018). However, this project is outside the scope of the PBO, namely due to tree removal exceeding 20 acres for each 5 miles of project; therefore, USFWS would have to approve that project's effects can fit within the programmatic even with negative surveys. Coordination with USFWS will also be needed regarding the probable presence of gray bats. Best management practices generally include a foraging buffer of at least 10 miles from known roost sites in which time of day restrictions are used for construction activities, the removal of riparian vegetation occurs outside of the gray bat pup season, and preventative measures that protect water quality are implemented for work within the ordinary high-water mark. The project area is more than 10 miles from caves in which gray bats are known to occur, but gray bats appear to be foraging in the area nonetheless. Effects to foraging habitat outside of critical buffers are generally insignificant when the amount of impacted habitat is small. However, given the size of the project and the amount of riparian vegetation affected (Arkansas River, Frog Bayou, Mays Branch, and Flat Rock Creek), USFWS may require AMMs in order to achieve a not likely to adversely affect determination for gray bats.

Negative surveys are valid for five years after the completion of the survey, unless USFWS deems a change in species status and/or distribution that warrants new studies. In March 2022, the USFWS proposed to reclassify NLEB as endangered rather than threatened. This reclassification is likely to take effect by the end of 2022. If NLEB is reclassified as endangered, the 4(d) rule

exclusion that does not prohibit incidental take of NLEB will no longer apply. This change is anticipated; therefore, the current design and survey effort of this project meets guidelines for both Indiana bat and NLEB. Any habitat modifications and/or construction completed during the next five years should be covered under the results of this study. However, after five years, any additional construction not yet completed may require new bat surveys before work could continue.

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9.0 FIGURES

Figure 1. Entire project area for I-49 Relocation with acoustic survey sites marked. The Arkansas River watershed and Frog Bayou provide water sources throughout the project area and riparian corridors that connect remaining forested habitat.

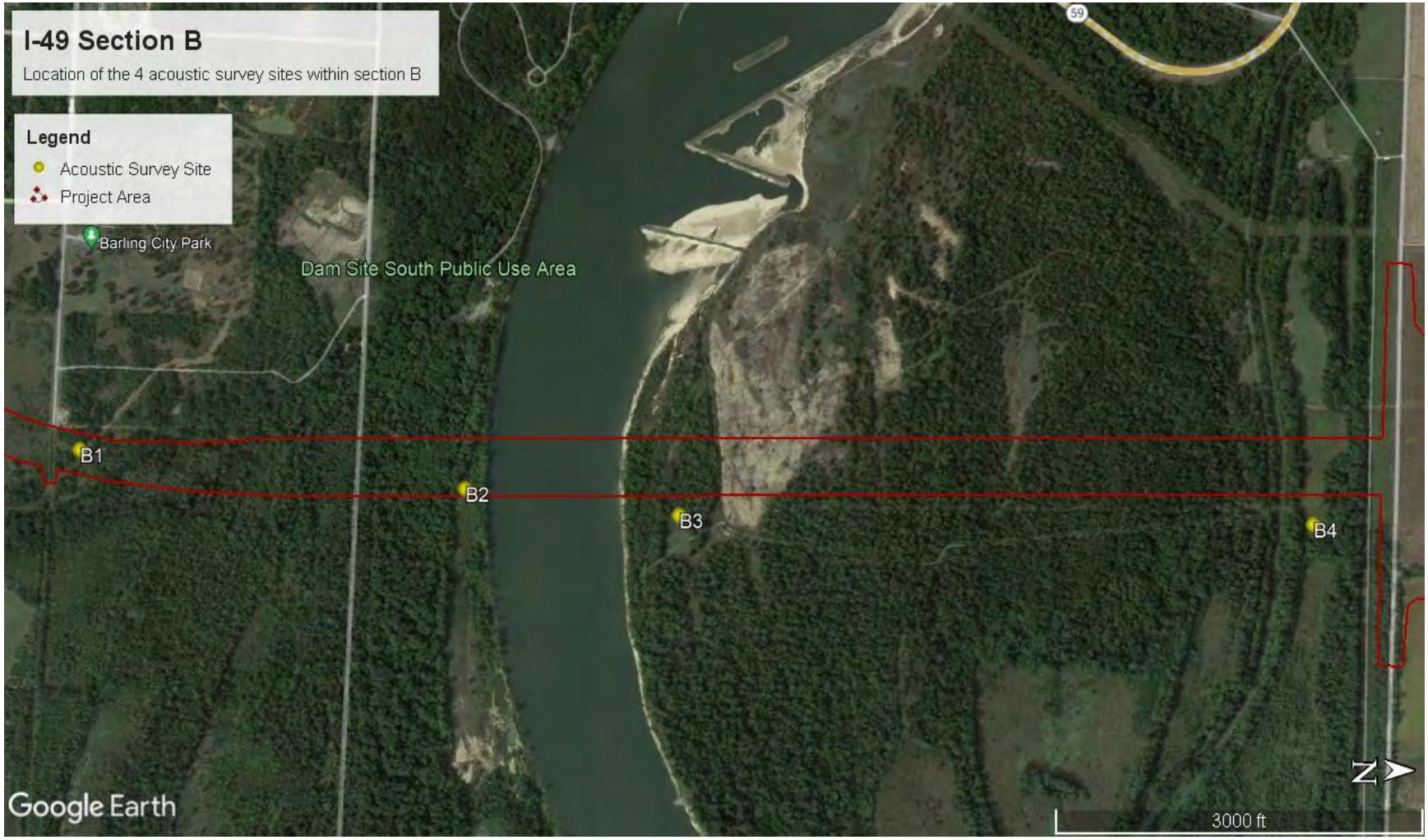

Figure 2. Map of Section B showing location of four acoustic sites across 3.36 km of suitable bat habitat. Additional details about each site are provided in Tables 1 and 2 and within the written section of 5.0 SITE SPECIFIC RESULTS.

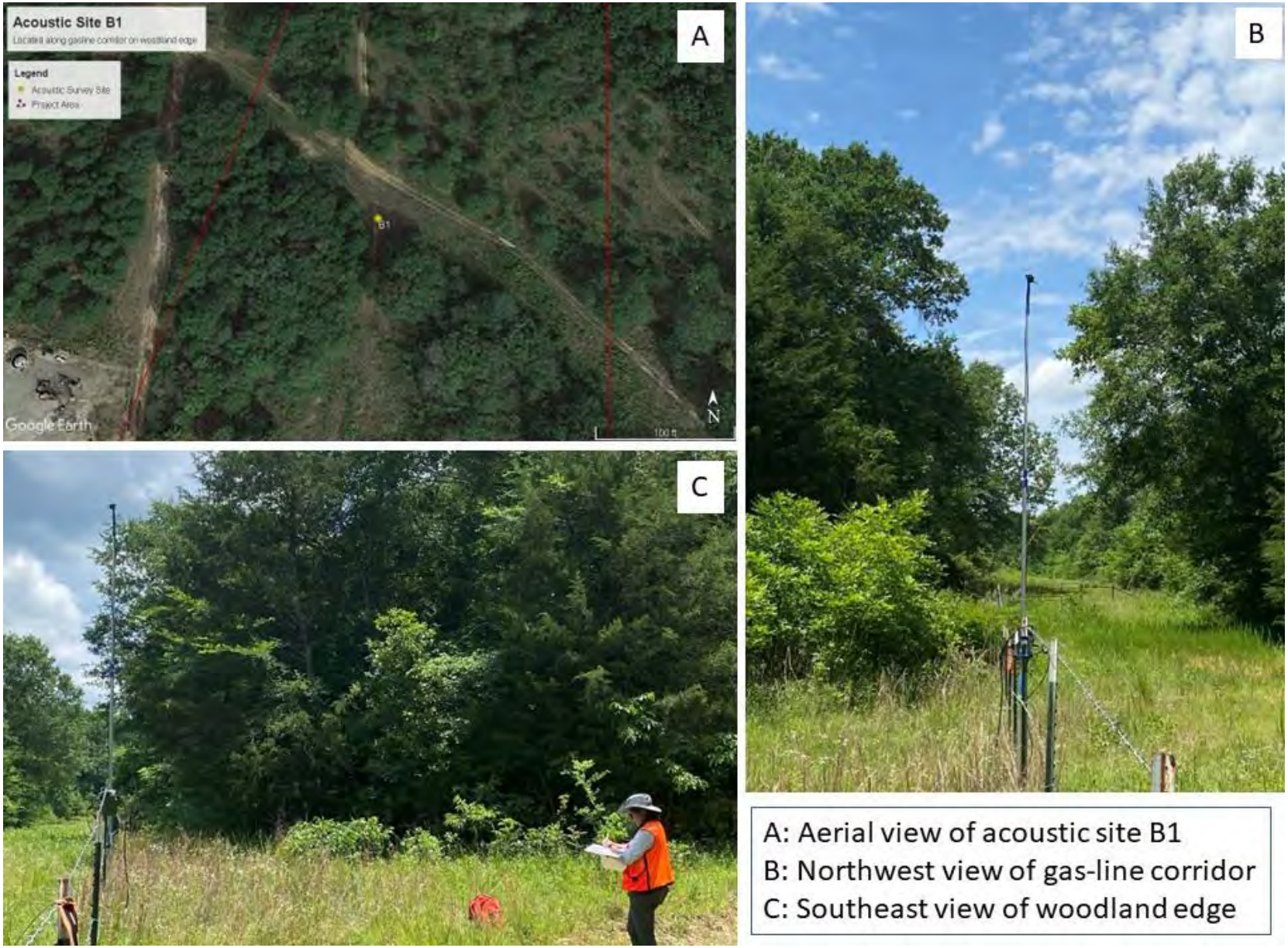

Figure 3. Photos of acoustic site B1 with SM4 detector and SMM-U2 microphone deployed. Survey samples woodland edge along gas-line corridor.

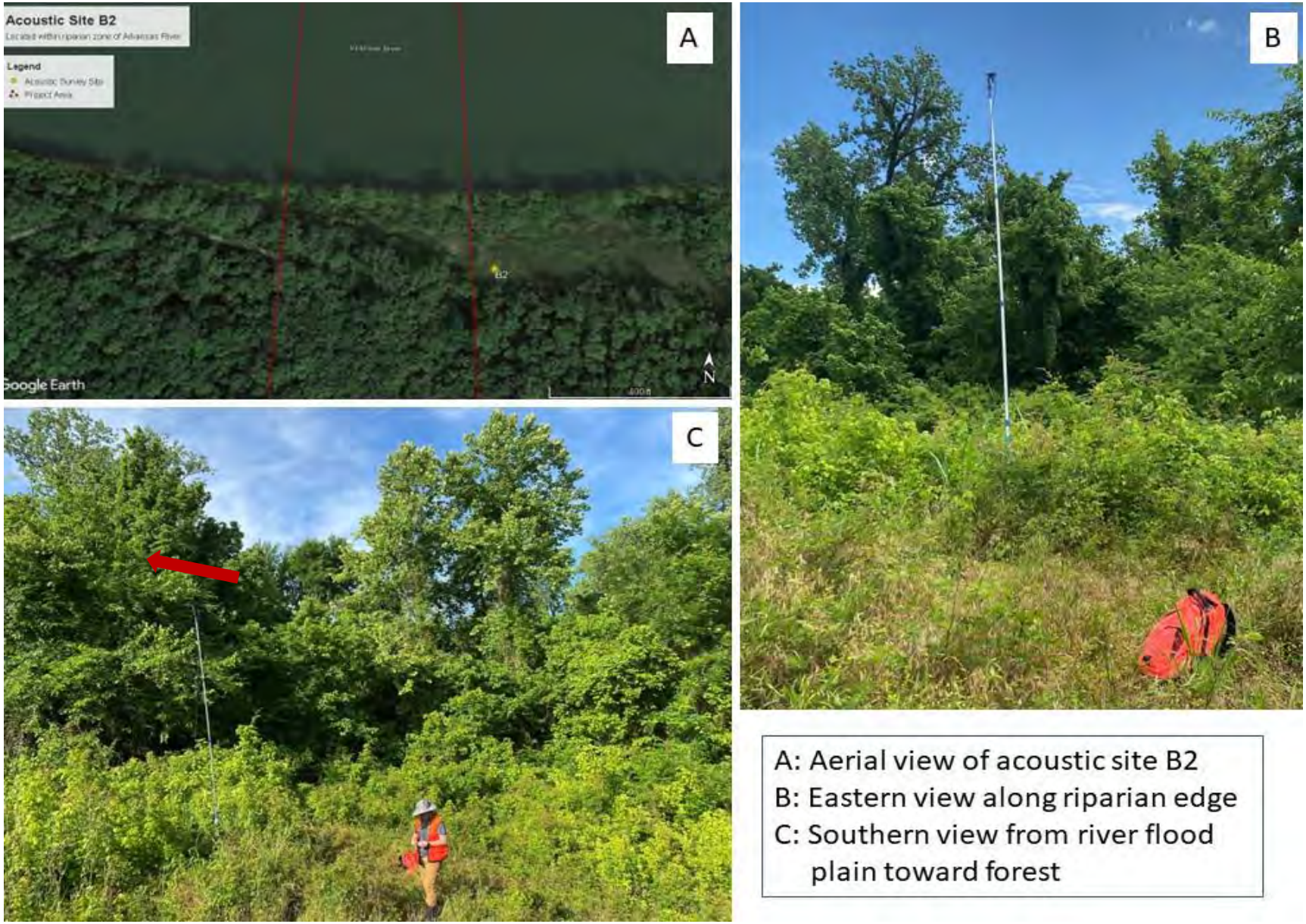

Figure 4. Photos of acoustic site B2 with SM3 detector and SMM-U1 microphone deployed. Survey samples riparian edge of Arkansas River. The red arrow indicates direction of microphone.

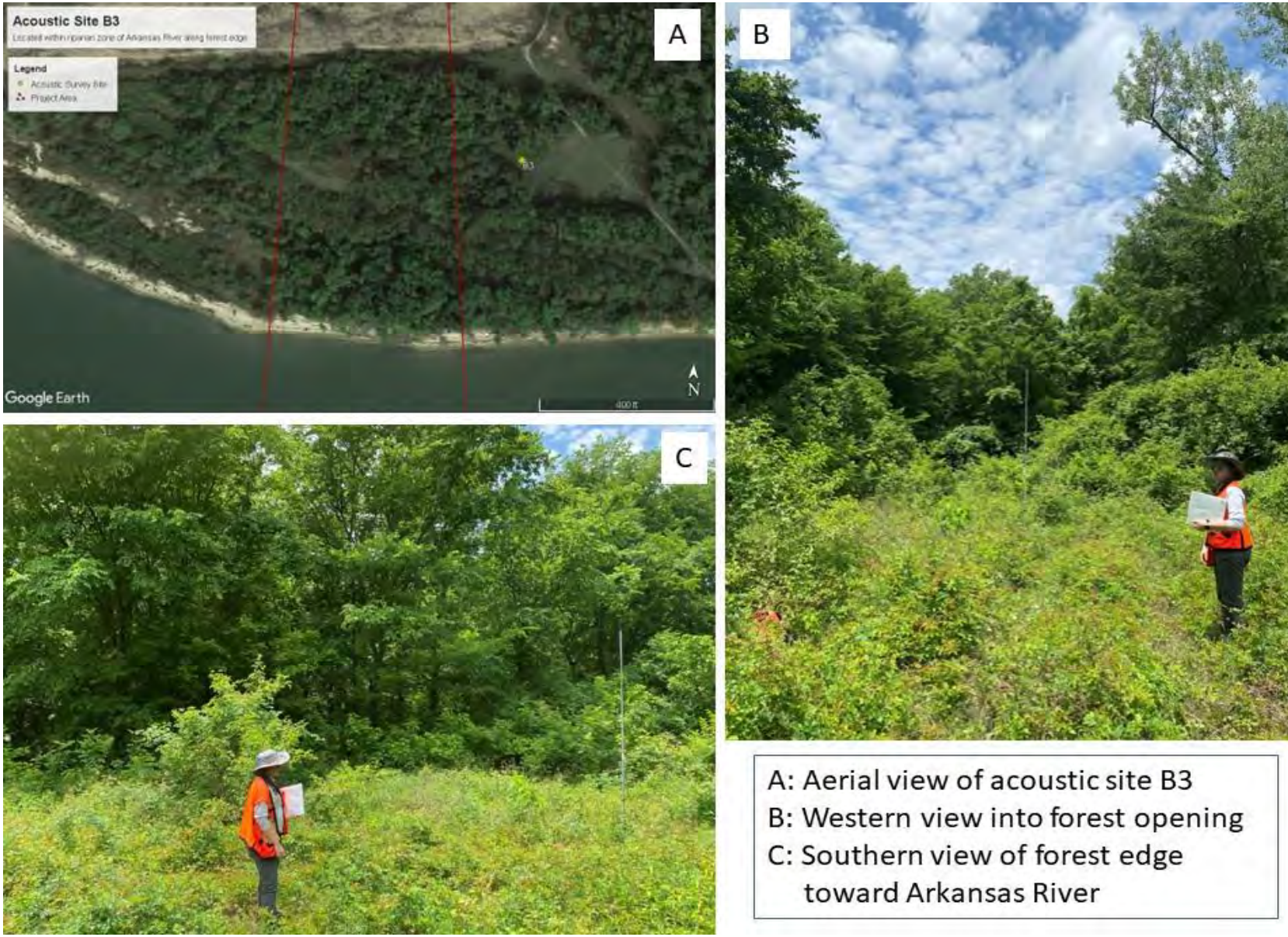

Figure 5. Photos of acoustic survey site B3 using a SM4 detector with SMM-U2 microphone. The site surveys the forest edge, approximately 150 m north of the Arkansas River.

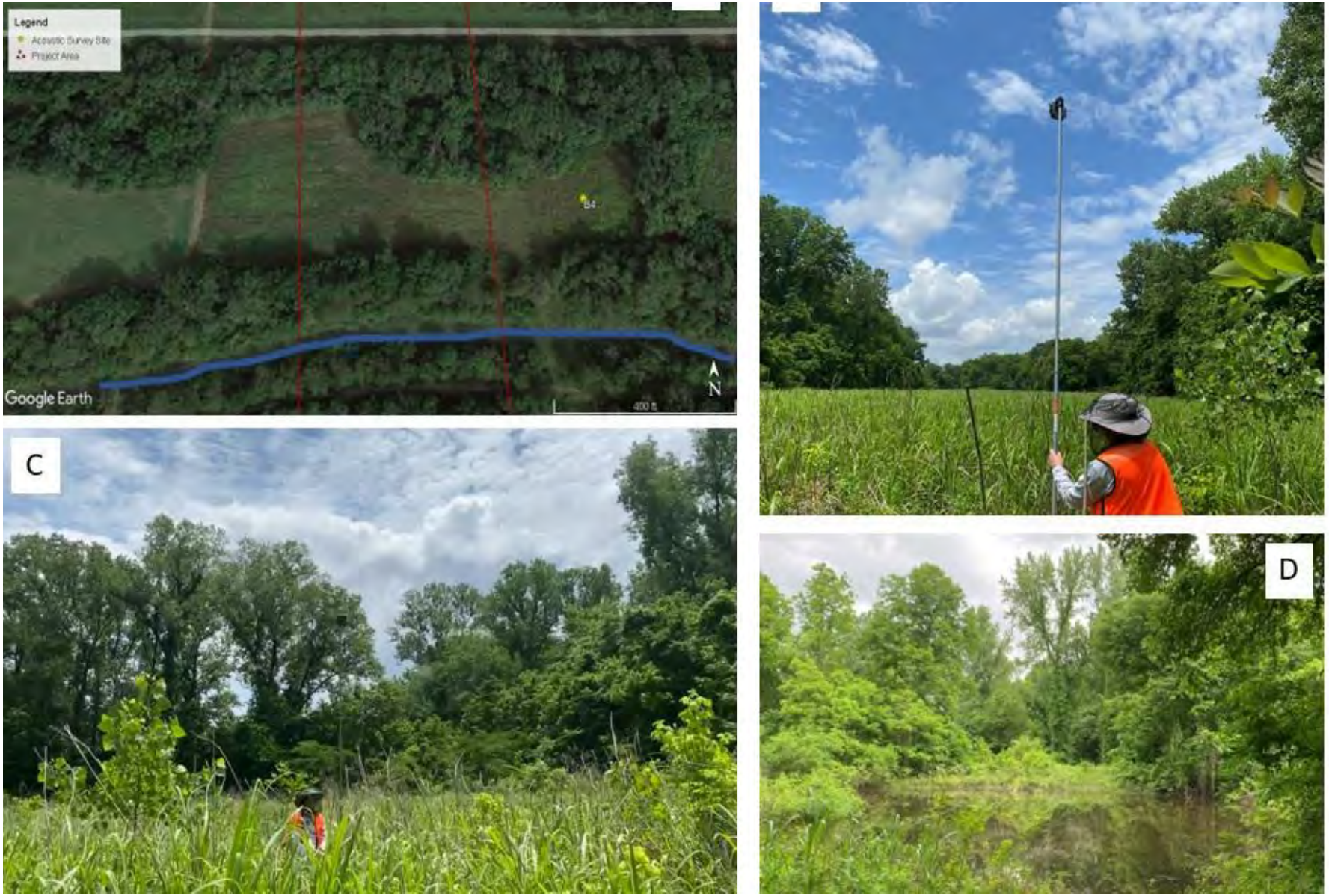

Figure 6. Photos of acoustic site B4 using a Song Meter Mini with built in SMM-U2 microphone. Panel [A] shows the aerial view of detector location, [B] is the western view into field, [C] is eastern view of forest edge, [D] is a creek 80 m south of detector.

Figure 7. Map of section D that contains 1.6 km of suitable bat habitat. The location of the three survey sites area shown. Site D3 was moved during the survey. Additional details about each site are provided in Tables 1 and 2 and within the written section of 5.0 SITE SPECIFIC RESULTS.

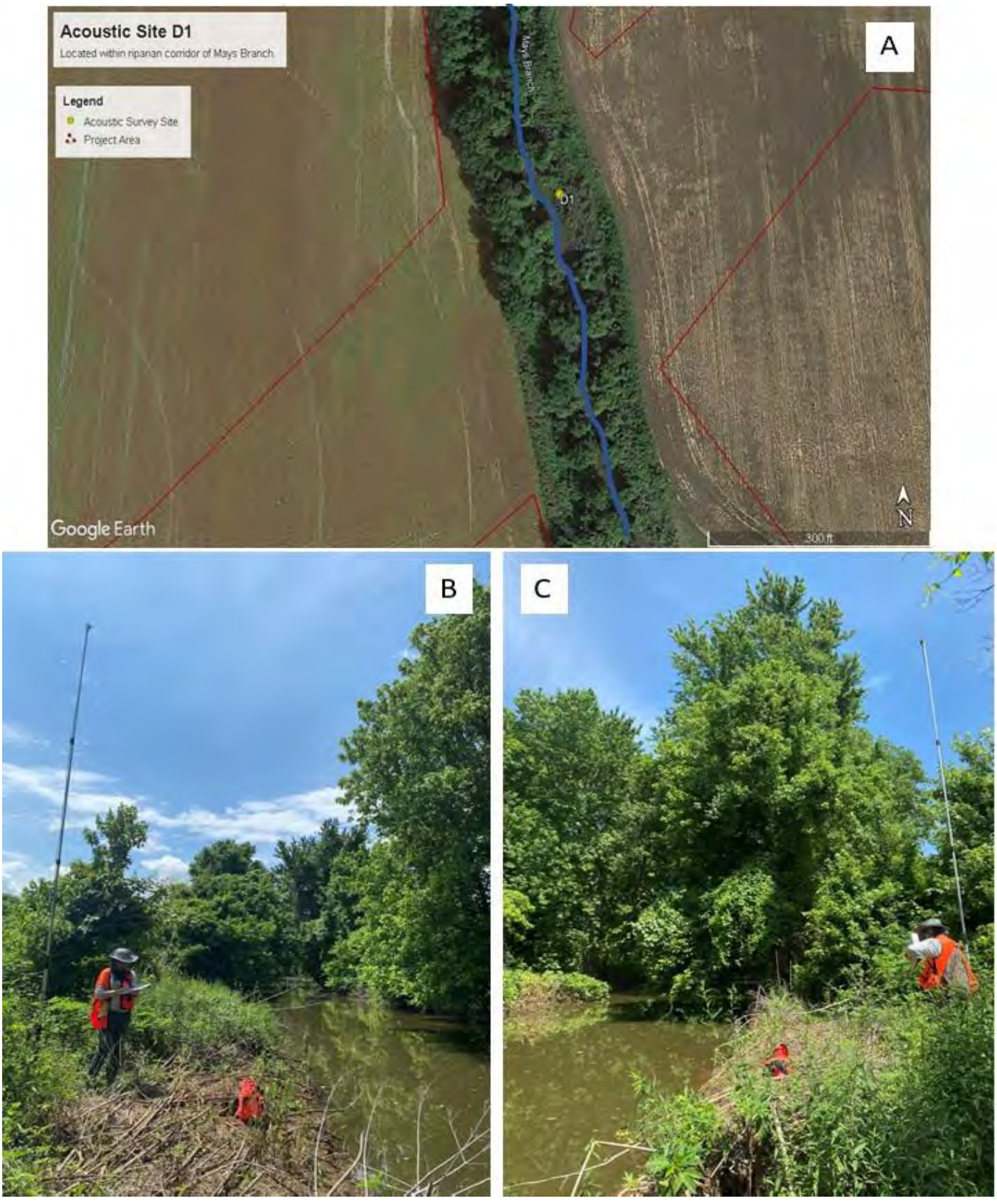

Figure 8. Photos of acoustic site D1 using a SM4 detector with a SMM-U2 microphone. Panel [A] shows the aerial view of the site. Panels [B] and [C] show the southern and northern view, respectively, along Mays Branch riparian corridor.

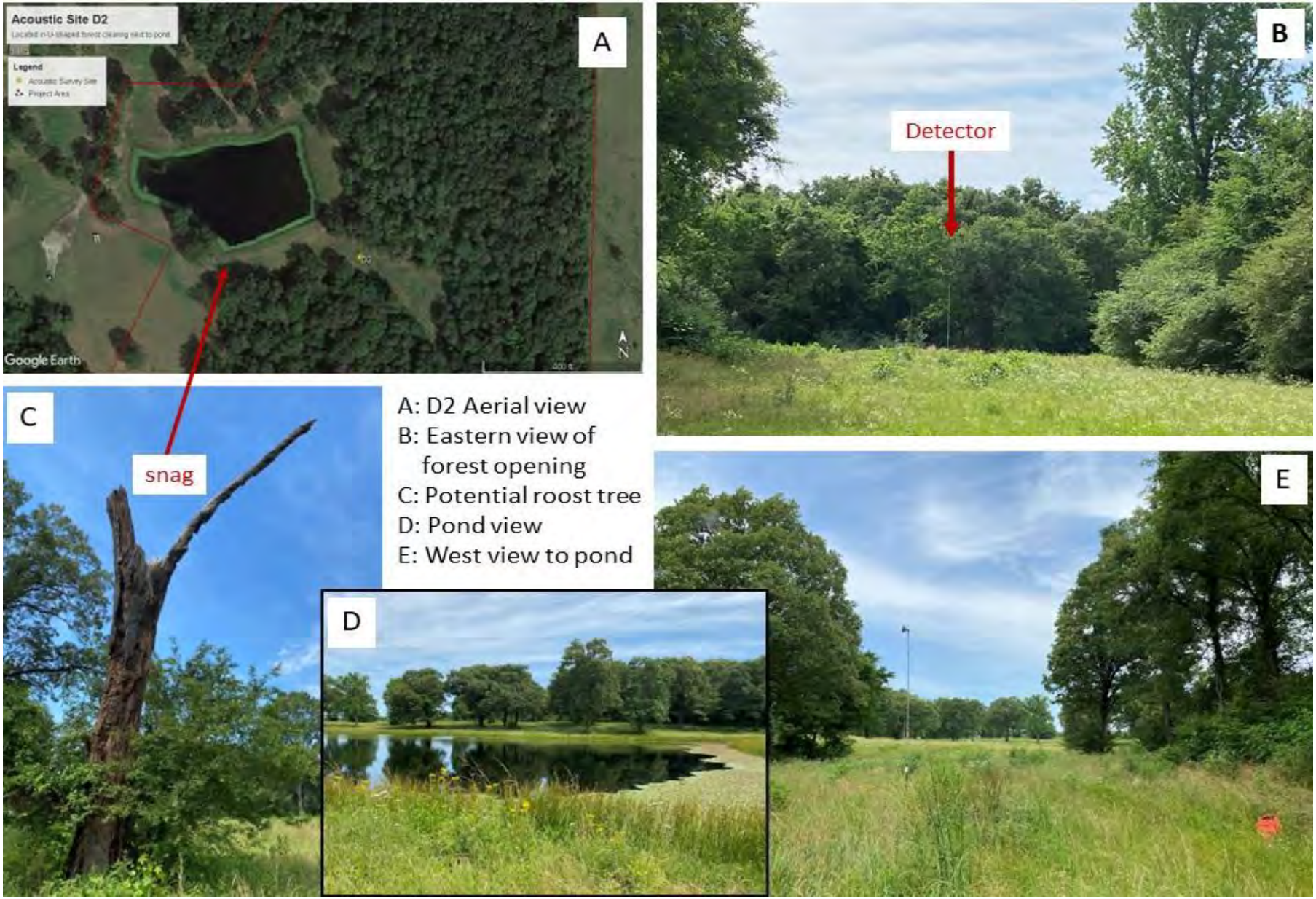

Figure 9. Photos of acoustic site D2 using a Song Meter Mini with internal SMM-U2 microphone. The arrow in panel [C] is pointing to the location of the snag in the aerial view image. The feature being surveyed is a forest clearing that creates a flyway near a pond.

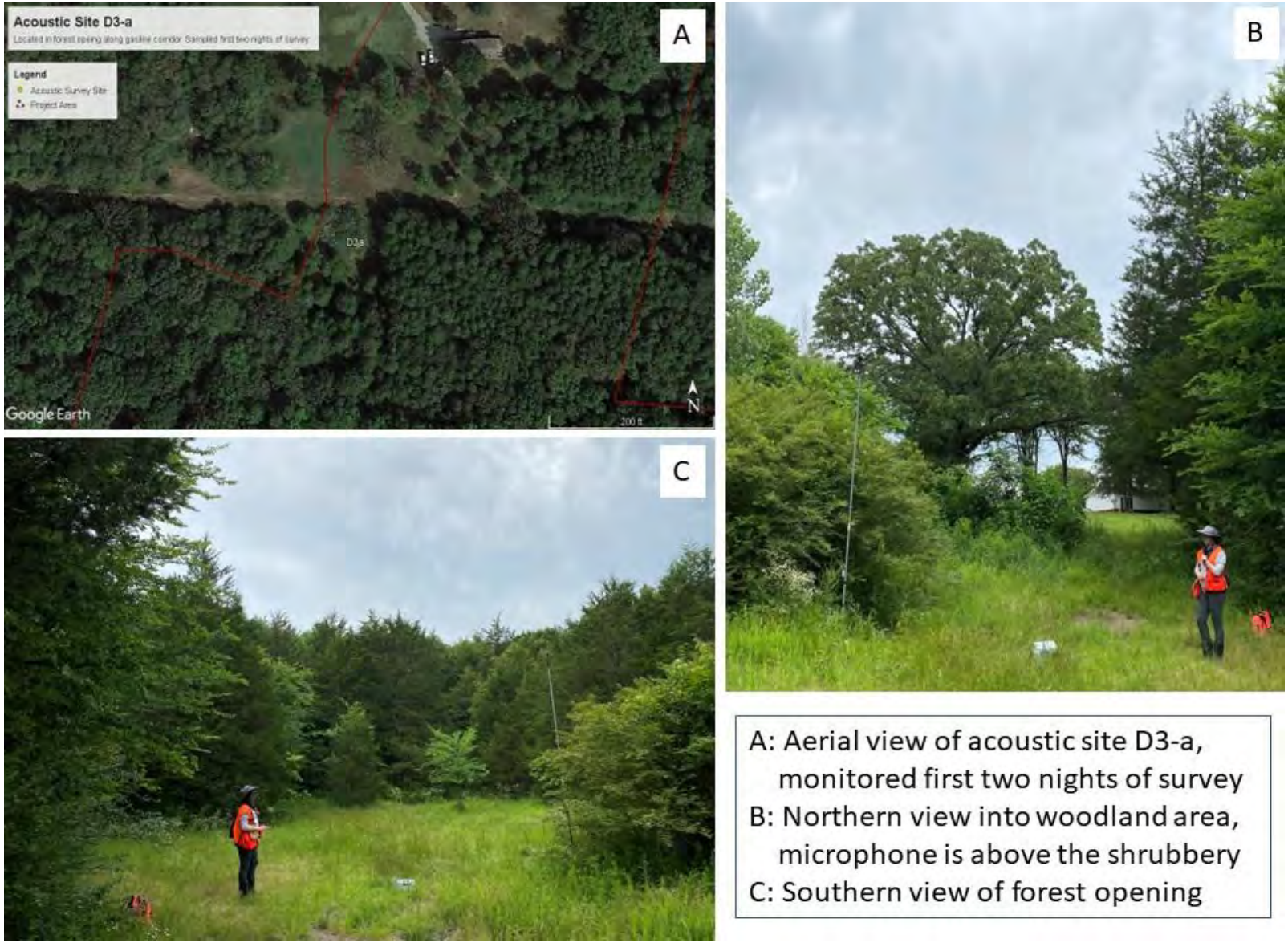

Figure 10. Photos of Acoustic site D3-a using a SM3 detector with a SMM-U2 microphone. It was placed in a woodland opening near a gas-line corridor. The microphone was placed right next to a shrub of Chinese Privet, but it was extended above the foliage to prevent clutter disturbance. In photo B, trees in the background blend in with the shrub so that adequate clearance is not clearly visible.

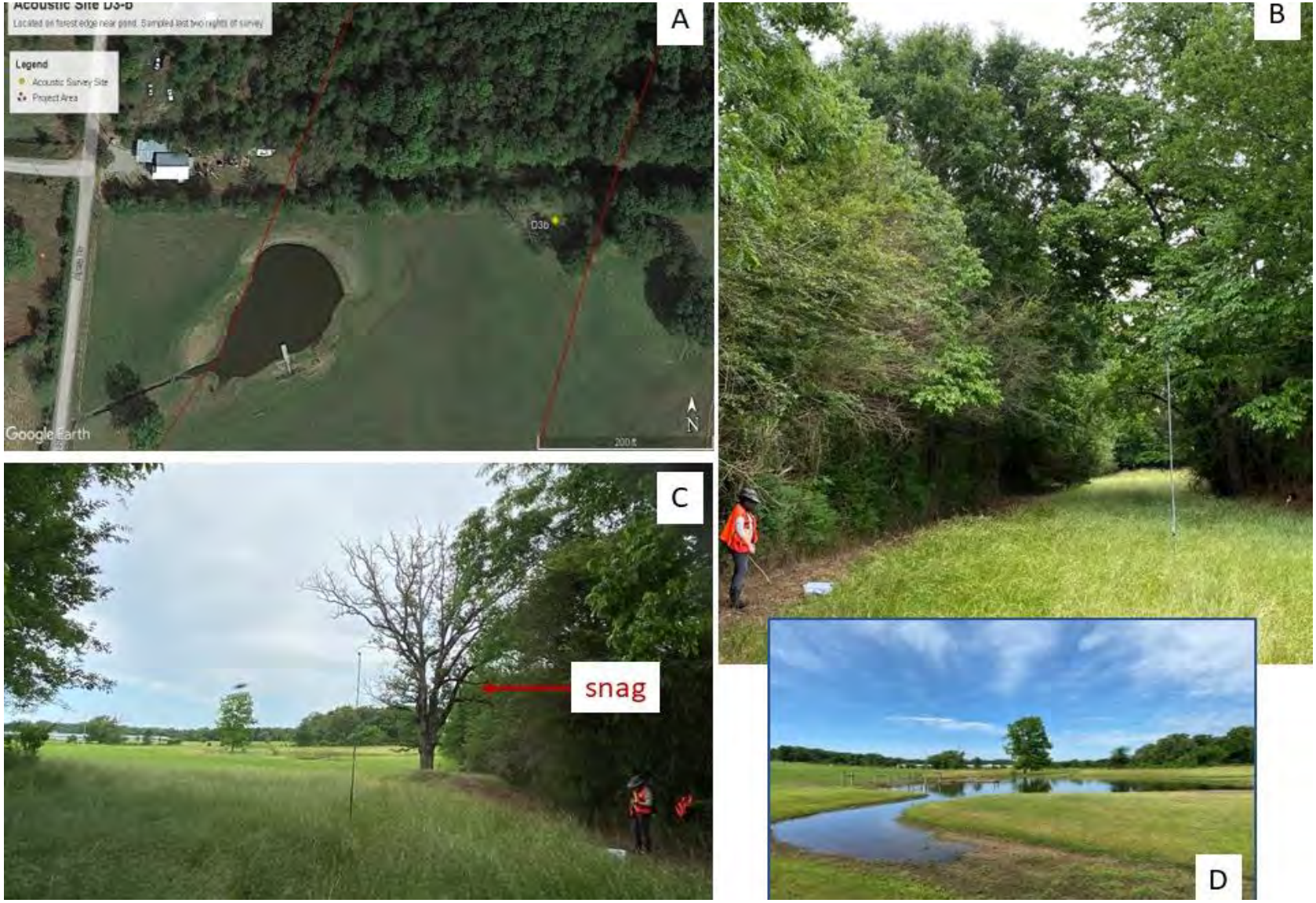

Figure 11. Photos of acoustic site D3-b showing SM3 detector with SMM-U2 microphone. It was placed along a woodland edge near a pond. Aerial view [A], the eastern view [B], the western view [C], and the pond [D] are shown in the respective panels. A potential roost tree is located 20 m west of detector.

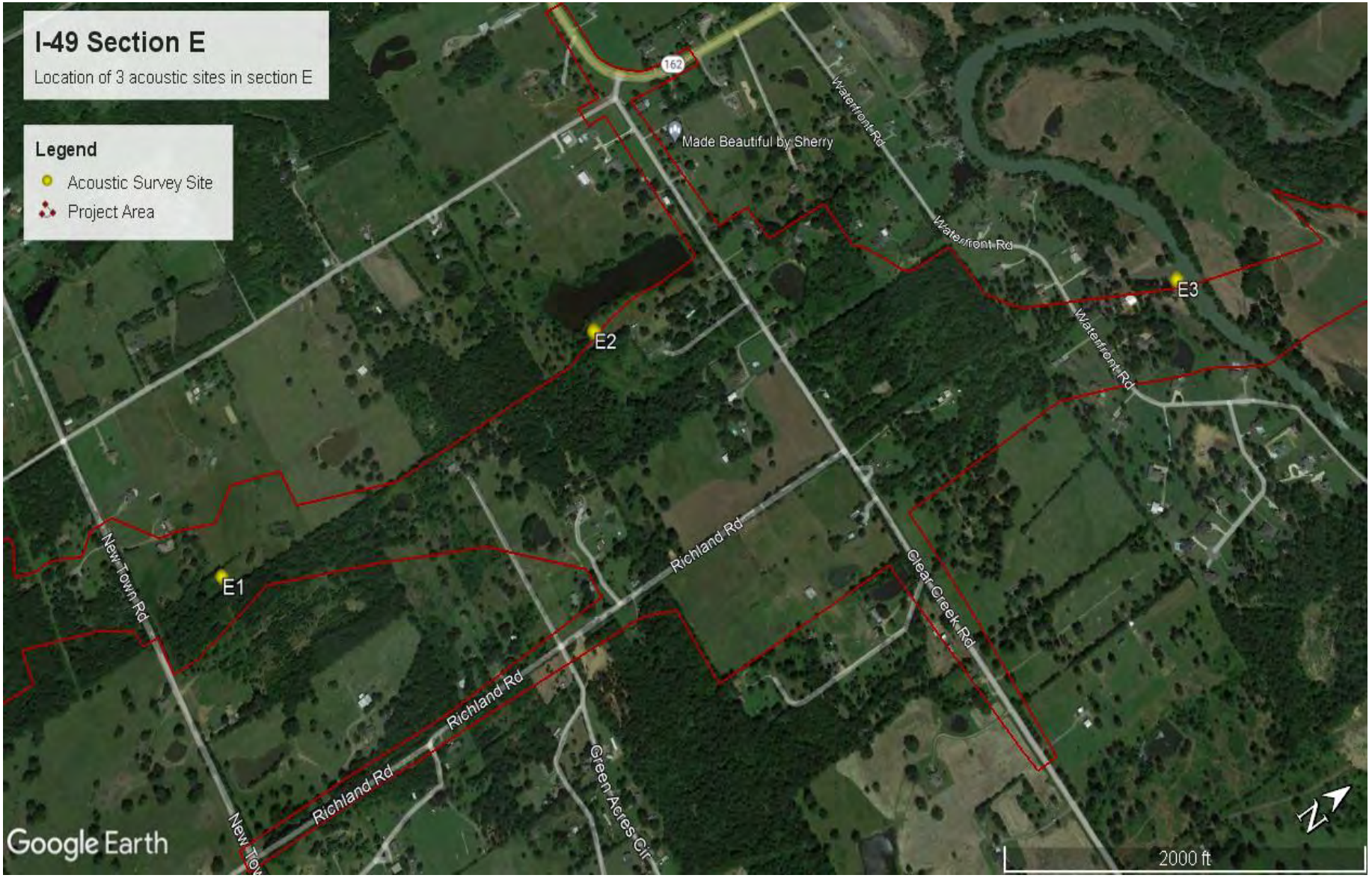

Figure 12. Map of section E of the I-49 relocation, which includes 2.8 km of suitable bat habitat surveyed via three acoustic sites.

Figure 13. Photos of acoustic site E1 showing SM4 detector with SMM-U2 microphone. It was placed along a woodland edge near an intermittent stream. A potential roost tree was 50 m north of the detector.

A: Aerial view of acoustic site E2 on woodland edge near pond

B: Western view toward pond

C: Southern view of woodland edge

Figure 14. Photos of acoustic site E2 using a SM4 detector with SMM-U2 microphone. It surveys a woodland edge near a pond.

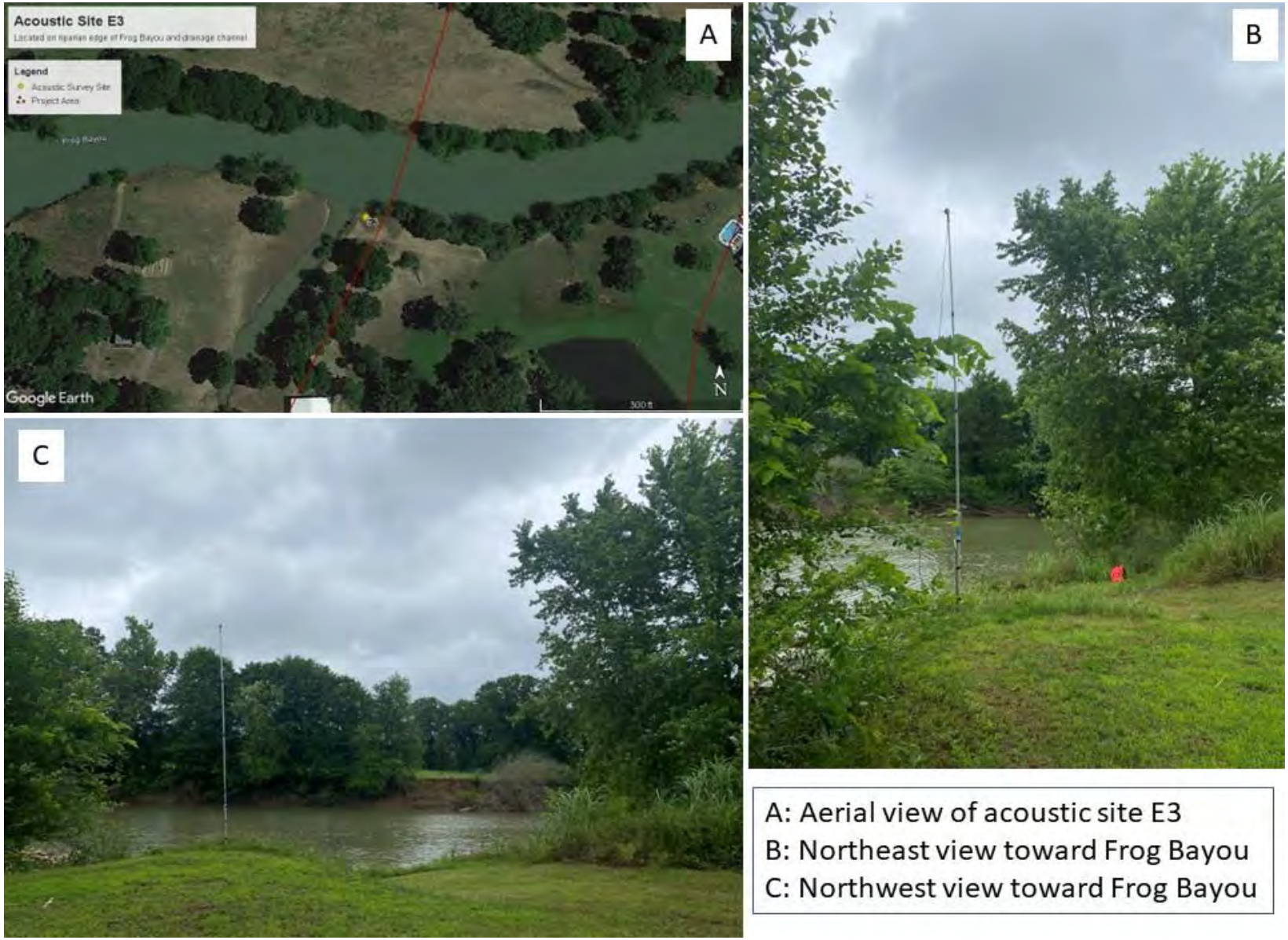

Figure 15. Photos of acoustic site E3 using a SM4 detector with SMM-U2 microphone. Photos of acoustic site E3 using a SM4 detector with SMM-U2 microphone. It surveys the riparian corridor of Frog Bayou.

Figure 16. Map of section F of I-49 relocation. Section F covers 2.7 km of which only 0.7 km are suitable habitat. Two acoustic survey sites are needed because suitable sections are more than 1 km apart.

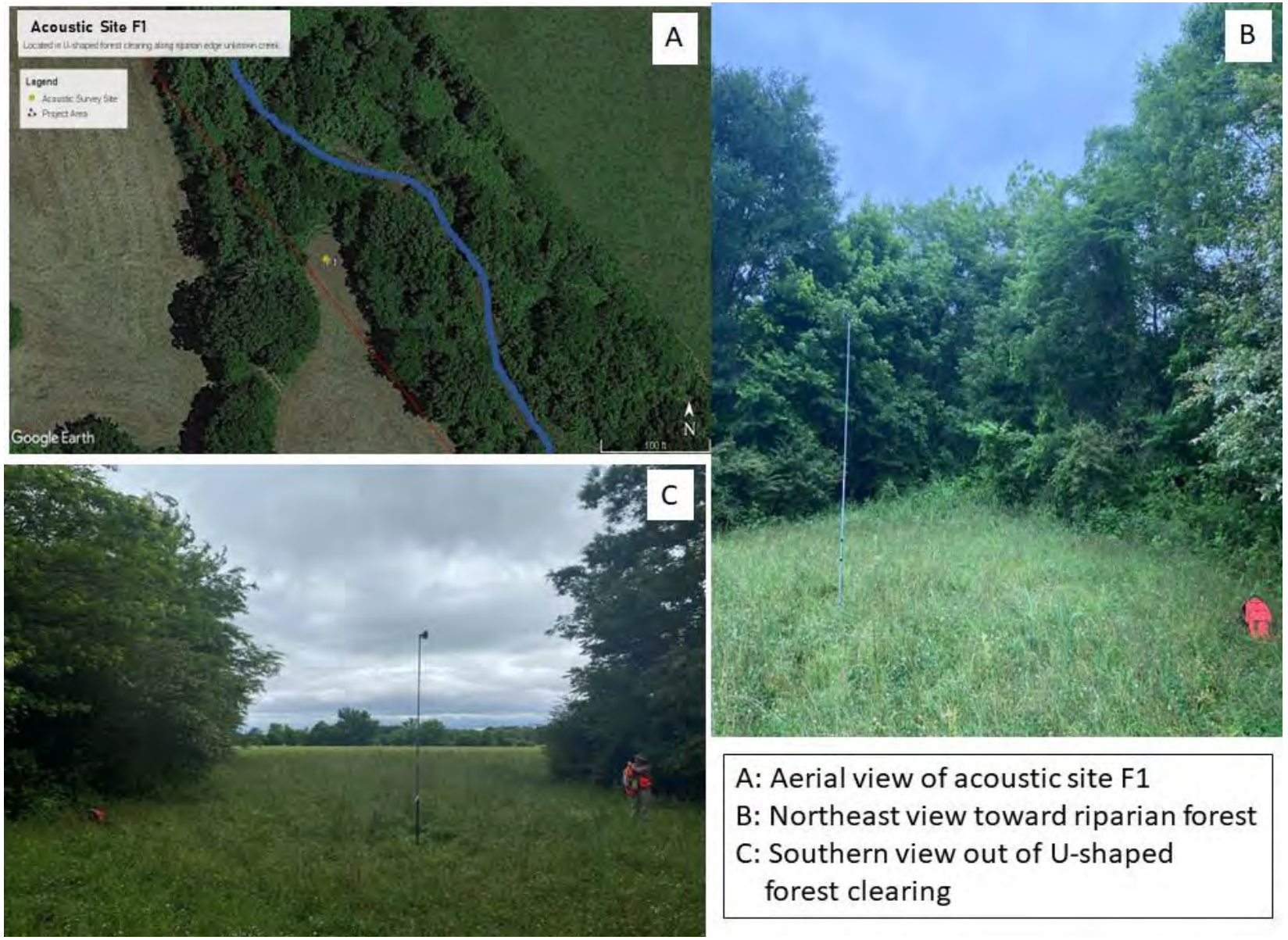

Figure 17. Photos of acoustic site F1 using song meter mini with an internal SMM-U2 microphone. It surveys a riparian-woodland edge.

Figure 18. Photos of acoustic site F2 using a song meter mini with internal SMM-U2 microphone. The site surveys the riparian edge at the confluence of Frog Bayou and unnamed creek.

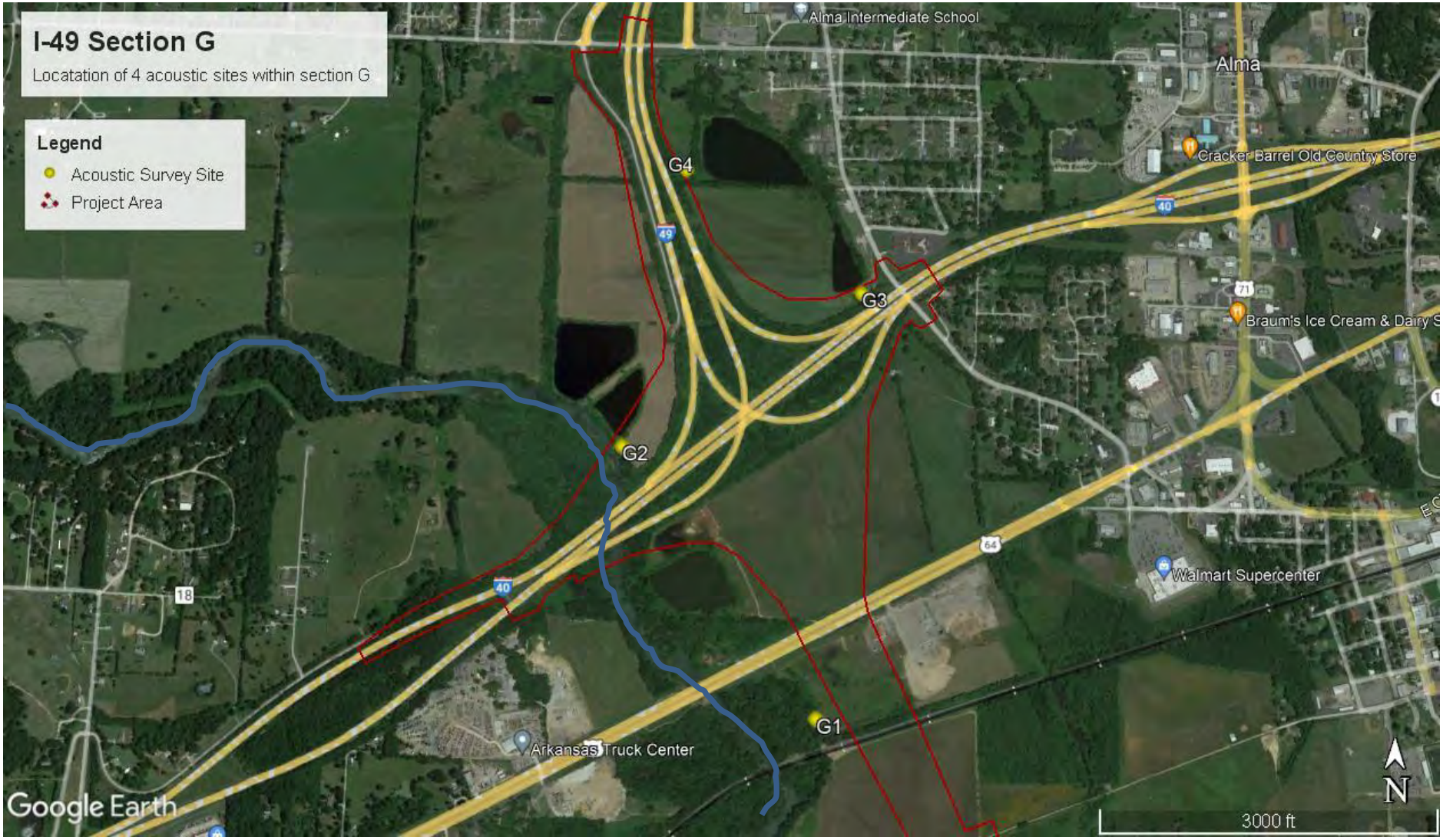

Figure 19. Map of section G of I-49 relocation. This section contains 4.0 km of suitable habitat when both the I-49 right of way and the I-40 interchange are included. There are 68 ac of suitable habitat surveyed by four acoustic sites. Frog Bayou runs along western side.

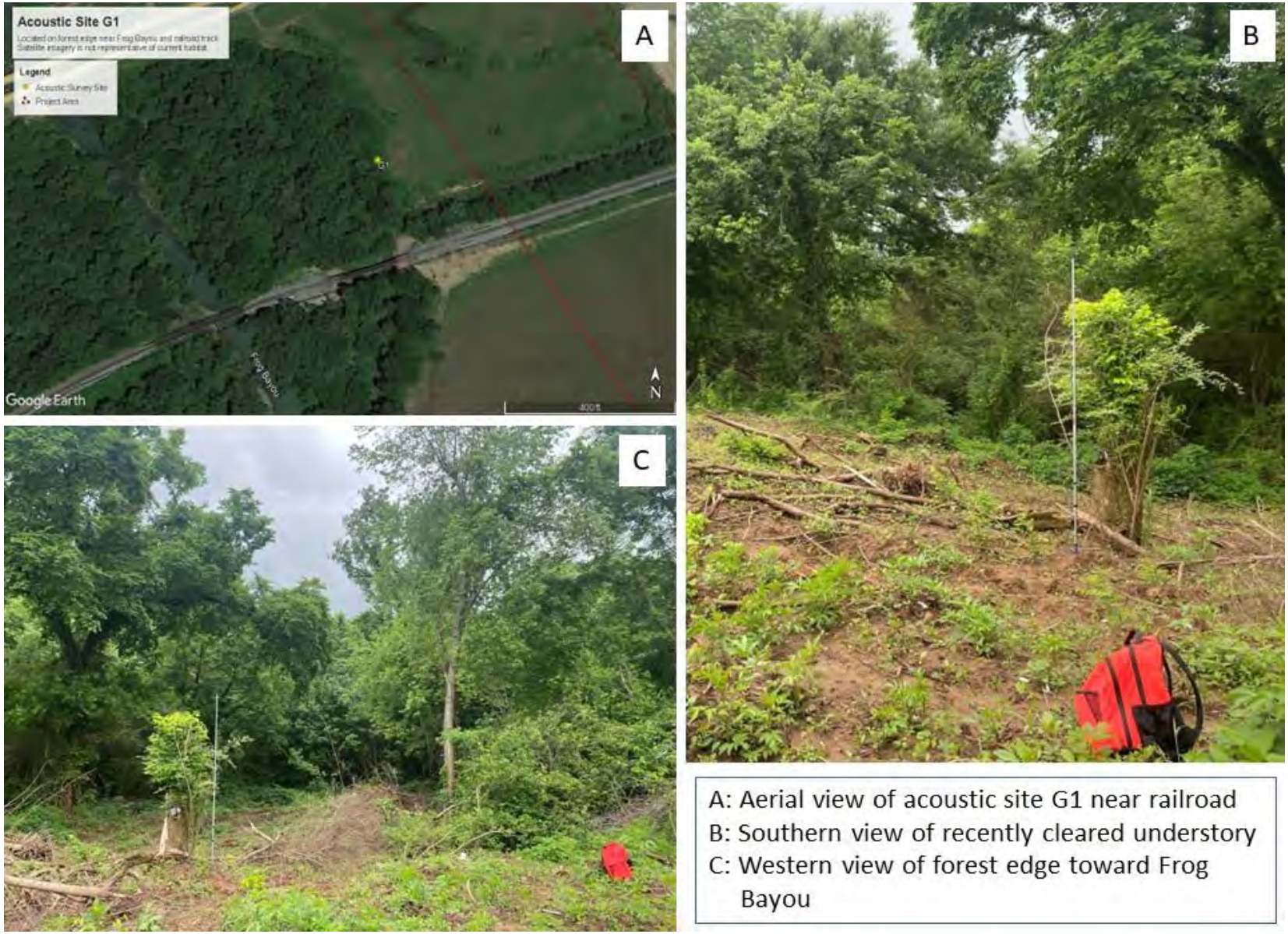

Figure 20. Photos of acoustic site G1 using a SM4 detector with SMM-U2 microphone. This site surveys the forest edge near Frog Bayou where the underbrush had recently been cleared.

A: Aerial view of acoustic site G2
B: Riparian corridor of Frog Bayou
C: Northern view of forest edge toward pond

Figure 21. Photos of acoustic site G2 using a SM3 detector with SMM-U1 microphone. This site surveys the riparian edge of Frog Bayou near a pond. The red arrow indicated the direction of the microphone pointed toward Frog Bayou.

A: Aerial view of acoustic site G3
B: Northern view toward pond
C: Southern view of forest edge with drainage creek to pond

Figure 22. Photos of acoustic site G3 using a SM4 detector with SMM-U2 microphone. This site surveys a woodland edge near a pond and intermittent creek.

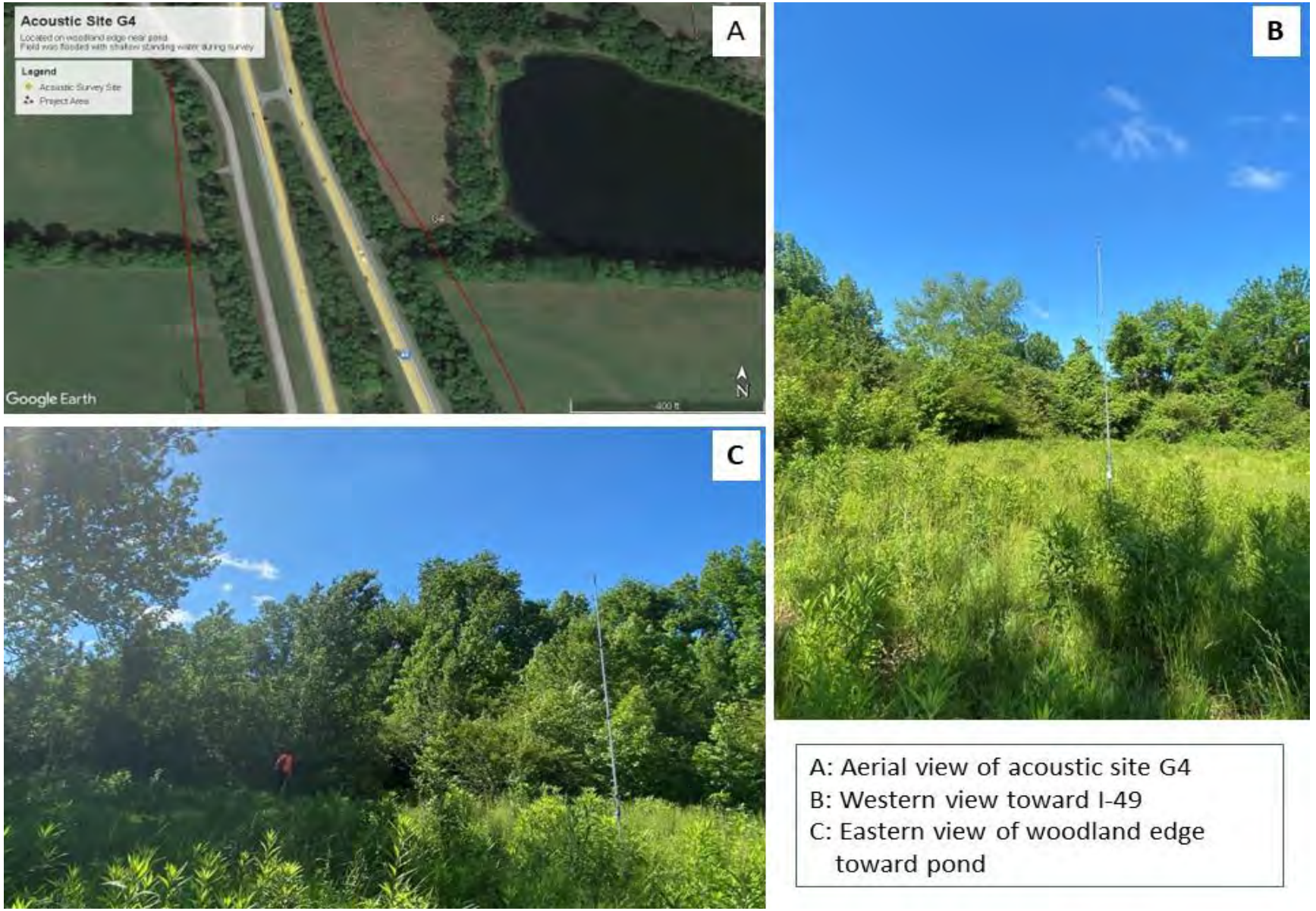

Figure 23. Photos of acoustic site G4 using a SM4 detector with SMM-U2 microphone. This site surveys a woodland edge near a pond. The field was flooded at the time of survey.

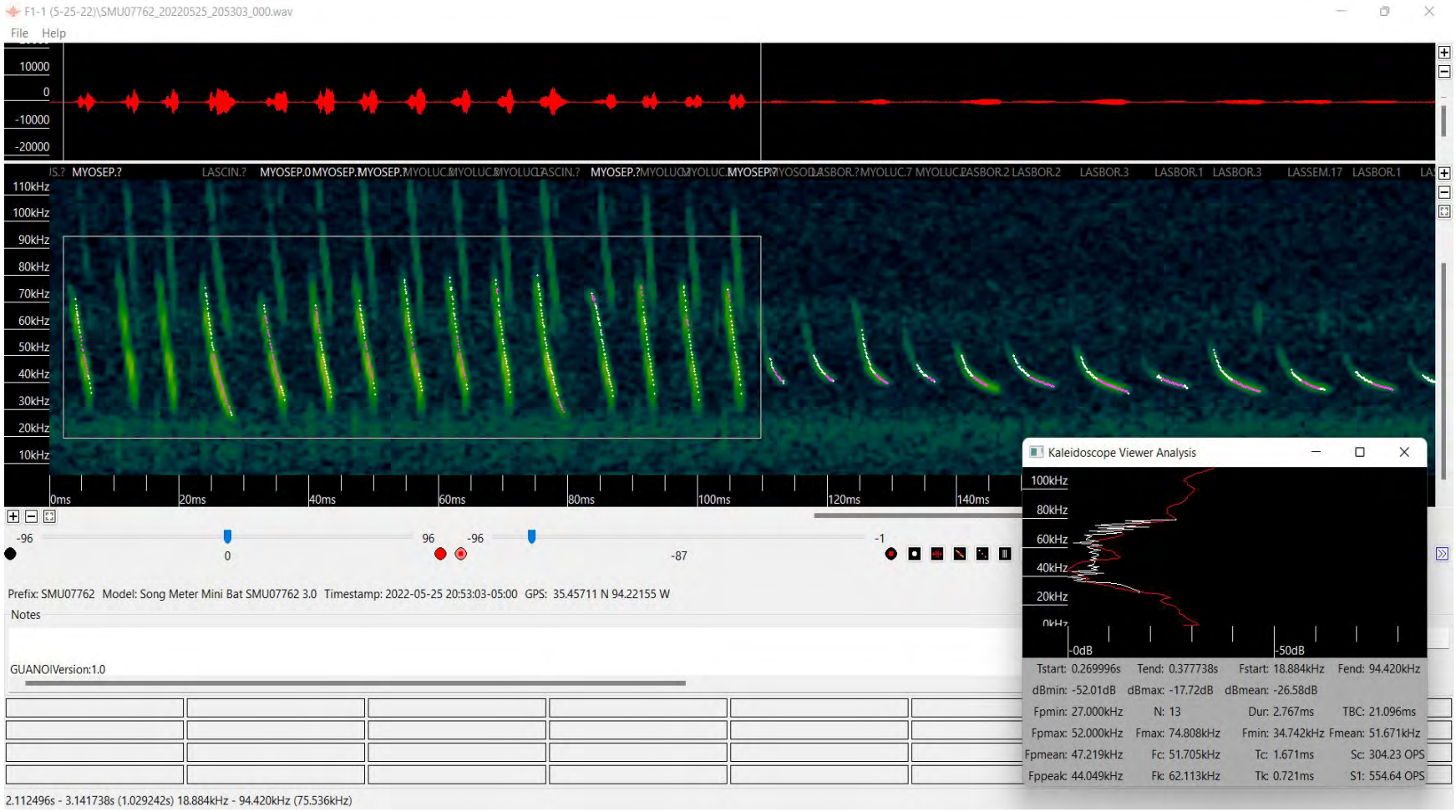

Figure 24. Call sequence identified as NLEB. The dramatic change in call structure indicates that the sequence includes approach or attack-phase calls of a non-myotis species that is temporarily producing calls similar to those typical of NLEB (see section 6.0 Biological Discussion for additional detail). While sections of the call look like NLEB, the entire sequence of pulses is inconsistent with the expected pattern for NLEB.

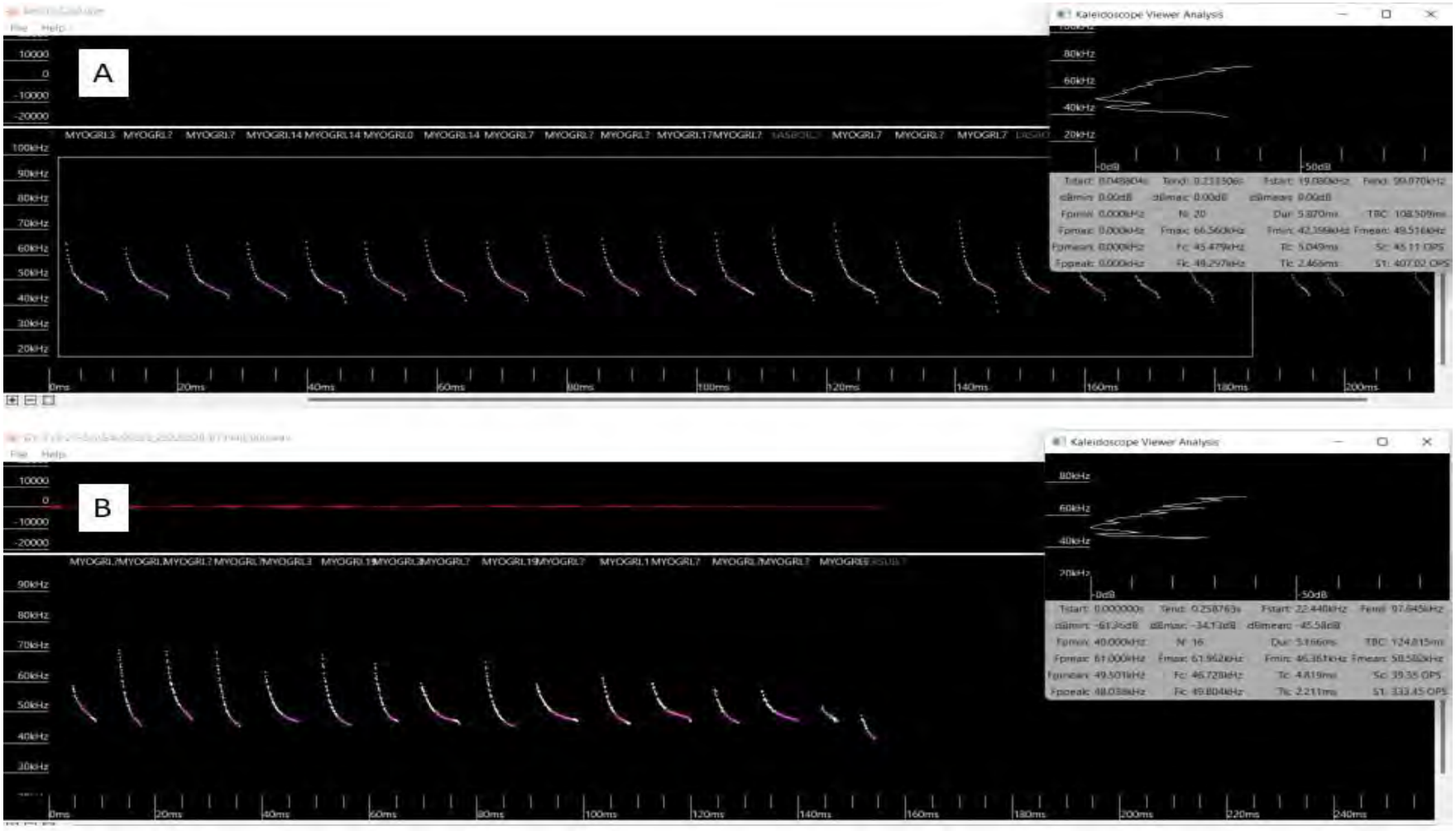

Figure 25. Comparison of bat call sequences identified as gray bat. Panel [A] is a call sequence of a known MYGR call. Panel [B] is a call sequence from site G1 that had a 0.9375 PMR for MYGR (the file was converted to zero-cross reference for better comparison). The pink portion of the calls is known as the knee. In call [A] there are typical additional white trailing pieces called tails that fall downward after the knee. This is a common feature of gray bat calls that is absent from call [B] and most of the calls identified as MYGR in this study. The call parameters of both sequences fall within the expected value for MYGR. There is nothing in the call file [B] that warrants rejecting it as MYGR, but there is also nothing that confirms that it should be classified as MYGR.

10.0 APPENDIX A: CV

Elizabeth A. Burba, PhD

606 E Boone St., Tahlequah, OK | 918.693.0241 | Elizabeth.A.Burba@gmail.com

SUMMARY OF QUALIFICATIONS

- Experienced in wide-range of biological monitoring techniques including bat acoustical surveys.
- Experienced in wind turbine post-construction bird and bat fatality studies.
- Involved with collaborative research projects to assess bat migration patterns with stable isotopes.
- Completed numerous technical reports or biological/environmental assessments as part of ESA section 7 consultation.
- Trained in a variety of ecological sub-divisions, using diverse methods in both laboratory and field settings.
- Participated in projects across various ecoregions and within diverse taxonomic groups.

EDUCATION

Ph.D. in Zoology 2008-2013
University of Oklahoma, Norman, OK GPA: 4.0
Area of Expertise: Population ecology, mammalogy, conservation biology
Dissertation Topic: Wind energy and wildlife impacts, bat migration, and stable isotopes

M.S. in Zoology 2001-2006
University of Oklahoma, Norman, OK GPA: 4.0
Area of Expertise: Ecology, animal behavior
Thesis Topic: Reproductive behavior and primiparity of olive baboons

B.S. in Fish and Wildlife Biology 1995-1999
Northeastern State University, Tahlequah, OK GPA: 3.58

EXPERIENCE

Environmental Consultants of Habitats and Organisms (ECHO), LLC 2014-present
Owner, Biologist

- Provide surveys for all mammalian species including acoustical bat surveys.
- Provide surveys for the endangered American burying beetle.
- Draft biological reports, environmental assessments, and NEPA documents.
- Collaborative research to assess bat migration patterns via stable isotope analysis.

Sam Noble Oklahoma Museum of Natural History, Norman, OK 2006-2009
Research Associate

- Preformed over 3,400 individual turbine searches to assess bird and bat fatality rates at an OK wind farm.
- Provided Anabat acoustical monitoring for bat activity patterns and species composition not detected by wind-turbine fatalities.

- Analyzed data and prepared annual technical reports of the findings.
- Developed better survey techniques and mathematical models to reduce bias in wind farm fatality estimates.
- Salvaged and prepared all recovered specimens for archived museum storage.

University of Oklahoma, Norman, OK 2001-2006
Graduate Teaching/Research Assistant

- Assisted professors in lecture and taught laboratory sections for courses in field mammalogy, ecology, comparative vertebrate anatomy, and general biology.
- Collected and prepared museum specimens, archived data, and assisted curators in maintaining approx. 40,000 mammal specimens archived at the Sam Noble Oklahoma Museum of *Natural* History.
- Researched baboon reproductive biology in a captive colony of ~150 baboons.
- Was awarded the 2006 *Zoology Excellence in Graduate Teaching Award*.

Sam Noble Oklahoma Museum of Natural History, Norman, OK 2001
Integrated Pest Management Assistant/Museum Preparator

- Assisted with monitoring and treating pest infestation of museum specimens.
- Managed dermestid beetle colony.
- Inspected, organized, and treated (if needed) all incoming museum material.
- Processed, cleaned, and prepared museum skeletal material.
- Routinely inspected facilities and specimens for any conditions that could jeopardize specimen quality and longevity.

Northeastern State University, Tahlequah, OK 1998-2000
Student Worker/Tutor

- Prepped laboratory materials for Ecology course.
- Tutored students in math and science.
- Processed water samples for Oklahoma Conservation Commission to assess biodiversity and water quality.

PERMITS AND SPECIALIZED TRAINING

- USFWS Endangered Species Research and Recovery (ESA Section 10) permit for American burying beetle, gray bat, Indiana bat, and northern long-eared bat (Current permit #TE33639D-0)
- Oklahoma Department of Wildlife - Scientific Collectors Permit for mammals (2001-present).
- Arkansas Game and Fish Commission – Scientific Collectors Permit for ABB and bats (2016 – present)
- Bat Acoustic Data Management Workshop, Harrisburg, PA – Oct 2016.
- Titley Scientific Anabat Training Workshop, Hulbert, OK – June 2009.

PROFESSIONAL SERVICE

- Indiana bat spring emergence and radio telemetry study volunteer (2017)
- US Fish and Wildlife Service volunteer for bat surveys and WNS surveillance (2016-2017).
- Southeastern Bat Diversity Network Bat Blitz participant (2013).
- Field assistant for research team characterizing the abundance and distribution of the mammals of Colima, Mexico (Winter 2002, 2005).
- Oklahoma Academy of Science mammal field trip leader (2005).
- Research partnership with Bat Conservation International assessing migration of Mexican free-tailed bats to/from Bracken Cave, Texas.

SAMPLE OF SCIENTIFIC COMMUNICATIONS

Burba, C.M., **E.A. Burba.** XXXX. Determining the Onset and Duration of Bird and Bat Migration Waves from Fatality Surveys. Theoretical Ecology (prepared for submission)

Burba, E.A., J.F. Kelly, G.D. Schnell. XXXX. Implications for assessing migratory origins using claws of hoary bats, *Lasiurus cinereus*, through stable-hydrogen isotopes. *Methods in Ecology and Evolution.* (prepared for submission)

Burba, E.A., J.F. Kelly, G.D. Schnell. XXXX. Assessing migratory patterns of hoary bats (*Lasiurus cinereus*) from windfarm fatalities using stable-hydrogen isotopes. *Journal of Mammalogy.* (prepared for submission)

Jeffcoat, G., **E.A. Burba**, C.M. Burba. 2020. Using Stable Isotopes to Understand the Dynamics of Mexican Free-Tailed Bats (Tadarida brasiliensis) at Bracken Cave, Texas. NSU Undergraduate Research Day, Tahlequah, OK (presentation).

Burba, E.A., J.F. Kelly, G.D. Schnell**.** 2013. Assessing migratory patterns of hoary bats from wind-farm fatalities using stable isotopes. 16th International Bat Research Conference/47th North American Symposium on Bat Research, San Jose, Costa Rica. (Presentation)

Burba, E.A. J. Wallis, G.D. Schnell. 2003. Adolescent infertility duration and behavioral differences in captive olive baboons (*Papio hamadryas anubis*). 26th Annual Meeting of the American Society of Primatologists, Calgary, Canada (Presentation)

TECHNICAL REPORTS (Sample of the 36+ completed environmental reports)

Burba, E.A. 2021. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) on SH-3 over Frazier Creek in Pushmataha County, Oklahoma. Prepared for USFWS and Oklahoma Department of Transportation.

Burba, E.A. 2020. Acoustic Presence/Absence Survey for ESA listed bats (*Myotis sp.)* along US-59 in Le Flore County, Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2020. Acoustic Presence/Absence Survey for ESA listed bat species along NS-470 (New Life Ranch Rd) in Delaware County, Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2019. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) on SH-20 over Brush Creek in Delaware County, Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2019. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) on SH-101 over Cedar Creek in Sequoyah County, Oklahoma. Prepared for USFWS and Oklahoma Department of Transportation.

Burba, E.A. 2018. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) on I-40 over Sallisaw Creek in Sequoyah County, Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2016. Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) at Mulberry Hollow, Adair Co., Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2015. Northern Long-eared Bat (Myotis septentrionalis) Acoustic Presence/Absence Survey for the Newfield Ellis Well Pad in Pittsburg Co., OK. Prepared for BEACON Environmental Assistance Corporation.

Burba, E.A. 2015. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (Myotis septentrionalis) along Beaver Creek in Haskell Co., Oklahoma. Prepared for Oklahoma Department of Transportation.

Smith, A.D.F., J. Burns, and **E.A. Burba**. 2015. Environmental Assessment of the Proposed Hulbert, Oklahoma Water Treatment Plant Improvements. Prepared for US Army Corp of Engineers.

Burba, E.A., G.D. Schnell, J.A. Grzybowski, P. Kerlinger. 2010. Post-construction avian/bat fatality study for the Blue Canyon II Wind Power Project, Oklahoma: final report. Prepared for Horizon Wind Energy.

11.0 APPENDIX B: DATA SHEETS

Data sheets are provided on the following pages.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: B1

Lat/Long: 35.33286°, -94.28084 County/State: Sebastian Co. AR

GPS satellite resolution (m): 3m Elevation: 401 ft

Monitoring times: (24 hr) or ~~sunset-sunrise~~

Start date: 5/30/22 End date: 6/3/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -28.7 Weatherproofing: N/A

Microphone: height 5m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: —

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Gas-line corridor, woodland edge. Good flyway, but marginal habitat (lot of eastern red cedar)

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: B2

Lat/Long: 35.34134, -94.27960 County/State: Sebastian Co AR

GPS satellite resolution (m): 3m Elevation: 395 ft

Monitoring times: (24 hr) or ~~sunset-sunrise~~

Start date: 5/31/22 End date: 6/4/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM3 Microphone type: SMM-U1

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -26.3 Weatherproofing: N/A

Microphone: height 5m horizontal orientation 90° vertical orientation 20°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Floodplain of Arkansas River, Forest edge 40 m South river bank.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: B3

Lat/Long: 35.34633, -94.27922 County/State: Sebastian Co AR

GPS satellite resolution (m): 3m Elevation: 392 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/30/22 End date: 6/3/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 bat FS Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -27.4 Weatherproofing: N/A

Microphone: height 4m horizontal orientation ~ vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: —

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Edge of Riparian forest, 150 m N Arkansas River
Fort ~~Chaffee~~ WMA
Chaffee

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: B4

Lat/Long: 35.36079, -94.27961 County/State: Crawford Co, AR

GPS satellite resolution (m): 3m Elevation: 358 ft

Monitoring times: ~~24 hr~~ or sunset-sunrise

Start date: 5/30/22 End date: 6/3/22

Recording verified: Yes or No Method of verification: finger rubbing or calibrator

Detector Information

Detector type: SM mini Microphone type: SMM-U2

Microphone directionality: directional hemispherical or omni-directional

Microphone sensitivity: -23.9 Weatherproofing: N/A

Microphone: height 4 m horizontal orientation – vertical orientation 90°

Recording type: zero-cross reference or full spectrum

Distance to nearest vegetation: 15 m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

U-shaped forest edge, near creek. (80m S of detector)
Fort Chaffee property. Site moved 100 m E from plan.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: D1

Lat/Long: 35.39621, -94.23512 County/State: Crawford Co AR

GPS satellite resolution (m): 3m Elevation: 442 ft

Monitoring times: ~~24 hr~~ or sunset-sunrise ★ SD Card Failure on 5/30/22

Start date: 5/30/22 End date: 6/4/22

Recording verified: Yes or No Method of verification: finger rubbing or calibrator

Detector Information

Detector type: SM4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or omni-directional

Microphone sensitivity: -27.2 Weatherproofing: N/A

Microphone: height 7m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or full spectrum

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Riparian corridor of Mays Branch, 2m from water edge.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: D2

Lat/Long: 35.40622, -94.22513 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 450 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/30/22 End date: 6/3/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM Mini Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -19.7 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or full spectrum

Distance to nearest vegetation: 10m Distance to roost site: 100 m PRT

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

U-shaped forest opening, 50 m SE of Pond. Creates open flyway.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: D3-a

Lat/Long: 35.42069, -94.21852 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 443 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/30/22 End date: 6/1/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM3 Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -28.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland opening near gas-line corridor.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: D3-b

Lat/Long: 35.41563, -94.22090 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 384 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 6/1/22 End date: 6/3/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM3 Microphone type: Smm-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -28.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: 20m

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland edge near pond. (60 m E of pond)

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: E1

Lat/Long: 35.42079, -94.21902 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 421 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/30/22 End date: 6/3/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -24.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: 50m

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland edge near intermittent creek (10m E creek)
PRT 50m N detector.
Site moved to avoid roost tree

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: E2

Lat/Long: 35.43684, -94.21241 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 447 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM3 Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -32.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland edge, Pond 20 m W detector
KARALMA12 weather station 300 m NW

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: E3

Lat/Long: 35.43684, -94.21242 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 379 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat Microphone type: SMMU2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -25.0 Weatherproofing: N/A

Microphone: height 5m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Bank of Frog Bayou. Bank was 3m above water level
Riparian corridor. At confluence w/ drainage creek

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: F1

Lat/Long: 35.45713, -94.22153 County/State: Crawford Co. OK

GPS satellite resolution (m): 3m Elevation: 459 ft.

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

* Stopped recording @ 1:08 am on 5/28

Detector Information

Detector type: SM4 mini Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -23.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 5m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Edge of Riparian forest, 10 m W of Creek. Original site flooded, moved 125m NW

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: F2

Lat/Long: 35.46083, -94.22569 County/State: Crawford Co AR

GPS satellite resolution (m): 3m Elevation: 424 ft

Monitoring times: 24 hr or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM mini Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -20.6 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland riparian edge. 20 M N Frog Bayou
20 M E Creek.

Creek 20ft cliff embankment, fast water. Can not cross.
Detector put on E side instead of W

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: G1

Lat/Long: 35.47551, -94.23972 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 437 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM 4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -29.4 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Edge of riparian forest, 30 m E Frog Bayou, 100 m N RR
Vegetation recently Cleared, most was small trees
+ shrubs, one large tree removed, but type of breakage
looks like fallen naturally previous year.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: G2

Lat/Long: 35.48221, -94.24571 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 418 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM3 Microphone type: SMM-U1

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -26.1 Weatherproofing: N/A

Microphone: height 6 m horizontal orientation 270° vertical orientation 10°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 5m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Riparian edge, 10 m E Frogg Bayous. 15 M S Pond.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: G3

Lat/Long: 35.48602, -94.23820 County/State: Crawford Co AR

GPS satellite resolution (m): 3m Elevation: 413 ft

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -28.3 dB Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland, Fence Row edge N I-40.
20m S of Pond, 15m E Drainge Creek.

Acoustic Monitoring Data Sheet

Project name: ARDOT I-49 Relocation Site ID: G4

Lat/Long: 35.48929, -94.24377 County/State: Crawford Co. AR

GPS satellite resolution (m): 3m Elevation: 410 ft.

Monitoring times: (24 hr) or sunset-sunrise

Start date: 5/25/22 End date: 5/30/22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -26.9 Weatherproofing: N/A

Microphone: height 4m horizontal orientation — vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Woodland edge, 20m W of Pond
Field flooded.

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 1 Start Date: 5/25/22

Sunset Time: 20:22 Sunrise Time: 6:05

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:22

Weather Source: KARALMA 12 Max temp: 61.3 Min temp: 58.4

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	6.2	—	—	Y
Rainfall	N	Ø	—	—	Y

* rained 0.53 in morning before survey

Project name: I-49 Relocation

Survey Night No.: 2 Start Date: 5/26/22

Sunset Time: 20:22 Sunrise Time: 06:05

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:22

Weather Source: KARALMA 12 Max temp: 61.1 Min temp: 55.5

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	2.1	—	—	Y
Rainfall	N	Ø	—	—	Y

* rained 0.07 in during day before survey

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 3 Start Date: 5/27/22

Sunset Time: 20:23 Sunrise Time: 06:04

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:23

Weather Source: KARALMA 12 Max temp: 72.4 Min temp: 59.5

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	2.4	—	—	Y
Rainfall	N	Ø	—	—	Y

Project name: I-49 Relocation

Survey Night No.: 4 Start Date: 5/28/22

Sunset Time: 08:24 Sunrise Time: 06:04

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:24

Weather Source: KARALMA 12 Max temp: 76.8 Min temp: 65.6

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	Ø	—	—	Y
Rainfall	N	Ø	—	—	Y

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 5 Start Date: 5/29/22

Sunset Time: 20:25 Sunrise Time: 06:03

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:25

Weather Source: KARALMA 12 Max temp: 81.5 Min temp: 65.8

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	2.9	—	—	Y
Rainfall	N	Ø	—	—	Y

Project name: I-49 Relocation

Survey Night No.: 1 Start Date: 5/30/22

Sunset Time: 20:25 Sunrise Time: 06:03

Type of Survey: mist-net or acoustic Time at 5 hrs into survey: 01:25

Weather Source: KARVANBUR 33 Max temp: 82.4 Min temp: 77

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	4.2	—	—	Y
Rainfall	N	Ø	—	—	Y

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 2 Start Date: 5/31/02

Sunset Time: 08:26 Sunrise Time: 06:02

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:26

Weather Source: KARVANBUR 33 Max temp: 84.0 Min temp: 72.6

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	Ø	—	—	Y
Rainfall	N	Ø	—	—	Y

Project name: I-49 Relocation

Survey Night No.: 3 Start Date: 6/01/22

Sunset Time: 20:26 Sunrise Time: 06:02

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:26

Weather Source: Fort Smith Airport Max temp: 78 Min temp: 72

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	6.0	—	—	Y
Rainfall	N	Ø	—	—	Y

Data never loaded for KARVANBUR 33, nor KARALMA 12, or any other nearer station. Fort Smith was closest site with data available. Data ended at KARVANBUR 33@17:19 on 6/1/22 & didn't start again until 11:04 on 6/02/22

* As of 6/13/22, no data is available still.

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 4 Start Date: 6/02/22

Sunset Time: 20:27 Sunrise Time: 06:02

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:27

Weather Source: KARVANBUR 33 Max temp: 71.2 Min temp: 61.8

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	Ø	—	—	Y
Rainfall	N	Ø	—	—	Y

Project name: I-49 Relocation

Survey Night No.: 5 Start Date: 6/03/22

Sunset Time: 20:28 Sunrise Time: 06:02

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:28

Weather Source: KARVANBUR 33 Max temp: 68.0 Min temp: 61.3

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	1.3	—	—	Y
Rainfall	N	Ø	—	—	Y

Addendum to Acoustic Presence/Absence Survey for ESA-listed bats for I-49 Relocation over Arkansas River in Crawford and Sebastian Counties, Arkansas

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Notice: This report has been prepared by Dr. Elizabeth A. Burba of ECHO, LLC acting as an independent contractor for HNTB. It is solely for the benefit of its client, the Arkansas Department of Transportation, in accordance with an approved scope of work. This report is in the best judgement based on information available at the time of preparation. ECHO, LLC assume no liability for the decisions or actions made by a third party based on the information obtained within this report.

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LIST OF ACRONYMS

ARDOT	Arkansas Department of Transportation
AMM	Avoidance and Minimization Measures
COTO	*Corynorhinus townsendii ingens* (Ozark big-eared bat)
ECHO	Environmental Consultants of Habitats and Organisms
ESA	Endangered Species Act
IPAC	Information Planning and Consultation
MLE	Maximum Likelihood Estimate
MYGR	*Myotis grisescens* (gray bats)
MYSE	*Myotis septentrionalis* (northern long-eared bat)
MYSO	*Myotis sodalis* (Indiana bat)
NLEB	Northern long-eared bat
PBO	Programmatic Biological Opinion
PMR	Pulse Match Ratio
USFWS	United States Fish and Wildlife Service
WMA	Wildlife Management Area

Addendum to Acoustic Presence/Absence Survey for ESA-listed bats for I-49 Relocation over Arkansas River in Crawford and Sebastian Counties, Arkansas

EXECUTIVE SUMMARY

The Arkansas Department of Transportation (ARDOT) is proposing a new road construction project for the relocation of Interstate 49 extending from Highway 22 north near Barling to the Interstate 40 interchange in Alma, crossing over the Arkansas River (Job 040748). In order to determine the potential effects of the project on endangered bat species, an initial presence/absence survey for species listed under the Endangered Species Act (ESA) was conducted throughout the 23-kilometer (km) project footprint between 25 May to 4 June 2022. A report was submitted on 30 June 2022 to United States Fish and Wildlife Service (USFWS) that outlined the results of that survey. Since that report was submitted, new engineering designs by HNTB have changed the project footprint, such that the proposed action will result in additional impacts to areas not covered by the initial bat survey design. A second survey was conducted from 24 July to 28 July 2022 at three additional acoustic survey sites to evaluate the new footprint extensions. The survey was consistent with USFWS summer survey guidelines and followed a study plan approved by the Arkansas Ecological Services Field Office. While the entire project length is 23 km, this survey only assesses a 2-km section of the project extending north from the Arkansas River to Gun Club Road. However, the footprint extensions are perpendicular to the original footprint adding 1.0 km east along the Arkansas River and 1.8 km west along Gun Club Road. The new impact areas add an additional 180 acres to the project footprint, which increased the total project impacts to 1,452 acres. The proposed action includes extensive clearing of habitat and

REPORT HIGHLIGHTS

Project: ARDOT Job 040748 Acoustic Bat Survey – Footprint Extension

Counties: Crawford & Sebastian

Roadway: Additional impacts to I-49 relocation between Arkansas River and Gun Club Road near Barling, AR

Survey Dates: 24 July – 28 July 22

No. of Survey Sites: 3

No. of Survey Nights: 8

No. of Identified Bat Calls: 3458

Maximum likelihood estimates (MLE) for ESA listed species (consolidated data):

Indiana bat: 0 call sequences
MLE = 1.0000
NLEB: 9 call sequences
MLE ≥ 0.3567
Gray bat: 564 call sequences
MLE = 0.0000
Ozark big-eared bat: 4 call sequence
MLE = 1.000

ESA listed species with probable presence:

Gray bats (*Myotis grisescens*)

in-water work for the construction of new bridges. The implementation of the proposed project would result in the permanent removal of potential roosting sites, degradation of foraging habitat, and disruption of flyway connectivity. As part of ESA section 7 consultation, bat surveys are needed to determine if restrictions on tree removal will be needed to prevent incidental take. The survey resulted in the recording of 3458 bat call sequences that were identified to species. Automated classification software, Kaleidoscope Pro v 5.4.0, classified no call sequences as Indiana bat (MLE = 1.000), 9 call sequences as northern long-eared bat (NLEB; MLE ≥ 0.3567), 564 call sequences as gray bats (MLE = 0.0000), and 4 call sequences as Ozark big-eared bat (MLE = 1.000). Gray bats are the only endangered species with probable species presence, having significant MLE values on all survey nights at all sites. Manual review of the calls supports the presence/absence conclusions based on MLE of automated analysis.

1.0 INTRODUCTION

ARDOT is proposing a new road construction project for the relocation of Interstate 49 extending from Highway 22 north near Barling to the Interstate 40 interchange in Alma, crossing over the Arkansas River (Job 040748). This report is an addendum to a previous habitat assessment and acoustic bat survey report that was supplied to USFWS on 21 April 2022 and 30 June 2022, respectively. On 13 June 2022, ECHO was notified that new engineering designs were altering the project footprint, which would include habitat impacts to areas not covered by the initial survey design. On 8 July 2022, ECHO submitted an addendum to the habitat assessment and a new study plan for an acoustic presence/absence survey for the areas of additional impacts. The study plan was approved by Arkansas Ecological Field Services Office of the USFWS on 12 July 2022 and the survey was conducted between 24 July 2022 and 28 July 2022. Deviations from the proposed study plan are noted and the reasons justified in section 5.0 SITE SPECIFIC RESULTS. Only one modification was made from the study plan, which was a decision to sample a different location in the Arkansas River extension for 2 of the 4 survey nights.

The new impacts occur in both Sebastian and Crawford Counties and includes a 1-km extension east of the original project along the Arkansas River and a 1.8 km extension along Gun Club Road. The Gun Club Road extension adds 0.2 km east of the original project and a 1.6 km west of the original footprint. Each extension adds approximately 90 acres (180 acres total) to the project footprint (Figure 1). The Information Planning and Consultation (IPAC) generated by USFWS lists four threatened or endangered bat species that potentially occur within the geographic range of the proposed project: the Indiana bat (*Myotis sodalis*), the northern long-eared bat (NLEB; *Myotis septentrionalis*), the gray bat (*Myotis grisescens*), and the Ozark big-eared bat (*Corynorhinus townsendii ingens*). The NLEB is currently listed as threatened, but in March 2022 the USFWS proposed the species to be reclassified as endangered. For the purposes of this report, the word endangered is used to describe all four of these species

The initial habitat assessment reported a project footprint of 1357 acres of which 413 acres were suitable bat habitat. With the footprint extensions added, the new project footprint is 1452 acres of which 495 acres are suitable bat habitat. The project footprint was only increased 95 acres, while the footprint extensions were calculated to be an additional 180 acres. This discrepancy revealed that the Gun Club Road extension had already been added to the habitat impact summary supplied to ECHO, but it had not been added to the shapefiles of the project that were used in the habitat assessment. Therefore, this acreage was never evaluated for bat habitat suitability and was not included in the initial survey design. The Arkansas River extension was never a part of any previous assessment. The new extensions collectively add 2.8 km of habitat impacts, but only 1.6 km of that habitat is suitable for bats.

While potential roost trees are available for Indiana bats and NLEB, there were no suitable cave or cave-like structures that would be used as roosting sites for gray bats or Ozark big-eared bats. However, it is possible these cave species could forage within the project area. The riparian corridors of Flat Rock Creek and the Arkansas River provide foraging habitat and flyway connectivity to the surrounding landscape. Indiana bats and NLEB rely heavily on dead or dying trees during summer maternity season but also may roost in man-made structures, such as bridges and barns. The proposed action will remove potential roosting sites and degrade foraging habitat, which could adversely affect either species if they are present within the study area.

Unlike Indiana bats and NLEB, gray bats are generally year-round cave obligate species, but their foraging behavior is highly associated with foraging over open water. The Arkansas River provides a riparian green belt that connects wetlands and forested habitat on the southern end of the proposed project. Flat Rock Creek, a tributary of the Arkansas River, runs through the Gun Club Road extension and crosses the original footprint before emptying into the Arkansas River approximately 800 m east of the Arkansas River extension (Figure 1). The Arkansas River extension also occurs within Fort Chaffee Wildlife Management Area (WMA).

2.0 HABITAT SUMMARY

The footprint extensions occur in the ecoregion of the Arkansas Valley Floodplains (EPA 2022). The majority of the Arkansas River floodplains have been converted to agricultural lands and hayfields. The habitat within the project footprint is somewhat of an exception in that Fort Chaffe WMA has protected stands of native forest along the Arkansas River. However, these forest remnants are on the edge of an otherwise mostly cleared landscape (Figure 1).

Tree species observed include eastern cottonwood, sycamore, box elder, green ash, hackberry, and black walnut (vegetation data sheets are attached in appendix A). The impact area of the project extensions is 180 acres, but only 82 acres contains suitable bat habitat. The suitable habitat is arranged in such a way that an additional 1.6 km of bat habitat is added to the project

footprint. There have been no documented captures of Indiana bats within the vicinity of the project, but two captures of NLEB have been documented along the Arkansas River in 2015, approximately 1 km east of the project footprint (ANHC 2021). The removal of trees during the active maternity season has the potential to adversely affect Indiana bats and/or NLEB if they are present within the project area. A survey is needed to properly determine the effects of the proposed project on any endangered bat species and determine if avoidance and minimization measures are needed to prevent incidental take.

3.0 METHODS

3.1 Acoustic Site Selection

An acoustic survey study plan was previously provided to USFWS and ARDOT on 8 July 2022 and was approved by USFWS on 12 July 2022. This survey followed that which was proposed, except where noted. The USFWS requires at least one sample site be monitored for four survey nights for every 1 km of suitable summer habitat (USFWS 2022a). The entire length of suitable habitat was 1.6 km and was arranged in such a way that 1 acoustic survey site was needed in each of the footprint extension areas: one in the Gun Club Road extension (Figure 2) and one in the Arkansas River extension (Figure 3). The entire project footprint had previously been divided into seven sections, sections A through G from south to north. The new footprint extensions only effect section B of the project and this is the only section discussed in the addendum.

Two survey sites were surveyed simultaneously for a total of eight survey nights sampled over a four-day period. The survey for acoustic site B6 was split between two different locations and surveyed for two nights each, whereas acoustic site B5 remained in the same place for the duration of the four-day survey. There were no conditions present during the survey that would compromise bat activity or recording quality. All survey nights were valid. The location, survey dates, and habitat type for each acoustic monitoring site is provided in Table 1.

Table 1. Acoustic monitoring site information for ARDOT Job 040748).

Site ID	GPS Coordinates	GPS Accuracy	No. Nights Surveyed	Start Date	End Date	Habitat Type
I-49 B5	35.33286°, -94.28084°	1m	4	24-Jul-22	28-Jul-22	Woodland edge of Flat Rock Creek riparian zone
I-49 B6-a	35.34134°, -94.27960°	1m	2	24-Jul-22	26-Jul-22	Natural forest opening near Arkansas River
I-49 B6-b	35.34633°, -94.27922°	1m	2	26-Jul-22	28-Jul-22	Woodland edge next to two-track forest corridor

3.2 Field Methods for Acoustic Survey

Acoustic monitoring set-up was performed by Elizabeth Burba of ECHO (Permit No. TE33639D-0). The equipment used were Wildlife Acoustics SM4 full-spectrum bat detectors equipped with a

SMM-U2 external microphone. The microphones are attached by cables and are mounted on telescoping poles and raised up to 5 meters (m) above the ground. The SMM-U2 microphone is designed in a disk-like shape and intended to be mounted with the sensor pointed vertically.

Prior to deployment, the microphones were tested for proper functioning and to assess current sensitivity level. All microphone sensitivities were above acceptable levels. The microphones were placed at least 6 m from all vegetation (excluding ground vegetation), although the clearance in most directions was at least 10 m. This allows microphones to collect calls with minimal interference from vegetative clutter, which is an important component for proper species identification. The detectors were set to record continuously so that proper recording could be verified with a 40 kHz ultrasonic calibrator both before and after the survey. This ensures that the detectors were recording throughout the entire survey night. Even though the detector was recording on a 24-hour schedule, the survey start and end time was considered sunset to sunrise each night. Any sound files collected outside of this survey window were omitted from analysis. Detector and microphone information for the monitoring sites are provided in Table 2.

Table 2. Acoustic detector and microphone specifications for monitoring sites of Interstate 49 relocation project.

Site ID	Detector Type	Mic Type	Horizontal Oreintation	Vertical Oreintation	Microphone Height	Microphone Sensitivity [1]	Distance to Vegatation	Recording Type	Recording Verification Method
I-49 B5	SM4 bat	SMM-U2	N/A	90°	5m	-28.7 dB	10m	Full spectrum	Ultrasonic callibrator
I-49 B6-a	SM4 bat	SMM-U2	N/A	90°	4m	-26.3 db	7 m	Full spectrum	Ultrasonic callibrator
I-49 B6-b	SM4 bat	SMM-U2	N/A	90°	4m	-27.4 dB	6 m	Full spectrum	Ultrasonic callibrator

[1] The acceptable limit for microphone sensitivity is anything greater (less negative) than -47 dB for SMM-U2 microphones

Data sheets for the acoustic monitoring site are provided in Appendix A. The detector settings were left on recommended, default settings for recordings as shown in Table 3. The detector setting files generated by Kaleidoscope v5.4.0 are also provided for each detector night in the supplemental information that was submitted concurrently with this report.

Table 3. Detector settings used for recordings.

Parameter	Value
Gain	12 dB
High pass filter	Off
Sample rate	256 kHz
Minimum duration (signal)	1.5 ms
Maximum duration (signal)	none
Minimum trigger frequency	16 kHz
Trigger level	12 dB
Trigger window	3 sec
Maximum length (recording)	15 sec

Nightly weather conditions were monitored via Weather Underground (2022) using data from the KARVANBUR33 weather station, located off McClure Rd. It is 5 km north of the Arkansas River and 2 km west of the project footprint. Weather conditions that invalidate a survey night are (a) the temperature falls below 50°F (10°C) during the first 5 hours of survey period, (b) precipitation, including rain and/or fog, exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period, or (c) sustained wind speeds are greater than 9 mph (4 m/s; 3 on Beaufort scale) for more than 30 minutes during the first 5 hours of the survey period. There were no invalid nights due to weather. Weather condition datasheets for each survey night are provided in Appendix A and the conditions are summarized in Table 4.

Table 4. Weather conditions during the first 5 hours of each survey night for ARDOT Job 040748.

				Temperature		Wind		Rainfall		Valid
Weather Station	Survey Night	Sunset Time	Sunrise Time	Max	Min	> 9 mph	Time (min)	Amount (in)	Time (min)	Survey Night
KARVANBUR33	24-Jul-22	20:26	6:20	95.7	79.7	No	–	0.00	–	Yes
KARVANBUR33	25-Jul-22	20:26	6:21	93.7	80.6	No	–	0.00	–	Yes
KARVANBUR33	26-Jul-22	20:25	6:22	97.1	82.0	No	–	0.00	–	Yes
KARVANBUR33	27-Jul-22	20:24	6:23	95.9	82.9	No	–	0.00	–	Yes
Data from https://www.wunderground.com/dashboard/pws/KARVANBU33/graph/2022-07-28/2022-07-28/weekly										

3.3 Acoustical Analysis

After each night of monitoring, the collected data were downloaded and imported into Kaleidoscope v5.4.8 to view data files. Using the Bats of North America v5.4.0 classifier, the program was set to specify the signals of interest to include in automated analysis (Table 5). Identification sensitivity was set at -1 to align with USFWS software approval (USFWS 2022b). Recordings that did not fit these specifications were filtered as noise and automatically sent to a separate sub-directory folder. Kaleidoscope allows the user to select which species to include in automated analysis to minimize false identifications of species that do not even occur in the area.

Species included in the identification list are those presented with the results (see Tables 7-9). Along with species identification, Kaleidoscope also generates MLE ranging from 0.0 to 1.0 that give the probability that calls identified to a particular species are misidentified. The closer the MLE value is to 0.0, the higher the confidence in correct species identification and probable species presence. A significant likelihood for species presence is MLE ≤ 0.05. Results are compiled into a table for each survey site, and species that have a significant MLE are highlighted in gray.

Table 5. Kaleidoscope Pro v5.4.0 software settings for automated species identification.

Parameter	Value
Sensitivity level	- 1 (liberal)
Frequency Range	8 - 120 kHz
Pulse Duration	2-500 ms
Maximum inter-syllable gap	500 ms
Minimum number of pulses	5

In addition to the automated species identification, Kaleidoscope also calculates the number of call pulses recorded in a sequence and the number of calls that match the characteristics of the species identified. The number of pulses identified to a particular species divided by the total number of pulses recorded in a sequence, results in a value called the pulse match ratio (PMR). In general, the more pulses in a sequence and the higher the PMR, the higher the quality of the call sequence recording. These values can be helpful in manual call analysis to further support the reliability of species identification.

Because detectors were set to record 24 h, occasionally day-time environmental noise can be misidentified as a bat species, whether from the ultrasonic detector used to verify recordings or unknown environmental sources. After all files had been classified by the automated identification software, the day- time files were checked to see if any false bat calls were included. In any instance where a day-time noise was identified as a named bat species, the affected files were manually moved to the noise folder, and the remaining bat call files were processed through Kaleidoscope v5.4.0 again in the same manner as before with noise files omitted. This allows for the maximum likelihood estimates (MLE) to be adjusted correctly with false bat identifications removed from the dataset.

Call sequences identified as an endangered species were manually analyzed using the acoustic software Kaleidoscope Viewer. The calls were assessed in comparison to the expected values of each species as outlined in Table 6. A professional opinion is given about the reliability of the automated analysis in section 6.0 BIOLOGICAL DISCUSSION. This review does not constitute formal qualitative analysis as outlined by USFWS (USFWS 2022a). Without any further qualitative analysis conducted by a recognized USFWS specialist, species presence must be assumed for any

ESA-listed species with significant MLE ≤ 0.05, regardless of any discrepancy with the professional opinion.

Table 6. Call characteristics used to manually ID calls in comparison to the expected values ± SD for Indiana bats, NLEB, and gray bats. Expected values from Britzke et al. (2011).

Abbreviation	Definition of characteristic	Expected Indiana Bat Value	Expected NLEB Value	Expected Gray Bat Value
Dur	Duration of the call (ms)	3.49 ± 0.63	2.37 ±0.70	4.96 ± 1.28
Fmax	Maximum frequency of the call (kHz)	68.75 ± 9.98	76.33 ± 14.97	65.64 ± 8.79
Fmin	Minimum frequency of the call (kHz)	41.34 ± 1.68	43.03 ± 3.22	45.36 ± 1.71
Fmean	Mean frequency of the call (kHz)	50.03 ± 3.22	54.38 ± 6.49	51.45 ± 2.52
Fk	Frequency at the inflection point of the slope, known as the knee (kHz)	47.81 ± 3.66	54.80 ± 11.19	51.43 ± 1.60
Fc	Characteristic frequency, frequency of the flattest part of the call (kHz)	43.61 ± 3.24	51.04 ± 10.31	46.88 ± 1.68
S1	Initial slope of call, octaves per second (OPS)	428.07 ± 130.05	509.09 ± 141.83	299.93 ±113.07
Sc	Characteristic slope, slope of the flattest section of the call (OPS)	143.73 ± 30.32	303.50 ± 108.05	52.85 ± 21.50
Tk	Time into the call when Fk (defined above) is reached (ms)	2.03 ± 0.70	1.25 ± 0.70	1.86 ± .081
Tc	Time into the call when Fc (defined above) is reached (ms)	3.02 ± 0.80	1.60 ± 0.75	4.57 ± 1.25

4.0 CUMULATIVE RESULTS

For both sites and all survey nights combined, a total of 3557 sound files met the criteria outlined in Table 5 to be include in automated species analysis. Of those recorded sound files, 3458 were identified to a bat species (Table 7). There were 14 potential species included in automated analysis; these are listed in Table 7. Automated call analysis uses the abbreviations of scientific names to display results. Therefore, in the results section, abbreviations for species name may be used to simplify written results. This means that *Myotis septentrionalis* (MYSE) may be used for northern long-eared bat rather than the NLEB abbreviation of the common name used earlier in the report. There was at least one call sequence identified for 12 out of the 14 possible species, although only seven species had significant MLE that indicate probable species presence. Species that are likely present (i.e., MLE < 0.05 from at least one survey site) within the project area are: big brown bats (*Eptesicus fuscus*), red bat (*Lasiurus borealis*), Seminole bat (*Lasiurus seminolus*), gray bat (*Myotis grisescens*), southeastern myotis (*Myotis austroriparius*), tri-colored bat (*Perimyotis subflavus*), and Mexican free-tailed bat (*Tadarida brasiliensis*). Big brown bats had the highest percent composition, representing 28.60% of all bat calls identified. Of the call sequences recorded, 577 were classified as an endangered species, the vast majority being gray

bats (n=564). Gray bats were the only endangered species with probable species presence and had MLE = 0.0000 at both sites on all survey nights. All other endangered species can be viewed as probably absent. There may be special interest in noting the presence of tri-colored bats, as its species status is currently under review by USFWS for possible listing under the ESA. The lowest MLE values for the other endangered species were: Ozark big-eared bat (*Corynorhinus townsendii*; COTO, MLE = 1.0), *Myotis septentrionalis* (MYSE, MLE = 0.3567), and Indiana bat (*Myotis sodalis,* MYSO, MLE = 1.000). The species composition for each individual site by survey night is provided in the following section 5.0 SITE SPECIFIC RESULTS. Cumulative results for the entire survey are summarized below in Table 7.

Table 7. Cumulative summary of automated species identification and percent species composition for all sites and survey nights combined.

Survey Sites B5 and B6		All survey nights	
Species Name	Species Abbreviation [1]	No. calls	% Species Composition
Corynorhinus townsendii	COTO	4	0.12%
Eptesicus fuscus	EPFU	989	28.60%
Lasiurus borealis	LABO	795	22.99%
Lasiurus cinereus	LACI	6	0.17%
Lasionycteris noctivagans	LANO	40	1.16%
Lasiurus seminolus	LASE	202	5.84%
Myotis austroriparius	MYAU	43	1.24%
Myotis grisescens	MYGR	564	16.31%
Myotis leibii	MYLE	0	0.00%
Myotis lucifugus	MYLU	166	4.80%
Myotis septentrionalis	MYSE	9	0.26%
Myotis sodalis	MYSO	0	0.00%
Nycticeius humeralis	NYHU	268	7.75%
Perimyotis subflavus	PESU	266	7.69%
Tadarida brasiliensis	TABR	106	3.07%
No identification	NoID	99	–
Total No. of Identified Call Sequences		3458	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB

5.0 SITE SPECIFIC RESULTS

5.1 Section B

Section B originally included the area of the project between H street and Gun Club Road, crossing over the Arkansas River. Four acoustic sites were previously surveyed in May 2022, but changes in the project footprint required two additional sites to be added. The footprint modifications only affected section B north of the Arkansas River and added 1.6 km of additional suitable bat habitat. Thus, the northern portion of section B is the only portion included in the updated maps (Figure 1). Acoustic sites B3 and B4, which are shown on the map, were surveyed during May 2022, but locations are still provided to show the spatial relationship to the new survey sites of B5 and B6.

5.1.1. Acoustic Site B5

Acoustic Site B5 was placed as proposed in the study plan. It was positioned on the woodland edge of the riparian corridor along Flat Rock Creek. Photos of the site with the detector deployed are provided in Figure 4. The acoustic equipment used and additional survey details for site B5 were provided above in Tables 1 and 2, and the corresponding datasheet is provided in Appendix A. The site was surveyed for four consecutive nights without any disturbances or invalid conditions. The automated species identifications for site B5 are shown in Table 8. The number of calls and MLE estimates for the four endangered species were as follows: COTO (n=3, MLE = 1.000), MYSO (n = 0, MLE = 1.000), MYSE (n = 4, MLE ≥ 0.9969), and MYGR (n = 370, MLE = 0.0000). Gray bats had significant MLE on all survey nights.

Table 8. Automated species identification and MLE results for acoustic site B5 of Job 040748. Species with significant MLE on at least one survey night are highlighted in gray.

I-49 Site B5		Survey Night							
		24-Jul-22		25-Jul-22		26-Jul-22		27-Jul-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	1	1.0000	2	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	105	0.0000	148	0.0000	83	0.0000	92	0.0000
Lasiurus borealis	LABO	121	0.0000	87	0.0000	53	0.0000	93	0.0000
Lasiurus cinereus	LACI	1	1.0000	1	1.0000	2	1.0000	2	1.0000
Lasionycteris noctivagans	LANO	11	1.0000	6	1.0000	12	1.0000	10	1.0000
Lasiurus seminolus	LASE	40	1.0000	22	1.0000	12	1.0000	69	0.0005
Myotis austroriparius	MYAU	7	1.0000	4	1.0000	13	0.0154	5	1.0000
Myotis grisescens	MYGR	117	0.0000	95	0.0000	62	0.0000	96	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	32	0.3136	14	1.0000	13	0.9677	14	1.0000
Myotis septentrionalis	MYSE	2	0.9969	0	1.0000	1	1.0000	1	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	19	1.0000	27	1.0000	22	1.0000	44	1.0000
Perimyotis subflavus	PESU	19	1.0000	18	1.0000	18	0.7623	20	1.0000
Tadarida brasiliensis	TABR	23	0.0143	26	0.0854	35	0.0000	5	1.0000
No identification	NoID	9	–	13	–	15		10	
Total No. of Identified Call Sequences		498		450		326		451	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

5.1.2 Acoustic Site B6

Acoustic site B6 was moved during the acoustic survey and deviated from the original study plan for two of the four survey nights. Acoustic site B6-a was not placed as proposed because new shapefiles were sent to ECHO shortly before the scheduled start of the survey. The new shapefile was modified from the footprint used in the study plan (Figure 3), and the proposed placement of B6 was approximately 235 m outside of the new footprint. The change was noticed on the weekend while surveyors were already on site. There was no way to have a new site approved without delaying the entire survey effort. A new site was selected in the best judgement of Elizabeth Burba, lead biologist of ECHO. A forest opening, not apparent from satellite imagery, was found at the eastern edge of the new footprint and the detector was set-up at this location instead (denoted as site B6-a). Photos of the site with the detector deployed are provided in Figure 5. The corresponding datasheet is provided in Appendix A, and the acoustic equipment used, as well as survey details are summarized above in Tables 1 and 2. The site was surveyed for two consecutive nights (24-26 July 2022) with no disturbance issues. Automated species identifications and MLE estimates for site B6-a are shown in Table 9. There were no call sequences identified as MYSO, two call sequence identified as MYSE, and one call sequences

identified as COTO, but the MLE remained 1.0000 for all three species, indicating probable species absence. There were 157 call sequences identified as MYGR, with the MLE being significant both survey nights (MLE = 0.0000).

On 26 May 2022, ECHO was informed that the wrong shapefiles had been sent a few days earlier and the correct files were delivered. The correct files were, in fact, what had been used in the original study plan and the alternate location used was now 70 m out of footprint. It is acceptable to have the detectors out of footprint, provided the placement provides a better survey location, and this would still be the case for the alternate site. There were no other sufficient forest openings toward the eastern end of the footprint. The detector could have stayed at this location, but it was decided to move it to the original proposed location since this is what was approved in the study plan (Figure 3). This site, denoted as B6-b, had been selected because it was in a forest clearing next to a two-track road that creates a long flyway throughout the forest. The GPS coordinates and survey details were provided in Table 1 and 2, and the datasheet for the acoustic survey site is provided in Appendix A. Photos with the detector deployed are depicted in Figure 6, while the summary of the automated species identification and MLE values are presented in Table 9. Data from site B6-a and B6-b are presented in the same table. Site B6-b was surveyed for two consecutive nights (26-28 July 2022) with no disturbance issues. There were no call sequences identified as COTO or MYSO (MLE = 1.000 for both). There were three call sequences identified as MYSE (MLE = 0.3567) and 37 call sequences identified as MYGR (MLE = 0.0000). Between the two B6 survey locations, the total number of calls detected was similar, but species percent composition shifted considerably. Gray bats, red bats, and tri-colored bats were less common, whereas big brown bats were much more common at site B6-b compared to B6-a. The resulting MLE for the gray, red, and big brown bats was unchanged irrespective of the compositional differences (MLE = 0.0000 on all survey nights). However, tri-colored bats only had a significant MLE at the B6-a site. Sampling two different sites was unlikely to compromise the integrity of the survey, but rather likely improved the study design by providing data from two different locations with varying habitat structures.

Table 9. Automated species identification and MLE results for acoustic site B6 of Job 040748. Species with significant MLE on at least one survey night are highlighted in gray.

I-49 Site B6		Survey Night [2]							
		24-Jul-22		25-Jul-22		26-Jul-22		27-Jul-22	
Species Name	Species Abbreviation [1]	No. calls	MLE	No. calls	MLE	No. calls	MLE	No. calls	MLE
Corynorhinus townsendii	COTO	1	1.0000	0	1.0000	0	1.0000	0	1.0000
Eptesicus fuscus	EPFU	42	0.0000	60	0.0000	349	0.0000	110	0.0000
Lasiurus borealis	LABO	186	0.0000	147	0.0000	55	0.0000	53	0.0000
Lasiurus cinereus	LACI	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Lasionycteris noctivagans	LANO	0	1.0000	0	1.0000	0	1.0000	1	1.0000
Lasiurus seminolus	LASE	2	1.0000	4	1.0000	21	0.9795	32	0.0385
Myotis austroriparius	MYAU	8	0.5710	2	1.0000	3	0.7629	1	1.0000
Myotis grisescens	MYGR	68	0.0000	89	0.0000	23	0.0000	14	0.0000
Myotis leibii	MYLE	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Myotis lucifugus	MYLU	39	0.3598	34	0.9143	15	1.0000	5	1.0000
Myotis septentrionalis	MYSE	2	1.0000	0	1.0000	3	0.3567	0	1.0000
Myotis sodalis	MYSO	0	1.0000	0	1.0000	0	1.0000	0	1.0000
Nycticeius humeralis	NYHU	28	1.0000	33	1.0000	49	1.0000	46	1.0000
Perimyotis subflavus	PESU	51	0.2020	95	0.0000	21	0.9633	24	0.5189
Tadarida brasiliensis	TABR	4	1.0000	0	1.0000	9	1.0000	4	1.0000
No identification	NoID	13	–	13	–	17		9	
Total No. of Identified Call Sequences		431		464		548		290	

[1] Species abbreviation is based on scientific name so MYSE is used rather than NLEB.

[2] July 24-25 were conducted at site B6-a and July 26-27 were conducted at site B6-b.

6.0 BIOLOGICAL DISCUSSION

Call sequences identified as ESA-listed species were manually reviewed to assess accuracy of automated classification. The manual review of calls concurs with overall MLE outcomes of assumed species presence/absence for ESA-listed species. Gray bats represented 16.31% of all calls recorded and were the only ESA-listed species with probable presence. This percentage is more than double the representation of the survey in May 2022, where gray bats only represented 7.86% of calls. While gray bats were assumed present at 14 of the original 16 acoustic sites surveyed in May 2022, call analysis was not strongly convincing of the accuracy of many of these identifications. In contrast, call analysis for the current survey revealed many high-quality call sequences that are very indicative of gray bats. The increase in the reliability of call identification is at least in part due to the higher proportion of representative calls recorded. The more calls recorded for a species, the higher the chance of capturing a good representative call sequence of them. There was no justifiable reason for why these calls should be classified as anything other than gray bats. An example of one of the highly consistent gray bat call sequences is provided in Figure 7. It contains 34 pulses with a pulse match ratio of 0.912. Several similar calls could have been used as an example to illustrate the reliability of automated classification.

Since the acoustic survey, USFWS has attempted to live capture gray bats at six mist-net locations over three survey nights to verify gray bat presence. ECHO assisted in two of the three survey nights. However, no gray bats were captured. Despite not being able to verify species identification in hand, the professional opinion of ECHO is that gray bat calls are reliable enough to still assume species presence. While species presence is likely, the roost site of these bats is unknown. Gray bats are generally considered cave obligate species, although they have rarely been found in bridges and cave-like structures. Because this is a new right-of-way alignment, these alternative structures are largely absent from the project area. It is very unlikely that gray bats would be roosting in the project area and the habitat is used for foraging only. Additional indications that gray bats are traveling to the project area is the timing of the recorded calls. As a general rule, gray bats calls were not detected until after 22:00. If their roost site was near the project footprint, one would expect an earlier detection of gray bat calls closer to sunset. The closest known gray bat maternity colony occurs in southern Adair County, Oklahoma, which borders Crawford County along the state line. It is possible gray bats are traveling from this site, although it is farther than expected for average nightly foraging distance (La Val et al. 1977). Alternatively, there may be an unknown colony closer to the project site. Gray bats are known for foraging over open water and feeding on emerging aquatic insects. The Arkansas River and its associated tributaries may serve as travel corridors during nightly foraging.

While there were nine call sequences identified as NLEB, the MLE did not reach significance on any survey night to assume species presence (MLE ≥ 0.3567). Calls were reviewed to see if a type II error was suspected (i.e. a false negative). The manual review of the files indicates all call sequences identified as NLEB are likely misidentified calls of other species while capturing prey, known as a feeding buzz. As an example, Figure 8 shows a call sequence identified as NLEB that is likely a feeding buzz of tri-colored bat. When a bat needs detailed information about its environment, such as capturing prey, all bats change their calls to higher frequency, steeper slope, and shorter duration calls (characteristics similar to search-phase calls of NLEB). This results in calls with a low pulse match ratio. If enough pulses in the sequence are these steep, high frequency calls during a feeding buzz, then automated classification may erroneously identify the call as NLEB. The change in call structure across the sequence, as demonstrated in Figure 8, was an issue seen in all the call sequences identified as NLEB. The manual review of calls supports the MLE classification of NLEB being likely absent from the project area.

Similar issues occur with the four call sequences identified as COTO. A manual review of these calls shows that the whole sequence is not consistent with expected COTO call characteristics. The calls were either very short, poor quality call sequences or longer sequences with low pulse match ratios across the entire sequence. Even when calls were identified as COTO, the MLE never dropped below 1.0000, indicating probable species absence. A cave in which COTO are known to roost occurs within 16 km of the northern terminus of the project, but in telemetry studies COTO

have not traveled more than 8 km (5 mi) during nightly foraging (Wethington et al. 1996); therefore, there absence is not surprising.

Because the bat survey effort was completed over three different survey periods (the two surveys conducted by ECHO and a mist net survey conducted by ESI at the southern terminus of the project), a table summarizing the overall findings for the project as a whole is provided in Table 10. The southern end of the project was designated as Section A in ECHO's previous habitat assessment and survey report. However, ESI uses their own coding system and the site identifiers used in their report are those included in Table 10 (ESI 2022). All sites beginning with KM were sites survey by ESI. The tri-colored bat is included in the table due to the species currently being considered for listing under the ESA. It is possible this data may be pertinent to the project in future years if the species is listed before the completion of the Interstate 49 project. The table summarizes the sites for which each species had probable presence.

Table 10. Summary of species presence/absence by survey site for species of concern.

	Species of Interest[2]				
Site [1]	Indiana Bat	NLEB	Gray bat	Ozark big-eared bat	Tri-colored bat
KM001A	–	–	–	–	–
KM001B	–	–	–	–	–
KM002A	–	–	–	–	–
KM002B	–	–	–	–	–
KM003A	–	–	–	–	–
KM003B	–	–	–	–	–
B1	–	–	X	–	–
B2	–	–	X	–	–
B3	–	–	X	–	–
B4	–	–	–	–	–
B5	–	–	X	–	–
B6	–	–	X	–	X
D1	–	–	X	–	X
D2	–	–	X	–	–
D3a	–	–	X	–	–
D3b	–	–	X	–	–
E1	–	–	X	–	–
E2	–	–	X	–	–
E3	–	–	–	–	–
F1	–	–	X	–	X
F2	–	–	X	–	–
G1	–	–	X	–	–
G2	–	–	X	–	–
G3	–	–	X	–	–
G4	–	–	X	–	X

[1] The KM sites were surveyed by ESI, with results submitted independent of this report (ESI 2022). The survey was a mist net survey and results were taken from their report to consolidate data into overall project summary.

[2] Species absence indicatied by (-) and species presence indicated by (X)

7.0 FUTURE RECOMMENDATION

In addition to a written report, all data will be entered into USFWS Region 4 Bat Reporting Spreadsheets and submitted to USFWS at the end of the survey season under permit TE33639D-0. The results of this study, along with the previous data from the May 2022 will be used to write a formal biological assessment for the project and to determine the effects of the project on endangered species. The additional survey points did not provide any additional data that would change the recommendations stated in previous survey report. Given a negative survey for Indiana bats and NLEB, projects can generally proceed without implementing avoidance and minimization measures (AMM) for these two species under the Programmatic Biological Opinion (PBO, USFWS 2018). However, this project is outside the scope of the PBO, namely due to tree removal exceeding 20 acres for each 5 miles of project; therefore, USFWS would have to approve that project's effects can fit within the programmatic even with negative surveys.

Coordination with USFWS will also be needed regarding the probable presence of gray bats. Best management practices generally include a foraging buffer of at least 10 miles around known roost sites in which time of day restrictions are used for construction activities, the removal of riparian vegetation is restricted during gray bat pup season, and preventative measures that protect water quality are implemented for work within the ordinary high-water mark. The difficulty with this project is the roost site of gray bats is unknown. The project area is more than 10 miles from caves in which gray bats are known to occur, but unknown roost sites closer than those known is possible. Effects to foraging habitat outside of critical buffers are generally considered insignificant when the amount of impacted habitat is small. However, given the size of the project as a whole and the amount of riparian vegetation affected (Arkansas River, Frog Bayou, Mays Branch, and Flat Rock Creek), USFWS may require AMMs in order to achieve a not likely to adversely affect determination for gray bats.

Negative surveys are valid for five years after the completion of the survey, unless USFWS deems a change in species status and/or distribution that warrants new studies. In March 2022, the USFWS proposed to reclassify NLEB as endangered rather than threatened. This reclassification is likely to take effect by the end of 2022. If NLEB is reclassified as endangered, the 4(d) rule exclusion that does not prohibit incidental take of NLEB will no longer apply. This change is anticipated; therefore, the current design and survey effort of this project meets guidelines for both Indiana bat and NLEB. Any habitat modifications and/or construction completed during the next five years should be covered under the results of this study. However, after five years, any additional construction not yet completed may require new bat surveys before work could continue.

8.0 LITERATURE CITED

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9.0 FIGURES

Figure 1. The Interstate 49 footprint extensions in Section B of project. One new area extends 1.8 km along Gun Club Road and the other extends 1.0 km east along the Arkansas River. Vegetation plot samples are denoted as (S) for containing suitable bat habitat and (NS) as not suitable habitat for bats. Datasheets for the vegetation new plot samples are provided in Appendix A.

Figure 2. Map of the Gun Club Road extension showing placement of acoustic site B5 along the riparian edge of Flat Rock Creek. Gun Club Road extension contains 14.5 acres of forested habitat.

Figure 3. Map of the Arkansas River footprint extension with the location of acoustic site B6 shown. Site B6 was moved during the survey. The new section contains approximately 87 acres of forested habitat. The green line shows an incorrect footprint that was used to justify the moving of the detector from the original proposed location. The habitat description of each vegetation plot sample is provided with datasheets in Appendix A.

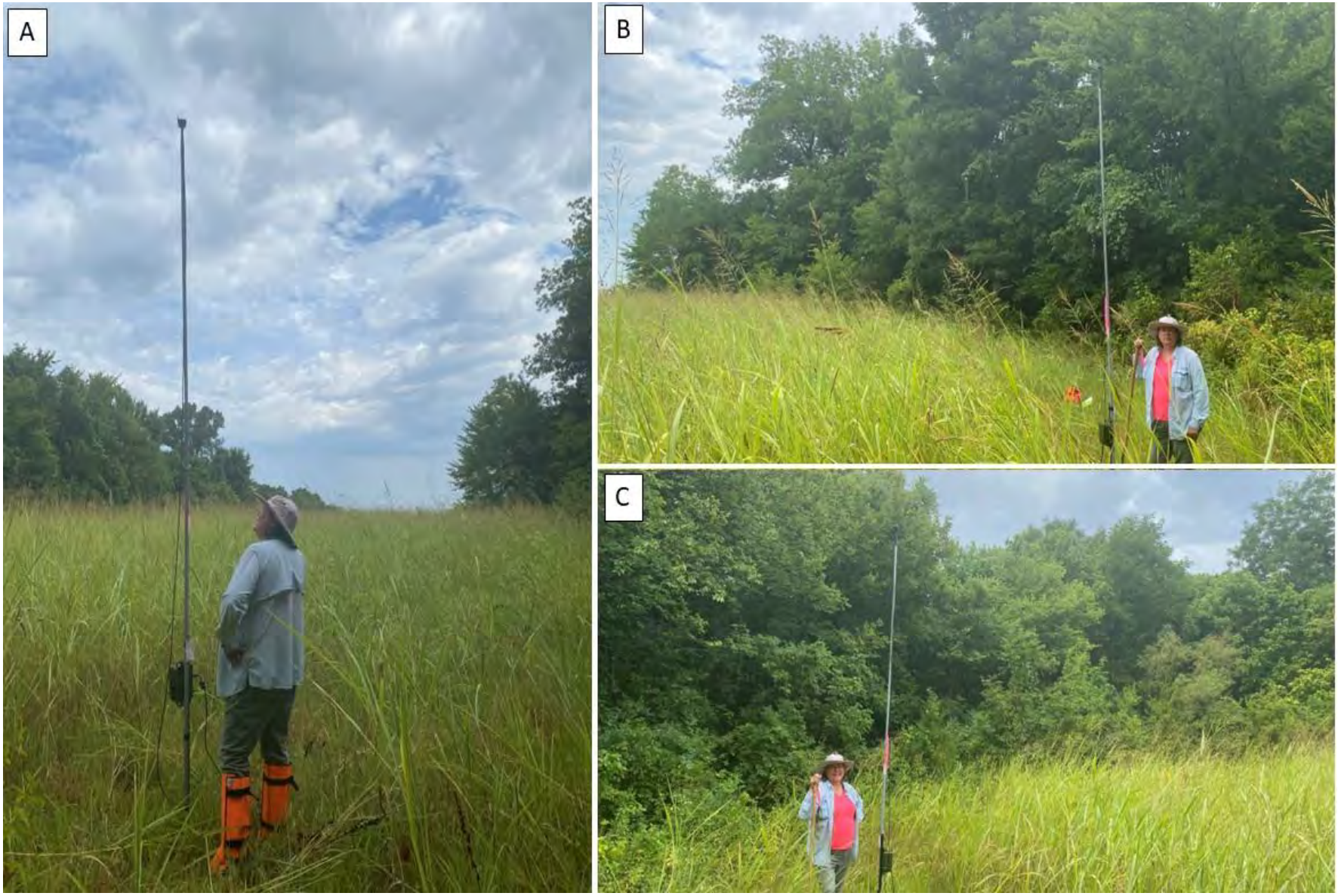

Figure 4. Photos of acoustic site B5 with SM4 detector and SMM-U2 microphone deployed. The survey site samples the riparian forest edge of Flat Rock Creek. The detector was placed in a U-shaped field with woodland edge on three sides of the detector. Photo A is the northern view into the field opening. Photo A and B are the eastern and western view, respectively, showing the riparian forest edge.

Figure 5. Photos of acoustic survey site B6-a with a SM4 detector and SMM-U2 microphone deployed. The acoustic site surveys a forest opening near the Arkansas River. The ground is covered by shrubs and vines, but the microphone extends 2 m above ground vegetation (photo A). Photo B is a distant photo (northern view) showing the microphone above the ground vegetation and extending into the forest opening. Photo C shows a potential roost tree (PRT) located 10 m west of the detector (microphone is obscured behind foreground vegetation).

`

Figure 6. Photos of acoustic site B6-b with a SM4 detector and a SMM-U2 microphone deployed. Photo A shows the western view of the forest edge, and Photo B shows the southeastern view into forest clearing. A vehicle in the background shows the location of a two-track road that creates an open flyway through the forest.

Figure 7. An example of a call sequence identified as gray bat that is highly consistent with the expected call parameters for the species. Manual review of the call sequence agrees with the automated classification as a gray bat. The pulse match ratio of the sequence was 0.912 across a sequence of 34 consistent pulses.

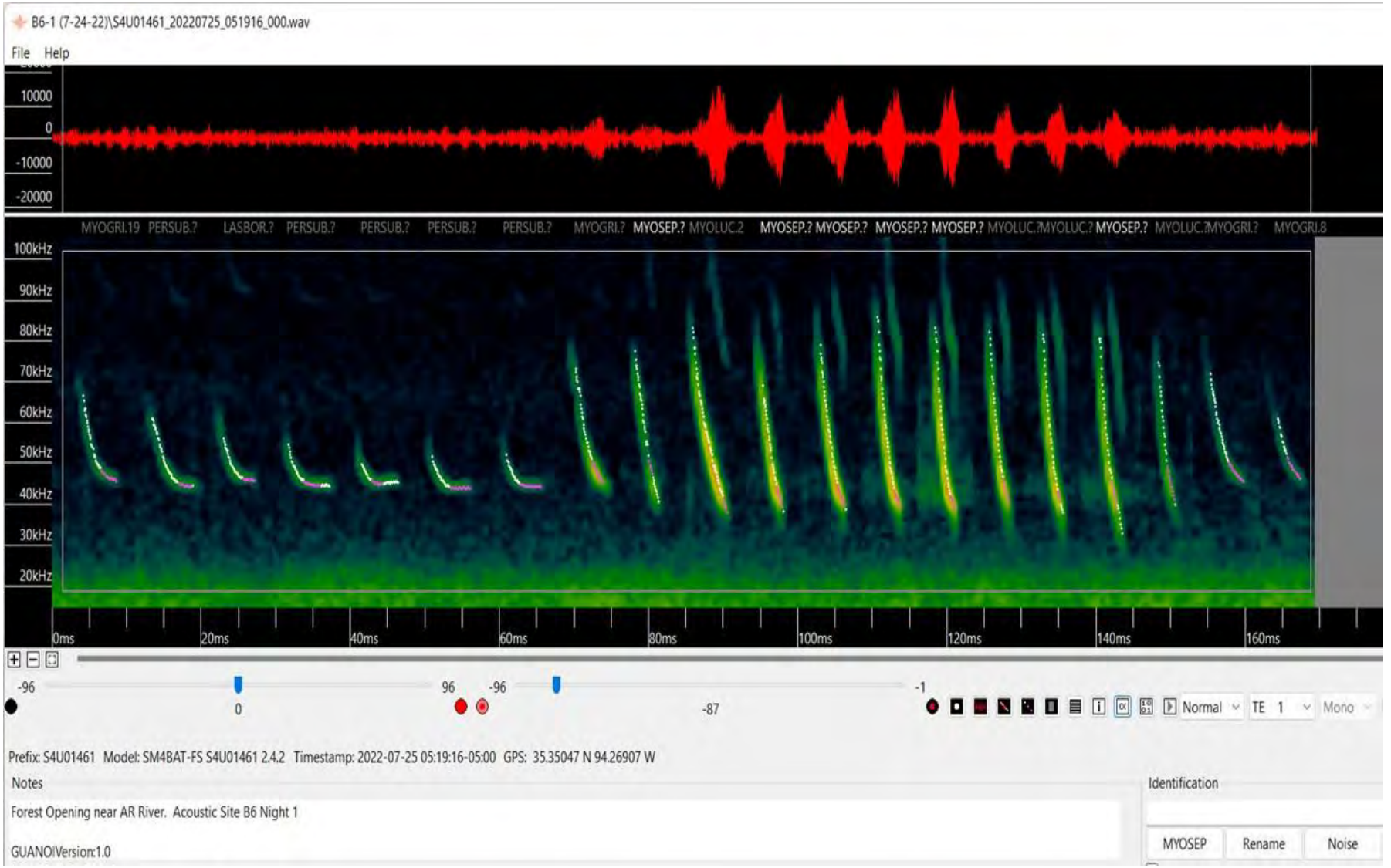

Figure 8. An example of a call sequence identified as NLEB that is likely a tri-colored bat during a feeding buzz. The first seven pulses are consistent with tri-colored bats, but the call characteristics shift to steep- higher frequency calls as the bat needs to hone in on prey. Because the feeding buzz represents a large portion of the call sequence, it results in the misidentification of NLEB.

10.0 APPENDIX A: DATA SHEETS

Data sheets are provided on the following pages.

Acoustic Monitoring Data Sheet

Project name: I-49 Relocation Site ID: B5

Lat/Long: 35.33286, -94.28084 County/State: Crawford

GPS satellite resolution (m): 1 Elevation: 376ft

Monitoring times: 24 hr or (sunset-sunrise)

Start date: 24 July 22 End date: 28 July 22

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat FS Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -28.7 dB Weatherproofing: N/A

Microphone: height 5 m horizontal orientation N/A vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 10 m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Forest edge in U-shaped clearing along Flat Rock Creek riparian corridor.

Acoustic Monitoring Data Sheet

Project name: I-49 Relocation Site ID: B6-a

Lat/Long: 35.34134, -94.27960 County/State: Sebastian

GPS satellite resolution (m): 1 Elevation: 394 ft

Monitoring times: 24 hr or (sunset-sunrise)

Start date: 24 July 2022 End date: 26 July 2022

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat FS Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -26.3 dB Weatherproofing: N/A

Microphone: height 4m horizontal orientation N/A vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 7m Distance to roost site: 10 m (PRT)

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Forest opening ~250m N of Arkansas River. PRT @ center of forest opening. Bottomland, forested wetland in floodplain.

Acoustic Monitoring Data Sheet

Project name: I-49 Relocation Site ID: B6-b

Lat/Long: 35.34633, -94.27922 County/State: Sebastian

GPS satellite resolution (m): 1 Elevation: 360ft

Monitoring times: 24 hr or (sunset-sunrise)

Start date: 26 July 2022 End date: 28 July 2022

Recording verified: (Yes) or No Method of verification: finger rubbing or (calibrator)

Detector Information

Detector type: SM4 Bat FS Microphone type: SMM-U2

Microphone directionality: directional hemispherical or (omni-directional)

Microphone sensitivity: -27.4 dB Weatherproofing: N/A

Microphone: height 4m horizontal orientation N/A vertical orientation 90°

Recording type: zero-cross reference or (full spectrum)

Distance to nearest vegetation: 6 m Distance to roost site: N/A

Personnel conducting survey

Site selected by: Elizabeth Burba Detector deployed by: Elizabeth Burba

General habitat description (take pictures to document):

Forest clearing of shrub/grassland. Located on forest edge next to 2-track road corridor. Trees are cottonwood, Hackberry, Brodford Pear, + Elm saplings

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 1 Start Date: 7/24/22

Sunset Time: 20:26 Sunrise Time: 6:20

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:26

Weather Source: KARVANBU 33 Max temp: 95.7 Min temp: 79.7

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	Ø	—	—	Y
Rainfall	N	Ø	—	—	Y

Project name: I-49 Relocation

Survey Night No.: 2 Start Date: 7/25/22

Sunset Time: 20:26 Sunrise Time: 06:21

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:26

Weather Source: KARVANBU33 Max temp: 93.7 Min temp: 80.6

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	5.5	—	I	Y
Rainfall	N	Ø	—	—	Y

Weather Conditions Data Sheet

Project name: I-49 Relocation

Survey Night No.: 3 Start Date: 7/26/22

Sunset Time: 20:25 Sunrise Time: 06:22

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:25

Weather Source: KARVANBU 33 Max temp: 97.1 Min temp: 82.0

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	6.2	–	I	Y
Rainfall	N	Ø	–	–	Y

Project name: I-49 Relocation

Survey Night No.: 4 Start Date: 7/27/22

Sunset Time: 20:24 Sunrise Time: 06:23

Type of Survey: mist-net or (acoustic) Time at 5 hrs into survey: 01:24

Weather Source: KARVANBU 33 Max temp: 95.9 Min temp: 82.9

Weather	Condition Present? Y or N	Max Amount	Duration	Intermittent (I) or Continuous (C)	Survey Condition Valid? Y or N
Wind > 9 mph	N	7.6	–	I	Y
Rainfall	N	Ø	–	–	Y

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy, sunny			**Latitude:**	35.351837	**Longitude:**	-94.270412
Map ID Number:	157	**Plot Number:**	60	**Plot Size:**	5 FT radius	**Percent Canopy:**	0

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
								Sorghum halepense	98
								Nekemias arborea	1
								Apocynum cannabinum	1
								Vines:	

Comments:
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

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Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy			**Latitude:**	35.349594	**Longitude:**	-94.275935
Map ID Number:	157	**Plot Number:**	61	**Plot Size:**	30 FT radius	**Percent Canopy:**	90

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Acer negundo	7	Y	20-50	4-26	9.7	*Acer negundo*	80	*Parthenocissus quinquefolia*	20
Celtis occidentalis	1	N	25	5	5	*Gleditsia triacanthos*	2	*Rubus trivialis*	15
Platanus occidentalis	1	Y	60	42	42	*Ligustrum sinense*	16	*Ligustrum sinense*	10
Juglans nigra	2	Y	50-60	21-25	23	*Ulmus americana*	2	*Ilex decidua*	15
Populus deltoides	1	Y	65	36	36				
Fraxinus pennsylvanica	1	N	50	15	15				
								Vines:	
								Nekemias arborea	3

Comments:
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

Harbor

VEGETATION ASSESSMENT DATA FORM

Date:	7-28-22	**Project Description:**	I-49 Supplemental EIS Re-Evaluation & Biological Assessment Hwy 22 – I-40 (Arkansas River)				
Weather Conditions:	Hot, muggy, overcast			**Latitude:**	35.350191	**Longitude:**	-94.272536
Map ID Number:	157	**Plot Number:**	62	**Plot Size:**	30 FT radius	**Percent Canopy:**	80

Tree Species and Number Measured		Dominant (Y/N)	Tree Height Range (FT)	Tree DBH Range (IN)	Tree DBH Average (IN)	Dominant Sapling/Shrub Species and Percent Cover		Dominant Herbaceous Species and Percent Cover	
Celtis laevigata	6	Y	25-40	4-10	6.8	*Fraxinus pennsylvanica*	15	*Chasmanthium latifolia*	15
Celtis occidentalis	2	N	30	6-9	7.5	*Celtis occidentalis*	5	*Ilex decidua*	5
Morus rubra	1	N	40	31	31	*Celtis laevigata*	5	*Rubus trivialis*	3
Populus deltoides	2	Y	50-65	9-38	23.5	*Ilex decidua*	3		
Fraxinus pennsylvanica	11	Y	30-60	7-20	11.6				
Acer negundo	1	N	30	7	7				
								Vines:	
								Nekemias arborea	5
								Vitis spp.	2

Comments:
Roost tree noted within 30-FT plot.
Sapling/shrub species evaluated with a 15 FT radius plot size; herbaceous species evaluated with a 5 FT radius plot size. Vine stratum evaluated with a 30 FT radius plot size.

Appendix E: Mussel Survey Report

Assessment of Frog Bayou Mussel Resources in the Vicinity of the Proposed I-49 Extension, Crawford and Sebastian Counties, Arkansas

Final Report

January 21, 2022

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10846 Plantation Lake Road
Scott, Arkansas 72142

Assessment of Frog Bayou Mussel Resources in the Vicinity of the Proposed I-49 Extension, Crawford and Sebastian Counties, Arkansas

Introduction

The proposed I-49 Extension project extends from the Arkansas Highway 22 Interchange near Barling south of the Arkansas River northward to the I-40/I-540 Interchange immediately west of Alma and has a project length of approximately 13.7 miles (22.0 kilometers) (Figure 1). Frog Bayou mussel resources have been investigated and reported by Gordon (1980, 1985) and Bouldin *et al*. (2013). Gordon (1985) reported Scaleshell, *Leptodea leptodon* (Rafinesque 1820), now recognized as *Potamilus leptodon* (Rafinesque 1820) (Smith *et al*. 2020, FMCS 2022), from one site near Rudy, AR approximately 6.8 stream miles (10.5 stream km) upstream of the proposed project area. The voucher specimen(s) from this site, one right valve and one left valve, appear to be from different individuals, although Gordon (1980) stated the valves were from one specimen "collected from a very small riffle with rubble substrate." Gordon (1980) noted "The Frog Bayou specimen had been recently smothered by silt due to the bulldozing of the stream bank a short distance upstream." The vouchers are now housed at the North Carolina Museum of Natural History as NCSM 87447. The Scaleshell is currently listed as a federally protected endangered species.

Methods

Frog Bayou was surveyed over a 3-day period during July 7-8, 2021 and August 11, 2021. Survey effort during this assessment was focused on areas deemed suitable habitat for Scaleshell, and additional survey effort was concentrated at the proposed highway facility crossing of Frog Bayou. Good quality sites with evidence of mussel assemblages (live or dead shell visible) were time searched. The study was conducted using both snorkeling and hookah dive techniques. In addition, depositional areas (gravel bars, overflow secondary channels, vegetated channels) were searched for fresh dead shells. The study area extended from a private access south of Collum Lane in Alma and west of I-540 downstream to the confluence with the Arkansas River at Clear Creek, a total distance of approximately 9.3 river miles (15 stream km) (Figure 2). The entire length was traversed using a canoe on the upstream portion and a 14-foot long jon-boat propelled by a 2.5-hp motor on the downstream portion.

All mussels encountered were identified to species, recorded on site specific data sheets with GPS site coordinates included, and the mussels replaced in the substrate where collected. Coordinates were obtained with a Garmin GPSMAP 64st receiver. Nomenclature generally follows Williams *et al*. (2017) except where modified by recent research as documented by the FMCS Common and Scientific Names subcommittee (FMCS 2022). Catch per unit effort (CPUE) values were calculated as the number of live mussels obtained per 10 minutes of search effort.

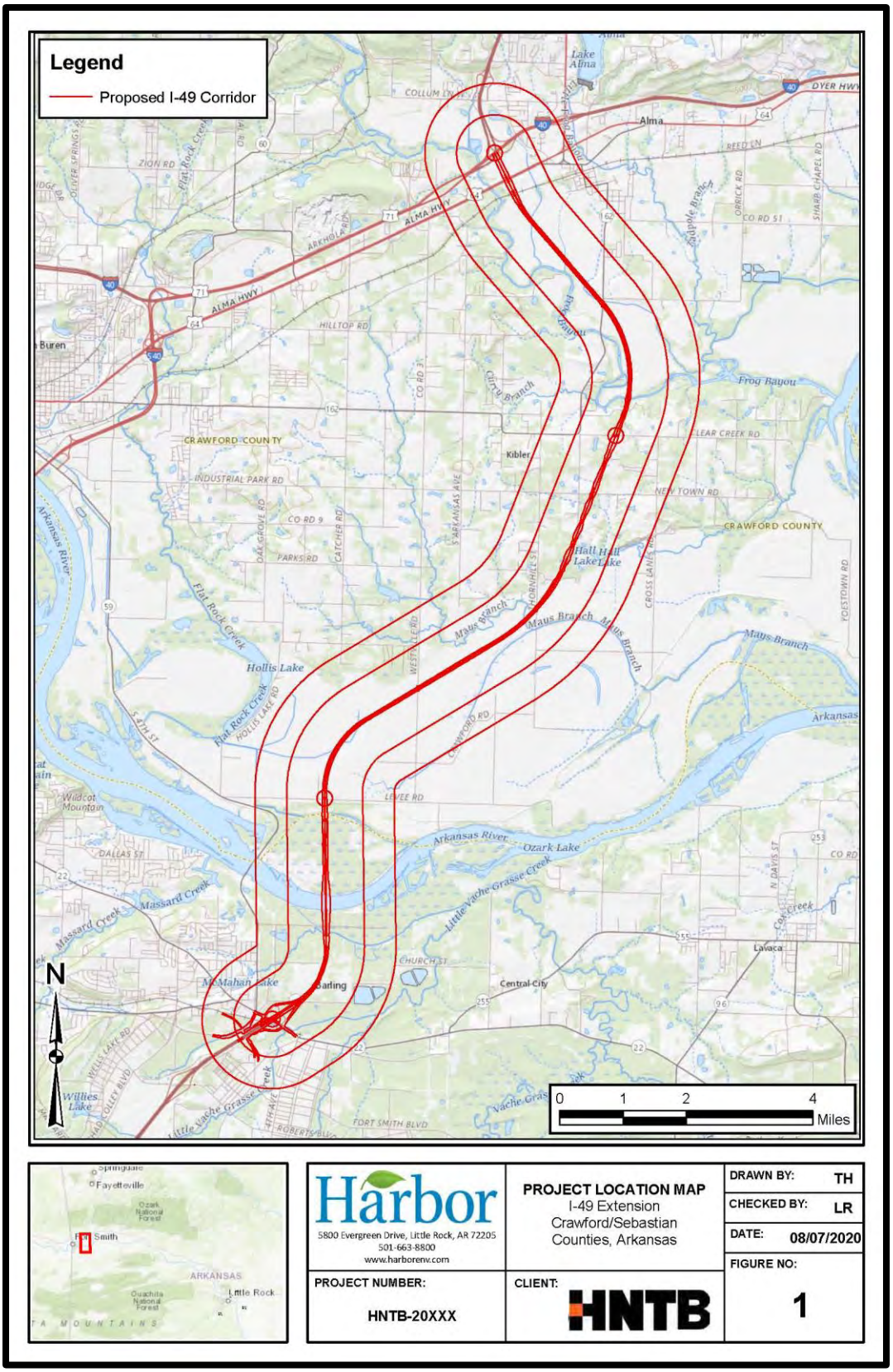

Figure 1. Proposed I-49 project location.

Figure 2. Mussel sample site locations (orange circles).

Results

There were 18 Frog Bayou sites surveyed (see Figure 2) with a search effort of 14.8 person-hours, and the results are summarized in Table 1. Field data sheets are in Appendix A. A total of 704 live mussels representing 13 species was collected, and two additional species were documented from dead shells only. Live mussels were dominated by Mucket, *Actinonaias ligamentina* (Lamarck 1819) (31.7%), Pistolgrip, *Tritogonia verrucosa* (Rafinesque 1820) (20%), and Bleufer, *Potamilus purpuratus* (Lamarck 1819) (16.2%). Bleufer was also the most widely distributed species occurring at 12 of 18 sites (66.7%). Live mussels were found at 13 of 18 sites (72.2%). CPUE values ranged from 0 to 20.6, and CPUE was < 1.0 at 7 of 18 (~39%) sites surveyed. All live species found during the survey have conservation rankings of Secure (S5) or Apparently Secure (S4) in Arkansas (Harris and Posey 2015). Only the two *Toxolasma* species found as relict shells are considered Vulnerable (S3) in the state. No live or dead Scaleshell were found. No live or dead native mussels were found within the proposed right-of-way (Sites 12-14) for the interstate highway facility Frog Bayou crossing.

Discussion and Conclusions

Bouldin *et al*. (2013) sampled four sites over 7.6 stream miles (12.2 stream km) corresponding to the most downstream portion of the present survey area. Bouldin *et al*. (2013) found four species not reported in the present survey including Elktoe, *Alasmidonta marginata* Say 1818 (S3); *Lampsilis sp*. A cf *hydiana* (S3); Fragile Papershell, *Potamilus fragilis* (Rafinesque 1820) (S5); and Pondmussel, *Sagittunio subrostratus* (Say 1831) (S4). Three of the four species were represented by a single specimen, and only Fragile Papershell was represented by more than one with six specimens from two sites. Additionally, one species reported by Bouldin *et al*. (2013), Southern Mapleleaf, *Quadrula apiculata* (Say 1829), is now considered a junior synonym of Mapleleaf, *Quadrula quadrula* (Rafinesque 1820).

The highest catch per unit effort (CPUE) values obtained during this survey were at sites 5 (CPUE 17.8), 7 (21.0), and 8 (20.6). These sites were upstream of AR Highway 162 and in the upstream half of the study area. Live mussel densities at the three sites were estimated to be in the 3-5/m^2 to 5-10/m^2 ranges. Habitat features in common included cobble, gravel, sand or rock, gravel, sand substrates and medium to swift water velocities over at least portions of the sites. Gordon (1985) noted that Frog Bayou at the mouth was inundated by backwater from Ozark Lake of the McClellan-Kerr Arkansas River Navigation System. During the July 7-8 field work for the present survey, we noted that backwater extended upstream to at least the confluence with Prairie Creek, which is approximately 1.0 stream km upstream of the proposed I-49 Frog Bayou crossing. The effect of this periodic inundation and modifications to Frog Bayou hydraulic characteristics is reflected in the low species richness and low CPUE at Sites 12-18.

Twenty-two native mussel species have been documented from Frog Bayou along with the invasive Asian Clam, *Corbicula fluminea* (Müller 1774) (Gordon 1980, 1985; Bouldin *et al*.

Map Number	1	2	3	4	5	6	7	8	9	10	11
Site Number	2021070 7:01	202107 07:02	2021070 7:03	2021070 7:04	2021070 7:05	2021070 7:06	2021070 7:07	202107 07:08	202107 08:01	202107 08:02	202107 08:03
Species											
Actinonaias ligamentina	0	0	12, 1D	1D	23	1	42, 1D	20	0	8	13, 1D
Amblema plicata	0	0	0	0	5	0	0	5	0	0	0
Fusconaia flava	0	0	1, 1D, 1v	0	6	0	0	1	0	0	0
Lampsilis cardium	2D, 1v	4, 1 D	15, 4D	0	0	3	4	6, 1D	5	6	12
Lampsilis teres	0	0	2, 1D	0	0	0	0	0	0	0	0
Lasmigona complanata	0	0	0	0	1D	0	0	0	0	1	0
Lasmigona costata	0	1	7, 1D	0	37	0	6, 1D	3	0	5, 1D	4
Obliquaria reflexa	1D	0	1	0	13	0	1	13, 4D	2	1, 3D	9
Potamilus purpuratus	1, 5D, 1v	6, 1D	15, 2D	1D	25	0	9, 4D	28	4, 1D	9, 6D	7, 4D
Quadrula quadrula	0	0	2	0	1	0	1	0	0	1, 1D	2, 2D
Strophitus undulatus	0	0	1	0	0	0	1	0	0	0	0
Toxolasma lividum	0	0	0	0	0	0	0	0	0	1D	0
Toxolasma parvum	1v	0	0	0	0	0	0	0	0	0	0
Tritogonia verrucosa	2D	3	8	1v	19	0	20	26	2	30, 4D	32, 5D
Truncilla truncata	0	1D	0	0	6	0	0	5	0	0	2, 1D
Total Live	1	14	64	0	135	4	84	107	13	61	81
Search Time (minutes)	64	56	56	42	76	32	40	52	46	106	78
CPUE / 10 minutes	0.2	2.5	11.4	0.0	17.8	1.3	21.0	20.6	2.8	5.8	10.4
Latitude	35.48317	35.47876	35.47673	35.47257	35.47132	35.46068	35.45910	35.4614	35.45224	35.44955	35.44791
Longitude	94.24699	-94.24615	-94.24342	-94.24112	-94.24289	-94.24024	-94.23396	-94.23099	-94.22742	-94.21951	-94.21519

Table 1. Sample site results. D = dead mussels, shell only. v = single valve.

Map Number	12	13	14	15	16	17	18				
Site Number	202108 11:01	202108 11:02	202108 11:03	202108 11:04	202108 11:05	202108 11:06	202108 11:07	Total Live	% Total Live	Frequency Occurrence	% Frequency
Species											
Actinonaias ligamentina	0	0	0	4, 1D	0	0	0	223	31.7	9	50.0
Amblema plicata	0	0	0	0	2, 1D	0	0	12	1.7	3	16.7
Fusconaia flava	0	0	0	0	0	0	0	8	1.1	3	16.7
Lampsilis cardium	0	0	0	10	3D	0	0	65	9.2	11	61.1
Lampsilis teres	0	0	0	1	1, 3D	1D	0	4	0.6	4	22.2
Lasmigona complanata	0	0	0	0	0	0	0	1	0.1	2	11.1
Lasmigona costata	0	0	0	0	0	0	0	63	8.9	7	38.9
Obliquaria reflexa	0	0	0	4, 1D	3, 2D	0	0	47	6.7	10	55.6
Potamilus purpuratus	0	0	0	6	4, 2D	0	0	114	16.2	12	66.7
Quadrula quadrula	0	0	0	2, 1D	3D	0	1	10	1.4	8	44.4
Strophitus undulatus	0	0	0	1	0	0	0	3	0.4	3	16.7
Toxolasma lividum	0	0	0	0	0	0	0	1D	0.0	1	5.6
Toxolasma parvum	0	0	0	1v	0	0	0	1v	0.0	1	5.6
Tritogonia verrucosa	0	0	0	1	0	0	0	141	20.0	11	61.1
Truncilla truncata	0	0	0	0	0	0	0	13	1.8	4	22.2
Total Live	0	0	0	28	10	0	1	704	99.8	13	72.2
Search Time (minutes)	42	48	20	62	36	18	16	890			
CPUE / 10 minutes	0	0	0	4.5	2.8	0	0.6	7.9			
Latitude	35.43699	35.43716	35.43736	35.43768	35.44083	35.44167	35.43984				
Longitude	-94.21201	-94.21107	-94.20998	-94.20672	-94.19668	-94.18794	-94.17388				

Table 1 (continued). Sample site results. D = dead mussels, shell only. v = single valve of dead mussel.

2013; this study). Frog Bayou mussel assemblages located to date have not been exceptionally species rich, dense, and/or extend over large areas. The only species with protective status is Scaleshell, a federal endangered species, and evidence of its occurrence in Frog Bayou is restricted to a single site sampled in the late 1970s or 1980. No other Scaleshell occurrences have been documented.

Construction of the proposed I-49 Extension project should have no adverse effects to the Frog Bayou mussel fauna if appropriate erosion and sediment control measures are implemented in a timely manner and built and maintained to specifications. Effective erosion control measures in the vicinity of sample sites 5, 7, and 8 are particularly important to minimizing adverse effects to Frog Bayou mussel resources as a result of construction of the proposed project.

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Appendix A

Field Data Sheets (Chronological Order)

Frog Bayou

Site Number: 20210707:01

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: bedrock, cobble, rock, gravel, sand	Width: 27 m
Latitude: 35.48317	Longitude: -94.24699

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 350 m upstream of I-40 crossing just W of I-540 and 2.01 air km WSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		1
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	1	5, 1v
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium		2, 1v	*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		2
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 0944

Stop Search: 1016

Notes: 1 individual wading and walking depositional areas (JMB), 1 individual snorkeling (JLH). Water visibility good. Worked ca. 150 m upstream of lat/long point snorkeling and wading; only collected (by walking) a short distance downstream of point. Max. water depth 0.9 - 1.2 m. Water velocity moderate to swift. Worked 2 riffles with 1 pool in between. 2 pics taken. A fair amount of bank erosion was noticed, especially along left descending bank.

Site Number: 20210707:02

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: silt, sand, cobble, gravel, rock	Width: 17 m
Latitude: 35.47876	Longitude: -94.24615

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 125 m downstream of I-40 eastbound exit to Alma and 2.15 air km SW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	6	1
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	4	1	*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	3	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		1
Lasmigona costata	1		*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1047

Stop Search: 1115

Notes: 1 individual wading and walking depositional areas (JMB), 1 individual snorkeling (JLH). JMB snorkeled for 14 minutes also. Visibility fair to good. Worked ca. 80 m upstream of lat/long point snorkeling and wading - right descending channel. Channel seemed stable at this location. Max. water depth 0.9 - 1.2 m. Water velocity slow. Worked 1 run/pool. Mussels scattered - habitat pretty good but immediately downstream of interstate, so no telling what has entered the stream over the years. Found a bowling ball in the Bayou at this site.

Site Number: 20210707:03

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, rock, silt, sand	Width: 13 m (downstream of island)
Latitude: 35.47673	Longitude: -94.24342

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou on upstream side of U.S. Hwy 64 in the two left descending channels.

	Live	Dead		Live	Dead
Actinonaias ligamentina	12	1	*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	1	
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	15	2
Fusconaia flava	1	1, 1v	*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	15	4	*Quadrula quadrula*	2	
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*	1	
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	8	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres	2	1	*Truncilla truncata*	1	
Lasmigona costata	7	1	*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1141

Stop Search: 1209

Notes: 2 individuals wading in shallows and walking depositional areas. Worked ca. 67 m upstream of lat/long point . Channel seemed stable at this location with good substrate. Max. water depth 1.8 m at upstream end of search area. Water velocity slow to moderate; visibility good. Worked the 2 left descending channels separated by *Justicia* island. Mussels found in faster riffle flow, but most found in side water with slow flow. Most mussels found in shallow water; 0.3 - 0.6 m depth.

Site Number: 20210707:04

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, rock, silt	Width: 24 m
Latitude: 35.47257	Longitude: -94.24112

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 270 m downstream of railroad crossing downstream of U.S. Hwy 64 and ca. 2.24 air km WSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina		1	*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		1
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		1v
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1311 | Stop Search: 1332

Notes: 1 individual snorkel, 1 individual wading in shallows and walking depositional areas. Worked ca. 100 m upstream of lat/long point upstream of head of riffle in pool and backwater area. Max. water depth 1.8 m. Water velocity slow; visibility fair to good. Thought there might be mussels at head of riffle and in backwater area, but nothing found.

Site Number: 20210707:05

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: rock, gravel, sand, silt	Width: 15 m
Latitude: 35.47132	Longitude: -94.24289

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.49 km downstream of railroad crossing downstream of U.S. Hwy 64 and ca. 2.49 air km WSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	23		*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	13	
Amblema plicata	5		*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	25	
Fusconaia flava	6		*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*	1	
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	19	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*	6	
Lasmigona costata	37		*Uniomerus declivis*		
Lasmigona complanata		1	*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)	✓	✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1345 | Stop Search: 1423

Notes: 1 individual snorkeling, 1 individual wading with view bucket. Worked ca. 45 m upstream of lat/long point in run with slow/moderate flow. Max. water depth 0.9 - 1..2 m, visibility fair to good. Max mussel density 5-10/m². Mussels gone once past the head of the downstream riffle. Best substrate encountered so far.

Site Number: 20210707:06

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: gravel, sand, rock	Width: 9 m
Latitude: 35.46068	Longitude: -94.24024

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 2.11 km downstream of railroad crossing downstream of U.S. Hwy 64 and ca. 3.4 air km SSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	1		*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	3		*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1517

Stop Search: 1533

Notes: 1 individual snorkeling, 1 individual wading with view bucket. Worked ca. 42 m upstream and 25 m downstream of lat/long point in right descending channel - riffle and eddy with moderate flow velocity. Depth 0.6 m, visibility good.

Site Number: 20210707:07

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, gravel, sand	Width: 16 m
Latitude: 35.45910	Longitude: -94.23396

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 2.86 km downstream of railroad crossing downstream of U.S. Hwy 64 and ca. 3.4 air km SSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	42	1	*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	1	
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	9	4
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	4		*Quadrula quadrula*	1	
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*	1	
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	20	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata	6	1	*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1601 | Stop Search: 1621

Notes: 1 individual snorkeling, 1 individual wading with view bucket. Worked ca. 46 m upstream and 10 m downstream of lat/long point. Mussels in run starting ca. 10 m downstream of riffle head and most mussels in left descending half of channel. Velocity slow to moderate, visibility fair to good. Max. mussel density 3-5/m².

Site Number: 20210707:08

Arkansas Freshwater Bivalves Field Data Sheet

Date: 7 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, gravel, sand	Width: 11 m
Latitude: 35.46140	Longitude: -94.23099

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 2.64 km upstream of Ar Hwy 162 and ca. 3.1 air km SSW of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	20		*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	13	4
Amblema plicata	5		*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	28	
Fusconaia flava	1		*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	6	1	*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	26	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*	5	
Lasmigona costata	3		*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1645

Stop Search: 1711

Notes: 1 individual snorkeling and 1 individual with view bucket; visibility fair to good. Worked ca. 65 m upstream and 38 m downstream of lat/long point. Worked run - riffle -r un and most mussels in right descending half of channel. moderate to swift, visibility fair to good. Max. mussel density 3-5/m². Water depth 0.3 - 0.6 m.

Site Number: 20210708:01

Arkansas Freshwater Bivalves Field Data Sheet

Date: 8 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: rock, cobble, gravel, sand/silt	Width: 25 m
Latitude: 35.45224	Longitude: -94.22742

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 1.10 km upstream of AR Hwy 162 and ca. 4.09 air km S of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	2	
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	4	1
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	5		*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	2	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)	✓	✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 0953

Stop Search: 1016

Notes: 1 individual snorkeling, 1 individual wading and snorkeling. Worked ca. 83 m upstream and 30 m downstream of lat/long point. Worked bottom of a riffle/run and eddy backwater. Water velocity moderate, depth 0.6 - 0.9 m; visibility fair to good. Live mussels found were in eddy along right descending side of channel.

Site Number: 20210708:02

Arkansas Freshwater Bivalves Field Data Sheet

Date: 8 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, rock slabs, gravel/sand, boulders	Width: 5 m in riffle, 40 m where channels merge downstream
Latitude: 35.44955	Longitude: -94.21951

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.17 km upstream of AR Hwy 162 and ca. 4.42 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	8		*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	1	3
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	9	6
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	6		*Quadrula quadrula*	1	1
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		1
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	30	4
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata	5	1	*Uniomerus declivis*		
Lasmigona complanata	1		*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)	✓	✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1057

Stop Search: 1150

Notes: 1 individual snorkeling, 1 individual wading and snorkeling. Worked ca. 115 m upstream and 20 m downstream of lat/long point. Left descending channel clogged with large woody debris, unstable with additional treefall likely. Right descending channel with riffle/run - water velocity moderate to swift. Most live mussels found at head of riffle where two channels diverge - most at head of right descending channel. Water velocity moderate, depth 0.6 - 0.9 m; visibility good.

Site Number: 20210708:03

Arkansas Freshwater Bivalves Field Data Sheet

Date: 8 July 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: cobble, rock, gravel/silt/sand	Width: 10 m in riffle
Latitude: 35.44791	Longitude: -94.21519

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.26 km downstream of AR Hwy 162 and ca. 4.67 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	13	1	*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	9	
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	7	4
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	12		*Quadrula quadrula*	2	2
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	32	5
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*	2	1
Lasmigona costata	4		*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)	✓	✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1313

Stop Search: 1352

Notes: 1 individual snorkeling, 1 individual wading and snorkeling. Visibility good. Worked ca. 28 m upstream and 75 m downstream of lat/long point. Water velocity moderate to swift. Most live mussels found at head of riffle upstream, not many found in run downstream. Water depth 0.3 - 1.2 m. Site appears more unstable than previous sampling - bank instability and bedload movement coming from upstream. Site appears to be in jeopardy for the future.

Site Number: 20210811:01

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: bedrock, sand, silt, gravel, large woody debris	Width: 20 m
Latitude: 35.43699	Longitude: -94.21201

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.83 km downstream of Prairie Branch confluence and 2.32 km upstream of Little Frog Bayou confluence, and ca. 5.91 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)	✓	✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1005 | Stop Search: 1036

Notes: 1 individual snorkeling, 1 individual wading and snorkeling. Visibility fair to poor. Worked ca. 89 m upstream and 30 m downstream of lat/long point. Water velocity moderate. No live or relict shells found - only a few *Corbicula* seen and these were very small. Water depth 0.3 - 1.2 m. Site 90% bedrock, silt / sand at downstream edge. The upstream edge of this site is upstream limit of proposed interstate ROW.

Site Number: 20210811:02

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: sand, silt, gravel, cobble, organics	Width: 35 m
Latitude: 35.43716	Longitude: -94.21107

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.96 km downstream of Prairie Branch confluence and 2.22 km upstream of Little Frog Bayou confluence, and ca. 5.93 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)			*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1100 | Stop Search: 1148

Notes: 1 individual diving. Visibility fair to poor. Worked ca. 15 m upstream and 15 m downstream of lat/long point. Water velocity slow. Water depth ca. 1.5 m. This site is on the center line of the proposed interstate ROW. Worked three longitudinal transects 15 m upstream and 15 m downstream of center line. Transects along right descending third, center third, and left descending third of channel. No live or dead mussels found.

Site Number: 20210811:03

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: sand in middle, left descending bank side silt	Width: 35 m
Latitude: 35.43736	Longitude: -94.20998

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 1.07 km downstream of Prairie Branch confluence and 2.11 km upstream of Little Frog Bayou confluence, and ca. 5.93 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)			*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1245 | Stop Search: 1305

Notes: 1 individual diving. Visibility fair to poor. Worked ca. 15 m upstream and 15 m downstream of lat/long point. Water velocity slow to no flow. Water depth ca. 1.5 m. This site is on the eastern boundary of the proposed interstate ROW. Worked three longitudinal transects 15 m upstream and 15 m downstream of center line. Transects along right descending third, center third, and left descending third of channel. No live or dead mussels found.

Site Number: 20210811:04

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: gravel, sand, large woody debris	Width: 5 - 35 m
Latitude: 35.43768	Longitude: -94.20672

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 1.37 km downstream of Prairie Branch confluence and 1.81 km upstream of Little Frog Bayou confluence, and ca. 5.94 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina	4	1	*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	4	1
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	6	
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium	10		*Quadrula quadrula*	2	1
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*	1	
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		1v
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*	1	
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres	1		*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)		✓	*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1324 | Stop Search: 1355

Notes: 1 individual snorkeling, 1 individual walking gravel bar. Visibility fair. Worked ca. 30 m upstream and 40 m downstream of lat/long point. Water velocity slow to moderate. Water depth ca. 0.3 - 1.2 m. This site is ca. 300 m downstream of the eastern boundary of the proposed interstate ROW. Found some mussels at top of riffle/bottom of pool in gravel substrate but most found in riffle with moderate flow, gravel/sand substrate, shallow water.

Site Number: 20210811:05

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: sand, cobble, gravel	Width: 45 m
Latitude: 35.44083	Longitude: -94.19668

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.78 km upstream of Little Frog Bayou confluence, and ca. 5.98 air km SSE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*	3	2
Amblema plicata	2	1	*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*	4	2
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium		3	*Quadrula quadrula*		3
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres	1	3	*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)			*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1432 | Stop Search: 1450

Notes: 2 individuals walking shoreline and edges along right descending bank. Visibility fair. Worked ca. 140 m upstream and 75 m downstream of lat/long point. Water velocity non-detectable.

Site Number: 20210811:06

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: silt/sand	Width: 66 m
Latitude: 35.44167	Longitude: -94.18794

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 0.16 km downstream of Little Frog Bayou confluence, and ca. 6.30 air km SE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*		
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres		1	*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)			*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1510

Stop Search: 1519

Notes: 1 individual diving, 1 individual walking sandbar on left descending bank. Visibility poor. Max depth to ca. 3.7 m. Water velocity non-detectable. No live mussels.

Site Number: 20210811:07

Arkansas Freshwater Bivalves Field Data Sheet

Date: 11 August 2021	Drainage: Arkansas River
County: Crawford	Quad: Alma 7.5'
Substrate: shale, clay, mud	Width: 65 m
Latitude: 35.43984	Longitude: -94.17388

Collectors: J. L. Harris, J. M. Burns

Location: Frog Bayou ca. 1.52 km downstream of Little Frog Bayou confluence and ca. 0.97 km upstream of Arkansas River confluence, and ca. 7.21 air km SE of I-40/US Hwy 71 in Alma.

	Live	Dead		Live	Dead
Actinonaias ligamentina			*Margaritifera hembeli*		
Alasmidonta marginata			*Megalonaias nervosa*		
Alasmidonta viridis			*Obliquaria reflexa*		
Amblema plicata			*Obovaria arkansasensis*		
Arcidens confragosus			*Obovaria* sp. cf *arkansasensis*		
Arcidens wheeleri			*Obovaria olivaria*		
Cumberlandia monodonta			*Plectomerus dombeyanus*		
Cyclonaias nodulata			*Pleurobema cordatum*		
Cyclonaias pustulosa			*Pleurobema riddellii*		
Cyclonaias tuberculata			*Pleurobema* sp. cf *riddellii*		
Cyprogenia aberti			*Pleurobema rubrum*		
Ellipsaria lineolata			*Pleurobema sintoxia*		
Epioblasma curtisii			*Potamilus alatus*		
Epioblasma triquetra			*Potamilus capax*		
Epioblasma turgidula			*Potamilus ohiensis*		
Eurynia dilatata			*Potamilus purpuratus*		
Fusconaia flava			*Ptychobranchus occidentalis*		
Fusconaia ozarkensis			*Pyganodon grandis*		
Fusconaia sp cf *flava* (*sampsoniana*)			*Quadrula apiculata*		
Glebula rotundata			*Quadrula fragosa*		
Lampsilis abrupta			*Quadrula nobilis*		
Lampsilis cardium			*Quadrula quadrula*	1	
Lampsilis hydiana			*Reginaia ebenus*		
Lampsilis ornata			*Simpsonaias ambigua*		
Lampsilis powellii			*Strophitus undulatus*		
Lampsilis rafinesqueana			*Theliderma cylindrica*		
Lampsilis reeveiana			*Theliderma metanevra*		
Lampsilis sietmani			*Toxolasma lividum*		
Lampsilis siliquoidea			*Toxolasma parvum*		
Lampsilis sp. A cf *hydiana*			*Toxolasma texasiense*		
Lampsilis sp. B cf *hydiana*			*Tritogonia verrucosa*		
Lampsilis streckeri			*Truncilla donaciformis*		
Lampsilis teres			*Truncilla truncata*		
Lasmigona costata			*Uniomerus declivis*		
Lasmigona complanata			*Uniomerus tetralasmus*		
Leptodea fragilis			*Utterbackia imbecillis*		
Leptodea leptodon			*Utterbackiana suborbiculata*		
Ligumia recta			*Venustaconcha ellipsiformis*		
Ligumia subrostrata			*Venustaconcha pleasii*		
Corbicula fluminea (invasive)			*Villosa iris*		
Dreissena polymorpha (invasive)			*Villosa lienosa*		

Start Search: 1540

Stop Search: 1556

Notes: 1 individual diving. Visibility poor. Max depth to ca. 3.7 - 4.3 m. Water velocity non-detectable. Clean shale right descending bank with shale substrate down ca. 2.4 - 3.0 m, then clay and fine silt (mud) substrate at depth greater than 3.0 m.

Appendix F: Arkansas Natural Heritage Commission Project Review Information

ANHC Letter, 7-29-21

ANHC Letter, 8-24-22

Asa Hutchinson
Governor
Stacy Hurst
Secretary

Date: July 29, 2021
Subject: Elements of Special Concern
I-49 Relocation Project
Sebastian and Crawford Counties, Arkansas
ANHC No.: P-CF..-21-064

Ms. Jodie Murray Burns
Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713

Dear Ms. Burns:

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 I-49 Relocation Study Corridor in Sebastian and Crawford Counties, Arkansas. The results of this review are provided as Geographic Information System (GIS) Shapefiles. Documentation explaining the information in the shapefiles is included.

Our records indicate the occurrence of 14 species of conservation concern in the vicinity of the proposed relocation corridor (please refer to attached map and element list with habitat information):

Alasmidonta marginata, Elktoe – State Concern
Cooperia drummondii, Rain-lily – State Concern
Croton lindheimerianus var. *lindheimerianus*, Lindheimer's croton – State Concern
Euphorbia hexagona, Six-angle Spurge – State Concern
Haliaeetus leucocephalus, Bald Eagle – State Concern
Heliotropium convolvulaceum, Phlox Heliotrope – State Concern
Hiodon alosoides, goldeye – State Concern
Lampsilis spA cf hydiana, "Arkoma" Fatmucket – State Concern
Limnothlypis swainsonii, Swainson's Warbler – State Concern
Myotis lucifugus, Little Brown Bat – State Concern
Myotis septentrionalis, Northern Long-eared Bat – Federal concern (Threatened)
Pseudacris streckeri, Strecker's Chorus Frog – State Concern
Quadrula apiculata, Southern Mapleleaf – State Concern
Truncilla donaciformis, Fawnsfoot – State Concern

The majority of known occurrences are found near the southern end of the route in the vicinity of the Arkansas River crossing. Several animal species of concern are associated with the forested habitat in this area: Swainson's Warbler, Little Brown Bat, and Northern Long-eared Bat. Swainson's Warbler is found in riparian floodplain habitat with dense understory. Loss of this habitat type, along with forest fragmentation that introduces nest parasites (such as brown-headed cowbirds), are threats to this species. The bats likely utilize the river corridor and adjacent forested habitat for foraging and roosting.

Maintenance of forested habitat with mature trees and "snags" is important to these species as both may utilize hollow trees as maternity sites. White-nose syndrome is the biggest threat to these species.

Aerial imagery indicates the high sandbar grassland supporting rare plants west of the river crossing extends into the project area (vicinity of 35.348328, -94.280691). This sandbar habitat supports at least four rare plant species at this location. Construction of the Arkansas River navigation project resulted in a decline of this habitat type. Strecker's Chorus Frog is also associated with these open, sandy, frequently flooded grasslands; the frog may also utilize flooded fields with sandy soils in the vicinity.

Much of the northern end of the project falls within the Frog Bayou floodplain. The corridor crosses the stream in two locations (one new crossing). Four mussels of state conservation concern have been recorded within this reach of Frog Bayou. Overall, eleven species of conservation concern are known in and along Frog Bayou (please refer to attached element list for Frog Bayou). Water quality considerations will be important during project construction. Protecting or enhancing riparian corridors along Frog Bayou may offer mitigation opportunities.

Historically, several areas of tallgrass prairie were present within and in the vicinity of the study corridor. These areas were mapped as prairie in the General Land Office (GLO) survey maps from the early 1800s (please refer to attached map). Although these areas have largely been converted or otherwise disturbed, remnant prairie vegetation could persist, including species of conservation concern. Prior to disturbance in these areas, they should be evaluated to determine if remnant prairie habitat still exists. If undisturbed areas are found, efforts should be made to avoid or limit disturbance, as prairies are a habitat of high conservation priority.

Sebastian and Crawford County element lists are enclosed for your reference. Represented on these lists are elements for which we have records in our database. These lists have been annotated to indicate those elements known to occur within a one and five-mile radius of the study corridor. A legend is enclosed to help you interpret the codes used on these lists.

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

Cindy Osborne
Data Manager/Environmental Review Coordinator

Enclosures: GIS shapefiles and documentation
Map
Project Area Element list with habitat information
Frog Bayou Element list
Sebastian and Crawford County Element Lists (annotated)
Legend
Electronic Data Sharing Agreement
Invoice

7/29/2021

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Arkansas Department of Parks, Heritage and Tourism
Elements of Special Concern
I-49 Relcoation Project

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Habitat	NatureServe Link
Animals-Invertebrates							
Alasmidonta marginata	Elktoe	-	INV	G4	S3	small streams with good current and sand, gravel or cobble substrate	http://explorer.natureserve.org/servlet/NatureServe?searchName=Alasmidonta+marginata
Lampsilis spA cf hydiana	"Arkoma" Fatmucket	-	INV	GNR	S3	pools, riffles and runs of small to medium rivers	
Quadrula apiculata	Southern Mapleleaf	-	INV	G5	S3	pools, runs and shoals of Medium to large rivers	http://explorer.natureserve.org/servlet/NatureServe?searchName=Quadrula+apiculata
Truncilla donaciformis	Fawnsfoot	-	INV	G5	S3	pools and runs of Medium to large rivers	http://explorer.natureserve.org/servlet/NatureServe?searchName=Truncilla+donaciformis
Animals-Vertebrates							
Haliaeetus leucocephalus	Bald Eagle	-	INV	G5	S3B,S4N	ponds, lakes, and water holes, pine-oak forests, riparian areas	http://explorer.natureserve.org/servlet/NatureServe?searchName=Haliaeetus+leucocephalus
Hiodon alosoides	goldeye	-	INV	G5	S2	quiet, turbid water of medium to large lowland rivers and connected waterbodies	http://explorer.natureserve.org/servlet/NatureServe?searchName=Hiodon+alosoides
Limnothlypis swainsonii	Swainson's Warbler	-	INV	G4	S3B	forestsed wetlands, riparian areas	http://explorer.natureserve.org/servlet/NatureServe?searchName=Limnothlypis+swainsonii
Myotis lucifugus	little brown bat	-	INV	G3	S1	caves, hollow trees, man-made structures used for roosting. foraging over water, along margins of lakes and streams or in woodlands near water.	http://explorer.natureserve.org/servlet/NatureServe?searchName=Myotis+lucifugus
Myotis septentrionalis	northern long-eared bat	LT	SE	G1G2	S1S2	old growth forests, caves, mines & karst habitat	http://explorer.natureserve.org/servlet/NatureServe?searchName=Myotis+septentrionalis
Pseudacris streckeri	Strecker's Chorus Frog	-	INV	G5	S2	sandy soil prairies, flooded fields in sandy soil	http://explorer.natureserve.org/servlet/NatureServe?searchName=Pseudacris+streckeri
Plants-Vascular							
Cooperia drummondii	rain-lily	-	INV	G5	S1S2	prairies, chalk/limestone glades and barrens	http://explorer.natureserve.org/servlet/NatureServe?searchName=Cooperia+drummondii

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Habitat	NatureServe Link
Croton lindheimerianus var. lindheimerianus	Lindheimer's croton	-	INV	G5TNR	S1	sandbars, sandy fields, floodplains	http://explorer.natureserve.org/servlet/NatureServe?searchName=Croton+lindheimerianus+var.+lindheimerianus
Euphorbia hexagona	six-angle spurge	-	INV	G5	S2	sandbars, prairies, stream banks. Found in loose sandy soils.	http://explorer.natureserve.org/servlet/NatureServe?searchName=Euphorbia+hexagona
Heliotropium convolvulaceum	phlox heliotrope	-	INV	G5	S2	sandbars	http://explorer.natureserve.org/servlet/NatureServe?searchName=Heliotropium+convolvulaceum

7/29/2021

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Department of Arkansas Parks, Heritage and Tourism
Elements of Special Concern
Frog Bayou

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates					
Alasmidonta marginata	Elktoe	-	INV	G4	S3
Lampsilis spA cf hydiana	"Arkoma" Fatmucket	-	INV	GNR	S3
Leptodea leptodon	Scaleshell	LE	INV	G1G2	S2
Quadrula apiculata	Southern Mapleleaf	-	INV	G5	S3
Toxolasma lividum	Purple Lilliput	-	INV	G3	S3
Truncilla donaciformis	Fawnsfoot	-	INV	G5	S3
Animals-Vertebrates					
Etheostoma mihileze	sunburst darter	-	INV	G4	S3
Etheostoma teddyroosevelt	highland darter	-	INV	GNR	S3
Myotis leibii	eastern small-footed bat	-	INV	G4	S1
Percina nasuta	longnose darter	-	INV	G3	S3
Plants-Vascular					
Cypripedium kentuckiense	Kentucky lady’s-slipper	-	INV	G3	S2

7/29/2021

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Department of Parks, Heritage and Tourism
Crawford County

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates						
✓*	*Alasmidonta marginata*	Elktoe	-	INV	G4	S3
	Caecidotea macropropoda	bat cave isopod	-	INV	G2G3	S2
	Ellipsoptera macra	sandy stream tiger beetle	-	INV	G5	S2S3
	Faxonius nana	Midget Crayfish	-	INV	G3	S3
✓*	*Lampsilis spA cf hydiana*	"Arkoma" Fatmucket	-	INV	GNR	S3
✓	*Leptodea leptodon*	Scaleshell	LE	INV	G1G2	S2
	Paduniella nearctica	nearctic paduniellan caddisfly	-	INV	G2	S1?
✓*	*Quadrula apiculata*	Southern Mapleleaf	-	INV	G5	S3
	Speyeria diana	Diana Fritillary	-	INV	G2G3	S2S3
✓	*Toxolasma lividum*	Purple Lilliput	-	INV	G3	S3
✓*	*Truncilla donaciformis*	Fawnsfoot	-	INV	G5	S3
	Venustaconcha ellipsiformis	Ellipse	-	INV	G4	S2
	Villosa sp. cf lienosa	little spectaclecase	-	INV	G5	S2S3
Animals-Vertebrates						
	Alosa alabamae	Alabama shad	-	INV	G2G3	S1
	Anguilla rostrata	American eel	-	INV	G4	S3
	Corynorhinus townsendii ingens	Ozark big-eared bat	LE	INV	G4T1	S1
	Cyprinella camura	bluntface shiner	-	INV	G5	SH
✓	*Etheostoma mihileze*	sunburst darter	-	INV	G4	S3
	Etheostoma teddyroosevelt	highland darter	-	INV	GNR	S3
✓	*Haliaeetus leucocephalus*	Bald Eagle	-	INV	G5	S3B,S4N
✓*	*Hiodon alosoides*	goldeye	-	INV	G5	S2
✓*	*Hybognathus placitus*	plains minnow	-	INV	G4	SH
	Lithobates sylvaticus	Wood Frog	-	INV	G5	S3
✓	*Moxostoma pisolabrum*	pealip redhorse	-	INV	G5	S2
	Myotis leibii	eastern small-footed bat	-	INV	G4	S1
✓*	*Myotis septentrionalis*	northern long-eared bat	LT	INV	G1G2	S1S2
	Notiosorex crawfordi	Crawford's gray shrew	-	INV	G5	S2
	Ophisaurus attenuatus	Slender Glass Lizard	-	INV	G5	S3
	Percina nasuta	longnose darter	-	INV	G3	S3
✓	*Percina phoxocephala*	slenderhead darter	-	INV	G5	S2
	Phenacobius mirabilis	suckermouth minnow	-	INV	G5	S1?
	Polyodon spathula	paddlefish	-	INV	G4	S3
✓*	*Pseudacris streckeri*	Strecker's Chorus Frog	-	INV	G5	S2
✓	*Regina grahamii*	Graham's Crayfish Snake	-	INV	G5	S2
	Regina septemvittata	Queensnake	-	INV	G5	S1
	Setophaga cerulea	Cerulean Warbler	-	INV	G4	S3B
	Spilogale putorius	eastern spotted skunk	-	INV	G4	S2S3
✓	*Sternula antillarum athalassos*	Interior Least Tern	LE	INV	G4T3Q	S3B

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
	Taxidea taxus	American badger	-	INV	G5	S1S2
Plants-Vascular						
✓	*Asclepias incarnata ssp. incarnata*	swamp milkweed	-	INV	G5T5	S2
✓*	*Bergia texana*	Texas bergia	-	INV	G5	S2
	Castilleja indivisa	entire-leaf Indian-paintbrush	-	INV	G5	SH
✓*	*Croton lindheimerianus var. lindheimerianus*	Lindheimer's croton	-	INV	G5TNR	S1
	Cypripedium kentuckiense	Kentucky lady's-slipper	-	INV	G3	S2
✓*	*Euphorbia hexagona*	six-angle spurge	-	INV	G5	S2
✓	*Fuirena simplex var. aristulata*	western umbrella sedge	-	INV	G5T4	S1
✓*	*Heliotropium convolvulaceum*	phlox heliotrope	-	INV	G5	S2
	Heuchera villosa var. arkansana	Arkansas alumroot	-	INV	G5T3Q	S3
	Hieracium scabrum	rough hawkweed	-	INV	G5	S2
	Lathyrus pusillus	low vetchling	-	INV	G5?	S2
	Mimulus floribundus	yellow monkey-flower	-	INV	G5	S2S3
	Silene ovata	ovate-leaf catchfly	-	ST	G3	S3
	Stachys iltisii	Ouachita hedge-nettle	-	INV	G3	S3
	Tradescantia ozarkana	Ozark spiderwort	-	INV	G3	S3
✓*	*Valerianella nuttallii*	Nuttall's cornsalad	-	INV	G3	S2
Special Elements-Other						
	Colonial nesting site, water birds		-	INV	GNR	SNR

★ - These elements of special concern have been recorded within a 1-mile radius of the study area.
✓ - These elements of special concern have been recorded within a 5-mile radius of the study area

7/29/2021

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Department of Parks, Heritage and Tourism
Sebastian County

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates						
	Amblyscirtes belli	Bell's Roadside-Skipper	-	INV	G3G4	S3S4
	Atrytone arogos iowa	Arogos Skipper	-	INV	G3T3	S1
	Calephelis borealis	Northern Metalmark	-	INV	G3G4	S3
✓	*Callophrys irus hadros*	Frosted Elfin	-	INV	G3T2T3	S1
	Chlosyne gorgone	Gorgone Checkerspot	-	INV	G5	S3
✓	*Cicindela hirticollis*	beach-dune tiger beetle	-	INV	G5	S2S3
	Hesperia leonardus	Leonard's Skipper	-	INV	G5	S3
	Hesperia meskei	Meske's Skipper	-	INV	G3G4	S1S2
	Hesperia metea	Cobweb Skipper	-	INV	G4	S3
	Lucanus elaphus	giant stag beetle	-	INV	G3G5	S2
✓	*Nicrophorus americanus*	American burying beetle	LT	INV	G3	S1
✓	*Procambarus liberorum*	Osage Burrowing Crayfish	-	INV	G3G4	S3S4
	Procambarus parasimulans	Bismark Burrowing Crayfish	-	INV	G3G4	S3S4
	Satyrium favonius ontario	Oak Hairstreak	-	INV	G4G5T4	S3
	Speyeria diana	Diana Fritillary	-	INV	G2G3	S2S3
Animals-Vertebrates						
✓	*Anguilla rostrata*	American eel	-	INV	G4	S3
✓	*Calcarius pictus*	Smith's Longspur	-	INV	G4G5	S2N
	Crotaphytus collaris	Eastern Collared Lizard	-	INV	G5	S2
✓	*Cycleptus elongatus*	blue sucker	-	INV	G3G4	S3
✓*	*Gastrophryne olivacea*	Great Plains Narrowmouth Toad	-	INV	G5	S2
✓*	*Haliaeetus leucocephalus*	Bald Eagle	-	INV	G5	S3B,S4N
✓*	*Hiodon alosoides*	goldeye	-	INV	G5	S2
✓*	*Hybognathus placitus*	plains minnow	-	INV	G4	SH
✓*	*Limnothlypis swainsonii*	Swainson's Warbler	-	INV	G4	S3B
✓	*Liodytes rigida*	Glossy Swampsnake	-	INV	G5	S3
✓	*Lithobates areolatus*	Crawfish Frog	-	INV	G4	S2
✓	*Moxostoma pisolabrum*	pealip redhorse	-	INV	G5	S2
	Myotis grisescens	gray bat	LE	INV	G4	S2S3
✓*	*Myotis lucifugus*	little brown bat	-	INV	G3	S1
✓*	*Myotis septentrionalis*	northern long-eared bat	LT	INV	G1G2	S1S2
✓	*Ophisaurus attenuatus*	Slender Glass Lizard	-	INV	G5	S3
✓	*Percina phoxocephala*	slenderhead darter	-	INV	G5	S2
	Phenacobius mirabilis	suckermouth minnow	-	INV	G5	S1?
	Plestiodon septentrionalis	Prairie Skink	-	INV	G5	S2
✓	*Polyodon spathula*	paddlefish	-	INV	G4	S3
	Pseudacris streckeri	Strecker's Chorus Frog	-	INV	G5	S2
	Reithrodontomys humulis	eastern harvest mouse	-	INV	G5	S2
	Scaphiopus hurterii	Hurter's Spadefoot	-	INV	G5	S2

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
✓*	*Spilogale putorius*	eastern spotted skunk	-	INV	G4	S2S3
✓	*Sternula antillarum athalassos*	Interior Least Tern	LE	INV	G4T3Q	S3B
	Terrapene ornata	Ornate Box Turtle	-	INV	G5	S2
	Thryomanes bewickii	Bewick's Wren	-	INV	G5	S1B,S1S2N
Plants-Vascular						
	Androsace occidentalis	rock-jasmine	-	INV	G5	S1
	Antennaria neglecta	field pussytoes	-	INV	G5	S1
	Aristida purpurea var. purpurea	purple three-awn	-	INV	G5T5	S1
	Calopogon oklahomensis	Oklahoma grass-pink	-	INV	G3	S2
	Camassia angusta	prairie wild hyacinth	-	INV	G5?Q	S2S3
	Carex arkansana	Arkansas sedge	-	INV	G4	S1
✓	*Carex fissa var. fissa*	hammock sedge	-	INV	G4?T3T4	S1
✓	*Carex opaca*	opaque prairie sedge	-	SE	G4	S2S3
	Castilleja indivisa	entire-leaf Indian-paintbrush	-	INV	G5	SH
	Collinsia verna	blue-eyed Mary	-	INV	G5	S1
✓	*Cooperia drummondii*	rain-lily	-	INV	G5	S1S2
	Crocanthemum rosmarinifolium	rosemary rock-rose	-	INV	G4	S1
	Croton lindheimerianus var. lindheimerianus	Lindheimer’s croton	-	INV	G5TNR	S1
	Dalea lanata var. lanata	woolly prairie-clover	-	INV	G5TNR	S2S3
	Diaperia verna var. verna	many-stem rabbit-tobacco	-	INV	G5TNR	SH
✓	*Eleocharis wolfii*	Wolf’s spike-rush	-	INV	G3G5	S3
✓	*Equisetum laevigatum*	smooth scouring-rush	-	INV	G5	S1
	Geocarpon minimum	geocarpon	LT	SE	G2	S2
	Iva angustifolia	slender marsh-elder	-	INV	G5?	S1
	Koeleria macrantha	prairie June grass	-	INV	G5	S2
✓	*Krigia occidentalis*	western dwarf-dandelion	-	INV	G5	S3
✓	*Lathyrus pusillus*	low vetchling	-	INV	G5?	S2
	Lithospermum incisum	fringed puccoon	-	INV	G5	S2S3
	Marshallia caespitosa var. caespitosa	Barbara’s-buttons	-	INV	G4T4	S2
	Minuartia drummondii	Drummond’s sandwort	-	INV	G5	S2S3
	Monarda luteola	yellow-flower beebalm	-	INV	G2	S1
	Nemastylis nuttallii	Nuttall’s pleat-leaf	-	INV	G4	S2
	Physalis pumila	prairie ground-cherry	-	INV	G5	S1
	Plantago patagonica	woolly plantain	-	INV	G5	S2
	Polygala incarnata	pink milkwort	-	INV	G5	S1S2
	Prenanthes aspera	prairie rattlesnake-root	-	INV	G4?	S2S3
	Quercus acerifolia	maple-leaf oak	-	ST	G1	S1
✓	*Rhynchospora macrostachya*	prairie horned beaksedge	-	INV	G4	S2
	Rosa foliolosa	white prairie rose	-	INV	G5	SH
	Rudbeckia maxima	great coneflower	-	INV	G4?	S3
	Schedonnardus paniculatus	tumble grass	-	INV	G5	S2
	Scleria muehlenbergii	Muhlenberg's nut-rush	-	INV	G5	S1S2
	Solidago speciosa var. rigidiuscula	narrow-leaf showy goldenrod	-	INV	G5T4	S2S3
	Tradescantia bracteata	long-bract spiderwort	-	INV	G5	S2
	Valerianella nuttallii	Nuttall’s cornsalad	-	INV	G3	S2

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Special Elements-Natural Communities						
✓	Arkansas Valley Prairie and Woodland		-	INV	GNR	S2
	Ozark-Ouachita Dry Oak Woodland		-	INV	GNR	S5

★ - These elements of special concern have been recorded within a 1-mile radius of the study area.

✓ - These elements of special concern have been recorded within a 5-mile radius of the study area

Data Sharing Agreement

July 29, 2021

Arkansas Natural Heritage Commission

and

Cattails Environmental, LLC

Under this agreement, the Arkansas Natural Heritage Commission (ANHC) is providing an electronic data set to Cattails Environmental, LLC through the agency's Information Sharing Program. Cattails Environmental has requested a data set for the I-49 Relocation Project. The data will be used by Cattails Environmental to evaluate environmental impacts for the project. Under this agreement, the ANHC will provide the data in exchange for standard information sharing fees.

ANHC agrees to provide the following:

- An ArcGIS shapefile with locations of sensitive elements (rare plants and animals, colonial bird nesting sites, and high-quality examples of natural communities) in the vicinity of the project area.
- Other shapefiles the ANHC determines may be useful to Cattails Environmental in identifying environmentally sensitive areas.
- Explanatory information on the data.
- Staff technical support for assistance in data interpretation and use.

Cattails Environmental agrees to the following terms under this agreement:

- To provide fee payment in a timely fashion.
- Reproduction and/or distribution of the complete electronic data set or subsets thereof to any parties other than the following Cattails Environmental office or posting of these data in whole or in part on any public computer network is strictly prohibited, unless ANHC has provided prior written authorization; where such authorization is provided, all parties receiving these data must be informed, in writing, of the restrictions contained herein:

  Cattails Environmental, LLC
  278 Greenhouse Road
  Bentonville, AR 72713

- Cattails Environmental agrees to provide acknowledgement of the ANHC as a data contributor to any reports or other products derived from these data.
- The shapefile remains the sole property of the ANHC.

The data is time-sensitive and should be considered outdated and invalid after one-year. Acceptance of the data by Cattails Environmental is considered agreement to these terms.

Points of Contact:

Cindy Osborne, Data Manager/Env. Rev. Coord.
Arkansas Natural Heritage Commission
1100 North Street
Little Rock, AR 72201
Phone: 501-324-9762
e-mail: Cindy.Osborne@Arkansas.gov

Jodie Murray Burns
Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713
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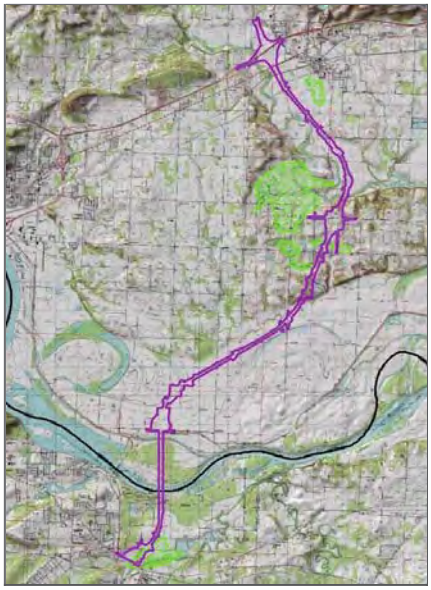
HistoricPrairie

Shapefile



Tags

General Land Survey, GLO, Prairie

Summary

This shapefile delineates the historic extent of prairies in Arkansas using information recorded by the historic General Land Office Survey.

Description

Description of Data:

In 1812, Congress established the General Land Office (GLO). The new office had the responsibility of surveying all U.S. Public lands. In the Arkansas Territory, the Land Office was part of the State Auditor's Office. Using a compass and chain, land surveyors stopped every half mile to mark or "blaze" a tree. They carried with them notebooks recording the details of what they saw. In Arkansas, these notebooks and the maps derived from the work are held by the Commissioner of State Lands Office. These historic documents offer a "snapshot" in time of the presettlement landscape. Building on the work of Dr. John Barone of Columbus State University in Georgia to digitize prairies mapped by the GLO, the Arkansas Natural Heritage Commission reviewed and rectified historic prairie boundaries in Arkansas. This shapefile was the result of those efforts.

Contact Information:

Cindy Osborne, Data Manager/Environmental Review Coordinator

Arkansas Natural Heritage Commission

100 North Street

Little Rock, AR 72201

Phone: 501-324-9762

Fax: 501-324-9618

e-mail: Cindy.Osborne@Arkansas.gov

Source of Data:

Information was transcribed from maps and notebooks from the historic General Land Office Survey.

Mapping Information:

The prairies were delineated by building on shapes originally digitized by D.r John Barone and utilizing information recorded by GLO surveyors and other available resources such as topographic maps, aerial imagery.

Descriptions of Fields in Data Table

This shapefile is currently under development. Formal fields have not yet been assigned. Current data table fields contain only working reference information.

Credits

Arkansas Natural Heritage Commission, Division of Arkansas Heritage, Arkansas Department of Parks, Heritage and Tourism

Use limitations

This data layer is currently under development and should not be shared with other users without prior written permission from the Arkansas Natural Heritage Commission.

Asa Hutchinson
Governor
Stacy Hurst
Secretary

Date: August 24, 2022
Subject: Elements of Special Concern
I-49 Relocation Project
Sebastian and Crawford Counties, Arkansas
ANHC No.: P-CF..-22-075

Ms. Jodie Murray Burns
Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713

Dear Ms. Burns:

With this letter we are updating the database search conducted by staff members of the Arkansas Natural Heritage Commission in July of 2021 for the Interstate 49, Highway 22 – I-40 Project (referred to as the I-49 Relocation Project in previous correspondence) in Sebastian and Crawford Counties, Arkansas. The results of this review are provided as Geographic Information System (GIS) Shapefiles. Please refer to the metadata included with the layer and the explanatory documentation we provided last year for help interpreting the information.

The records we provided in 2021 remain valid. We have added records for the following plant species of state conservation concern since our original search:

Bergia texana, Texas bergia
Dalea lanata var. *lanata*, woolly prairie-clover
Euphorbia missurica, Missouri spurge
Heliotropium convolvulaceum, phlox heliotrope

All of these were recorded from the sandbar grassland community on the north side of the Arkansas River near the southern end of the route. As noted in our previous correspondence, the sandbar grassland community is a declining natural community type in Arkansas. A description of this natural community type is attached for your reference.

It is of note that the federal status for Northern Long-eared Bat (*Myotis septentrionalis*) has changed slightly since July of 2021. It remains listed as threatened but has been proposed as endangered. Most of the records in the project vicinity for this species were from Fort Chaffee Military Reservation and were based on acoustic detection with at least one mist net capture for verification. As discussed in our 2021 correspondence the habitats of greatest concern include the sandbar grassland community (mentioned above), blocks of forested habitat, Frog Bayou, and potential prairie remnants.

Updated Sebastian and Crawford County element lists are enclosed for your reference. Represented on these lists are elements for which we have records in our database. These lists have been annotated to indicate those elements known to occur within a one and five-mile radius of the study corridor. An updated list of the elements in the project vicinity with habitat information is also enclosed. Please refer to the legend previously provided for help interpreting the codes used on these lists.

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

Cindy Osborne
Data Manager/Environmental Review Coordinator

Enclosures: GIS shapefiles
Sandbar Grassland Community Description
Sebastian and Crawford County Element Lists (annotated)
Project Area Element list with habitat information (updated)
Data Sharing Agreement (updated)
Invoice

Arkansas River Sandbar Grasslands

By Theo Witsell, Ecologist, Arkansas Natural Heritage Commission

Of particular conservation concern along the Arkansas River are remnants of sand grassland habitats, which have not been formally described or mapped. These natural, flood-maintained grasslands have declined from their historical extent and support a number of species of conservation concern. These sand grasslands were more common prior to the MKARNS project when the river had a more natural flood regime and the channel was allowed to migrate within the floodplain, depositing and/or exposing large sandbars. Despite this decline, some remnants persist, often along the stretches of river immediately below locks and dams where water levels are lower and/or fluctuate more than they do above the dams.

These grasslands occur as a mosaic of different natural communities or vegetation zones that correlate with subtle differences in landform, topography and flood duration. Important landforms in this mosaic may include high upland terraces, slopes, flats, dunes, swales, depressions, and beaches. Higher zones are dry most of the year and support dry grasslands while swales, depressions, beaches, and other areas closer to the normal water level of the river support wet grasslands and even marshes. All occur on deep sand deposits and may have a mosaic of varying tree densities ranging from nearly treeless "prairies" to more of a savanna or open woodland structure with scattered trees and shrub thickets.

Indicator Species

These grasslands are distinctly different from typical tallgrass prairies that occur in Arkansas and are dominated by different plant species. Certain indicator species are characteristic of these sand grasslands and the presence of these (especially the co-occurrence of several species growing together) is indicative of sand grassland habitat. These species include (but are not limited to):

FORBS:

prairie false foxglove (*Agalinis heterophylla*)
erect dayflower (*Commelina erecta*)
scratch-daisy (*Croptilon divaricatum*)
Hooker's scratch-daisy (*Croptilon hookerianum* var. *validum*)
winged pigweed (*Cycloloma atriplicifolium*)
cotton-weed (*Froelichia floridana*)
spotted beebalm (*Monarda punctata*)
four-point evening-primrose (*Oenothera rhombipetala*)
field ground-cherry (*Physalis mollis*)

GRASSES AND SEDGES:

long-spine sandbur (*Cenchrus longispinus*)
Coastal sandbur (*Cenchrus spinifex*)
flatsedges (especially *Cyperus croceus*, *C. lupulinus*, *C. retroflexus*, and *C. retrorsus*)
fall witch grass (*Digitaria cognata*)
slender crab grass (*Digitaria filiformis*)

big-top love grass (*Eragrostis hirsuta*)
red love grass (*Eragrostis secundiflora* subsp. *oxylepis*)
witch grass (*Panicum capillare* subsp. *capillare*)
switch grass (*Panicum virgatum*)
sand dropseed (*Sporobolus cryptandrus*)
purple sand grass (*Triplasis purpurea* var. *purpurea*)

Rare Species

In addition to these indicator species, the following species of conservation concern are also known from these grasslands:

clasping dogbane (*Apocynum sibiricum*) – GNRSNR – wet to dry open sands
Texas bergia (*Bergia texana*) – G5S2 – wet open sands or sandy mud
Lindheimer's croton (*Croton lindheimerianus* var. *lindheimerianus*) – G5TNRS1 – dry open sands
woolly prairie-clover (*Dalea lanata* var. *lanata*) – G5TNRS2S3 – dry open sands
six-angle spurge (*Euphorbia hexagona*) – G5S2 – open sands
Missouri spurge (*Euphorbia missurica*) – G5S2 – dry open sands
catchfly prairie-gentian (*Eustoma exaltatum*) – G5S2 – wet to dry open sands
western umbrella sedge (*Fuirena simplex* var. *aristulata*) – G5T4S1 – wet open sands
phlox heliotrope (*Heliotropium convolvulaceum*) – G5S2 – open sands
western dwarf-dandelion (*Krigia occidentalis*) – G5S3 – open sands
barrens prickly-pear (*Opuntia nemoralis*) – GNRS2 – dry open sands
small-flower ground-cherry (*Physalis cinerascens* var. *cinerascens*) – G4G5T3T5S1 – dry open sands
California bulrush (*Schoenoplectus californicus*) – G5S1S2 – wet areas, often in standing water
Louisiana vetch (*Vicia ludoviciana* var. *ludoviciana*) – G5TNRSH – uncertain, but probably open sands
squirrel-tail six-weeks grass (*Vulpia sciurea*) – G5S1 – dry open sands

Management Considerations

Because the historical flood regimes along the river have been altered, these grasslands likely need some periodic vegetation management to arrest succession by trees and shrubs. Some surviving examples of high sand grasslands have been maintained in an open condition in recent decades as pastures or hayfields or may have even been plowed for agriculture in the past. Prescribed fire, while not necessarily an important natural process in these habitats historically, may be an appropriate management practice for sites with enough herbaceous flora to carry a fire. Furthermore, areas where sandy dredge spoils are deposited may serve as surrogate habitats and support some of the characteristic flora and fauna of these grasslands, including species of concern. These sites should also be considered for their value as habitat for species dependent on declining sand grasslands.

8/24/2022

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Department of Parks, Heritage and Tourism
Crawford County

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates						
✓★	*Alasmidonta marginata*	Elktoe	-	INV	G4	S3
	Caecidotea macropropoda	bat cave isopod	-	INV	G2G3	S2
	Ellipsoptera macra	sandy stream tiger beetle	-	INV	G5	S2S3
	Faxonius nana	Midget Crayfish	-	INV	G3	S3
✓★	*Lampsilis spA cf hydiana*	"Arkoma" Fatmucket	-	INV	GNR	S3
✓	*Leptodea leptodon*	Scaleshell	LE	SE	G1G2	S2
	Paduniella nearctica	nearctic paduniellan caddisfly	-	INV	G2	S1?
✓★	*Quadrula apiculata*	Southern Mapleleaf	-	INV	G5	S3
	Speyeria diana	Diana Fritillary	-	INV	G2G3	S2S3
✓	*Toxolasma lividum*	Purple Lilliput	-	INV	G3	S3
✓★	*Truncilla donaciformis*	Fawnsfoot	-	INV	G5	S3
	Venustaconcha ellipsiformis	Ellipse	-	INV	G4	S2
	Villosa sp. cf lienosa	little spectaclecase	-	INV	G5	S2S3
Animals-Vertebrates						
	Alosa alabamae	Alabama shad	-	INV	G2G3	S1
	Anguilla rostrata	American eel	-	INV	G4	S3
	Corynorhinus townsendii ingens	Ozark big-eared bat	LE	SE	G4T1	S1
	Cyprinella camura	bluntface shiner	-	INV	G5	SH
✓	*Etheostoma mihileze*	sunburst darter	-	INV	G4	S3
	Etheostoma teddyroosevelt	highland darter	-	INV	GNR	S3
✓★	*Haliaeetus leucocephalus*	Bald Eagle	-	INV	G5	S3B,S4N
✓★	*Hiodon alosoides*	goldeye	-	INV	G5	S2
✓★	*Hybognathus placitus*	plains minnow	-	INV	G4	SH
	Lithobates sylvaticus	Wood Frog	-	INV	G5	S3
✓	*Moxostoma pisolabrum*	pealip redhorse	-	INV	G5	S2
	Myotis leibii	eastern small-footed bat	-	INV	G4	S1
✓★	*Myotis septentrionalis*	northern long-eared bat	LT	SE	G1G2	S1S2
	Notiosorex crawfordi	Crawford's gray shrew	-	INV	G4	S2
	Ophisaurus attenuatus	Slender Glass Lizard	-	INV	G5	S3
	Percina nasuta	longnose darter	-	INV	G3	S3
✓	*Percina phoxocephala*	slenderhead darter	-	INV	G5	S2
	Phenacobius mirabilis	suckermouth minnow	-	INV	G5	S1?
	Polyodon spathula	paddlefish	-	INV	G4	S3
✓★	*Pseudacris streckeri*	Strecker's Chorus Frog	-	INV	G5	S2
✓	*Regina grahamii*	Graham's Crayfish Snake	-	INV	G5	S2
	Regina septemvittata	Queensnake	-	INV	G5	S1
	Setophaga cerulea	Cerulean Warbler	-	INV	G4	S3B
★	*Spilogale putorius*	eastern spotted skunk	-	INV	G4	S2S3
✓	*Sternula antillarum athalassos*	Interior Least Tern	-	INV	G4T3Q	S3B

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
	Taxidea taxus	American badger	-	INV	G5	S1S2
	Plants-Vascular					
✓	*Asclepias incarnata ssp. incarnata*	swamp milkweed	-	INV	G5T5	S2
✓★	*Bergia texana*	Texas bergia	-	INV	G5	S2
	Castilleja indivisa	entire-leaf Indian-paintbrush	-	INV	G5	SH
✓★	*Croton lindheimerianus var. lindheimerianus*	Lindheimer's croton	-	INV	G5TNR	S1
	Cypripedium kentuckiense	Kentucky lady's-slipper	-	INV	G3	S2
✓★	*Euphorbia hexagona*	six-angle spurge	-	INV	G5	S2
✓	*Fuirena simplex var. aristulata*	western umbrella sedge	-	INV	G5T4	S1
✓★	*Heliotropium convolvulaceum*	phlox heliotrope	-	INV	G5	S2
	Heuchera villosa var. arkansana	Arkansas alumroot	-	INV	G5T3Q	S3
	Hieracium scabrum	rough hawkweed	-	INV	G5	S2
	Lathyrus pusillus	low vetchling	-	INV	G5?	S2
	Mimulus floribundus	yellow monkey-flower	-	INV	G5	S2S3
	Silene ovata	ovate-leaf catchfly	-	ST	G3	S3
	Stachys iltisii	Ouachita hedge-nettle	-	INV	G3	S3
	Tradescantia ozarkana	Ozark spiderwort	-	INV	G3	S3
✓★	*Valerianella nuttallii*	Nuttall's cornsalad	-	INV	G3	S2
	Special Elements-Other					
	Colonial nesting site, water birds		-	INV	GNR	SNR

★ - These elements of special concern have been recorded within a 1-mile radius of the study area.
✓ - These elements of special concern have been recorded within a 5-mile radius of the study area

8/24/2022

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Department of Parks, Heritage and Tourism
Sebastian County

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Animals-Invertebrates						
	Amblyscirtes belli	Bell's Roadside-Skipper	-	INV	G3G4	S3S4
	Atrytone arogos iowa	Arogos Skipper	-	INV	G3T3	S1
	Calephelis borealis	Northern Metalmark	-	INV	G3G4	S3
✓	*Callophrys irus hadros*	Frosted Elfin	-	INV	G3T2T3	S1
	Chlosyne gorgone	Gorgone Checkerspot	-	INV	G5	S3
✓	*Cicindela hirticollis*	beach-dune tiger beetle	-	INV	G5	S2S3
	Hesperia leonardus	Leonard's Skipper	-	INV	G5	S3
	Hesperia meskei	Meske's Skipper	-	INV	G3G4	S1S2
	Hesperia metea	Cobweb Skipper	-	INV	G4	S3
	Lucanus elaphus	giant stag beetle	-	INV	G3G5	S2
✓	*Nicrophorus americanus*	American burying beetle	LT	SE	G3	S1
✓	*Procambarus liberorum*	Osage Burrowing Crayfish	-	INV	G3G4	S3S4
	Procambarus parasimulans	Bismark Burrowing Crayfish	-	INV	G3G4	S3S4
	Satyrium favonius ontario	Oak Hairstreak	-	INV	G4G5T4	S3
	Speyeria diana	Diana Fritillary	-	INV	G2G3	S2S3
Animals-Vertebrates						
✓	*Anguilla rostrata*	American eel	-	INV	G4	S3
✓	*Calcarius pictus*	Smith's Longspur	-	INV	G4G5	S2N
	Crotaphytus collaris	Eastern Collared Lizard	-	INV	G5	S2
✓	*Cycleptus elongatus*	blue sucker	-	INV	G3G4	S3
✓★	*Gastrophryne olivacea*	Great Plains Narrowmouth Toad	-	INV	G5	S2
✓★	*Haliaeetus leucocephalus*	Bald Eagle	-	INV	G5	S3B,S4N
✓★	*Hiodon alosoides*	goldeye	-	INV	G5	S2
✓★	*Hybognathus placitus*	plains minnow	-	INV	G4	SH
✓★	*Limnothlypis swainsonii*	Swainson's Warbler	-	INV	G4	S3B
✓	*Liodytes rigida*	Glossy Swampsnake	-	INV	G5	S3
✓	*Lithobates areolatus*	Crawfish Frog	-	INV	G4	S2
✓	*Moxostoma pisolabrum*	pealip redhorse	-	INV	G5	S2
	Myotis grisescens	gray bat	LE	SE	G4	S2S3
✓★	*Myotis lucifugus*	little brown bat	-	SE	G3	S1
✓★	*Myotis septentrionalis*	northern long-eared bat	LT	SE	G1G2	S1S2
✓	*Ophisaurus attenuatus*	Slender Glass Lizard	-	INV	G5	S3
✓	*Percina phoxocephala*	slenderhead darter	-	INV	G5	S2
	Phenacobius mirabilis	suckermouth minnow	-	INV	G5	S1?
	Plestiodon septentrionalis	Prairie Skink	-	INV	G5	S2
✓	*Polyodon spathula*	paddlefish	-	INV	G4	S3
	Pseudacris streckeri	Strecker's Chorus Frog	-	INV	G5	S2
	Reithrodontomys humulis	eastern harvest mouse	-	INV	G5	S2
	Scaphiopus hurterii	Hurter's Spadefoot	-	INV	G5	S2

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
✓★	*Spilogale putorius*	eastern spotted skunk	-	INV	G4	S2S3
✓	*Sternula antillarum athalassos*	Interior Least Tern	-	INV	G4T3Q	S3B
	Terrapene ornata	Ornate Box Turtle	-	INV	G5	S2
	Thryomanes bewickii	Bewick's Wren	-	INV	G5	S1B,S1S2N
Plants-Vascular						
	Androsace occidentalis	rock-jasmine	-	INV	G5	S1
	Antennaria neglecta	field pussytoes	-	INV	G5	S1
	Aristida purpurea var. purpurea	purple three-awn	-	INV	G5T5	S1
	Calopogon oklahomensis	Oklahoma grass-pink	-	INV	G2	S2
	Camassia angusta	prairie wild hyacinth	-	INV	G5?Q	S2S3
	Carex arkansana	Arkansas sedge	-	INV	G4	S1
✓	*Carex fissa var. fissa*	hammock sedge	-	INV	G4?T3T4	S1
✓	*Carex opaca*	opaque prairie sedge	-	SE	G4	S2S3
	Castilleja indivisa	entire-leaf Indian-paintbrush	-	INV	G5	SH
	Collinsia verna	blue-eyed Mary	-	INV	G5	S1
✓	*Cooperia drummondii*	rain-lily	-	INV	G5	S1S2
	Crocanthemum rosmarinifolium	rosemary rock-rose	-	INV	G4	S1
	Croton lindheimerianus var. lindheimerianus	Lindheimer’s croton	-	INV	G5TNR	S1
	Dalea lanata var. lanata	woolly prairie-clover	-	INV	G5TNR	S2S3
	Diaperia verna var. verna	many-stem rabbit-tobacco	-	INV	G5TNR	SH
✓	*Eleocharis wolfii*	Wolf’s spike-rush	-	INV	G3G5	S3
✓	*Equisetum laevigatum*	smooth scouring-rush	-	INV	G5	S1
	Geocarpon minimum	geocarpon	LT	SE	G2	S2
	Iva angustifolia	slender marsh-elder	-	INV	G5?	S1
	Koeleria macrantha	prairie June grass	-	INV	G5	S2
✓	*Krigia occidentalis*	western dwarf-dandelion	-	INV	G5	S3
✓	*Lathyrus pusillus*	low vetchling	-	INV	G5?	S2
	Lithospermum incisum	fringed puccoon	-	INV	G5	S2S3
	Marshallia caespitosa var. caespitosa	Barbara’s-buttons	-	INV	G4T4	S2
	Minuartia drummondii	Drummond’s sandwort	-	INV	G5	S2S3
	Monarda luteola	yellow-flower beebalm	-	INV	G2	S1
	Nemastylis nuttallii	Nuttall’s pleat-leaf	-	INV	G4	S2
	Physalis pumila	prairie ground-cherry	-	INV	G5	S1
	Plantago patagonica	woolly plantain	-	INV	G5	S2
	Polygala incarnata	pink milkwort	-	INV	G5	S1S2
	Prenanthes aspera	prairie rattlesnake-root	-	INV	G4?	S2S3
	Quercus acerifolia	maple-leaf oak	-	ST	G1	S1
✓	*Rhynchospora macrostachya*	prairie horned beaksedge	-	INV	G4	S2
	Rosa foliolosa	white prairie rose	-	INV	G5	SH
	Rudbeckia maxima	great coneflower	-	INV	G4?	S3
	Schedonnardus paniculatus	tumble grass	-	INV	G5	S2
	Scleria muehlenbergii	Muhlenberg's nut-rush	-	INV	G5	S1S2
	Solidago speciosa var. rigidiuscula	narrow-leaf showy goldenrod	-	INV	G5T4	S2S3
	Tradescantia bracteata	long-bract spiderwort	-	INV	G5	S2
	Valerianella nuttallii	Nuttall’s cornsalad	-	INV	G3	S2

	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Special Elements-Natural Communities						
✓	Arkansas Valley Prairie and Woodland		-	INV	GNR	S2
	Ozark-Ouachita Dry Oak Woodland		-	INV	GNR	S5

★ - These elements of special concern have been recorded within a 1-mile radius of the study area.
✓ - These elements of special concern have been recorded within a 5-mile radius of the study area

8/24/2022

Arkansas Natural Heritage Commission
Division of Arkansas Heritage
Arkansas Department of Parks, Heritage and Tourism
Elements of Special Concern
I-49 Project

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Habitat	NatureServe Link
Animals-Invertebrates							
Alasmidonta marginata	Elktoe	-	INV	G4	S3	small streams with good current and sand, gravel or cobble substrate	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.109839/Alasmidonta_marginata
Lampsilis spA cf hydiana	"Arkoma" Fatmucket	-	INV	GNR	S3	pools, riffles and runs of small to medium rivers	
Quadrula apiculata	Southern Mapleleaf	-	INV	G5	S3	pools, runs and shoals of Medium to large rivers	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.116872/Quadrula_apiculata
Truncilla donaciformis	Fawnsfoot	-	INV	G5	S3	pools and runs of Medium to large rivers	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.121170/Truncilla_donaciformis
Animals-Vertebrates							
Haliaeetus leucocephalus	Bald Eagle	-	INV	G5	S3B,S4N	ponds, lakes, and water holes, pine-oak forests, riparian areas	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.104470/Haliaeetus_leucocephalus
Hiodon alosoides	goldeye	-	INV	G5	S2	quiet, turbid water of medium to large lowland rivers and connected waterbodies	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105194/Hiodon_alosoides
Limnothlypis swainsonii	Swainson's Warbler	-	INV	G4	S3B	forested wetlands, riparian areas	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103514/Limnothlypis_swainsonii
Myotis lucifugus	little brown bat	-	INV	G3	S1	caves, hollow trees, man-made structures used for roosting. foraging over water, along margins of lakes and streams or in woodlands near water.	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.100473/Myotis_lucifugus
Myotis septentrionalis	northern long-eared bat	LT, PE	INV	G1G2	S1S2	old growth forests, caves, mines & karst habitat	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102615/Myotis_septentrionalis
Pseudacris streckeri	Strecker's Chorus Frog	-	INV	G5	S2	sandy soil prairies, flooded fields in sandy soil	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102207/Pseudacris_streckeri
Plants-Vascular							
Bergia texana	Texas bergia	-	INV	G5	S2	wet, moist soils along edges of rivers and pools	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160421/Bergia_texana
Cooperia drummondii	rain-lily	-	INV	G5	S1S2	prairies, chalk/limestone glades and barrens	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.135125/Cooperia_drummondii

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Habitat	NatureServe Link
Croton lindheimerianus var. lindheimerianus	Lindheimer's croton	-	INV	G5TNR	S1	sandbars, sandy fields, floodplains	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.138390/Croton_lindheimerianus_var_lindheimerianus
Dalea lanata var. lanata	woolly prairie-clover	-	INV	G5TNR	S2S3	sand bars, sandy bottoms, sandy grasslands	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.143665/Dalea_lanata_var_lanata
Euphorbia hexagona	six-angle spurge	-	INV	G5	S2	sandbars, prairies, stream banks. Found in loose sandy soils.	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.137788/Euphorbia_hexagona
Euphorbia missurica	Missouri spurge	-	INV	G5	S2	glades, sandbar grasslands	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.139864/Chamaesyce_missurica
Heliotropium convolvulaceum	phlox heliotrope	-	INV	G5	S2	sandbars	https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140711/Heliotropium_convolvulaceum

Data Sharing Agreement

August 24, 2022

Arkansas Natural Heritage Commission

and

Cattails Environmental, LLC

Under this agreement, the Arkansas Natural Heritage Commission (ANHC) is providing an update to the electronic data set provided to Cattails Environmental, LLC through the agency's Information Sharing Program in July of 2021. Cattails Environmental has requested an update to data previously provided for the Interstate 49, Highway 22 – I-40 (Arkansas River) Project. The data will be used by Cattails Environmental to evaluate environmental impacts for the project. Under this agreement, the ANHC will provide the data in exchange for standard information sharing fees.

ANHC agrees to provide the following:

- An ArcGIS shapefile with new/updated locations of sensitive elements (rare plants and animals, colonial bird nesting sites, and high-quality examples of natural communities) in the vicinity of the project area.
- Continued use of valid records provided in the 2021 shapefile.
- Staff technical support for assistance in data interpretation and use.

Cattails Environmental agrees to the following terms under this agreement:

- To provide fee payment in a timely fashion.
- Reproduction and/or distribution of the complete electronic data set or subsets thereof to any parties other than the following offices of the Project's Biological Assessment Team or posting of these data in whole or in part on any public computer network is strictly prohibited, unless ANHC has provided prior written authorization; where such authorization is provided, all parties receiving these data must be informed, in writing, of the restrictions contained herein:

Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713

Harbor Environmental
Tom Huetter, Client & PM
5800 Evergreen Drive
Little Rock, AR 72205
Mobile: 501-205-9569,
E-mail: thuetter@harborenv.com
GIS Map Creator for BA Report

Welch/Harris, Inc.
Dr. John Harris
10846 Plantation Lake Road
Scott, AR 72142
Mobile: 501-658-5298,
e-mail: omibob@aol.com
Malacologist

ECHO, LLC
Dr. Elizabeth Burba
606 E Boone St.
Tahlequah, OK 74464
Mobile: 918- 693-0241,
E-mail: Elizabeth.A.Burba@gmail.com
Mammalogist/Bat Specialist

GeormophIS
Eileen Goff
1 East Liberty Street, Ste. 600
Reno, NV 89501
Phone: 619-218-6463
E-mail: egoff@geomorphis.com
GIS Specialist

- Cattails Environmental agrees to provide acknowledgement of the ANHC as a data contributor to any reports or other products derived from these data.
- The shapefile remains the sole property of the ANHC.

The data is time-sensitive and should be considered outdated and invalid after one-year. Acceptance of the data by Cattails Environmental is considered agreement to these terms.

Points of Contact:

Cindy Osborne, Data Manager/Env. Rev. Coord.
Arkansas Natural Heritage Commission
1100 North Street
Little Rock, AR 72201
Phone: 501-324-9762
e-mail: Cindy.Osborne@Arkansas.gov

Jodie Murray Burns
Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713
Phone: 479-659-4380
e-mail: jodieburns@cattailsenvironmental.com

Asa Hutchinson
Governor
Stacy Hurst
Secretary

ARKANSAS HERITAGE

Invoice No. 22-005

To: Cattails Environmental, LLC
278 Greenhouse Road
Bentonville, AR 72713

Date: August 24, 2022

ANHC No.: P-CF..-22-075

RE: Database review, Arkansas Natural Heritage Commission,
Update to Elements of Special Concern, Interstate 49, Highway 22 – I-40 Project.

Project Contact: Jodie Murray Burns

Staff Time (4 hrs. @ $30.00/hr.). $120.00
Per Record Charge (6 @ $1.50/record). . . . . $ 6.00

TOTAL DUE $126.00

Payment Information:

- Checks should be made payable to the Arkansas Natural Heritage Commission (at present the agency is unable to accept electronic payments).
- Payment is expected within 30 days of the receipt of the invoice.
- It is considered the responsibility of the receiver to route the invoice to the appropriate department within his/her organization.
- ANHC Invoice Contact Information
  Katie Shannon
  Phone: 501-324-9617
  e-mail: Katie.Shannon@Arkansas.gov

Appendix G: Preparer's Credentials

Jodie Murray Burns, PWS, MEd, MS

Field Biologist & ABB Specialist

SERVICE AREAS

Wetland Delineations and Determinations
CWA Sec 401/404 Permit Coordination
Wetland & Stream Mitigation
Stream Bioassessments & Monitoring
Natural Resource Inventories
American Burying Beetle (ABB) Surveys
Habitat Assessments
Watershed Inventories
NEPA Report Writing
Environmental Regulations Seminars

EDUCATION

M.S. Biological Sciences, 2001, University of Arkansas, Fayetteville, Arkansas
M.Ed., School Supervision, 1993, Abilene Christian University, Abilene, TX
B.S., Biology, 1988, Harding University, Searcy, Arkansas

PERMITS / CERTIFICATIONS

Professional Wetland Scientist (PWS), SWS Certified, Exp. Feb 2026
USFWS Federal Permit #ES76960D, Exp. 3/12/26, American Burying Beetle
State of OK Scientific Collector's Permit, ID 5237055, Exp. 12/31/21, renewing
State of AR Scientific Collector's Permit, #010320221, Exp. 1/3/23
State of KS Scientific Wildlife Permit, #SC-072-2021, Exp. 12/31/21, renewing

PROFESSIONAL MEMBERSHIPS

Society of Wetland Scientists (SWS): South Central Chapter President (2021-2023) & Arkansas Education and Outreach Coordinator (2017-present); Central Chapter Member; SWS Webinar Series Committee, co-chair (2021-present)
Society of Freshwater Science, South-Central Chapter Member
National Association of Wetland Managers, Member

VOLUNTEER PROJECTS

AGFC National Bobwhite Conservation Initiative (NBCI) Spring Breeding Bird Surveys/Fall Covey Counts, Pea Ridge National Park Monitoring Site, Arkansas, May 2016-present (seasonal)
USGS Wetland Research Field Assistant, White River National Wildlife Refuge, AR, LA, and MS. Studying the longitudinal and latitudinal effects of climate change on select wetland ecosystems in the U.S., August 2017-present (seasonal)

Qualifications

Jodie Murray Burns has over 14 years of experience working nationwide with environmental regulations associated with the Clean Water Act (Section 401/404 permits), Endangered Species Act and National Environmental Policy Act for commercial and residential developments, transportation projects, oil & gas projects, conservation/restoration projects, renewable energy projects, and climate change projects. Ms. Burns has worked with the implementation of federal and state environmental regulations within the states of Arkansas, Oklahoma, Missouri, Kansas, Texas, Kentucky, Louisiana, Tennessee, Indiana, Utah, Iowa, and Minnesota.

Ms. Burns regularly presents seminars covering regulation changes, judicial decisions, and legislative actions regarding the Clean Water Act (i.e. Waters of the U.S. or WOTUS) and the Endangered Species Act (ESA).

Project Experience

Oil/Gas Project, West Texas. June 2022. Approximately 47 miles of a 330-mile linear energy project were evaluated for WOTUS using an AGOL map and two different types of submeter GNSS receivers (Trimble R2 and Eos Arrow 100). Sixty-six WOTUS features were mapped. Additionally, federally listed T/E species habitat and county/state listed species of concern habitat were assessed concurrently.

Wastewater System Rehabilitation Project, Cities of Greenland & Fayetteville, AR. March 2022 – ongoing. WOTUS delineation and determination was performed on this 2.25-mile-long project to improve the cities' wastewater system. Twenty-seven drains and eight wetland areas were identified. Full suite of services being provided, including obtaining state water quality certification and meeting future permit requirements of the Corps of Engineers, including T/E species habitat analysis.

Rainer Farms Subdivision, Carl Junction, MO. Sept 2021 to July 2022. Performed a WOTUS determination on a proposed 54-acre residential development site. Full suite of services provided to assist in obtaining Corps of Engineers permit which involved coordination with the Missouri Natural Heritage regarding state species of concern and conducting the USFWS IPaC process to evaluate the site for potential T/E species habitat.

Industrial Drive Extension, City of Fayetteville, AR. Feb 2020 to Sept 2021. Assisted in writing an environmental narrative for the city's Econ. Dev. Admin. grant application for a proposed 60-acre development site. Performed wetland desktop analysis and USFWS IPaC process, along with T/E species habitat assessment. Once grant awarded, completed WOTUS delineation/determination and an AJD was obtained for the final 8-acre project footprint.

Grain Belt Express Transmission Line, KS & MO. Sept/Oct 2020. Lead wetland scientist for a 2-person field team that evaluated 40 miles of a proposed 800+ mile, multi-state overhead renewable energy electric transmission line for WOTUS. Sixty-one features (49 streams and 12 wetlands) mapped to submeter accuracy using ESRI Collector app and submeter GNSS receiver. Federally listed T/E species habitat assessed concurrently.

Diamond Spring Wind Farm, Johnston County, OK. March 2020. Monitored construction of the 112-wind turbine farm as per the USFWS permit requirements for the federally listed endangered American burying beetle.

Multiple Wind Farm Developments, Oklahoma, American Burying Beetle Surveys, 2014-2019. Presence/Absence surveys were performed per the USFWS guidelines to assist client in meeting ESA regulations and permitting requirements. A total of 122 assigned trap locations were surveyed.

Lone Star Express & West Texas II Transmission Line, West Texas, April-May 2019. Delineation of WOTUS on a proposed linear project (60+ miles of the team's 180-mile assignment) in West Texas - Rio Grande & Colorado River watersheds. Approximately 30+ features were documented and mapped to sub-meter accuracy using a Trimble Geo 7X**.**

Glen Road Townhomes Residential Development, Bentonville, Arkansas, July 2018-Oct 2019. Full suite of environmental services was provided on a proposed 2-acre project to obtain a CWA Sec. 404 permit – preliminary WOTUS determination & report, permit coordination, and coordinated meeting mitigation requirements. Site was evaluated for federally listed T/E species habitat and UFWS IPaC process was conducted.

Shoal Creek Stream Inventory, southwest Missouri, Fall 2017- Winter 2018. Project Manager: Coordination of a 55+ mile stream survey of bank stability areas and environmental features of interest to document current conditions. GIS database developed to assist in conservation and watershed-scale restoration planning efforts on the stream, a state COA.

Plains & Eastern Clean Line Transmission Line, Oklahoma & Arkansas, American Burying Beetle Surveys, Summer 2016. Presence/Absence surveys were performed per the USFWS guidelines on approximately 80 miles of the total 250 miles evaluated for ABB presence/absence of the proposed 720-mile transmission line.

Northwest Arkansas Water Transmission Line (Two Ton Loop), 1995. Benton and Washington Counties, AR. Co-Project Manager: Responsible for coordinating endangered species surveys and documenting pre-impact stream habitat and wetlands impacts for the rural 70+ mile-long, two county water transmission line.

ADDITIONAL QUALIFICATIONS

Publications / Presentations

Public comments to the USEPA and US Corps of Engineers in a Public Web Conference about Re-Defining WOTUS, Aug 31, 2021.

KUAF 91.3/NPR National Correspondent Interview with Jacqueline Froelich about current WOTUS Regulations, Aug 26, 2021.

University of Arkansas, Fayetteville, AR. Agricultural Economics Class. April 6, 2020. Presentation Title: Keeping Up with the Current WOTUS Definition and Its Impacts on Agricultural Interests.

Society of Wetland Scientists - South Central Chapter Meeting, Galveston, TX. October 25, 2019. Presentation title: CWA Federal Policy Update – Recent Proposed Mitigation Rule and Section 401 Rule Changes by EPA & US Corps Of Engineers (COE).

Arkansas Water Resources Center's Annual Water Conference, Fayetteville, AR. July 31, 2019. Presentation Title: Status of WOTUS in Arkansas & A Case Study of Jurisdictional Issues Regarding Groundwater Protection.

Public Comments to the US EPA and US COE for the Society of Wetland Scientists' Policy & Regulation Section at the only Public Hearing for the 2019 Proposed Water of the U.S. Re-Definition, Kansas City, KS, Feb 28, 2019.

Presented preliminary findings of a 55+ mile survey of Shoal Creek, Newton County, MO, at The Nature Conservancy's Western Ozark Waters Initiative forum. Wildcat Glades Conservation & Audubon Center, Joplin, MO, March 15, 2017.

Smith A., **Burns J.M.**, and Burba E. (coauthors). January 27, 2015. Draft Environmental Assessment of the Proposed Hulbert, OK, Water Treatment Plant Improvements. Prepared by SEARCH LLC, Siloam Springs, AR. 228 pages. (Technical Report)

Burns, Jodie Janeen Murray. December 2001. Thesis: Changes in Watershed Land Use, Geomorphology, and Macroinvertebrate Assemblages in Clear Creek, NW Arkansas, From 1948-1999. University of Arkansas. 97 pages.

Burns J.M., and Barnes J.M. 1995. Environmental Assessment. Proposed Retail Development, West Lafayette, Indiana. Details mammal survey, bird sightings, plant inventory, wetlands, and cultural resources. 26+ pages. (Technical Report)

Burns, J.M. 1994. Mitigation Plan for A.B. Shopping Center Properties, Inc., Lebanon, TN. Sheets 1-3. (Technical Report)

T/E Species Related Training

Interagency Consultation for Endangered Species (Section 7) Course, Duncan & Duncan Wetland and Endangered Species Training, 16 hours, Charleston, SC, August 2020

Conservation of Endangered Species Seminar, University of Arkansas (ZOOL-5922), 2 graduate-level college credit hours, Fayetteville, AR, Spring 1998

Awards - Society of Wetland Scientists President's Service Award, 2019 Annual Meeting, Baltimore, MD, May 2019

Elizabeth A. Burba, PhD

606 E Boone St., Tahlequah, OK | 918.693.0241 | Elizabeth.A.Burba@gmail.com

SUMMARY OF QUALIFICATIONS

- Experienced in wide-range of biological monitoring techniques including bat acoustical surveys.
- Experienced in wind turbine post-construction bird and bat fatality studies.
- Involved with collaborative research projects to assess bat migration patterns with stable isotopes.
- Completed numerous technical reports or biological/environmental assessments as part of ESA section 7 consultation.
- Trained in a variety of ecological sub-divisions, using diverse methods in both laboratory and field settings.
- Participated in projects across various ecoregions and within diverse taxonomic groups.

EDUCATION

Ph.D. in Zoology 2008-2013
University of Oklahoma, Norman, OK GPA: 4.0
Area of Expertise: Population ecology, mammalogy, conservation biology
Dissertation Topic: Wind energy and wildlife impacts, bat migration, and stable isotopes

M.S. in Zoology 2001-2006
University of Oklahoma, Norman, OK GPA: 4.0
Area of Expertise: Ecology, animal behavior
Thesis Topic: Reproductive behavior and primiparity of olive baboons

B.S. in Fish and Wildlife Biology 1995-1999
Northeastern State University, Tahlequah, OK GPA: 3.58

EXPERIENCE

Northeastern State University 2022-present
Asst. Professor Biology and Freshwater Sciences
- Teach undergraduate courses in the biological sciences including: Intro Biology, Stream Ecology, Environmental Regulation, and Freshwater Professions
- Advise and mentor students in undergraduate research

Environmental Consultants of Habitats and Organisms (ECHO), LLC 2014-present
Owner, Biologist
- Provide surveys for all mammalian species including acoustical bat surveys.
- Provide surveys for the endangered American burying beetle.
- Draft biological reports, environmental assessments, and NEPA documents.
- Collaborative research to assess bat migration patterns via stable isotope analysis.

Sam Noble Oklahoma Museum of Natural History, Norman, OK 2006-2009
Research Associate
- Preformed over 3,400 individual turbine searches to assess bird and bat fatality rates at an OK wind farm.
- Provided Anabat acoustical monitoring for bat activity patterns and species composition not detected by wind-turbine fatalities.
- Analyzed data and prepared annual technical reports of the findings.

- Developed better survey techniques and mathematical models to reduce bias in wind farm fatality estimates.
- Salvaged and prepared all recovered specimens for archived museum storage.

PERMITS AND SPECIALIZED TRAINING

- USFWS Endangered Species Research and Recovery (ESA Section 10) permit for American burying beetle, gray bat, Indiana bat, and northern long-eared bat (Current permit #TE33639D-0)
- Oklahoma and Arkansas Department of Wildlife - Scientific Collectors Permit for mammals
- Bat Acoustic Data Management Workshop, Harrisburg, PA – Oct 2016.
- Titley Scientific Anabat Training Workshop, Hulbert, OK – June 2009.

PROFESSIONAL SERVICE

- Indiana bat spring emergence and radio telemetry study volunteer (2017)
- US Fish and Wildlife Service volunteer for bat surveys and WNS surveillance (2016-2017).
- Southeastern Bat Diversity Network Bat Blitz participant (2013).
- Field assistant for research team characterizing the abundance and distribution of the mammals of Colima, Mexico (Winter 2002, 2005).
- Research partnership with Bat Conservation International assessing migration of Mexican free-tailed bats to/from Bracken Cave, Texas.

SAMPLE OF SCIENTIFIC COMMUNICATIONS

Jeffcoat, G., **E.A. Burba**, C.M. Burba. 2020. Using Stable Isotopes to Understand the Dynamics of Mexican Free-Tailed Bats (Tadarida brasiliensis) at Bracken Cave, Texas. NSU Undergraduate Research Day, Tahlequah, OK (presentation).

Burba, E.A., J.F. Kelly, G.D. Schnell**.** 2013. Assessing migratory patterns of hoary bats from wind-farm fatalities using stable isotopes. 16th International Bat Research Conference/47th North American Symposium on Bat Research, San Jose, Costa Rica. (Presentation)

Burba, E.A. J. Wallis, G.D. Schnell. 2003. Adolescent infertility duration and behavioral differences in captive olive baboons (*Papio hamadryas anubis*). 26th Annual Meeting of the American Society of Primatologists, Calgary, Canada (Presentation)

TECHNICAL REPORTS (Sample of the 38+ completed environmental reports)

Burba, E.A. 2021. Acoustic Presence/Absence Survey for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*) on SH-3 over Frazier Creek in Pushmataha County, Oklahoma. Prepared for USFWS and Oklahoma Department of Transportation.

Burba, E.A. 2020. Acoustic Presence/Absence Survey for ESA listed bat species along NS-470 (New Life Ranch Rd) in Delaware County, Oklahoma. Prepared for Oklahoma Department of Transportation.

Burba, E.A. 2015. Northern Long-eared Bat (Myotis septentrionalis) Acoustic Presence/Absence Survey for the Newfield Ellis Well Pad in Pittsburg Co., OK. Prepared for BEACON Environmental Assistance Corp.

Smith, A.D.F., J. Burns, and **E.A. Burba**. 2015. Environmental Assessment of the Proposed Hulbert, Oklahoma Water Treatment Plant Improvements. Prepared for US Army Corp of Engineers.

Burba, E.A., G.D. Schnell, J.A. Grzybowski, P. Kerlinger. 2010. Post-construction avian/bat fatality study for the Blue Canyon II Wind Power Project, Oklahoma: final report. Prepared for Horizon Wind Energy.

Harbor

TOM HUETTER, P.G.

Sr. Project Manager

Tom has 29 years experience as an environmental professional including 21 years as a professional geologist. He also has six years of experience as a health, safety and environmental professional in the upstream natural gas industry. His experience includes regulatory, industry and consulting. He has extensive experience conducting Phase I and Phase II Environmental Site Assessments, as well as groundwater monitoring and remediation of chemical releases at petroleum and hazardous waste sites. He has extensive experience preparing cost estimates, sampling and analysis plans, health and safety plans, quality assurance project plans (QAPP), and detailed reports of project findings. Additionally, Tom has experience in wetland delineations and 404 permitting. Coupled with his technical skills, he is a strong project manager functioning as a primary liaison between clients and state regulators.

EDUCATION

1993
BS Geology - Georgia State University

1994 - 1995
Graduate Studies, Hydrogeology - Georgia State University

PROFESSIONAL HISTORY

- **2016 - Present**
  Harbor, Senior Project Manager
- **2010 - 2016**
  Southwestern Energy, Staff HSE Coordinator
- **2003 - 2010**
  Pollution Management, Inc., Project Geologist
- **1999 - 2001**
  United Consulting, Senior Geologist
- **1997 - 1999**
  Arkansas Dept. of Environmental Quality, Geologist

CORE COMPETENCIES

- Phase I and II Environmental Site Assessments
- Monitoring Well Installation
- Groundwater Monitoring
- Wetland/Stream Delineations and 404 Permitting
- GIS Data Collection and Mapping
- AR Geologist #1820
- MO Geologist #2017035190
- TN Geologist #5939
- TX Geologist #12761

CONTACT

Phone: **O:** 501.663.8800 | **C:** 501.205.9569

Email: thuetter@harborenv.com

Address: 5800 Evergreen Dr. Little Rock, AR

PROJECT EXPERIENCE

Semi-Annual Groundwater Monitoring
Nabors Landfill (Ongoing)

Harbor was contracted by the Arkansas Energy and Environment Division of Environmental Quality (DEQ) to conduct semi-annual groundwater monitoring at a recently closed landfill in north Arkansas. The monitoring well network consists of 24 monitoring wells and several springs. The low-flow sampling technique is utilized where possible for sample collection. Tom functions as project manager over sampling activities and reporting. He is also the primary liaison with the DEQ.

Comprehensive Site Assessment
JT Parsons Warehouse Brownfield Site (2018-2019)

Harbor was contracted by the DEQ Brownfield program to conduct a comprehensive site assessment of an abandoned warehouse that had been previously used to store hundreds of drums of hazardous waste. Field work involved subsurface drilling, soil sampling and monitoring well installation. Tom functioned as project manager and coordinated all field activities and reporting. He was also the primary liaison with the DEQ project manager.

Wetland/Stream Delineation
Proposed Paper Mill (2016)

Harbor partnered with SEH to conduct a wetland and stream delineation on a 600-acre tract for a proposed paper mill. Tom was team lead for the delineation field work. He was also responsible for preparing the report of findings which was utilized by SEH in the permitting process.

Appendix H: ARDOT Migratory Bird Special Provisions and

2016 amended Bald Eagle Guidelines for the Fort Chaffee Joint Maneuver Training Center

12-13-2005
02-26-2014 Rev.
11-16-2017 Rev.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 040748

NESTING SITES OF MIGRATORY BIRDS

DESCRIPTION: All structures on this project, including new, temporary, and existing bridges and/or culverts, may be the nesting sites of migratory birds. These birds include, but are not limited to, swallows and phoebes. The birds and their habitat are protected under the Migratory Bird Treaty Act. Demolition of or construction activities on bridge and culvert structures that might disrupt egg incubation or feeding and sheltering of young migratory birds shall not occur without written permission from the Engineer.

If construction is planned on bridges or culverts when migratory birds are actively building nests, the Contractor shall utilize Option 1 and/or 2 below to deter birds from nesting to allow construction activities to proceed.

CONSTRUCTION METHODS: Restrictions to the Contractor's activities shall include, but are not limited to, the following:

1) Demolition of or construction activities on structures (i.e. sand blasting, painting, etc.) will not be permitted when migratory bird nests are considered active without written permission from the Engineer. This normally occurs in Arkansas from March 1 to August 31, but may occur outside of those dates during unusual weather events. The Contractor shall submit to the Engineer details for all work proposed to be performed on the structure from March 1 to August 31, or while nests are active with eggs or young. A determination will be made by the Engineer within 10 business days concerning the possible impacts of the work and will then accept or reject the Contractor's proposal.

2) **OPTION 1** - The Contractor shall prevent birds from nesting by erecting netting at any time outside of the active nesting season (generally after August 31 to March 1). The Contractor may be allowed to erect netting during the active nesting season if no active nest is present on the bridge or structure. Net openings shall be ½ inch or smaller after installation. Birds that nest despite prevention efforts shall not be removed or disturbed. Netting shall be installed securely and maintained in such a manner that it will not pose a safety hazard.

3) **OPTION 2** – The Contractor may remove inactive nests (those with no eggs or young) via hydro-cleaning or scraping at any time outside of the nesting season (generally after August 31 to March 1). The Contractor will be allowed to scrape or hydro-clean daily to remove any mud or debris placed on the structure by birds attempting to nest, as long as there are no eggs or young in the nests or partial nests. Adult birds cannot be harmed, injured, or harassed in any way except by removal of the unoccupied nests. Exclusionary netting does not have to be used if the Contractor agrees to be diligent and make sure no birds are allowed to nest on the structure.

4) No other methods of deterrence will be permitted without written approval of the Engineer.

5) Migratory birds can build nests very quickly, specifically, in less than two days. If the Contractor allows even one nest on the structure to become active (containing eggs or young birds), they shall be required to stop construction/demolition until the young have voluntarily left the nest (up to six weeks), or get approval through the Engineer from the ARDOT Environmental Division to work around the birds in a manner that does not disrupt incubation, feeding, and/or sheltering of the birds.

6) If no birds are nesting on or in the bridge or culvert structures between March 1 and August 31, a request may be made to the Engineer to allow demolition or construction to proceed. The Engineer will make the final determination concerning the presence or absence of nesting

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 040748

NESTING SITES OF MIGRATORY BIRDS

migratory birds within ten business days and will accept or reject the Contractor's proposal concerning the demolition or construction.

CONTRACTOR NEGLIGENCE: The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department which are the result of the Contractor's failure to comply with this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor's failure to comply with this special provision. The Contractor will not be granted additional compensation or contract time due to noncompliance.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT: All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

IN REPLY REFER TO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 South Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

May 19, 2016

Lt. Col. David Gibbons
c/o Beth Phillips
Arkansas Army National Guard
Fort Chaffee Joint Maneuver Training Center
Bldg. 1370, Ft. Smith Blvd.
Fort Chaffee, Arkansas 72905-1370

Dear Lt. Col. Gibbons,

The U.S. Fish and Wildlife Service (Service) received a request to review and amend the Bald Eagle Guidelines for Fort Chaffee Joint Maneuver Training Center (FCJMTC) in the Service's March 7, 2007 letter of concurrence regarding activities with potential to affect the federally protected Bald Eagle. Our comments are submitted in accordance with the Endangered Species Act (87 stat. 884, as amended: 16 U.S.C. 1531 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), and Migratory Bird Treaty Act (16 U.S.C. 703-712).

The following amended guidelines adhere to the National Bald Eagle Management Guidelines (May 2007) and are applicable to military training and maintenance activities.

1. No activity is permitted within the 660 foot buffer zone at any time during the nesting season (December 15 to June 30) without prior confirmation and Service concurrence that Bald Eagle nesting was a failure or young have successfully fledged the nest for that nesting season.

2. Once confirmation is received and approved by the Service that nesting was a failure or young have successfully fledged the nest for that nesting season, FCJMTC has approval to conduct preparation work and training exercise related to the river crossing sites.

3. Helicopter and fixed-wing aircraft operation within 1,000 feet horizontal and vertical distance from the nest should not occur during the nesting season.

4. Use of explosives and other activities that produce extremely loud noises are prohibited within 0.5 mile upstream and downstream of the nest along the Arkansas River and 0.5 mile inland from both banks of the river along this one mile reach.

5. Use of chemicals toxic to wildlife should not be used within the 660 foot buffer zone. Use of chemicals should be limited to those listed in the February 3, 2011 Biological Opinion Appendix 1. Approved Pesticide List, amended March 14, 2016. Chemicals should only be used in accordance with state and federal laws and labeled instructions for their use.

6. Construction of new buildings and mining should not occur at any time within the 660 foot buffer zone.

7. No buffer is necessary outside the nesting season for off-road vehicle use and human entry. The 660 foot buffer is applicable during nesting season, except environmental staff will be permitted within the buffer zone for nest monitoring purposes, as required.

8. Avoid clear cutting within 330 feet of the nest at any time. Avoid timber harvesting or clearing operations, including road or trail construction, during the nesting season within 660 feet of the nest. Retain mature trees and old growth stands wherever possible within 0.5 mile of the Arkansas River. Preparation work associated with combat trails, access roads, and bridge approaches is permitted provided FCJMTC adheres to Guidelines 1 and 2.

9. Avoid potential disruptive activities in the eagle's direct flight path between the nest and foraging areas.

10. Nesting sites should be protected for a minimum of three years following the last nesting activity or if nests are blown from a tree or otherwise destroyed by natural elements.

11. Use approved non-toxic ammunition within 0.5 mile of the Arkansas River and other foraging area. Eagles are poisoned by lead after feeding on fish and waterfowl that have ingested lead or been shot by lead.

12. FCJMTC monitors active and alternate nests beginning in mid-April through the end of June during the period when Bald Eagles chicks are fledging and are very sensitive to human activity. This monitoring is required to determine nesting failure or whether young have successfully fledged.

    If no human activity (e.g., training exercises, maneuvers, vehicular movement) will occur within 660 feet of the nest before June 30 or when the young have successfully fledged the nest, then monitoring is not required. If any activity may occur prior to June 30 or when the young have fledged, then monitoring should take place from mid-April to the end of June.

13. FCJMTC must consult the Service prior to implementation of any activities that may result in take of Bald Eagles not covered by this letter.

Provided the above conditions are met, FCJMTC actions satisfy the Service guidelines related to Bald Eagle responsibilities under the aforementioned laws. Please use this letter to ensure all

potentially affected parties are informed. The Service welcomes the opportunity to work with FCJMTC in managing the area in a manner protective of the Bald Eagle.

We appreciate your cooperation and interest in protecting endangered species. If you have any questions, or comments, please contact Melissa Lombardi at 501-513-4488.

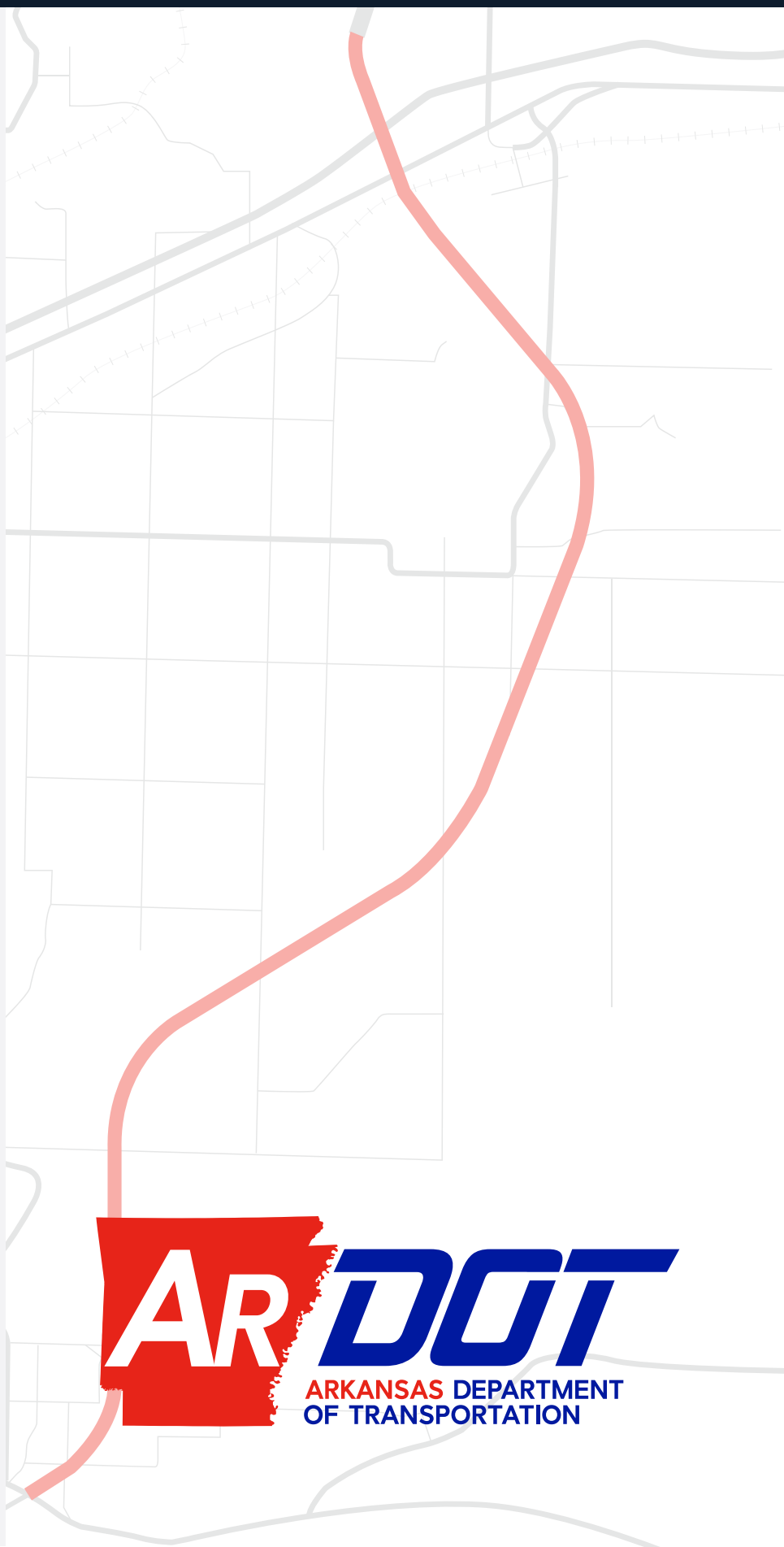
Sincerely,

Melvin Tobin
Field Supervisor

Cc: Karen Rowe, Arkansas Game and Fish Commission

APPENDIX J

Indirect Impacts Technical Report



I-49 Indirect Impacts Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

August 2022
Job 001747

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 OVERVIEW AND PROJECT DESCRIPTION

1.1 Introduction

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 14 miles. The project location is depicted in **Figure 1-1**.

Figure 1-1: Project Location Map

Source: Project Team, 2022

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 corridor extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed (**Figure 1-2**). From Highway 71 to Highway 22 and north of Interstate 40, the corridor currently consists of a median-separated highway with two main lanes in each direction and no frontage roads. North of I-40 the existing roadway includes two southbound lane and two northbound lanes.

Figure 2-2: Overview Map

Source: Project Team, 2022

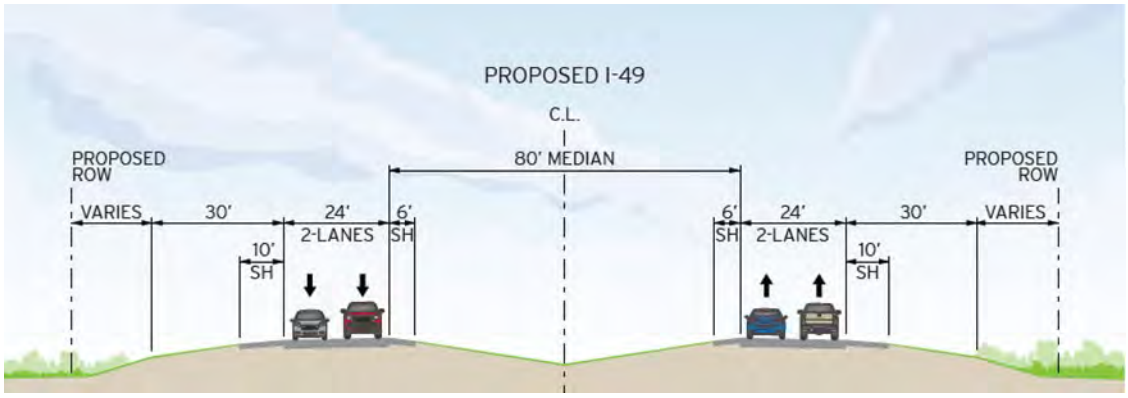
1.2 Existing Facility

No highway facility exists in the project study area. The proposed project consists of a new location highway in a predominantly rural area. Existing roadways in the study area are rural farm-to-market roadways and neighborhood streets, aside from the two termini, Highway 22 and Interstate 40.

1.3 Proposed Facility

The proposed project would generally follow the selected alignment from the 1997 FEIS. The proposed typical section would consist of four 12-foot wide travel lanes (two in each direction), an approximately 80-foot wide median between the inside edges of travel lanes, and 6-foot wide inside and 10-foot wide outside shoulders, as shown in **Figure 1-3**. The average right of way width is 300 feet, except at interchanges, where the right of way width would be greater. The majority of the right of way through Fort Chaffee area was previously deeded to the Arkansas Highway Commission from the United States Department of the Army.

Figure 1-3: Interstate 49 Typical Section



Source: Project Team, 2022

Interchanges are proposed with slip/loop ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade-separated intersections without ramps to maintain local access are proposed for Thornhill Street, Highway 162 (Henry Street), the Union Pacific Railroad (UPRR), Westville Road, Waterfront Road, and Highway 64. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements were extended west to Highway 162 to allow for increased access and mobility to Highway 162.

Under the No Build Alternative, the improvements outlined above would not be constructed.

2.0 INDIRECT IMPACTS IDENTIFIED IN THE 1997 FEIS/ROD

As previously mentioned, the 1997 FEIS/ROD evaluated potential impacts along a 125-mile corridor. Because of the sheer size of this corridor, the analysis of indirect impacts in the 1997 FEIS/ROD was necessarily broad. This re-evaluation of indirect impacts focuses on 13.6 miles of the original 125-mile corridor, thus allowing for a more detailed evaluation of indirect impacts.

This re-evaluation of indirect impacts also follows guidance issued subsequent to the 1997 FEIS/ROD including but not limited to FHWA "Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (2003), National Cooperative highway Research Program (NCHRP) Report 466 "Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects" (2002), and the Texas Department of Transportation's (TxDOT) "Guidance: Indirect Impacts Analysis" (2019).

Per the 1997 FEIS/ROD, the project would facilitate new development, including along the 13.6 miles evaluated in this re-evaluation, which could take several forms as follows:

- Commercial development at interchanges
- Industrial development in existing industrial parks, or the formation of new industrial parks
- Single site industrial developments by manufacturing enterprises that locate in the area due to increased access
- Residential development that may result due to community growth and improved access to nearby job markets

The 1997 FEIS/ROD also states that the project would be integral to the development of former Fort Chaffee military land, as guided by the Fort Chaffee Redevelopment Authority and would result in changes to neighborhoods, property values, travel patterns, and local traffic.

3.0 DIRECT AND ENCROACHMENT ALTERATION IMPACTS

The technical reports prepared for the proposed project assessed the direct impacts that would likely result from constructing this segment of Interstate 49. Additionally, these technical reports examined an aspect of indirect impacts that extend beyond the construction footprint either during or after construction of the facility. Such impacts are referred to as "encroachment-alteration impacts" and TxDOT's Indirect Impacts Analysis Guidance includes the following direction regarding such impacts:

"For projects with encroachment alteration impacts, which are caused by the project but separated from it by time and/or space, the practitioner analyzes each resource analyzed in the direct impact analysis. … and explains the continued affect the project's actions will have on the resource later in time" (Page 18).

The encroachment-alteration impacts analysis traces environmental impacts to the expected point of the attenuation of impacts moving away from the proposed project area, both during and after construction. Examples of impacts that extend beyond the construction footprint include the sedimentation of streams from soil eroded from construction sites, increases in traffic noise experienced on properties near the project after completion, or the contribution to ambient air quality in local areas near the completed project or throughout the region. This approach allows a complete and concurrent discussion of all impact-causing activities attributable to the construction and/or operation of the proposed project.

The technical reports and re-evaluation sections that included discussions of indirect impacts are:

- Community Impacts Assessment Technical Report;
- Archeological Management Summary;
- Historical Resources Survey Report;
- Assessment of Effects for Old Wire Road Report;
- Hazardous Materials Technical Report;
- Traffic Noise Analysis Technical Report;
- Biological Assessment;
- Water Resources Technical Report;
- Floodplains text in the Re-evaluation; and
- Air Quality text in the Re-evaluation.

Considering the evaluation of encroachment-alteration impacts in connection with direct impacts for the proposed project, the discussion of indirect impacts in this technical report focuses only on the potential for the proposed project to result in induced urban growth or changes in land use.

4.0 INDUCED GROWTH INDIRECT IMPACTS ANALYSIS

During project scoping, an examination of relevant aspects of the proposed project indicated that an indirect impacts analysis is required. The analysis of the proposed project for potential induced growth impacts in surrounding areas will follow a six-step process, as outlined below:

1. Define the methodology;
2. Define the area of influence (AOI) and study timeframe;
3. Identify the areas subject to induced growth in the AOI;
4. Determine if growth is likely to occur in the induced growth areas;
5. Identify resources subject to induced growth impacts; and
6. Identify mitigation, if applicable.

4.1 Methodology

The evaluation of whether the proposed project is likely to result in induced growth impacts is patterned after the methodologies detailed in FHWA's *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process*. Of the eight induced growth impact analysis methodologies described in the guidance, the "planning judgment" methodology was used as the framework for the analysis. According to the guidance, the planning judgment methodology "… uses experience, professional literature, data collected from knowledgeable persons, and assessment of local conditions – trends and forecasts – to make judgments about impacts." Local planning experts are asked to weigh in with their knowledge of the project area and provide valuable input regarding induced growth impacts that the proposed project would be likely to cause or accelerate.

Given the complexity of modern urban settings, which blend the influences of history, socio-economics, demographics, and other factors affecting urban growth that are difficult to quantify or model, the expertise of planners acutely aware of local conditions and trends is

invaluable to this process. Accordingly, city planning experts were consulted to obtain input relevant to defining the AOI, as well as current planning documents and other data relevant to the analysis of the proposed project's indirect impacts. While this methodology relies primarily on the judgment of municipal planning professionals, this approach was also augmented using the "cartographic techniques" methodology described in FHWA's *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process*. The use of various thematic mapping layers in a geographic information system (GIS) greatly assisted in evaluating the areas surrounding the proposed project for induced growth potential. These thematic overlays included current and historic aerial photography, environmental constraints data such as land use and ownership, cultural resources, natural resources, and socio-economic data (e.g., areas with minority and/or low-income populations).

4.2 Area of Influence and Study Timeframe

The basic objective in creating an indirect impacts AOI is to delineate a study area that circumscribes locations where project-related induced growth could reasonably be expected to occur. There are four preferred methods for determining the AOI:

1. Adopting political/geographic boundaries;
2. Using the project's commute-shed[1]
3. Using the location of next major parallel roadway; and/or
4. Incorporating data from stakeholder interviews or public involvement.

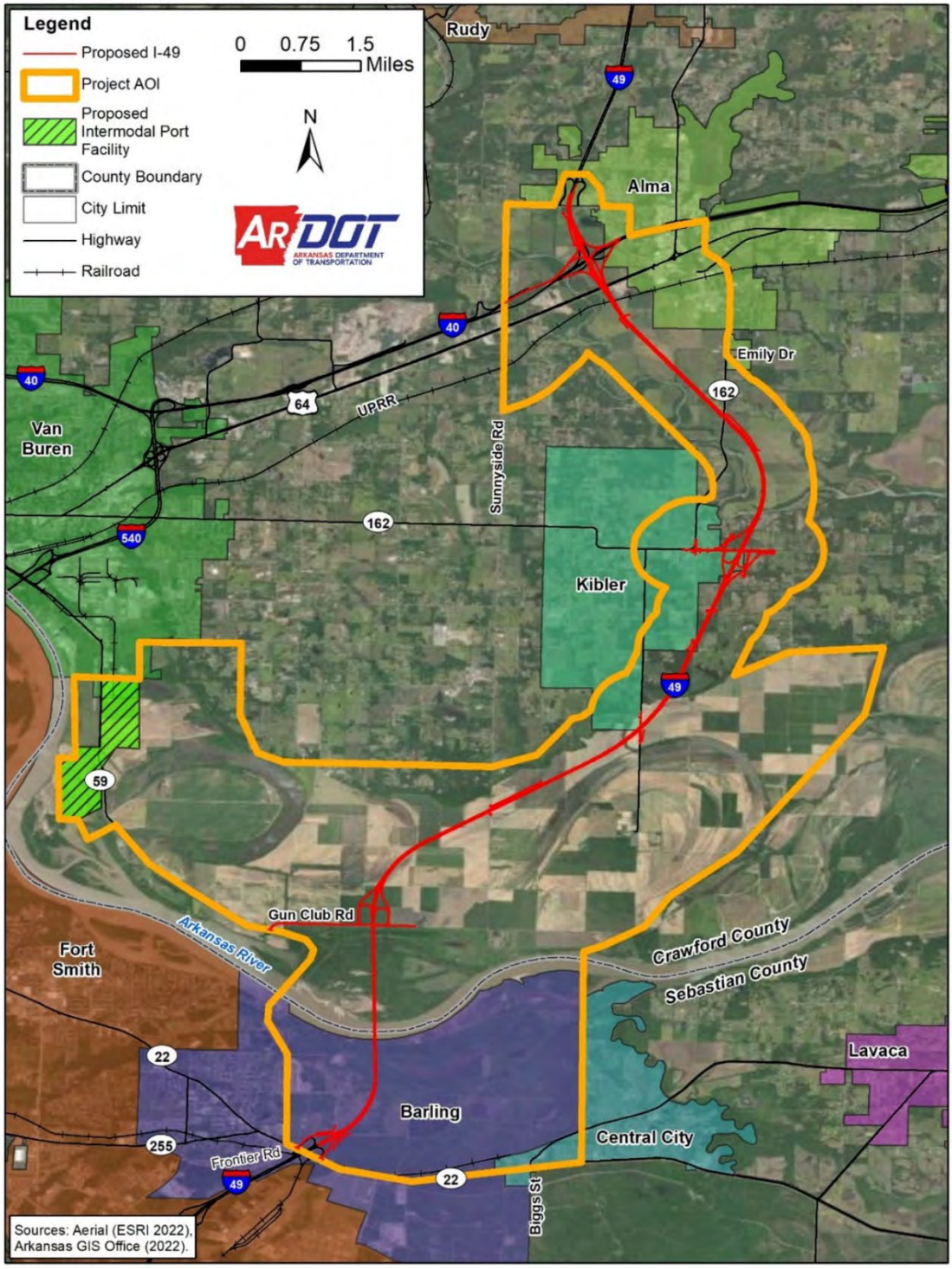
The AOI for the proposed project was established with a combined methodology of using the location of major parallel roadways, major planned developments such as the Western Arkansas Intermodal Authority (WAIA) Development Area, and obtaining input from the City of Alma, City of Barling, and the Frontier Metropolitan Planning Organization (MPO) planners. In particular, where no major adjacent roadways or planned developments were present, a half-mile buffer was selected as the boundary because local planners did not anticipate project-induced development to reach beyond this limit. The AOI, as shown on **Figure 4-1**, is within the city limits and extraterritorial jurisdictions (ETJs) of Barling, Kibler, and Alma as well as unincorporated areas within Crawford and Sebastian Counites. The AOI encompasses approximately 23,942 acres and is demarcated by the following boundaries:

- **Northern Boundary:** Interstate 40 and adjacent property boundaries
- **Eastern Boundary:** Highway 162 and the eastern limits of the proposed WAIA Development Area
- **Southern Boundary:** Highway 22 and adjacent property boundaries
- **Western Boundary:** Sunnyside Road and the western limits of the proposed WAIA Development Area.

[1] If using a commute-shed, the study area should be sized to coincide with a set commuting range or travel time to a major destination. Destinations should be of a size and type sufficient to affect the locational choices of future residents or employers. (NCHRP Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects, 2002)

A temporal frame of reference is necessary in addressing the range of impacts that may be caused by the proposed project in the future. The temporal boundaries selected for the analysis of the indirect effects extend from construction of the proposed project until 2045, which is the project's design horizon year and correlates with the current Metropolitan Transportation Plan time frame.

Figure 4-1: Area of Influence (AOI) Map



Source: Project Team, 2022

4.3 Areas Subject to Induced Growth

Cartographic techniques were used to identify areas within the AOI that would not be likely to experience project-induced development. These areas that would be unsuitable or unlikely for future development activities include existing public facilities (e.g., schools, civil services, municipal buildings, etc.), and parcels that are currently developed for commercial or residential use. Based on the application of GIS tools and input from city planners, an estimated 20% (approximately 4,700 acres) of the AOI is considered to have potential for project-induced growth. This land is comprised of vacant/undeveloped parcels, farmland, and other properties that could potentially be redeveloped within and near the cities of Barling, Kibler, and Alma.

Input from local planners was sought to assist with identifying areas where project-induced growth impacts would likely occur. These planners have first-hand knowledge regarding current and future land use plans, property values, forecasted growth, supply and demand, other market factors affecting the cities and their ETJs, and applicable public policies that would promote and regulate future development. City planning experts were asked to specifically identify areas where the amount, type (e.g., commercial, residential, industrial, etc.), location, or timing of development would be different because of the proposed project. Specific questions included:

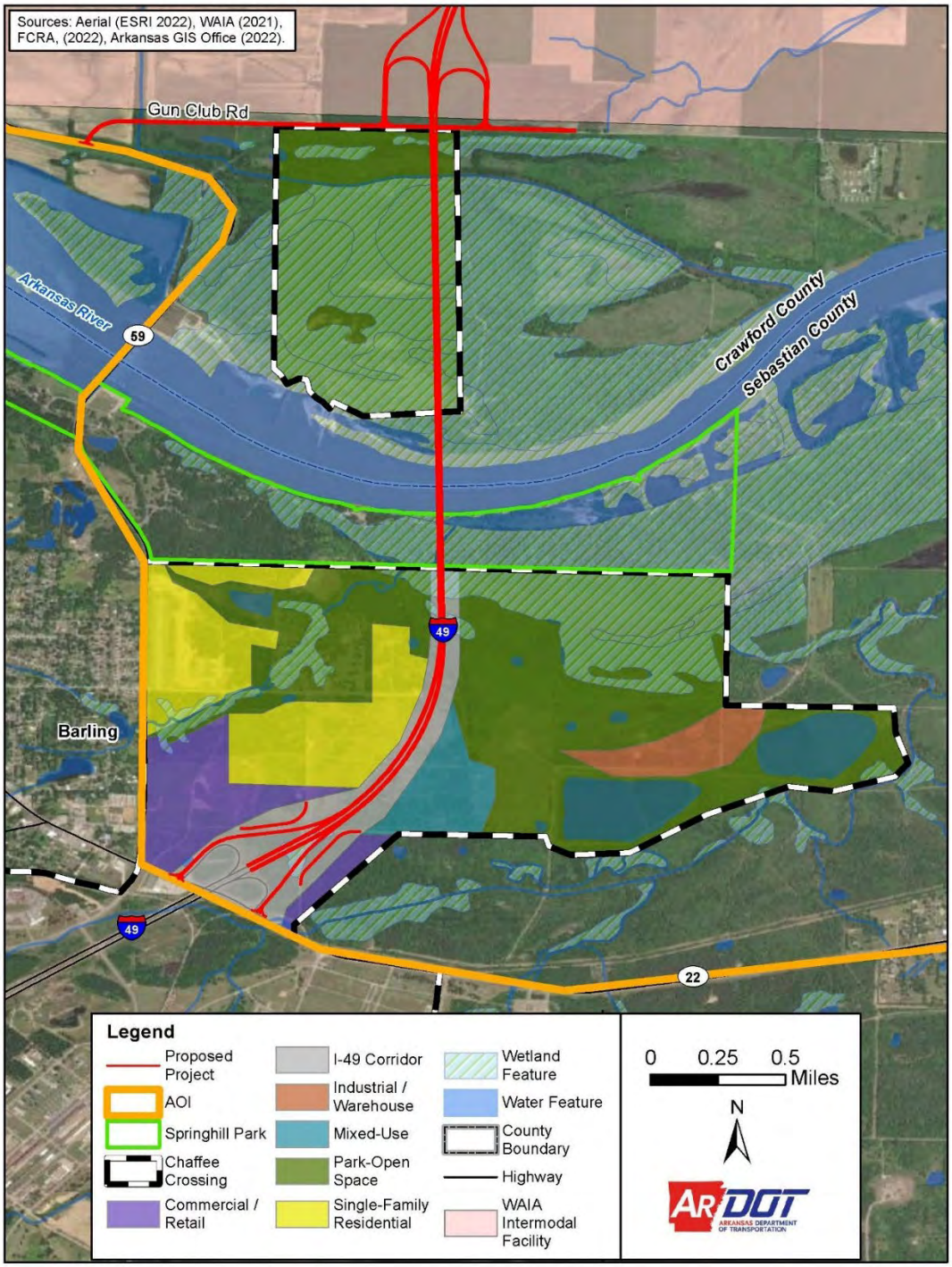
1. Does the city have a future land use plan that assumes implementation of the Interstate 49 you send them to me or send me a link to the documents?
2. Based on the location of the new highway facility, which specific areas within your jurisdiction or adjacent to your jurisdiction would you anticipate to develop as a result of the proposed project?
3. In the areas anticipated to develop, what specific types of development would you anticipate?
4. Any specific local trends or conditions that might influence the extent or the type of development?
5. Is there anything else that you can provide or tell me that would be beneficial to my analysis?

Meetings with city planners were conducted in April 2022. The responses from planners for each city regarding factors influencing development within the AOI are summarized in the discussion that follows.

<u>City of Barling/Chaffee Crossing</u>

City of Barling planners and representatives of the Chaffee Crossing development indicated that the proposed project is key to the Chaffee Crossing master-planned development north of Highway 22, as this segment of Interstate 49 would provide access to this currently undeveloped area. The proposed project would not only accelerate this development, but the project is key to development occurring within this portion of the AOI. While Chaffee Crossing is currently under construction south of Highway 22, the planned area north of Highway 22 is largely dependent on the implementation of Interstate 49. Specific induced development in Chaffee Crossing as a result of the implementation of Interstate 49 includes approximately 115 acres of commercial/retail development, 230 acres of single-family residential, 50 acres of industrial/warehouse, and 60 acres of mixed-use development, as shown in **Figure 4-2.**

Figure 4-2: Induced Development Areas within the AOI – Chaffee Crossing



Source: Project Team, 2022

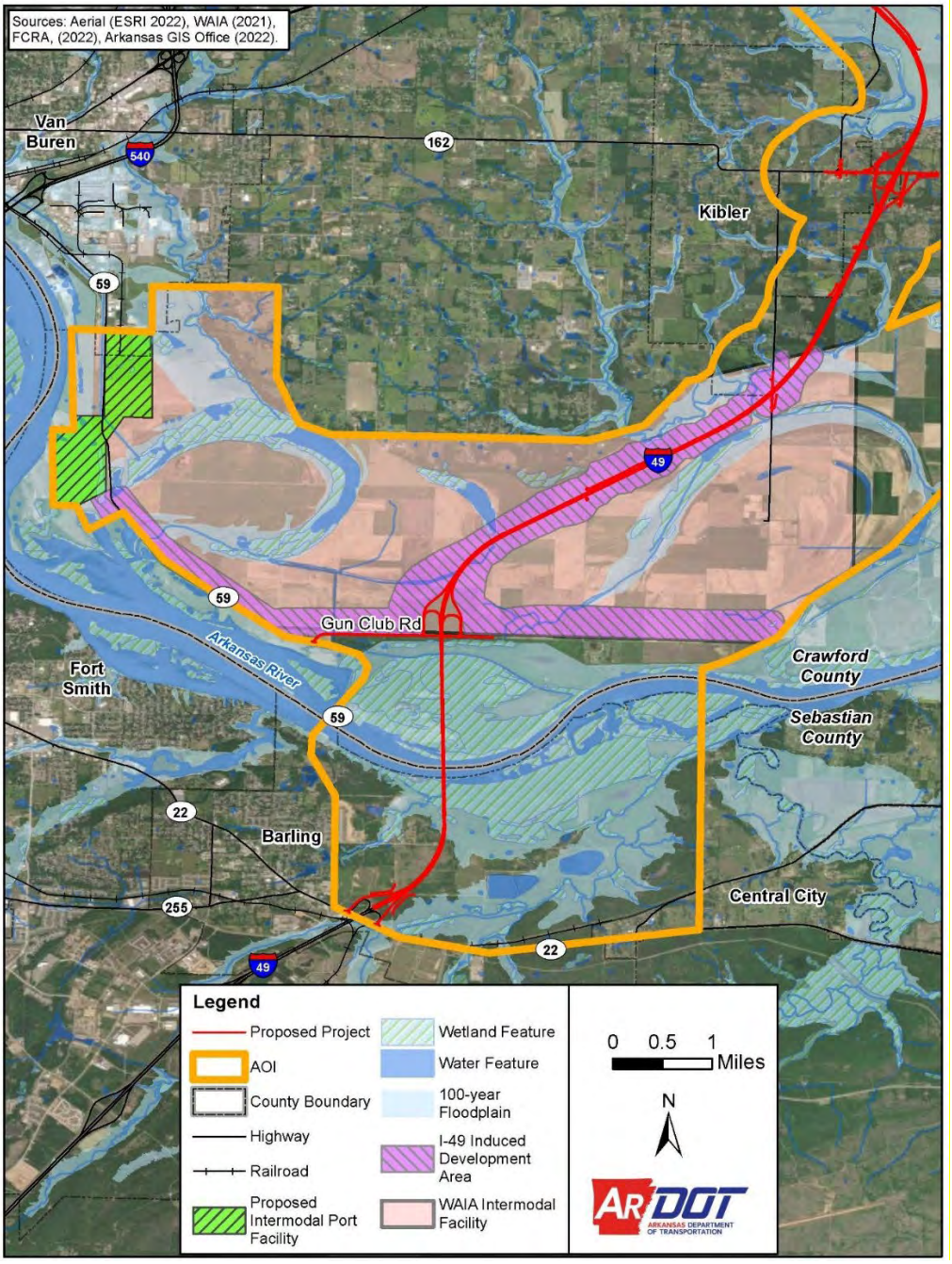
WAIA Development Area

The WAIA development area is a nearly 9,700-acre planned development area located along the Arkansas River that, at full build-out, would include an intermodal port with multimodal (port/rail/truck) connections and an extensive area for associated economic development. The intermodal port facility would initially involve 457 acres located off Highway 59 on the Van Buren side of the Arkansas River. The port would service companies in Van Buren, Fort Smith, and the surrounding areas. While development around the port facility would occur regardless of the

proposed project, the project would result in induced development in the larger 9,700-acre WAIA Development Area due to the project bisecting the center of the currently undeveloped tract.

The undeveloped area that would likely be developed as a result of the proposed project is located along and on either side of the corridor and along the connecting highway and roadway facilities, including Highway 59 and Gun Club Road, as shown in **Figure 4-3**. Most of this area currently consists of undeveloped land, farmland, or floodplain. In all, the proposed project is anticipated to result in nearly 2,000 acres of induced growth within the nearly 9,700 acre WAIA development area.

Figure 4-3: Induced Development Areas within the AOI – WAIA Development Area



Source: Project Team, 2022

Cities of Kibler, Alma and Unincorporated Areas

The planners from the Cities of Kibler and Alma indicated that they anticipate a large amount of induced development as a result of the implementation of the proposed project, as shown in **Figure 4-4**. Planners expect commercial and industrial development to occur on and near the Highway 162 corridor and the Union Pacific railway in Alma. Landowners in this area have already committed their land for this type of development. Planners in Alma expect more single-family housing subdivisions and commercial/retail development to occur along Collum Lane near Interstate 49 in west Alma. Commercial/Industrial development is anticipated for Highway 162, Hamer Road, Reed Lane (near Union Pacific railway), and Red Hill Road (which is planned to connect to Highway 162).

East of the proposed Hamer Road and Interstate 49 intersection, planners anticipate a large industrial/warehouse development and anticipate that this area, as well as Alma and Kibler, will likely transform into a hub for logistics and/or warehousing due to their crossroad position. Planners also anticipate that with the current housing shortage, Alma and Kibler and surrounding areas will likely support housing developments for commuters traveling to work in Fort Smith and Northwestern Arkansas, due to the short commute distance.

Within the Interstate 49 corridor between Alma and Kibler, induced growth as a result of the implementation of the proposed project is anticipated to result in the development of approximately 870 acres of commercial/retail, 540 acres of industrial/warehouse, and 860 acres of single-family residential, with that majority of that development occurring within a 0.5-mile buffer of the Interstate 49 facility.

Summary

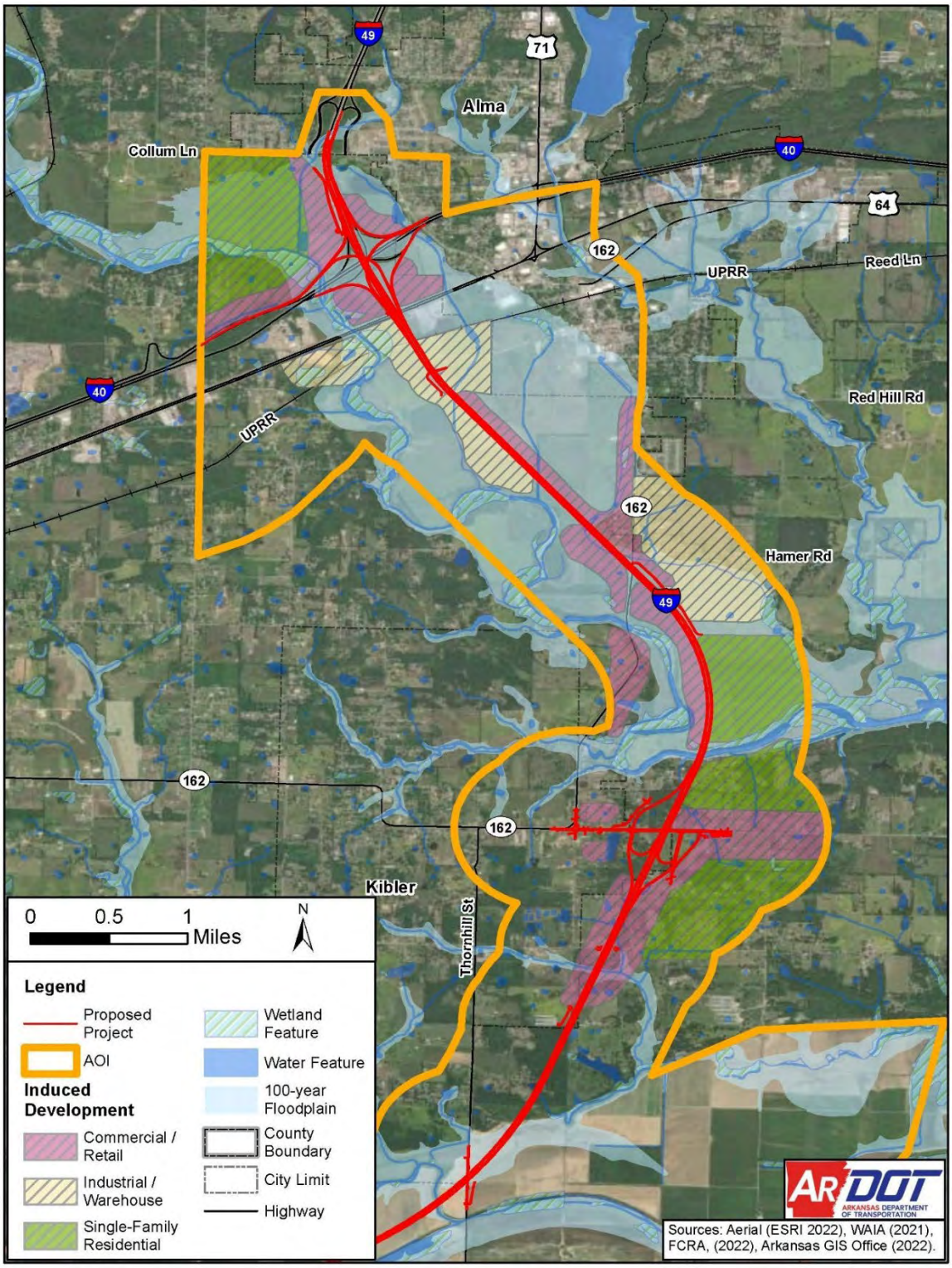
Based on input from city planners and an analysis of geospatial data, numerous areas within the AOI are likely to either undergo urban development or redevelopment or may experience an acceleration in the timing of such changes in land use. Changes in access to properties may often be the cause of induced growth where existing access connections to road networks are inadequate. The proposed project is a new location segment of the larger Interstate 49 corridor and would substantially improve access to adjacent properties. Much of the land surrounding the proposed project is farmland and/or undeveloped, and improved access to Interstate 49 would result in substantial development opportunities within the AOI. Accordingly, substantial development within the AOI is anticipated between construction of the proposed project and 2045 (i.e., the project's design horizon year).

The findings presented in **Section 4.3** are generally consistent with the high-level analysis in the 1997 FEIS/ROD (**Section 2.0**), which looked at indirect impacts for several potential alignments for a 125-mile corridor. As the indirect impacts analysis presented in this report is solely for the Build Alternative extending from Highway 22 to Interstate 40, it is more detailed and has identified specific areas of induced development per updated guidance[2].

[2] FHWA "Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (2003), NCHRP Report 466 "Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects" (2002) and TxDOT's "Guidance: Indirect Impacts Analysis" (2019).

The No-Build Alternative would not result in any development beyond what the current development trends would indicate and what is already planned by the cities of Barling, Kibler, and Alma and ETJs.

Figure 4-4: Induced Development Areas within the AOI – Alma and Kibler



Source: Project Team, 2022

4.4 Likelihood of Growth in Induced Growth Areas

City planners and developers indicate that it would be likely that the three areas discussed in the previous section would be developed or redeveloped following construction of the proposed project. The types of development or redevelopment expected for each area identified by the planners are described in **Table 4-1** and shown in **Figures 4-2** through **4-4.** Based on these projections, approximately 4,700 acres of predominantly commercial/retail, industrial/warehouse, single-family residential, and mixed-use development would occur within these areas or would be expected to experience an acceleration of development. The total area of project-induced growth reflects approximately 20% of the AOI.

Table 4-1: Types of Induced Development by Development Area

Induced Development Areas	Induced Commercial/ Retail (acres)	Induced Industrial/ Warehouse (acres)	Induced Single-Family Residential (Acres)	Induced Mixed-Use (acres)	Total Induced Acres
Barling/Chaffee Crossing	115	50	230	60	455
Kibler/Alma	870	540	860	-	2,270
WAIA Development Area	-	2,000	-	-	2,000
Total Acreage	**985**	**2,590**	**1,090**	**60**	**4,725**

Source: Project Team, 2022

4.5 Resources Subject to Induced Growth Impacts

Each of the resources/issues assessed for direct impacts was screened for potential impacts resulting from the project-induced land use conversion of approximately 4,700 acres within the AOI. The approximately 4,700 acres of induced growth were evaluated in terms of resources present within these properties which include a historic Section 4(f) property, floodplains, water and wetlands, and vegetation/wildlife habitat.

<u>Old Wire Road</u>

The Old Wire Road is a segment of gravel roadway located west of the town of Alma in Crawford County, Arkansas as shown in **Figures 4-5** and **4-6**. The road was originally constructed and depicted as a "4 Horse Mail Post Coach Road" on maps dating to 1839. According to the Addendum Report produced in 2018[3], the roadway is approximately 1.0 mile in length and "terminates to the east at the paved portion that becomes West Main Street and to the west before Frog Bayou. The old road continued west to Van Buren over the bayou. The road continued east through present-day Alma and through Ozark and Clarksville, ultimately connecting Van Buren and Little Rock." Currently, the road is only used for access to privately-owned fields.

[3] *Job Number 040748 Historic Resource Survey Addendum Report, June 2018.*

Figure 4-5: 1890 Fort Smith Quadrangle Map (Surveyed 1887)

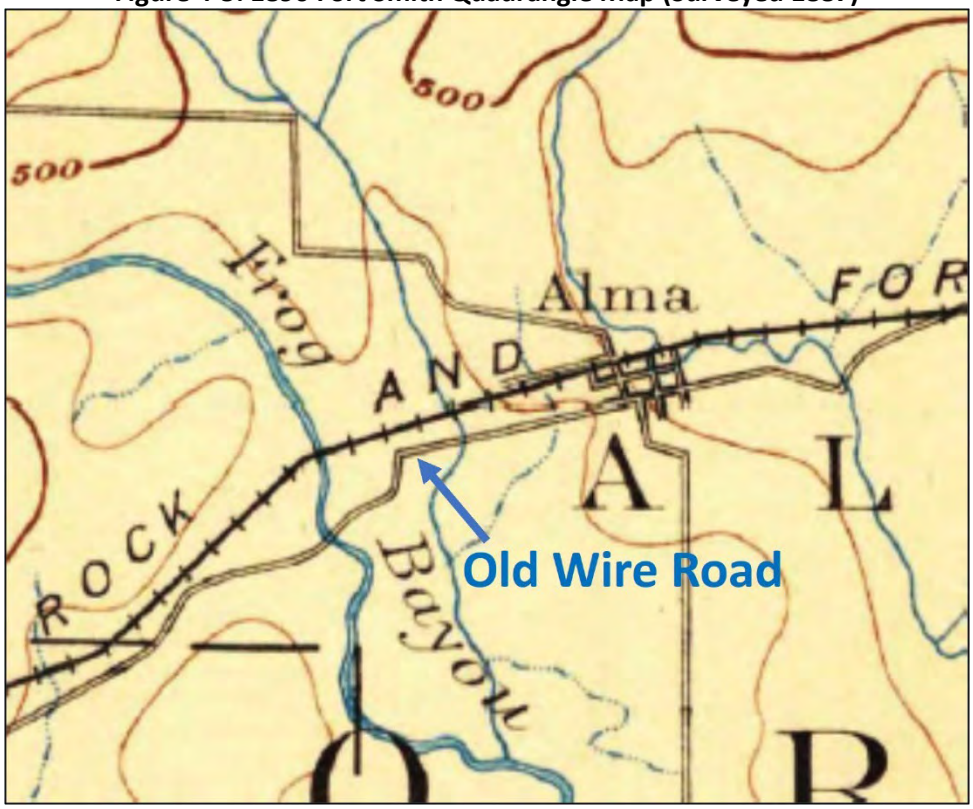
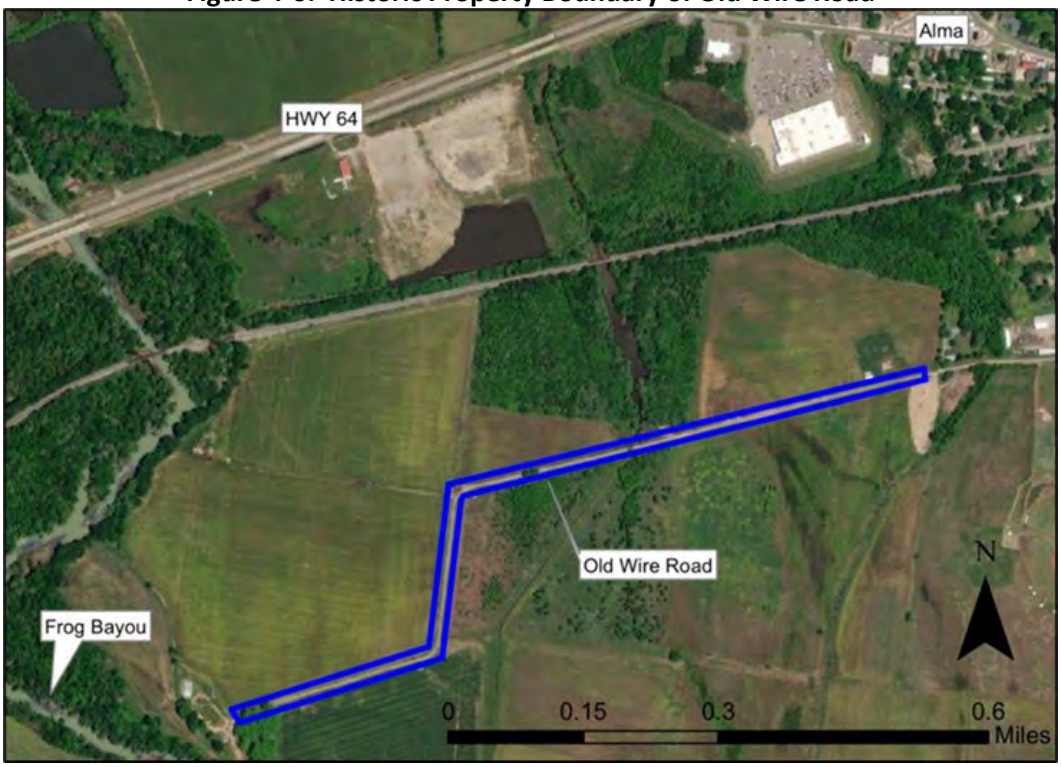


Figure 4-6: Historic Property Boundary of Old Wire Road



The road averages from 12’ to 15’ wide with no shoulders. While the original road likely consisted of dirt, it is currently covered in river gravel. Per the addendum report description, the existing segment generally follows the same route as shown in mid-to-late nineteenth century maps. Until the early 20th century, a triple bowstring bridge was located where the road crossed Frog Bayou. With the construction of Highway 64 in the late 1910s, the bridge was removed and the bayou was forded because the stagecoach route was less frequently traveled. By the 1940s, the road was no longer in operation and is known today by the locals as “Old Wire Road” or “Stagecoach Road.” While only a portion of the old road exists today, it remains an important, intact example of an early post road.

The Old Wire Road was determined eligible for inclusion in the National Register of Historic Places (NRHP) under Criterion A for being an early post road and route and Criterion C for its association with a method of road construction in the 19th century. It is also eligible for protection under Section 4(f) of the USDOT Act of 1966 as a historic property. The Arkansas State Historic Preservation Officer concurred with this determination in a letter dated June 21, 2018.

The proposed project would result in a direct impact to the existing Old Wire Road. Measures to minimize harm include archival documentation of the property and a written history of the road, which will be provided for curation to the Arkansas Historic Preservation Program, Arkansas State Library, Arkansas Studies Institute, Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas. Additional information on direct impacts to Old Wire Road is located in the historic Section 4(f) evaluation for this resource.

Indirect impacts as a result of the implementation of the proposed project would occur to the private properties adjacent to the directly impacted segment of Old Wire Road through anticipated development (industrial/warehouse and commercial) along the frontage roads of the new Interstate 49 facility in this area, as shown in **Figure 4-4**. Per City of Alma planners, the private property owners in this area have already been working with city planners and officials to prepare the properties for transition to these new developments. Accordingly, the induced development would be on private property already planned for new development, and that development would not impact Old Wire Road itself, just the existing farmland setting.

Floodplains

The Federal Emergency Management Agency (FEMA) maintains flood insurance rate maps (FIRMs). FEMA's National Flood Hazard Layer (NFHL) Viewer and floodplain GIS data for Crawford and Sebastian counties were reviewed to evaluate the location of any mapped floodplains in relation to aquatic resources located within the AOI. Available flood hazard areas downloaded in March 2022 from the Arkansas GIS Office and FEMA FIRM Panels were reviewed to determine flood zones. Approximately 10,000 acres of FEMA 100-year floodplains are located within the project AOI.

Impacts to floodplains from induced growth were assessed based on knowledge of the anticipated locations and intensity of induced development overlaid on the FEMA FIRMs to calculate acreage of floodplain likely impacted by the Interstate 49 induced growth. **Table 4-2** provides total anticipated induced growth and acreage of floodplain impacts anticipated as a result of the induced growth within the three induced development areas.

Table 4-2: Anticipated Induced Growth Impacts to Floodplains

Induced Growth Areas	Anticipated Induced Growth (Acres)	Anticipated Induced Growth within Floodplain (Acres)
Chaffee Crossing	460	0
WAIA Development Area	2,000	220
Kibler/Alma	2,300	1,200

Source: Project Team, 2022

Water and Wetland Features

Impacts to all water and wetland features, regardless of whether the feature would be regulated by the USACE, from induced growth were assessed based on knowledge of the project area gained during the field reconnaissance and analysis of aerial photographs and were quantified using National Wetland Inventory (NWI) GIS data. Within the AOI, there are approximately 1,273 acres of water features and 2,895 acres of wetland features. Induced impacts to water and wetland features are anticipated in each of the induced growth areas, as shown in **Figure 4-2, Figure 4-3, and Figure 4-4**. Details of the specific acreages of water and wetland impacts for each area are provided in **Table 4-3**.

Table 4-3: Anticipated Induced Growth Impacts to Water and Wetland Features

Induced Growth Areas	Anticipated Induced Growth (Approximate Acres)	Anticipated Induced Growth Impacts to Water Features (Approximate Acres)	Anticipated Induced Growth Impacts to Wetland Features (Approximate Acres)
Chaffee Crossing	460	1.4	5.8
WAIA Development Area	2,000	19.9	13.9
Kibler/Alma	2,300	40.9	93.7

Source: Project Team, 2022

Vegetation/Wildlife Habitat

Impacts to wildlife habitat from induced growth were assessed based on field reconnaissance, aerial photographs, and GIS land cover data. The areas expected to experience induced growth impacts are comprised of the following types of land cover types: urban, farmland, cropland, pasture, bottomland hardwood forest and upland forest. Approximately 7,000 acres of the nearly 24,000 acres contained within the AOI were identified as the urban land cover type, which is excluded from consideration for wildlife habitat impacts because the Arkansas Game and Fish Commission does not recognize urban-classified land as providing substantial value for wildlife habitat.

Of the remaining 17,000 acres of non-urban land, approximately 6,000 acres consist of farmland/cropland, predominantly in Crawford County, and 11,000 acres is currently undeveloped. The presence of human activity in these areas, in combination with current and historic agricultural practices, make it unlikely that much high-quality wildlife habitat would be replaced by induced urban development. However, some areas of anticipated induced development do contain high-quality wildlife habitat, primarily within the upland and

bottomland hardwood forest habitats found within the AOI. Approximately 500 acres of induced development is anticipated to occur within the upland and bottomland hardwood forest habitats.

Wildlife that could potentially utilize the upland and bottomland hardwood forest habitats in induced growth areas include big game species such as white-tailed deer (*Odocoileus virginianus*), Eastern Wild Turkey (*Meleagris gallopavo*) and black bear (*Ursus americanus*). Important small game and furbearing mammals include the fox squirrel (*Sciurus niger*), gray squirrel (*Sciurus carolinensis*), coyote (*Canis latrans*) and raccoon (*Procyon lotor*). Other common mammalian species include the nine-banded armadillo (*Dasypos novemcintus*) and opossum (*Didelphis virginiana*). Forest dwelling small mammals, such as mice, moles, and shrews, provide a valuable food resource for larger forest predators such as the coyote, red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Felis rufus*), and mink (*Mustela vison*). Forest songbirds include a variety of warblers, wrens, thrushes, vireos, flycatchers and woodpeckers and forest raptors include the Great Homed Owl (*Bubo virginianus*), Barred Owl (*Stryx varia*), Cooper's Hawk (*Accipiter cooperii*), Sharp-shinned Hawk (*Accipiter striatus*), Red-shouldered Hawk (*Buteo lineatus*), Indiana bat (*Myotis sodalis*), and the northern long-eared bat (*Myotis septentrionalis*).

According to the USFWS Information for Planning and Consultation (IPaC) tool (as of June 18, 2022), the following federally-listed threatened (T), endangered (E), or candidate (C) species occur within or near the Interstate 49 corridor: the gray bat (*Myotis grisescens*) (E), the Indiana bat (*Myotis sodalis*) (E), the northern long-eared bat (*Myotis septentrionalis*) (T), the Ozark big-eared bat (*Corynorhinus townsendii ingens*) (E), the Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*) (T), the Piping Plover (*Charadrius melodus*) (T), the Red Knot (*Calidirs canutus rufa*) (T), the American burying beetle (*Nicrophorus americanus*) (t), the monarch butterfly *(Danaus plexippus*) (C), and the Missouri bladderpod (*Physaria filiformis*) (T).

As a new location project, habitat fragmentation is anticipated. As previously discussed, project-induced development is anticipated primarily adjacent to the proposed project, thereby widening the area of anticipated habitat fragmentation.

4.6 Mitigation

Land development activities that may be induced by the proposed project are most likely to be private ventures regulated by each of the city or county land development ordinances. Such regulations address environmental and social impacts by requiring mitigation as part of site design and construction such that development is in accordance with overall city and county objectives. Any mitigation for project-induced land development impacts that arise after construction of the proposed project would be overseen by the respective cities and counties and would be the responsibility of the site developer.

<u>Old Wire Road</u>

The induced development associated with the project would not result in any additional impacts to Old Wire Road. Per the City of Alma planners, the private property owners in this area have already been working with city planners and officials to prepare the properties for transition to these new developments.

Impacts to private properties adjacent to the Old Wire Road from project-induced growth impacts are subject primarily to regulation by city and county governments, which guide the type and location of new development.

Floodplains

ARDOT self-regulates on projects that cross regulated floodplains. ARDOT reviews plans for compliance with FEMA requirements. ARDOT also coordinates with the local floodplain administrators when those minimums cannot be met and a Conditional Letter of Map Revision (CLOMR)/Letter of Map Revision (LOMR) is necessary.

Impacts to floodplains from project induced growth impacts are subject primarily to regulation by city, county, and state governments, which guide the type and location of new development.

Water and Wetland Features

Impacts to water and wetlands are anticipated in the Chaffee Crossing, WAIA Development Area, and Kibler and Alma AOIs. Those water and wetland features considered jurisdictional are regulated by the U.S. Army Corps of Engineers (USACE) requiring Section 404 permitting and possible mitigation. Section 404 permit applications for projects that impact wetlands are submitted to the USACE, but are also subject to Arkansas Division of Environmental Quality Section 401 Water Quality Certification. Arkansas does not have any state-specific wetlands regulations. If any of the developments in the AOIs utilize federal money (i.e. considered a federal project), then Executive Order 11990 – Protection of Wetlands would apply.

Vegetation/Wildlife Habitat

Impacts to wildlife habitat from project-induced growth impacts are subject primarily to regulation by city and county governments, which guide the type and location of new development. Generally, municipal land development policies focus on health and safety rather than preservation of ecological values. To the extent that local policies require tree preservation and landscaping as part of site development, mitigation of impacts to wildlife habitat may occur due to such regulations and to achieve the aesthetic goals of property owners.

APPENDIX K

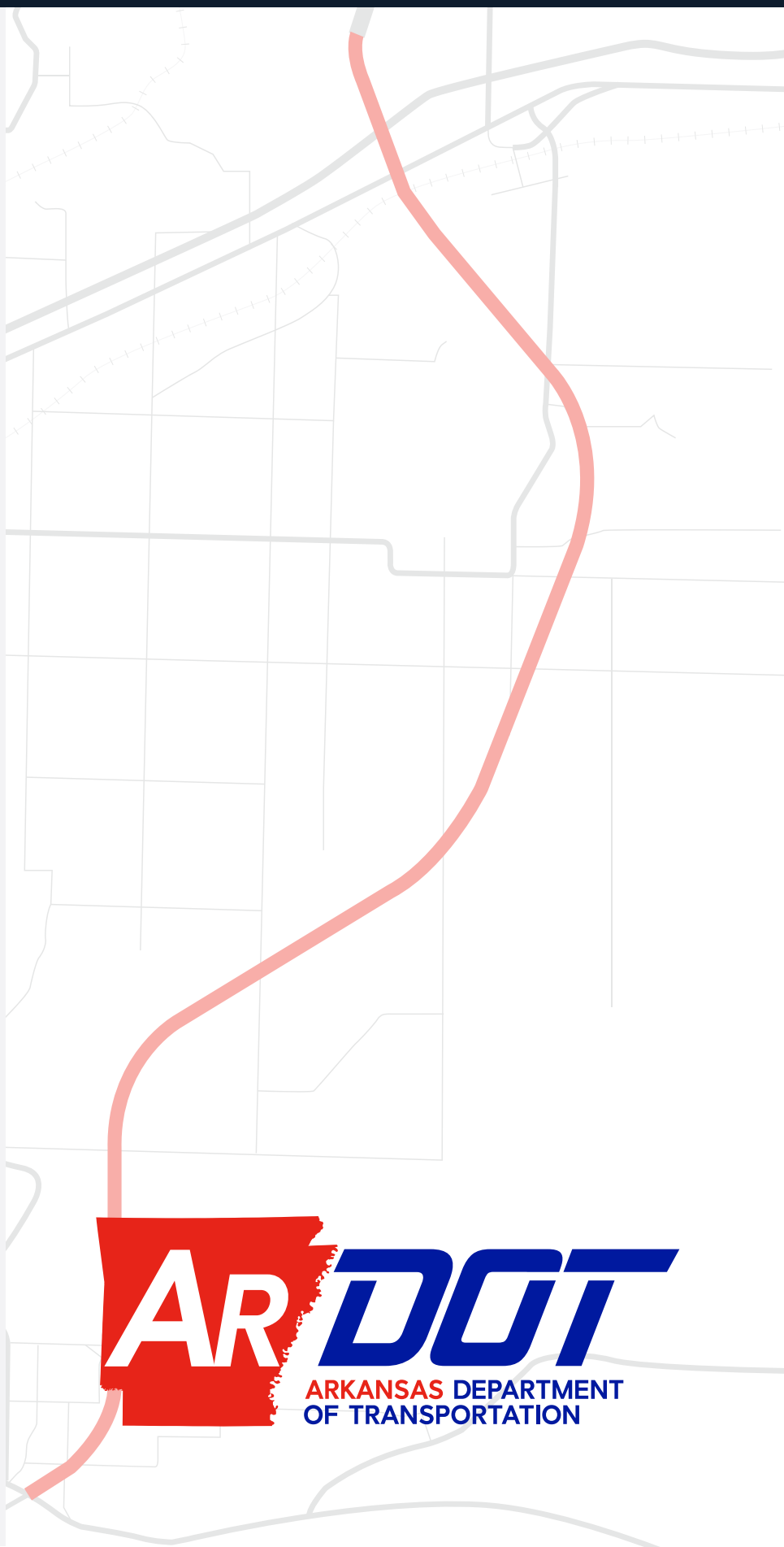
Cumulative Impacts Technical Report

I-49 Cumulative Impacts Technical Report

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

October 2022
Job 001747



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ARKANSAS DEPARTMENT OF TRANSPORTATION

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1.0 PROJECT DESCRIPTION

1.1 Introduction

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 14 miles. The project location is depicted in **Figure 1-1**

Figure 1-1: Project Location Map.

Source: Project Team, 2022

This proposed project was originally part of a larger environmental study known as the U.S. 71 Relocation. This study extended from Highway 70 in DeQueen, Arkansas to Interstate 40 near Alma, Arkansas, a distance of approximately 125 miles. The relocation of U.S. 71 in Arkansas is part of the Congressionally-designated High Priority Corridor 1, extending from Shreveport, Louisiana to Kansas City, Missouri. An FEIS was prepared for the U.S. 71 Relocation project and a Record of Decision (ROD) was issued in December 1997 that approved the general alignment of a new location, four-lane highway in western Arkansas.

The existing Interstate 49 corridor extends from Shreveport, Louisiana to Kansas City, Missouri. The Interstate 49 corridor has been under construction since the early 1990s, with several sections fully completed (**Figure 1-2**). From Highway 71 to Highway 22 and north of Interstate 40, the corridor currently consists of a median-separated highway with two main lanes in each direction and no frontage roads. North of I-40 the existing roadway includes two southbound lane and two northbound lanes.

Figure 1-2: Overview Map

Source: Project Team, 2022

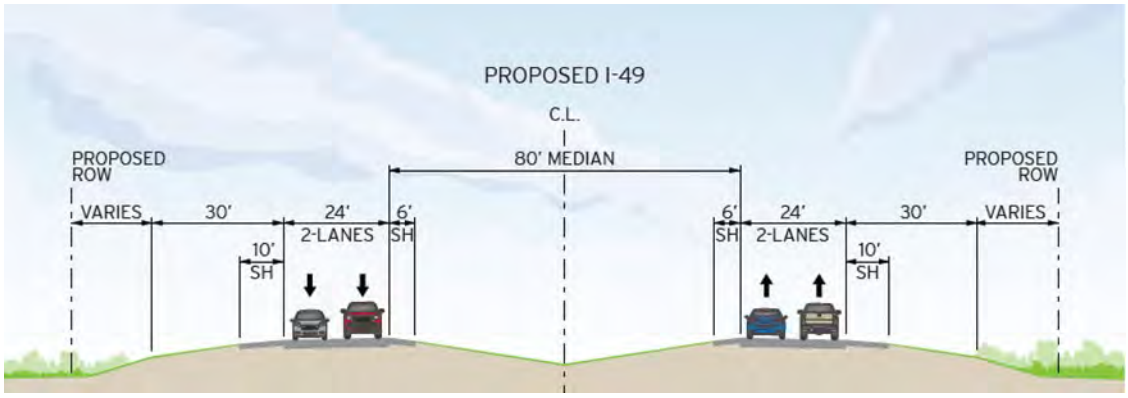
1.2 Existing Facility

The proposed project consists of a new location highway in a predominantly rural area. Existing roadways in the study area are rural farm-to-market roadways and neighborhood streets, aside from the two termini, Highway 22 and Interstate 40.

1.3 Proposed Facility

The proposed project would generally follow the Selected Alignment from the 1997 FEIS. The proposed typical section would consist of four 12-foot wide travel lanes (two in each direction), an approximately 80-foot wide median between the inside edges of travel lanes, and 6-foot wide inside and 10-foot wide outside shoulders, as shown in **Figure 1-3**. The overall right of way width would vary to a maximum width of approximately 288 feet, except at interchanges, where the right of way width would be greater. The majority of the right of way through the Fort Chaffee area was previously deeded to the Arkansas Highway Commission from the United States Department of the Army.

Figure 1-3: Interstate 49 Typical Section



Source: Project Team, 2022

Interchanges are proposed with slip/loop ramps at Highway 22, Gun Club Road, and Clear Creek Road. At Interstate 40, a fully directional interchange with direct connect ramps is proposed. Proposed grade-separated intersections without ramps to maintain local access are proposed for Thornhill Street, Highway 162 (Henry Street), the Union Pacific Railroad (UPRR), Westville Road, Waterfront Road, and Highway 64. Based on the recent Highway 162 re-designation, Clear Creek Road arterial improvements were extended west to Highway 162 to allow for increased access and mobility to Highway 62.

Under the No Build Alternative, the improvements outlined above would not be constructed.

2.0 CUMULATIVE EFFECTS IDENTIFIED IN THE 1997 FEIS/ROD

The 1997 FEIS/ROD identified the Fort Chaffee Redevelopment Area as a reasonably foreseeable action, but resource impacts were not discussed. No other cumulative effects were discussed for the 125-mile corridor evaluated in the 1997 FEIS/ROD.

This re-evaluation of cumulative effects focuses on 14 miles of the original 125-mile corridor. The cumulative effects technical report also follows guidance issued subsequent to the 1997 FEIS/ROD including but not limited to FHWA's *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (2003), the American Association of State Highway and Transportation Official's (AASHTO) Practitioners Handbook *Assessing Indirect Effects and Cumulative Impacts Under NEPA* (2016), and the Texas Department of Transportation's (TxDOT) *Cumulative Impacts Analysis Guidance* (2019).

3.0 CUMULATIVE EFFECTS

Council on Environmental Quality regulations (40 CFR § 1508.7) defines cumulative effects (i.e., effects) as "the impact on the environment which results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions." The purpose of a cumulative effects analysis is to view the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. This approach allows the evaluation of the incremental impacts of the proposed project in light of the overall health and abundance of selected resources. The evaluation process for each resource considered may be expressed in shorthand form as follows:

BASELINE CONDITION + FUTURE EFFECTS + PROJECT IMPACTS = CUMULATIVE EFFECTS
(historical and current) (expected projects) (direct and indirect)

The following five-step approach as described in AASHTO's *Assessing Indirect Effects and Cumulative Impacts Under NEPA (2016)* and TxDOT's *Cumulative Impacts Analysis Guidelines (2019)*, was utilized to assess the potential cumulative effects of the past, present, and reasonably foreseeable actions to the resources in the study area:

1. Resource Study Area, Conditions and Trends;
2. Direct and Indirect Effects on Each Resource from the Proposed Project;
3. Other Actions – Past, Present, and Reasonably Foreseeable – and their Effect on Each Resource;
4. The Overall Effects of the Proposed Project Combined with other Actions; and
5. Mitigation of Cumulative Effects.

All of the resource categories considered in this environmental document are candidates for cumulative effects analysis. The initial step of the cumulative effects analysis uses information from the evaluation of direct and indirect impacts in the selection of environmental resources that should be evaluated for cumulative effects. FHWA guidance states: "If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource." CEQ guidance recommends focusing on key resource issues of national, regional, or local significance. To identify potential issues, the resource is considered whether it is protected by legislation or resource management plans; ecologically important; culturally important; economically important; or important to the well-being of a human community. Applying the above criteria, the resources or environmental issues considered for the cumulative

effects analysis are listed in **Table 3-1**. As recommended by CEQ guidance, specific indicators of each resource's condition are identified and shown. The use of indicators of a resource's health, abundance, and/or integrity are helpful tools in formulating quantitative or qualitative metrics for characterizing overall impacts to resources. These indicators are also key aspects of each resource that have already been evaluated in terms of the project's direct and indirect impacts and facilitate greater objectivity in the analysis of cumulative effects.

Table 3-1: Resources and Topics Considered for the Cumulative effects Analysis

Resource or Topic Evaluated	CEQ Criteria			Is the Resource Included for the Cumulative Effects Analysis?	Explanation for Including or Excluding Key issues from Cumulative Effects Analysis
	Would the project have substantial direct impacts on the resource?	Would the project have substantial indirect impacts on the resource?	Is the resource in poor or declining health?		
Cultural Resources					
Archeological Resources	No	No	Yes	No	Impacts covered under 1997 PA.
Historic Resources	Yes	Yes	No	Yes	Substantial direct and indirect impacts. Resource in declining health.
Water Resources					
Waters of the U.S., including Wetlands	Yes	Yes	No	Yes	Substantial direct and indirect impacts.
Floodplains	Yes	Yes	No	Yes	Substantial direct and indirect impacts.
Water Quality	No	No	No	No	No substantial direct or indirect impacts.
Biological Resources					
Threatened or Endangered Species	No	No	Yes	No	No substantial direct or indirect impacts. While populations of certain species are in decline, the project is not anticipated to have substantial impact on those species.
Vegetation and Wildlife Habitat	Yes	Yes	Yes	Yes	Substantial direct and indirect impacts. Resource in declining health.
Prime Farmland	Yes	Yes	No	Yes	Substantial direct and indirect impacts.
Socio-Economic Resources					
Community Cohesion	No	No	No	No	No substantial direct or indirect impacts.
EJ Populations	No	No	No	No	No substantial direct or indirect impacts.

Resource or Topic Evaluated	CEQ Criteria			Is the Resource Included for the Cumulative Effects Analysis?	Explanation for Including or Excluding Key issues from Cumulative Effects Analysis
	Would the project have substantial direct impacts on the resource?	Would the project have substantial indirect impacts on the resource?	Is the resource in poor or declining health?		
LEP Populations	No	No	No	No	No substantial direct or indirect impacts.
Public Facilities and Services	No	No	No	No	No substantial direct or indirect impacts.
Visual	No	No	No	No	No substantial direct or indirect impacts.
Section 4(f) Properties *	No	No	No	No	No substantial direct or indirect impacts.
Other Issues					
Air Quality	No	No	No	No	No substantial direct or indirect impacts.
Traffic Noise	No	No	No	No	No substantial direct or indirect impacts.
Hazardous Materials	No	No	No	No	No substantial direct or indirect impacts.

*Note: * Old Wire Road is a Section 4(f) historic resource. Cumulative effects to Old Wire Road are assessed under Historic Resources.*
Source: Project Team, 2022

As documented in various environmental technical memos, it was determined that the proposed project would not have substantial direct or indirect impacts on the following resources and topics of concern; and/or if the resource is in poor or declining health, the project would not have an impact on those resources: archeological resources, water quality, threatened or endangered species, community cohesion, EJ populations, LEP populations, public facilities and services, visual, Section 4(f) properties, air quality, traffic noise, and hazardous materials. The resources warranting a cumulative effects analysis are historic resources, waters of the U.S., including wetlands, floodplains, vegetation and wildlife habitat, and prime farmland because the potential direct and/or indirect impacts for these resources are considered substantial and/or the resource is considered in poor or declining health with the project impacting that resource.

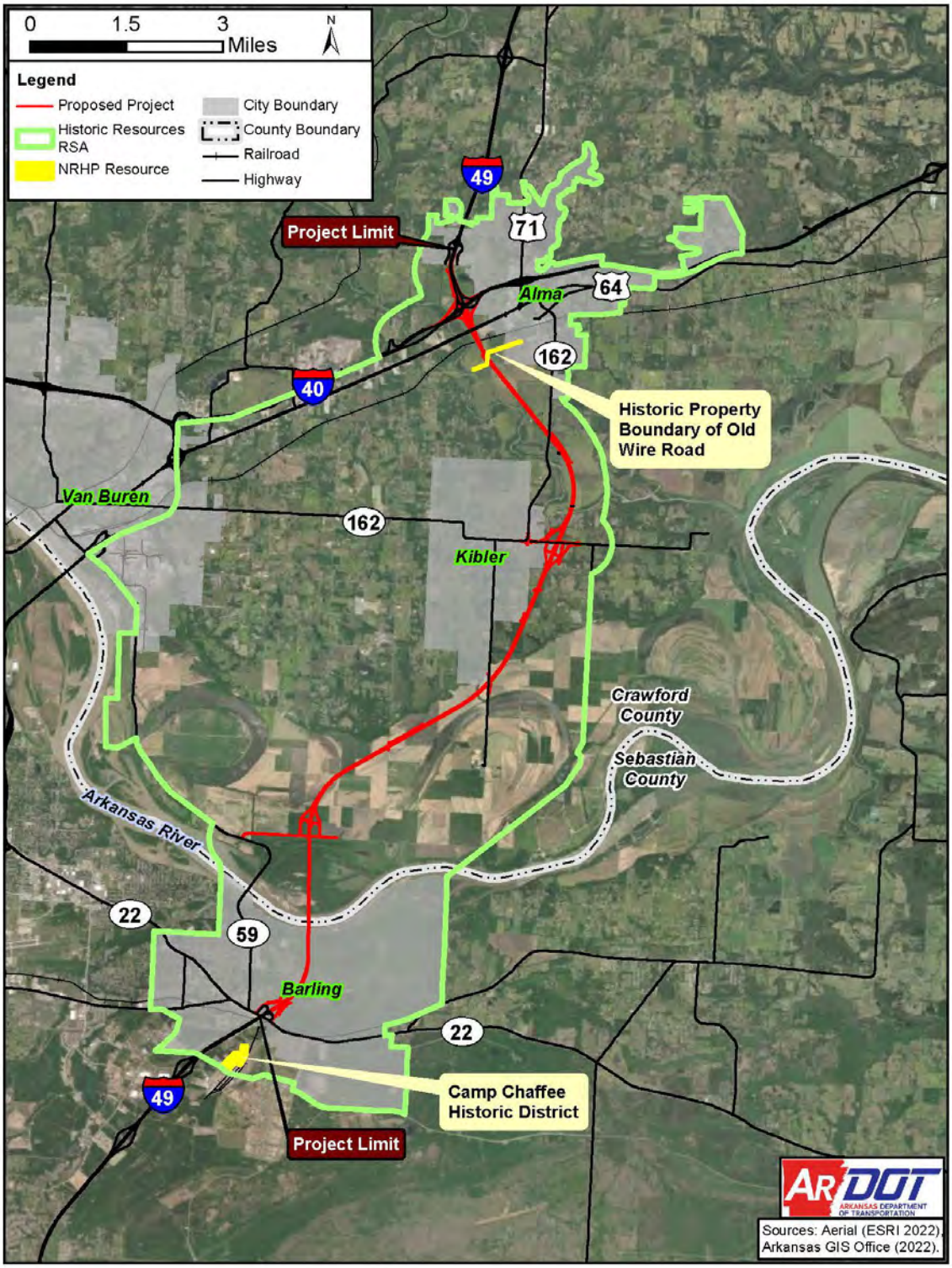
The following sections describe steps 1 through 5 of the cumulative effects analysis applied to the above-listed resources eligible for analysis.

3.1 Historic Resources

3.1.1 Step 1: Resource Study Area, Condition and Trends

The RSA for the cumulative analysis for historic resources was delineated using the locations of known listed historic properties on the National Register of Historic Places (NRHP), the city boundaries of Alma, Kibler, and Barling, and major roadways to account for the project area outside of city boundaries, shown in **Figure 3-1**. The historic resources RSA contains 45,864 acres.

Figure 3-1: Historic Resources RSA



Source: Arkansas GIS Office, 2022

The temporal study period is from 1966 to 2045. The temporal start date of 1966 was selected to correspond with the year when Congress passed the National Historic Preservation Act (16 United States Code [U.S.C.] 470[f]) and the Department of Transportation Act which includes a

special provision for Section 4(f) (49 U.S. C. 303). The ending temporal boundary of 2045 was selected to correlate with the horizon year of the regional Metropolitan Transportation Plan (MTP), *Together: Frontier 2045 Regional Transportation Plan.*

Except for Fort Smith, the cities within the RSA boundary were all small rural towns experiencing very little growth prior to the 1970s. Beginning in the 1980s, however, and through 2020, the cities began experiencing increased growth due in part to the growth occurring in nearby Fort Smith. In addition, communities such as Alma and Van Buren have seen "spill-over" development from the unprecedented growth of Northwest Arkansas. Increasingly, new individuals to that part of the state who are working in Northwest Arkansas are living in Alma, Van Buren, and other Crawford County communities. As shown in **Table 3-2**, from 1980 to 2000, Alma and Van Buren experienced substantial growth in population (51% and 58% respectively), and growth continued for all cities within the RSA from 2000 to 2020. **Table 3-3** shows that population growth, while slowing, is still projected in the future from 2020 to 2045 for the counties of the RSA, Crawford and Sebastian (3% and 5%, respectively).

Table 3-2: Historic Population Growth in Cities of RSA

	Year					1980 to 2000		2000 to 2020	
Jurisdiction	1970	1980	1990	2000	2020	Difference	Percent	Difference	Percent
Alma	1613	2755	2959	4160	5472	1405	51%	1312	32%
Kibler	611	798	931	969	1137	171	21%	168	17%
Van Buren	8373	12020	14979	18986	23413	6966	58%	4427	23%
Barling	1739	3761	4078	4176	4910	415	11%	734	18%
Central City	--	339	419	531	544	192	57%	13	2%
Fort Smith	62802	71384	72798	80268	87743	8884	12%	7475	9%

Source: Together: Frontier 2045 Regional Transportation Plan

Table 3-3: Projected Population Growth in Counties of RSA

	Year			2000 to 2045		2020 to 2045	
County	2000	2020	2045	Difference	Percent	Difference	Percent
Crawford	53247	60133	61955	8708	16%	1822	3%
Sebastian	115071	127799	133637	18566	16%	5838	5%

Source: Together: Frontier 2045 Regional Transportation Plan

At this time, there is only one listed historic site, Old Wire Road, and one listed historic district, Chaffee Crossing Historic District, within the RSA. Old Wire Road is a segment of gravel roadway located west of the town of Alma in Crawford County. The road was originally constructed and depicted as a "4 Horse Mail Post Coach Road" on maps dating to 1839. The Chaffee Crossing Historic District is a unique area in the middle of the 7,000-acre Chaffee Crossing development where WWII-era history is combining with modern planning to create a walkable urban community.

3.1.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

The proposed project would directly impact one listed historic property, Old Wire Road.

Measures to minimize harm include archival documentation of the property and a written history of the road, which will be provided for curation to the Arkansas Historic Preservation Program, Arkansas State Library, Arkansas Studies Institute, Arkansas State Archives, and the Torreyson Library at the University of Central Arkansas. Additional information on direct impacts and mitigation to Old Wire Road is located in the *Assessment of Effects for Old Wire Road* and the *Memorandum of Agreement for Old Wire Road.*

The proposed project would not directly impact the Chaffee Crossing Historic District. No other buildings, structures or historic districts were identified to experience direct adverse effects as a result of the proposed project. The direct impacts analysis on historic resources is discussed in more detail in the *Historic Resources Survey Report*.

Three areas of potential future development were identified in the *Indirect Impacts Technical Report*. All three of the areas are located within the RSA. However, only the Kibler/Alma potential induced development area has a historic site, Old Wire Road. The other two areas of potential induced development contain no listed historic resources. Indirect impacts would occur to the private properties adjacent to the directly impacted segment of Old Wire Road through anticipated development (industrial/warehouse and commercial) along the proposed frontage roads of Interstate 49 in this area. Per City of Alma planners, the private property owners in this area have already been working with city officials to prepare the properties for transition to these new developments. Accordingly, the induced development would be on private property already planned for new development, and that development would not impact Old Wire Road, just the existing farmland setting.

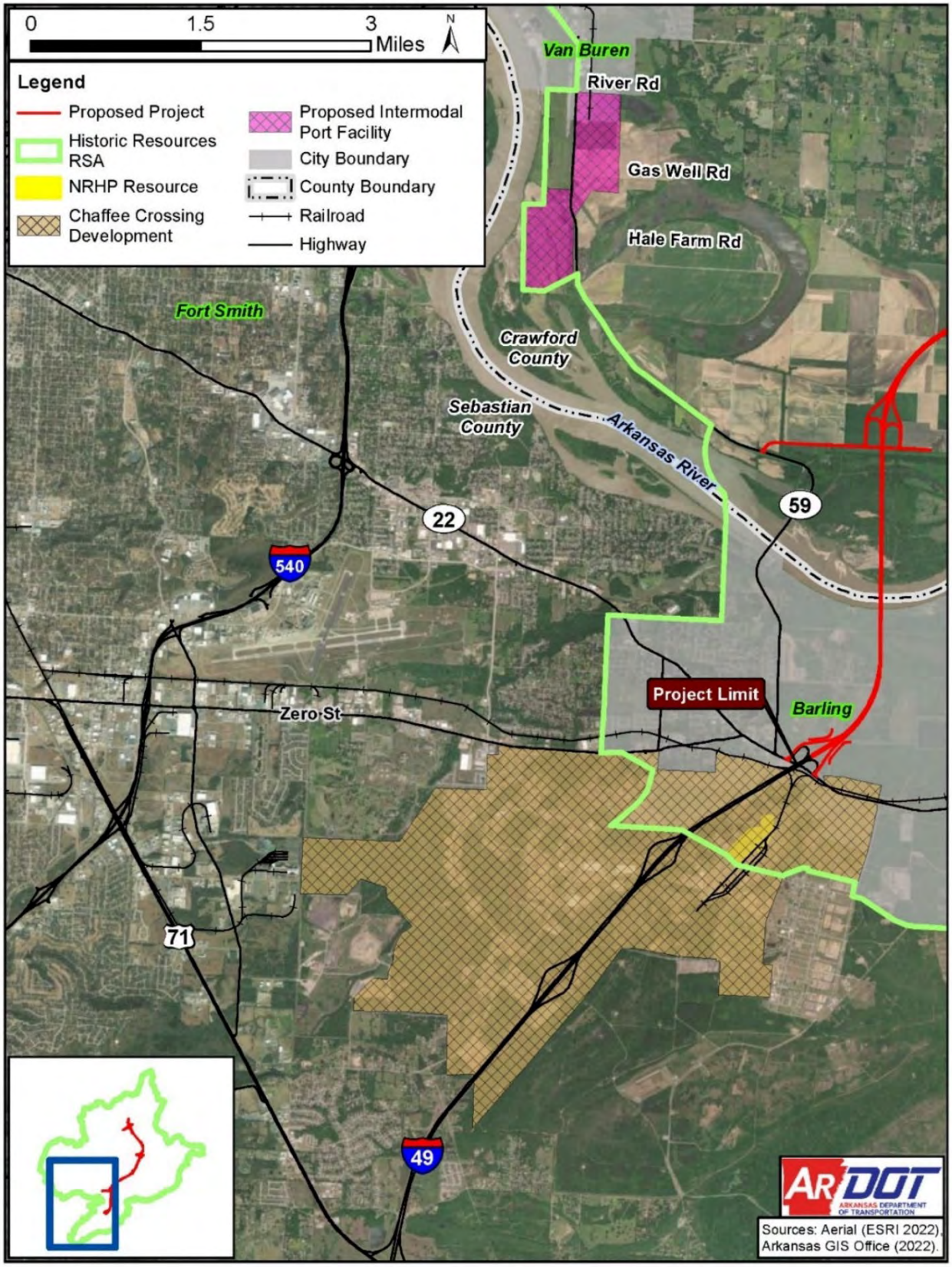
3.1.3 Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on the Resource

Other past, present, and reasonably foreseeable actions evaluated for historic resource effects include transportation and development projects. One major past transportation project and several small projects have occurred since 1966 within the RSA including the following: the Interstate 40 and Interstate 49 interchange in Alma, various bridge rehabilitation and replacement projects, roadway resurfacing, and intersection improvements. Other than the Interstate 40 and Interstate 49 interchange construction, which occurred between 1980 and 1994, the rest of the past transportation actions were minor. None of the past transportation projects resulted in changes to any historic properties or districts.

While minor transportation improvements and developments with pockets of redevelopment projects are in the cities of the RSA, no major transportation projects are planned in the current 2021-2024 Transportation Improvement Program (TIP), except for the proposed project.

As shown in **Figure 3-2**, major past, present, and reasonably foreseeable developments within the RSA include the Intermodal Port facility along the Arkansas River and a portion of the Chaffee Crossing Development located south of the Interstate 49 project limits.

Figure 3-2: Historic Resources – Past, Present, and Reasonably Foreseeable Actions



Source: Arkansas GIS Office, 2022

The Intermodal Port Facility is considered a reasonably foreseeable development. It would not impact any listed historic properties or historic districts. The portion of the Chaffee Crossing Development south of Highway 22 contains multiple phases, with some phases completed, others under construction, and still other planned that are reasonably foreseeable. This portion of the development contains the Chaffee Crossing Historic District; however, no adverse impacts to historic properties are anticipated in this development area as the developers are preserving and maintaining the historic properties and aspects contained within the development.

3.1.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

The direct impact of one historic property (Old Wire Road) is not a substantial impact to the overall state of historic resources within the RSA. Although future developments have the potential to impact historic properties, no NRHP listed properties are located within the RSA, other than Old Wire Road and the Chaffee Crossing Historic District which is being preserved by the developers. Therefore, the planned developments and minor transportation projects are not anticipated to result in historic resource impacts that would contribute to the overall cumulative effects. Based on the analysis presented, considering the minor impact resulting from the proposed project and lack of historic resources within the RSA, no substantial cumulative effects on historic resources within the RSA are anticipated from the proposed project.

3.1.5 Step 5: Mitigation of Cumulative Effects

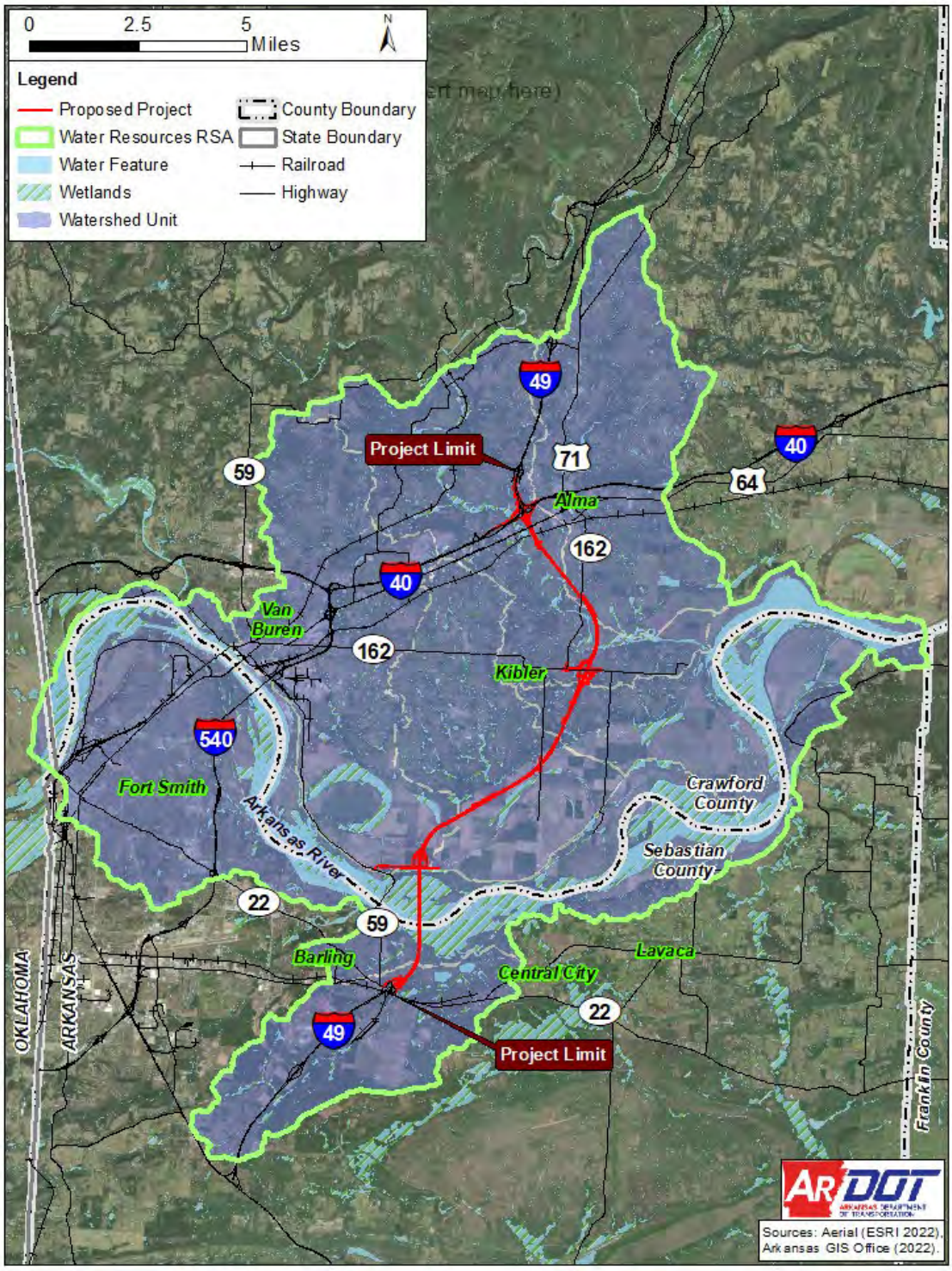
A Memorandum of Agreement was prepared to mitigate the direct impacts to Old Wire Road. The mitigation measures would be coordinated with the Arkansas State Historic Preservation Officer. Other actions such as future developments, transportation projects, or activities that are not likely to adversely impact historic properties must be coordinated through city, county and local land use plans and ordinances. Any impacts associated with future developments would be the responsibility of developers to comply with all applicable federal, state and local laws and policies in coordination with state and local agencies and organizations.

3.2 Waters of the U.S., including Wetlands

3.2.1 Step 1: Resource Study Area, Condition and Trends

The RSA for the cumulative analysis of waters of the U.S., including wetlands was delineated using the watershed units crossed by the proposed project, as shown in **Figure 3-3.** The RSA contains approximately 129,348 acres. The temporal limits for the resource were determined to be 1980 to 2045. The temporal start date was determined based on growth and development within the RSA increasing in earnest in 1980. The ending temporal boundary of 2045 was selected to correlate with the horizon year of the regional MTP.

Figure 3-3: Waters of the U.S., including Wetlands RSA



Source: USFWS NWI, 2022

Waters of the U.S., including wetlands within the RSA were analyzed using a variety of methods, including a review of aerial imagery, topographic maps, and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps. Waters of the U.S., including wetlands within the project footprint (area within which all direct impacts would occur) were field verified;

however, waters of the U.S., including wetlands outside of the project footprint but within the RSA were not field verified. Although not field verified due to the size of the overall RSA, the three data sources (aerial imagery, topographic maps, and NWI maps) showed similar attributes in relation to water and wetland features and the NWI data was specifically used to determine the approximate acreage of water and wetland features within the RSA.

Using the NWI data, approximately 9,162 acres of wetlands and 11,553 acres of water features are within the RSA. Historical trends researched by the National Resources Conservation Service (NRCS) for the central region of the United States showed an increase in palustrine and estuarine wetlands from 1992 through 2010, increasing from approximately 33,650 acres to 33,925 acres, and that increasing trend was anticipated to continue.[1]

3.2.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

Permanent fill impacts to wetlands from the proposed project are approximately 31 acres. Fill material would be placed in the wetlands for the construction of items such as roads, bridge abutments, and bridge columns. Forested wetlands associated with the proposed bridge structures would be permanently altered with the removal of trees. Depending on the grading necessary for construction, these areas may return as herbaceous wetlands. Other areas would be filled and would result in a complete loss of wetland areas. Permanent fill impacts to streams from the proposed project are approximately 12 acres. Fill material would be placed in streams for the construction of items such as culvert extensions, bridge columns, and roadway widening. Construction of the proposed project should be allowed under the terms of a Section 404 Standard Individual Permit through the U.S. Army Corps of Engineers (USACE). Compensatory mitigation will be provided at an approved mitigation bank that services the area; however, a permanent loss of function and habitat associated with the waters and wetlands within the proposed project limits would occur.

Indirect impacts associated with the three areas of induced development identified in the *Indirect Impacts Technical Report* include approximately 113 acres of wetland impacts and 62 acres of water impacts.

3.2.3 Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on the Resource

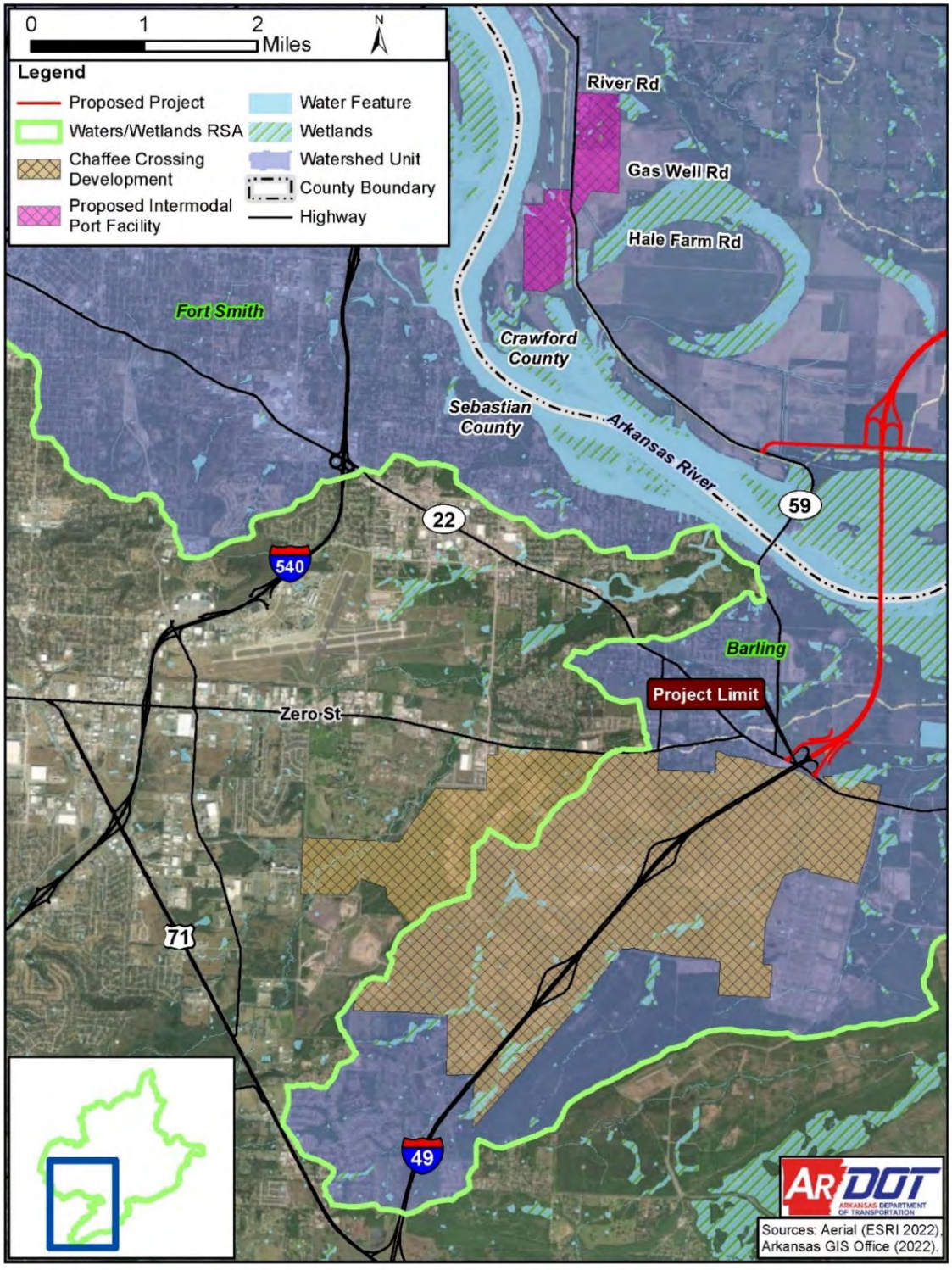
As shown in **Figure 3-4**, major past, present, and reasonably foreseeable developments within the RSA include the Intermodal Port facility along the Arkansas River and a portion of the Chaffee Crossing Development located at the southern project limits. No other reasonably foreseeable actions were determined by evaluating land use and local management plans from the local municipalities.

The Intermodal Port Facility is considered a reasonably foreseeable development. Approximately 17 acres of wetlands and 6 acres of water features would be impacted by development of the Intermodal Port Facility within the RSA. The portion of the Chaffee Crossing Development south

[1] *USDA, The Status and Recent Trends of Wetlands in the United States, Marks and Sucik.*

of Highway 22 contains multiple phases, with some phases completed, others under construction, and still other planned that are reasonably foreseeable. Approximately 109 acres of wetlands and 66 acres of water features would be impacted by the Chaffee Crossing Development within the RSA.

Figure 3-4: Waters of the U.S., including Wetlands – Past, Present, and Reasonably Foreseeable Actions



Source: USFWS NWI, 2022

3.2.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

Total cumulative effects to waters and wetlands are shown in **Table 3-4**.

Table 3-4: Cumulative Effects to Waters of the U.S., including Wetlands

Facility/Development	Wetland Impacts (Acres)	Waters Impacts (Acres)
Interstate 49 Direct Impacts	31	12
Interstate 49 Indirect Impacts	108	61
Past, Present, and Reasonably Foreseeable Actions	126	72
Total Cumulative Effects	**265**	**145**

Sources: Direct Impacts - Field Verification, 2022. Indirect Impacts and Past, Present, and Reasonably Foreseeable Actions – USFWS NWI GIS mapping, 2022.

Cumulative effects to wetlands would account for 1% of the wetlands in the RSA and cumulative effects to waters would account for 1% of the water features in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects to the water resources in the RSA.

3.2.5 Step 5: Mitigation of Cumulative Effects

Several standards, regulations, regulatory control strategies and permitting requirements are in place by ARDOT and other agencies to mitigate for waters of the U.S., including wetlands. Because wetland abundance and distribution affect wetland biodiversity, reestablishment and mitigation actions could improve ecological interactions if wetland type (diversity) and geospatial interspersion were considered during these actions. Efforts should be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities and include these considerations. Any impacts associated with future developments would be the responsibility of developers in coordination with the local municipalities and local agencies.

3.3 Floodplains

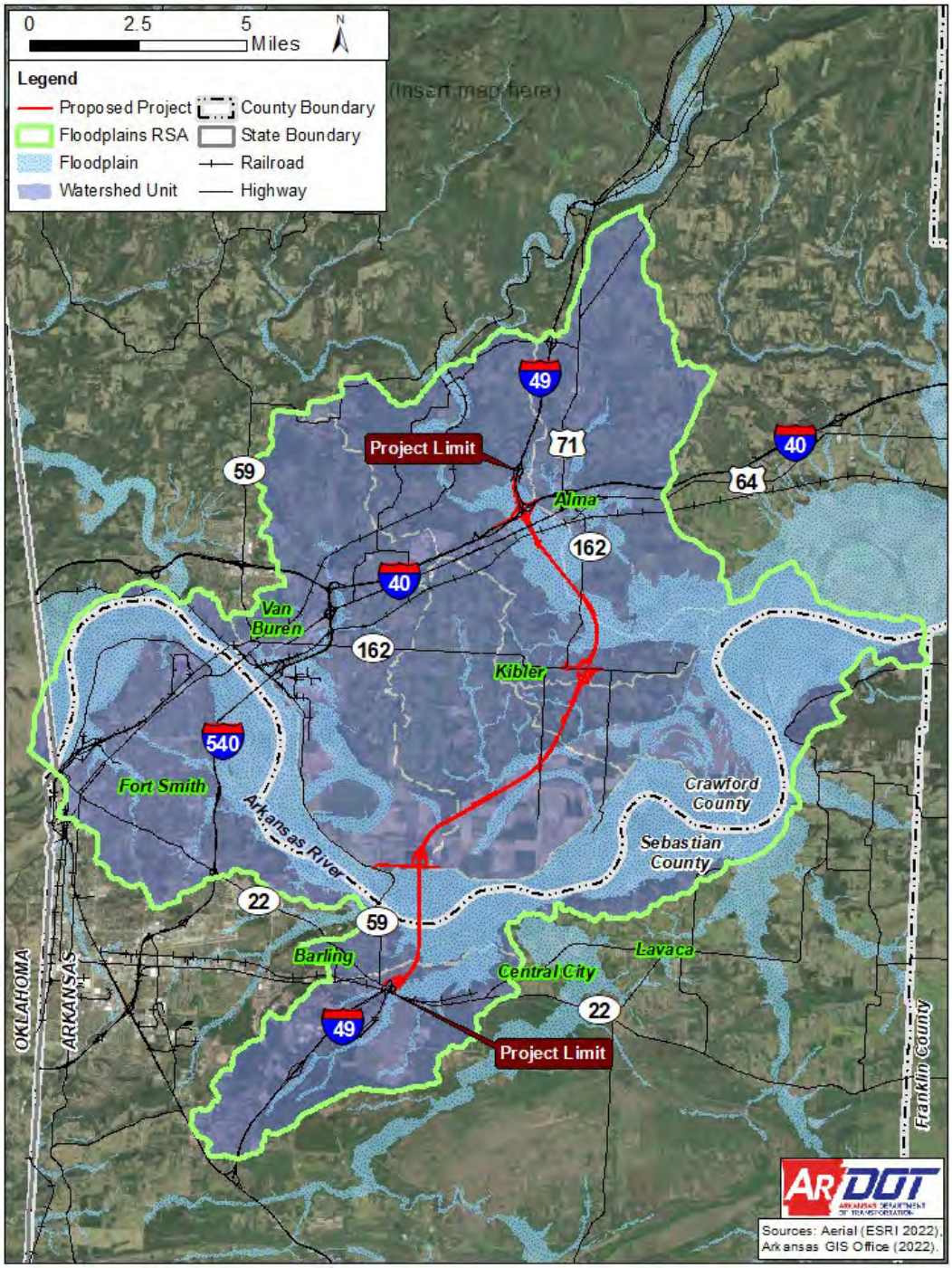
3.3.1 Step 1: Resource Study Area, Condition and Trends

The RSA for floodplains was delineated using the watershed units crossed by the proposed project, as shown in **Figure 3-5.** The RSA contains approximately 129,348 acres. The temporal limits for the resource were determined to be 1980 to 2045. The temporal start date was determined based on growth and development within the RSA increasing in earnest in 1980. The ending temporal boundary of 2045 was selected to correlate with the horizon year of the regional MTP.

The Federal Emergency Management Agency (FEMA) maintains flood insurance rate maps (FIRMs). FEMA's National Flood Hazard Layer (NFHL) Viewer and available GIS data for Crawford and Sebastian counties were reviewed to evaluate the location of any mapped 100-year floodplains in relation to aquatic resources located within the project footprint. Available flood

hazard areas downloaded in March 2022 from the Arkansas GIS Office and FEMA FIRM Panels were reviewed to determine flood zones. Approximately 42,738 acres of floodplain are located within the RSA.

Figure 3-5: Floodplains RSA



Source: Flood Hazard Areas from Arkansas GIS Office and FEMA FIRM Panels

3.3.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

Approximately 652 acres of floodplains are located within the project footprint. The Arkansas

River and its tributaries in Sebastian and Crawford Counties, Frog Bayou in Crawford County, and Mays Branch in Crawford County are the locations with the largest floodplains and highest potential for impacts. A preliminary Hydrologic and Hydraulic (H&H) analysis was completed for the proposed project based on the Selected Alignment as of January 2022 which corresponds to the 30% Strip Map. Based on this design, H&H analysis does show an increase of the Frog Bayou floodplain of less than one foot north of Waterfront Road and an increase less than one-inch at Highway 64.

Impacts to floodplains from induced growth were assessed based on knowledge of the anticipated locations and intensity of induced development overlaid on the FEMA FIRMs to calculate acreage of floodplain likely impacted by the Interstate 49 induced growth. Indirect impacts associated with the three areas of induced development identified in the *Indirect Impacts Technical Report* include approximately 1,420 acres of floodplains.

3.3.3 Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on the Resource

As shown in **Figure 3-6**, major past, present, and reasonably foreseeable developments within the RSA include the Intermodal Port facility along the Arkansas River and a portion of the Chaffee Crossing Development located at the southern project limits. No other reasonably foreseeable actions were determined by evaluating land use and local management plans from the local municipalities.

The Intermodal Port Facility is considered a reasonably foreseeable development. Approximately 236 acres of floodplain would be impacted by development of the Intermodal Port Facility within the RSA. The portion of the Chaffee Crossing Development south of Highway 22 contains multiple phases, with some phases completed, others under construction, and still other planned that are reasonably foreseeable. Approximately 497 acres of floodplain would be impacted by the Chaffee Crossing Development within the RSA.

3.3.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

Total cumulative effects to floodplains are shown in **Table 3-5**.

Table 3-5: Cumulative Effects to Floodplains

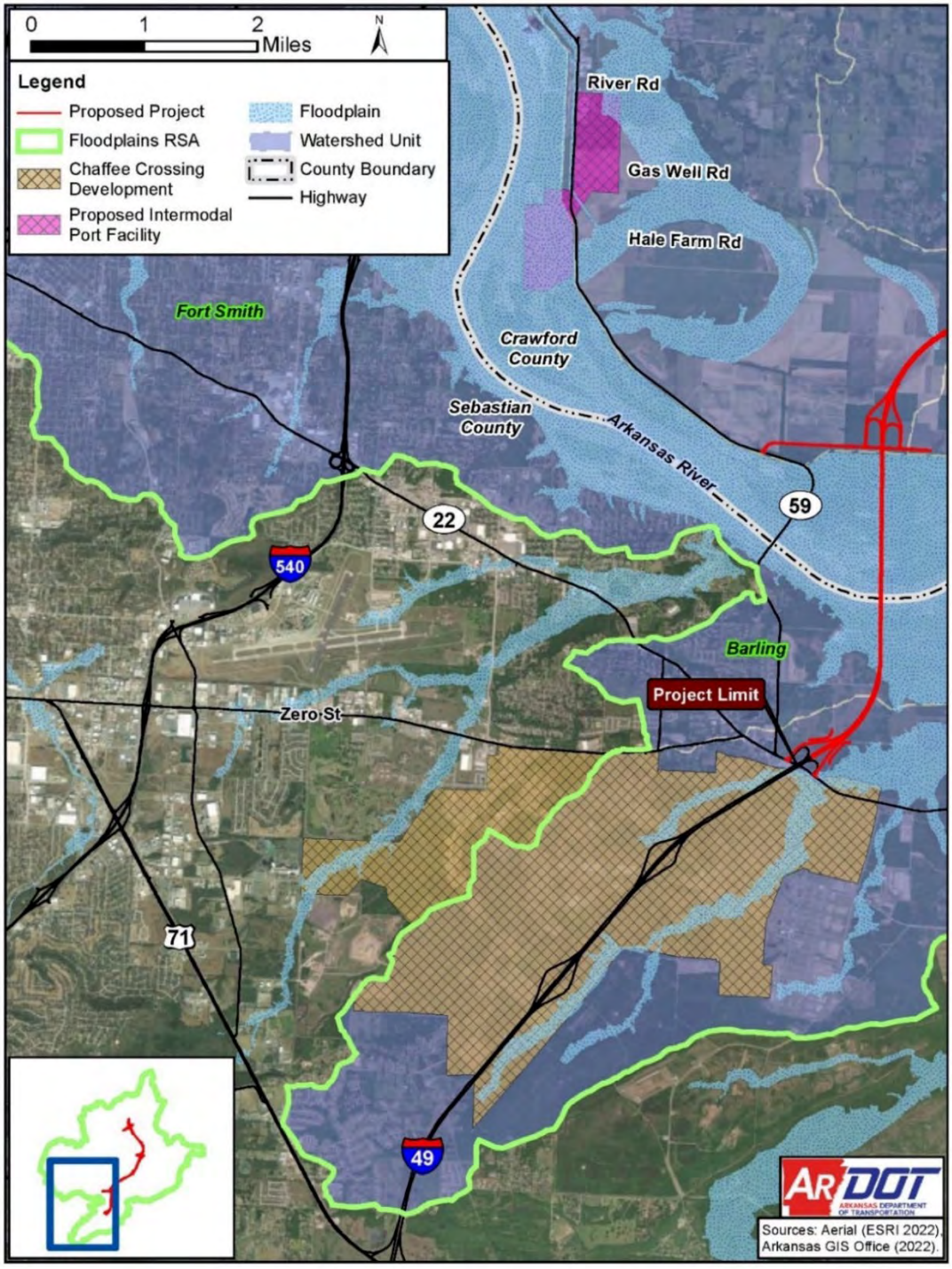
Facility/Development	Floodplain Impacts (Acres)
Interstate 49 Direct Impacts	652
Interstate 49 Indirect Impacts	1,420
Past, Present, and Reasonably Foreseeable Actions	733
Total Cumulative effects	**2,805**

Sources: Flood Hazard Areas from Arkansas GIS Office and FEMA FIRM Panels

Cumulative effects to floodplains account for 7% of the floodplains in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects

to the floodplains in the RSA.

Figure 3-6: Floodplains – Past, Present, and Reasonably Foreseeable Actions



Source: Flood Hazard Areas from Arkansas GIS Office and FEMA FIRM Panels

3.3.5 Step 5: Mitigation of Cumulative Effects

To ensure no rise in the 100-year floodplain at the Arkansas River, a tree removal area has been identified. As this is area is owned by the USACE and leased by Fort Chaffee, coordination with

USACE through the Section 408 process is ongoing to assess the hydraulic impacts on their nearby authorized federal features (levees, dam and lock, and revetments).

Additional analysis will be conducted as necessary to include design refinements at specific locations to minimize impacts. A final H&H analysis will be completed and coordination with local floodplain administrators will occur once the project design progresses to approximately 60%. The hydraulic design for the proposed project would be in accordance with current FHWA and ARDOT design policies. The proposed project would be in compliance with 23 C.F.R. 650 regarding location and hydraulic design of highway encroachments within the floodplains.

ARDOT self-regulates on projects that cross regulated floodplains. ARDOT reviews plans for compliance with FEMA requirements. ARDOT also coordinates with the local floodplain administrators when those minimums cannot be met and a Conditional Letter of Map Revision (CLOMR)/Letter of Map Revision (LOMR) is necessary. Impacts to floodplains from project induced growth impacts and cumulative effects are subject primarily to regulation by city, county, and state governments, which guide the type and location of new development.

3.4 Vegetation and Wildlife Habitat

3.4.1 Step 1: Resource Study Area, Condition and Trends

The watershed boundaries along the project were used to delineate the RSA because vegetation types tend to be affected by the watershed areas and the drainage influences the vegetation types that occur within the area. The vegetation and wildlife habitat RSA is shown in **Figure 3-7** and contains approximately 129,348 acres. The temporal start date was determined based on growth and development within the RSA increasing in earnest in 1980. The ending temporal boundary of 2045 was selected to correlate with the horizon year of the regional MTP.

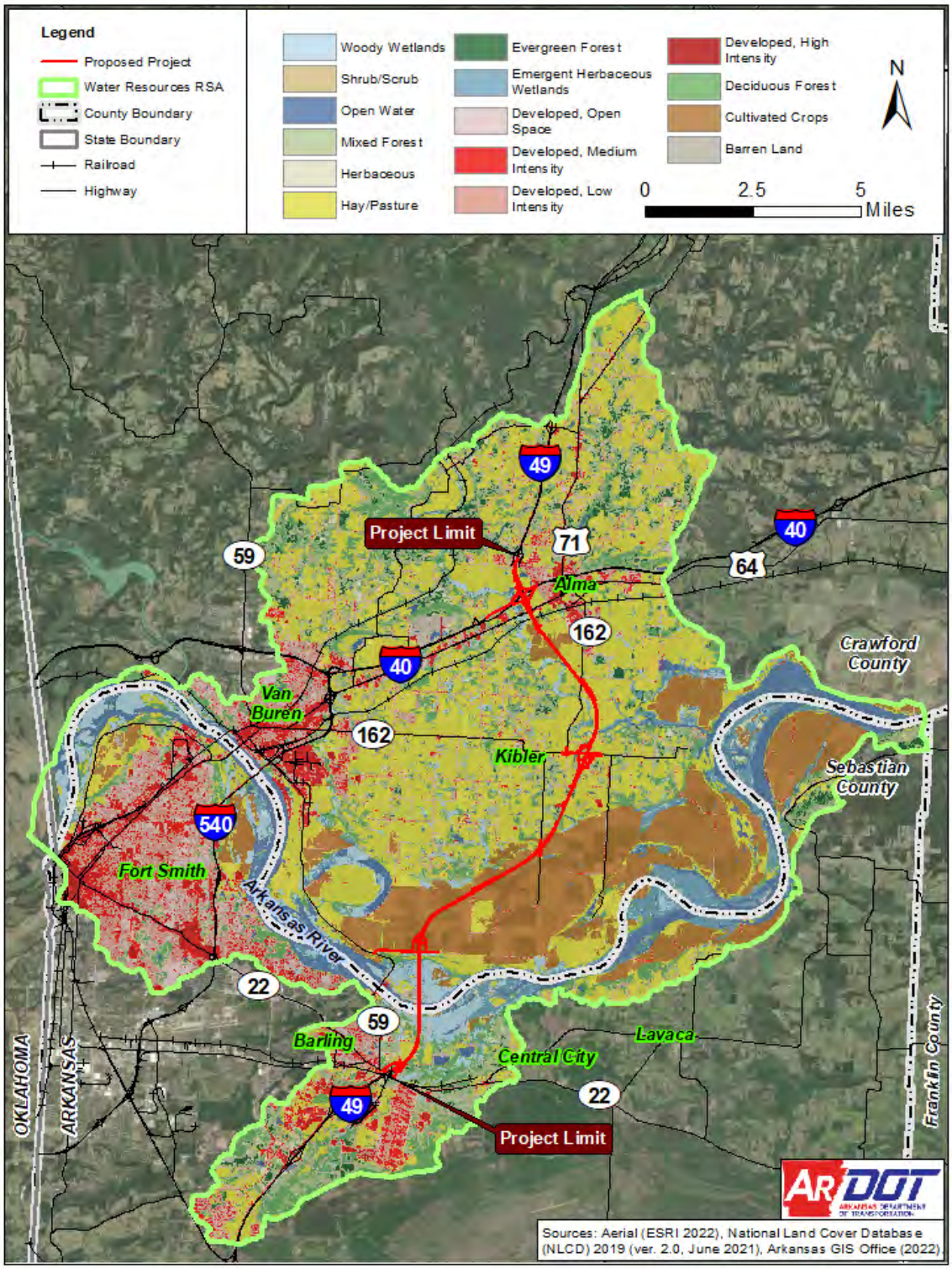
The United States Geologic Survey (USGS) National Land Cover Database (2019) was utilized to identify land cover within the RSA. As listed in **Table 3-6**, the RSA consists of various vegetation types, with a predominance of hay/pasture (30.1%), forested areas (18.8%), and cultivated crops (12.7%). Approximately 21.7% of the RSA is developed.

Table 3-6: Land Cover within the RSA

Land Cover	Acres	Percent of RSA
Barren Land	638	0%
Cultivated Crops	16,321	13%
Developed	27,895	22%
Forest	24,180	19%
Hay/Pasture	38,671	30%
Herbaceous	1,328	1%
Open Water	9,937	8%
Shrub/Scrub	494	0%
Wetlands	9,217	7%
Total	**128,681**	**100%**

Notes: Total acreage excludes 667 acres of watershed in Oklahoma. Some of the land cover designations shown in Figure 3-7 have been combined in this table.
Source: USGS National Land Cover Database, 2019

Figure 3-7: Vegetation and Wildlife Habitat RSA



Source: USGS National Land Cover Database, 2019

Portions of the communities of Alma, Kibler, Van Buren, Barling, Central City, and Fort Smith are located within the RSA. As demonstrated in **Table 3-2**, growth has occurred in all of these cities

over the past 20 – 40 years, and growth is anticipated to continue. The gradual trend for this region is the conversion of prime farmland and undeveloped lands to urbanized development.

3.4.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

Direct impacts to vegetation and wildlife habitat were assessed within the project footprint via field reconnaissance and verification of aerial imagery. These impacted areas are presented in **Table 3-7**.

Table 3-7: Land Cover within the Areas of Direct Impacts

Land Cover*	Acres	Percent of Project Footprint
Agricultural	713	46%
Developed	217	14%
Forest	460	30%
Herbaceous	70	5%
Shrub/Scrub	57	3%
Open Water	32	2%
Total	**1,549**	**100%**

*Note: *Wetland areas included in the various land cover types.*

Indirect impacts associated with induced development would occur due to the construction of proposed project as summarized in **Table 3-8**.

Table 3-8: Land Cover within the Areas of Indirect Impacts

Land Cover	Acres	Percent of Areas of Indirect Impacts
Barren Land	47	1%
Cultivated Crops	1,850	31%
Developed	327	5%
Forest	780	13%
Hay/Pasture	2,095	35%
Herbaceous	98	2%
Open Water	128	2%
Shrub/Scrub	37	1%
Wetlands	570	10%
Total	**5,932**	**100%**

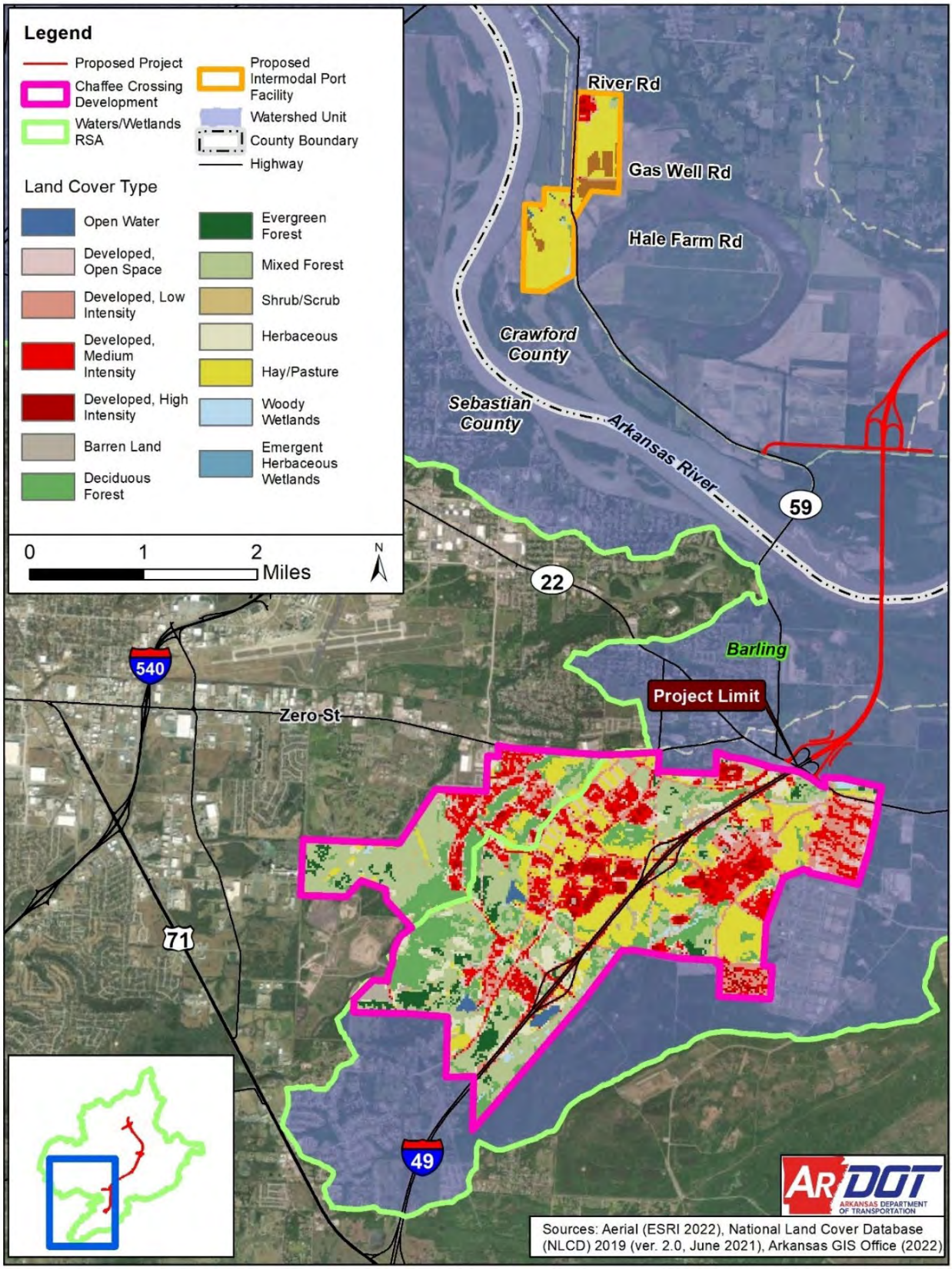
Source: USGS National Land Cover Database, 2019

3.4.3 Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on the Resource

As shown in **Figure 3-8**, major past, present, and reasonably foreseeable developments within the RSA include the Intermodal Port facility along the Arkansas River and a portion of the Chaffee Crossing Development located at the southern project limits. No other reasonably foreseeable actions were determined by evaluating land use and local management plans from the local municipalities.

The Intermodal Port Facility is considered a reasonably foreseeable development and would impact approximately 457 acres. As listed in **Table 3-9**, the predominant vegetation type impacted by the Intermodal proposed Port Facility would be hay/pasture (70%).

Figure 3-8: Vegetation and Wildlife Habitat – Past, Present, and Reasonably Foreseeable Actions



Source: USGS National Land Cover Database, 2019

Table 3-9: Land Cover Impacted by the Intermodal Port Facility

Land Cover	Acres	Percent of Intermodal Port Facility
Cultivated Crops	69	15%
Developed	46	10%
Forest	8	2%
Hay/Pasture	320	70%
Open Water	4	1%
Wetlands	10	2%
Total	**457**	**100%**

Source: USGS National Land Cover Database, 2019

The portion of the Chaffee Crossing Development south of Highway 22 contains multiple phases, with some phases completed, others under construction, and still other planned that are reasonably foreseeable. The Chaffee Crossing Development within the RSA would impact approximately 5,337 acres. As listed in **Table 3-10**, the predominant vegetation type impacted by implementation of the Chaffee Crossing Development would be forest (37%) followed by hay/pasture (17%).

Table 3-10: Land Cover Impacted by the Chaffee Crossing Development

Land Cover	Acres	Percent of Chaffee Crossing Development
Barren Land	54	1%
Developed	1,960	37%
Forest	1,994	37%
Hay/Pasture	897	17%
Herbaceous	291	5%
Open Water	39	1%
Shrub/Scrub	65	1%
Wetlands	38	1%
Total	**5,338**	**100%**

Source: USGS National Land Cover Database, 2019

3.4.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

Total cumulative effects to vegetation and wildlife habitat are shown in **Table 3-11**.

Table 3-11: Cumulative Effects to Vegetation and Wildlife Habitat

Facility/Development	Vegetation and Wildlife Habitat Impacts (Acres)
Interstate 49 Direct Impacts	1,332*
Interstate 49 Indirect Impacts	5,605*
Past, Present, and Reasonably Foreseeable Actions	3,789*
Total Cumulative Effects	**10,726**

Notes:
** Includes: Excludes developed land use.*
Sources: Direct Impacts - Field Verification, 2022; Indirect Impacts and Past, Present, and Reasonably Foreseeable Actions – USGS National Land Cover Database, 2019

Cumulative effects to vegetation and habitat would account for 8% of the vegetation and habitat

in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects to vegetation and habitat in the RSA.

3.4.5 Step 5: Mitigation of Cumulative Effects

Efforts would be taken through local, state, and federal regulations to avoid and minimize any adverse effects from development or future activities. Additional best management practices such as seeding and replanting in accordance with ARDOT approved seeding specification would help mitigate effects from transportation projects. Impacts to vegetation and wildlife habitat from project induced growth impacts and cumulative effects are subject primarily to regulation by city, county, and state governments, which guide the type and location of new development.

3.5 Prime Farmland

3.5.1 Step 1: Resource Study Area, Condition and Trends

The RSA for assessing prime farmland impacts consists of a 1-mile buffer from the project footprint, as shown in **Figure 3-9**. In accordance with the Farmland Protection Policy Act (FPPA), this RSA corresponds with the boundary required on the National Resource Conservation Service's (NRCS) farmland assessment form - *NRCS-CPA-106 – Farmland Conversion Impact Rating for Corridor Type Projects.* The RSA includes 26,399 acres, of which 62% (16,320 acres) is prime farmland. The temporal start date was determined based on growth and development within the RSA increasing in earnest in 1980. The ending temporal boundary of 2045 was selected to correlate with the horizon year of the regional MTP.

As demonstrated in **Table 3-2**, growth has occurred in all of the cities within and surrounding the prime farmland RSA over the past 20 – 40 years, and growth is anticipated to continue. As previously discussed, the gradual trend for this region is the conversion of prime farmland and undeveloped lands to urbanized development.

3.5.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

Table 3-12 contains the total acres of prime farmland or farmland of statewide importance within the project footprint and total acres to be converted. Coordination with the NRCS is required for both counties.

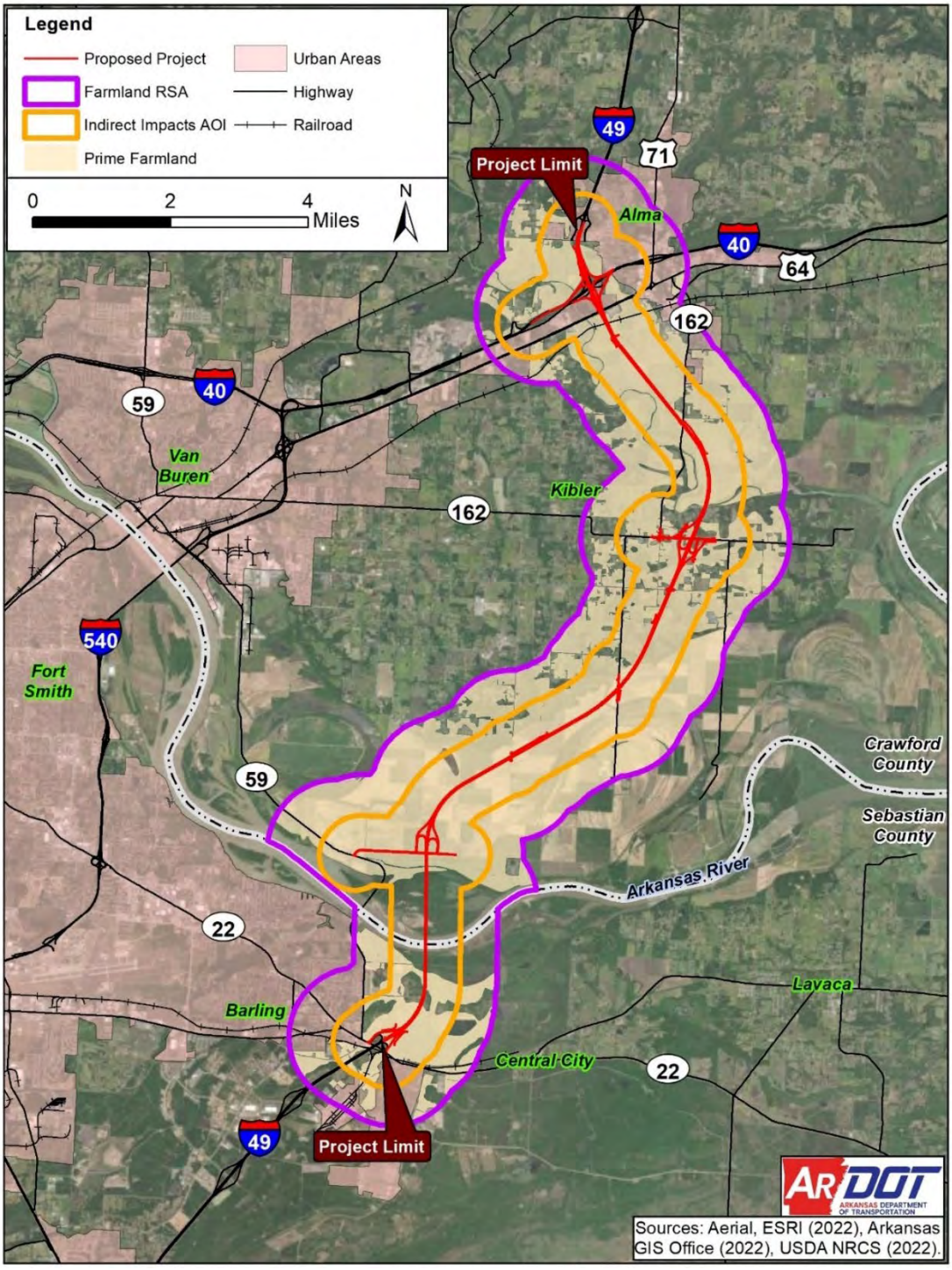
Table 3-12: Prime Farmland Direct Impacts

County	Total Acres in Project Footprint	Total Acres to be Converted within Project Footprint
Sebastian	97	97
Crawford	930	930

Source: NRCS U.S. Department of Agriculture Geospatial Data Gateway and Web Soil Survey, 2022

Indirect impacts associated with the three areas of induced development identified in the *Indirect Impacts Technical Report* include approximately 4,576 acres of prime farmland.

Figure 3-9: Prime Farmland RSA



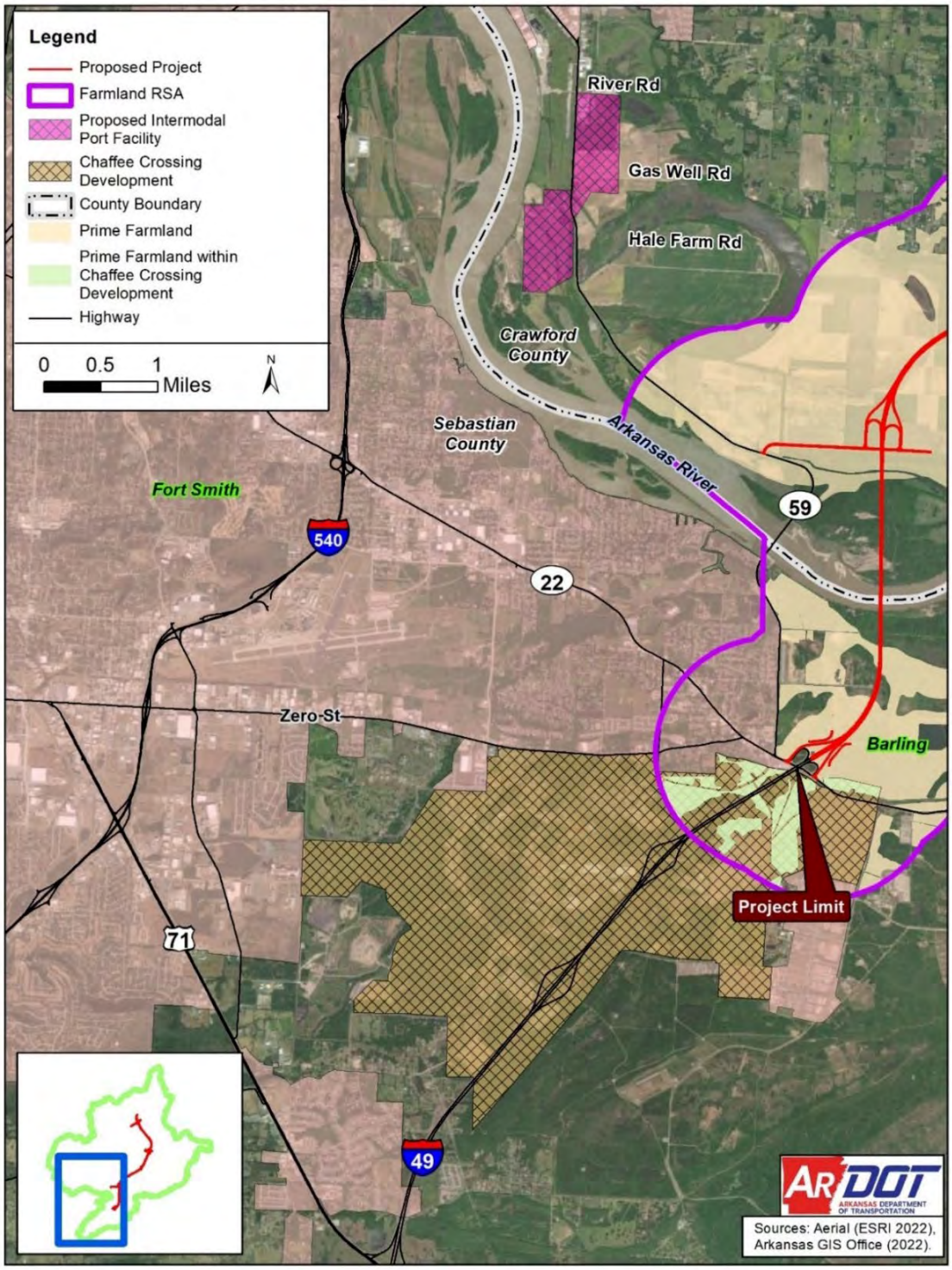
Source: NRCS U.S. Department of Agriculture Geospatial Data Gateway and Web Soil Survey, 2022

3.5.3 Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on the Resource

As shown in **Figure 3-10**, the only major past, present, and reasonably foreseeable development within the RSA is a portion of the Chaffee Crossing Development located at the southern project limits. The portion of the Chaffee Crossing Development south of Highway 22 contains multiple

phases, with some phases completed, others under construction, and still other planned that are reasonably foreseeable. Approximately 275 acres of prime farmland would be impacted by the Chaffee Crossing Development within the RSA. No other reasonably foreseeable actions were determined by evaluating land use and local management plans from the local municipalities.

Figure 3-10: Prime Farmland – Past, Present, and Reasonably Foreseeable Actions



Source: NRCS U.S. Department of Agriculture Geospatial Data Gateway and Web Soil Survey, 2022

3.5.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

Total cumulative effects to prime farmlands are shown in **Table 3-13**.

Table 3-13: Cumulative Effects to Prime Farmland

Facility/Development	Prime Farmland Impacts (Acres)
Interstate 49 Direct Impacts	1,027
Interstate 49 Indirect Impacts	4,576
Past, Present, and Reasonably Foreseeable Actions	275
Total Cumulative Effects	**5,878**

Source: NRCS U.S. Department of Agriculture Geospatial Data Gateway and Web Soil Survey, 2022

Cumulative effects to prime farmland account for 36% of the prime farmland within the RSA. Given the predominance of prime farmland within the RSA (62%), it is not anticipated that the proposed project would contribute substantial cumulative effects to the prime farmland in the RSA. As evaluated in the FEIS, shifting the Selected Alignment to the east or west would still impact prime farmland. Likewise, it is anticipated that any induced development and/or reasonably foreseeable developments would still impact prime farmland.

3.5.1 Step 5: Mitigation of Cumulative Effects

The purpose of the FPPA is to minimize the extent to which Federal programs contribute to the unnecessary conversion of prime farmland to nonagricultural uses. The FPPA does not cover private construction subject to federal permitting and licensing, projects planned and completed without any assistance from a federal agency, and projects proposed on land already committed to urban development.

To assess the relative impact of projects on sites subject to the FPPA, Federal agencies or agencies that use Federal funds complete a Farmland Conversion Impact Rating Form. If the outcome results in a score of 60 points or greater in Part VI of the form, then additional coordination with the NRCS is required. The NRCS will complete their segments of the form and if the overall score is 160 or greater, the NRCS will make a determination of adverse impact for the project. The NRCS response will include a recommendation of ways to minimize the adverse impact. This form has been completed for both Crawford and Sebastian Counties, and coordination with the NRCS will occur based on the direct impacts from the proposed project.

The FEIS previously assessed alternative alignments. Based on that analysis, it was determined that there was no practicable alternative to the proposed construction of the Selected Alignment in farmlands of prime or statewide importance. The location of the Selected Alignment included measures to minimize impacts to prime farmlands where possible based on coordination. Currently, the shifting of the alignment to the east or west would not result in any significant reduction in impacts to prime farmlands. Recommendations from the NRCS for minimizing the adverse effects and alternative actions to lessen the conversion's adverse effects to protected farmland will be considered.

4.0 SUMMARY AND CONCLUSIONS

Historic Resources - The direct impact of one historic property (Old Wire Road) is not a substantial impact to the overall state of historic resources within the RSA. Considering the minor impact resulting from the proposed project, and assuming ordinances and protection policies remain in place, no substantial cumulative effects on historic resources within the RSA is anticipated from the proposed project.

Waters of the U.S., including Wetlands - Cumulative effects to wetlands would account for 1% of the wetlands in the RSA and cumulative effects to waters would account for 1% of the water features in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects to waters of the U.S., including wetlands in the RSA.

Floodplains - Cumulative effects to floodplains account for 7% of the floodplains in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects to the floodplains in the RSA.

Vegetation and Wildlife Habitat – Cumulative effects to vegetation and habitat would account for 8% of the vegetation and habitat in the RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative effects to vegetation and habitat in the RSA.

Prime Farmland - Cumulative effects to prime farmland account for 36% of the prime farmland within the RSA. Given the predominance of prime farmland within the RSA (62%), it is not anticipated that the proposed project would contribute substantial cumulative effects to the prime farmland in the RSA. As evaluated in the FEIS, shifting the Selected Alignment to the east or west would still impact prime farmland. Likewise, it is anticipated that any induced development and/or reasonably foreseeable developments would still impact prime farmland.

APPENDIX L

Correspondence

Asa Hutchinson
Governor
Stacy Hurst
Secretary

December 16, 2021

Mr. John Fleming
Division Head
Environmental Division
Arkansas Department of Transportation
P.O. Box 2261
Little Rock, AR 72203-2261

Re: Sebastian & Crawford Counties – Van Buren
Architectural Resources Survey Addendum – FHWA
Hwy. 22 – I-40
ARDOT Job Number 040748
AHPP Tracking Number 100314.03

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed the Architectural Resources Survey received August 6, 2021 for the above-referenced job.

Name/Address	ARDOT/FHWA NRHP Determination	AHPP Concurrence
Property 1 (374 Rudy Road)	Not Eligible	Yes
Property 1 (1026 Young Street)	Not Eligible	Yes
Property 1 (1020 Young Street)	Not Eligible	Yes
Property 1 (1012 Young Street)	Not Eligible	Yes
Property 1 (1002 Young Street)	Not Eligible	Yes
Property 1 (928 Young Street)	Not Eligible	Yes
Property 1 (939 Young Street)	Not Eligible	Yes
Property 1 (910 Young Street)	Not Eligible	Yes
Property 1 (917 Church Street)	Not Eligible	Yes
Property 1 (925 Church Street)	Not Eligible	Yes
Property 1 (924 Church Street)	Not Eligible	Yes
Property 1 (1003 Church Street)	Not Eligible	Yes
Property 1 (1007 Church Street)	Not Eligible	Yes
Property 1 (1014 Church Street)	Not Eligible	Yes
Property 1 (1015 Church Street)	Not Eligible	Yes
Property 1 (1020 Church Street)	Not Eligible	Yes
Property 1 (1023 Church Street)	Not Eligible	Yes
Property 1 (1024 Church Street)	Not Eligible	Yes
Property 1 (1029 Church Street)	Not Eligible	Yes
Property 1 (1023 Church Street)	Not Eligible	Yes
Property 2	Not Eligible	Yes
Property 3	Not Eligible	Yes
Property 4	Not Eligible	Yes

Name/Address	ARDOT/FHWA NRHP Determination	AHPP Concurrence
Property 5	Not Eligible	Yes
Property 6	Not Eligible	Yes
Property 7	Not Eligible	Yes
Property 7a	Not Eligible	Yes
Property 8	Not Eligible	Yes
Property 9	Not Eligible	Yes
Property 10	Not Eligible	Yes
Property 11	Not Eligible	Yes
Property 11a	Not Eligible	Yes
Property 11b	Not Eligible	Yes
Property 12	Not Eligible	Yes
Property 13	Not Eligible	Yes
Property 13a	Not Eligible	Yes
Property 14	Not Eligible	Yes
Property 14a	Not Eligible	Yes
Property 15	Not Eligible	Yes
Property 15a	Not Eligible	Yes
Property 17	Not Eligible	Yes
Property 17a	Not Eligible	Yes
Property 17b	Not Eligible	Yes
Property 18	Not Eligible	Yes
Property 18a	Not Eligible	Yes
Property 19	Not Eligible	Yes
Property 20	Not Eligible	Yes
Property 21	Not Eligible	Yes
Property 21a	Not Eligible	Yes
Property 21b	Not Eligible	Yes
Property 21c	Not Eligible	Yes
Property 23	Not Eligible	Yes
Property 23a	Not Eligible	Yes

We appreciate the opportunity to review this undertaking. If you have any questions, please contact George Burson at (501) 324-9270 or at George.Burson@arkansas.gov. Please refer to the AHPP Tracking Number above in any correspondence.

Sincerely,

George Burson
for
Scott Kaufman
Director, AHPP

Digitally signed by George Burson
Date: 2021.12.16 10:34:08 -06'00'

cc: Mr. Randal Looney, Federal Highway Administration

CESWL-OP-KR 14 January 2022
Ashlock/1741

MEMORANDUM THRU Ch, Operations Technical Support Branch (ATTN: Sam Gramlich)

Ch, Operations Division

Ch, Regulatory Division

FOR Ch, Real Estate Division

SUBJECT: Mitigation Recommendations for Arkansas Department of Transportation's (ARDOT) Request to Construct I-49 Corridor in Springhill Park, James W. Trimble Lock and Dam Project

1. On January 6, 2022, Russellville Site Office staff conducted an on-site meeting at the proposed right-of-way location. Upon surveying the area, Project Staff recommends that ARDOT provide the following items to mitigate the immediate and future negative impacts to natural resources and recreation features within Springhill Park:

a. The relocation of four impacted campsites to an area near the E section restroom. These sites will be utilized for park volunteers and should be paved with graveled or concrete living areas. The sites should also be full hookup with water, 50-amp electric service, and sewer. Utilities are available at the nearby E section restroom.

b. Resurface all paved roadways, parking areas, and campsites throughout the park.

c. Destruction, removal, and replacement of the B section restroom. The replacement should be a "Four Pack" of family restroom/shower units. An example of this type of facility is the CXT Navajo model.

d. Upgrade the 16 campsites in A section to 50-amp electric service.

2. MKARNS Project extends 308 river miles along the Arkansas River. Springhill Park is designated as a high-density recreation area in the MKARNS Masterplan and is one of Project's premier parks. Out of 74 parks on the MKARNS project, Springhill Park historically ranks in the top three for revenue and is only outcompeted by parks which have two – three times the number of campsites. The I-49 Project, plus the proximity to the third highest populous in Arkansas, will increase public use and put additional strain on already aging park infrastructure that struggles to meet current demand. These recommended upgrades would allow for mitigation for the negative impacts to land and park use due to the construction of the I-49 bridge. These negative impacts will be the annual utilization of 10-acres of land, that will be cleared of all existing vegetation, including the mature timber. Second, the increase of sound pollution projected from the estimated 40-feet tall bridge. Third, the bridge construction will also cause the dissection of the park, which will divide the park's land and impact an additional 100 acres east of the bridge.

CESWL-OP-KR
SUBJECT: Mitigation Recommendations for Arkansas Department of Transportation's (ARDOT) Request to Construct I-49 Corridor in Springhill Park, James W. Trimble Lock and Dam Project

Finally, the impacts to those members of the public, who enjoy day-use actives, including hiking and bike trail use. These individuals will be impacted directly inside the 10 acres as well as in the 100 acres east of the bridge.

3. For further information, you may contact Scotty Ashlock at 501-340-1741 or Lee Kirkpatrick at 501-324-6978.

ROBERT M. AHLERT
Russellville Site Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032

IN REPLY REFER TO:

February 15, 2023

Mr. Randal Looney
Federal Highway Administration
Arkansas Division
700 West Capitol Avenue
Room 3130
Little Rock, Arkansas 72201-3298

Consultation Code: 2022-0010163

Re: Biological Assessment ARDOT Job 040748 Interstate 49, Highway 22 – I-40 (Arkansas River) (S), Sebastian and Crawford Counties, Arkansas

Dear Mr. Looney,

This letter provides U.S. Fish and Wildlife Service (Service) comments for the Biological Assessment (BA) for the proposed construction of I-49 from Highway 22 north to Alma at I-40 and I-49 interchange in Sebastian and Crawford Counties, Arkansas, developed by the Arkansas Department of Transportation (ARDOT) and the Federal Highway Administration (FHWA). Our comments are submitted in accordance with the Endangered Species Act (ESA) of 1973 (Act; 87 stat. 884, as amended; 16 U.S.C. 1531 et seq.). Comments from the Service were solicited on February 3, 2023.

ARDOT, in cooperation with the FHWA, is preparing a re-evaluation of the Final Environmental Impact Statement (FEIS) and refining the conceptual alignment for a new section of Interstate 49. The new section is a critical connection between Highway 22 in Sebastian County and Interstate 40 in Crawford County, a length of approximately 14 miles. The action area and affected species were identified by ARDOT/FHWA through coordination with the Service throughout the assessment and pre-planning stages. The entire footprint of the project is approximately 1,546 acres which includes permanent and temporary impacts. Combining all affected species geographic areas produced an action area with a 0.25 mile area beyond the project footprint of 1,546 acres, creating a total affected area of 7,983 acres. Construction will be phased over several years with some initial roadway clearing beginning Fall 2022, and final phases of construction to begin Spring 2026. A total of eleven threatened, endangered, candidate, or proposed species were identified for assessment, and no critical habitats have been designated within the action area.

The official species list obtained from the Service's Information for Planning and Consultation (IPaC) website identified the following endangered and threatened species as potentially occurring within the project boundaries; the endangered Gray Bat (*Myotis grisescens*), the endangered Indiana Bat (*Myotis sodalis*), the threatened Northern Long-eared Bat (*Myotis septentrionalis*), the endangered Ozark Big-eared Bat (*Corynorhinus (=Plecotus)*

townsendii ingens), the proposed endangered Tricolored Bat (*Perimyotis subflavus*), the threatened Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*), the threatened Piping Plover (*Charadrius melodus*), the threatened Red Knot (*Calidris canutus rufa*), the threatened American Burying Beetle (*Nicrophorus americanus*), the candidate Monarch Butterfly (*Danaus plexippus*), the threatened Missouri Bladderpod (*Physaria filiformis*), and the proposed threatened Alligator Snapping Turtle (*Macrochelys temminckii*).

The Service has reviewed the assessment and determinations of "may affect, not likely to adversely affect" for the species identified based on the distance to known species locations, limited suitable habitats effects, survey results, and the Service agrees with your assessments and concurs with your determinations. Furthermore, the Service has received and concurs with your non-jeopardy determinations for Alligator Snapping Turtle and Tricolored Bat. No further consultation or coordination for this project is required for these species at this time. Your agency has met consultation requirements by informing the Service of your "No Effect" determinations. No consultation for this project is required for species that you determined will not be affected by this Action. This concurrence verification letter confirms that you have met the requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA).

The Service recommends that your agency contact the Arkansas Ecological Services Field Office or re-evaluate this Action in IPaC if: 1) the scope, timing, duration, or location of the proposed project changes; 2) new information reveals the action may affect listed species or designated critical habitat; and 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Arkansas Ecological Services Field Office should take place before project changes are final or resources committed. This concludes informal consultation in accordance with 50 CFR 402.13.

We appreciate your continued efforts toward the conservation of protected and at-risk species and their habitats. For future correspondence on this matter, please contact Lindsey Lewis at (501) 513-4489.

Sincerely,

Melvin L. Tobin
Field Supervisor

cc: Arkansas Department of Transportation, Little Rock, Arkansas
Project File
Read File
Filename: https://doimspp-my.sharepoint.com/personal/lindsey_lewis_fws_gov/Documents/Documents/PROJECTS/FY2023/ARDOT/040748_I-49_Biological Assessment/20221216_Ltr_Concurrence_040748_I-49_Biological Assessment_LCL.docx

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **3/28/23**	4. Sheet **1** of **1**
1. Name of Project **I-49 FEIS Re-Evaluation**	5. Federal Agency Involved **FHWA**	
2. Type of Project **Highway**	6. County and State **Crawford County, Arkansas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS **3/28/23**	2. Person Completing Form **Rebecca Fox**
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated **4,472** / Average Farm Size **141**
5. Major Crop(s) **Soybeans**	6. Farmable Land in Government Jurisdiction **Acres: 125,292** **% 32**	7. Amount of Farmland As Defined in FPPA **Acres 121,657** **% 32**
8. Name Of Land Evaluation System Used **NCCPI**	9. Name of Local Site Assessment System **NONE**	10. Date Land Evaluation Returned by NRCS **4/6/23**

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment ____ Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	870.38			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	870.38			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	707			
B. Total Acres Statewide And Local Important Farmland	164			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.69			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	9			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	87			

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	12			
2. Perimeter in Nonurban Use	10	8			
3. Percent Of Corridor Being Farmed	20	10			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	9			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availablility Of Farm Support Services	5	5			
8. On-Farm Investments	20	18			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	3			
TOTAL CORRIDOR ASSESSMENT POINTS	160	65	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	87	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	65	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	152	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

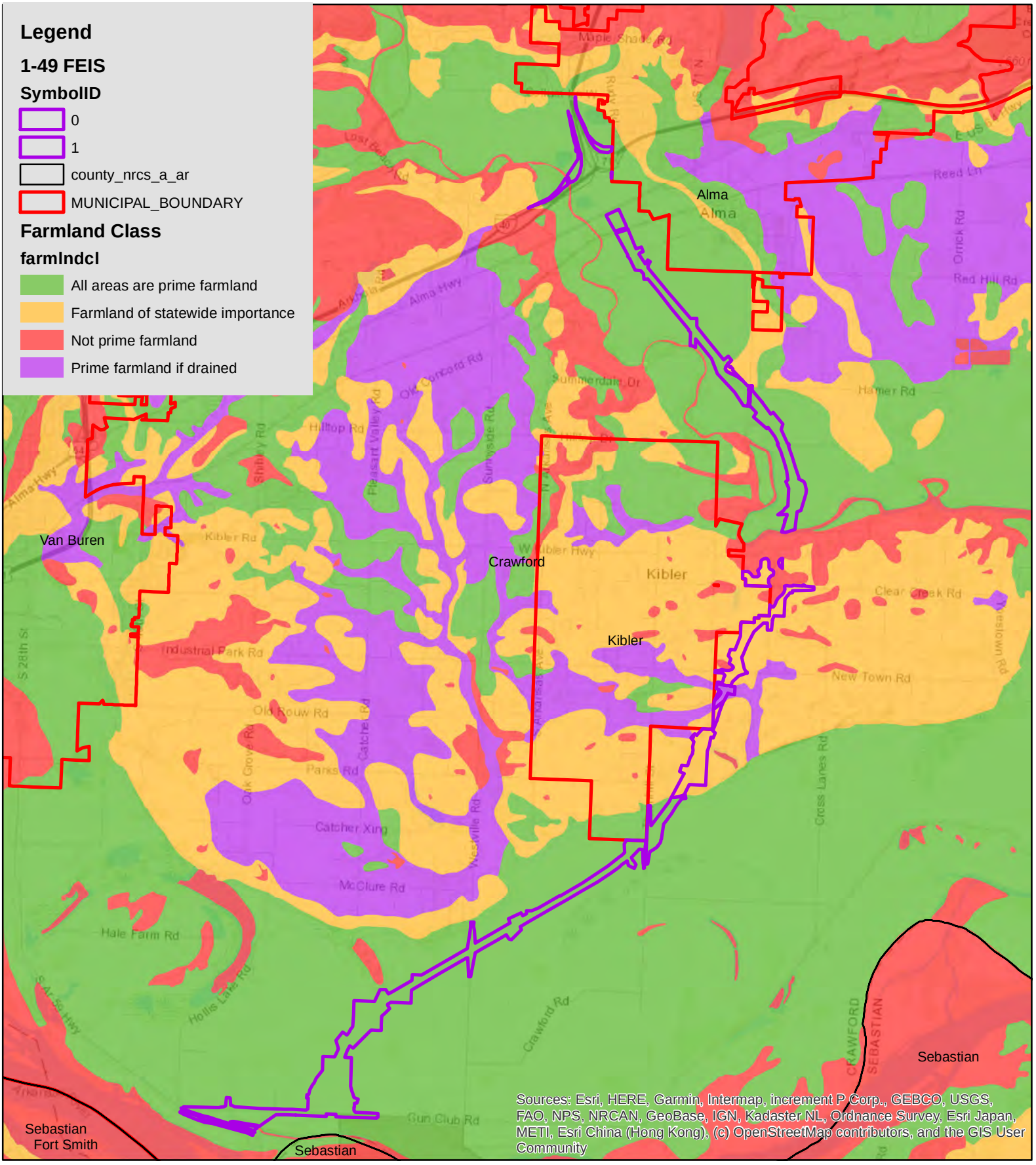
(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

Farmland Classification of Soils
I-49 FEIS Re-Evaluation
Crawford County, Arkansas



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

Electronic Submittal Only
ER 23/0220

July 19, 2023

Mr. Randal J. Looney
Environmental Coordinator
Federal Highway Administration
Little Rock, AR 72201-3928

Subject: Comments on the FHWA Re-evaluation of the Final Environmental Impact Statement and Individual Section 4(f) Evaluations for the U.S. 71 Relocation DeQueen to I-40 Crawford and Sebastian Counties, Arkansas

Dear Mr. Looney:

The Department of the Interior (Department) has reviewed the Arkansas Department of Transportation's (ARDOT) re-evaluation of the 1997 Final Environmental Impact Statement (FEIS) and individual Section 4(f) evaluations for the U.S. 71 Relocation DeQueen to I-40 project located in Crawford and Sebastian Counties, Arkansas. We understand ARDOT is required to complete a re-evaluation to update the analysis in prior NEPA documentation when there are changes to the project which could affect the previous determination of potential environmental impacts. We understand the purpose of the re-evaluation is to determine whether any additional NEPA documentation is warranted for refining the alignment of a new section of Interstate 49 or if the previous findings described in the Record of Decision (ROD) issued in December 1997 remain valid.

As described in the re-evaluation, the purpose of the new proposed alignment for Interstate 49 is to improve system linkage and modal connectivity, and address safety issues associated with increasing volumes of vehicular traffic in northwest Arkansas. The proposed alignment generally follows the Selected Alignment identified in the 1997 FEIS. The roadway and bridge designs have continued to advance to a greater level of detail for this segment of Interstate 49 since the 2018 Alternative Delivery Study, and the preliminary design includes refined roadway and bridge typical sections, and interchange types and locations have been determined.

In addition, two individual Section 4(f) evaluations were completed for Springhill Park and Old Wire Road, Section 4(f) properties, and included in the re-evaluation as Appendices, C and D.

Section 4(f) of the U.S. Department of Transportation Act specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of Section 4(f) property only if there is no prudent and feasible alternative that avoids the Section 4(f) properties and that the project includes all possible planning to minimize harm to the Section 4(f) properties; or, FHWA makes a finding that the project has a de minimis impact on the Section 4(f) property. ARDOT considered a no-build alternative, two avoidance alternatives, and one feasible and prudent build alternative. The no-build alternative was determined to be feasible, but not prudent. The avoidance alternatives would have avoided impacts to Section 4(f) resources but would have resulted in severe disruption to established communities and/or several social, economic, and environmental impacts. The avoidance alternatives were determined to be feasible, but not prudent.

Springhill Park, a Section 4(f) property is a publicly accessible park used for recreational purposes and is managed by United States Army Corps of Engineers (USACE). The Proposed Action, Interstate 49, a new location roadway, is proposed to bridge over Springhill Park, located immediately south of the Arkansas River in Barling, Arkansas. The alignment would result in a direct use of Springhill Park and require 10 acres of USACE property, of which approximately six acres would be cleared. A Section 4(f) analysis was conducted in the 1997 FEIS for Springhill Park. Four abandoned campsites and currently unused water fountain identified in the 1997 FEIS are still within the project footprint. In addition, since the 1997 FEIS, Springhill Park Trail, a mountain bike/hiking trail, was constructed and would be impacted within the proposed right of way. Portions of the trail under the bridge deck would need to be re-routed to avoid the proposed bridge substructure. Additional coordination with the USACE occurred on December 2, 2021, and the USACE has requested additional items to mitigate the immediate and future impacts from the proposed realignment to Springhill Park in addition to the fourteen measures identified in the 1997 FEIS/ROD.

Old Wire Road, a Section 4(f) property is a gravel roadway currently used for access to privately owned fields. A Section 4(f) evaluation was not conducted as part of the 1997 FEIS as the Old Wire Road was not included in the National Register of Historic Places (NRHP) in 1997. In 2018, Old Wire Road was determined eligible for inclusion in the NRHP under Criterion A for being an early post road and route and Criterion C for its association with a method of road construction in the 19th century. The Arkansas State Historic Preservation Officer (SHPO) concurred with this determination letter dated June 21, 2018. A Section 4(f) analysis has been completed as part of the new proposed action and impacts and mitigation identified. It has been determined that construction of the proposed project would result in an adverse effect to the Section 4(f) property as the proposed project crosses Old Wire Road. Old Wire Road is proposed to be rerouted approximately 400 feet to the north, would be at grade, and cross under the elevated Interstate 49 main lane. In 2021, a Memorandum of Agreement (MOA) between ARDOT, FHWA, and SHPO was prepared to resolve the adverse effect. Additionally, the following Tribes were consulted: Osage Nation, United Keetoowah Band of Cherokee Indians in Oklahoma, Quapaw Nation, Cherokee Nation, Shawnee Tribe, Caddo Nation, Muscogee (Creek) Nation of Oklahoma, and the Choctaw Nation of Oklahoma. The following mitigations were included in the MOA:

- Archival documentation for the property.

- A written history of the road, including its development, early to current use, and the route's significance to the local area.
- Documentation would be provided for curation to the Arkansas State Library, the Arkansas Studies Institute, the Arkansas State Archives, and the Torreyson Library.
- No construction would be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

The Department has reviewed the individual Section 4(f) evaluations provided by ARDOT for this project which focused on impacts the proposed action realignment would have on the two Section 4(f) properties. The Department has no objection to the Section 4(f) evaluations of this project. The Department concurs with the determination that the proposed alternative would constitute an adverse effect to Old Wire Road under Section 106 of the National Historic Preservation Act and concurs with ARDOT's determination that there is no feasible and prudent avoidance alternative to the Section 4(f) use of Springhill Park or Old Wire Road.

The Department has a continuing interest in working with ARDOT and FHWA to ensure that impacts to resources of concern to the Department are adequately addressed. For matters related to Springhill Park or Old Wire Road, Section 4(f) properties, please contact Rene Ohms, Acting Regional Environmental Coordinator, National Park Service - Regions 3, 4 and 5, at rene_ohms@nps.gov.

If you have any questions for the Department or need assistance, please contact me at 720-814-6167, or rebecca_collins@ios.doi.gov.

Sincerely,

Rebecca Collins,
Regional Environmental Officer
Office of Environmental Policy and Compliance

Cc: Rene Ohms, National Park Service, rene_ohms@nps.gov
Roxanne Runkel, National Park Service, roxanne_runkel@nps.gov

APPENDIX M

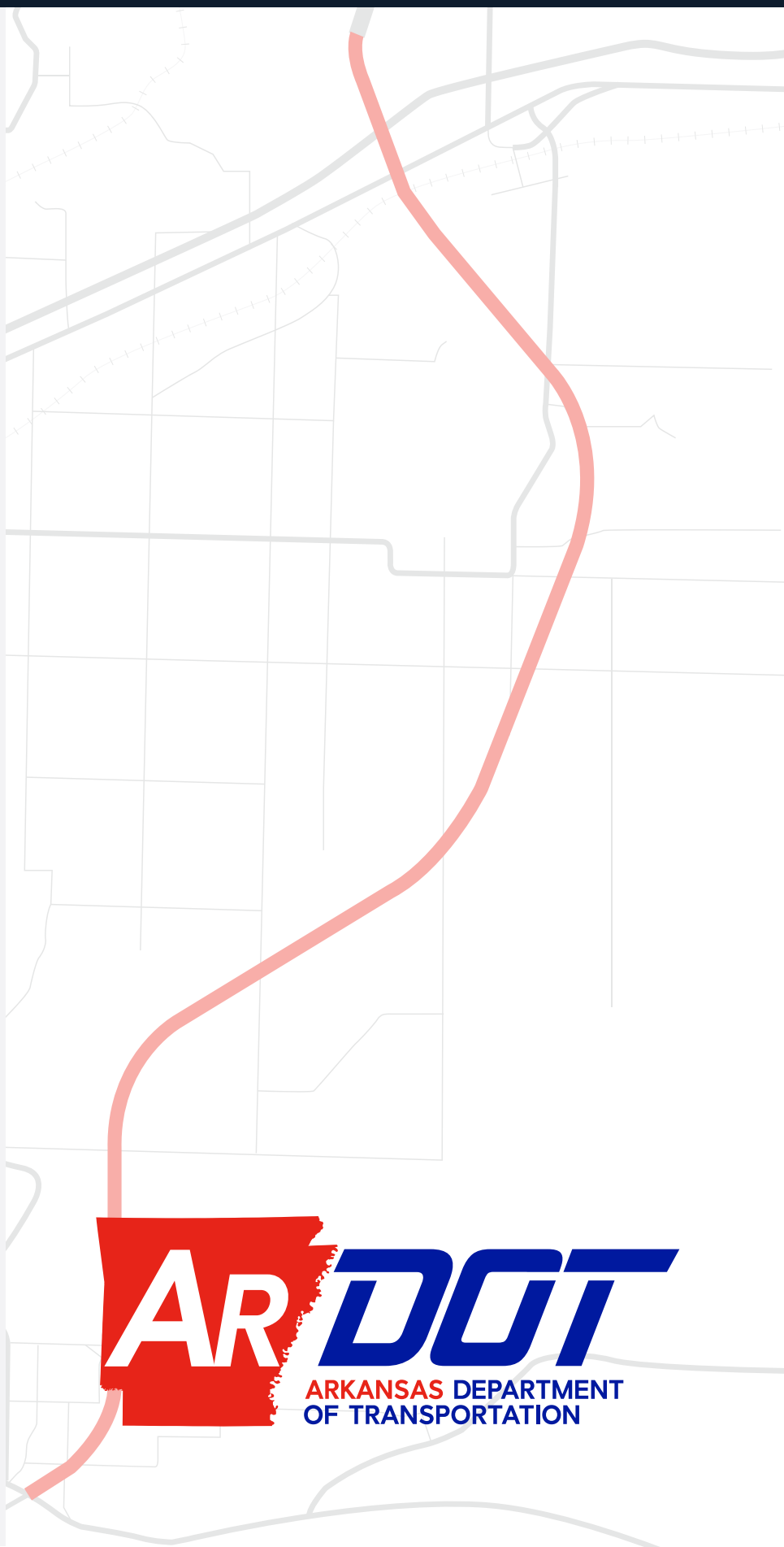
Public Meeting Summary

I-49 Public Involvement Meeting 2 Synopsis

Hwy. 22 – I-40 (Arkansas River)

Crawford and Sebastian Counties, Arkansas

September 29, 2022
Job No. 001747



ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

A Public Involvement Meeting was held on Thursday, September 29, 2022, at the First Baptist Church Alma, 211 N. Mountain Grove Rd., Alma, AR. The project information was made available on the ARDOT's website from September 23, 2022, through October 14, 2022. Efforts to involve minorities and the public in the meeting included:

- Display Advertisement placed in *Southwest Times Record* and ran on September 18, 2022, and September 25, 2022.
- Public Service Announcement was placed with La Raza 92.3 and ran from September 26, 2022, through September 29, 2022.
- News Release published by ARDOT on September 22, 2022.
- Letters were mailed to Public Officials on September 9, 2022.
- Letters were mailed to Minority Leaders on September 9, 2022.
- Approximately 150 flyers were hand-delivered to residents within the constraints of the project area.
- Postcards mailed on September 16, 2022 to residents living along the Selected Alignment via the Arkansas Mailing System.

The following information and links were available on the ARDOT website:

- 1997 Final Environmental Impact Statement
- Google Maps location of in-person Public Meeting
- Project Corridor Virtual Room
- Public Meeting Notice
- Registration Form
- Project Introduction Video
- Project Location Map
- Constraints Map
- Typical Sections
- Project Design Documents
- I-49/I-40 Interchange Exhibit
- Project Timeline Exhibit
- Project Fact Sheet
- Project Fly-Through Video
- May 2018 Public Meeting Summary
- March 2022 Public Meeting Summary
- Preliminary Impacts and Benefits Table
- Project Design Updates
- Interactive project map
- Project Comment form
- Frequently Asked Questions

Copies of the public meeting notice, virtual public involvement exhibit, and comment form are attached.

Table 1 describes the results of the public participation at the meeting.

TABLE 1	
Public Participation	**Totals**
In-Person Registration (Residents/Public Officials)	186/32
In-Person Title VI Attendees	2
Online registration of attendance	5
Number of website viewers (English/Spanish)	842/47
In-Person Comments Received	12
Online Comments Received	5
Mailed Comments Received	3
Emailed Comments Received	2
Total Comments Received	**22**

ARDOT staff reviewed all comments received and evaluated their contents. The summary of comments listed below reflects the personal perception or opinion of the person or organization making the statement. The sequencing of the comments is random and is not intended to reflect importance or numerical values. Some of the comments were combined and/or paraphrased to simplify the synopsis process.

A listing of general comments concerning the proposed project follows:

- Commentors are concerned with how the plans will affect their land specifically.
- Commentors request adding an on/off ramp at Hwy. 162 for possible positive financial benefits for Alma & Kibler.
- Commentors are concerned about flooding in the following areas: Springhill Park, and Clear Creek Road.
- Multiple commentors request bike and pedestrian facilities along the bridge into Barling, as to provide safe transportation along Arkansas River. Eventually, hoping to add bike and pedestrian paths through the river valley to connect to Northwest Arkansas.
- If bike and pedestrian paths are not added originally, commentors request project team to design the bridge to leave space to add said paths later.
- Commentors request that the river bridge near Springhill Park will be built to start before the water so the hiking, biking, and running trails are not blocked. If trails are to be blocked by the road, there are requests for large culverts to allow continued freedom of movement.
- Commentors are hoping for advanced right of way acquisition process.
- Commentors request the project team to consider a bridge over I-49 at New Town Road instead of cul-de-sacs, because a bridge would improve emergency response on New Town Road to the east of I-49.
- If no bridge can be built to connect New Town Road, commentors request the design team to analyze the possibility of building Richland Road all the way from Clear Creek to New Town Road, to improve emergency vehicle response times.
- Co-owners of farm property off Westville Road are concerned with portion of property being landlocked. This portion also has a water well for irrigation purposes on it.
- Commentor wants to know how the widening of 2 to 3 lanes and shoulders/right of way is going to impact their residence on Kibler Highway, and would like that marked out to know how far back to move their trees.
- Commentors want to know if the new access road will allow any businesses to be built on the road, and if this addition will cause the wood area at the south of the Waterfront properties in question to be cleared.
- Commentor is hoping the access road be reconsidered for elimination through the Waterfront community.
- Commentor needs access, easement and right of way to their natural gas well located on the east side of I-49 Highway in 31-9-30 Crawford County.

- Commentor requests designers to consider a Hamer Lane exit, as this appears to be the only area that can sustain an industrial park in the city of Alma.
- There are concerns about using embankment instead of bridge due to flooding/safety concerns.
- Commentor proposes that ARDOT move the location of I-49 to the westside of State Highway 162, then cross Hwy. 162 in the proximity of Kibler Baptist Church, to reduce homes' impacts and reduce amount of highway needed to be constructed.
- Commentors support the project and the design changes presented at the public meeting.

Attachments:

- Blank Comment Form
- Comment Matrix
- Comments Received
- Sign-in Sheets
- Public Meeting 2 Outreach Attachments
- Public Meeting 2 Outreach Mailing Documentation

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
1. Anonymous	Springhill Park - I would like to call out the fact that the area where the planned I49 goes through Springhill Park is in a flood zone/area. That area is highly used by residents as a hike/bike/run area and the back area that would be cut off is called the "Enchanted Forrest" and offers a very peaceful escape. I hope that the river bridge will start before the water so that these trails are not blocked as they would continue under the bridge. That said, if not a bridge started on land to go over the river, please consider adding large culverts to allow continued freedom of movement. This area has been through a lot with the last couple floods and many private citizens like myself are continuing to use and improve this area.	Online	*Interstate 49 is proposed to be on elevated bridge structure over Springhill Park. For public safety, the trails will be closed in the area of the proposed project during construction of the bridge. After construction is complete, the trails will be re-opened for public use.*
2. Jackson Hurst	I approve and support ARDOT's Highway 22 - Interstate 40 (Arkansas River) (Interstate 49) Sebastian & Crawford Counties Project. The aspect that I love about ARDOT's Highway 22 - Interstate 40 (Arkansas River) (Interstate 49) Sebastian & Crawford Counties Project is that Future I-49 will help improve safety, reduce congestion, and improve freight mobility in the Fort Smith area.	Online	*Thank you for your comment.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
3. Anonymous	Using an embankment instead of a bridge is not only engineering suicide but it's trading in cream for crap. I don't know where you guys where when the river was flooded but it's a very bad move to construct an embankment instead of a bridge. What's more important money or SAFETY? Think like a driver instead of typical ARDOT	Online	*A hydrology and hydraulic study has been prepared for the proposed project. The study results show that the project will not have an adverse impact to the area and does not justify the use of bridge for the entire project. Bridges are being designed where necessary to avoid an adverse impact on the existing flooding conditions.*
4. Anita & Benjamin Wesley	I am glad we were able to attend the meeting yesterday I think the new changes are great	Online	*Thank you for your comment.*
5. Dee Bratcher	Would like to see how the widening of 2 to 3 lanes and shoulders/right of way is going to impact my residence at 29 N Kibler Highway. We planted new trees this year and based on the map at the meeting, those trees will need to be moved. I would like to have that marked out if possible so we know how far back we need to move these trees.	Online	*The design is still being refined, but we anticipate minor re-grading of the ditch along the west side of Kibler Highway and modifications of the existing driveway. More detailed information concerning the construction limits will be available in Spring 2023, after environmental clearance. ARDOT will then begin negotiations to acquire right of way and easements.*
6. Rick Prestidge	The plans I have seen for the east end of our land is subject to major flooding due to runoff of ditches and the lake that also drains into the same branch. The concerns we have now is the proposed new service road will create more flooding.	In-person Public Meeting	*A hydrology and hydraulic study has been done for the area in question. The study does not show any adverse impacts being caused by the new service road. The existing culvert under Clear Creek is an 8'x3.5' Single Box Culvert (SBC). It is being replaced by a bigger culvert (8'x4' SBC) which should improve the flooding situation.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
7. Mark Allen	Please consider walking/biking trails along the length of the Project – consider at least leaving property adjacent to all construction that could or might be improved at a later date for either state, county, city, or private projects to fund possible trails & connecting trails already existing. There's a lot of possibility here & in the future. Thank you!	In-person Public Meeting	*Thank you for your comment.*
8. Steve Hotz	Keep in mind the ability to add bike/walking trail to the Arkansas River Bridge so eventually the trails in the river valley can connect to those in NWA (possibly utilize the old Highway. 71 to help make that connection). Even if not added to the bridge originally, at least design the bridge so it can be reasonably added in the future.	In-person Public Meeting	*The I-49 Bridge over the Arkansas River Bridge will not be designed to accommodate a shared use path (SUP), or to facilitate the addition of a future SUP, in order to stay within the financially constrained budget. Should the Fort Chaffee Redevelopment Authority (FCRA) and/or others decide to construct a SUP over the river in the future, the FCRA and/or others may choose to fund and construct the SUP as a separate structure from the I-49 Arkansas River Bridge.*
9. Chris Keith	I'd like to propose one of the two options. 1: instead of blocking New Town Road at the interstate, build a bridge to keep New Town connected. I understand we are trying to keep cost down but 5 to 10 mins extra for emergency vehicles could make the difference between life and death. 2: If we cannot build a bridge, look at building Richland Road all the way from Clear Creek to New Town to at least cut response time down.	In-person Public Meeting	*Access across I-49 is provided at Clear Creek Road, ¾ mile to the north. This project does not preclude adding an overpass at New Town Road in the future, if justified by increased traffic. The project team has explored options for Richland Road, but extending it to New Town is complicated by private property that would need to be crossed.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
10. Ronnie Dehart	Please get in contact with me. No one has and by the way the plan look your wanting to take some of my land. Thanks.	In-person Public Meeting	*Current plans show impacts to your property although the house is outside of the proposed construction limits. The design is still being refined and ARDOT Right of Way will contact you once the right of way acquisition process begins, after the project has been environmentally cleared.*
11. Bryan Huff	Can't wait to see this completed. Please genuinely consider the Hamer Lane exit. It is vital to the future of Alma. It's the only area we can put in an industrial park.	In-person Public Meeting	*The Interstate 49 interchange locations at Gun Club and Clear Creek Roads were determined as documented in the 1997 Final Environmental Impact Statement (FEIS) and Record of Decision. Factors including traffic volumes and environmental constraints weighed heavily in those considerations. Clear Creek Road and the Kibler Interchange resulted in markedly fewer impacts. The difference in the interchange locations is 2 miles or a 2-3 minute driving difference. The re-evaluation analyzed the changes that have occurred since the 1997 FEIS and has taken into consideration public comments from meetings held in 2018 and 2022. The addition of an interchange at Highway 162 was assessed and would result in 3 additional residential relocations and substantially more impacts to the Frog Bayou floodplain. The design, field investigations, environmental analysis, and public involvement required to include an additional interchange at Highway 162 would require 9 - 12 months to complete. A new interchange at Highway 162 would require 62 acres of new right of way, and $20 to $30 million in costs. Due to the additional impacts, costs, and schedule delays, an additional interchange at Highway 162 will not be incorporated in to the project.*
12. Stacy Willinger	Please consider adding an on/off ramp at Highway 162 for possible financial impact (positive) to Alma and Kibler. Bike and pedestrian facilities along bridge with Barling would provide safe transportation across the Arkansas River for all users.	In-person Public Meeting	*Regarding Highway 162, see response to comment 11. Regarding bicycle and pedestrian accommodations, see response to comment 8.*
13. Damon Henderson	I would like to know when money is in hand to put the bridge across the river!	In-person Public Meeting	*Construction updates will be listed on the project website (https://www.ardot.gov/divisions/environmental/assessments/impact-statements-eis-assesments-ea/i-49-project/). Additionally, the Statewide Transportation Improvement Program (STIP) identifies funding and scheduling of transportation projects and programs is available for public review on ARDOT's website.*
14. Ben & Anita Wesley	Tammy Green was most helpful. Advanced acquisition.	In-person Public Meeting	*Thank you for your comment.*
15. Kyle Harp		In-person Public Meeting	*Thank you for your participation in this public meeting.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
16. Donnetta Smith; Angela Rhodes; Bridgett Hargis	Co-owners of farm property off Westville Rd – concerned with portion of property being landlocked. This portion also has a water well for irrigation purposes on it.	In-person Public Meeting	*There is a landlocked portion on the west side. The project team will discuss with ARDOT. This portion may become part of the proposed right of way. If so, ARDOT Right of Way will contact you once the acquisition process begins, after the project has received environmental clearance.*
17. Andrew L. Wiley	I would like to propose the ARDOT move the location of I-49 to the westside of Highway 162 then cross 162 in the proximity of the Kibler Baptist Church. There would be less homes affected and less highway to build. Not one person at any meeting has given me a plausible reason for placing the highway east of 162 and destroying the Waterfront subdivision. I am attaching a map for my proposed route.	In-person Public Meeting	*This segment of Interstate 49 has been studied since the 1990s. Multiple corridors and alignments were evaluated as documented in the 1997 FEIS. The current alignment was selected based on consideration of environmental, engineering, cost, and public input. The proposed project follows the Selected Alignment from the 1997 FEIS and Record of Decision. If the alignment were to shift to the west as proposed, environmental impacts would still be present due to the need for the interchange at Highway 162. The impacts that would be present, found using the general shape of the current right of way needed for the necessary Highway 162 interchange, potential impacts include notable and approximate residential displacements within the Kibler city limits along Highway 162, as well as displacement of the District 7 fire station, multiple churches, and other businesses. In addition, the proposed alignment would impact a larger area within the city of Kibler. The proposed alignment would impact approximately 2.5 miles within Kibler compared to the Selected Alignment which would impact 0.5 miles. These impacts would span the length of approximately 2.5 miles, as compared to the current approximate 0.5 mile impact forecasted in the Selected Alignment. Further, there would be anticipated waters and wetlands impacts, and impacts to archeological sites would also remain. From an engineering perspective, an interchange at Clear Creek Road along the proposed alignment would result in geometric challenges such as ramps being too close to existing Thornhill Street and Alma Drive, potentially requiring both parallel roadways to be realigned away from the new interchange.*
18. Philip Bagby & LeAnn Hackler	We are the owners of Tract C-59 (in name of LeAnn Hackler), just north of Clear Creek Road in Kibler near the southbound 1-49 exit onto Clear Creek. We are asking ArDot to consider modifying its present plans and to shorten the planned service road and cul-de-sac running north from Clear Creek Road to stop short of coming onto our tract. We submit both	E-mailed to ARDOT	*ARDOT has noted this comment and communicated via email with this resident about these issues on September 1, 2022, which were made in a separately submitted comment regarding the same issues, prior to the opening of the public comment period on September 23, 2022. ARDOT Environmental Division let this commentor know that their parcel would be impacted by the current design, the current design would not likely require the total take of their property and provides for maintained access to the property via the road and cul-de-sac shown on the attached figure, and the project team is still working on the environmental re-evaluation. ARDOT Environmental Division also let the commentor know that there would be a public meeting and comment opportunity very soon which the commentor will be notified of. After the environmental re-evaluation is signed, the right of way acquisition process can begin. The time frame of all these items is not set, so ARDOT Environmental Division let the commentor know they*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
Continued Comment: 18. Philip Bagby & LeAnn Hackler	public-interest and private-interest reasons for this request. Public Interest: There is a water saturation issue in our front yard, where the road and cul-de-sac would be located. We have seen aerial photographs from the Oil and Gas Commission of our property in the 1990s and the early 2000s, showing heavy forestation on our property at that time. But at some time after the property was cleared for the yard and to build the house in 2003, the property began to have major subterranean water issues. Although only one ditch seems to be apparent on the photographs, there are actually two parallel ditches that run diagonally from southwest to northeast across our property. The one that is closer to the house is not as visible from aerial photographs or topographic maps, but that is the one that carries the most subsurface water. And, over that ditch is the path where the service road and cul-de-sac would be placed. Right now, with the recent drought conditions, the water table is low and the ground is dry and solid. In fact, our pond is the lowest it has ever been since construction in		*couldn't nail down exactly when the right of way acquisition process would begin.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
Continued Comment: 18. Philip Bagby & LeAnn Hackler	2003. But the yard is typically much soggier, and just last year, we had to replace the culvert under our driveway because of the amount of subterranean shift due to the water (that is, the culvert support washed out from subsurface water flow). Also, there are several artesian springs (and probably a larger aquifer) that bubble up in our front yard. We have over-planted Bermuda grass seed to absorb as much of this water as possible. However, we are concerned that if the green area is covered with concrete or asphalt, the roadway would become a maintenance headache for ArDot, and could eventually lead to a total collapse due to the subterranean washout. Personal Interest: Our personal reason for asking that the cul-de-sac stop short of our property has to do with our family security. I have been a lawyer for over 30 years, and while I have been very successful and fortunate in my practice, that also means that there are many people who were on the other side of those cases who are not so happy with me. For that reason, our home is situated at the end of an 800-foot-long paved driveway (our access		

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
Continued Comment: 18. Philip Bagby & LeAnn Hackler	easement is the West 50 feet of Tract C-54), and where it the driveway meets our property, there is a security gate to control entry onto our property. We also have a 4-foot barbed-wire fence around the perimeter of the property. With this secured entry in mind, I am able to keep my wife and children as safe as possible. However, as currently planned, the service road would be a public-access road and would come well onto our property, and the cul-de-sac would be within 50 feet of our front porch.. In such a situation, it would be impossible for me to maintain the secure integrity of our property, and would be unable to ensure the safety of my family.. And that, from a security point of view, would effect a total taking of our property. Thus, for the public interest and also the private interest reasons set out above, we respectfully ask that ArDot consider shortening the service road and stopping the cul-de-sac at the property immediately to our south (Tract C-54), which is already being acquired in connection with this project. Thank you. Philip Bagby		

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
19. Gary and Barbara Cooper	First, thank you for holding the meeting in Alma on September 29. Barb and I would like to comment on a few things. When we built in the neighborhood in 2006 we were the only ones here besides the landlord across the street to the north and his son next door to the east. Since then, we have watched the growth of Waterfront from a front row seat. The uncaring attitude nature of the construction teams developing the neighborhood has been extreme. The trash, speeding and loud vehicles have been just a few of the issues. Based on your maps online, we will have construction traffic on Waterfront in front of our home. Construction behind our home on Clear Creek Road with the exit ramp and now … access road directly behind our property. Our question is why the new access road? What is the purpose of it? Will this allow any businesses to be built on the road? Will this addition cause the wood area at the south of our property to be cleared? This wood area is a refuge to a small deer herd that we have enjoyed for years. Also, the timber serves as a buffer to noise and allows some privacy to	Mailed to ARDOT	*The proposed road would provide access to the four adjacent properties, avoiding landlocking them. Three of the properties are residential and the one at the end of the cul-de-sac is wooded. This project will not require tree clearing along the south side of your property. Your property is outside the limits of this project. The proposed ROW line is about 30' from the SE corner of your property and runs from the southwest to northeast. Tree clearing will be necessary east of the proposed right of way line.* *This segment of Interstate 49 has been studied since the 1990s. Multiple corridors and alignments were evaluated in the 1997 FEIS and the current alignment was selected based on consideration of environmental, engineering, cost and public input. The proposed project follows the Selected Alignment from the 1997 FEIS Record of Decision.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
Continued Comment: 19. Gary and Barbara Cooper	our property. All being planned, the serenity of our home and our peaceful lifestyle we built here to enjoy is about to take a terrible hit. Probably a major stretch, but will there be any further reconsideration on the overall project location? If the project was ½ a mile to the east, would it not be in an unpopulated area of Waterfront and Clear Creek road? At least, could the access road be reconsidered for elimination?		
20. Dennis Gilstrap Crawford County Judge	Please consider a bridge over I-49 at New Town Road instead of cul de sacs. Reason! Industrial Park to Elm Street to New Town Road is a straight line Rd from Van Buren, east to west, to Yostown Road. This would become a high traffic road with future development. A bridge would also speed up emergency response on New Town Road to the east of I-49. We are very excited about I-49 becoming a reality.	E-mailed to ARDOT	*Access across I-49 is provided at Clear Creek Road, ¾ mile to the north. This project does not preclude adding an overpass at New Town Road in the future, if justified by increased traffic.*

I-49 Comments Received Comment Period: September 23, 2022 – October 14, 2022 Public Meeting: September 29, 2022			
Commentor	**Comment**	**Method comment was received**	**Response**
21. Wesley Clay Warnock	I have lived in Alma all my life. I worked in real estate for over 31 years and as technology began to advance I chose not to try to keep. I have worked as a lobby host for chick-fil-a for the past 7 years. I have deep and sincere love for Alma and Crawford County and I truly believe this project will be so good for the local economy as well as providing one of much needed arteries south to north. Transportation is vital to a strong economy. Thanks for all of your efforts.	Mailed to ARDOT	*Thank you for your comment.*
22. Larry Crawford	I need access, easement, right of way, to our natural gas well located on the east side of the I-49 Highway in 31-9-30 Crawford County.	Mailed to ARDOT	*Access to your gas well will be verified during the negotiations to acquire right of way.*

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*)_____

Address:_____ Phone: (_____)_____-_____

_____

_____

Email: _____

Comments:_____

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Reunión Pública - Formulario de Comentarios para Ciudadanos

Autopista Hwy. 22 – I-40 (Arkansas River) (I-49)

Septiembre 29, 2022
Iglesia First Baptist Church Alma
(Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Por favor escriba sus comentarios en este formulario y envíelo por correo a ARDOT antes de las 4:30 p.m. del **Viernes, 14 de Octubre, 2022** a: ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Tambíen puede enviarlo por correo electrónico a: environmentalpimeetings@ardot.gov.

Nombre: (*por favor en Imprenta*)_____

Dirección:_____ Teléfono: (____) ____-____

_____

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Correo Electrónico: _____

Comentario:_____

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ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Citizen Comment Form

Highway 22 - Interstate 40
(Arkansas River) (Interstate 49)
Sebastian & Crawford Counties
Job 040748
September 29, 2022

Comment Deadline
Friday, October 14, 2022
4:30 pm

Project Website Link:
https://arcg.is/uXe400

Submitted Date: October 13, 2022 3:35 PM

Name & Address:

Phone:

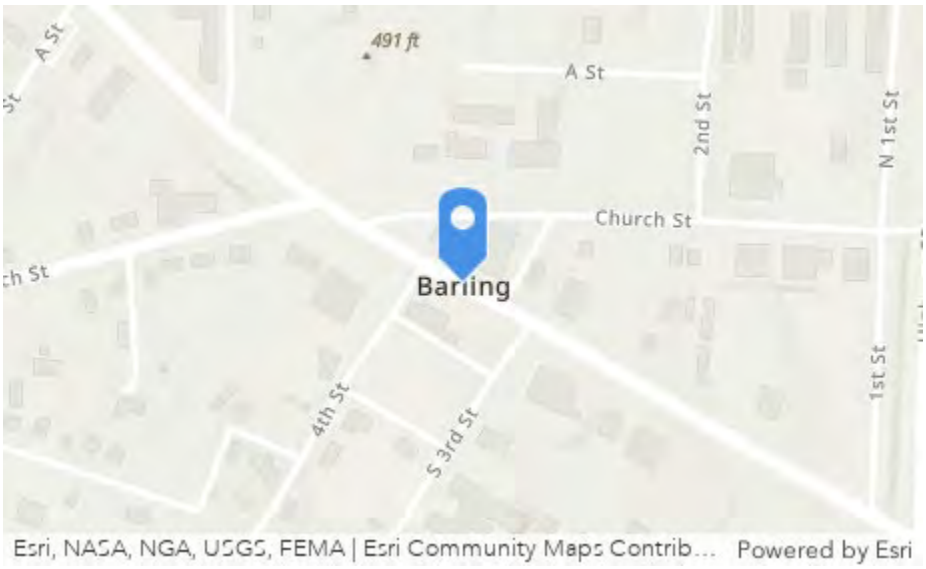
Email:

RESPONSES

Comments:

Springhill Park - I would like to call out the fact that the area where the planned I49 goes through Springhill Park is in a flood zone/area. That area is highly used by residents as a hike/bike/run area and the back area that would be cut off is called the "Enchanted Forrest" and offers a very peaceful escape. I hope that the river bridge will start before the water so that these trails are not blocked as they would continue under the bridge. That said, if not a bridge started on land to go over the river, please consider adding large culverts to allow continued freedom of movement. This area has been through a lot with the last couple floods and many private citizens like myself are continuing to use and improve this area.

If any of your comments or questions are about a specific location, please search, zoom, and/or pan the map. You can then add a pin by selecting the location that relates to your comment or question.



Please upload any files you feel would add to your comments/questions/concerns addressed in the above questions.

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ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Citizen Comment Form

Highway 22 - Interstate 40
(Arkansas River) (Interstate 49)
Sebastian & Crawford Counties
Job 040748
September 29, 2022

Comment Deadline
Friday, October 14, 2022
4:30 pm

Project Website Link:
https://arcg.is/uXe400

Submitted Date: October 7, 2022 12:03 PM

Name & Address:
Jackson Hurst
4216 Cornell Crossing
Kennesaw, Georgia 30144
Phone: 6786284232

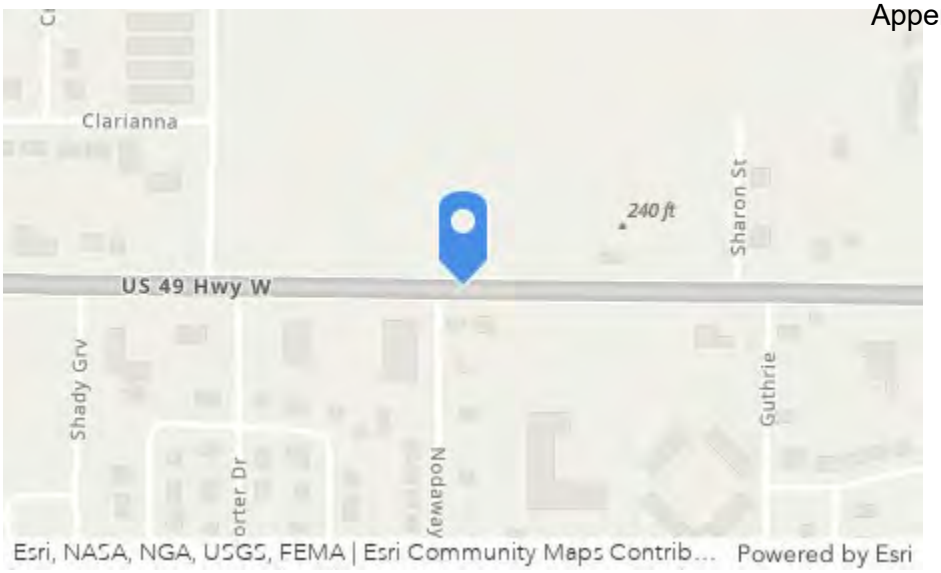
Email: ghostlightmater@yahoo.com

RESPONSES

Comments:

I approve and support ARDOT's Highway 22 - Interstate 40 (Arkansas River) (Interstate 49) Sebastian & Crawford Counties Project. The aspect that I love about ARDOT's Highway 22 - Interstate 40 (Arkansas River) (Interstate 49) Sebastian & Crawford Counties Project is that Future I-49 will help improve safety, reduce congestion, and improve freight mobility in the Fort Smith area.

If any of your comments or questions are about a specific location, please search, zoom, and/or pan the map. You can then add a pin by selecting the location that relates to your comment or question.



Please upload any files you feel would add to your comments/questions/concerns addressed in the above questions.

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ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Citizen Comment Form

Highway 22 - Interstate 40
(Arkansas River) (Interstate 49)
Sebastian & Crawford Counties
Job 040748
September 29, 2022

Comment Deadline
Friday, October 14, 2022
4:30 pm

Project Website Link:
https://arcg.is/uXe400

Submitted Date: October 1, 2022 12:39 PM

Name & Address:

Phone:

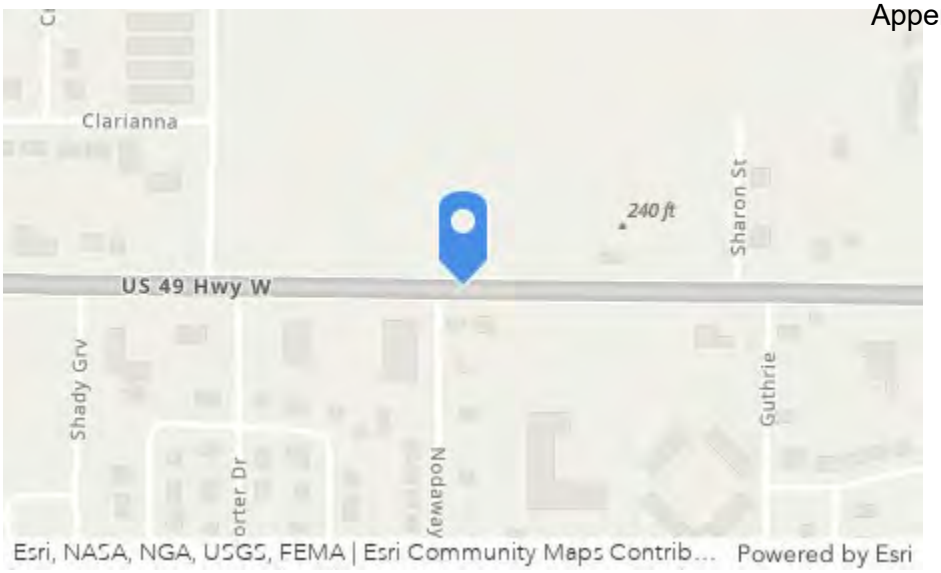
Email:

RESPONSES

Comments:

Using an embankment instead of a bridge is not only engineering suicide but it's trading in cream for crap. I don't know where you guys where when the river was flooded but it's a very bad move to construct an embankment instead of a bridge. What's more important money or SAFETY? Think like a driver instead of typical ARDOT

If any of your comments or questions are about a specific location, please search, zoom, and/or pan the map. You can then add a pin by selecting the location that relates to your comment or question.



Please upload any files you feel would add to your comments/questions/concerns addressed in the above questions.

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ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Citizen Comment Form

Highway 22 - Interstate 40
(Arkansas River) (Interstate 49)
Sebastian & Crawford Counties
Job 040748
September 29, 2022

Comment Deadline
Friday, October 14, 2022
4:30 pm

Project Website Link:
https://arcg.is/uXe400

Submitted Date: September 30, 2022 9:07 AM

Name & Address:
Anita and Benjamin Wesley
835 Muscadine Ln
Alma, Arkansas 72921
Phone: 4798837840

Email: Anitawesley719@gmail.com

RESPONSES

Comments:

I am glad we were able to attend the meeting yesterday I think the new changes are great

If any of your comments or questions are about a specific location, please search, zoom, and/or pan the map. You can then add a pin by selecting the location that relates to your comment or question.

Please upload any files you feel would add to your comments/questions/concerns addressed in the above questions.

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ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Citizen Comment Form

Highway 22 - Interstate 40
(Arkansas River) (Interstate 49)
Sebastian & Crawford Counties
Job 040748
September 29, 2022

Comment Deadline
Friday, October 14, 2022
4:30 pm

Project Website Link:
https://arcg.is/uXe400

Submitted Date: September 30, 2022 8:24 AM

Name & Address:
Dee Bratcher
29 N Kibler Hwy
Alma, Arkansas 72921
Phone: 4794454793

Email: Dekayebrat@yahoo.com

RESPONSES

Comments:

Would like to see how the widening of 2 to 3 lanes and shoulders/right of way is going to impact my residence at 29 N Kibler Hwy. We planted new trees this year and based on the map at the meeting, those trees will need to be moved. I would like to have that marked out if possible so we know how far back we need to move these trees.

If any of your comments or questions are about a specific location, please search, zoom, and/or pan the map. You can then add a pin by selecting the location that relates to your comment or question.

Please upload any files you feel would add to your comments/questions/concerns addressed in the above questions.

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*) Rick Prestidge

Address: 600 Clear Creek Rd Phone: (479) 806-1279
Alma, AR 72921

Email: rpservices05@yahoo.com

Comments: The plans I have seen for the east end of our land is subject to major flooding due to run off of ditches and the lake that also drains into same branch. the concerns we have now is the proposed new service road will create more flooding.

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form
Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) MARK ALLEN

Address: 12615 Moonlight Drive Phone: (479) 414-4850
FSM AR 72916

Email: markallensebcoe@gmail.com

Comments: Please Consider Walking/Biking Trails along the length of the Project
- Consider at least leaving property adjacent to all construction that COULD OR MIGHT be improved at a later date for either state, county, city, or private projects to fund possible Trails & Connecting Trails already existing. There's a lot of possibility here & in the future

Thank You!

Mark S. Allen

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) STEVE HOTZ

Address: 3300 McClendons Mead Phone: (479) 719-4680
FORT SMITH, AR
72908

Email: HOTZ@ATT.NET

Comments: Keep in mind the ability to add BIKE/WALKING TRAIL to the ARKANSAS River Bridge so eventually the trails in the River Valley can connect to those in NWA (Possibly utilize the old Hwy 71 to help make that connection).

Even if not added to the Bridge originally, at least design the Bridge so it can be reasonably added in the future.

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Officials Meeting Comment Form
Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Chris Keith

Address: 9117 Old 88 Rd
Rudy, AR 72952

Phone: (479) 806-0617

Email: CKeith@Crawford-county.org

Comments: I'd like to propose one of two options.
1. Instead of Blocking Newtown Road at the interstate, build a bridge to keep Newtown conneted. I understand we are trying to keep cost down but .5 to 10 mins extra for emergency vehicles could make the difference between life and death.
2. If we cannot build a bridge, look at building Richland road all the way from Clear Creek to Newtown to at least cut response time down.

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*) Ronnie Dehart

Address: 708 Clear Creek Rd Phone: (479) 883-7068
Alma AR
72921

Email: RJDehart56@yahoo.com

Comments: Please get in contact we me. No one has And by the way the plan look your wanting to take some of my land.
Thanks.

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) DAMON HENDERSON

Address: 309 MEADORS DR Phone: (479) 883-0978
ALMA AR. 72921

Email: _____

Comments: I would like to know when money is in hand to put the bridge across the river!

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form
Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Bryan Huff

Address: 3240 Jordan Crossing
Alma, AR 72921

Phone: (479) 609-5154

Email: bhuff914@yahoo.com

Comments:

Can't wait to see this completed.

Please genuinely consider the Hamer Lane exit. It is vital to the future of Alma. It's the only area we can put in an industrial park

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Stacy Willinger

Address: 1109 S 16th St Phone: (479) 883-7384
Fort Smith, AR 72954

Email: swillinger@wapdd.org

Comments:

Please consider adding an on/off ramp @ Hwy 162 for possible financial impact (positive) to Alma and Kibler.

Bike and pedestrian facilities along bridge into Barling would provide safe transportation across the Arkansas River for All users.

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Ben Wesley Anita Wesley

Address: ~~835 Muscadine~~ 835 Muscadine Ln Alma AR 72921 822 Muscadine Ln Alma AR 72921

Phone: (479) 883 7840

Email: AnitaWesley719@gmail.com.

Comments: Tammy Green Was Most helpful.

Advanced Acquisition

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Kyle Harp

Address: 739 Clear Creek Rd, Alma, AR 72921

Phone: (479) 276-7113

Email: kyle-harp@protonmail.com

Comments:

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) DonnetAa Smith; Angela Rhodes; Bridgett Hargis

Address: 3221 Cliff Drive
Ft Smith AR
72903

Phone: (479) 461-9582

Email: _____

Comments: Co-owners of farm property off Westville Rd - concerned with portion of property being landlocked. This portion also has a water well for irrigation purposes on it.

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) ANDREW L. WILEY

Address: 217 WATERFRONT CIR Phone: (479) 719-9360
ALMA, AR

Email: AWILEY446@GMAIL.COM

Comments: I would like to propose that the ARdot move the location of I-49 to the westside of State Hwy 162 then cross 162 in the proximity of the Kibler Baptist Church. There would be less homes affected and less highway to build. Not one person at any meeting has given me a plausible reason for placing the highway east of 162 and destroying the Waterfront Subdivision. I am attaching a MAP for my proposed route.

Andrew L. Wiley Comment Form

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*) Philip Bagby and LeAnn Hackler (H+W)

Address: 832 CLEAR CREEK RD Phone: (479) 474-7676
P. O. BOX 429
ALMA, AR 72921 TRACT C-59

Email: bagby-law@bagby-law.com

Comments: SEE ATTACHED

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*) PHILIP BA

Address:_____ Phone: (_____)_____-_____

_____

_____

Email: _____

Comments:_____

Philip Bagby (Comments addendum)

RE: Job 040748, I-49. Thank you for the opportunity to add a comment on this project.

We are the owners of Tract C-59 (in name of LeAnn Hackler), just north of Clear Creek Road in Kibler near the southbound I-49 exit onto Clear Creek. We are asking ArDot to consider modifying its present plans and to shorten the planned service road and cul-de-sac running north from Clear Creek Road to stop short of coming onto our tract. We submit both public-interest and private-interest reasons for this request.

Public Interest:
There is a water saturation issue in our front yard, where the road and cul-de-sac would be located. We have seen aerial photographs from the Oil and Gas Commission of our property in the 1990s and the early 2000s, showing heavy forestation on our property at that time. But at some time after the property was cleared for the yard and to build the house in 2003, the property began to have major subterranean water issues. Although only one ditch seems to be apparent on the photographs, there are actually two parallel ditches that run diagonally from southwest to northeast across our property. The one that is closer to the house is not as visible from aerial photographs or topographic maps, but that is the one that carries the most subsurface water. And, over that ditch is the path where the service road and cul-de-sac would be placed.

Right now, with the recent drought conditions, the water table is low and the ground is dry and solid. In fact, our pond is the lowest it has ever been since construction in 2003. But the yard is typically much soggier, and just last year, we had to replace the culvert under our driveway because of the amount of subterranean shift due to the water (that is, the culvert support washed out from subsurface water flow). Also, there are several artesian springs (and probably a larger aquifer) that bubble up in our front yard. We have over-planted Bermuda grass seed to absorb as much of this water as possible. However, we are concerned that if the green area is covered with concrete or asphalt, the roadway would become a maintenance headache for ArDot, and could eventually lead to a total collapse due to the subterranean washout.

Personal Interest:
Our personal reason for asking that the cul-de-sac stop short of our property has to do with our family security. I have been a lawyer for over 30 years, and while I have been very successful and fortunate in my practice, that also means that there are many people who were on the other side of those cases who are not so happy with me. For that reason, our home is situated at the end of an 800-foot-long paved driveway (our access easement is the West 50 feet of Tract C-54), and where it the driveway meets our property, there is a security gate to control entry onto our property. We also have a 4-foot barbed-wire fence around the perimeter of the property. With this secured entry in mind, I am able to keep my wife and children as safe as possible.

However, as currently planned, the service road would be a public-access road and would come well onto our property, and the cul-de-sac would be within 50 feet of our front porch. In such a situation, it would be impossible for me to maintain the secure integrity of our property, and I would be unable to ensure the safety of my family. And that, from a security point of view, would effect a total taking of our property.

Thus, for the public interest and also the private interest reasons set out above, we respectfully ask that ArDot consider shortening the service road and stopping the cul-de-sac at the property immediately to our south (Tract C-54), which is already being acquired in connection with this project.

Thank you.

Philip Bagby

ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)

Public Officials Meeting Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

Please make comments on this form and leave it with project personnel at the meeting, or send it by **Friday, October 14, 2022** to the ARDOT Environmental Division, P.O. Box 2261, Little Rock, AR 72203-2261. Alternately, send the form via email to environmentalpimeetings@ardot.gov.

Name: (*Block Print*) DENNIS GILSTRAP

Address: CRAWFORD COUNTY JUDGE
300 MAIN ST., ROOM #4
VAN BUREN, AR 72956

Phone: (479) 474-1511 OFF. 6
MOBILE (479) 651-0000

Email: dgilstrap@crawford-county.org

Comments: PLEASE CONSIDER A BRIDGE OVER I-49 AT NEWTOWN ROAD INSTEAD OF CUL DE SACS.
REASON: INDUSTRIAL PARK to ELM STREET to NEWTOWN RD IS A STRAIGHT LINE RD FROM VAN BUREN, EAST TO WEST, TO YOESTOWN ROAD. THIS WOULD BECOME A HIGH TRAFFIC ROAD WITH FUTURE DEVELOPEMENT.
A BRIDGE WOULD ALSO SPEED UP EMERGENCY RESPONSE ON NEWTOWN ROAD TO THE EAST OF I-49.
WE ARE VERY EXCITED ABOUT I-49 BECOMING A REALITY.
THANKS, DENNIS GILSTRAP

Crawford County Road Map

9/29/2022, 2:03:36 PM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

MUNICIPAL_BOUNDARY

Parcel

Street

Town Medium Volume,Asphalt

Town Medium Volume,Dirt/Gravel

Non-County Maintained,Asphalt

Non-County Maintained,Impassable

Non-County Maintained,Dirt/Gravel

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

provided by: WAPDD GIS Dept

2022 WAPDD GIS

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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ARDOT
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DIVISION

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Name: (*Block Print*) WESLEY CLAY WARNOCK

Address: P.O. Box 536
ALMA, AR 72921

Phone: (479) 632-2273

Email: cbwarnock76@yahoo.com

Comments: I HAVE LIVED IN ALMA ALL MY LIFE. I WORKED IN REAL ESTATE FOR OVER 31 YEARS AND AS ~~TECHNOLOGY~~ TECHNOLOGY BEGAN TO ADVANCE I CHOSE NOT TO TRY TO KEEP. I HAVE WORKED AS A LOBBY HOST FOR CHICK-FIL-A FOR THE PAST 7 YEARS. I HAVE DEEP AND SINCERE LOVE FOR ALMA AND CRAWFORD COUNTY AND I TRULY BELIEVE THIS PROJECT WILL BE ~~###~~ SO GOOD FOR THE LOCAL ECONOMY AS WELL AS PROVIDING ONE OF MUCH NEEDED ARTERIES SOUTH TO NORTH. ~~TRANSPORTATION~~ TRANSPORTATION IS VITAL TO A STRONG ECONOMY.

SORRY ITS SO MESSY.

THANKS FOR ALL YOUR EFFORTS,
Wesley Clay Warnock

WARNOCK
P.O. BOX 536
ALMA, AR 72921

NW ARKANSAS AR 727
30 SEP 2022 PM 2 L

ArDOT
Environmental Division
P.O. Box 2261
Little Rock, Ar. 72203-2261

72203-226161

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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DIVISION

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Name: (*Block Print*) GARY and BARBARA COOPER

Address: 829 WATERFRONT RD Phone: (479) 629-0578
ALMA, AR
72921

Email: Coop4522@gmail.com

Comments: FIRST, thank you for holding the meeting in Alma on September 29th. BARB & I would like to comment on a few things.

When we built in the neighborhood in 2006 we were the only ones here besides the Landlord across the street to the north and his son next door to the east. Since then we have watched the growth of Waterfront from a front row seat. The uncaring attitude nature of the construction teams developing the neighborhood has been extreme. The trash, speeding & loud vehicles have been just a few of the issues

Based on your maps online, we will have construction traffic on Waterfront in front of our home. Construction behind our home on Clear Creek road with the exit ramp and now the proposed access road directly behind our property.

Our question is why the new Access road?
What is the purpose of it?
Will this allow any businesses to be built on the road?
Will this Addition cause the wood area at the South of our property to be cleared?
This wood area is a refuge to a small Deer Herd that we have enjoyed for years.
Also, the timber serves as a buffer to noise And allows some privacy to our property.
All being planned, the serenity of our home and our peaceful lifestyle we built here to enjoy is about to take a terrible hit.

Probably a major stretch, but will there be any further reconsideration on the overall Project Location? If the project was ½ mile to the east, would it not be in a unpopulated Area of Waterfront and Clear Creek Road?

At Least, could the Access road be reconsidered for elimination?

Respectfully,

Gary & Barbara Cooper

Public Meeting Citizen Comment Form

Highway 22 – I-40 (Arkansas River) (I-49)

September 29, 2022
First Baptist Church Alma (Family Life Center)
211 N. Mountain Grove Rd. Alma, AR 72921

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Name: (*Block Print*) Larry Crawford

Address: 2234 S Ark Ave
Van Buren, AR 72956

Phone: (479)650 - 9675

Email:

Comments: I need access,easment,right of way to our natural gas well located on the east side of the I-49 Highway in 31-9-30 Crawford County.

I-49 Public Meeting Online Register

First	Last	Email
Steve	Hamlin	Sghamlin127@yahoo.com
Mary	Aubrey	maryaubrey1427@yahoo.com
Jim	Warnock	ozarkmountainhiker@gmail.com
Anita	Wesley	Anitawesley719@gmail.com
Alex	Morgan	matrod_morgan@yahoo.com

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register

Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	OTIS ARNOLD	307 E. Kibler Hwy	Alma, AR 72921	Self	
2	LARRY COMBS	3016 ROYAL SCOTS WAY	FORT SMITH, AR. 72908	ARKHOLA	
3	Billy Deaton	745 Clear Creek Rd	Alma	Self	
4	Ronnie Dehaet	708 Clear Creek Rd	Alma	Self	
5	Jacob Cotner	2015 S 64th	Ft Smith	KNWA	
6	Benny L Gooden	7000 Chad Colley Blvd.	Fort Smith - 72916	Arkansas Colleges of Health Education	
7	DAVID YOUNG				
8	Kay & Scotty Chitwood	1204 Springhills Dr	Alma, 72921	Self	
9	Kenneth L. Glover	7210 North Mountain Grove Road	Alma, Arkansas 72921	Self & Alma	Mailer from ARDOT
10	Teresa & Marty Arnold	837 Clear Creek Rd	Alma, AR 72921	Self	mail
11	Del Wiff	206 K Balling, Ar	72923	Self	Mail
12	PHILIP BRADBY	PO BOX 766	VAN BUREN, AR 72957	Self	MAIL
13	LEANN HALKIM	832 CLEAR CREEK	ALMA, AR 72921	Self	MAIL
14	Teresa Montgomery	715 Clear Creek Rd	Alma, AR 72921	self	Flyer
15	Anderson Terry	PO BOX 2702	Alma AR 72921	Self	Flyer
16	Stacy Willinger	1109 S 16th Fort Smith 72901	Fort Smith AR 72901	Frontier M/O	Mail
17	Stephen Eaton	1234 Thornhill Street	Alma AR 72921	Self	mail
18	Chavis Satterfield	4138 DEAN SPRINGS Rd	Alma, AR 72921	Self	T.V.
19	Amelia H. White	PO Box 940	Alma, AR 72921	Self	Flyer
20	Anna Lawrence	1300 Waterfront Rd	Alma AR 72921		

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register
Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy 22- I-40 (Arkansas River) (I-49)

Please Print

Ø Staff
Job No: 040748
Date: 9/29/2022

		Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
	1	Jordan Oliver	106 Shady Drive Alma, AR	Alma 72921	Self	Mail
2	2	Carl & Loretta Allison	6511 Southfield Dr.	Ft. Smith, 72916	Self	Flyer
2	3	Travis + Tim Woodruff	1133 Clear Creek Rd	Alma, Ar	self	Flyer
	4	[illegible]	1162 Clear Creek R	Alma AR 72921	Self	Flyer
	5	Dale Connor	636 Arkansas Ter	Alma AR 72921	self	flyer
2	6	Larry & Lynda Ruth	2928 Windsong Pl	Alma Ar 72921	Self	Card
2	7	Big Barn Investments LLC Mike + Donna Faucher	5300 McClure Rd	Van Buren AR 72956	self	card
	8	John D Johnson	1004 Water Street	Alma AR	Self	Mail
	9	Rebecca Creek	2128 Brookhaven Dr	Alma, AR 72921	Self	Flyer
	10	John Sharum	1421 Sunnyside Road	Alma, AR 72921	self	flyer
	11	Randy Jones	2826 So Hwy 162	Alma, Ar 72921	Self	Mail
2	12	Wes & Kay Trout	1307 Hidden Valley St	Van Buren AR 72956	Self	USPS
	13	Henry Engrav	1411 N 26	Van Buren 72956	Self	Mail
	14	Michael Brammer	1203 N. 11th St.	V B	Self	Mail
	15	Stephanie Mullen	424 N Kibler Hwy	Alma AR 72921	self	flyer
	16	Glen Henderson	523 HWY 348	Rudy Ark 72952	Self	Flyer
	17	Terry Carson	7115 Forest Canyon Dr	FSM 72916	Self	Chamber
	18	Scott Treece	2825 So Hwy 162	Alma 72921	Self	~~Newsp~~ Flyer
	19	Anita Wesley	835 Muscadine Ln	Alma 72921	Self	Flyer
	20	Ben Wesley	"	" "	"	" "

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register
Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy 22- I-40 (Arkansas River) (I-49)

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Cristy Harp	739 Clear Creek Rd	Alma, AR 72921	Self	postcard
2	WESLEY CLAY WARNOCK	P.O. Box 536, 504 MARLESHADE RD.	ALMA, AR 72921	SELF	"
3	Les DuChanois	10072 NW Jute Rd	Fay AR 72701	Kemp Quarries	"
4	Casey Stenbock	17849 Forest Trail	Ozark AR 72949	Kemp Quarries	"
5	BEN MARTS	801 Carnall Ave. (Suite 500)	Ft Smith AR 72901	City of Fort Smith	"
6	Sandy Fischer	432 Thornhill Street	Van Buren AR 72956		
7	Mike Fischer	432 Thornhill St	Van Buren AR 72956		
8	Allen Powell Debbie Adams	1031 Clear Creek Rd.	Alma 72921		
9	Cheryl Conrow	636 Arkansas Terrace	Alma 72921	Self	Post card
10	Sally Coble	PO Box 24	Alma AR 72921	Self	Face Box
11	Sean Brister	3503 Red Hill Rd	Alma AR 72921	Self	Post Card
12	Larry Crawford	2234 S Ark Ave	Van Buren Ar 72956		
13	Bob Martin	162 N Kibler Highway	Kibler	Martin Homes	Gossip
14	Jennifer Brammer	1203 North 11th St.	Van Buren, AR 72956	Self	post cards + Facebook
15	David Morlan	424 N. Kibler Hwy	Alma, AR 72921	Self	Post Card
16	Doug Schoenfeld	1800 Lee Creek Cir	VB, AR 72956	Self	Chamber of Commerce
17	Jason	819 clear creek rd	72921	Self	mail
18	Casey Doyel	600 Richland Dr			
19	Kathy Newton Mitchell	1218 Clear Creek Rd.	72921	Self	mail
20	Nick Blasingame	525 Richland Rd		Self	

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register

Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy 22- I-40 (Arkansas River) (I-49)

Job No: 040748 (2 staff)
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Mark Macy	339 West Elm Blvd	Van Buren 72956	SELF	Newspaper
2	Cameron Howell	2735 A Cardinal Lake Circle	Atlanta, GA 30096	HNTB	work
3	Lindsey Lewis	110 S. Amity Rd.	Conway, AR 72032	USFWS	work
4	~~Da~~ Paula Crabtree	1434 Alma Drive	Alma, AR 72921	Self	flyer
5	Joy Scrivner	1411 Sunnyside Terrace	Van Buren, AR 72956	Self	invitation
6	Debbie Griffin	2339 Catcher Rd	Van Buren	Self	flyer
7	Jim Fincher	3204 Fairway Drive	Alma, AR 72921	Self	flyer
8	Byron Sartor	1129 Waterfront Rd	Alma, AR 72921	Self	invite
9	James B Bell	10512 Riverview Drive	Ft. Smith, AR 72903	Self	Newspaper
10	Linda DeMasi	10324 I 30	LR, AR 72209	ARDOT	
2 11	Pat + Jim Bolin	9412 Harmony Ridge Rd	Ft Smith	Self	Mail
2 12	Nick + Allyssa Sly	1000 New Town Rd	Alma 72921	Self	flyer
13	Harry McWater	3020 Melody Lane	Alma Ar 72921	"	Flyer
14	~~[illegible]~~				
15	Rora Carroll	7092 Harmon Dr La. 93003			
16	[illegible]	1429 Riley Cir	Alma 72921	City of Alma	
17	Michael McDonald	518 Clear Creek Rd	Alma 72921	Self	Flyer
18	Michael Witt	204 K St	Gulley 72923	—	
19	Aaron Fisher	1108 Waterfront RD	Alma 72921	Self	Flyer
20	Austin McAllister	921 Waterfront Rd	Alma 72922	self/Donna Nichols	Flyer

(21)

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register
Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

3 staff

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Karla Sims	10324 I-30	LR, 72209	ARDOT	
2	Ruby Gordon-Johnson	" "	" "	ARDot	
3	Jane McLeroy	1463 Red Oak Dr	Alma 72921		
4	Donna Otto	38 E Kibler Hwy	Alma, Kibler		
5	Louis Otto	38 E Kibler Hwy	Alma, AR		
6	MARK Hare	1009 Maple Shade Rd	Alma	self	mail out
7	BRUCE Coleman	11908 N Hwy 348	Mountainburg AR 72946	State Rep #81	Mail
8	Alicia Chesshir	1429 Alma Dr. Alma	AR	Self	2 Postcards
9	Andrie Crabtree	"	"	"	
10	Bill Shipp	6704 Alma Hwy	Van Buren, AR		
11	Charles & Dee Bratcher	150 N. Riverbend Rd	Alma	self	
12	Dary Spear, Cusman London	738 Clear Creek Rd	Alma	Self	mail
13	[illegible]	309 Meadow Dr.	Alma 72921	self	TV news
14	Lisa Rehnberg	5800 Evergreen	LR, AR	ArDot/Harbor/HNTB	
15	Norman Painter	2007 Thornhill St	Alma,		
16	Sarah Sartor	1129 Waterfront	Alma	self	flyer
17	Ashley & Johnathan Marshell	1004 Clear Creek Rd Alma, AR	Alma 72921	self	flyer
18	Mark [illegible]	12615 Moonlight Dr	Ft Smith 72916	Self	Mailer
19	Stanley Aldridge	329 Shady Drive	Alma 72921	Self	
20	JOHN BALLARD			ARDOT DEAZ	

22

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register
Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

13 Staff

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Ricardo Ramirez	Little Rock AR		ARDOT	
2	Jim Kinder	Little Rock AR		HNTB	
3	Carina Martinez	Little Rock, AR		ARDOT	
4	Jonathan Gardea			HNTB	
5	Billy Clifton	8100 Georgia Ridge Rd. Alma		Self	CH. #5
6	Nicole Alldredge	Frisco, TX		HNTB	
7	Dean Moe	ARDOT/ROW			
8	Dan Chapman	1008 Dundee Ct., LR 72210		HNTB	
9	April English			HNTB	
10	Deborah Coomer	826 Clear Creek Rd	Alma, AR 72921	Self	postcard, flyer
11	Ava Bobicheaux	Lewisville, TX		HNTB	
12	Tammy Green	Little Rock		ARDOT ROW	
13	Paul Winborn	Alma P.O. 168	Alma 72921	Self	Postcard
14	Michael Simmons				
15	Jennifer Halstead			HNTB	
16	[illegible]	1205 Clear Creek Rd	Alma 72921		
17	Phillip Faucette	415 Maple Shade Rd,	Alma 72921	SELF	Facebook?
18	Debbie Hall	Clear Creek Rd	Alma	Self	
19	Sam Barbiotta	ARDOT	LR	ARDOT	
20	Regina Sikora	ArDOT	L.R	ARDOT	

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Q1

ARDOT 49 ARKANSAS DEPARTMENT OF TRANSPORTATION

I-49
Public Meeting Register

Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy 22- I-40 (Arkansas River) (I-49)

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Dale Thatcher		LR, AR	Utilities	
2	Keith Mashburn		LR, AR	ARDOT - Utilities	Flyer
3	Crystal Ferrell	904 Waterfront Rd.	Alma, Ar		
4	Brian McDonough	616 New Town Rd	Alma, AR 72921	Self	Flyer
5	Eddie Wakefield	600 Ray Lane Circle	Alma 72921	Alma Fire Dept	
6	JOHN HENDRICK	1509 N 11th ST	VAN BUREN 72956	SELF	E-MAIL
7	Leslie Montgomery	715 Clear Creek Rd	Alma 72921	Self	
8	Philip & Karen Schuler	1237 Waterfront Rd	Alma 72921	Self	mailer
9	Steve Hotz	3300 McClendons Mead	Ft. Smith 72908	Self	mailer
10	SHAWN PATEL	PO Box 1749	ALMA, AR. 72921	SAI RAM HOTELS	MAILER
11	Jeff Ferrell	904 Waterfront Rd	Alma, AR 72921		
12	Michael Macy	339 W Elm Blvd	Van Buren AR 72956	X	
13	Rick Prestidge	600 Clear Creek Rd.	Alma, AR. 72921	Self	flyer
14	Jennifer Prestidge	600 Clear Creek Rd.	Alma, AR 72921		
15	Andrew L. Wiley	217 Waterfront Cir	Alma, AR 72921	Self	Flyer
16	Jerry Hill	326 Ray Lane N	Alma, AR 72921	Self	
17	David Crabtree	1434 Alma Dr	Alma AR 72921	Self	
18	D Miller	328 Meadows	Alma AR 72921	Self	
19	Janet Heckman	2822 Clear Creek Rd.	Alma AR 72921	Self	Friend
20	Norma Wakefield	200 E. Kibler Hwy	Alma AR 72921	Self	Flyer

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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Meeting Register

Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy 22- I-40 (Arkansas River) (I-49)

Job No: 040748
Date: 9/29/2022

Please Print

		Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	1	Richard & Janice Stanier	1016 Clear Creek	Alma	Self	Mail
	2	Denver Wimberley	[illegible] Dr	Alma	Self	mail
	3	Gary Cooper	829 Waterfront Road	Alma AR 72921	Self	Mail
2	4	Tim + Denna Montgomery	24 N Kibler Hwy	Alma AR 72921		mail
	5	Anna Koster	2212 Brookhaven Dr	Alma, AR 72921	Self	flyer
	6	Heather Langley	1018 Collum Ln W	Alma AR 72921	Self	flyer
	7	Wesley Roe	128 N Kibler Hwy	Alma, 72921	Self	Mail
	8	Michele Roe	↓	↓	Self	mail
	9	Steve Whitlock	PO Box 631	Alma Ar 72921	Self	friend
	10	Ron Allison	19		Self	Flyer
2	11	Shelley Greenwood [illegible]	1137 Sunny Slope Dr	Alma 72921	Self	Flyer
2	12	Greg + Sherry Hall	1621 Valley View	Van Buren 72956	Self	Facebook
	13	[illegible]	2609 Clear Creek Rd	Alma 72921	Self	Wife
	14	Jim Petty	315 Skyline Drive	Van Buren, 72956	Self	Flyer
	15	[illegible] Edward	1409 Thornhill Cr	Alma AR 72921	Self	Flyer
	16	Bryan Huff	3240 Jordan Crossing	Alma, AR 72921	Self	Flyer
	17	Jeff Spur	1128 Waterfront rd	Alma Ar 72921	Self	Mail
2	18	Mike + Janet Rutherford	1135 W Kibler Hwy	Van Buren AR 72956	Self	mail
	19	Tommy Greer	934 Riverview	Alma AR	Self	Mail
	20	Trent Fonville	1209 Waterfront Rd	Alma, AR 72921	Self	Mail

25

I-49

Public Meeting Register

Meeting Location: First Baptist Church Alma (Family Life Center)
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

Job No: 040748
Date: 9/29/2022

Please Print

	Name	Street or P.O. Box	City, Zip	Representing: Organization or "Self"	How did you hear about this meeting? (radio, newspaper, flyer, etc.)
1	Ron Carey	6832 Sunbright	Mulberry	Self	
2	Tracy & Theresa Johnson	1227 Norman Cir, #	Alma AR 72921	Self	
3	[illegible]	636 E Chuy St.	Alma AR 72921	Self	
4	[illegible]	5221 Cliff Dr	Ft Smith AR	Self	
5	Robert & Sue Wallace	2235 S. Hwy. 253	Greenwood, AR	Self	
6	Mary Aubrey	535 Clear Creek Rd, Alma 729	Alma 72921	Self	
7	Chad Wilson	811 Dow Jones Rd	Alma, AR 72921	Self	
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9

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Officials Meeting Register
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

	Name	Office Representing	Email Address
1	John Fleming	ARDOT/ENV	
2	Brian Move	ARDOT/ROW	
3	Ricardo Ramirez	ARDOT/ENV.	
4	Steve Core	City of Barling	score@barlingar.com
5	Ruby Johnson	ARDOT	
6	Dennis Gilstrap	Crawford Co. Judge	dgilstrap@crawford-county.org
7	Matt Pitsch	Senator	mathew.pitsch@cox.net
8	Mayor Gary D. Baxter	City of Mulberry	mayor@cityofmulberry.org
9	Bruce Coleman	Rep Dist 81	Brucecolemanr@arkansashouse.org
10	Chris Keith	Crawford County	CKeith@Crawford-County.org
11	Lindi Miller	HNTB	
12	April English	HNTB	
13	Russell Scoggins	AVECC	RScoggins@AVECC.com
14	Ethan Holt	AVECC	eholt@avecc.com

14

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49
Public Officials Meeting Register
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

	Name	Office Representing	Email Address
1	Elaine Stanfield	Crawford County JP	estanfield@crawford-county.org
2	Neal Morrison	City of Alma	nmorrison@yahoo.com
3	Jerry Martin	City of Alma	
4	Linda DeMasi	ARDOT	
5	MARK YARDLEY	CITY OF ALMA	mark@cityofalma.org
6	Jacob Debes	City of Alma	jacob@cityofalma.org
7	Dale Thatcher	Utilities	thurman.thatcher@ardot.gov
8	Keith Mashburn	ARDOT Utilities	keith.mashburn@ardot.gov
9	Julie Murray	VB Chamber	Julie@vanburenchamber.org
10	Carina Martinez	ARDOT	
11	Karla Sims	ARDOT	
12	Marcus Rainwater	ArDOT - D4	Marcus.Rainwater@ardot.gov
13	Lindsey Lewis	AR USFWS	Lindsey_Lewis@fws.gov
14	LORIE ROBERTSON	FCRA	LORIE@CHAFFEECROSSING.com

(14)

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION 49

I-49

Public Officials Meeting Register

Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

	Name	Office Representing	Email Address
1	Doug Kinslow	Mayor Greenwood	dkinslow@gwark.com
2	Susan Wilson	Mayor Mtburg	City of mtburg@yahoo.com
3	Gary O'Kelley	MAYOR Kibler	
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ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

49

I-49
Public Officials Meeting Register
Job Name: Hwy. 22- I-40 (Arkansas River) (I-49)

	Name	Office Representing	Email Address
1	Brian Moore	ARDOT - ROW	
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(1)

Job 040748 – I-49
Public Meeting Outreach Plan
Public Involvement Period: September 23 – October 14, 2022

Outreach Schedule

Date	Before/After Public Meeting Event	Method
Thurs., August 4	-56 days	• Preliminary Meeting with ARDOT to discuss outreach materials and preliminary schedule
Mon., August 15	-45 days	• Public Meeting Materials sent to ARDOT for review
Thurs., August 18	-42 days	• Logistics Meeting with ARDOT to review Public Meeting Materials
Mon., August 29	-31 days	• HNTB to address comments on Public Meeting Materials + update Public Meeting Materials
Tues., September 6	-23 days	• Submit Spanish display ad to newspaper: La Prensa • Send email invite to stakeholders, and Public Officials notifying of Public Meeting dates
Fri., September 9	-20 days	• Mail letters to public officials and stakeholders
Wed., September 14	-15 days	• Submit display ad to newspaper: Southwest Times Record • Submit PSA to radio station: La Raza 92.3
Thurs., September 15 * First newspaper ad publishes	-14 days	• Newspaper Spanish display ad publishes - #1
Fri., September 16	-13 days	• Mail postcards to property owners and previous attendees
Sun., September 18	-11 days	• Newspaper display ad publishes - #1
Mon., August 19	-10 days	• Send email blast to stakeholders, past meeting attendees, and all remaining email contacts • Social media – round #1 posted by ARDOT, and stakeholders/public officials
Thurs., September 22	-7 days	• Newspaper Spanish display ad publishes - #2 • Publish news release – ARDOT to publish
Fri., September 23	-6 days	• Project materials to launch on ARDOT website • Send email blast to public officials notifying of website launch
Sun., September 25	-4 days	• Newspaper display ad publishes - #2
Mon., September 26	-3 days	• Flyer delivery along project route • PSA on radio station La Raza 92.3 begins to run • Social media – round #2
Thurs., September 29	0 days	• Local Officials Meeting @ 11AM @ First Baptist Church Alma • I-49 In-Person Public Meeting @ First Baptist Church Alma from 4-7 PM • Email reminder to registrants to date (List from ARDOT)
Fri., October 14	+15 days	• 15-day comment period ends

Job 040748 – I-49
Public Involvement Period: September 23 – October 14, 2022

Outreach Materials

Mailings:

- Stakeholder letter
- Public Officials Letter
- Property Owners Postcard Mailer
- Interested in Project Postcard Mailer

Emails:

- Stakeholders
- Public Officials
- Previous meeting attendees
- Additional previous contacts

Newspaper ads:

- Southwest Times Record - Display ad (2x)
- La Prensa - Spanish Display ad (2x)

PSA:

- La Raza 92.3 - Spanish PSA (2x daily/4 days)

News Release:

- ARDOT to publish

Social Media:

- ARDOT
- Public Officials

OPEN HOUSE
NOTICE OF PUBLIC MEETING

WHAT: Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties.

WHEN: Thursday, September 29, 2022
4:00 p.m. to 7:00 p.m.

WHERE: First Baptist Church Alma
(Family Life Center)
211 N. Mountain Grove Rd.
Alma, AR 72921

At the website location, select the public meeting of your interest.
Link to project information:
www.ardot.gov/publicmeetings
Comment Form Availability:
Friday, September 23, 2022 – Friday, October 14, 2022, until 4:30 p.m.

****

Sponsor: Arkansas Department of Transportation (ARDOT)

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This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.

Job 040748

Violence online can make matters worse

Experts say the digital trail can inspire copycats

N'dea Yancey-Bragg and Cady Stanton
USA TODAY

Hours after the start of a deadly shooting rampage in Memphis last week, police finally got a tip that would prompt a citywide lockdown and eventually lead to an arrest: The gunman was on Facebook Live threatening to hurt people.

The violence across Tennessee's second-largest city that left four dead and three injured is the latest example of why advocates have been pushing tech companies since the 2019 mass shooting in Christchurch, New Zealand, to draft policies against livestreamed attacks and quickly scrub the videos from their platforms.

Although a spokesperson for Facebook said the content from Memphis was flagged and removed even before police warned the public about the posts, what appeared to be video taken by the shooter was not hard to find online in the following days.

Psychologists and online-extremism researchers told USA TODAY that the digital trail of evidence left by violent criminals can inspire copycats in the dark corners of the internet, and exacerbate the trauma of both the community and a country already facing a massive mental health crisis.

"I've been having the same conversation for the last decade," said Desmond Upton Patton, a University of Pennsylvania professor who studies the impact social media has on mental health and violence for people of color. "We need to pay close attention to it, we need to devote resources to it, we need to study it, we need to intervene."

Police officers work an active shooter scene in Memphis, Tenn. on Sept. 7. Authorities said a man drove around the city shooting at people during an hours-long rampage that forced frightened people to shelter in place.
MARK WEBER/AP IMAGE

The 'copycat effect'

When a crime occurs on a livestream, some viewers will flag it, allowing moderators to review and remove it.

By the time that happens, however, copies have typically already been made and moved to other platforms – some of which don't have an easy way to report violent content, said Megan Squire, a computer scientist who uses data science techniques to understand extremist online communities.

"There's kind of a strange subculture of people that enjoy having and watching that content," Squire told USA TODAY. "It's like a currency."

Squire said videos of the Memphis shooting already have been archived and shared by sites that both generally collect gore, and by racist groups using it for political purposes.

It's not just mass shooters who are livestreaming their crimes.

In 2017, four Chicago youths appeared to beat and torture a disabled student while streaming on Facebook Live. Months later, dozens of people watched on Facebook Live, but didn't called police, as a group of men sexually assaulted a 15-year-old girl.

Those who livestream acts of violence may be chasing a brief, dark status of notoriety, and participating in acts of exhibitionism, said N.G. Berrill, a forensic psychologist.

"It's a way of almost flexing one's muscles and differentiating yourself from the crowd," Berrill said.

Berrill, executive director of the New York Center for Neuropsychology & Forensic Behavioral Science, also warned that others considering acts of violence may be inspired by such images and videos as they become more accessible.

The gunman who opened fire at a Tops grocery store in Buffalo, New York, in May while streaming on Twitch claimed to have found inspiration from the Christchurch shooting spree.

He described in writing how he watched the New Zealand gunman's live video from Facebook and copied it by broadcasting his own rampage, the New York Times reported.

He chose Twitch because the platform allowed footage of the 2019 terror attack in Halle, Germany, to remain on servers for an hour, according to his statement.

"There's a pretty strong copycat effect," Squire said.

"The evidence would show that they definitely serve to inspire people … You don't want to inspire future crimes and you don't want to normalize the ones that already happened."

The casual nature with which the Memphis shooter went about talking and livestreaming before gunning down people in various locations demonstrates how crimes can be made to look simple and replicable, Berrill said.

"I think it makes it look easier, I really do, if you're not right there, and you're not experiencing the horror," he said.

"It would be seductive if you're that sick and vulnerable … the horror of these events are sanitized."

The 'vicarious trauma' of coverage

For the communities terrorized by the initial violence – as well as onlookers around the country – livestreams and media coverage of shootings typically only compound the horror.

"It is humiliating that someone would treat human life so shallowly and be in your community, and perhaps be killing your neighbors or someone you know, and elevating it … as a perverse form of entertainment for people to watch," Berrill said.

After the Buffalo shooting, Wayne Jones told the Associated Press he found out his mother, 65-year-old Celestine Chaney, was killed when someone sent him a clip of the livestream.

His girlfriend said she reported nearly 100 Facebook pages in one day because pictures and videos from the livestream kept appearing on her feed.

"You couldn't escape it; there was nowhere you could go," Danielle Simpson said at the time.

The images can also cause "vicarious trauma" for viewers who have experienced gun violence in their own lives, said Patton, the Pennsylvania professor. Nearly 60% of adults said they or someone they care about has experienced gun violence, according to a 2018 survey conducted by SurveyUSA.

And research shows gun violence can take a toll on more than just direct witnesses and survivors. Mass shootings were cited as the most common source of stress among American adults in a 2019 survey by the American Psychological Association after shootings in El Paso, Texas, and Dayton, Ohio.

Roxane Cohen Silver, a professor of psychology science, medicine and public health at the University of California, Irvine, and her colleagues have studied the impact of media consumption following the Sept. 11 terror attacks, the Boston Marathon bombing and the Pulse Nightclub shooting in Florida, and found a "cycle of distress."

"The more people engage with that media, the more likely they are to be distressed and the more distressed they are, the more likely they are to engage in media surrounding the next tragedy," Silver said.

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OPEN HOUSE
NOTICE OF PUBLIC MEETING

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WHAT: Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties.

WHEN: Thursday, September 29, 2022
4:00 p.m. to 7:00 p.m

WHERE: First Baptist Church Alma
(Family Life Center)
211 N. Mountain Grove Rd.
Alma, AR 72921

At the website location, select the public meeting of your interest.

Link to project information
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Friday, September 23, 2022 – Friday, October 14, 2022, until 4:30 p.m.

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Job 040748

FS-00014654460-01

Legal cases, IV difficulties complicated hours before warrant expired

Evan Mealins and Brian Lyman
Montgomery Advertiser
USA TODAY NETWORK

The American flag is seen behind barbed wire at Holman Correctional Facility in Atmore, where death row inmate Alan Eugene Miller was expected to be executed by lethal injection Thursday. BRIAN LYMAN/ADVERTISER

The U.S. Supreme Court Thursday night cleared Alabama to execute Alan Eugene Miller by lethal injection, days after a lower court said the state could execute him only by nitrogen hypoxia.

At 9:20 p.m., prison officials said they'd been given the go-ahead by the state Attorney General's Office to begin proceedings. Media, family members who were off-site and attorneys were expected to be brought to the death chamber of Holman Correctional Facility in Atmore to witness the execution.

But the state ran out of time.

ADOC Commissioner John Hamm early Friday morning said prison staff could not establish intravenous access to deliver a lethal injection. As the time drew closer to midnight, Miller's execution was called off, Hamm said.

At 12:31 a.m., Hamm said Miller was alive and back in his prison cell. He did not provide further details as to Miller's condition.

"Due to the time constraints resulting from the lateness of the court proceedings, the execution was called off once it was determined the condemned's veins could not be accessed in accordance with our protocol before the expiration of the deadline," Hamm said.

No witnesses, reporters or attorneys were present as ADOC staff tried to set the IV line, but a judge has ordered the state to allow Miller's attorneys to visit him to document evidence of any injuries he may have sustained.

Friday afternoon, U.S. District Judge R. Austin Huffaker Jr. ordered the Alabama Department of Corrections to allow attorneys for Miller to visit him during two-hour periods on Friday afternoon and Saturday morning.

Huffaker also ordered DOC to preserve physical evidence from the execution attempt and communications among DOC staff on Thursday evening.

Miller's attorneys filed an emergency motion for visitation earlier that morning, saying Miller suffered "injuries from the attempted execution that can and should be photographed and/or filmed."

From a preliminary injunction on Monday that stayed Miller's execution, to the moment media witnesses learned that prison officials themselves had called off the execution, here's a timeline of key events in the Alan Eugene Miller case:

Miller sentenced to death for killing three men in 1999

Miller was sentenced to death for the killing of three men in two workplace shootings in Shelby County in 1999. Prosecutors said an employee entering Ferguson Enterprises in Pelham saw Miller exit the building on Aug. 5, 1999, before finding Lee Holdbrooks and Scott Yancy dead inside.

Miller then drove to nearby Post Airgas, where he had previously worked, and killed employee Terry Jarvis, prosecutors say. The jury deliberated for 20 minutes before finding Miller guilty and recommended the death penalty, which a judge imposed.

Miller seeks a preliminary injunction over nitrogen hypoxia election form

Miller, 57, in August filed suit against Hamm, Alabama Attorney General Steve Marshall and Holman Correctional Facility Warden Terry Raybon, seeking an injunction to stop his execution by lethal injection.

He maintained that he chose to be executed by nitrogen hypoxia in 2018 because he is afraid of needles and had prior experience working with chemicals. He accused state officials, who say they have no record of his election, of losing a form he says he submitted to prison staff in which he chose death by nitrogen hypoxia.

In a hearing on Sept. 12, state Deputy Attorney General James Houts said the state was "very likely" to be prepared to execute Miller by nitrogen hypoxia on his scheduled Sept. 22 execution date. Prison officials backed away from that claim after U.S. District Judge R. Austin Huffaker Jr. demanded that the state say with certainty whether it would be able to use nitrogen hypoxia by that date.

On Sept. 19, Huffaker issued a preliminary injunction prohibiting the state from executing Miller "by any method other than nitrogen hypoxia" until further court order.

State appeals ruling that effectively postpones Milller's execution

Marshall filed an appeal with the 11th U.S. Circuit Court of Appeals.

In a reply brief, Miller's attorneys called the state's attempt to overturn the preliminary injunction "last minute" and said that any delay in Miller's execution is "entirely a consequence of Appellant's failures." They argued that the district court's judgment shouldn't be reversed as 11th Circuit precedent reserves such decisions for cases of "clear abuse of discretion" by the district judge.

The Alabama AG's office accused Miller of "inexcusable delay" and argued that Miller's allegations that the Department of Corrections lost his form to opt into nitrogen hypoxia — which they did not concede — should not factor into the court's decision.

"Miller tries to run from his pleadings, but they leave no doubt that he alleges nothing more than a species of common-law negligence," the filing said. "And because 'injuries inflicted by governmental negligence are not addressed by the United States Constitution,' … Miller's claim cannot succeed."

The AG's office also argued that there was no evidence Miller submitted a form. 11th Circuit Judges Adalberto Jordan and Robin Rosenbaum, both appointed by President Barack Obama, wrote that there was also no evidence he did not.

"The officials at Holman chose not to keep a list or log of those inmates who submitted election forms, and the State cannot now blame Mr. Miller for that institutional decision," they wrote. "What the state is asking for is blind acceptance of its position that Mr. Miller did not submit a timely election form because he had no corroborating evidence that satisfied the state."

The three-judge panel on Thursday afternoon upheld Huffaker's order, ruling that the Alabama AG's office had not shown that the lower court abused its discretion in blocking the execution.

11th Circuit Judge Robert Luck, appointed by President Donald Trump, dissented, arguing the state had records from at least 50 death row inmates who chose execution by nitrogen hypoxia.

"It may be, as the district court found, that Miller did, in fact, timely elect nitrogen hypoxia as his method of execution. But without an election form or contemporaneous documents showing an election — like the state had for every other death row inmate that elected nitrogen hypoxia—the state had a rational reason to treat Miller differently," Luck wrote.

Federal courts have been largely unsympathetic to arguments from inmates that the process was flawed. Last October, Alabama executed Willie B. Smith for the 1991 murder of Sharma Ruth Johnson after the U.S. Supreme Court and the 11th U.S. Circuit Court of Appeals rejected arguments from Smith's attorneys that the inmate's intellectual disabilities meant he did not understand he could choose death by nitrogen hypoxia.

In January, attorneys for death row inmate Matthew Reeves, convicted of the 1996 murder of Willie Johnson, also argued that Reeves' intellectual disabilities prevented him from understanding his choice. The 11th Circuit initially stayed Reeves' execution but was overruled by the U.S. Supreme Court. Reeves was executed by lethal injection on Jan. 21.

State makes final appeal to U.S. Supreme Court

Late Thursday afternoon, the Alabama AG's office filed an application to the U.S. Supreme Court to vacate the stay of Miller's execution, requesting a ruling from the court by 7 p.m., CDT, on Thursday.

In the 43-page appeal, the AG's office argued that Miller should have sought legal recourse earlier and that his request for an injunction was a way to delay his death sentence. "Because nitrogen hypoxia is not currently available as a method of execution in Alabama, the injunction is an effective commutation of Miller's death sentence," Marshall wrote.

The AG's office said the district court that issued the injunction prohibiting his execution by any method other than nitrogen hypoxia "badly abused" its discretion. It also argued that Miller's claims of the state's negligence, by failing to properly keep a record of those who elected nitrogen hypoxia, did not amount to a constitutional deprivation.

"Miller has therefore alleged, at most, that ADOC was insufficiently careful with handling his method-of-execution form. But '[t]he guarantee of due process has never been understood to mean that the State must guarantee due

care on the part of its officials,'" the AG's office wrote.

Three-and-a-half hours after the state appealed to the U.S. Supreme Court, Miller's attorneys filed a response.

His attorneys noted that the state had shifted its strategy, focusing not on the court's factual findings of whether Miller timely elected nitrogen hypoxia in writing — the district judge thinks it is likely he did — but on the fact that the state does not have his form and feels the evidence provided was not sufficient.

"The State's new, Kafkaesque argument in favor of forcing an illegal execution tonight is that the truth of whether Mr. Miller timely submitted his nitrogen hypoxia election form does not matter," the attorneys wrote.

Miller's attorneys also noted that the state's request to the Supreme Court — to vacate the preliminary injunction — was different than its earlier request to the 11th Circuit to stay the injunction. However, a stay or vacatur of a preliminary injunction would have the same effect, practically: Miller's execution by lethal injection.

"Mr. Miller will be executed, and there is every reason to believe he will be executed soon. All he asks is that the State respect the choice the legislature gave him: to die by nitrogen hypoxia instead of lethal injection," Miller's attorneys wrote.

Supreme Court votes 5-4 to allows execution to proceed

Just after 9 p.m. Thursday, the U.S. Supreme Court cleared Alabama to execute Miller by lethal injection. By 9:20 p.m., an ADOC spokesperson told reporters that the Alabama AG's office had given prison officials the OK to proceed. "It's a go," she said she was told.

Evan Mealins is the justice reporter for the Montgomery Advertiser. Contact him at emealins@gannett.com or follow him on Twitter @EvanMealins.

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OPEN HOUSE
NOTICE OF PUBLIC MEETING

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

WHAT: Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties.

WHEN: Thursday, September 29, 2022
4:00 p.m. to 7:00 p.m

WHERE: First Baptist Church Alma
(Family Life Center)
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At the website location, select the public meeting of your interest.

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Job 040748

FS-0001464460-01

Proof Of Publication

STATE OF ARKANSAS
COUNTY OF SEBASTIAN

HNTB CORPORATION
5910 W PLANO PKWY, STE 200
PLANO, TX 75093

I, Said Legal Clerk, do solumnly swear that I am **a representative** of the **Times Record**, a daily newspaper having a second class mailing privilege, and being not less than four pages of five columns each, published at a fixed place of business and at fixed daily intervals continuously in the City of Fort Smith, Sebastian County, Arkansas, for more than a period of twelve months, circulated and distributed from an established place of business to subscribers and readers generally of all classes, in the city and county aforesaid, for a definite price for each copy, or a fixed price per annum, which was fixed at what is considered the value of the publication based up on the news service value is contains, that at alest fifty percent of the subscribers thereto have paid cash for their subsciption to the newspaper or its agents or through recognized new dealers, over a period of at least six months and that siad newspaper published an average of more than forty percent news matter. The Times Record is circulated in the Counties of Crawford, Franklin, Johnson, Logan, Polk, Scott and Sebastian in Arkansas.
I further certify that the legal notice hereto attached in the matter of:

OPEN HOUSE NOTICE OF PUBLIC MEETING AR DOT

was published in the regular issues of said newspaper dated as follows:

September 18, 2022
September 25, 2022

Legal Clerk

Notary Public, State of Wisconsin, County of Brown

6/30/2025

My commission expires

sworn to before me and subscribed in my presence by this the 20th day of October, 2022.

AD #: 0001464460
FEE: $877.00
ACCT: 179130

AMY KOKOTT
Notary Public
State of Wisconsin

OPEN HOUSE
NOTICE OF PUBLIC MEETING

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

WHAT: Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties.

WHEN: Thursday, September 29, 2022
4:00 p.m. to 7:00 p.m

WHERE: First Baptist Church Alma
(Family Life Center)
211 N. Mountain Grove Rd.
Alma, AR 72921

At the website location, select the public meeting of your interest.

Link to project information
http://www.ardot.gov/publicmeetings
Comment Form Availability:
Friday, September 23, 2022 – Friday, October 14, 2022, until 4:30 p.m.

****

Sponsor: Arkansas Department of Transportation (ARDOT)

Special communication or accommodation needs under the Americans with Disabilities Act (ADA) may contact Ruby Jordan-Johnson at 501-569-2379 or email environmentalpimeetings@ardot.gov. The hearing or speech impaired, may contact the Arkansas Relay System at (Voice/TTY 711). Requests should be made at least 4 days prior to the public meeting.

NOTICE OF NONDISCRIMINATION: The Arkansas Department of Transportation complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance. Therefore, the Department does not discriminate on the basis of race, sex, color, age, national origin, religion (not applicable as a protected group under the Federal Motor Carrier Safety Administration Title VI Program), disability, Limited English Proficiency (LEP), or low-income status in the admission, access to and treatment in the Department's programs and activities, as well as the Department's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Department's nondiscrimination policies may be directed to Joanna P. McFadden Section Head - EEO/DBE (ADA/504/Title VI Coordinator), P. 0. Box 2261, Little Rock, AR 72203-2261, (501) 569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ardot.gov

Free language assistance for Limited English Proficient individuals is available upon request.

This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.

Job 040748

Public Meeting Notice
(60 Seconds)

ANUNCIO PUBLICO !!!

El Departamento de Transporte de Arkansas (ARDOT) llevará una reunión de Participación Pública para discutir los planos de diseño ya revisados para la propuesta de mejorar la Autopista I-49, entre la Autopistas Hwy. 22 y la I-40 en los Condados de Sebastian y Crawford

La reunión será el **Jueves 29 de Septiembre** de 4:00 a 7:00 de la tarde, en la Primera Iglesia Bautista de Alma en el Family Life Center, ubicado en el 211 N. Mountain Grove Road en Alma.

Dicha reunión será abierta al público, y para ver exhibiciones, hacer preguntas y ofrecer comentarios…ingresando a la información del proyecto en línea en *www.ardot.gov/publicmeetings.*

Sus comentarios se aceptarán hasta las 4:30 de la tarde del Viernes 14 de Octubre del 2022.

Este fue un mensaje de **La Raza 92.3 FM** y el Departamento de Transporte de Arkansas. Gracias

Job: 040748

Public Meeting Notice
(60 Seconds)

The Arkansas Department of Transportation (ARDOT) will conduct a Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford Counties.

The meeting will be held on Thursday, September 29, 2022 from 4:00 p.m. to 7:00 p.m. at the First Baptist Church Alma (Family Life Center), located at 211 North Mountain Grove Road in Alma.

This will be an "open house" meeting with no formal presentations. The public is invited to visit anytime during the scheduled hours to view exhibits, ask questions, and offer comments. Project information may be accessed online at www.ardot.gov/publicmeetings.

Comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.

This has been a message from La Raza 92.3 FM and the Arkansas Department of Transportation.

# # #

ARKANSAS DEPARTMENT OF TRANSPORTATION
INFORMATION RELEASE

Public Involvement Meeting September 29: Discussion of Interstate 49 Development

CRAWFORD & SEBASTIAN COUNTIES | September 22, 2022
Job 040748

The Arkansas Department of Transportation (ARDOT) will conduct a public involvement meeting **Thursday, September 29,** from **4 – 7 p.m. at First Baptist Church Alma (Family Life Center), 211 N. Mountain Grove Rd., Alma, Arkansas 72921.** This meeting will discuss the proposed revised design plans for the development of I-49 between Highway 22 in Sebastian County and Interstate 40 in Crawford County.

This will be an open forum meeting with no formal presentations. The public is invited to visit anytime during the scheduled hours to view exhibits, ask questions, and offer comments.

Link to Meeting Materials (click here)

Citizens can access the public comment form from Friday, September 23 through Friday, October 14, 2022.

Anyone needing project information or special accommodations under the Americans with Disabilities Act (ADA) is encouraged to write to Ruby Jordan-Johnson, P.O. Box 2261, Little Rock, AR 72203-2261, call (501) 569-2379 or email environmentalpimeetings@ardot.gov. Hearing or speech impaired, please contact the Arkansas Relay System at (Voice/TTY 711). Free language assistance for Limited English Proficient individuals is available upon request. This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.

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Environmental

To effectively and efficiently provide interdisciplinary support and assistance to ensure compliance with environmental laws, regulations, and policies in the planning, construction, and operation of a safe, efficient, and environmentally sensitive intermodal transportation system.

Environmental
Assessments
Environmental Impact Statements
(EIS) & Environmental Assessments
(EA)

I-49 Project

The Arkansas Department of Transportation (Department), in cooperation with the Federal Highway Administration (FHWA), is progressing to the next phase of project development for the construction of Interstate 49 (I-49) from Highway (Hwy) 22 in Sebastian County to I-40 in Crawford County, a length of approximately 14.4 miles.

This section was originally part of a larger corridor environmental study. The study extended from Highway 70 in DeQueen, Arkansas to I-40 near Alma, Arkansas, encompassing approximately 125 miles. The proposed I-49 Corridor is part of a congressionally designated High Priority Corridor (HPC) running from Shreveport, Louisiana to Kansas City, Missouri. A Final Environmental Impact Statement (FEIS) was prepared and a Record of Decision was issued in December 1997, which screened multiple corridors, evaluated multiple alignments within a preferred corridor, and ultimately identified and approved a Selected Alignment for a new location, four-lane highway in western Arkansas.

The next phase of project development will include completing and obtaining agency approvals for the re-evaluation of the 1997 FEIS, preparing required agency construction permits, and developing final design and construction plans for a non-tolled facility from Hwy 22 to I-40.

In 2018, an I-49 Alternative Delivery Study was conducted which evaluated alternative project delivery methods and toll feasibility for the project. The study was adopted by the Arkansas State Highway Commission in November 2018 and determined that tolling was not a viable option. A public meeting was held in April 2018. Materials presented included the project location, schedule, potential environmental impacts, tolling, and project schematics. Overall, there were 291 attendees at this meeting and 63 comments received. An additional Public Meeting was held in March 2022. Materials presented included the project location, schedule, environmental constraints, and project schematics. There were 244 acendees and 33 commens were received after this public meeting. ARDOT reviewed comments received during both public meeting comment periods from citizens, public officials, and public agencies, and the majority of comments from each meeting support this section of I-49. Since the review of public feedback, the project team has been working on more detailed design and environmental studies for the Selected Alignment. Continued outreach, including public involvement meetings and agency coordination, will be part of the ongoing activities.

Please use the registration form at the bottom of this page to join our mailing list

Project Documents

Fact Sheet
Project Map
Public Involvement (PI) Plan
Preliminary Design (Updated 30% Complete – Presented at September 29, 2022 Public Meeting)

Planning Activities

September 29, 2022
Public Meeting (Job 040748)
Public Meeting Synopsis

March 17, 2022
Public Meeting (Job 040748)
Preliminary Design (30% Complete – Presented at Public Meeting)
Public Meeting Synopsis

October 2018 – Stakeholder Working Groups
I-49 Alternative Delivery Study
I-49 Alternative Delivery Study Executive Summary

April 26, 2018 – Stakeholder Working Groups
Public Meeting

March 29, 2018 – Stakeholder Working Groups
PowerPoint Presentation
Constraints Map
Meeting Notes

December 5, 2017 – Stakeholder Working Groups
PowerPoint Presentation
Meeting Notes
Constraints Map

2002 – Innovative Financing Program for Toll Highways
Executive Summary
Summary Report

2001 – Preliminary Toll Feasibility Assessments for:
Arkansas Segmentation Projects
Arkansas Congressionally Designated High Priority Corridors
Arkansas Major Corridor Projects

1997 – US 71 Relocation, DeQueen to Interstate 40
FEIS
Appendix
ROD

Contact Form

Full Name *
Address
Phone Number
E-mail *
Message
Yes, I want to receive project updates.
Yes
SUBMIT

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Contact Us
What We Do
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Begin your Virtual Public Involvement Meeting Experience Here...

Step 1: Thank you for your interest in this public participation meeting!
So that we can keep you informed about future meetings related to this project, please fill out the registration form.

Step 2: Please review the introductory presentation video regarding the project.
This video will describe the project and provide information about the our new hybrid public meeting process.

Step 3: Please review any project exhibits, the website, and other information provided. This will help with your understanding of the project and aid in generating any questions or comments you may have. We want to hear from you and we value your input. We look forward to seeing you at the in-person component of this public involvement meeting.
Should you have any questions please contact us via email, by telephone, or attend the in-person public involvement meeting September 29, 2022 between 4:00 pm and 7:00 pm. Contact information can be found below in the *Frequently Asked Questions* section of the website.

Step 4: Attend the open house, in-person public involvement meeting. It will be held on Thursday, September 29, 2022, beginning at 4:00 pm until 7:00 pm. The in-person meeting will be held at the First Baptist Church's Family Life Center in Alma. The location address is 211 North Mountain Grove Road, Alma, AR 72921. Click here for meeting location and directions.
If you are unable to attend the in-person meeting, all exhibits and contact information is provided on the project website. Please contact us with any questions you may have.

Step 5: Again, thank you for participating. Your comments can be submitted several ways: email, mail, and online.
You can easily submit them online through October 14, 2022 at 4:30 pm. We desire and look forward to hearing from you. We appreciate you taking your time to provide us with your written comments. These comments are one of the most effective ways of having your concerns addressed and questions answered.

Explore the Interactive Project Map
(Preliminary; Subject to Revision)

Frequently Asked Questions

What is a hybrid public involvement meeting?
Innovative virtual public involvement (VPI) techniques provide the Arkansas Department of Transportation with a platform to inform the public and receive feedback.

VPI meetings are web-based offerings that allow agencies to engage the public more effectively by supplementing information sharing with technology, such as a project website or live virtual meetings. Some VPI meetings may include a live virtual meeting component for interested parties to ask questions and provide comments or a hybrid approach, where an in-person meeting component is also offered. An in-person meeting is where interested parties can meet with Department staff face-to-face.

If I do not want to submit my comments online, how can I submit my comments in writing?
To download a copy of the comment form, click this link. You can submit your written comments at the in-person meeting on September 29, 2022, by email, or you can mail your completed comment form to the Arkansas Department of Transportation, Environmental Division, P.O. Box 2261, Little Rock, Arkansas 72203-2261 by October 14, 2022.

Who do I contact with any questions I may have?
For more information, or if you have any questions, please contact the Environmental Public Involvement Section by email or contact Ruby Jordan-Johnson, Section Head - Public Involvement, by email or by phone at (501) 569-2379.

How long do I have to submit my comments?
The comment period closes October 14, 2022.

What is an interactive map?
An interactive map is easy to use. Interactive mapping involves using maps that allow zooming in and out, panning around, and identifying specific features. The project interactive maps will allow exploration of the project area, the ability to find a particular location by address or panning around, the ability to zoom in and out, and the option to change the type of basemap you are viewing.

How do I access the Right of Way procedures for acquisition manual?
Visit this link to access the Right of Way procedures for acquisition manual.

Click Here To Start
Job No. 040748 - Future I-49, Hwy. 22 to I-40
Welcome to the
Future I-49
Virtual Room
040902 - GUN CLUB TO CLEAR CREEK
040903 - CLEAR CREEK TO I-4
ROLL 3 & 4
ROLL 5
ROLL 6
ROLL 7
ROLL 8
ROLL 9 & 10
ROLL 11
ROLL 12

I-49 PROJECT
from Highway 22 to I-40
JOB 040748
Public Meeting
AR DOT
ARKANSAS DEPARTMENT
OF TRANSPORTATION

PUBLIC MEETING AGENDA

- Project Location
- Project History
- Project Purpose
- Project Details
- Next Steps
- Public Involvement Period
- How to Provide Comments/Feedback

PROJECT LOCATION

- Approximately 14.4 miles
- From Highway 22 in Sebastian County to I-40 in Crawford County

PROJECT HISTORY

- This proposed project was originally part of a larger U.S. 71 environmental study.
- The proposed I-49 Corridor is part of a congressionally designated High Priority Corridor (HPC) running from Shreveport, Louisiana to Kansas City, Missouri.
- A Final Environmental Impact Statement (FEIS) was prepared, and a Record of Decision was issued in December 1997, which ultimately identified and approved a Selected Alignment for a new location, four-lane highway in western Arkansas.

PROJECT HISTORY

- In 2018, I-49 Alternative Delivery Study evaluated alternative project delivery methods and toll feasibility for the project
  - Arkansas State Highway Commission adopted the study in November 2018
  - Tolling was determined not to be a viable option
- Public meetings were held in April 2018 and March 2022
- Majority of comments at both meetings support this section of I-49

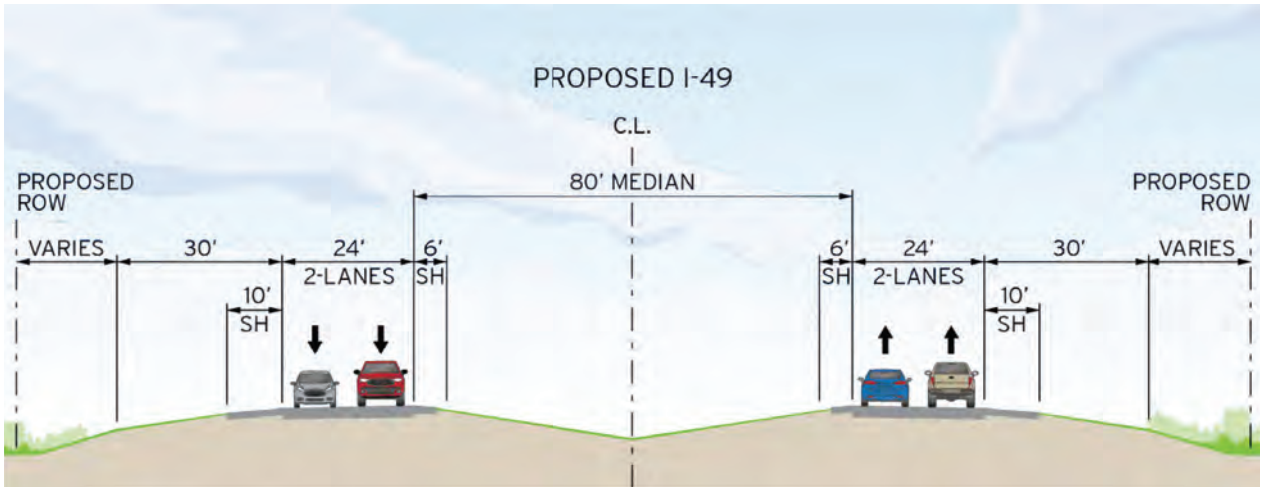
PROJECT PURPOSE

The purpose of this project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve connectivity.

PROJECT DETAILS

TYPICAL SECTION

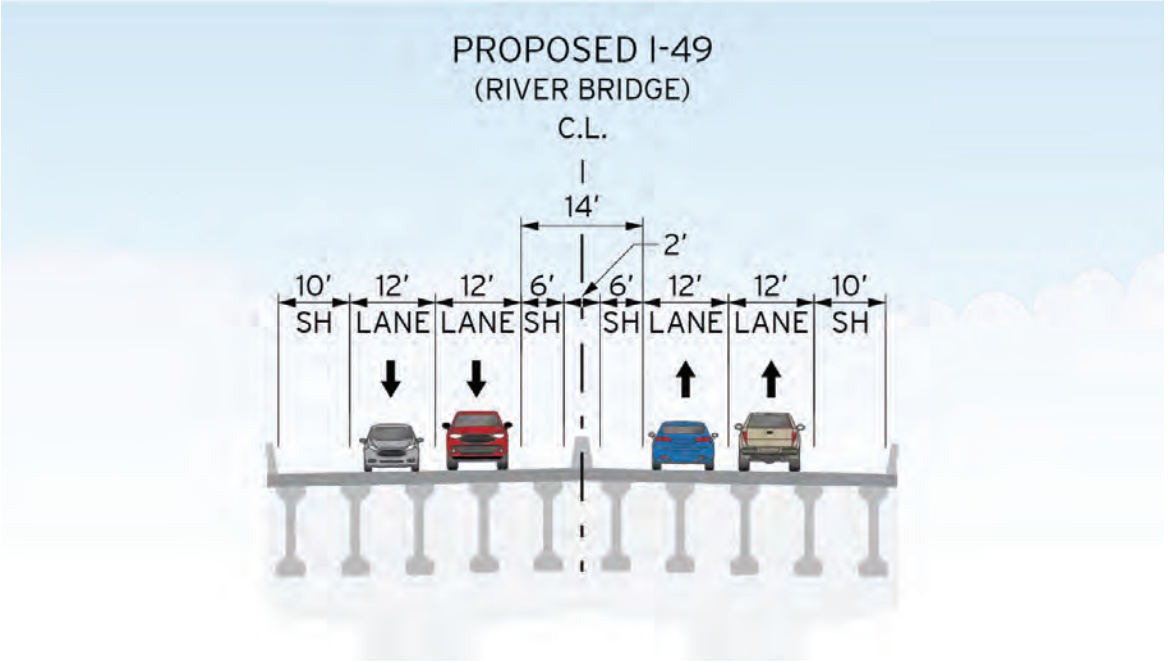
- New location facility
- Four-lane, divided facility with 12-foot lanes (two in each direction)
- 6-foot inside and 10-foot outside shoulders
- Design speed for mainlanes is 70 miles per hour



TYPICAL SECTION

RIVER BRIDGE TYPICAL SECTION

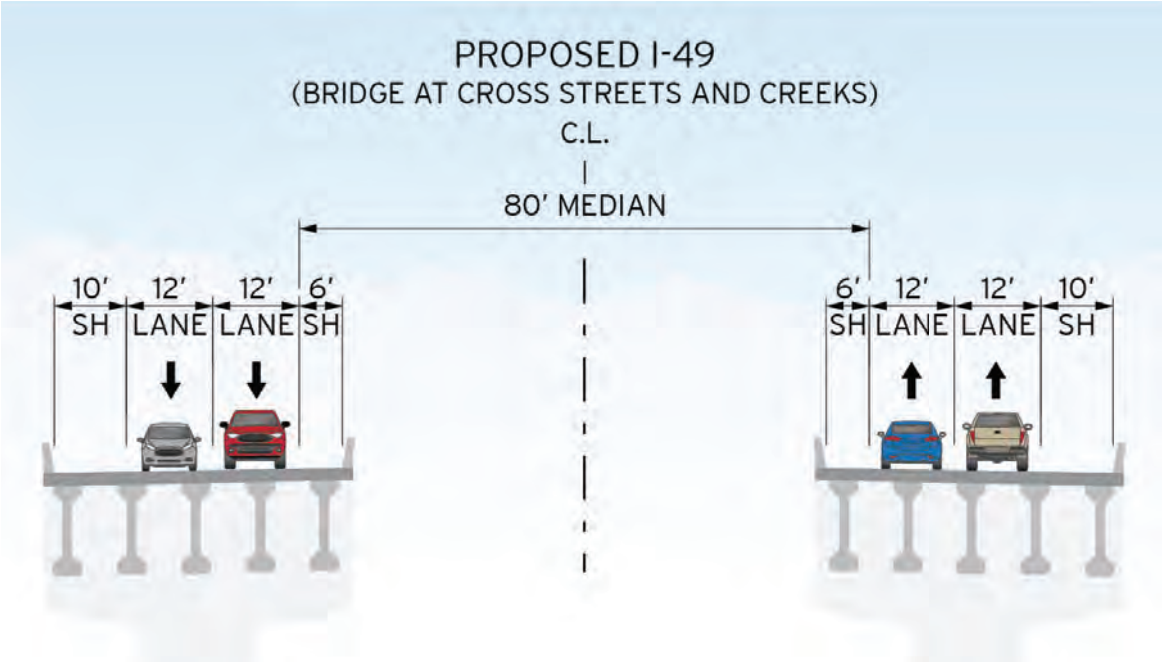
- New river bridge facility
- Four-lane, divided facility with 12-foot lanes (two in each direction)
- 6-foot inside and 10-foot outside shoulders



TYPICAL SECTION

CROSS STREETS AND CREEKS BRIDGE TYPICAL SECTION

- New bridge facility over cross streets and creeks
- Four-lane, divided facility with 12-foot lanes (two in each direction)
- 6-foot inside and 10-foot outside shoulders



PROJECT DETAILS

SELECTED ALIGNMENT

- Generally, follows alignment from the 1997 FEIS
- Interchanges are proposed at:
  - Highway 22
  - Gun Club Road
  - Clear Creek Road
  - Fully directional interchange at I-40

PROJECT DETAILS

PROJECT UPDATES

- **Updates to Project design since the March 2022 Public Meeting include:**
  1. **Construct 2,700' embankment instead of bridge in river valley**
  2. **Added SB turn lane on SH 59**
  3. **Added Westville Overpass**
  4. **Added driveway and box culvert across Mays Branch**
  5. **Reduced length of improvements along Clear Creek**
  6. **Extend box culvert to replace existing box culvert across Henry St.**

PROJECT DETAILS

ENVIRONMENTAL

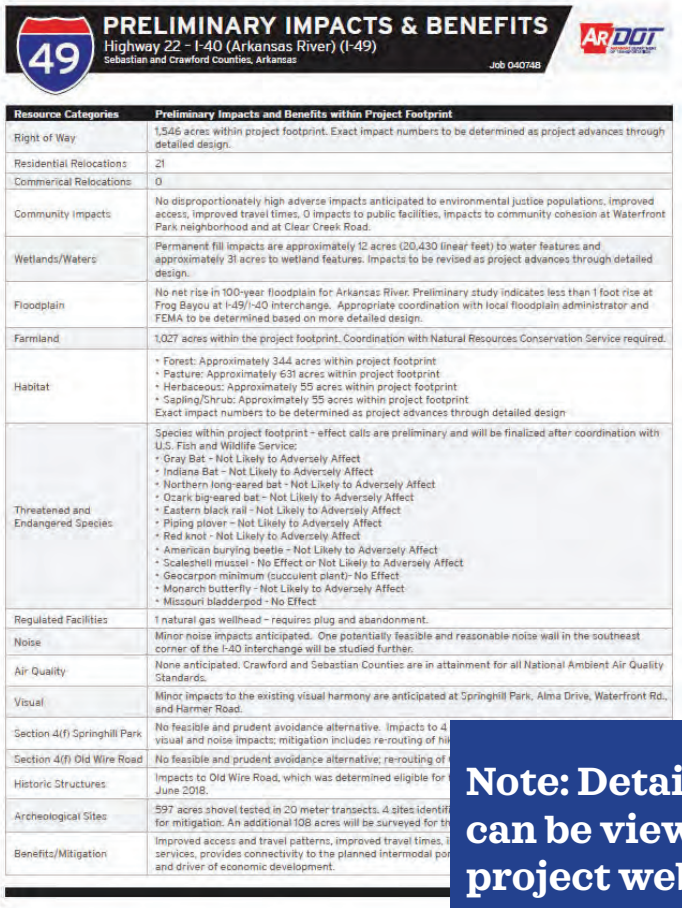
- Re-evaluation of 1997 FEIS underway
- Major known constraints include
  - Springhill Park
  - Fort Chaffee Military Reservation
  - Various wetland and water features
  - Old Wire Road
  - 1 railroad crossing
  - Farmland
  - Various crossings of the 100-year floodplain
- A detailed constraints map can be viewed on the project website.

Note: Detailed map can be viewed on the project website

PROJECT DETAILS

ENVIRONMENTAL

- A table has been prepared that summarizes the impacts and benefits.
- While every effort has been made to minimize negative impacts during the project development, and additional efforts have been made during the detailed design, there is not an alignment that avoids all impacts.
- The Selected Alignment best maximizes the benefits from the project while minimizing the negative impacts to the greatest extent possible.



PRELIMINARY IMPACTS & BENEFITS
Highway 22 - I-40 (Arkansas River) (I-49)
Sebastian and Crawford Counties, Arkansas
Job 040748

Resource Categories	Preliminary Impacts and Benefits within Project Footprint
Right of Way	1,546 acres within project footprint. Exact impact numbers to be determined as project advances through detailed design.
Residential Relocations	21
Commerical Relocations	0
Community Impacts	No disproportionately high adverse impacts anticipated to environmental justice populations, improved access, improved travel times, 0 impacts to public facilities, impacts to community cohesion at Waterfront Park neighborhood and at Clear Creek Road.
Wetlands/Waters	Permanent fill impacts are approximately 12 acres (20,430 linear feet) to water features and approximately 31 acres to wetland features. Impacts to be revised as project advances through detailed design.
Floodplain	No net rise in 100-year floodplain for Arkansas River. Preliminary study indicates less than 1 foot rise at Frog Bayou at I-49/I-40 interchange. Appropriate coordination with local floodplain administrator and FEMA to be determined based on more detailed design.
Farmland	1,027 acres within the project footprint. Coordination with Natural Resources Conservation Service required.
Habitat	• Forest: Approximately 344 acres within project footprint • Pasture: Approximately 631 acres within project footprint • Herbaceous: Approximately 55 acres within project footprint • Sapling/Shrub: Approximately 55 acres within project footprint Exact impact numbers to be determined as project advances through detailed design
Threatened and Endangered Species	Species within project footprint - effect calls are preliminary and will be finalized after coordination with U.S. Fish and Wildlife Service: • Gray Bat - Not Likely to Adversely Affect • Indiana Bat - Not Likely to Adversely Affect • Northern long-eared bat - Not Likely to Adversely Affect • Ozark big-eared bat - Not Likely to Adversely Affect • Eastern black rail - Not Likely to Adversely Affect • Piping plover - Not Likely to Adversely Affect • Red knot - Not Likely to Adversely Affect • American burying beetle - Not Likely to Adversely Affect • Scaleshell mussel - No Effect or Not Likely to Adversely Affect • Geocarpon minimum (succulent plant)- No Effect • Monarch butterfly - Not Likely to Adversely Affect • Missouri bladderpod - No Effect
Regulated Facilities	1 natural gas wellhead - requires plug and abandonment.
Noise	Minor noise impacts anticipated. One potentially feasible and reasonable noise wall in the southeast corner of the I-40 interchange will be studied further.
Air Quality	None anticipated. Crawford and Sebastian Counties are in attainment for all National Ambient Air Quality Standards.
Visual	Minor impacts to the existing visual harmony are anticipated at Springhill Park, Alma Drive, Waterfront Rd., and Harmer Road.
Section 4(f) Springhill Park	No feasible and prudent avoidance alternative. Impacts to 4 visual and noise impacts; mitigation includes re-routing of hi
Section 4(f) Old Wire Road	No feasible and prudent avoidance alternative; re-routing of
Historic Structures	Impacts to Old Wire Road, which was determined eligible for June 2018.
Archeological Sites	597 acres shovel tested in 20 meter transects. 4 sites identif for mitigation. An additional 108 acres will be surveyed for th
Benefits/Mitigation	Improved access and travel patterns, improved travel times, services, provides connectivity to the planned intermodal por and driver of economic development.

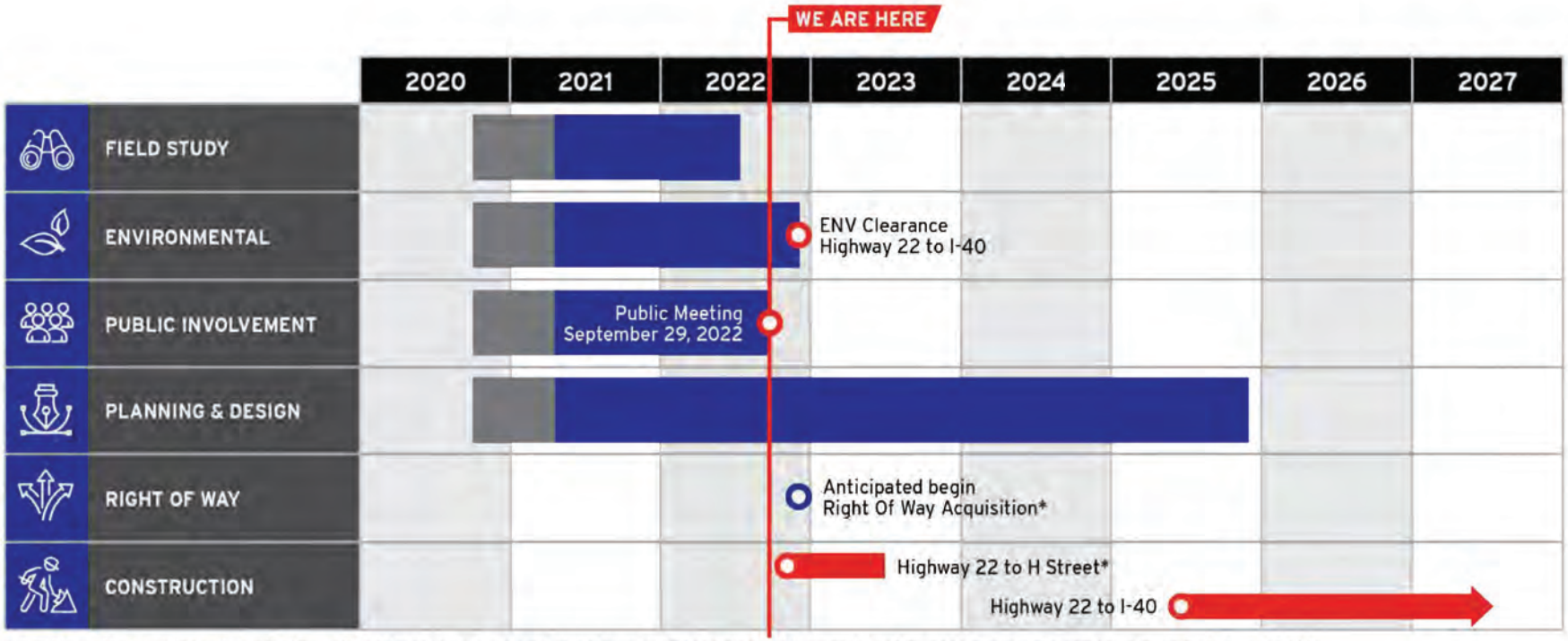
Note: Detailed table can be viewed on the project website

PROJECT DETAILS

RIGHT OF WAY

- **All Right of Way acquisition would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended**

NEXT STEPS



* The first project between Highway 22 to H Street includes clearing and grubbing only, and has been environmentally cleared by FHWA, with construction to begin in Fall 2022. All work on this project from Highway 22 to H Street is within existing ROW that was previously acquired.

PUBLIC INVOLVEMENT PERIOD

Public Involvement Period:
September 23, 2022 - October 14, 2022

September 2022

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October 2022

S	M	T	W	T	F	S
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

COMMENTS

Comment form and additional resources included at:

www.ardot.gov/publicmeetings

CONTACT US

environmentalpimeetings@ardot.gov

501-569-2281

10324 Interstate 30
Little Rock, AR 72209

Thank You For Attending!

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AR DOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Hwy. 22 – I-40 (Arkansas River) (I-49)
Job 040748
Public Meeting Presentation Script

SLIDE 1 – Welcome Slide

Hello, thank you for joining the Arkansas Department of Transportation, or ARDOT, for this Virtual Public Involvement Meeting for job 040748, to discuss the proposed revised design plans for Interstate 49 or I-49, between Highway 22 in Sebastian County and I-40 in Crawford County.

Please note, this is a listen only presentation, and you can pause this presentation at any point to allow more time to view the slides.

SLIDE 2 – Public Meeting Agenda

This is a brief presentation pertaining to the proposed revised design plans for the I-49 Project. We will cover the following material:

- Project Location,
- Project History,
- Purpose of the Project,
- Project Details,
- Next Steps,
- Public Involvement Meeting Dates, and
- How to provide comments and feedback.

SLIDE 3 – Project Location

ARDOT, in cooperation with the Federal Highway Administration, is preparing a draft re-evaluation of the Final Environmental Impact Statement and refining the Selected Alignment for a new section of I-49. The new section is a critical connection between Highway 22 in Sebastian County and I-40 in Crawford County, a length of approximately 14.4 miles. The red line on the map is the Selected Alignment for the project.

SLIDE 4 – Project History

This section was originally part of a larger U.S. 71 environmental study. The study extended from Highway 70 in DeQueen, Arkansas to I-40 near Alma, Arkansas, encompassing approximately 125 miles. The proposed I-49 Corridor is part of a congressionally designated High Priority Corridor (HPC) running from Shreveport, Louisiana to Kansas City, Missouri. A Final Environmental Impact Statement

was prepared and a Record of Decision was issued in December 1997, which screened multiple corridors, evaluated multiple alignments within a preferred corridor, and ultimately identified and approved a Selected Alignment for a new location, four-lane highway in western Arkansas.

SLIDE 5 – Project History (continued)

In 2018, an I-49 Alternative Delivery Study was conducted which evaluated alternative project delivery methods and toll feasibility for the project. The study was adopted by the Arkansas State Highway Commission in November 2018 and determined that tolling was not a viable option. A public meeting was held in April 2018. Materials presented included the project location, schedule, potential environmental impacts, tolling, and project schematics. Overall, there were 201 attendees at this meeting and 63 comments received. An additional Public Meeting was held in March 2022. Materials presented included the project location, schedule, environmental constraints, and project schematics. There were 244 attendees and 33 comments were received after this public meeting. ARDOT reviewed comments received during both public meeting comment periods from citizens, public officials, and public agencies, and the majority of comments from each meeting support this section of I-49. Since the review of public feedback, the project team has been working on more detailed design and environmental studies for the Selected Alignment.

SLIDE 6 – Project Purpose

The purpose of this project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve connectivity.

SLIDE 7 – Typical Section

The new location facility would be constructed as a four-lane divided facility with four 12-foot mainlanes (two in each direction), an approximately 80-feet median between the inside edges of travel lanes, and 6-foot inside and 10-foot outside shoulders. The design speed for the mainlanes is 70 miles per hour.

Hwy. 22 – I-40 (Arkansas River) (I-49)
Job 040748
Public Meeting Presentation Script

SLIDE 8 – Typical Section – River Bridge

The new river bridge would be constructed as a four-lane divided bridge with four 12-foot mainlanes (two in each direction), an approximately 14-foot median between the inside edges of travel lanes, and 6-foot inside and 10-foot outside shoulders.

SLIDE 9 – Typical Section –Bridge at Cross Streets and Creeks

New bridge facilities over cross streets and creeks would be constructed as four-lane divided bridge with four 12-foot mainlanes (two in each direction), an approximately 80-feet median between the inside edges of travel lanes, and 6-foot inside and 10-foot outside shoulders.

SLIDE 10 – Selected Alignment

The proposed project would generally follow the centerline alignment of the Selected Alignment from the 1997 Final Environmental Impact Statement or FEIS. Interchanges are proposed with ramps at Highway 22, Gun Club Road, and Clear Creek Road. At I-40 a fully directional interchange with direct connect ramps is proposed. Proposed grade separated intersections without ramps, are proposed for Thornhill Street, State Highway 162 (Henry Street), Union Pacific Railroad (UPRR), and Highway 64 to maintain local access.

SLIDE 11 – Project Updates

Since the March 2022 Public Meeting, there have been notable revisions to the design of the Selected Alignment. These updates are detailed by the blue stars on the map graphic you see on your screen, and include: construction of a 2,700' embankment instead of bridge in the river valley in order to produce a more cost efficient design, an added southbound left turn lane to State Highway 59 to Gun Club Road due to refined design, the addition of the Westville Overpass in the form of a new bridge with a modified driveway on the Northwest corner that resulted from feedback from previous public meetings, an added driveway and box culvert crossing Mays Branch that resulted from feedback from previous public meetings, a reduction in the length of improvements along Clear Creek by approximately 800 feet in order to reduce impact on the community and contribute to a more cost efficient design, and the addition of an extended box culvert to replace the existing box culvert under Henry Street, also known as State Highway 162, which was refined due to feedback from previous public meetings.

Hwy. 22 – I-40 (Arkansas River) (I-49)
Job 040748
Public Meeting Presentation Script

SLIDE 12 – Environmental

Environmental studies are being conducted for the I-49 Project. The re-evaluation of the 1997 Final Environmental Impact Statement is underway to support environmental clearance in accordance with the National Environmental Policy Act, or NEPA. As part of this re-evaluation, existing resources are compared with previously documented results in the U.S. 71 Relocation Project FEIS that included this section of I-49 from I-40 to Highway 22.

An Environmental Constraints Map was developed to help planners and engineers determine the least impactful method to fulfill the Purpose of the project. The map can be viewed on the project website. Some of the major known constraints include Springhill Park, Fort Chaffee Military Reservation, various wetland and water features, Old Wire Road, which is listed on the National Register of Historic Places, a railroad crossing, farmland, and crossings of the 100-year floodplain. Environmental studies for this project are ongoing.

SLIDE 13 – Environmental

A table has been prepared that summarizes the preliminary impacts and benefits associated with the construction of I-49. The preliminary impacts and benefits table can be viewed on the project website. While every effort has been made to avoid and minimize impacts during project development, and additional efforts have been made to further refine the design during the re-evaluation, there is not an alternative that avoids all impacts.

The Selected Alignment best maximizes the benefits from the project while minimizing the negative impacts to the greatest extent possible.

SLIDE 14 – Right of Way

All right of way acquisition would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

SLIDE 15 – Next Steps

Following this public meeting, the project design will be refined per public input, environmental analyses will be completed, and the draft re-evaluation will be finalized and sent to FHWA for review

and approval. If there are no major issues from the environmental analysis that cannot be addressed in a reasonable time frame, final environmental clearance for the project between Highway 22 and I-40 is expected in Fall 2022. If granted, right of way acquisition can then begin with construction anticipated to begin mid-2025.

The project between Highway 22 to H Street includes clearing and grubbing only and has been environmentally cleared by FHWA, with construction beginning in Fall 2022. All work on this project is within existing right of way that was previously acquired.

SLIDE 16 – Public Involvement Period

There will be an in person meeting on _____. Project information will be available _____.
Comment Forms will be available and accepted during that time period.

SLIDE 17 – Comments

Comment forms and additional resources can be found at ARDOT DOT GOV forward slash Public Meetings. All statements, comments and questions received during the comment period will be given careful consideration.

SLIDE 18 – Contact Us

For additional questions concerning this project, or if you need help submitting your comment form, please contact us at Environmental PI meetings @ ARDOT DOT GOV. You can also reach us at the phone number on your screen, 501-569-2281. To mail-in your comment forms, send the form to the address on your screen.

SLIDE 19– "Thank You"

We sincerely appreciate your participation and interest concerning the I-49 Project. Your questions, comments, and concerns will receive careful consideration.
Thank you, this concludes the presentation.

PROJECT LOCATION MAP

Highway 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

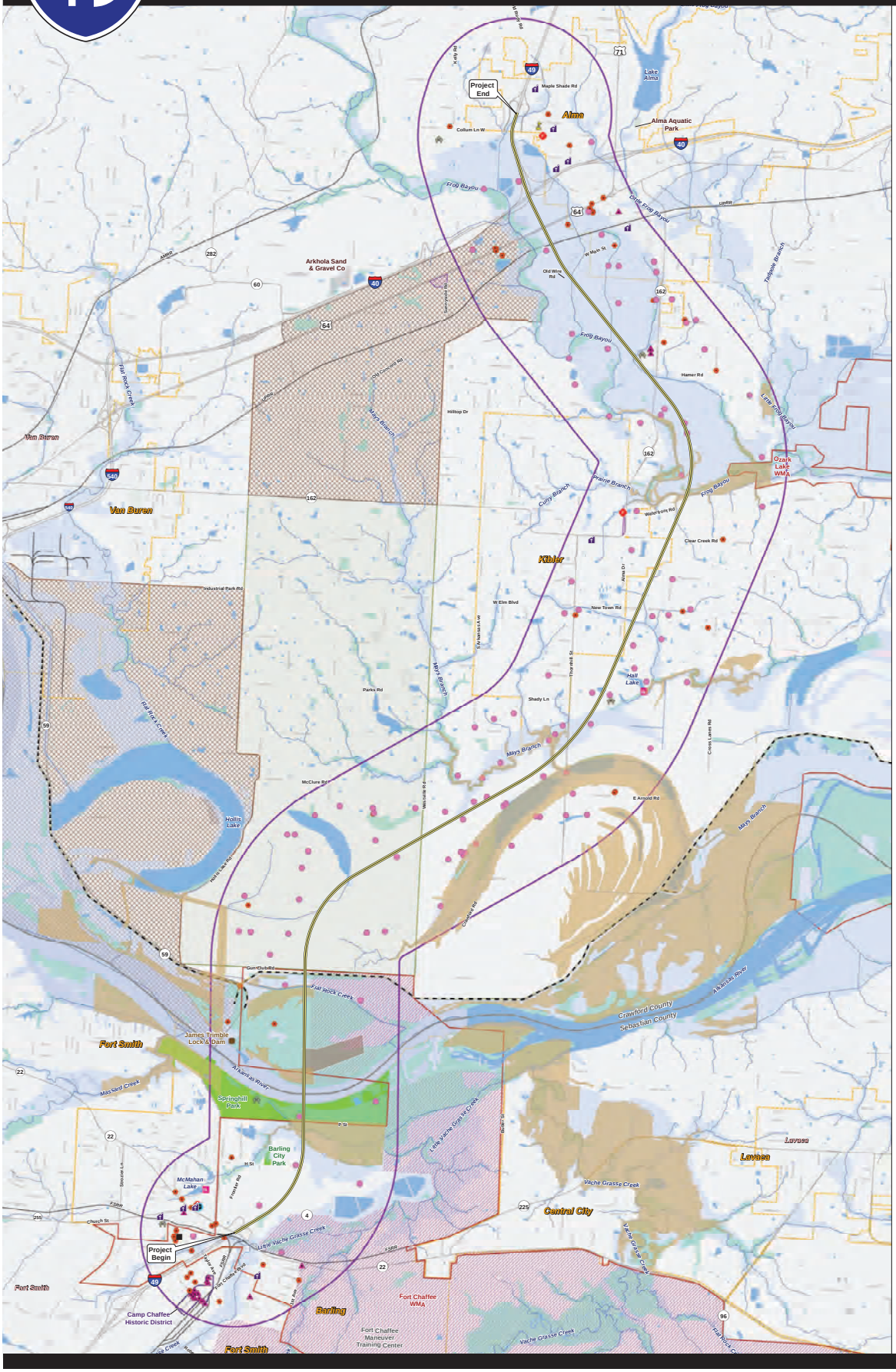
Job 040748

CONSTRAINTS MAP

Highway 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

Job 040748



LEGEND

- Selected Alignment
- 1-Mile Study Area*
- Railroad
- Major Road
- Stream/River
- Levee
- Cemetery
- Power Plant
- Places of Worship
- Minority Population over 50%
- LEP Population over 5%
- Low Income Population
- ADEQ Regulated Facility
- Dam
- Oil and Gas Wells (Active/Plugged)
- School
- Police Station
- Fire Station
- Historic Property
- Historic District
- NWI Wetland
- Water Body
- 100-Year Floodplain
- Wildlife Management Area
- Federally-owned Property
- City Boundary
- County Boundry
- ArDOT District 4 Headquarters
- Flowage Easement Area
- Tree Removal Area

** The study area extends one mile on each side of the proposed project centerline.*

0 0,5 1 Miles

N

Source: Constraints data from Arkansas GIS Office (2020); Aerial Imagery from Arkansas GIS Office (2018); Historic Data from Arkansas Historical Preservation Program (2020), and Wetland Data from USFWS NWI (2020), Block and Block Group data from US Census Bureau (2010).

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) Software. No claims are made to the accuracy or completeness of information shown herein nor to its suitability for a particular use. The scale, boundary, and location of all mapped data are approximate.

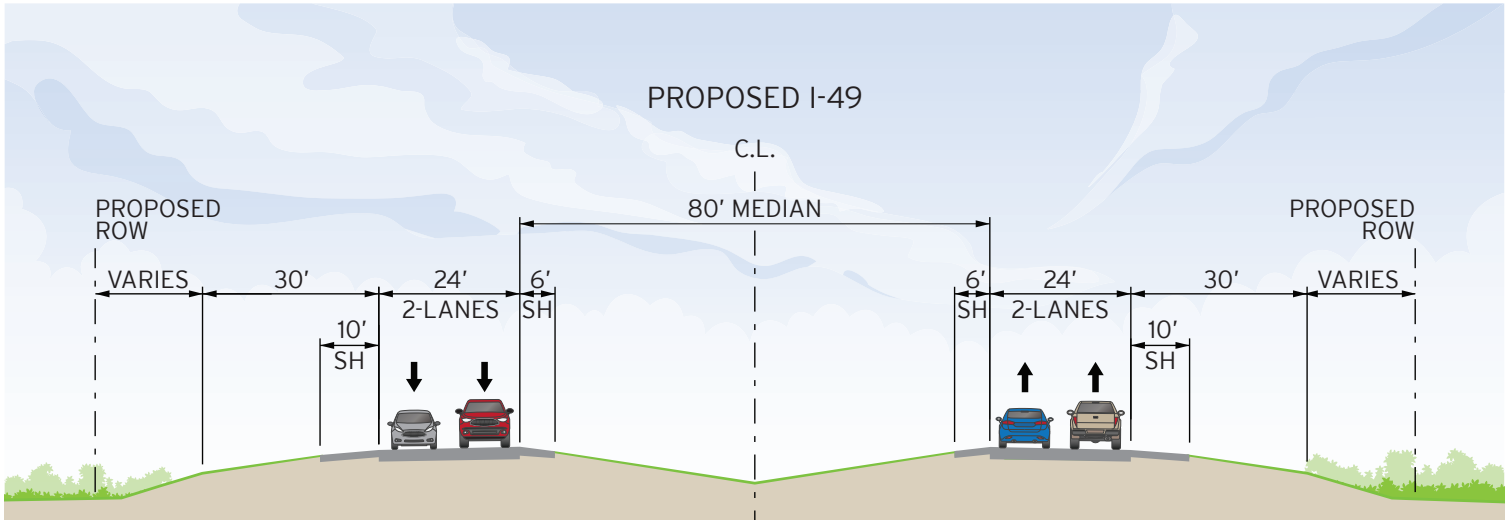
8/12/2022

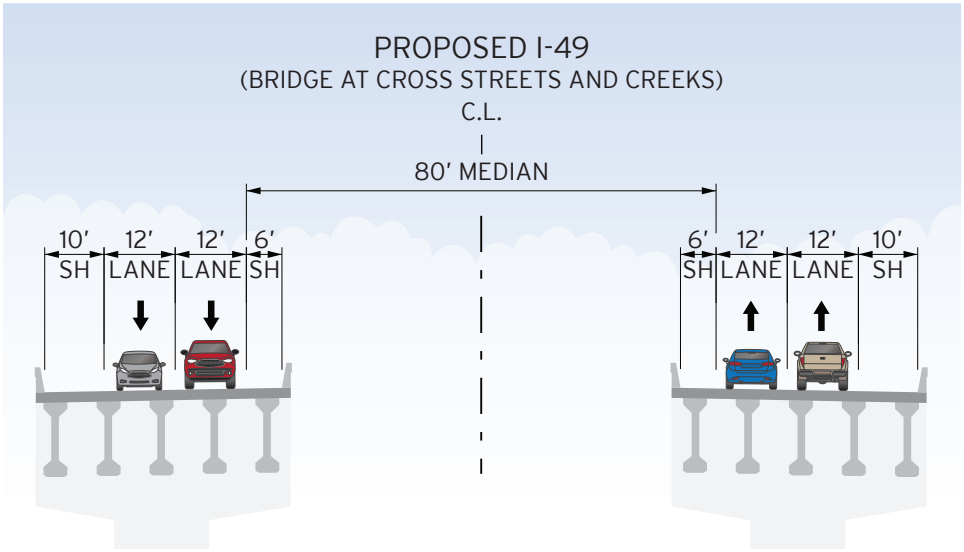
TYPICAL SECTIONS

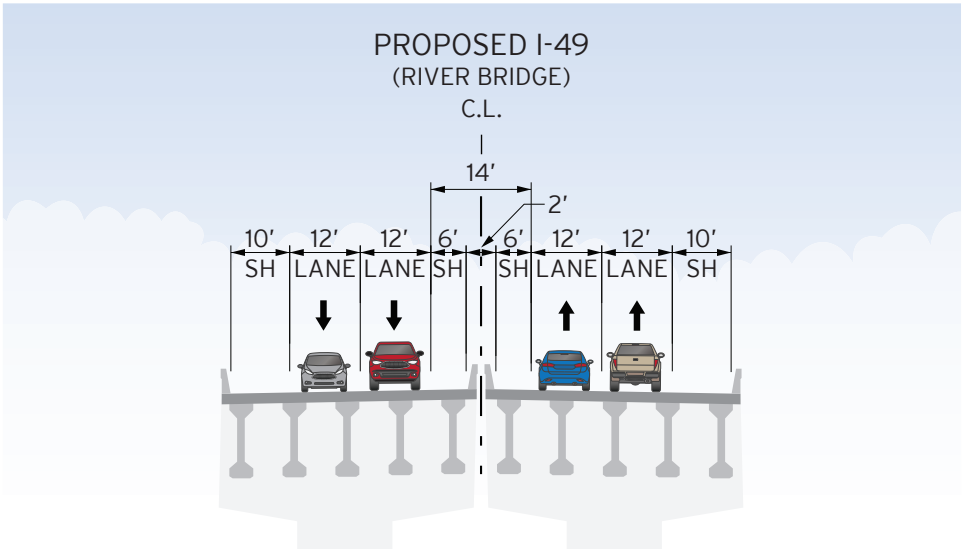
Highway 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

Job 040748





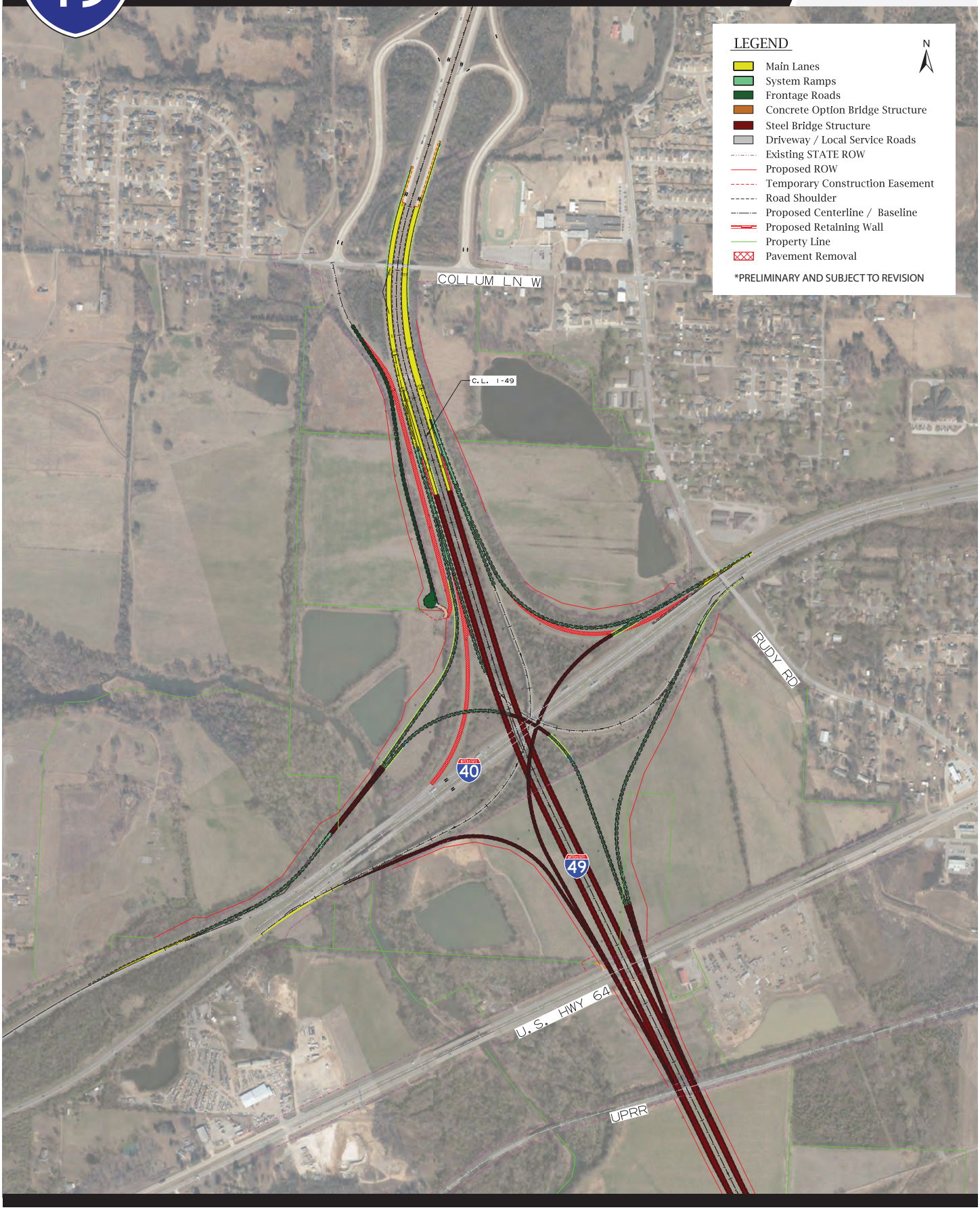


I-49/I-40 Interchange*

Highway 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

Job 040748

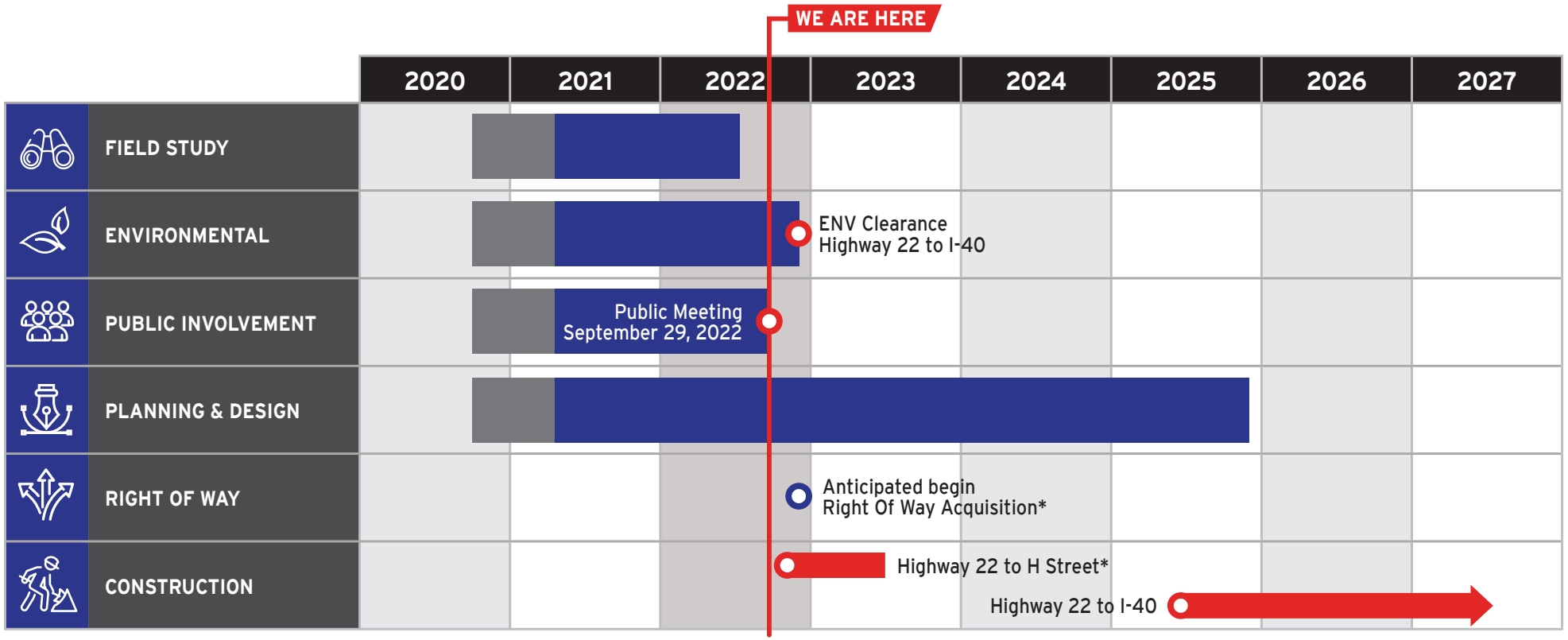


PROJECT TIMELINE

Highway 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

Job 040748



* The first project between Highway 22 to H Street includes clearing and grubbing only, and has been environmentally cleared by FHWA, with construction to begin in Fall 2022. All work on this project from Highway 22 to H Street is within existing ROW that was previously acquired.

PROJECT FACT SHEET

Highway 22 to I-40 (Arkansas River) (I-49)
Sebastian and Crawford Counties, Arkansas

Project Description

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is progressing to the next phase of project development for the construction of Interstate 49 (I-49) from Highway 22 in Sebastian County to I-40 in Crawford County, a length of approximately 14.4 miles.

Project Purpose & Need

The purpose of this project is to improve system linkage for a north/south national interstate corridor, accommodate safe travel, and improve connectivity.

Project Background

This section was originally part of a larger corridor environmental study known as the "U.S. 71 Relocation." The study extended from Highway 70 in DeQueen, Arkansas to I-40 near Alma, Arkansas, encompassing approximately 125 miles. The proposed I-49 Corridor is part of a congressionally designated High Priority Corridor (HPC) running from Shreveport, Louisiana to Kansas City, Missouri. A Final Environmental Impact Statement (FEIS) was prepared and a Record of Decision was issued in December 1997, which screened multiple corridors, evaluated multiple alignments within a preferred corridor, and ultimately identified and approved a Selected Alignment for a new location, four-lane highway in western Arkansas.

ARDOT developed a more detailed preliminary roadway schematic design, and conducted public involvement meetings in 2018. An Interstate 49 Alternative Delivery Study was developed which evaluated alternative project delivery methods and toll feasibility for the project, but ultimately determined that a public-private partnership based on tolling this section is not a viable option. The study was adopted by the Arkansas State Highway Commission during their November 14, 2018 meeting.

In March 2022, an additional public involvement meeting was held to present the continuation of the project and Selected Alignment. ARDOT reviewed comments received during both public meeting comment periods from citizens, public officials, and public agencies, and the majority of comments from each meeting support this section of I-49. Since the review of public feedback, the project team has been working on more detailed design and environmental studies for the Selected Alignment.

Project Updates

Since the March 2022 Public Meeting, there have been revisions to the design of the Selected Alignment. These updates are detailed by the blue stars on the corresponding map on the next page, and include construction of a 2,700' embankment instead of bridge in the river valley, an added southbound left turn lane to State Highway 59 to Gun Club Road, the addition of the Westville Overpass in the form of a new bridge with a modified driveway on the northwest corner, an added driveway and box culvert crossing Mays Branch, a reduction in the length of improvements along Clear Creek by approximately 800 feet, and the addition of an extended culvert under State Highway 162 also known as Henry Street.

Timeline

The next phase of project development will include completing and obtaining agency approvals for the re-evaluation of the 1997 FEIS, preparing required agency construction permits, and developing final design and construction plans for a non-tolled facility from Highway 22 to I-40.

How to Get Involved

Lindi Miller, HNTB
I-49 Public Involvement Representative
Email: *limiller@hntb.com*
Website: *www.ardot.gov/I-49*

PROJECT LOCATION MAP

Highway 22 to I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas

LEGEND

- Selected Alignment
- Proposed Interchanges
- Interstate Highway
- US Highway
- State Highway
- County Line
- Railroad
- River
- Design Update

Project details not to scale Aug. 2022

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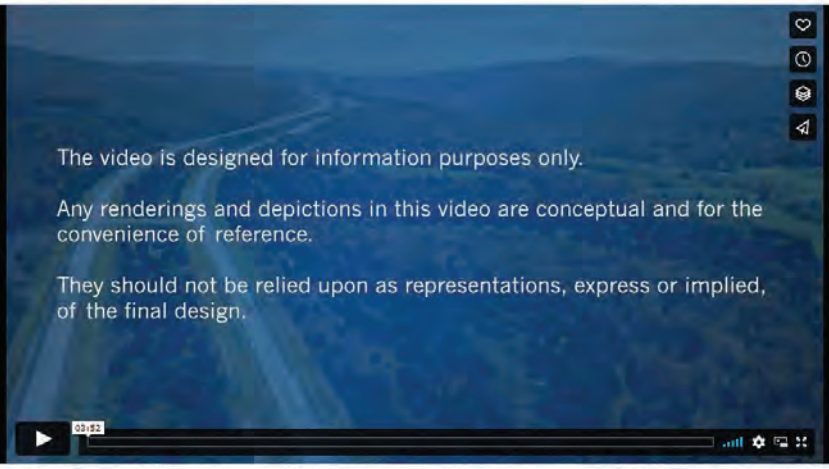

Job 040748 3D Animation

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PRELIMINARY IMPACTS & BENEFITS

Highway 22 – I-40 (Arkansas River) (I-49)
Sebastian and Crawford Counties, Arkansas

Job 040748

Resource Categories	Preliminary Impacts and Benefits within Project Footprint
Right of Way	1,546 acres within project footprint. Exact impact numbers to be determined as project advances through detailed design.
Residential Relocations	21
Commerical Relocations	0
Community Impacts	No disproportionately high adverse impacts anticipated to environmental justice populations, improved access, improved travel times, 0 impacts to public facilities, impacts to community cohesion at Waterfront Park neighborhood and at Clear Creek Road.
Wetlands/Waters	Permanent fill impacts are approximately 12 acres (20,430 linear feet) to water features and approximately 31 acres to wetland features. Impacts to be revised as project advances through detailed design.
Floodplain	No net rise in 100-year floodplain for Arkansas River. Preliminary study indicates less than 1 foot rise at Frog Bayou at I-49/I-40 interchange. Appropriate coordination with local floodplain administrator and FEMA to be determined based on more detailed design.
Farmland	1,027 acres within the project footprint. Coordination with Natural Resources Conservation Service required.
Habitat	• Forest: Approximately 344 acres within project footprint • Pasture: Approximately 631 acres within project footprint • Herbaceous: Approximately 55 acres within project footprint • Sapling/Shrub: Approximately 55 acres within project footprint Exact impact numbers to be determined as project advances through detailed design
Threatened and Endangered Species	Species within project footprint – effect calls are preliminary and will be finalized after coordination with U.S. Fish and Wildlife Service: • Gray Bat – Not Likely to Adversely Affect • Indiana Bat – Not Likely to Adversely Affect • Northern long-eared bat - Not Likely to Adversely Affect • Ozark big-eared bat – Not Likely to Adversely Affect • Eastern black rail - Not Likely to Adversely Affect • Piping plover – Not Likely to Adversely Affect • Red knot - Not Likely to Adversely Affect • American burying beetle – Not Likely to Adversely Affect • Scaleshell mussel - No Effect or Not Likely to Adversely Affect • Geocarpon minimum (succulent plant)- No Effect • Monarch butterfly - Not Likely to Adversely Affect • Missouri bladderpod - No Effect
Regulated Facilities	1 natural gas wellhead – requires plug and abandonment.
Noise	Minor noise impacts anticipated. One potentially feasible and reasonable noise wall in the southeast corner of the I-40 interchange will be studied further.
Air Quality	None anticipated. Crawford and Sebastian Counties are in attainment for all National Ambient Air Quality Standards.
Visual	Minor impacts to the existing visual harmony are anticipated at Springhill Park, Alma Drive, Waterfront Rd., and Harmer Road.
Section 4(f) Springhill Park	No feasible and prudent avoidance alternative. Impacts to 4 abandoned campsites and water fountain; visual and noise impacts; mitigation includes re-routing of hike/bike trail.
Section 4(f) Old Wire Road	No feasible and prudent avoidance alternative; re-routing of Old Wire Road; visual impacts.
Historic Structures	Impacts to Old Wire Road, which was determined eligible for the National Register of Historic Places in June 2018.
Archeological Sites	597 acres shovel tested in 20 meter transects. 4 sites identified for further testing and 2 sites identified for mitigation. An additional 108 acres will be surveyed for the proposed project.
Benefits/Mitigation	Improved access and travel patterns, improved travel times, improved access/mobility for emergency services, provides connectivity to the planned intermodal port facility, provides supply chain resiliency, and driver of economic development.

Job 040748 – I-49
Public Meeting Outreach Plan
Public Involvement Period: September 23 – October 14, 2022

Outreach Schedule

Date	Before/After Public Meeting Event	Method
Thurs., August 4	-56 days	• Preliminary Meeting with ARDOT to discuss outreach materials and preliminary schedule
Mon., August 15	-45 days	• Public Meeting Materials sent to ARDOT for review
Thurs., August 18	-42 days	• Logistics Meeting with ARDOT to review Public Meeting Materials
Mon., August 29	-31 days	• HNTB to address comments on Public Meeting Materials + update Public Meeting Materials
Tues., September 6	-23 days	• Submit Spanish display ad to newspaper: La Prensa • Send email invite to stakeholders, and Public Officials notifying of Public Meeting dates
Fri., September 9	-20 days	• Mail letters to public officials and stakeholders
Wed., September 14	-15 days	• Submit display ad to newspaper: Southwest Times Record • Submit PSA to radio station: La Raza 92.3
Thurs., September 15 * First newspaper ad publishes	-14 days	• Newspaper Spanish display ad publishes - #1
Fri., September 16	-13 days	• Mail postcards to property owners and previous attendees
Sun., September 18	-11 days	• Newspaper display ad publishes - #1
Mon., August 19	-10 days	• Send email blast to stakeholders, past meeting attendees, and all remaining email contacts • Social media – round #1 posted by ARDOT, and stakeholders/public officials
Thurs., September 22	-7 days	• Newspaper Spanish display ad publishes - #2 • Publish news release – ARDOT to publish
Fri., September 23	-6 days	• Project materials to launch on ARDOT website • Send email blast to public officials notifying of website launch
Sun., September 25	-4 days	• Newspaper display ad publishes - #2
Mon., September 26	-3 days	• Flyer delivery along project route • PSA on radio station La Raza 92.3 begins to run • Social media – round #2
Thurs., September 29	0 days	• Local Officials Meeting @ 11AM @ First Baptist Church Alma • I-49 In-Person Public Meeting @ First Baptist Church Alma from 4-7 PM • Email reminder to registrants to date (List from ARDOT)
Fri., October 14	+15 days	• 15-day comment period ends

Job 040748 – I-49
Public Involvement Period: September 23 – October 14, 2022

Outreach Materials

Mailings:

- Stakeholder letter
- Public Officials Letter
- Property Owners Postcard Mailer
- Interested in Project Postcard Mailer

Emails:

- Stakeholders
- Public Officials
- Previous meeting attendees
- Additional previous contacts

Newspaper ads:

- Southwest Times Record - Display ad (2x)
- La Prensa - Spanish Display ad (2x)

PSA:

- La Raza 92.3 - Spanish PSA (2x daily/4 days)

News Release:

- ARDOT to publish

Social Media:

- ARDOT
- Public Officials

ARKANSAS DEPARTMENT OF TRANSPORTATION
ARDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

September 9, 2022

Senator Colby Fulfer
2304 Patricia Street
Springdale, AR 72762

SUBJECT: Notice of Public Officials Meeting – Thursday, September 29, 2022
Notice of Public Involvement Meeting
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)
Sebastian and Crawford Counties

Dear Senator Fulfer:

The Arkansas Department of Transportation will conduct a Public Officials Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The Public Officials meeting will be held on **Thursday, September 29, 2022**, from **11:00 a.m. to 12:30 p.m. at the First Baptist Church Alma (Family Life Center) located at 211 N. Mountain Grove Rd., Alma, AR 72921**. You are invited and encouraged to attend this meeting and offer your views concerning the proposed project.

To access the online public meeting materials, visit the www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. The viewing of project information will be available on the Department's website beginning Friday, September 23, 2022, through Friday, October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.

After the Public Officials Meeting, a **Public Involvement Meeting** will be held on **Thursday, September 29, 2022, from 4:00p.m. to 7:00p.m. at the same location.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi K. Miller

Lindi Miller, HNTB Corporation
Consultant Public Involvement Representative

The Honorable Colby Fulfer
Senator
2304 Patricia Street
Springdale, AR 72762

The Honorable Greg Leding
Senator
P.O. Box 1445
Fayetteville, AR 72702

The Honorable Bart Hester
Senator
P.O. Box 85
Cave Springs, AR 72718

The Honorable Gary Stubblefield
Senator
2542 Skeets Rd.
Branch, AR 72928

The Honorable Breanne Davis
Senator
P.O. Box 10088
Russellville, AR 72812

The Honorable Cecile Bledsoe
Senator
709 Sky Mountain Dr.
Rogers, AR 72757

The Honorable Terry Rice
Senator
P.O. Box 2195
Waldron, AR 72958

The Honorable Mathew W. Pitsch
Senator
6908 Hunter Crossing Dr.
Fort Smith, AR 72916

The Honorable Mark H. Berry
Representative
P.O. Box 1205
Ozark, AR 72949

The Honorable Jim Dotson
Representative
P.O. Box 651
Bentonville, AR 72712

The Honorable Kendon Underwood
Representative
906 Ravine St.
Cave Springs, AR 72718

The Honorable David Whitaker
Representative
717 North Lewis Ave.
Fayetteville, AR 72701

The Honorable Justin Boyd
Representative
1509 South 37th St.
Fort Smith, AR 72903

The Honorable Lee Johnson
Representative
3101 Ashebury Point
Greenwood, AR 72936

The Honorable Denise Garner
Representative
P.O. Box 646
Fayetteville, AR 72702

The Honorable Aaron Pilkington
Representative
264 Private Road 2611
Knoxville, AR 72845

The Honorable Joshua P. Bryant
Representative
P.O. Box 718
Rogers, AR 72757

The Honorable Charlene Fite
Representative
P.O. Box 7300
Van Buren, AR 72956

The Honorable Austin McCollum
Representative
P.O. Box 1372
Bentonville, AR 72712

The Honorable Jon S. Eubanks
Representative
2543 Greasy Valley Rd.
Paris, AR 72855

The Honorable Megan Godfrey
Representative
500 Janet St.
Springdale, AR 72762

The Honorable Clint Penzo
Representative
P.O. Box 7988
Springdale, AR 72766

The Honorable Delia J. Haak
Representative
P.O. Box 10218
Centerton, AR 72719

The Honorable John P. Carr
Representative
2706 W. Dogwood St.
Rogers, AR 72758

The Honorable Jay Richardson
Representative
P.O. Box 4403
Fort Smith, AR 72914

The Honorable Gary Deffenbaugh
Representative
1424 North 9th St.
Van Buren, AR 72956

The Honorable Bruce Coleman
Representative
11908 N. Highway 348
Mountainburg, AR 72946

The Honorable Cindy Crawford
Representative
P.O. Box 180628
Fort Smith, AR 72918

The Honorable Robin Lundstrum
Representative
P.O. Box 14
Elm Springs, AR 72728

The Honorable Nicole Clowney
Representative
P.O. Box 207
Fayetteville, AR 72702

The Honorable Joe Cloud
Representative
3207 Oak Hill Court
Russellville, AR 72802

The Honorable Barry Moehring
County Judge
215 East Central Ave.
Bentonville, AR 72712

The Honorable Dennis Gilstrap
County Judge
300 Main St., Room 4
Van Buren, AR 72956

The Honorable Rickey Bowman
County Judge
211 West Commercial St.
Ozark, AR 72949

The Honorable Kevin Smith
County Judge
421 N. Main St.
Nashville, AR 71852

The Honorable Mike Cranford
County Judge
351 North Second St., Suite 4
Ashdown, AR 71822

The Honorable Ray Gack
County Judge
25 W. Walnut St.
Paris, AR 72855

The Honorable Cathy Hardin Harrison
County Judge
400 Laurel St., Ste. 115
Texarkana, AR 71854

The Honorable Brandon Ellison
County Judge
507 Church Ave., Box 7
Mena, AR 71953

The Honorable James Forbes
County Judge
100 West First St.
Waldron, AR 72958

The Honorable David Hudson
County Judge
35 South 6th St., Room 106
Fort Smith, AR 72901

The Honorable Greg Ray
County Judge
115 North 3rd St.
DeQueen, AR 71832

The Honorable Joseph Wood
County Judge
280 N. College St., Ste. 500
Fayetteville, AR 72701

The Honorable Jerry Martin
Mayor
804 Fayetteville Ave.
Alma, AR 72921

The Honorable Wally Gattis
Mayor
P.O. Box 23039
Barling, AR 72923

The Honorable Elmer Nelson
Mayor
200 Sherwood Ave.
Bonanza, AR 72916

The Honorable Jerry Wilkins
Mayor
497 E. Main, Ste. A
Booneville, AR 72927

The Honorable Gerald Harris
Mayor
P.O. Box 68
Branch, AR 72928

The Honorable Mark Isenhower
Mayor
P.O. Box 505
Cedarville, AR 72932

The Honorable Terry Wallace
Mayor
1101 Hwy. 255
Central City, AR 72941

The Honorable Tabitha Hester
Mayor
P.O. Box 426
Charleston, AR 72933

The Honorable Shannon Smith
Mayor
P.O. Box 84
Chester, AR 72934

The Honorable George McGill
Mayor
623 Garrison Ave.
Fort Smith, AR 72901

The Honorable Doug Kinslow
Mayor
P.O. Box 1450
Greenwood, AR 72936

The Honorable Trini Harper
Mayor
P.O. Box 209
Hackett, AR 72937

The Honorable Richard Hartsfield
Mayor
P.O. Box 519
Hartford, AR 72938

The Honorable Gary Lawrence
Mayor
P.O. Box 27
Huntington, AR 72940

The Honorable Gary O'Kelley
Mayor
50 Oak Terrace
Van Buren, AR 72956

The Honorable Hugh Hardgrave
Mayor
P.O. Box 3
Lavaca, AR 72941

The Honorable William Black
Mayor
P.O. Box 307
Mansfield, AR 72944

The Honorable Seth Smith
Mayor
520 Mena St.
Mena, AR 71953

The Honorable Michael Sweeten
Mayor
P.O. Box 31
Midland, AR 72945

The Honorable Susan Wilson
Mayor
P.O. Box 433
Mountainburg, AR 72946

The Honorable Gary Baxter
Mayor
P.O. Box 448
Mulberry, AR 72947

The Honorable Roger Hughey
Mayor
P.O. Box 190
Ratcliff, AR 72951

The Honorable Joe Hurst
Mayor
1003 Broadway
Van Buren, AR 72956

The Honorable David Millard
Mayor
P.O. Box 310
Waldron, AR 72958

The Honorable Randy Jarnagan
Mayor
108 N. Winslow Blvd.
Winslow, AR 72959

ARKANSAS DEPARTMENT OF TRANSPORTATION
ARDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

September 9, 2022

Pastor Matt Garrison
Sacred Heart of Mary Catholic Church
1301 Frank St.
Barling, AR 72923

SUBJECT: Notice of Public Involvement Meeting
ARDOT Job 040748
Hwy. 22 – I-40 (Arkansas River) (I-49)
Sebastian and Crawford Counties

To Whom It May Concern:

For your consideration as an announcement to your congregation(s), the Arkansas Department of Transportation will conduct a public involvement meeting to present and discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The meeting will be held on **Thursday, September 29, 2022**, from **4:00 p.m. – 7:00 p.m. at the First Baptist Church Alma (Family Life Center), 211 N. Mountain Grove Rd. in Alma.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

In order to access the online public meeting materials, visit www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. The viewing of project information will be available on the Department's website beginning September 23, 2022, through October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi K Miller

Lindi Miller, HNTB Corporation
Consultant Public Involvement Representative

Sacred Heart of Mary Catholic Church
Pastor Matt Garrison
1301 Frank St.
Barling, AR 72923

Sacred Heart of Mary Catholic Church
Associate Pastor Peter Quang Le
1301 Frank St.
Barling, AR 72923

Iglesia Adventista Hispana de Van Buren
Pastor Ruben Paniagua
902 Oak Grove Rd.
Van Buren, AR 72956

Zion Missionary Baptist Church Alma Pastor
1115 Spring St.
Alma, AR 72921

St. James Missionary Baptist Church

4916 High St.
Fort Smith, AR 72904

PUBLIC INVOLVEMENT MEETING NOTICE

Hwy. 22 – I-40 (Arkansas River) (I-49)

Sebastian and Crawford Counties, Arkansas
Job 040748

Scan QR code to visit the project website.

You're Invited!

WHAT: The Arkansas Department of Transportation (ARDOT) will conduct a Public Involvement Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford Counties.

WHEN: Thursday, September 29, 2022
4:00 p.m. - 7:00 p.m.

WHERE: First Baptist Church Alma
(Family Life Center)
211 N. Mountain Grove Rd.
Alma, AR 72921

Link to Project Information:
www.ardot.gov/publicmeetings

Comment form availability:
Friday, September 23, 2022 – Friday, October 14, 2022

Special Accommodations: Anyone needing project information or special accommodations under the Americans with Disabilities Act (ADA) is encouraged to write to Ruby Jordan-Johnson, P.O. Box 2261, Little Rock, AR 72203-2261, call (501) 569-2379, fax (501) 569-2009 or email environmentalpimeetings@ardot.gov. Hearing or speech impaired, please contact the Arkansas Relay System at (Voice/TTY 711). Requests should be made at least four days prior to the public meeting.

Notice of Nondiscrimination:
The Arkansas Department of Transportation (ARDOT) complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance.

Therefore, the Department does not discriminate on the basis of race, sex, color, age, national origin, religion (not applicable as a protected group under the Federal Motor Carrier Safety Administration Title VI Program), disability, Limited English Proficiency (LEP), or low-income status in the admission, access to and treatment in the Department's programs and activities, as well as the Department's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Department's nondiscrimination policies may be directed to Joanna P. McFadden EEO/DBE Officer (ADA/504/Title VI Coordinator), P. O. Box 2261, Little Rock, AR 72203, (501) 569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ardot.gov

Free language assistance for Limited English Proficient individuals is available upon request. This notice is available from the ADA/504/ Title VI Coordinator in large print, on audio tape and in Braille.

For further assistance, contact Environmental Division at (501) 569-2000 or e-mail: environmentalpimeetings@ardot.gov

Lindi Miller

From: Lindi Miller
Sent: Monday, September 19, 2022 4:28 PM
To: Lindi Miller
Subject: Notice of Public Officials Meeting – Thursday, September 29, 2022 + Social Media Toolkit
Attachments: ARDOT_PM_SM_GRAPHIC_2.png; I49 PM 2 Flyer.pdf

Greetings,

The Arkansas Department of Transportation will conduct a Public Officials Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The Public Officials meeting will be held on **Thursday, September 29, 2022**, from **11:00 a.m. to 12:30 p.m. at the First Baptist Church Alma (Family Life Center) located at 211 N. Mountain Grove Rd., Alma, AR 72921**. You are invited and encouraged to attend this meeting and offer your views concerning the proposed project.

To access the online public meeting materials, visit the www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. The viewing of project information will be available on the Department's website beginning Friday, September 23, 2022, through Friday, October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.

After the Public Officials Meeting, a **Public Involvement Meeting** will be held on **Thursday, September 29, 2022, from 4:00p.m. to 7:00p.m. at the same location.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

To aid in your efforts to spread the word, please consider sharing the attached social media graphic and flyer.

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi Miller
Public Involvement Representative
Cell (501)-266-9390

HNTB CORPORATION
5800 Evergreen Drive, Suite A | Little Rock, AR 72205 | www.hntb.com

100+ YEARS OF INFRASTRUCTURE SOLUTIONS

Lindi Miller

From: Lindi Miller
Sent: Monday, September 19, 2022 4:45 PM
To: Lindi Miller
Subject: Notice of Public Involvement Meeting – Thursday, September 29, 2022

Greetings,

You are receiving this email because you previously requested project updates for ARDOT Job 040748, also known as the I-49 Project. The Arkansas Department of Transportation will conduct a public involvement meeting to present and discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The meeting will be held on **Thursday, September 29, 2022**, from **4:00 p.m. – 7:00 p.m. at the First Baptist Church Alma (Family Life Center), 211 N. Mountain Grove Rd. in Alma.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

In order to access the online public meeting materials, visit www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. The viewing of project information will be available on the Department's website beginning September 23, 2022, through October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi Miller
Public Involvement Representative
Cell (501)-266-9390

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PLACES TO WORK 2020
The Dallas Morning News

Lindi Miller

From: Lindi Miller
Sent: Friday, September 23, 2022 4:35 PM
To: Lindi Miller
Subject: RE: Notice - I-49 Public Meeting Website Launch + Public Meeting Information
Attachments: ARDOT_PM_SM_GRAPHIC_2.png; I49 PM 2 Flyer.pdf

Greetings,

The Arkansas Department of Transportation will conduct a Public Officials Meeting to discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The Public Officials meeting will be held on **Thursday, September 29, 2022**, from **11:00 a.m. to 12:30 p.m. at the First Baptist Church Alma (Family Life Center) located at 211 N. Mountain Grove Rd., Alma, AR 72921**. You are invited and encouraged to attend this meeting and offer your views concerning the proposed project.

To access the online public meeting materials, visit the www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. **The viewing of project information is now live and readily available on the Department's website, through Friday, October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.**

After the Public Officials Meeting, a **Public Involvement Meeting** will be held on **Thursday, September 29, 2022, from 4:00p.m. to 7:00p.m. at the same location.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

To aid in your efforts to spread the word, please consider sharing the attached social media graphic and flyer.

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi Miller
Public Engagement & Communications Specialist II
Cell (501)-266-9390

HNTB CORPORATION
5800 Evergreen Drive, Suite A | Little Rock, AR 72205 | www.hntb.com

100+ YEARS OF INFRASTRUCTURE SOLUTIONS

Lindi Miller

From: Lindi Miller
Sent: Thursday, September 29, 2022 2:10 PM
To: Lindi Miller
Subject: Notice of I-49 Public Meeting Launch + Public Meeting Information | September 29, 2022

Greetings,

You are receiving this email because you previously requested project updates for ARDOT Job 040748, also known as the I-49 Project. The Arkansas Department of Transportation will conduct a public involvement meeting to present and discuss the proposed revised design plans for the development of I-49 between Hwy. 22 and I-40 in Sebastian and Crawford counties. The meeting will be held **tonight, Thursday, September 29, 2022**, from **4:00 p.m. – 7:00 p.m. at the First Baptist Church Alma (Family Life Center), 211 N. Mountain Grove Rd. in Alma.**

This "open house" meeting is for interested citizens to view displays, ask questions, and offer comments about the proposed project. You are invited and encouraged to attend this meeting and offer your views concerning the project. Any publicity you might give this meeting will be appreciated.

In order to access the online public meeting materials, visit www.ardot.gov/publicmeetings website. At the website location, scroll down to view the public meeting of your interest. **The viewing of project information is now live and readily available on the Department's website through October 14, 2022, and comments will be accepted until 4:30 p.m. on Friday, October 14, 2022.**

If you have any questions, please feel free to contact me via phone at (501) 266-9390 or by email at limiller@hntb.com.

Sincerely,

Lindi Miller
Public Engagement & Communications Specialist II
Cell (501)-266-9390

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LITTLE ROCK DISTRICT
P.O. BOX 867
LITTLE ROCK, AR 72203-0867

May 20, 2026

Ms. Jesse Jones, PE
Chief Engineering - Preconstruction
Arkansas Department of Transportation
P.O. Box 2261
10324 Interstate 30
Little Rock, AR 72203-2261

Dear Ms. Jones:

The U.S. Army Corps of Engineers (USACE) Little Rock District reviewed the Arkansas Department of Transportation's (ARDOT) Interstate 49 (I-49) connector route crossings of the Mays Branch mitigation areas and the Frog Bayou mitigation areas request under Section 14 of the Rivers and Harbors Act of 1899, 33 U.S.C. 408 (Section 408). This evaluation was performed in accordance with Engineer Circular 1165-2-220. For this review, the USACE authority within Section 408 is limited to the crossings of these two mitigation areas because of real estate interests owned by the Little Rock District.

You are granted permission for the proposed project to cross both mitigation areas in Crawford County, AR as specified in your request contingent upon the attached terms and conditions.

For any questions regarding your Section 408 permission decision, please contact Mr. Jaysson Funkhouser at (501) 324-7342 or jaysson.e.funkhouser@usace.army.mil.

Sincerely,

CURTIS.DARRI N.L.1116467980 Digitally signed by CURTIS.DARRIN.L.1116467980 Date: 2026.05.22 16:18:55 -05'00'

Darrin Curtis, Ph.D., P.E., PMP
Deputy for Program and Project Management

Enclosure

STANDARD TERMS AND CONDITIONS

LIMITS OF THE AUTHORIZATION

1. This permission only authorizes you, the requester, to undertake the activity described herein under the authority provided in Section 14 of the Rivers and Harbors Act of 1899, as amended (33 USC 408). This permission does not obviate the need to obtain other federal, state, or local authorizations required by law. This permission does not grant any property rights or exclusive privileges, and you must have appropriate real estate instruments in place prior to construction and/or installation.
2. The time limit for completing the work authorized ends on March 14, 2028. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
3. Without prior written approval of the USACE, you must neither transfer nor assign this permission nor sublet the premises or any part thereof, nor grant any interest, privilege or license whatsoever in connection with this permission. Failure to comply with this condition will constitute noncompliance for which the permission may be revoked immediately by USACE.
4. The requester understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration of the work herein authorized, or if, in the opinion of the Secretary of the Army or an authorized representative, said work will cause unreasonable conditions and/or obstruction of USACE project authorized design, the requester will be required upon due notice from the USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim can be made against the United States on account of any such removal or alteration.

INDEMNIFICATION AND HOLD HARMLESS

1. The United States will in no case be liable for:
   a. any damage or injury to the structures or work authorized by this permission that may be caused or result from future operations undertaken by the United States, and no claim or right to compensation will accrue from any damage; or
   b. damage claims associated with any future modification, suspension, or revocation of this permission.
2. The United States will not be responsible for damages or injuries which may arise from or be incident to the construction, maintenance, and use of the project requested by you, nor for damages to the property or injuries to your officers, agents, servants, or employees, or others who may be on your premises or project work areas or the federal project(s) rights-of-way. By accepting this permission, you hereby agree to fully defend, **indemnify,** and **hold harmless** the United States and USACE from any and all such claims, subject to any limitations in law.
3. Any damage to the water resources development project or other portions of any federal project(s) resulting from your activities must be repaired at your expense.

REEVALUATION OF PERMISSION

1. The determination that the activity authorized by this permission would not impair the usefulness of the federal project and would not be injurious to the public interest was made in reliance on the information you provided.
2. This office, at its sole discretion, may reevaluate its decision to issue this permission at any time circumstances warrant, which may result in a determination that it is appropriate or necessary to modify or revoke this permission. Circumstances that could require a reevaluation include, but are not limited to, the following:
   a. you fail to comply with the terms and conditions of this permission;
   b. the information provided in support of your application for permission proves to have been inaccurate or incomplete; or
   c. significant new information surfaces which this office did not consider in reaching the original decision that the activity would not impair the usefulness of the water resources development project and would not be injurious to the public interest.

CONDUCT OF WORK UNDER THIS PERMISSION

1. You are responsible for implementing any requirements for mitigation, reasonable and prudent alternatives, or other conditions or requirements imposed as a result of environmental compliance.
2. Work/usage allowed under this permission must proceed in a manner that avoids interference with the inspection, operation, and maintenance of the federal project.
3. In the event of any deficiency in the design or construction of the requested activity, you are solely responsible for taking remedial action to correct the deficiency.
4. The right is reserved to the USACE to enter upon the premises at any time and for any purpose necessary or convenient in connection with government purposes, to make inspections, to operate and/or to make any other use of the lands as may be necessary in connection with government purposes, and you will have no claim for damages on account thereof against the United States or any officer, agent or employee thereof.
5. You must provide copies of pertinent design, construction, and/or usage submittals/documents. USACE may request that survey and photographic documentation of the alteration work and the impacted project area be provided before, and after, construction and/or installation.
6. Any damage to the water resources development project or other portions of any federal project(s) resulting from your activities must be repaired at your expense.
7. USACE shall not be responsible for the technical sufficiency of the alteration design nor for the construction and/or installation work.

U.S. Army Corps of Engineers
Southwestern Division
Little Rock District

Little Rock District Review Plan 408-SWL-2026-0006 I-49 Connector, Pursuant to 33 USC § 408

APPROVED BY:

CURTIS.DARRIN.L.1116467980 Digitally signed by CURTIS.DARRIN.L.1116467980 Date: 2026.05.22 16:18:01 -05'00'

Darrin Curtis, Ph.D., P.E., PMP
Deputy for Program and Project Management

22 May 26
Date

US Army Corps of Engineers

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1. Introduction

a. Purpose of the Review Plan

This Review Plan (RP) is intended to ensure the quality of reviews by the Little Rock District (SWL) for requests to alter U.S. Army Corps of Engineers (USACE) federally authorized Civil Works projects within the Little Rock District area of responsibility. This Review Plan was prepared in accordance with Engineer Circular (EC) 1165-2-220, *Policy and Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408, 10 September 2018.* Section 14 of the Rivers and Harbors Act of 1899, 33 USC 408, (referred to herein as "Section 408") authorizes the USACE to grant permission for the alteration, occupation, or use of a USACE Civil Works project if certain requirements are met. This Review Plan will be used to evaluate requests to alter USACE Civil Works projects.

b. Definition of Terms

Non-Federal Sponsor. Refers to a non-federal interest, as defined in the Flood Control Act of 1970, as amended (42 USC 1962d-5b(b)), that has provided assurances or executed a binding agreement for the provision of items of local cooperation for a USACE project, including, as applicable, operation and maintenance.

Requester. Entity (i.e. individual, corporate, public utility, Indian Tribe of Nation, or Federal Agency) proposing the alteration to the USACE Civil Works project.

Little Rock District Review Team. Little Rock District Section 408 team of reviewers assigned to review Section 408 Requests.

c. Applicability of this Review Plan

This Review Plan establishes the Little Rock District procedures used for the review of Section 408 requests that does not require a Safety Assurance Review. The Little Rock District Review Team consists of subject matter experts based on expertise, experience, and skills from multiple disciplines as necessary to ensure a comprehensive review. The Little Rock District will adhere to the policies and procedures described in EC 1165-2-220 for conducting Section 408 reviews. This Review Plan is a procedural supplement to but does not supersede, the requirements of EC 1165-2-220. Paragraph 9 of the EC describes when procedures in the EC 1165-2-220 apply, along with exceptions. This Review Plan applies to requests to alter USACE federally authorized Civil Works projects within the Little Rock District area of responsibility.

This Review Plan addresses a Section 408 request for proposed alterations within the Little Rock District proposed by a Requester within the lands and real property interests identified and acquired for a USACE project within the jurisdiction of the Little Rock District. Examples of (not all-inclusive) potential low impact alterations:

- Repair, replacement, or construction of new utility lines: storm water, sewer, water supply, telecommunication, electric transmission, gas, etc. that do not penetrate the existing footprint or foundation of an existing USACE dam
- Horizontal directional drilling installation of utility projects that do not penetrate the existing footprint or foundation of an existing USACE dam
- Recreational features: trails, trailheads, parking facilities, access sites, boat ramps, etc.

- Repair, replacement, or construction of new bridges, roads, and associated features
- Geotechnical drilling performed by a Requester

During a Section 408 review under this Review Plan, it may be determined that the procedures in EC 1165-2-220 regarding the issuance of a Section 408 permission do not apply, and at that point the SWL Review Team will refer the proposed activity to other Little Rock District Divisions for review under different applicable procedures.

Examples of such proposed activities that fall into other processes within the Little Rock District, (EC 1165-2-220, paragraph 9) include:

- Emergency actions performed under Public Law 84-99 that meet certain criteria
- Operation and maintenance activities conducted by the Non-Federal Sponsor that meet certain criteria, in accordance with 33 CFR 208.10
- Geotechnical drilling conducted by the Non-Federal Sponsor that meet certain criteria
- Real estate outgrant reviews that occur on real property under control of the USACE that meet certain criteria
- Non-Federal Sponsor construction of a water resources development project that meet certain criteria
- Actions subject to SWL Regulatory Program authorities (Section 404 and/or Section 10)

This Review Plan does not cover the following types of Section 408 requests:

- Requests requiring a Safety Assurance Review (SAR)
- Requests covered under a Categorical Permission, as described in EC 1165-2-220
- Requests using the multi-phased review approach, as described in EC 1165-2-220
- Requests that propose any activity or construction that would penetrate the existing footprint or foundation of an existing water-impounding USACE federally authorized Civil Works project (dams)

Possible issues that could trigger using an alteration-specific review plan include whether the proposed alteration has public safety concerns, is controversial, is precedent setting, has significant interagency interest, has significant environmental impacts, or significant impacts to the public interest review factors.

d. Review Management Organization

The Review Management Organization (RMO) is responsible for managing the overall review process effort as described in this Review Plan. The RMO for this Review Plan is the Little Rock District.

e. References

The following is a list of references that the Little Rock District will consider in the review of Section 408 requests covered by this Review Plan. Other references that are not listed may be considered, if applicable.

- EC 1110-2-6066 Design of I-Walls, 1 April 2011
- EC 1165-2-220 Policy and Guidance for Processing Requests to Alter US

Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408, 10 September 2018

- EM 1110-1-1005 Control and Topographic Surveying, 1 January 2007
- EM 1110-1-1804 Geotechnical Investigations, 1 January 2001
- EM 1110-1-1904 Settlement Analysis, 30 September 1990
- EM 1110-2-1418 Channel Stability Assessment for Flood Control Projects, 31 October 1994
- EM 1110-2-1601 Hydraulic Design of Flood Control Channels, 1 July 1991/30 June 1994
- EM 1110-2-1619 Risk-Based Analysis for Flood Damage Reduction Studies, 1 August 1996
- EM 1110-2-1902 Slope Stability, 31 October 2003
- EM 1110-2-1906 Laboratory Soils Testing, 20 August 1986
- EM 1110-2-1913 Design and Construction of Levees, 30 April 2000
- EM 1110-2-1914 Design, Construction, and Maintenance of Relief Wells, 29 May 1992
- EM 1110-2-2002 Evaluation and Repair of Concrete Structures, 30 June 1995
- EM 1110-2-2007 Structural Design of Concrete-Lined Flood Control Channels, 30 April 1995
- EM 1110-2-2100 Stability Analysis of Concrete Structures, 1 December 2005
- EM 1110-2-2104 Strength Design for Reinforced-Concrete Hydraulic Structures, 20 August 2003
- EM 1110-2-2502 Retaining and Flood Walls, 29 September 1989
- EM 1110-2-2504 Sheet Pile Walls, 31 March 1994
- EM 1110-2-2902 Conduits, Culverts, and Pipes, 31 March 1998
- ER 500-1-1 Civil Emergency Management Program, 30 September 2001
- ER 1105-2-101 Risk Analysis for Flood Damage Reduction Studies, 3 January 2006
- ER 1110-2-1156 Safety of Dams – Policy and Procedures, 31 March 2014
- ER 1110-1-1807 Drilling in Earth Embankment Dams and Levees, 31 December 2014
- ER 1110-2-1942 Inspection, Monitoring, and Maintenance of Relief Wells, 25 September 1988
- ER 1165-2-132 Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects, 26 June 1992
- ETL 1110-2-575 Evaluation of I-Walls, 1 September 2011
- ETL 1110-2-583 Engineering and Design: Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures, 30 April 2014
- 33 CFR 208.10 Local flood protection works; maintenance and operation of structures and facilities
- 44 CFR 65.10 Mapping of areas protected by levee systems
- SWLP 1150-2-1 Criteria for Design and Construction within the Limits of Existing Federal projects, 1 October 2013
- Director's Policy Memorandum Civil Works Programs Number DPM CW 2018-10 Strategy for Synchronization of the Regulatory and 408 Programs, 17 August 2018
- Little Rock District Regulatory Division Coordination Standard Operating Procedure (SOP) for Activities Involving 408 Review and/or Permits, 10 April 2019
- Memorandum CECW-HS, 29 November 2011, subject: US Army Corps of Engineers, Policy for Development and Implementation of System-Wide Improvement Frameworks (SWIFs)

2. Review Requirements

a. Level of Review Required

The review of each alteration request covered by this Review Plan shall include a SWL Review Team, (EC 1165-2-220, paragraph 12.c). The SWL Review Team shall consist of subject matter experts based on expertise, experience, and skills, from multiple disciplines as necessary to ensure a comprehensive review. The level of review for each Section 408 review will be proportional to the complexity and scope of the proposed alteration. EC 1165-2-220 allows for a tailoring of reviews specific to proposed alterations. The SWL Review Team will use guidance in EC 1165-2-220, and the applicable references above, to determine the specific review guidance necessary for each Section 408 request.

b. Review Purpose

The review of all work products will be in accordance with the guidelines established within this Review Plan. The purpose of this review is to ensure the proper application of established criteria, regulations, laws, codes, principles and professional practices. For the purposes of Section 408, the SWL Review Team will make the following determinations:

1) Impair the Usefulness of the Project Determination. The objective of this determination is to ensure that the proposed alteration will not limit the ability of the project to function as authorized and will not compromise or change any authorized project conditions, purposes, or outputs.
2) Injurious to the Public Interest Determination. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks.
3) Legal and Policy Compliance Determination. A determination will be made as to whether the proposed alteration meets all legal and policy requirements.

3. Quality Control

Quality control is the responsibility of the Requester and/or the Non-Federal Sponsor. All submittal documents (including data, reports, analyses, environmental documents, etc.) shall undergo Quality Control (QC). Quality Control is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements.

4. SWL Review Team

The Little Rock District Review Team (SWL Review Team) is comprised of reviewers with the appropriate expertise to conduct a comprehensive review in a manner commensurate with the types of proposed alterations described in Section 1.c of this Review Plan. The SWL Review Team expertise required for use of this Review Plan are listed below:

SWL Review Team: The SWL Review Team members for proposed Section 408 requests that have potential impacts to federally authorized projects: within the levee safety program – the Levee Safety Manager; within the dam safety program - the Dam Safety Manager. The SWL Section 408 Coordinator will identify and assemble the appropriate disciplines necessary for the review. At a minimum, the SWL Review Team may include: a review by a licensed Professional

Engineer for the technical portion of the review; a qualified biologist for the environmental and National Environmental Policy Act (NEPA) compliance; a qualified archeologist or cultural resources professional for compliance with applicable cultural resources laws; and an attorney with the District Office of Counsel for legal and policy compliance.

SWL Section 408 Coordinator: The SWL Section 408 Coordinator is the program manager for the SWL 408 program. The SWL Section 408 Coordinator will assist the SWL Review Team Lead on identifying and assembling the team for specific 408 request reviews. The SWL Section 408 Coordinator is generally responsible for communication between the SWL Review Team and other disciplines within the Little Rock District. The SWL Section 408 Coordinator will lead in the preparation of SWL Review Team documents, routing of decision letters, memoranda, and other documents, and is responsible for communication with USACE Southwestern Division (SWD), USACE Headquarters (HQUSACE), and the Requester. SWL Review Team disciplines and areas of expertise may include, but are not limited to:

- SWL Levee Safety Program Manager
- SWL Dam Safety Program Manager
- SWL Dam Safety Officer
- Structures
- Civil Engineering
- Geotechnical
- Hydrology and Hydraulics
- Environmental and Cultural Resources/Regional Planning and Environmental Center
- Office of Counsel
- Operations
- Regulatory[1]
- Real Estate[2]

Additionally, the SWL Review Team and the SWL Section 408 Coordinator may determine that assistance or reviewers outside of the Little Rock District may be necessary. These may include, but are not limited to:

- SWD Levee Safety Program Manager
- SWD Dam Safety Program Manager
- SWD Section 408 Coordinator
- USACE Risk Management Center

[1] The Little Rock District Regulatory Division is responsible for executing Regulatory authorities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The Little Rock District Regulatory Division has developed a document titled, *Regulatory Division Coordination Standard Operating Procedure (SOP) for Activities Involving 408 Review and/or Permits*, approved 3 April 2019. This SOP outlines workflow and coordination procedures between the Little Rock District Regulatory Division and the SWL Section 408 Coordinator. This SOP was developed pursuant to requirements in the *Director's Policy Memorandum, Civil Works Programs, Number DPM CW 2018-10, Strategy for Synchronization of the Regulatory and 408 Program*, dated 17 August 2018.

[2] The Little Rock District Real Estate Chief, Management and Disposal will review the Summary of Findings for each Section 408 decision and certify that the alteration meets the requirements in EC 1165-2-220, paragraph 15.b. For alterations which occur on real property of the United States or USACE reservoirs, different review processes may be required (EC 1165-2-220, paragraph 9).

5. Execution Plan

a. Review Procedures

Reviews will be conducted in a manner which promotes communication regarding the quality and adequacy of the required documentation. The SWL Review Team will review the documents provided by the Requester.

The four key parts of a review comment will normally include:

1) The review concern. Identify the deficiency or incorrect application of policy, guidance, or procedures.
2) The basis for the concern. Cite the appropriate law, policy, guidance, or procedure that has not been properly followed.
3) The significance of the concern. Indicate the importance of the concern with regard to its potential impact on the ability of the District to make a decision as to whether to approve or deny the Section 408 request.
4) The probable specific action needed to resolve the concern. Identify the action(s) that the Requester must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The SWL Review Team documentation must include the text of each SWL Review Team concern, a brief summary of the pertinent points in any discussion, including any vertical coordination, and the agreed upon resolution.

b. Final Review and Decision Procedures

These procedures will be followed to satisfy EC 1165-2-220, paragraph 15:

- Review findings will be documented in the Summary of Findings for the Section 408 request.
- SWL Review Team will add statements summarizing their review in the applicable Summary of Findings paragraphs.
- Lead for preparing the Summary of Findings will be the SWL Section 408 Coordinator.
- Summary of findings will be circulated informally amongst the SWL Review Team for input and documentation of the review findings.
- SWL Review Team will add and modify the Standard Terms and Conditions, Appendix K, for the Section 408 request.
- SWL Review Team will determine if any Special Conditions are required and add these to the Summary of Findings and Section 408 Decision Letter.
- SWL Section 408 Coordinator will prepare the Section 408 Decision Package to include the Summary of Findings, Section 408 Decision Letter, Standard Terms and Conditions, any Special Conditions, and internal Staff Coordination and Router Sheet.
- Staff Coordination and Router Sheet will list District Division Chiefs at a minimum including Operations, Engineering and Construction, Regulatory, Real Estate, and Office of Counsel.

- Section 408 Decision Package will be routed to each of the District Divisions for review and approval.
- After approval of each Division within the District, the Section 408 Decision Package will be presented to the Section 408 Deciding Official[3].
- SWL Section 408 Coordinator will scan and save the Section 408 Decision Package for the administrative record.
- SWL Section 408 Coordinator will provide a copy of the Section 408 Decision letter and provide it to Regulatory Division permitter and to the Real Estate Specialist so that the specialist can transmit the real estate documents, the Section 408 decision letter and the Regulatory permit documents to the Requester/Applicant.
- SWL Section 408 Coordinator will fulfill requirements for tracking Section 408 requests throughout the process in the USACE enterprise Section 408 Tracking Database.

c. Review Schedule

Review timelines are generally governed by the statutory timelines as described in EC 1165-2-220, paragraphs 14 and 15. Each submittal of information to the SWL Review Team from the Requester will be evaluated to determine if the information and documents received comprise a complete submittal. The Requester will be notified in writing if the submittal is complete, or not complete, within 30 days of receipt. The 30-day timeline for a completeness determination is then restarted upon any subsequent submittals of information. Upon determination by the SWL that the request submittal is complete, the SWL Review Team 90-day review process is initiated. The Section 408 review will be completed within 90 days, with exceptions and procedures described in EC 1165-2-220, paragraph 15.a.

d. Review Cost

The SWL Section 408 Coordinator is responsible for budgetary requirements in accordance with EC 1165-2-220. The SWL Section 408 Coordinator will request, receive, track, and report funding and budgetary data as required by SWD and HQUSACE. The SWL Review Team will primarily use congressionally appropriated funds available from HQUSACE. A secondary source of funds would be those contributed under Section 1156(a)(2) agreements. Funds received under Section 1156(a)(2) agreements require a scope of work and itemized budget estimate. This scope of work will include a breakdown of costs for each discipline and organization code for the review, with additional details in the standard Section 1156(a)(2) templates.

[3] The District Commander is the Deciding Official for Section 408 decisions made at the District level. This has been delegated to the Deputy for Program and Project Management, Mr. Darrin Curtis.

e. Non-Federal Sponsor Coordination

The SWL Review Team will ensure that Non-Federal Sponsors are involved early in the review process, if the Requester is different than the Non-Federal Sponsor. EC 1165-2-220, paragraph 11.a requires a Statement of No Objection from the Non-Federal Sponsor as a component of a complete Section 408 request, with some exceptions. The purpose of the Statement of No Objection is to document that the Non-Federal Sponsor is aware of the scope of the Section 408 request and does not object to the request being submitted to the SWL for initiation of the Section 408 evaluation. The SWL Review Team will coordinate with the Non-Federal Sponsor throughout the Section 408 review process. The Requester has the option to work directly with the Non-Federal Sponsor early in the process, prior to the submission of a Section 408 request, in order to develop the scope of the proposed alteration.

f. Public Involvement

The SWL Review Team will ensure that public input is solicited as part of the decision-making process for each Section 408 request (EC 1165-2-220, paragraph 12.b).

NO. DACW03-9-26-26387

DEPARTMENT OF THE ARMY
CONSENT TO EASEMENT STRUCTURES
CORPS OF ENGINEERS
LITTLE ROCK DISTRICT

Project: Ozark Lake
Tract Nos.: 869E-1, 1500E-5, and 1523E

WHEREAS, the United States has acquired a perpetual flowage easement over Tract No. 869E-1, Ozark Lake, by virtue of Declaration of Taking, Civil Action No. FS-72-C-67, filed October 16, 1972, in the United States District Court, Western District of Arkansas, Fort Smith Division, and a flowage easement over Tract No. 1500E-5, Ozark Lake, by virtue of Declaration of Taking, Civil Action No. FS-73-C-62, filed June 7, 1973, in the United States District Court, Western District of Arkansas, Fort Smith Division, and a perpetual flowage easement over Tract No. 1523E, Ozark Lake, dated January 29, 1973, and recorded on February 15, 1973, in deed book 366 at page 181 of the deed records of Crawford County, Arkansas and

WHEREAS said easement grants to the Government the right of prior approval of any structure to be located within the easement area, and said area is under the administrative control of the Little Rock District, Corps of Engineers; and

WHEREAS, the United States has been requested to give consent for the construction, operation, and maintenance of an interstate on the above identified tracts.

NOW THEREFORE, the United States hereby gives consent to **Arkansas Department of Transportation, P.O. Box 2261, Little Rock, Arkansas 72203**, for the construction, operation, and maintenance of an interstate at the locations shown in red on Exhibits "A-1 & A-2," attached hereto;

PROVIDED HOWEVER, that this consent is subject to the following conditions:

1. All activities conducted on the premises shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

2. The giving of this consent does not in any way subordinate the United States' prior easement rights. The United States shall in no case be liable for any damage or injury to the structures herein consented to, which may be caused by any action of the United States under its easement, or that may result from future operations undertaken by the United States, and no claim or right to compensation shall accrue from such exercise of the United States' easement rights.

3. The United States shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the exercise of the consented activity.

4. This instrument is effective only insofar as the rights of the United States in the premises are concerned; and the consentee shall obtain such permission as may be required on account of any other existing rights. It is understood that this consent does not eliminate the necessity for obtaining any Department of the Army permit which may be required pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 3 March 1899 (30 Stat. 1151; 33 U.S.C. § 403), Section 404 of the Clean Water Act (33 U.S.C. § 1344) or any other permit or license which may be required by Federal, state, interstate or local laws in connection with the use of the premises.

5. That all construction materials and refuse are removed from the site upon completion; that the ground is restored to its original contour; and that all necessary permits are acquired prior to beginning construction.

THIS CONSENT is executed by the grantee this 1st day of July, 2026.

Arkansas Department of Transportation

Jared D. Wiley, P.E.

Director
Title

501-569-2000
Phone Number

IN WITNESS WHEREOF, I have hereunto set my hand by authority of the Secretary of the Army this 11th day of August, 2026.

By: Kimberly G. Rea
Kimberly G. Rea, CPRP
Chief, Management and Disposal Branch
Real Estate Contracting Officer

ACKNOWLEDGMENT

STATE OF ARKANSAS)
) ss.
COUNTY OF Pulaski)

On this 11 day of August, 2026, before me, Madelyn Curtis, a Notary Public, duly commissioned, qualified and acting, within and for said State and County, appeared in person the within named **Kimberly G. Rea**, being the person authorized to execute such instrument, stating her respective capacity in that behalf, to me personally well-known or satisfactorily proven to be such person, who stated that she is the **Chief, Management and Disposal Branch Real Estate Contracting Officer,** and is duly authorized in her respective capacity to execute the foregoing instrument for and in the name and on behalf of **Department of the Army, Little Rock District, Corps of Engineers,** and further stated and acknowledged that she signed, executed and delivered said foregoing instrument for the consideration, uses and purposes therein mentioned and set forth.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal this 11 day of August, 2026.

Madelyn Curtis
Notary Public

My Commission Expires: 6/6/2035

(Seal)

ACKNOWLEDGMENT

STATE OF ARKANSAS)
) ss.
COUNTY OF Saline)

On this 1st day of July, 2026, before me, Christie Heidelberg, a Notary Public, duly commissioned, qualified and acting, within and for said State and County, appeared in person the within named **Jared D. Wiley**, being the person authorized to execute such instrument, stating his respective capacity in that behalf, to me personally well-known or satisfactorily proven to be such person, who stated that he was the **Director**, and was duly authorized in his respective capacity to execute the foregoing instrument for and in the name and on behalf of **Arkansas Department of Transportation** and further stated and acknowledged that he had so signed, executed and delivered said foregoing instrument for the consideration, uses and purposes therein mentioned and set forth.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal this 1st day of July, 2026.

Christie Heidelberg
Notary Public

My Commission Expires: July 26, 2029

(Seal)

CHRISTIE HEIDELBERG
COMM. EXP.
7-26-2029
No. 12707937
SALINE
COUNTY
NOTARY PUBLIC - ARKANSAS

Instrument No. DACW03-9-26-26387
Ozark Lake
AR Department of Transportation

CERTIFICATE OF AUTHORITY

I, Christie Heidelberg, certify that I am the Executive Assistant
(Printed Name of Person Signing This Form) (Clerk or Approving Official)

of AR Dept. of Transportation; that Jared D. Wiley,
(Printed Name of Grantee) (Printed Name of Person Signing the Instrument)

who signed the forgoing instrument on behalf of the grantee was then the

Director of AR Dept. of Transportation.
(Title of Person Signing the Instrument) (Printed Name of Grantee)

I further certify that the said officer was acting within the scope of powers delegated to this officer by the governing body of the grantee in executing said instrument.

ARKANSAS DEPARTMENT OF TRANSPORTATION

By: Christie Heidelberg

Title: Executive Assistant

Date: July 1, 2026

Signature: Christie Heidelberg

***NOTE:** The person signing this document is certifying that the individual signing the Real Estate Contract has the power and authority to sign the document on behalf of the grantee. The individual completing this document must be the clerk or an appropriate official and must not be the same individual signing the Real Estate Contract.

OZARK JETTA-TAYLOR L&D

DESCRIPTION:
CONSENT TO EASEMENT FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF A HIGHWAY

OUTGRANT NO:
DACW03-9-26-26387

AREA:
8.44 ACRES

TRACT(S):
869E-1, 1500E-5, AND 1523E

COUNTY(S):
CRAWFORD

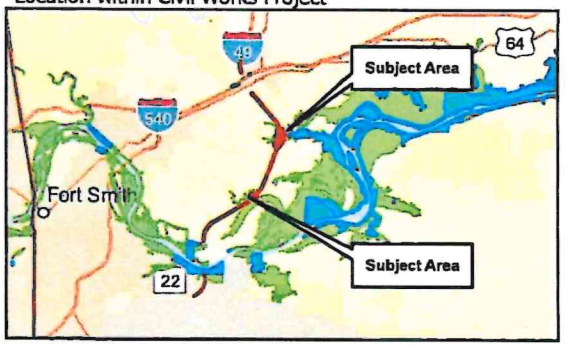
STATE(S):
ARKANSAS

Legend

- TRACT NUMBER
- USACE EASEMENT AREA
- SUBJECT AREA

Location within SWL District Boundary

Location within Civil Works Project



US Army Corps of Engineers
Little Rock District
Real Estate Division

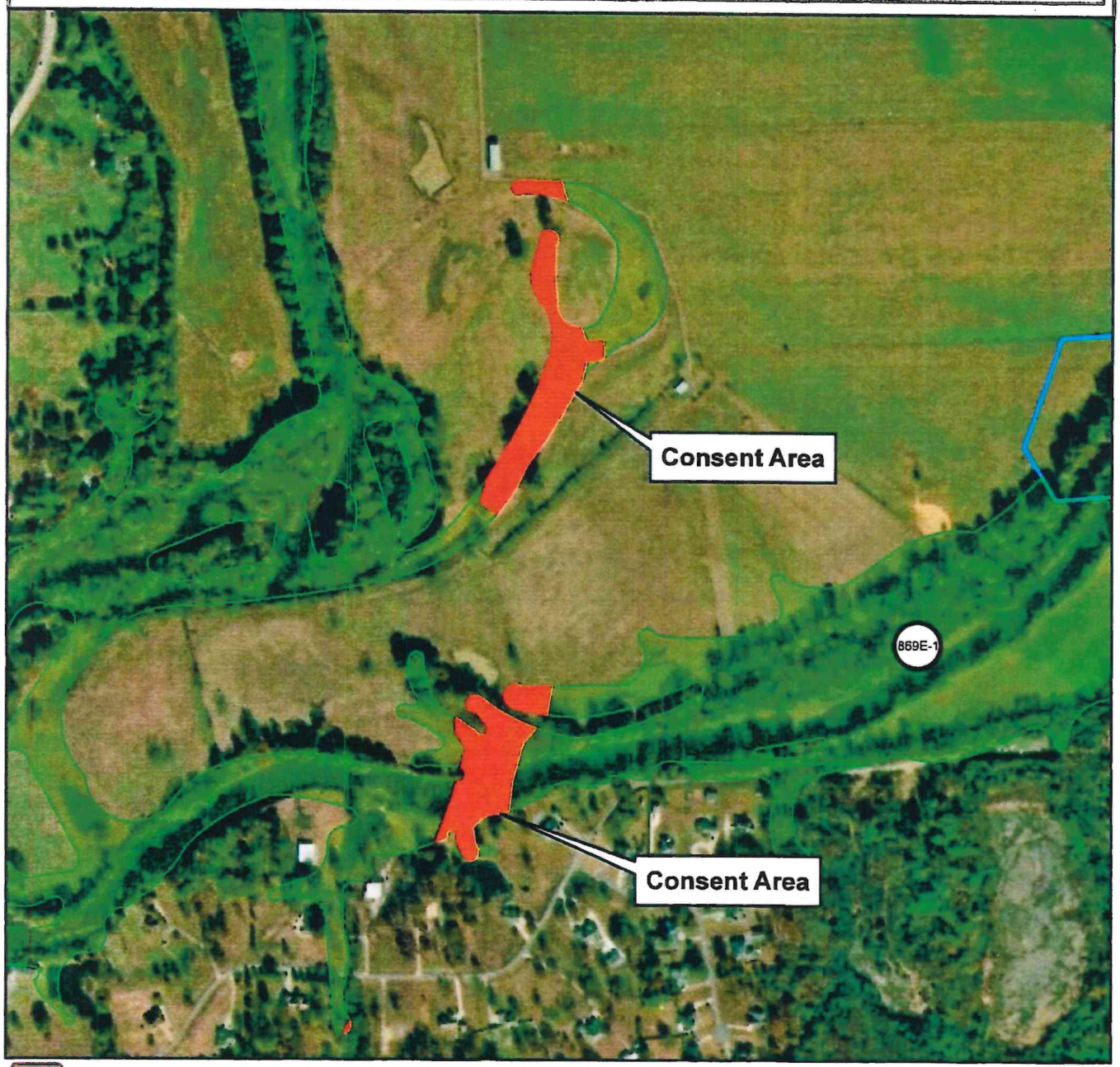
0 1,500 3,000 6,000 US Feet

Scale: 1:24,000

N W E S

DATE: May 18, 2026
Exhibit "A-1"
Spatial Reference
Name: NAD 1983 UTM Zone 15N

OZARK JETTA-TAYLOR L&D



DESCRIPTION:
CONSENT TO EASEMENT FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF A HIGHWAY

OUTGRANT NO:
DACW03-9-26-26387

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869E-1, 1500E-5, AND 1523E

COUNTY(S):
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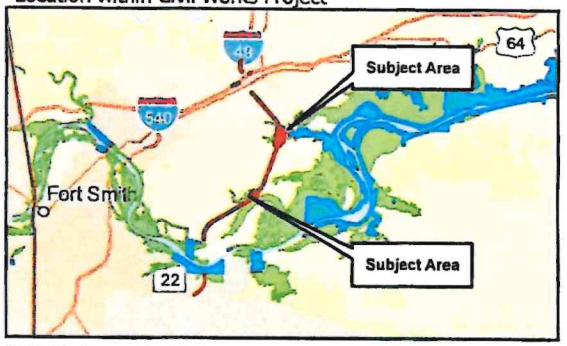
STATE(S):
ARKANSAS

Legend

- TRACT NUMBER
- USACE EASEMENT AREA
- SUBJECT AREA

Location within SWL District Boundary

Location within Civil Works Project



US Army Corps of Engineers
Little Rock District
Real Estate Division

0 500 1,000 2,000 US Feet

Scale: 1:7,500

N W E S

DATE: May 18, 2026
Exhibit "A-2"
Spatial Reference
Name: NAD 1983 UTM Zone 15N

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

September 16, 2024

Regulatory Division

STANDARD PERMIT NO. **SWL 2021-00223**

Mr. Josh Seagraves
Division Head, Environmental Division
Arkansas Department of Transportation
PO Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Seagraves:

Under authority of Section 404 of the Clean Water Act (33 U.S. Code 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403), enclosed is Department of the Army Permit No. **SWL 2021-00223,** which authorizes work, including the placement of dredged and fill material, in waters of the United States associated with constucting a 14.5-mile segment of future Interstate 49. The project will extend from Barling to Alma and include a new bridge over the Arkansas River at Springhill Park. All construction will be on new location and will occur in four phases/ARDOT jobs. The new highway will be a four-lane fully controlled access roadway with an 80-foot-wide median. The new bridge will be located at Navigation Mile 291.6 on the McClellan-Kerr Arkansas River Navigation System. The linear project is located in section 3, T. 7 N., R. 31 W., in sections 8, 12, 14, 15, 22, 27, and 34, T. 8 N., R. 31 W., in section 6, T. 8 N., R. 30 W., in sections 6, 7, 17, 18, 20, 29, 31 and 32, T. 9 N., R. 30 W., and in sections 1 and 12, T. 9 N., R. 31 W., Sebastian and Crawford Counties, Arkansas.

The proposed activity shall be constructed/conducted and maintained as described in the permit. If changes are proposed in the design or location of the proposed activity, you are required by law to submit revised plans to the District Engineer for approval before construction of the change is begun.

It is your responsibility to understand and comply with all of the conditions of the permit and to make any of your employees or agents involved in this operation continuously aware of the permit conditions.

Your project is located on property over which the Government has acquired flowage easement and in fee. The appropriate Consent to Easements, and Easements have been sent to the ARDOT Right of Way Division for review and signature.

Also, it has been determined under Section 14 of the Rivers and Harbors Act of 1899, as amended (33 USC 408) that the activities authorized do not impair the usefulness of the USACE Navigation project and is not injurious to the public interest. You must comply with all of the

Section 408 permit special conditions and the conditions in the "Standard 408 Terms and Conditions" under Engineer Circular 1165-2-220, dated 10 September 2018, and forwarded to ARDOT on 5 September 2024.

Your cooperation in the Regulatory Program is appreciated. If you have any additional questions about this permit or any of its provisions, please contact Mr. Johnny McLean at (501) 340-1382 and refer to Permit No. **SWL 2021-00223, Future I-49, Barling to Alma, (ARDOT Job Nos. 040901, 040902, 040903 and 040904).**

Sincerely,

Sarah Chitwood
Chief, Regulatory Division

Enclosures

cc:
Lindsey Lewis, USF&WS, w/cy permit and dwgs
Dan Bagby, EPA, w/cy permit and dwgs
Jim Wise, ADEE-DEQ, w/cy permit and dwgs
Allan Monterroza and Eric Washburn, USCG, w/cy permit and dwgs
Randal Looney, FHWA, w/cy permit and dwgs
Todd Elder, Counsel, w/cy permit and dwgs
Gabe Knight, Navigation, w/cy permit and dwgs
Jaysson Funkhouser, Section 408, w/cy permit and dwgs
Blake Allred, Eng. & Construction, w/cy permit and dwgs
Aaron McGee, McClellan-Kerr PO, w/cy permit and dwgs
Robert Ahlert, Russellville PO, w/cy permit and dwgs
Brian Raley and Kim Rea, Real Estate, w/cy permit and dwgs
Tommy Land, Arkansas Commissioner of State Lands, w/cy permit and dwgs
William Penn & Kyle Green, GIS, w/cy permit and dwgs
Pablo Bacon, Regulatory Enforcement, w/cy permit and dwgs

DEPARTMENT OF THE ARMY PERMIT

Permittee: **Arkansas Department of Transportation (ARDOT)**

Permit No.: **SWL 2021-00223**

Issuing Office: Department of the Army
Little Rock District
PO Box 867
Little Rock, Arkansas 72203-0867

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

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **The project will construct a 14.5-mile segment of Future Interstate 49 which will improve system linkage for a north/south national interstate corridor, accommodate safe travel and improve modal connectivity.**

The project will construct approximately 14.5 miles of highway embankment on new location beginning at State Highway 22 in Barling, extending northward and terminating at Interstate 540 near Alma. The project includes construction of a new bridge over the Arkansas River at Navigation Mile 291.6. The project will be constructed in four phases (ARDOT Jobs 040901, 040902, 040903 and 040904) and is located in the Frog Bayou-Mulberry River watershed. The project will permanently adversely impact approximately 9,253 linear feet of stream and 23.93 acres of wetlands for right-of-way clearing, embankment fill, and bridge and culvert construction. Discharges include approximately 83,884 cubic yards of earthen fill, rock and concrete.

ARDOT will mitigate for the unavoidable wetlands and stream channel impacts with 267.67 wetland credits and 58,459.4 stream credits from one or more approved mitigation banks that service the area. The location and general plan for the proposed work are shown on the enclosed sheets 1 through 37 of 37.

Project Location: The project is located in section 3, T. 7 N., R. 31 W., in sections 8, 12, 14, 15, 22, 27, and 34, T. 8 N., R. 31 W., in section 6, T. 8 N., R. 30 W., in sections 6, 7, 17, 18, 20, 29, 31 and 32, T. 9 N., R. 30 W., and in sections 1 and 12, T. 9 N., R. 31 W., Sebastian and Crawford Counties, Arkansas.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2029**. If you find

that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

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

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

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

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

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

Special Conditions:

1. **ARDOT shall notify the U.S. Army Corps of Engineers Little Rock District Transportation Program Manager of any additional fill proposed in waters of the United States to construct the roadway embankment, bridges and culverts. This includes all activities associated with the discharge and excavation of material in waters of the United States by any ARDOT contractor. Also, all ARDOT contractors shall be furnished and required to implement the conditions of the Standard Permit and receive additional authorization required for all associated activities in waters of the United States. (Note: Standard Permit modifications generally require a minimum 30-60 day review.)**

2. **ARDOT shall implement ARDOT's Standard Erosion Control Measures during all construction phases of the highway. Erosion control measures will be maintained before, during and after construction of the project. All disturbed areas along the highway right-of-way shall be seeded, planted or given some other type of equivalent**

protection against subsequent erosion during construction and upon completion of the project.

3. **ARDOT shall place all construction debris, including any excess material, on land in such a manner to prevent it from entering or being discharged in any waterway.**

4. **Upon completion of the project, ARDOT will restore all manipulated stream channels, wetlands and riparian zones to preconstruction conditions and reestablish native vegetation.**

5. **ARDOT agrees to mitigate for the impacts to 9,253 linear feet of stream channel with 58,459.4 stream credits from an approved mitigation bank. Documentation for the bank transaction will be provided to the Transportation Program Manager within 90 days of the final permit issuance.**

6. **ARDOT agrees to mitigate for the impacts to 23.93 acres of wetlands with 267.67 wetland credits from an approved mitigation bank. Documentation for the bank transaction will be provided to the Transportation Program Manager within 90 days of the final permit issuance.**

7. **ARDOT agrees to coordinate with the U.S. Fish and Wildlife Service for any offsite tree clearing activities which will occur within 150 feet of any known Northern Long-eared Bat (NLEB) occupied maternity roost tree during the pup rearing season (defined as May 1-July 31) or within 0.25-mile of any NLEB hibernaculum.**

8. **ARDOT agrees to coordinate with the U.S. Fish and Wildlife Service for any offsite tree clearing activities which will occur during the Indiana Bat (IBAT) summer active period, March 15-November 15, or within 0.5-mile of any IBAT hibernaculum.**

9. **ARDOT agrees to coordinate with the U.S. Fish and Wildlife Service for any offsite activities that will result in 2.0 acres or more of land disturbance and potentially impact the American Burying Beetle (ABB).**

10. **Any work adjacent to or in the navigation channel must be coordinated with the U.S. Coast Guard (USCG) Bridge Division in St. Louis, USCG Sector Lower Mississippi River in Memphis and USACE Little Rock District, a minimum of 14 days in advance so that the appropriate Navigation Notice(s) can be published. You may accomplish this coordination either by phone or email. The contact information is as follows: Allan Monterroza (314-269-2434) <Allan.O.Monterozza@uscg.mil>, and USCG Sector Lower Mississippi River-Command Center (901-521-4804) <stl-smb-seclmr-cc@uscg.mil> or USCG Sector Lower Mississippi River-Waterways Management (901-521-4725) <stl-smb-seclmr-wwm@uscg.mil>, and Gabe Knight (501-324-5096) <Gabriel.J.Knight@usace.army.mil >.**

11. **Any work vessel (push boat, barge, etc.) must be manned and under power at all times (24 hours per day), or moored in an area with approved anchorage.**

12. ARDOT must install and maintain, at their expense, any safety lights, signs and signals required by the US Coast Guard (USCG), through regulations or otherwise, on ARDOT's fixed structures. To receive a USCG Private Aids to Navigation marking determination, at no later than 60 days prior to installation of any fixed structures in navigable waters and/or prior to installation of any floating private aids to navigation, ARDOT is required to contact the Eighth Coast Guard District (dpw), 500 Poydras Street Suite 1230, New Orleans, Louisiana 70130, (504) 671-2328 or via email to: <D8oanPATON@usgc.mil>. For general information related to Private Aids to Navigation, please visit the Eighth CG District website at: https://www.atlanticarea.uscg.mil/District-8/District-Divisions/Waterways/PATON/.

13. ARDOT understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, ARDOT will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

14. ARDOT will notify the U.S. Army Corps of Engineers Little Rock District Transportation Program Manager when each phase of the project construction begins so that Compliance inspections can be performed.

Further Information:

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

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

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

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

2. Limits of this authorization:

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

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

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

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

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

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

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

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

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

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

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

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

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

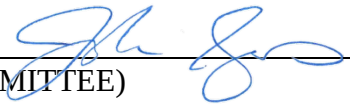
b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

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

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

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

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



(PERMITTEE) 9/13/2024 (DATE)

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

Pursuant to the direction from Colonel Damon M. Knarr, District Engineer:

Sarah Chitwood
Chief, Regulatory Division

September 16, 2024 (DATE)

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

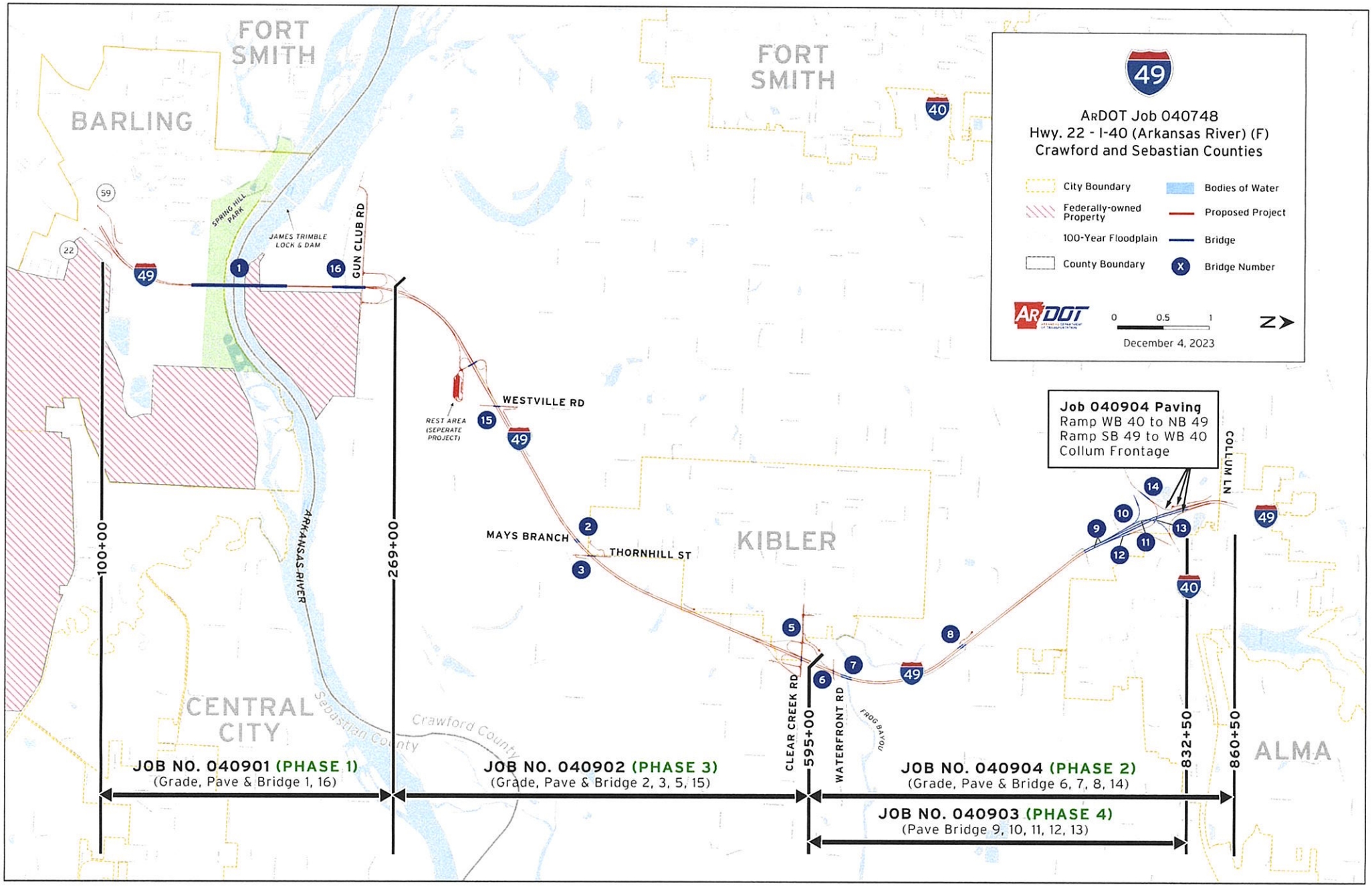
(TRANSFEREE) (DATE)

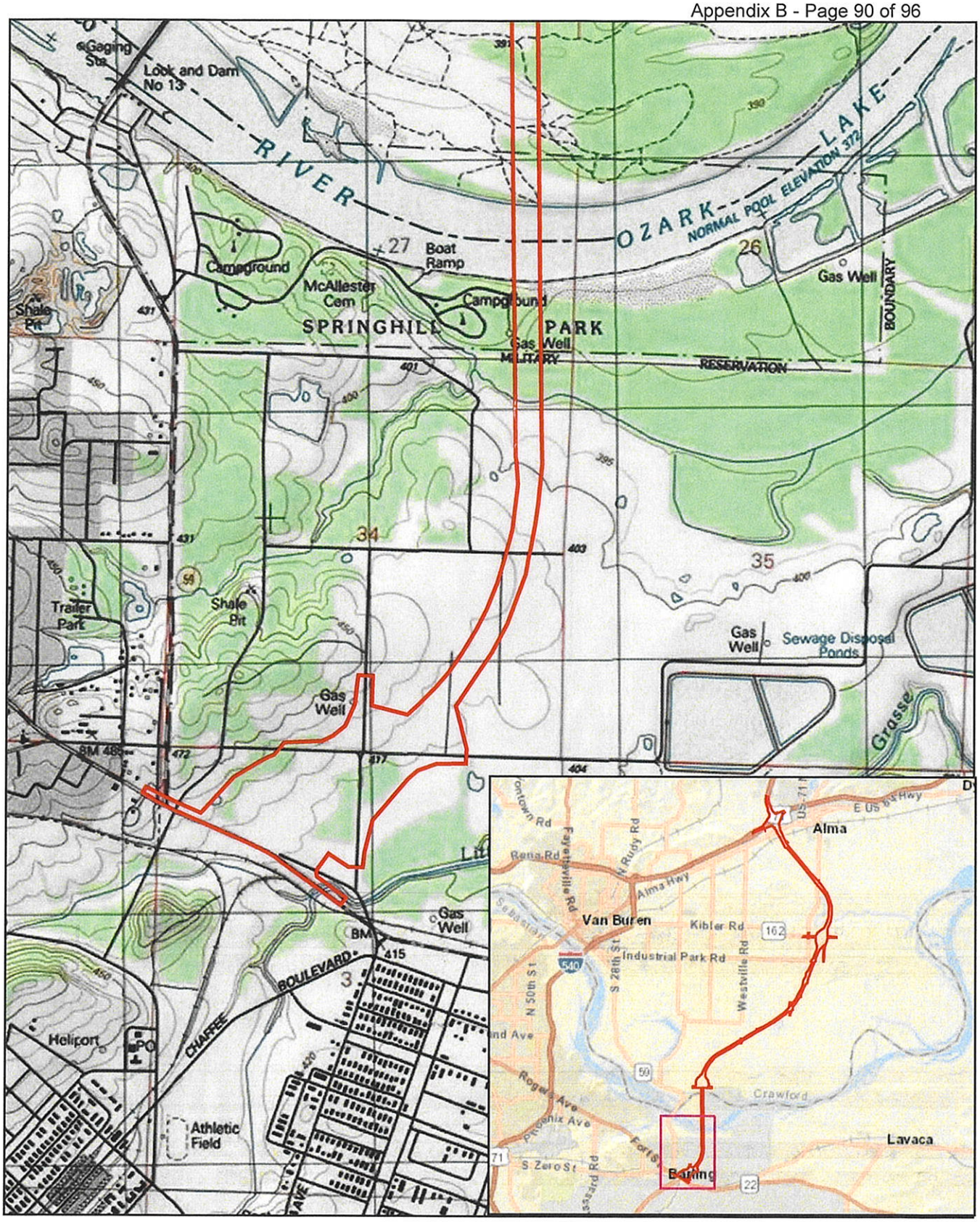
PROJECT LOCATION MAP

I-49 Project from Highway 22 to I-40

Crawford and Sebastian Counties, Arkansas

Standard Permit No. SWL 2021-00223
Arkansas Dept. of Transportation
Future I-49, Barling to Alma
Crawford and Sebastian Counties
September 2024 **Sheet 1 of 37**


FORT SMITH
BARLING
FORT SMITH
KIBLER
CENTRAL CITY
ALMA
49
ARDOT Job 040748
Hwy. 22 - I-40 (Arkansas River) (F)
Crawford and Sebastian Counties
City Boundary
Federally-owned Property
100-Year Floodplain
County Boundary
Bodies of Water
Proposed Project
Bridge
Bridge Number
ARDOT
0 0.5 1
December 4, 2023
Job 040904 Paving
Ramp WB 40 to NB 49
Ramp SB 49 to WB 40
Collum Frontage
SPRING HILL PARK
JAMES TRIMBLE LOCK & DAM
GUN CLUB RD
REST AREA (SEPERATE PROJECT)
WESTVILLE RD
MAYS BRANCH
THORNHILL ST
ARKANSAS RIVER
Sebastian County
Crawford County
CLEAR CREEK RD
WATERFRONT RD
FROG BAYOU
COLLUM LN
100+00
269+00
595+00
832+50
860+50
JOB NO. 040901 (PHASE 1)
(Grade, Pave & Bridge 1, 16)
JOB NO. 040902 (PHASE 3)
(Grade, Pave & Bridge 2, 3, 5, 15)
JOB NO. 040904 (PHASE 2)
(Grade, Pave & Bridge 6, 7, 8, 14)
JOB NO. 040903 (PHASE 4)
(Pave Bridge 9, 10, 11, 12, 13)



Scale: 1:24,000

N

I-49 PROJECT RE-EVALUATION

From SH 22 to I-40

Crawford and Sebastian Counties, Arkansas

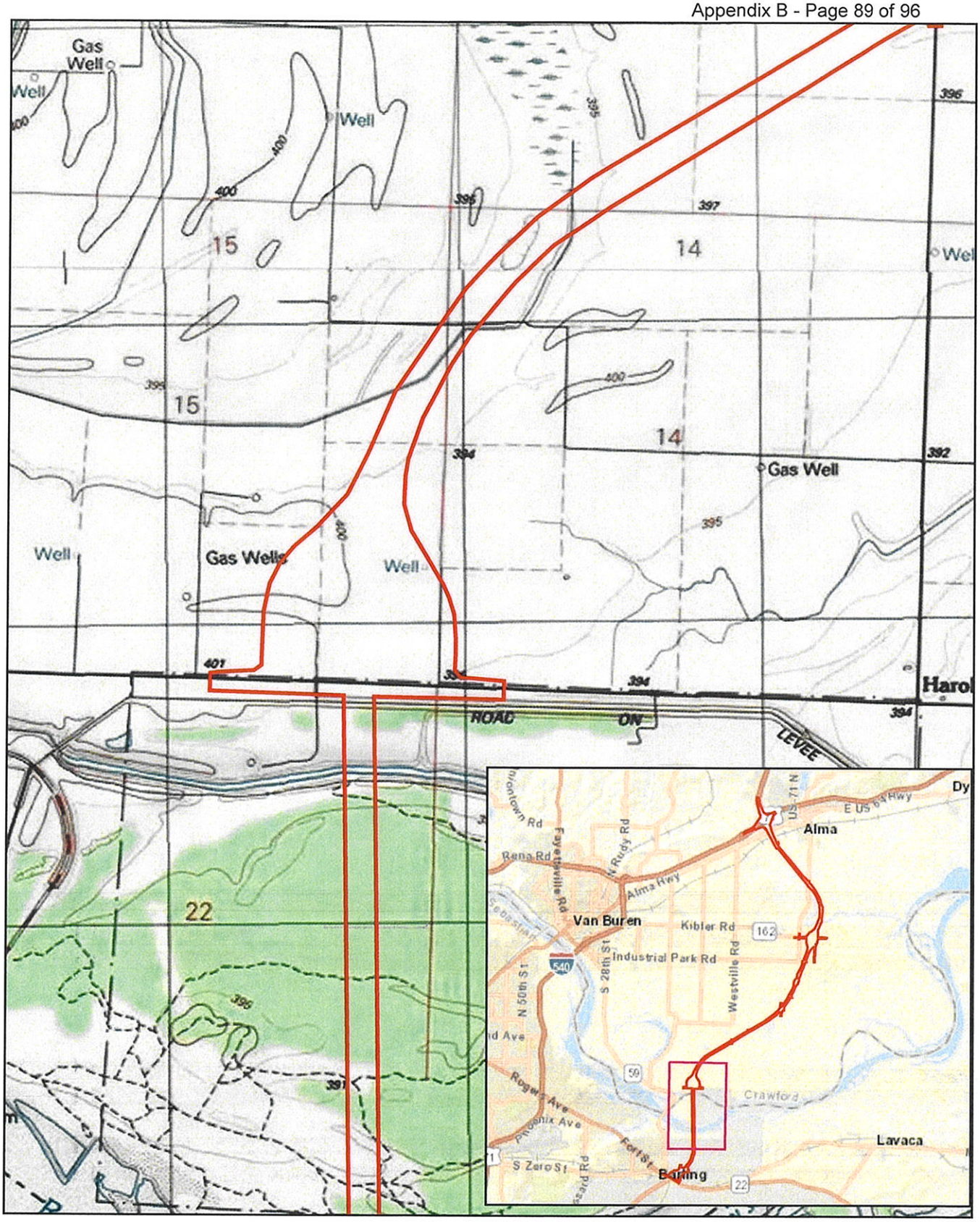
Sheet 5 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Barling 1987



Scale: 1:24,000

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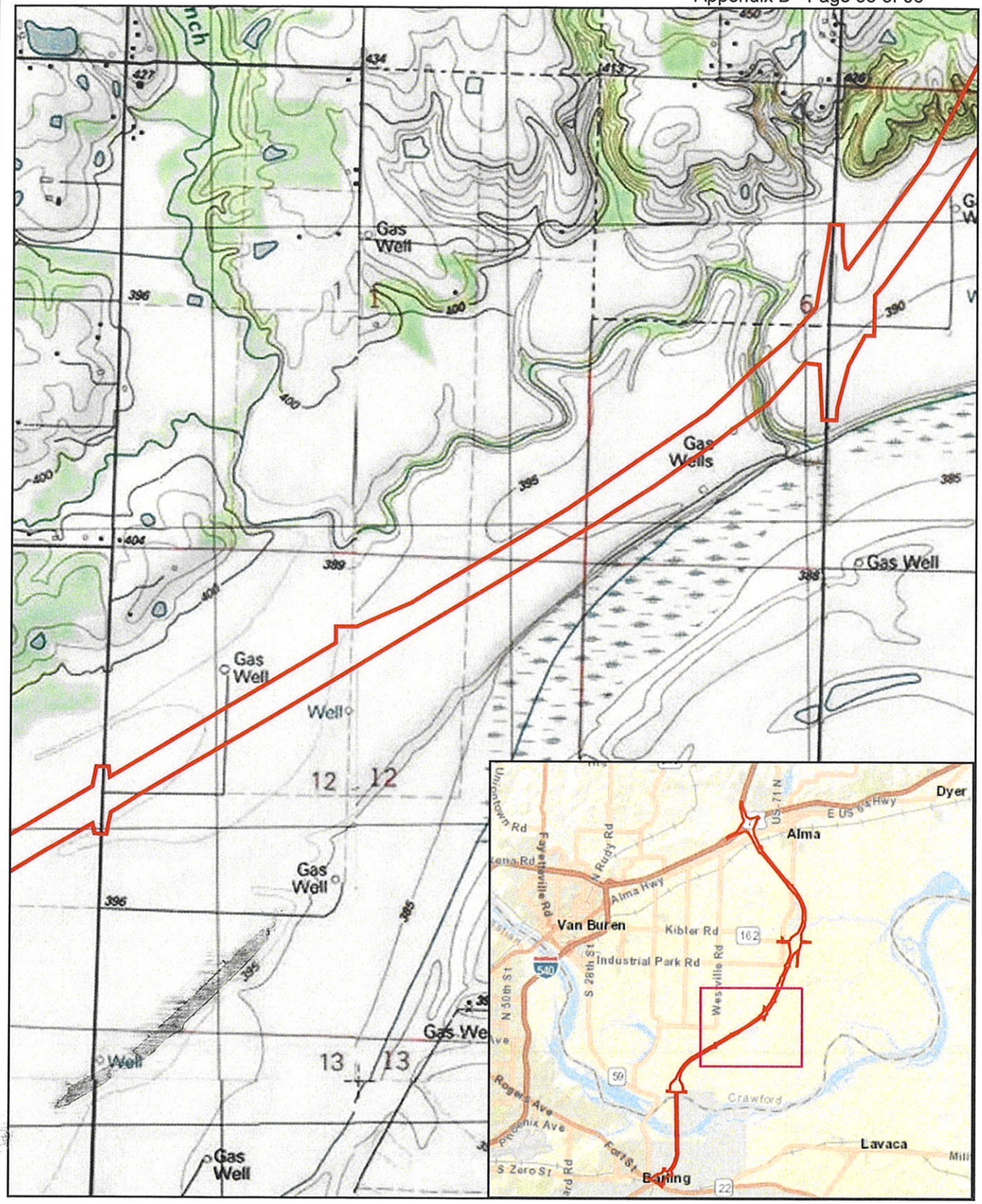
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 4 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987



Scale: 1:24,000

N

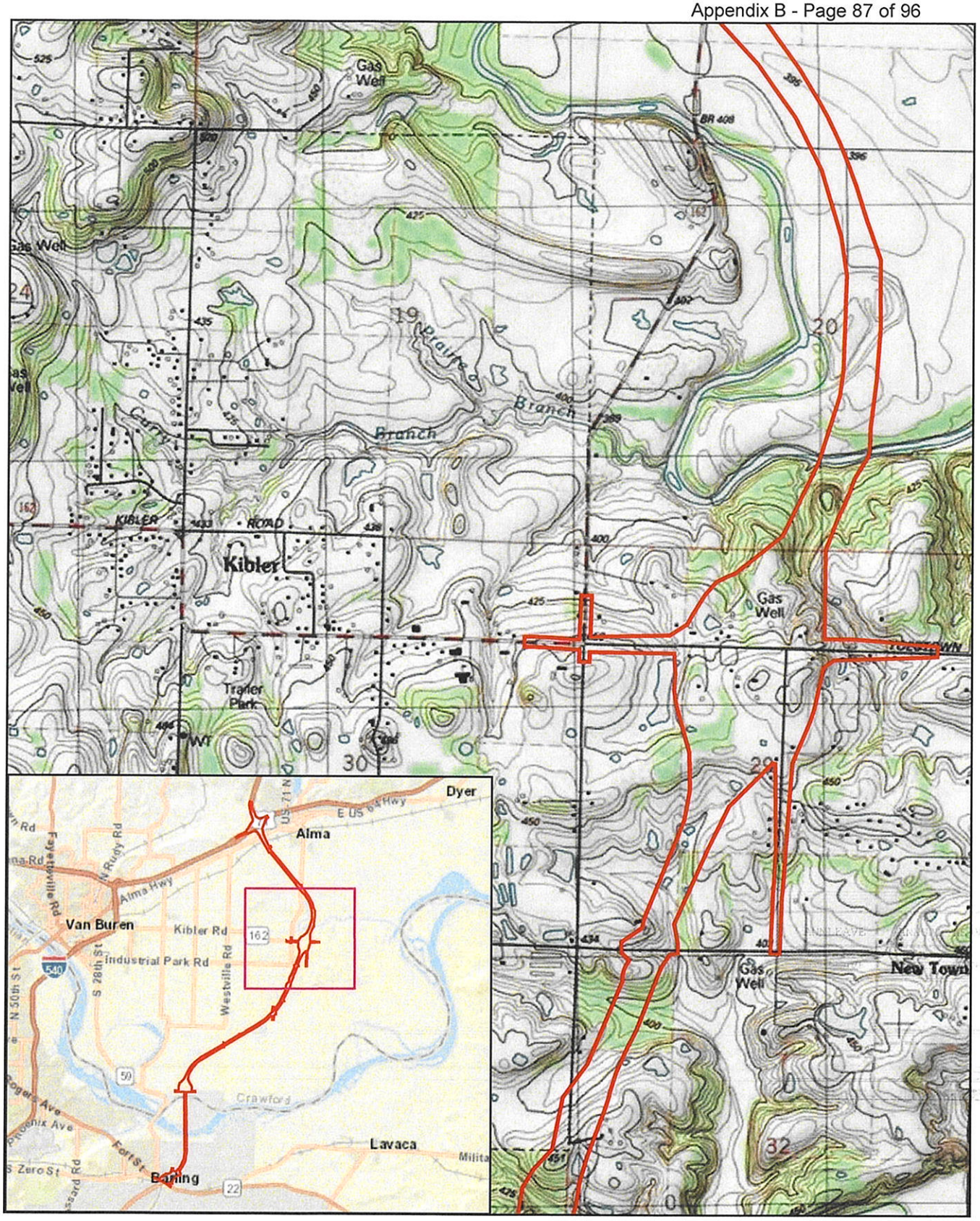
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 3 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987
Barling 1987



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Scale: 1:24,000

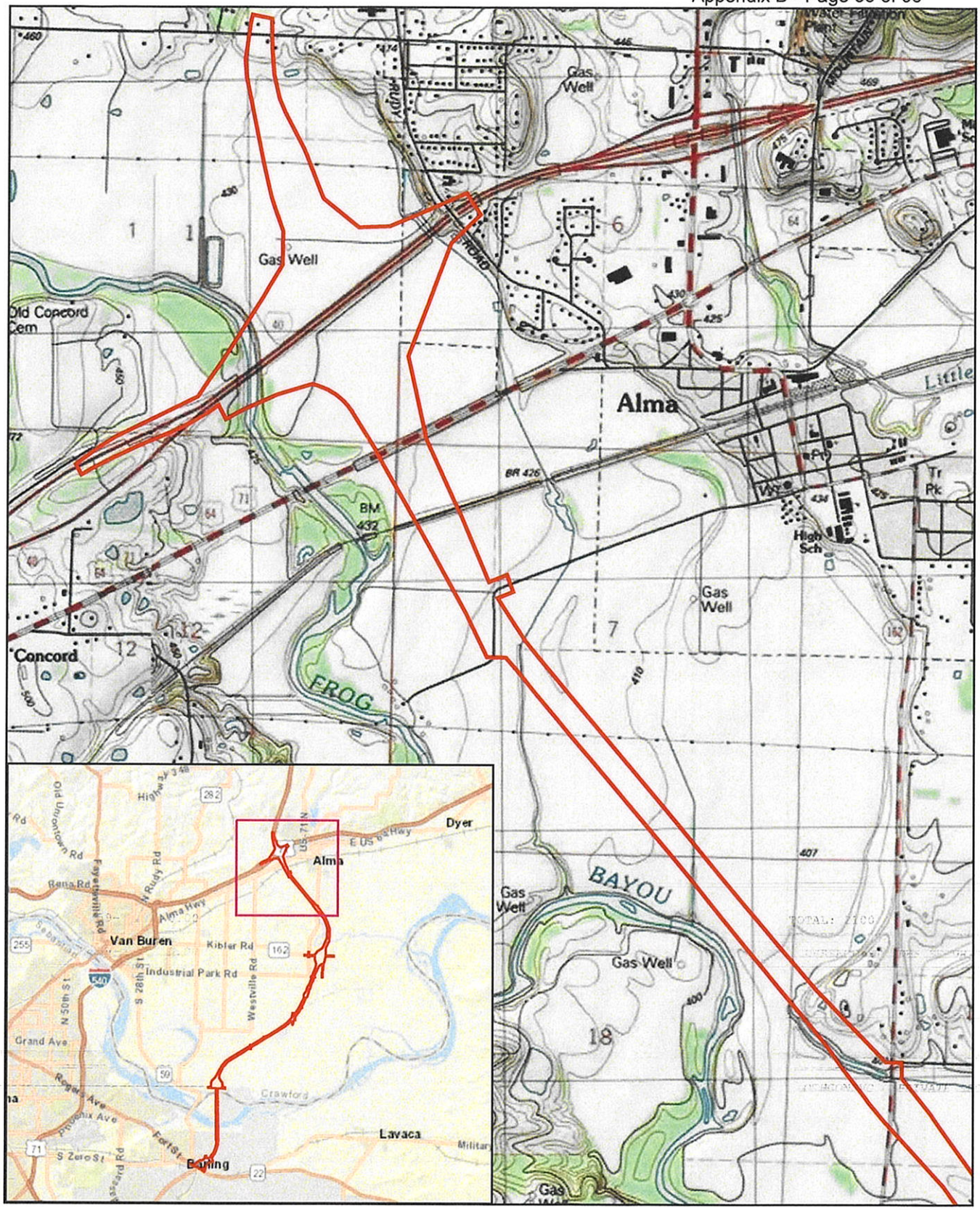
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 2 of 5

Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1987



Scale: 1:24,000

N

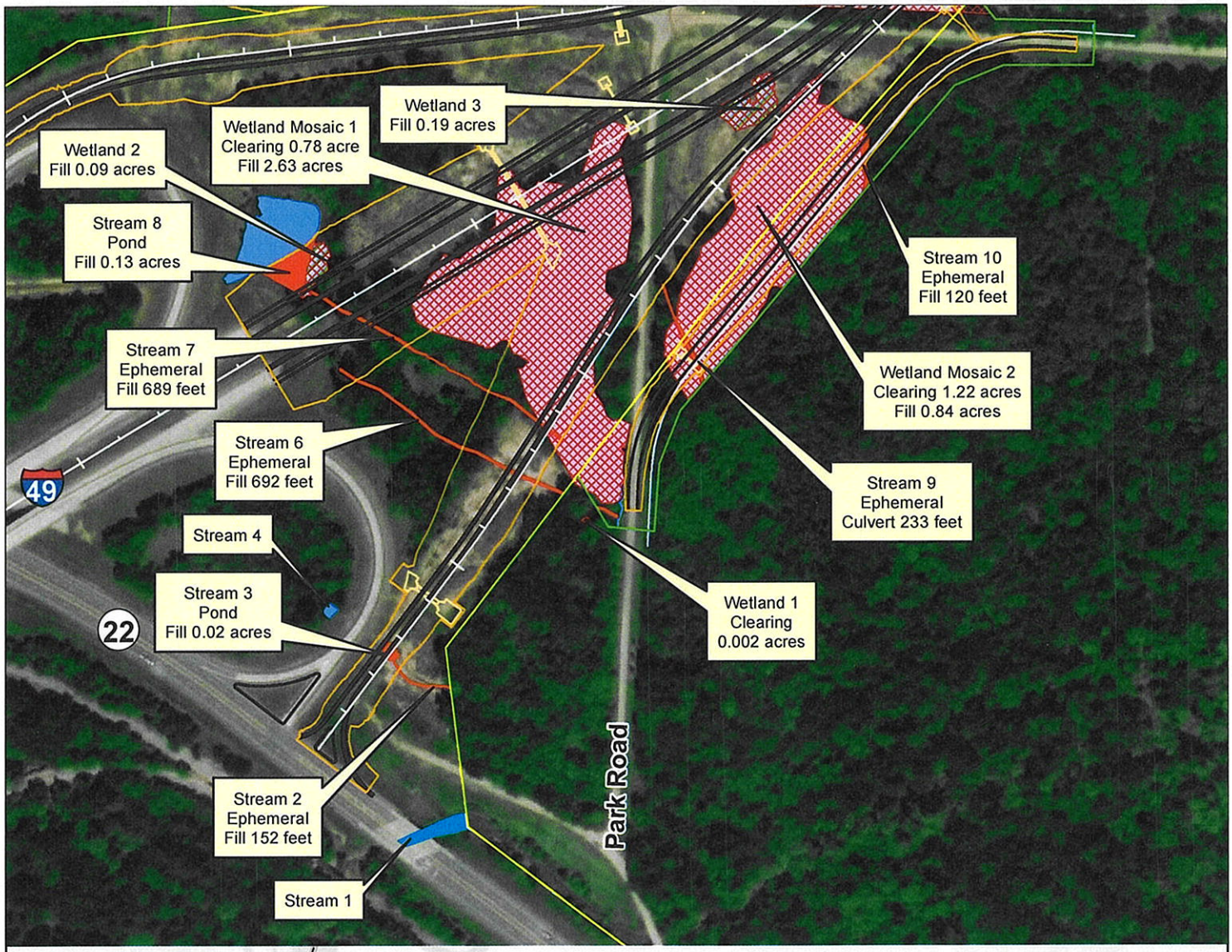
I-49 PROJECT RE-EVALUATION
From SH 22 to I-40
Crawford and Sebastian Counties, Arkansas
Sheet 1 of 5

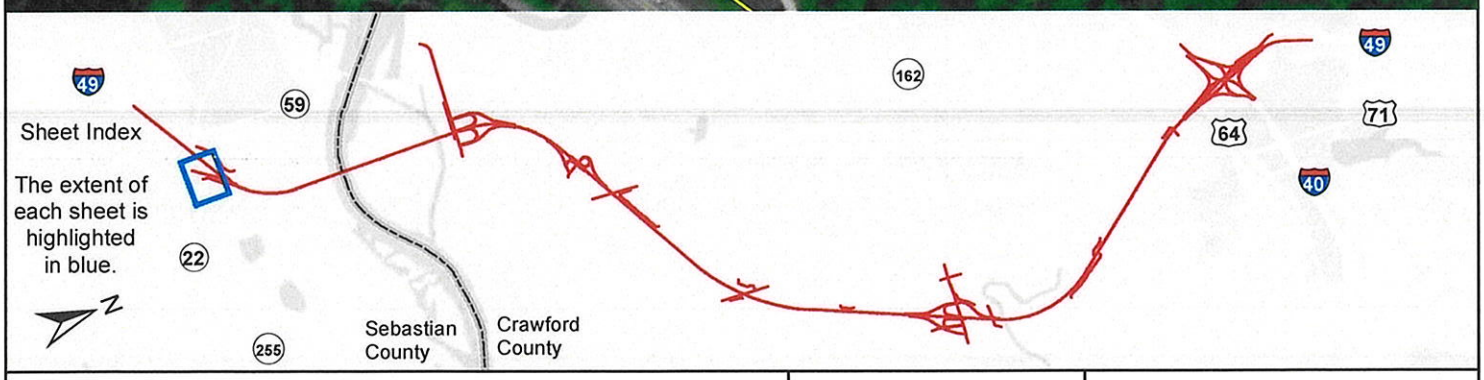
Project Footprint

Job No. 040748

Project Footprint

USGS Topographic Map:
Van Buren 1995





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

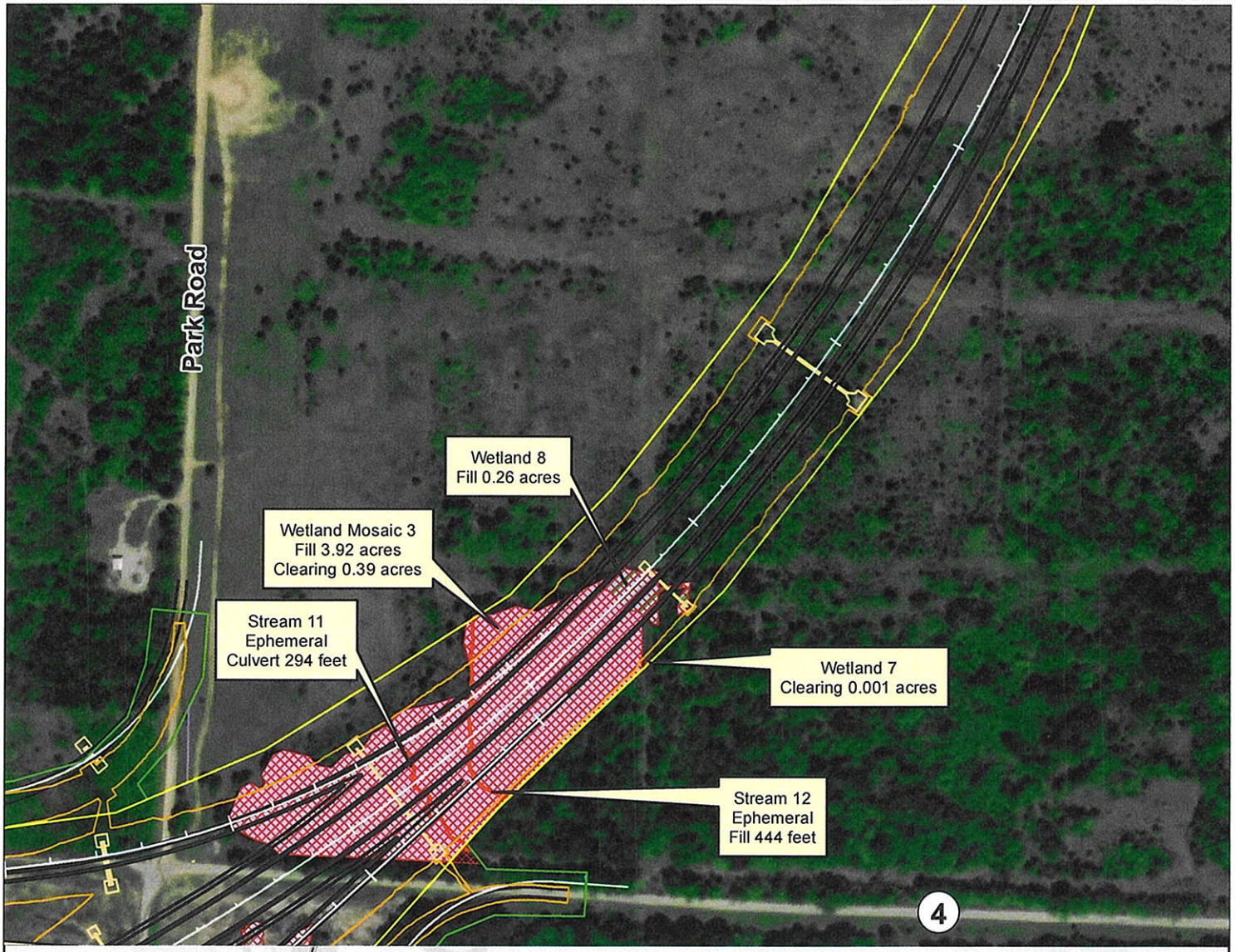
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

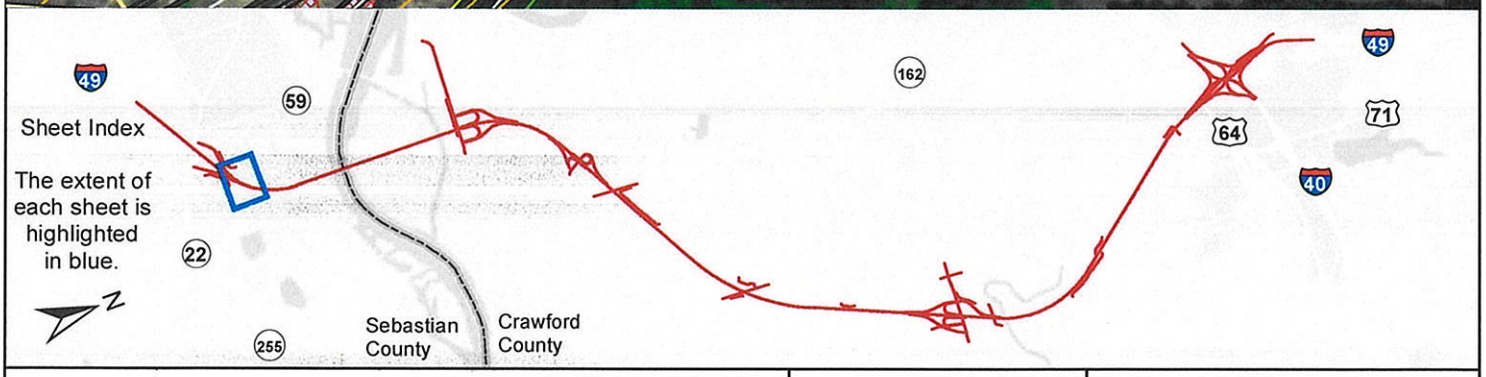
WETLAND AND STREAM IMPACTS MAP (Sheet 1 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





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N

0 150 300 Feet

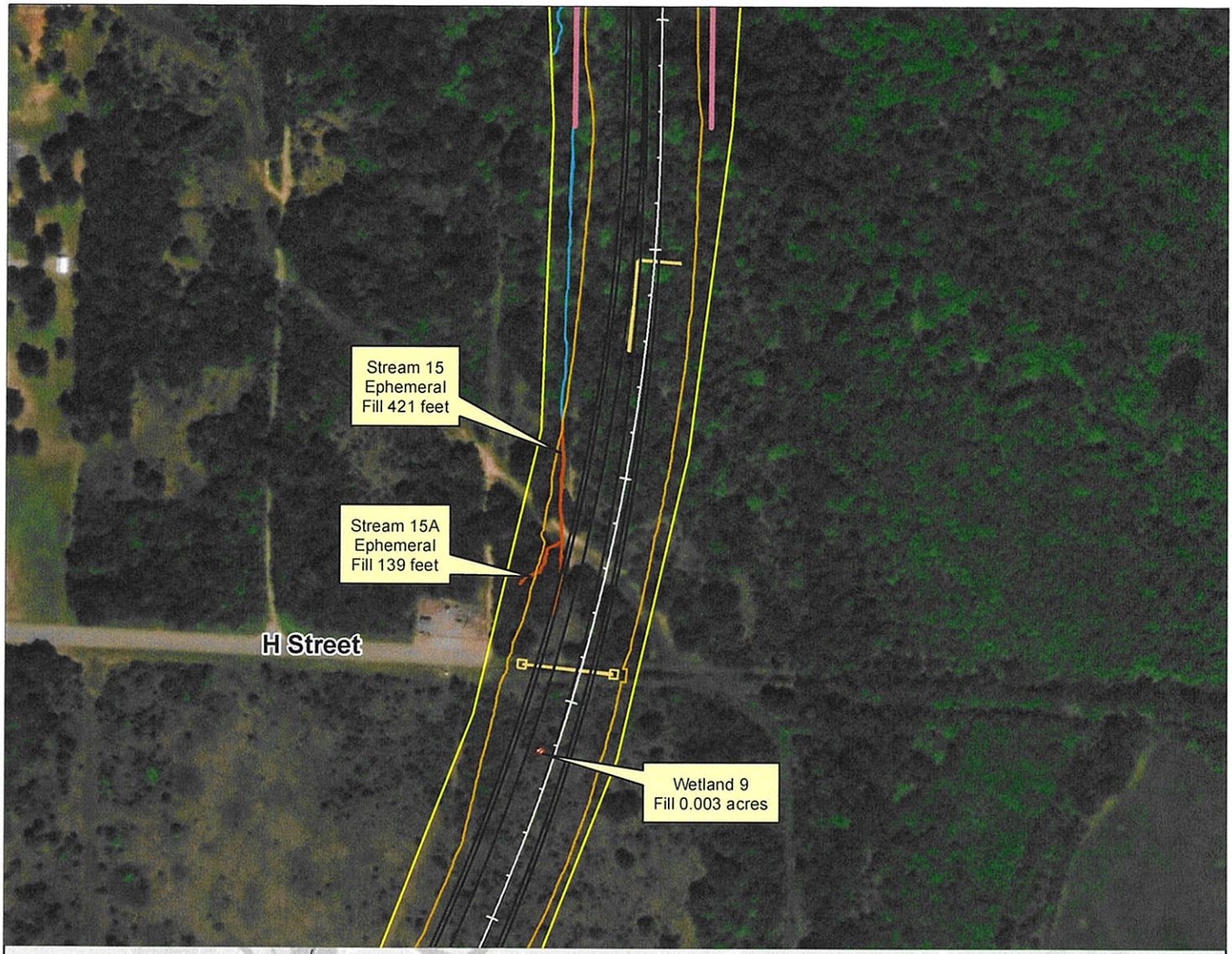
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

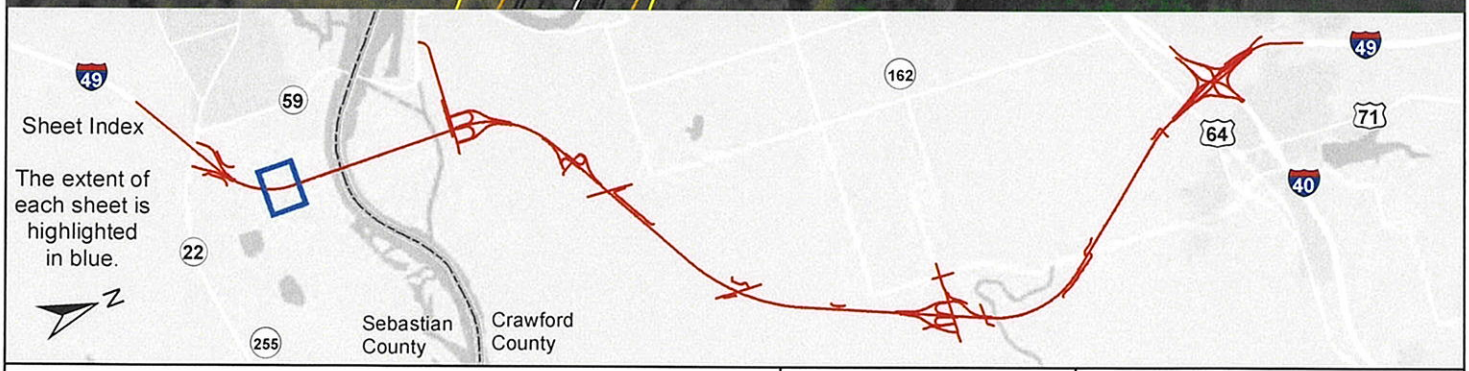
WETLAND AND STREAM IMPACTS MAP (Sheet 2 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

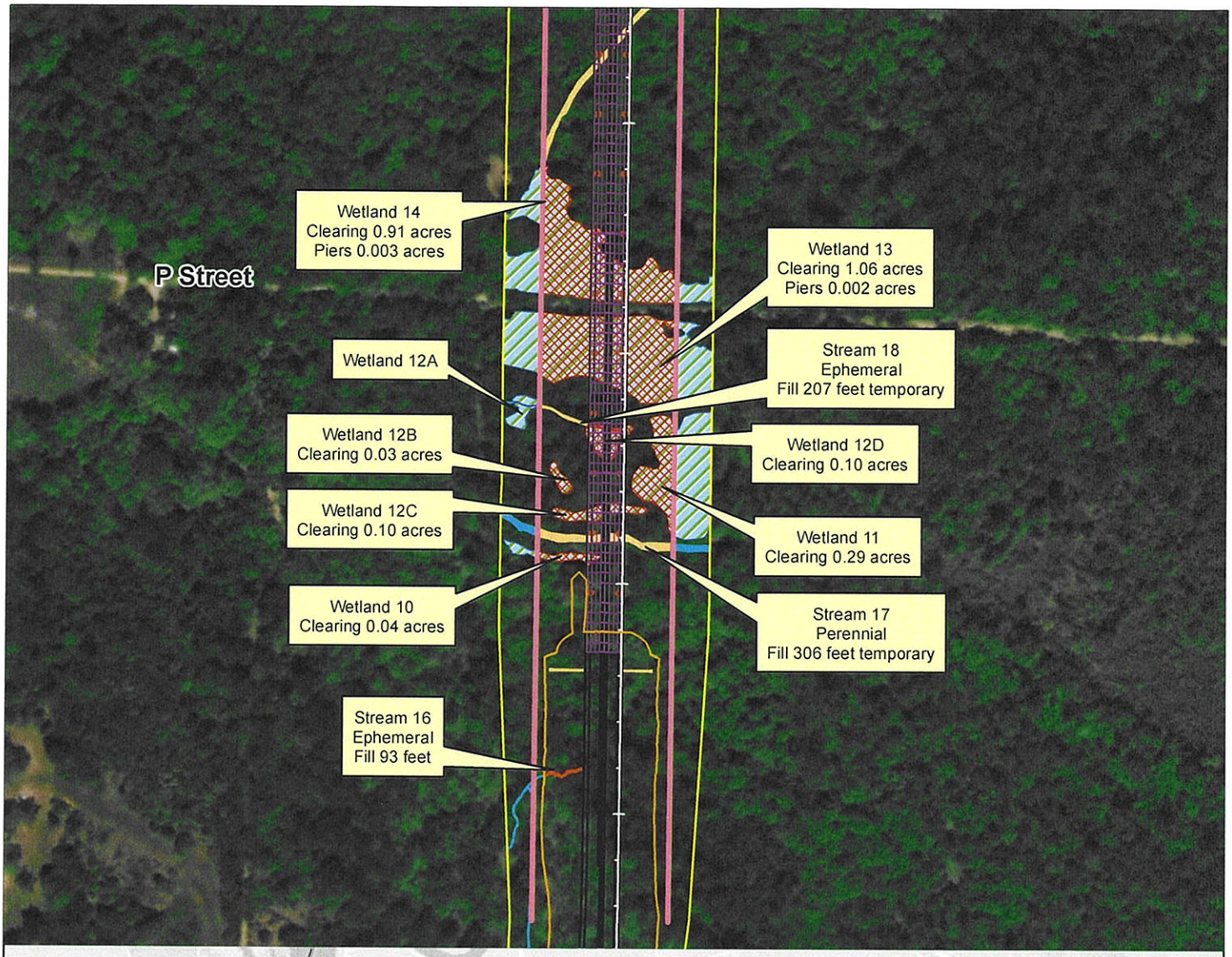
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

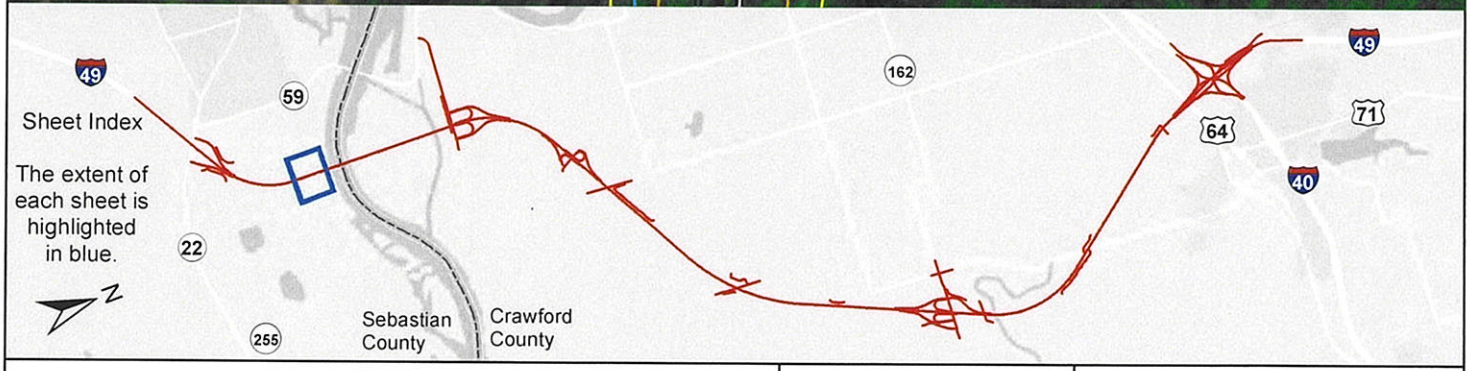
WETLAND AND STREAM IMPACTS MAP (Sheet 3 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

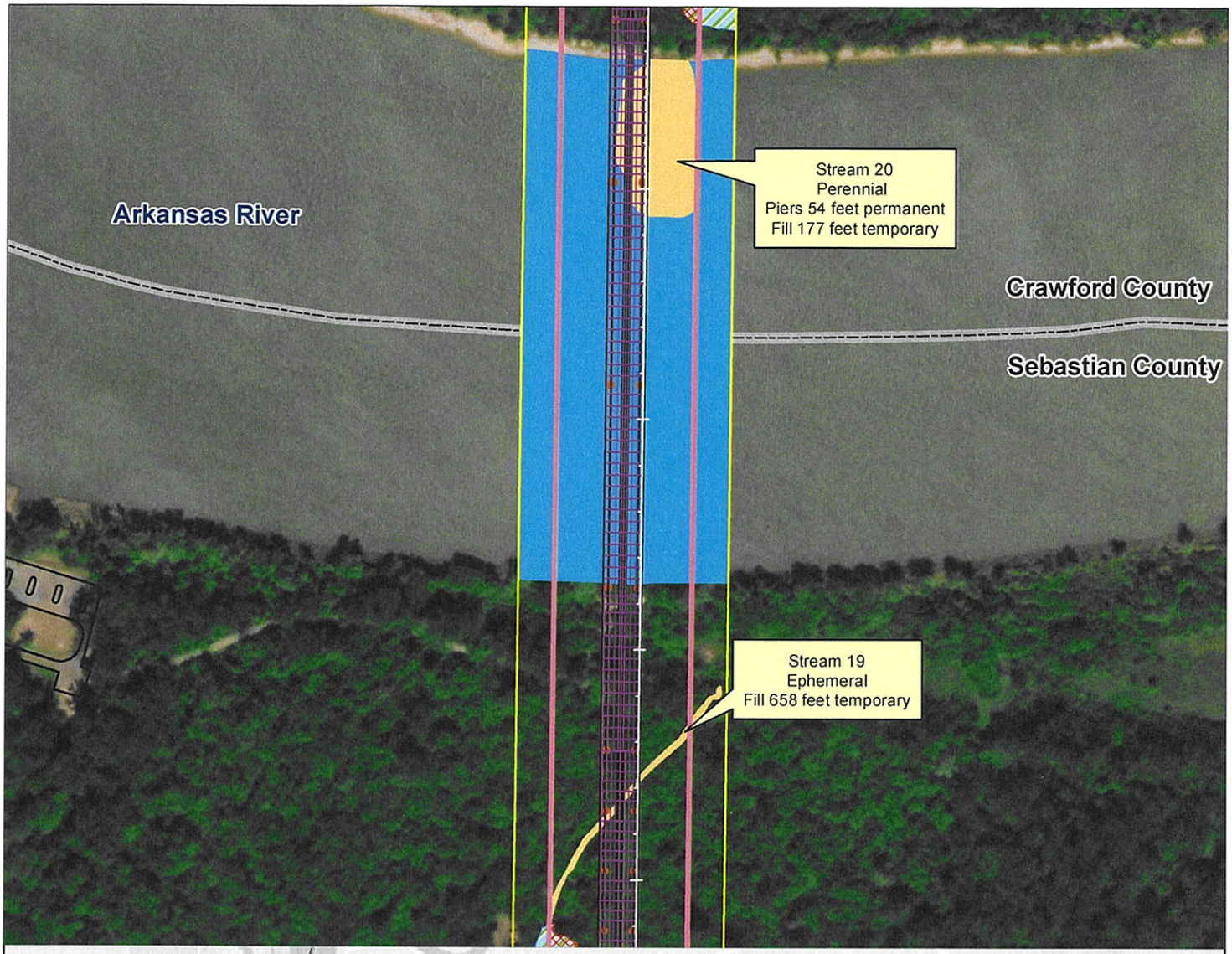
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

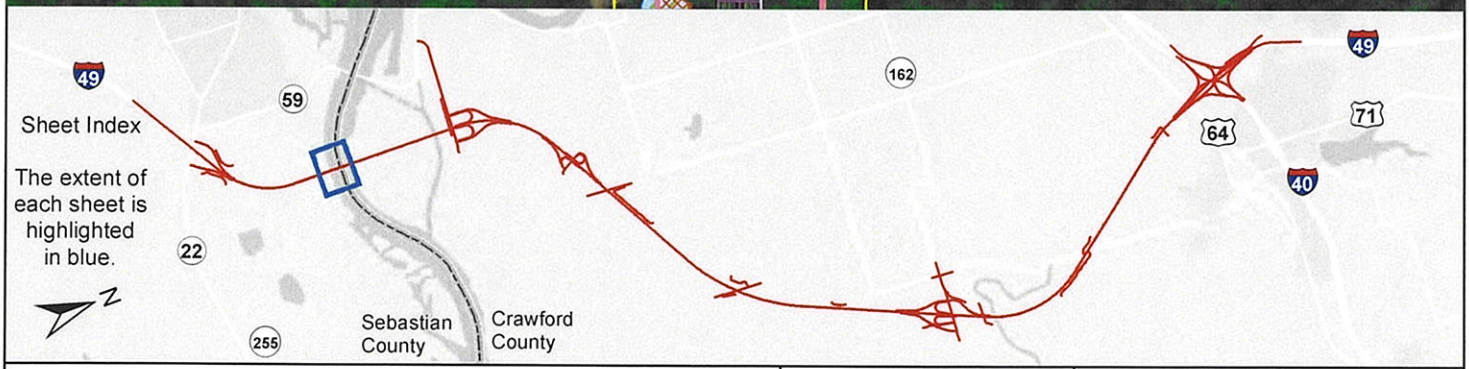
WETLAND AND STREAM IMPACTS MAP (Sheet 4 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

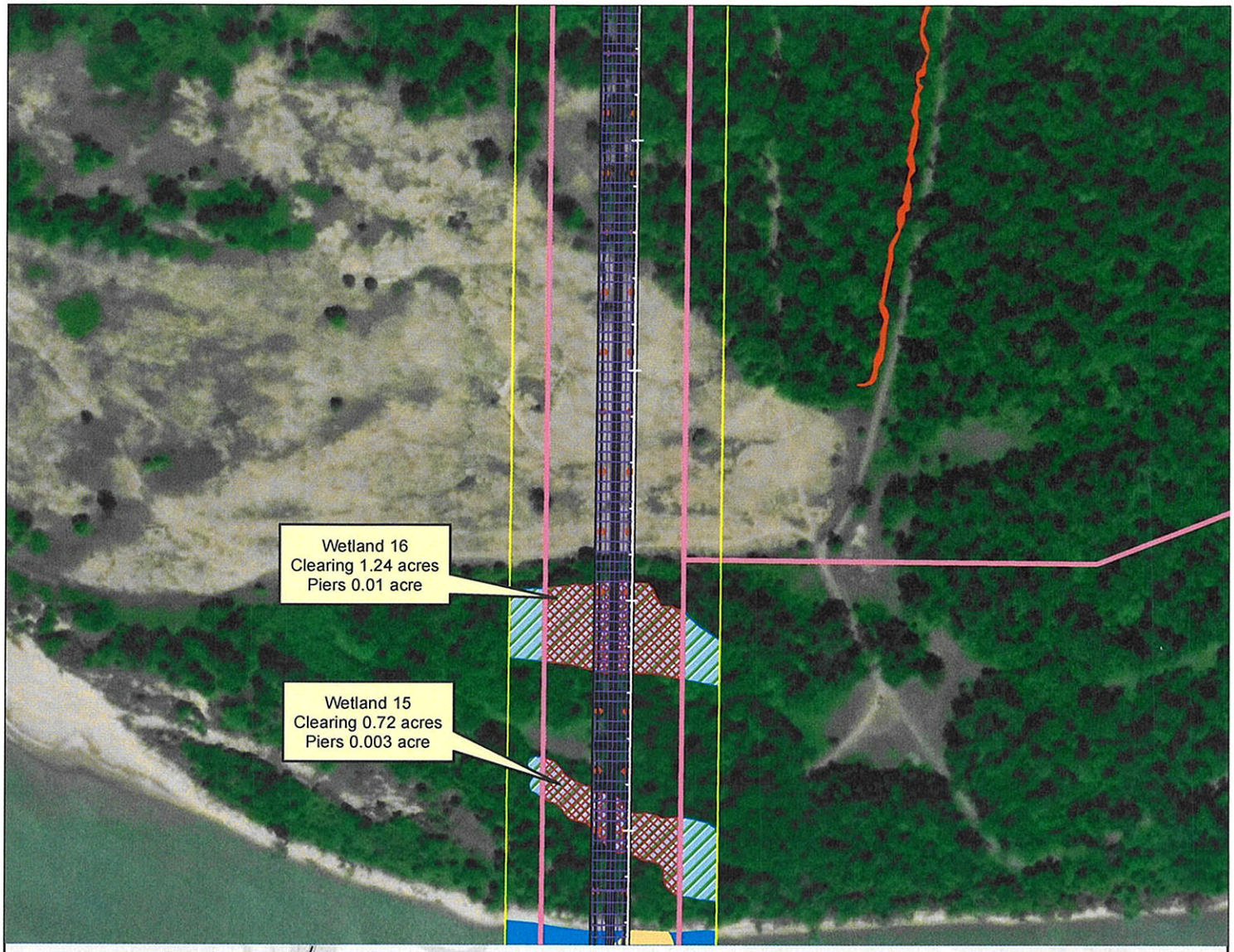
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

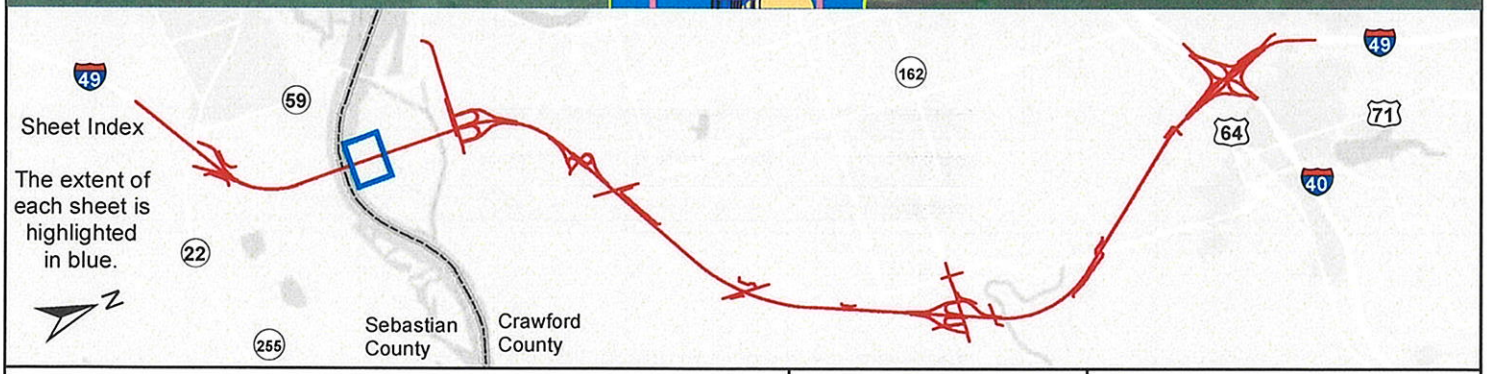
WETLAND AND STREAM IMPACTS MAP (Sheet 5 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

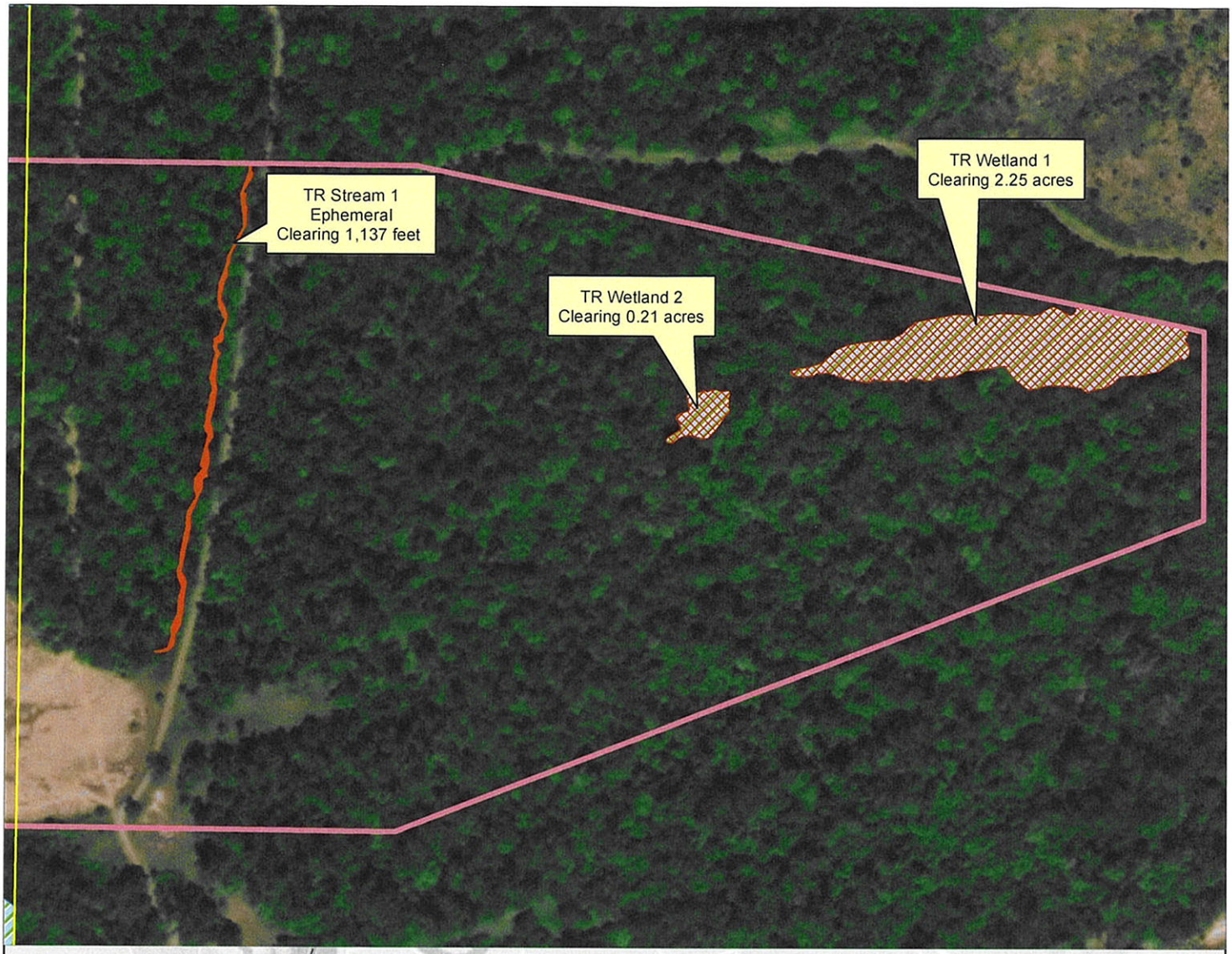
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP
(Sheet 6 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



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N

0 150 300 Feet

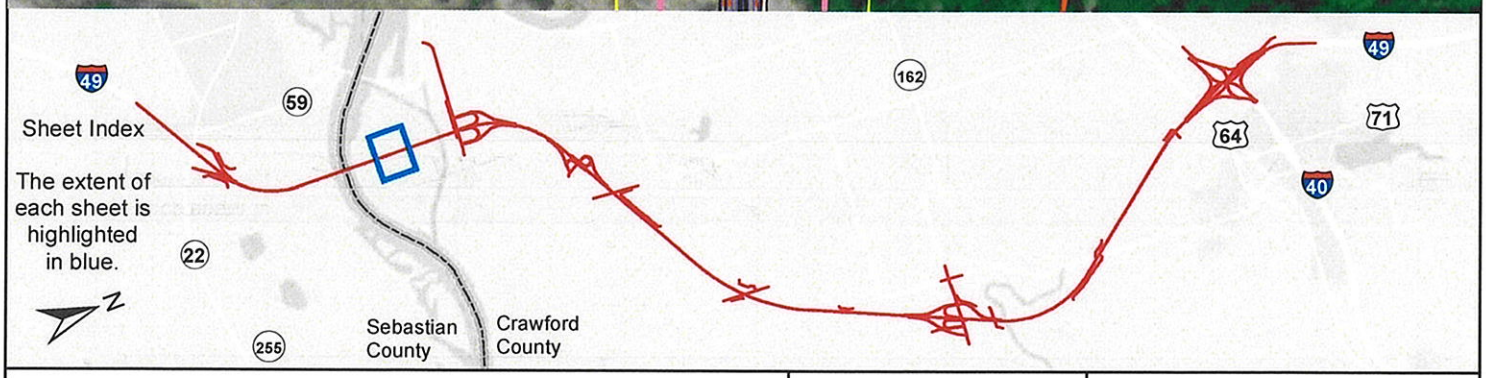
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 7 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



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N

0 150 300 Feet

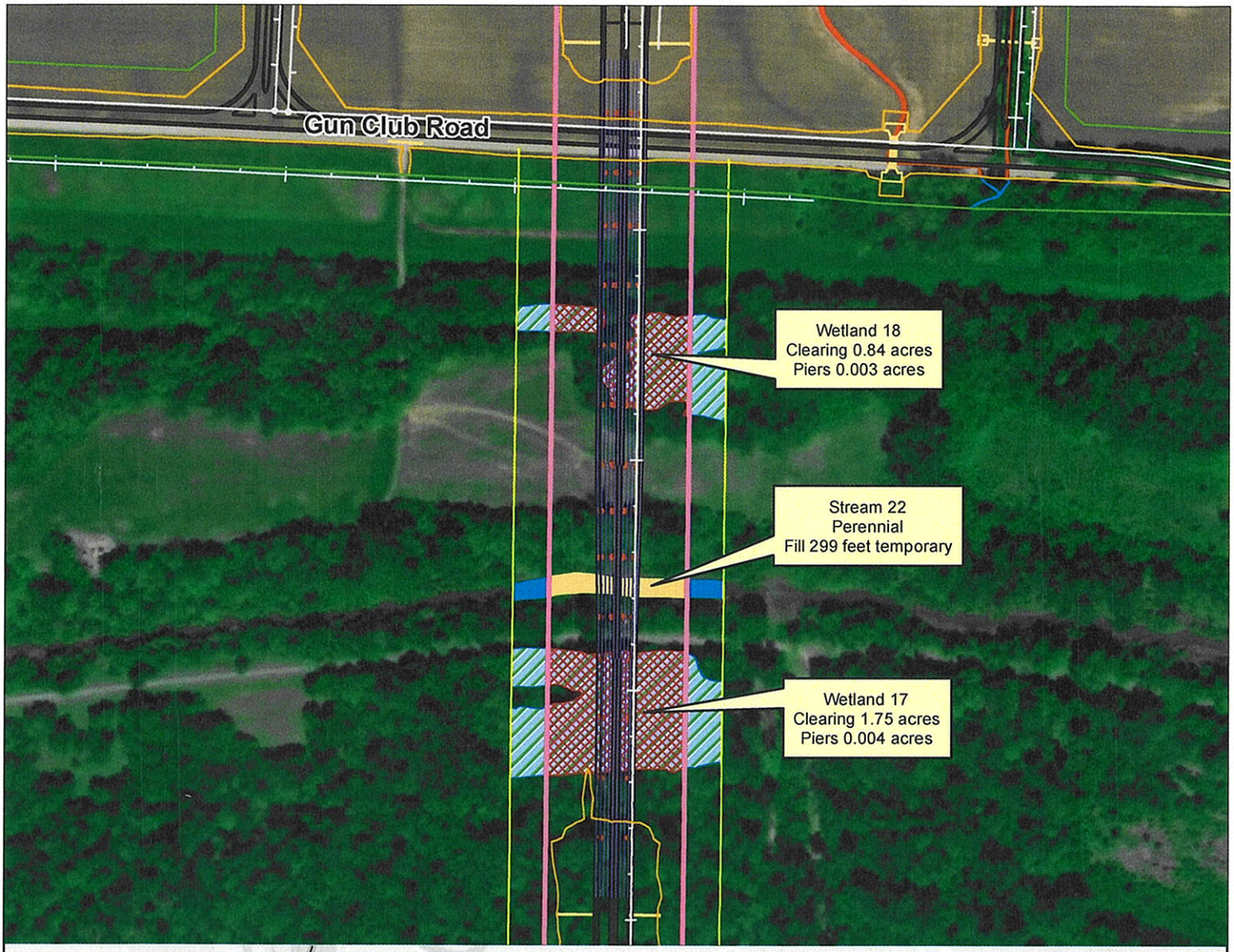
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

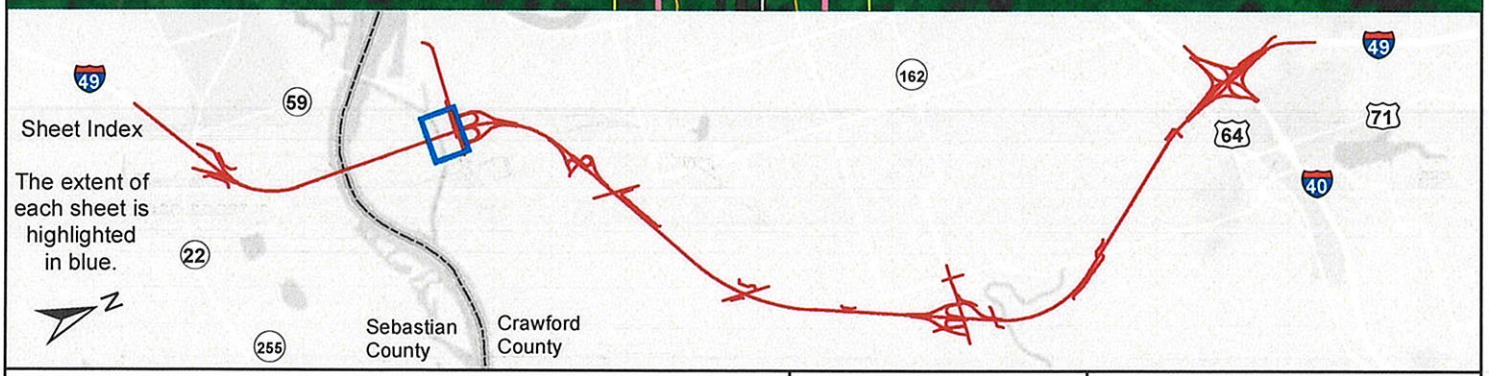
WETLAND AND STREAM IMPACTS MAP (Sheet 8 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

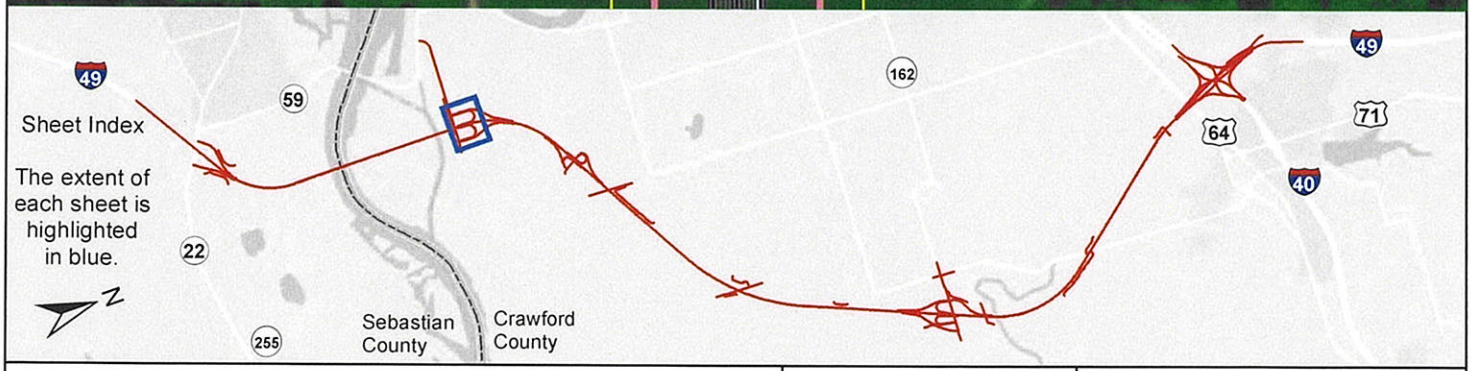
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 9 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
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N

0 150 300 Feet

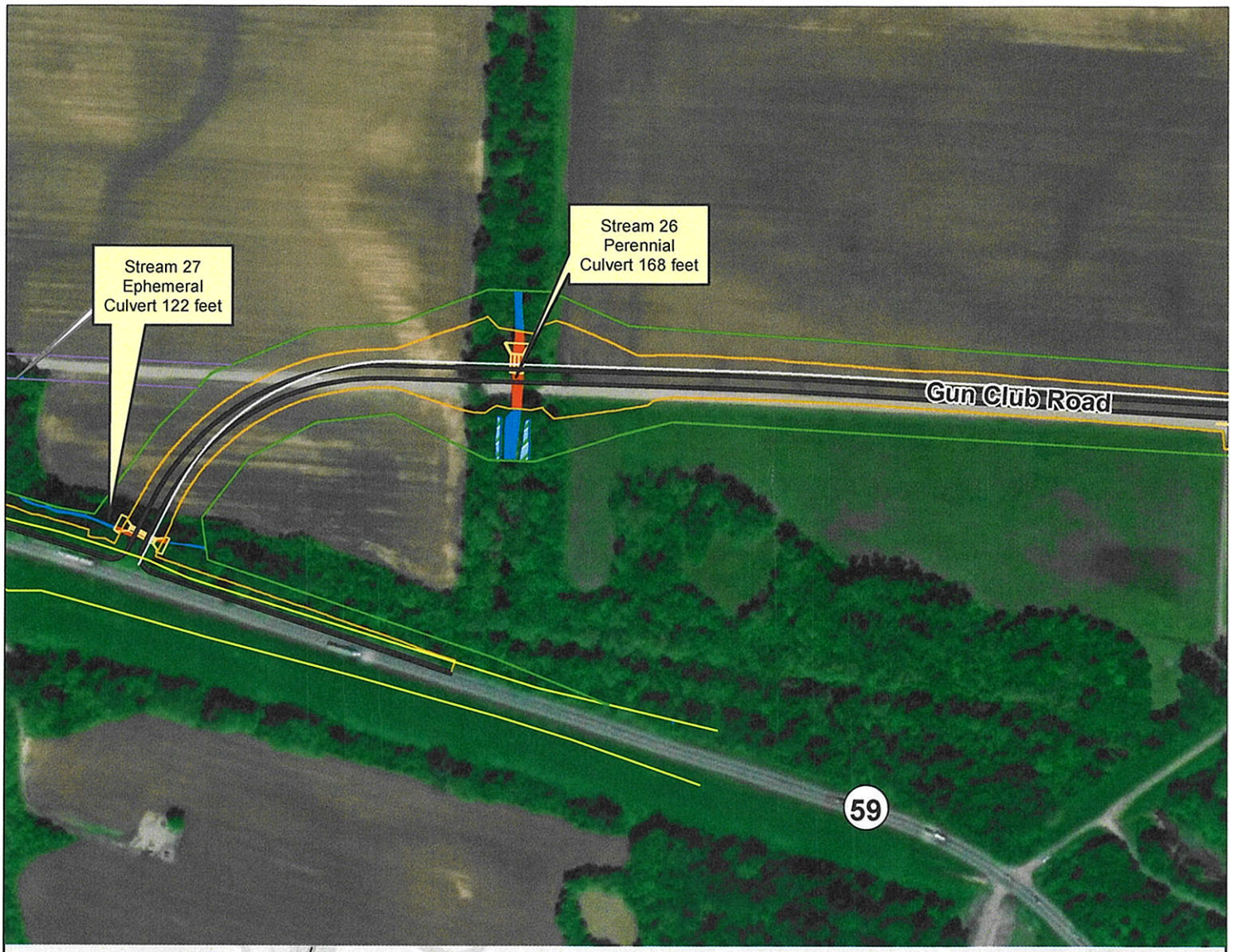
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

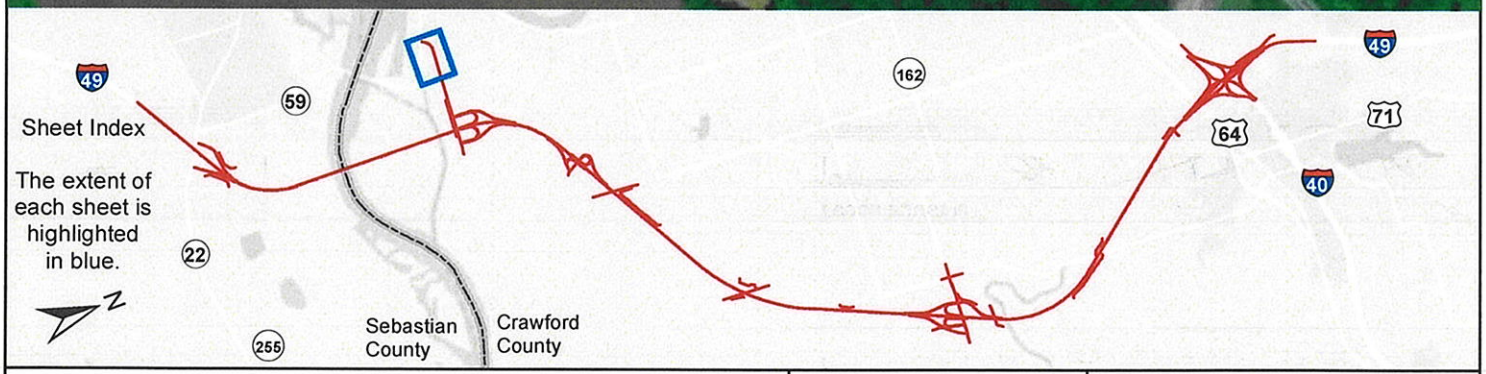
WETLAND AND STREAM IMPACTS MAP (Sheet 10 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
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N

0 150 300 Feet

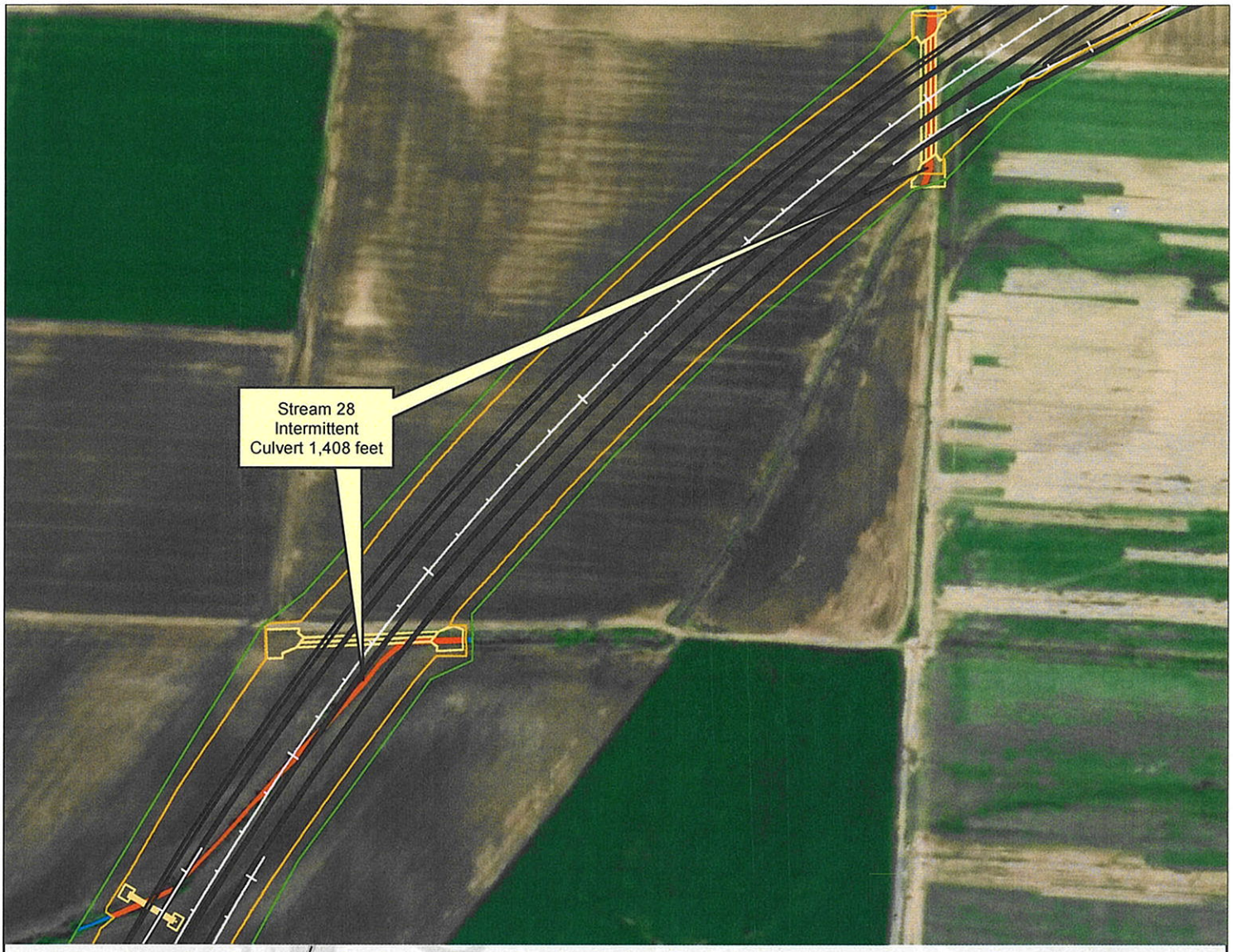
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

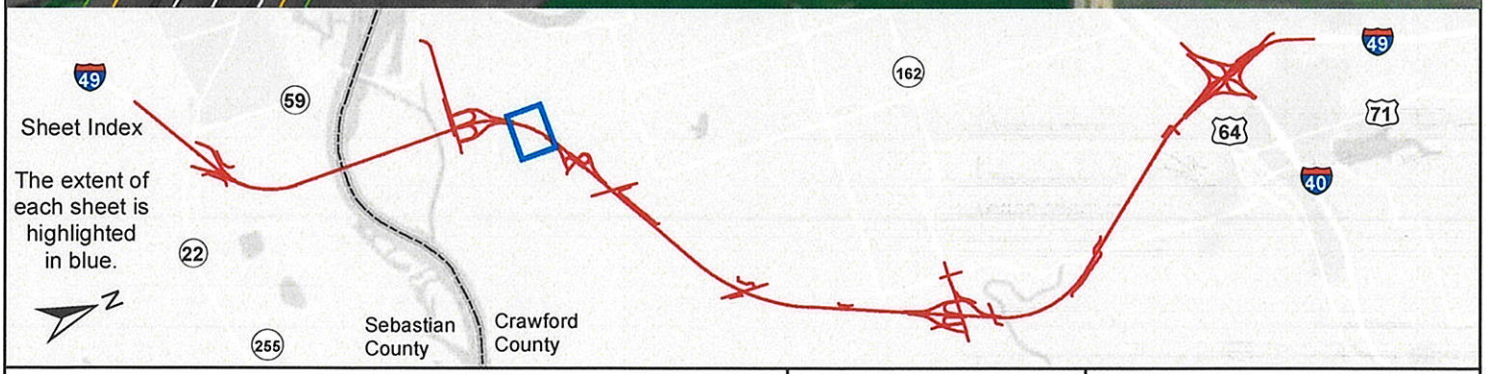
WETLAND AND STREAM IMPACTS MAP
(Sheet 11 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





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- Water of the U.S.

N

0 150 300 Feet

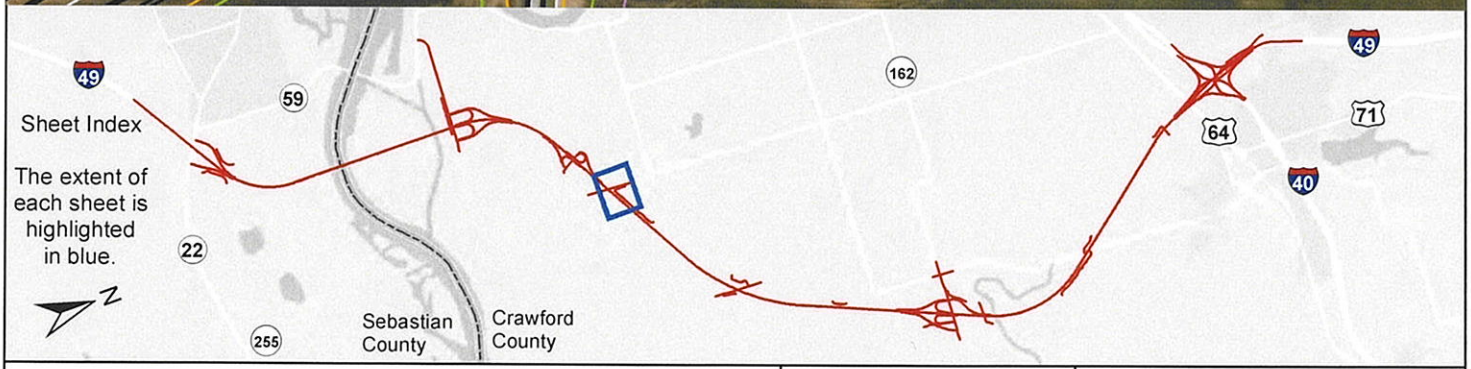
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP
(Sheet 12 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

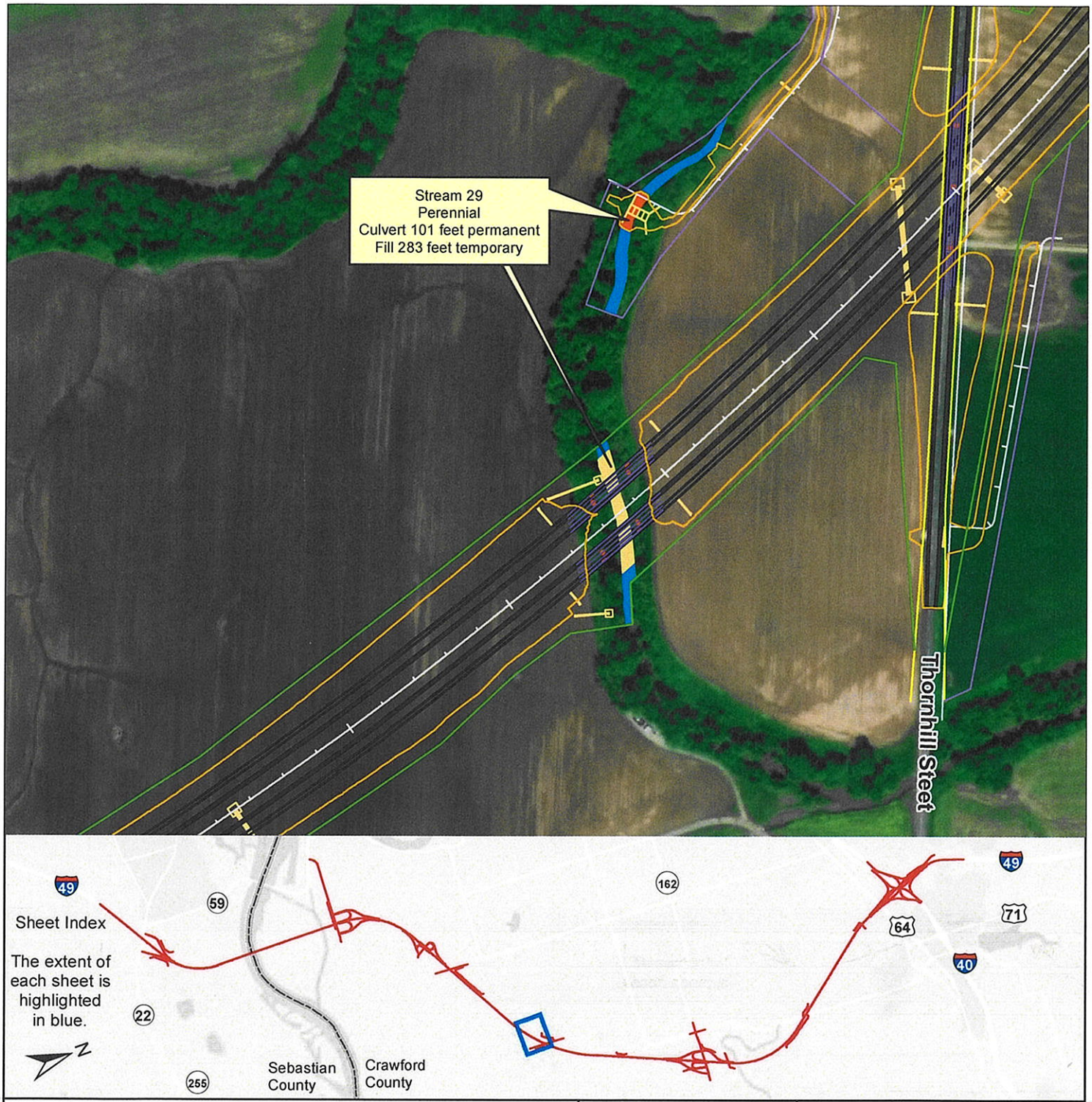
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 13 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

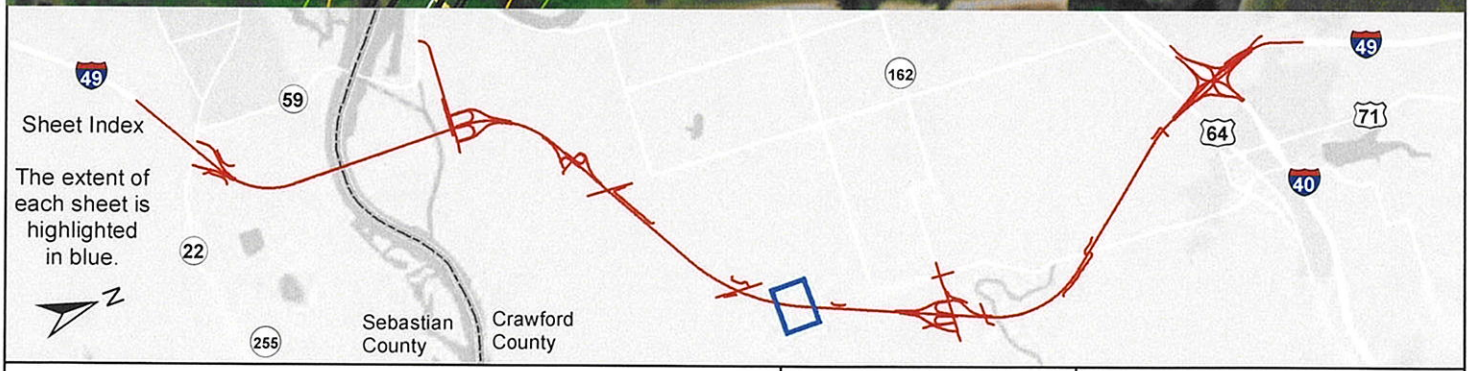
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 14 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

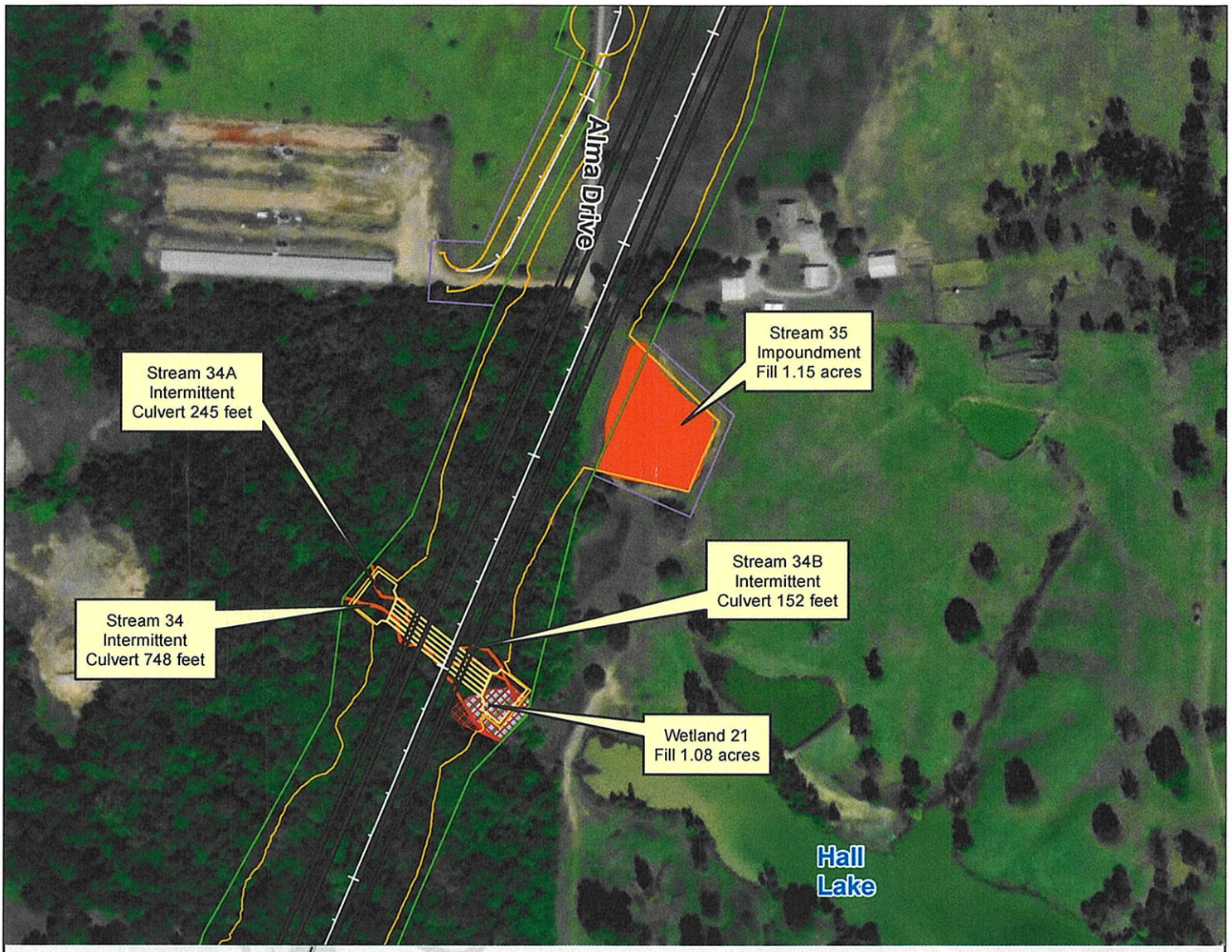
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

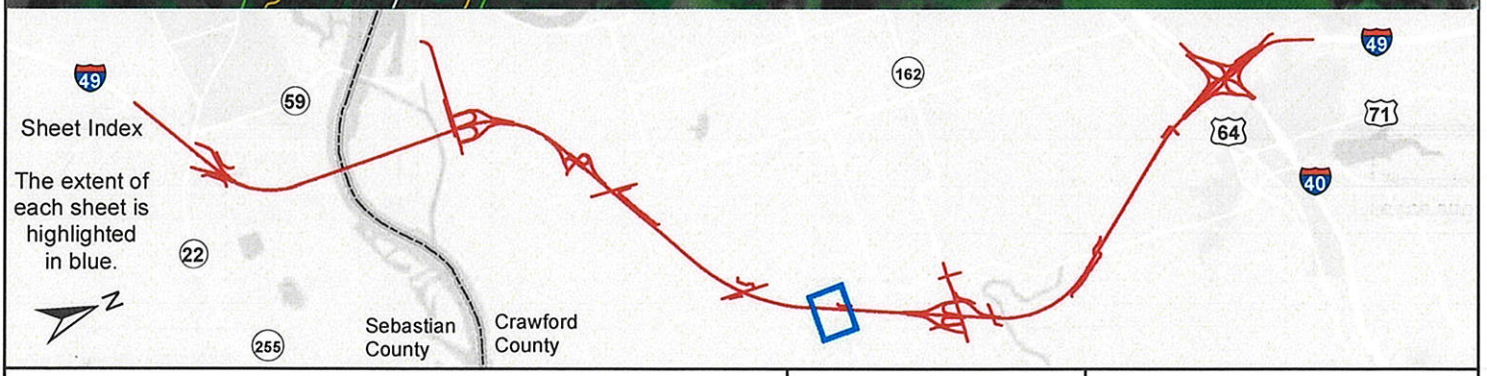
WETLAND AND STREAM IMPACTS MAP (Sheet 15 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

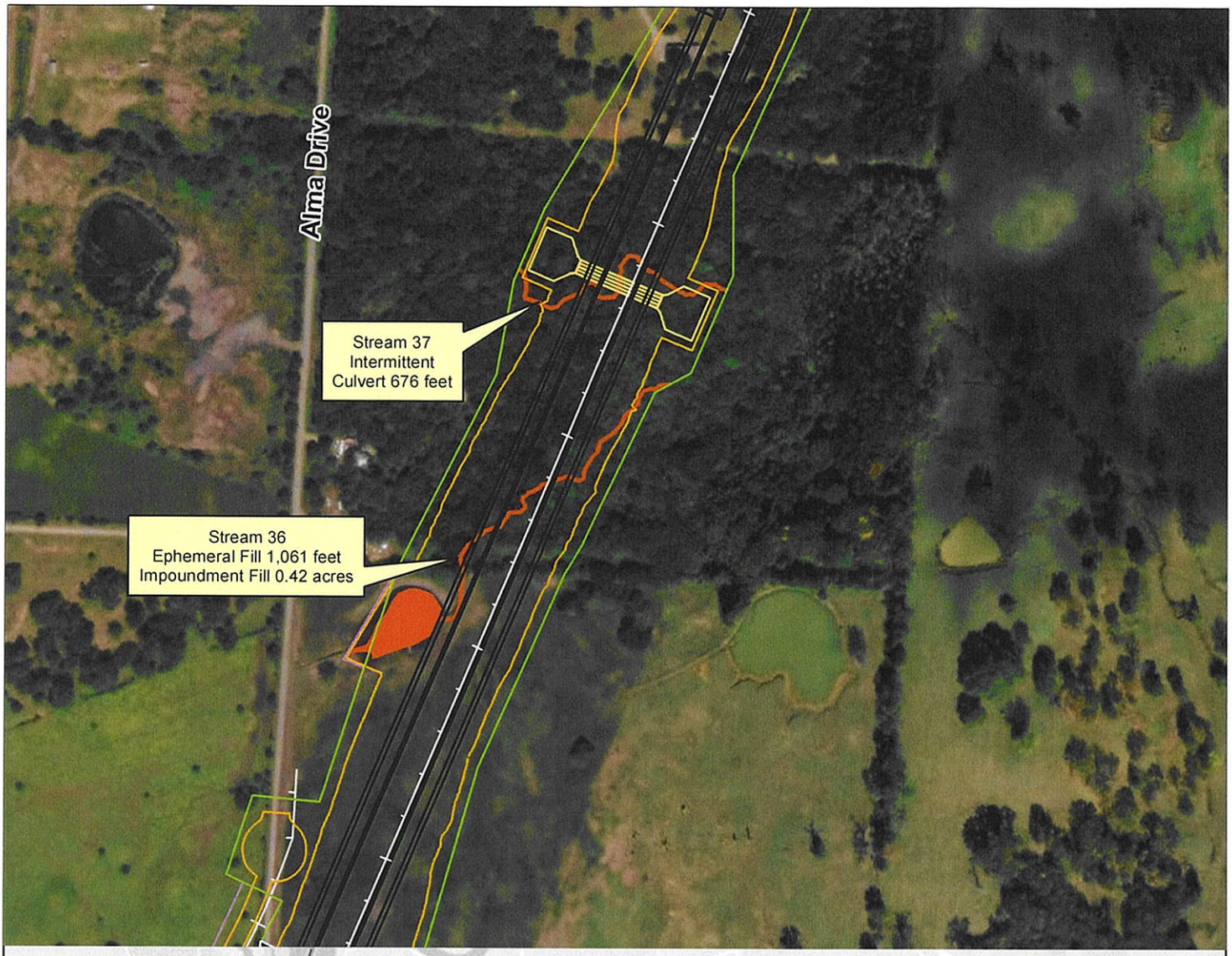
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

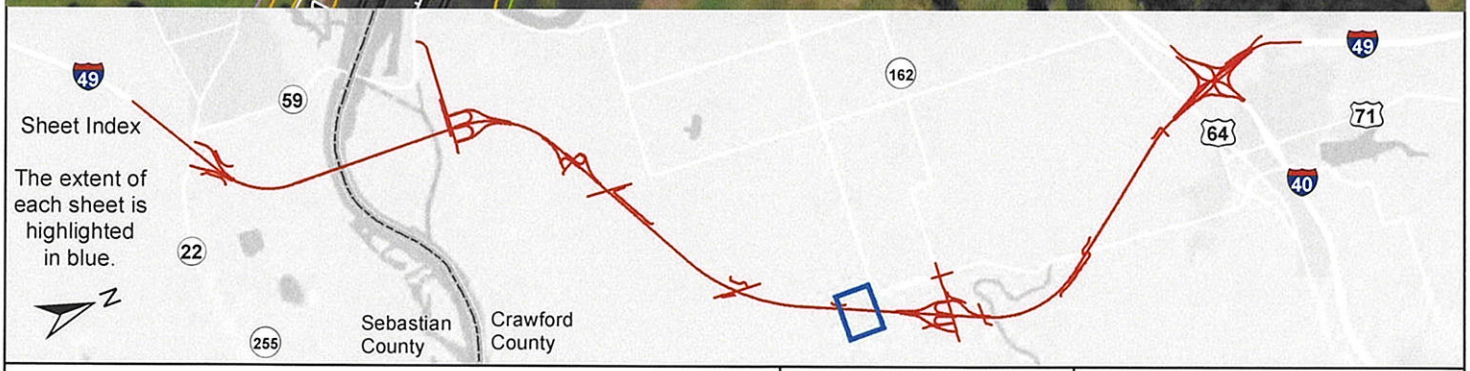
WETLAND AND STREAM IMPACTS MAP (Sheet 16 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

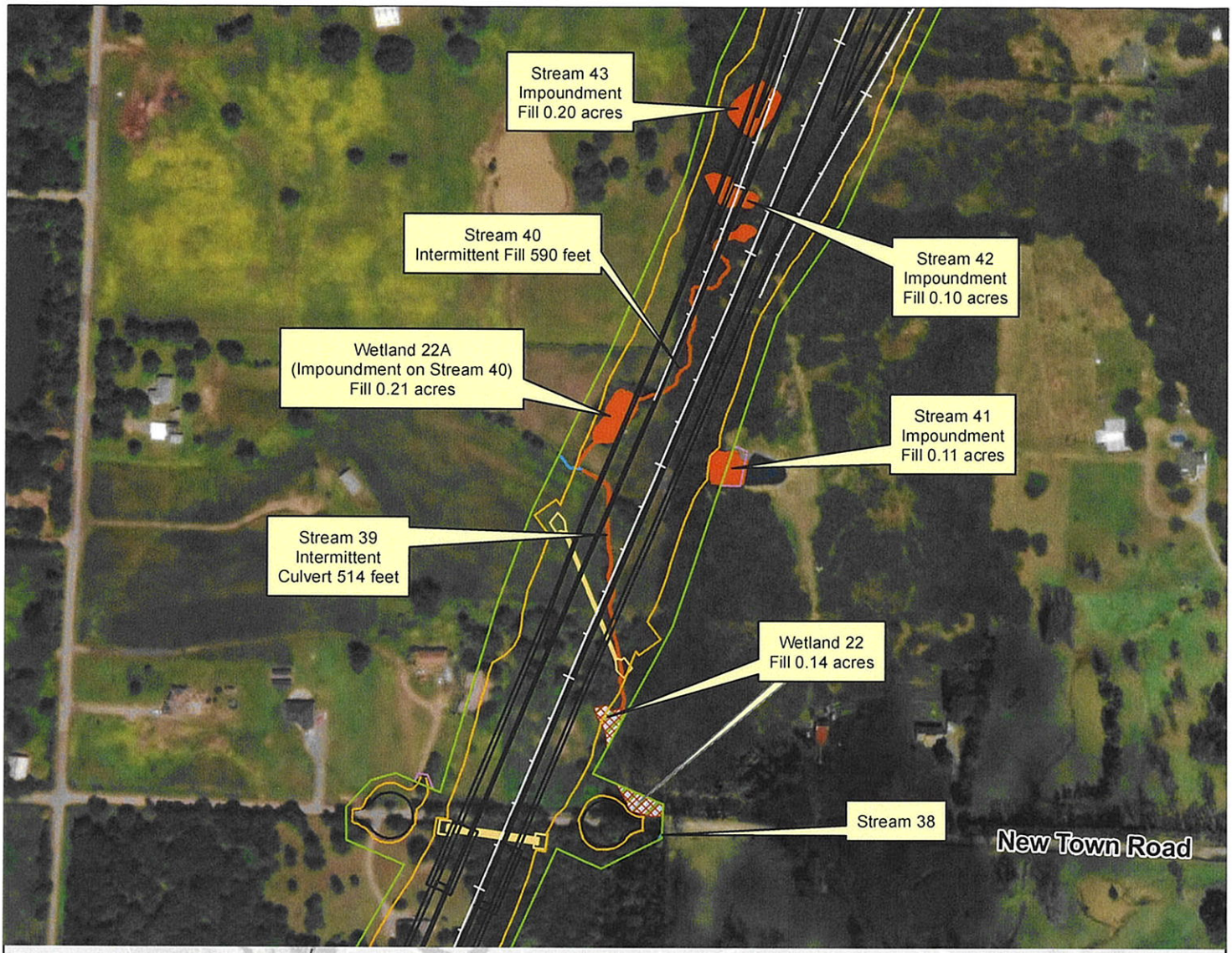
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

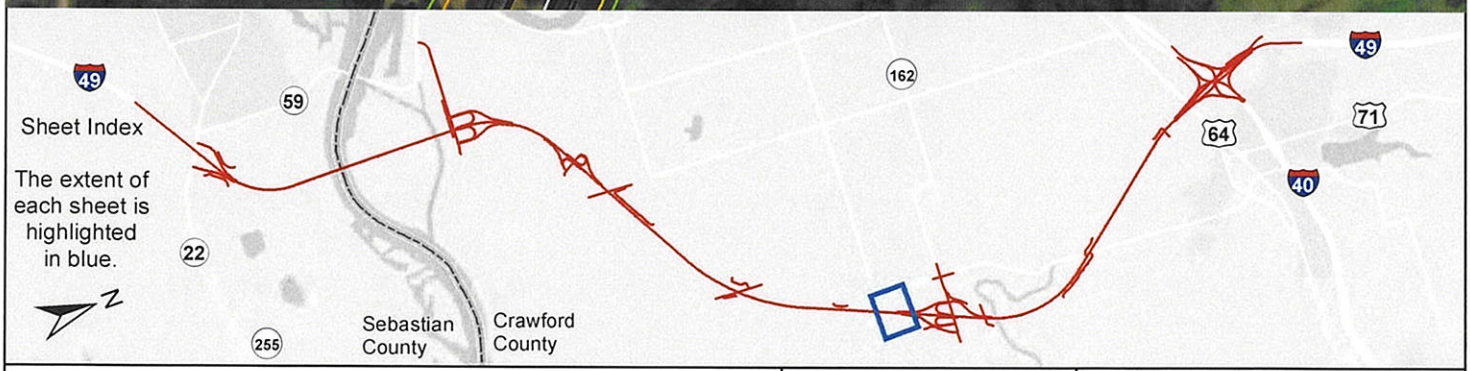
WETLAND AND STREAM IMPACTS MAP (Sheet 17 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

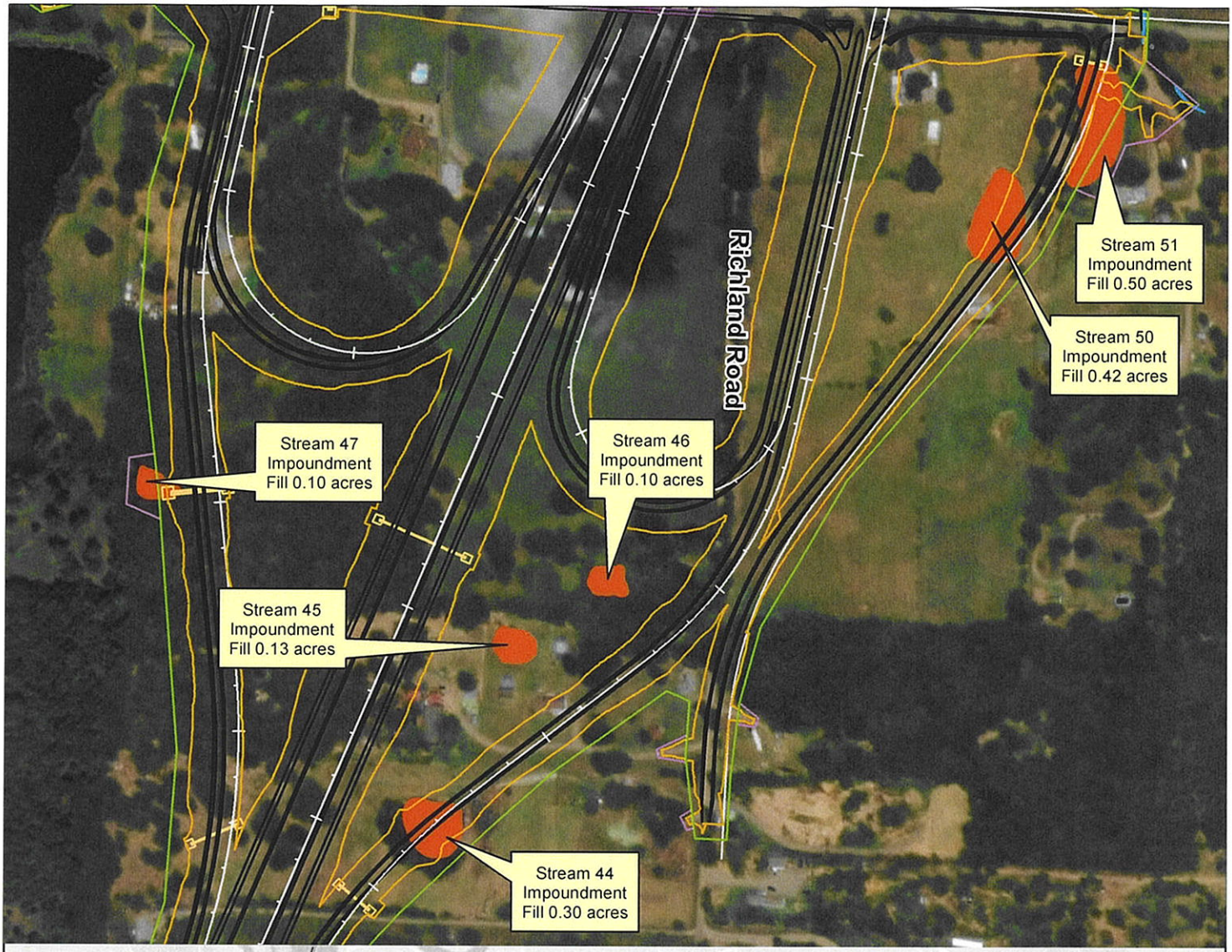
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 18 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

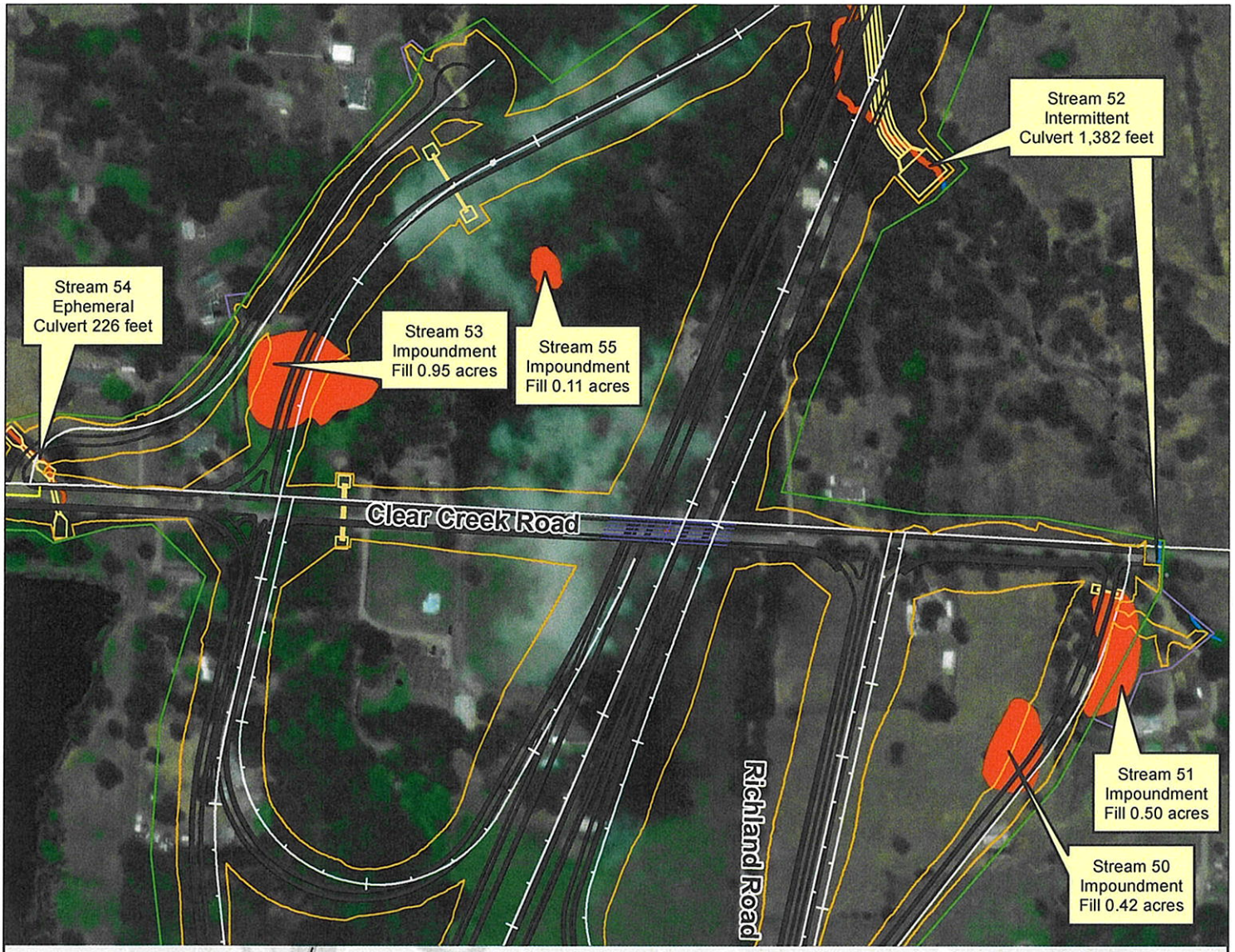
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

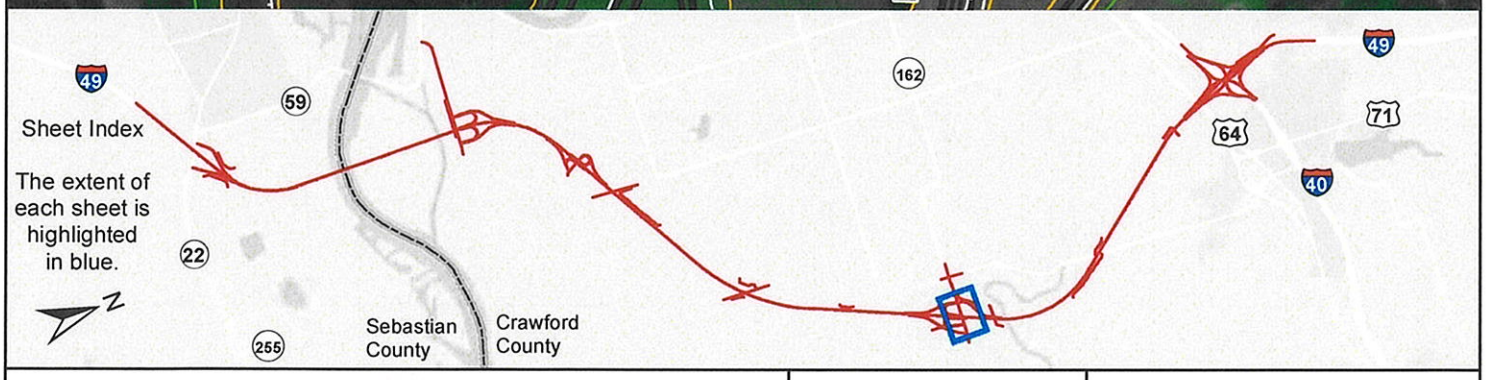
WETLAND AND STREAM IMPACTS MAP (Sheet 19 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

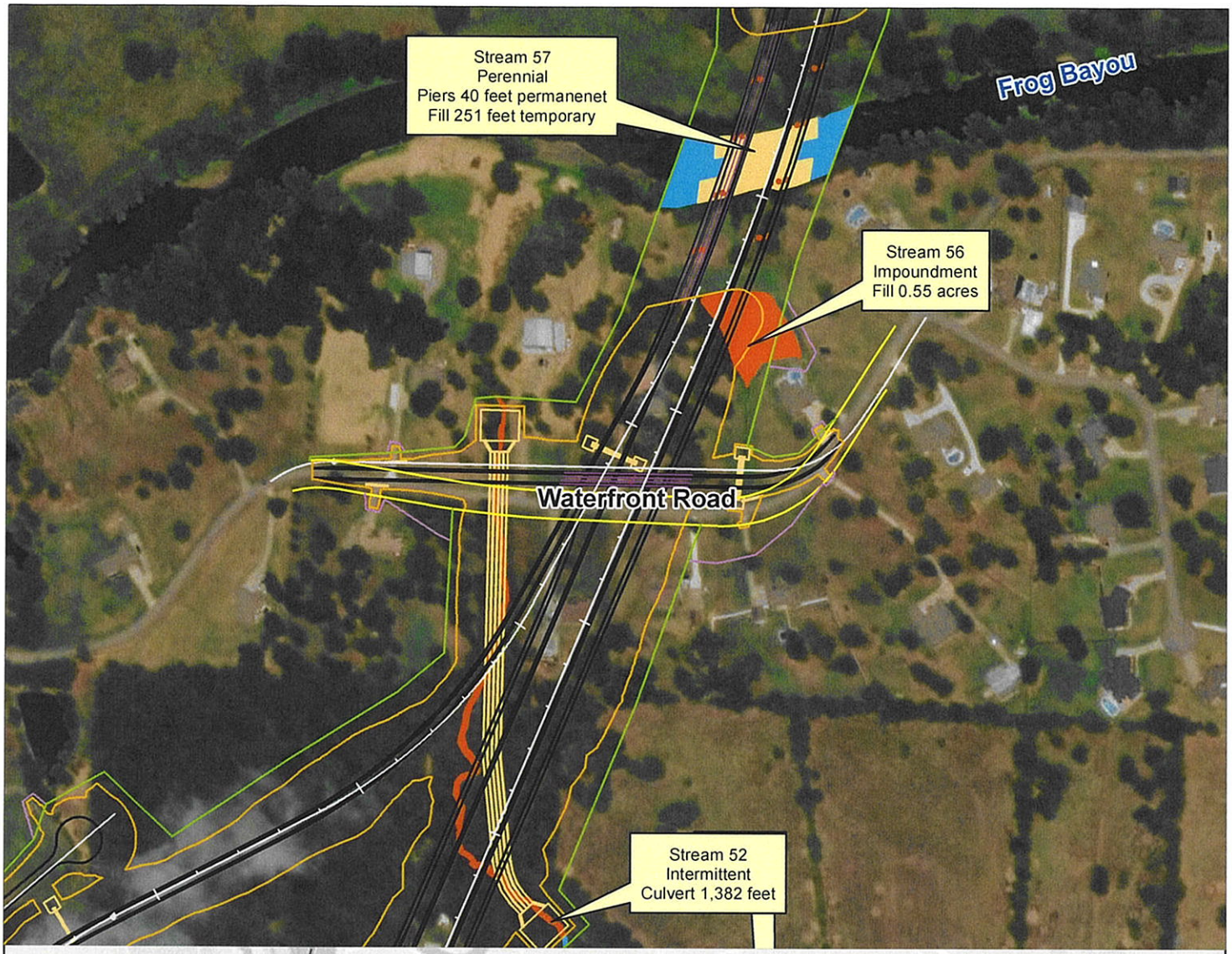
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 20 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

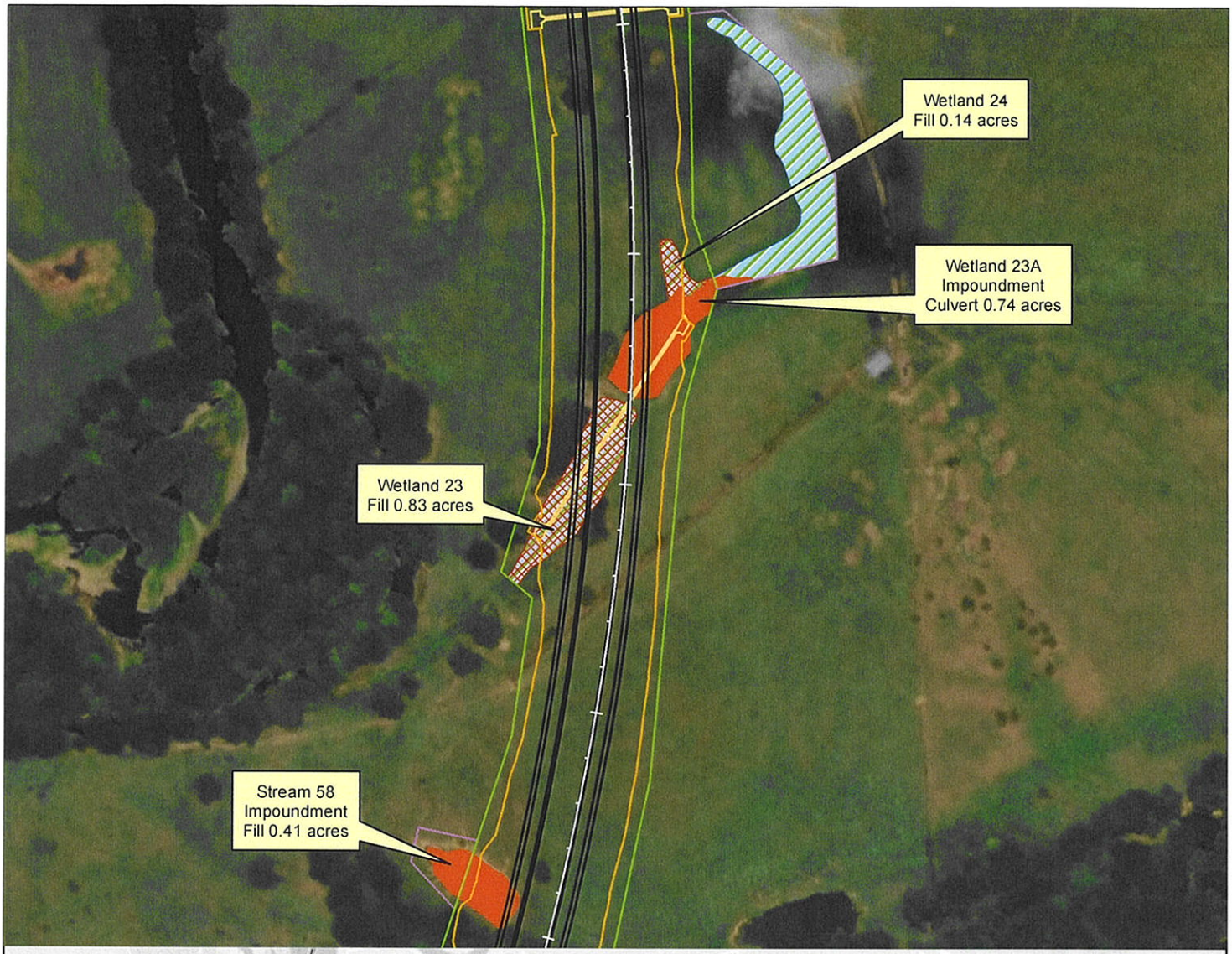
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 21 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

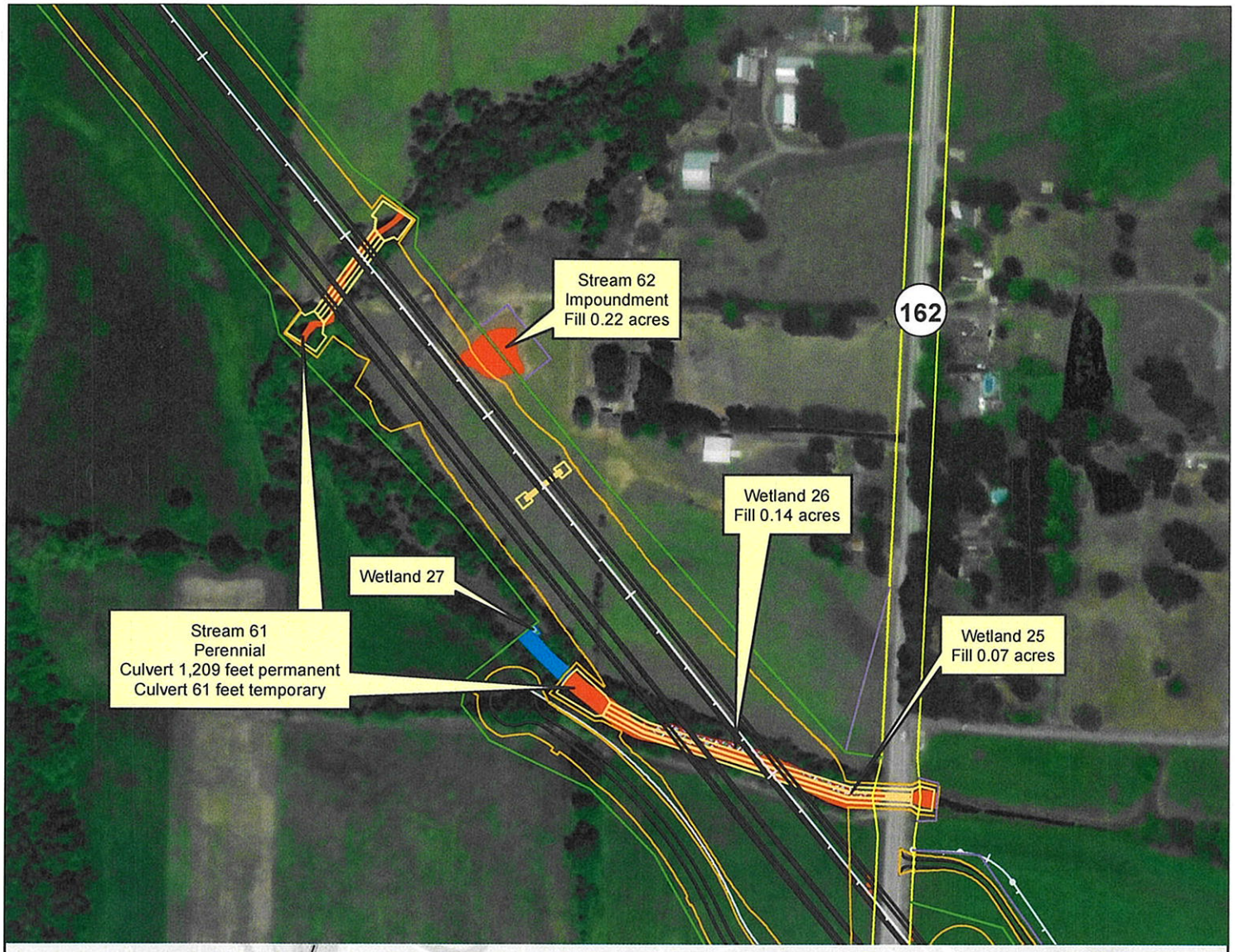
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

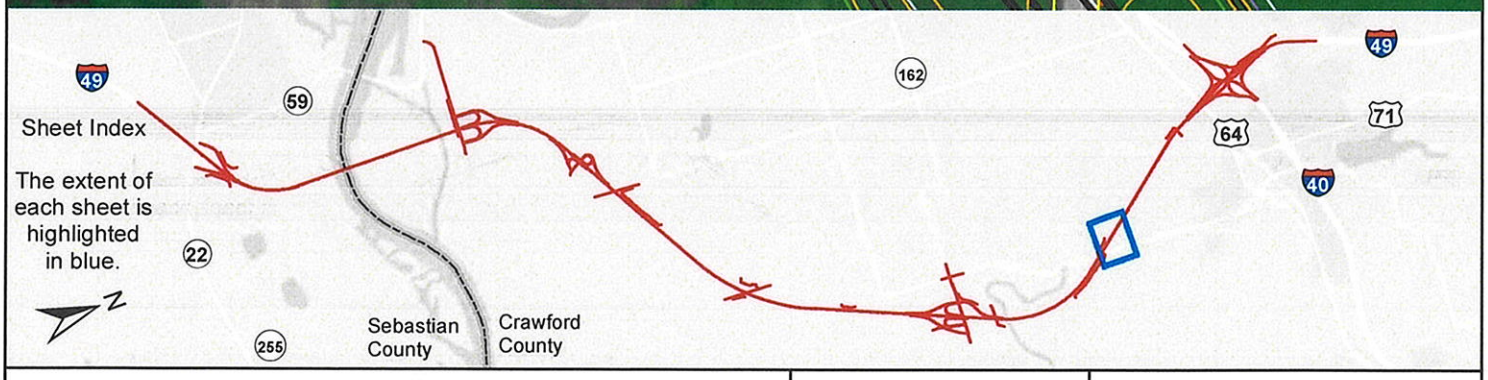
WETLAND AND STREAM IMPACTS MAP (Sheet 22 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

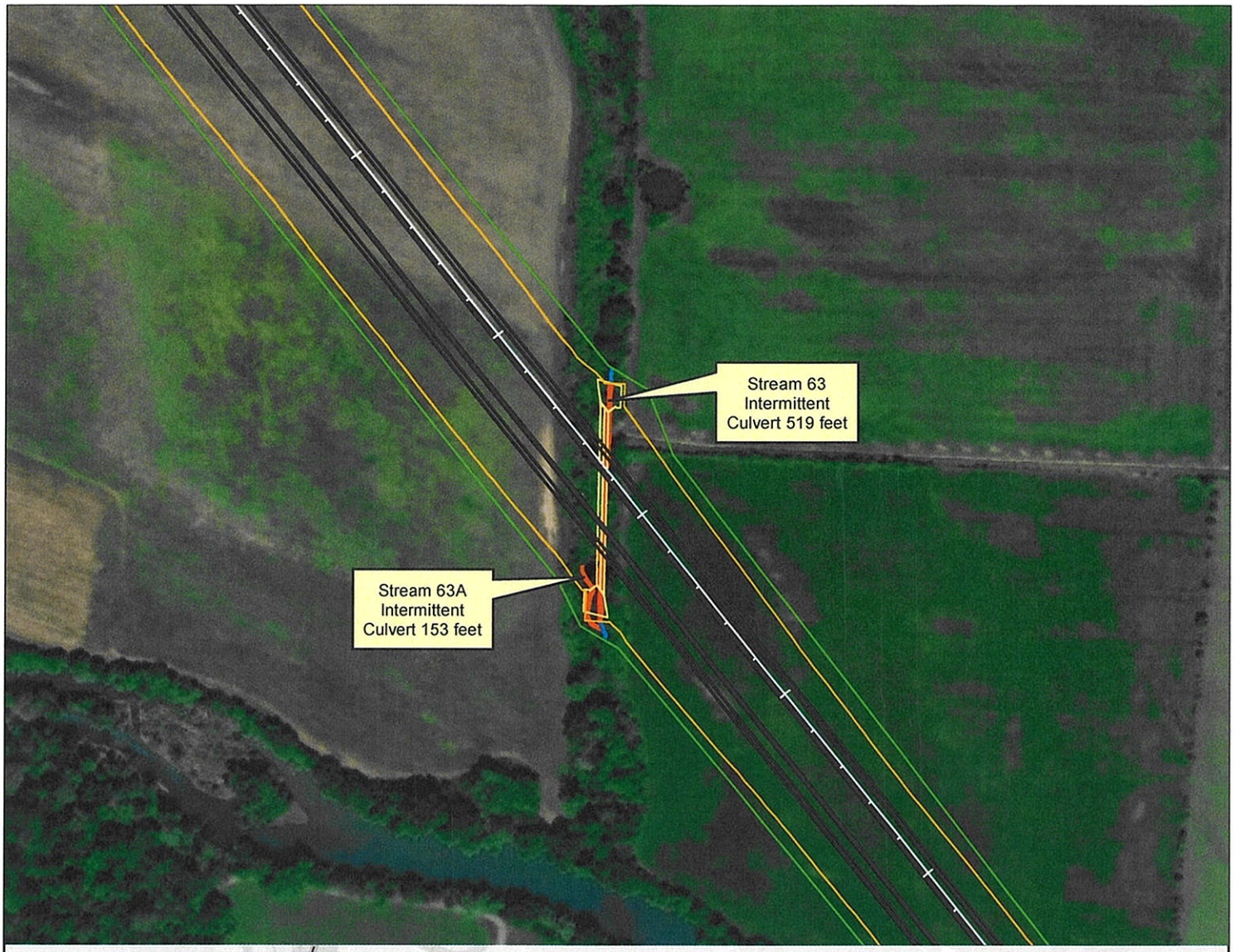
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

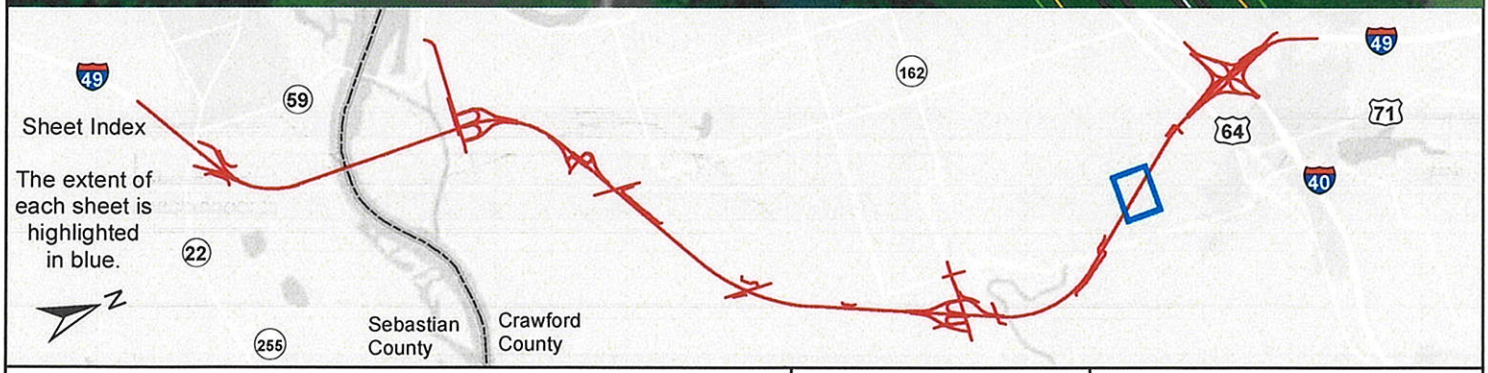
WETLAND AND STREAM IMPACTS MAP
(Sheet 23 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

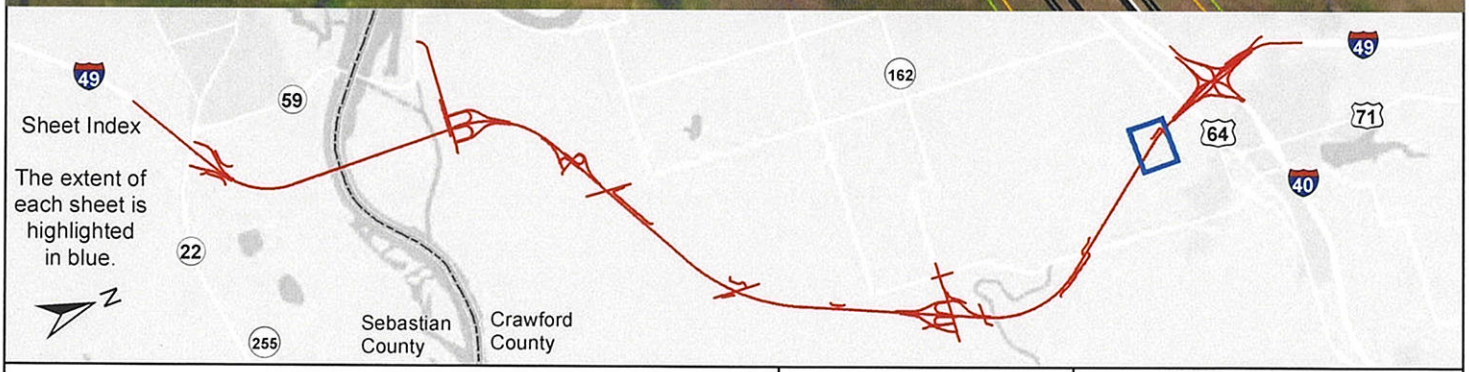
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP
(Sheet 24 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.



- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

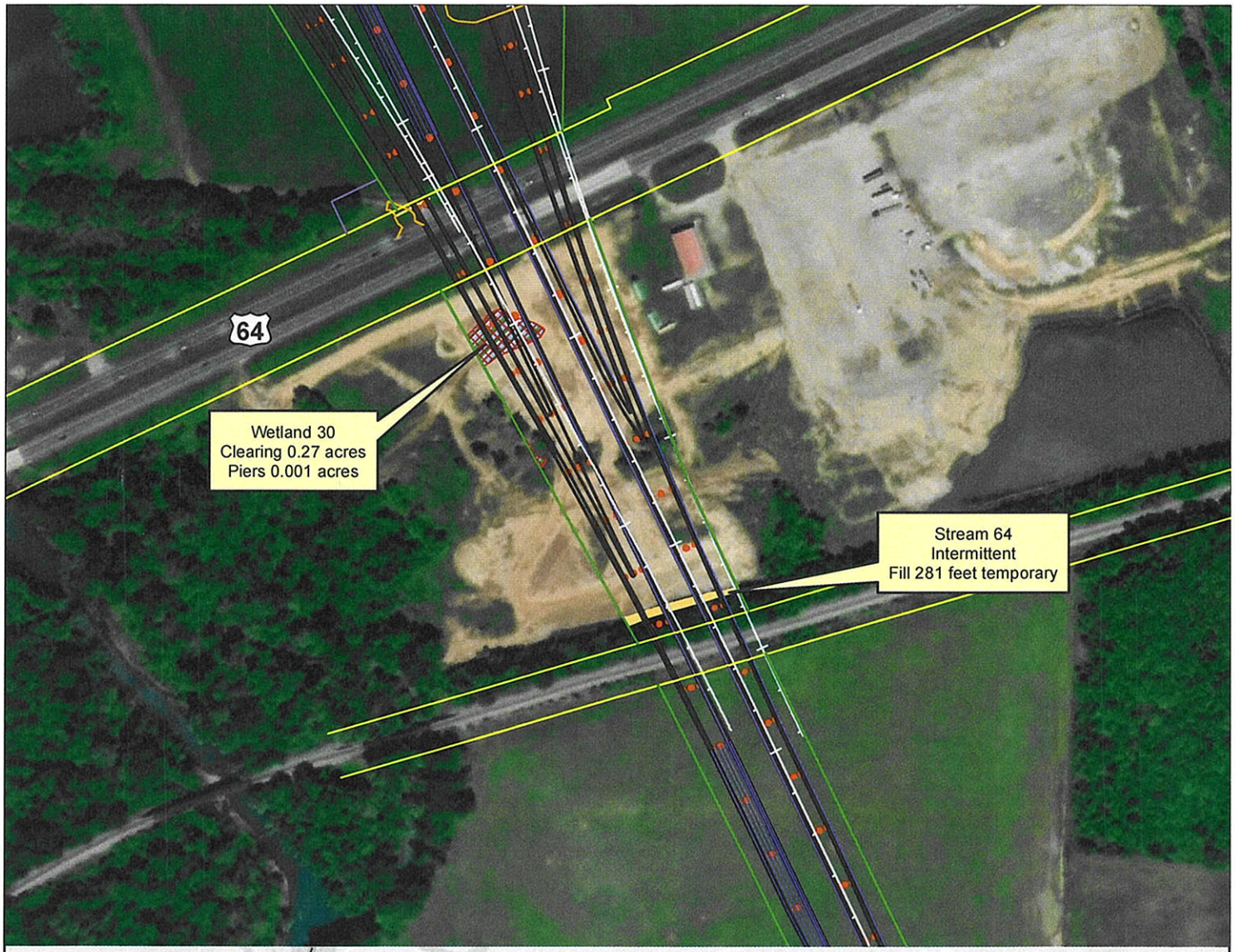
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

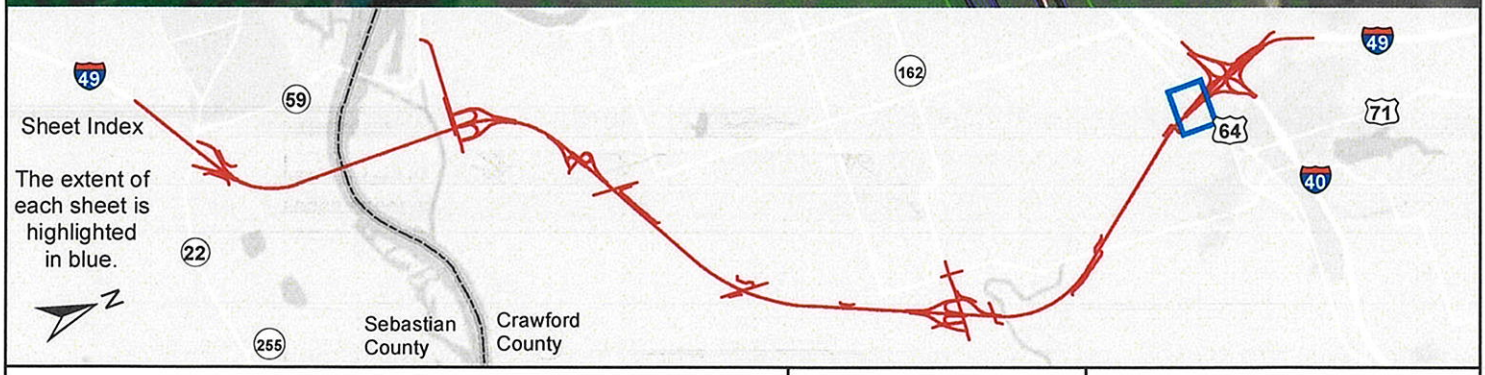
WETLAND AND STREAM IMPACTS MAP
(Sheet 25 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

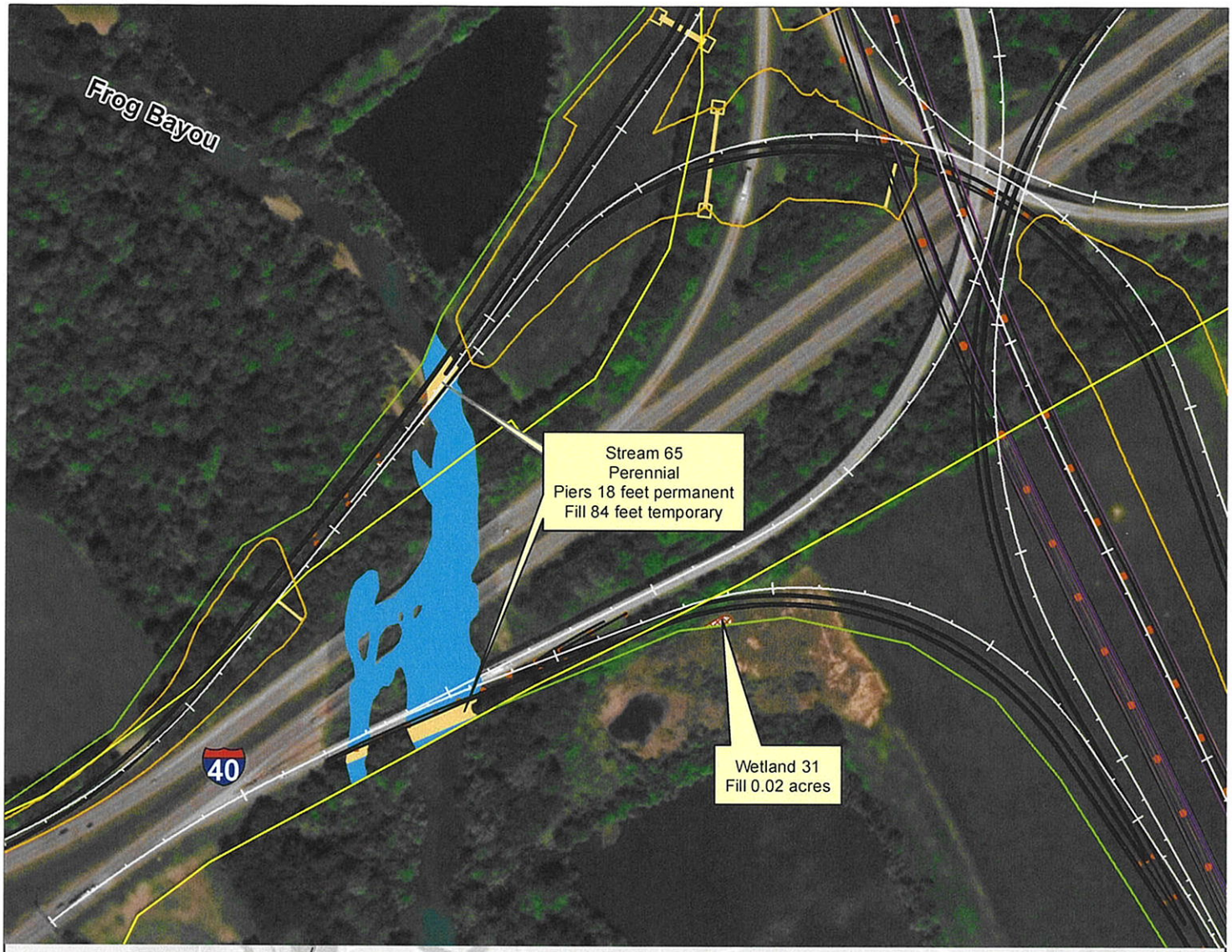
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

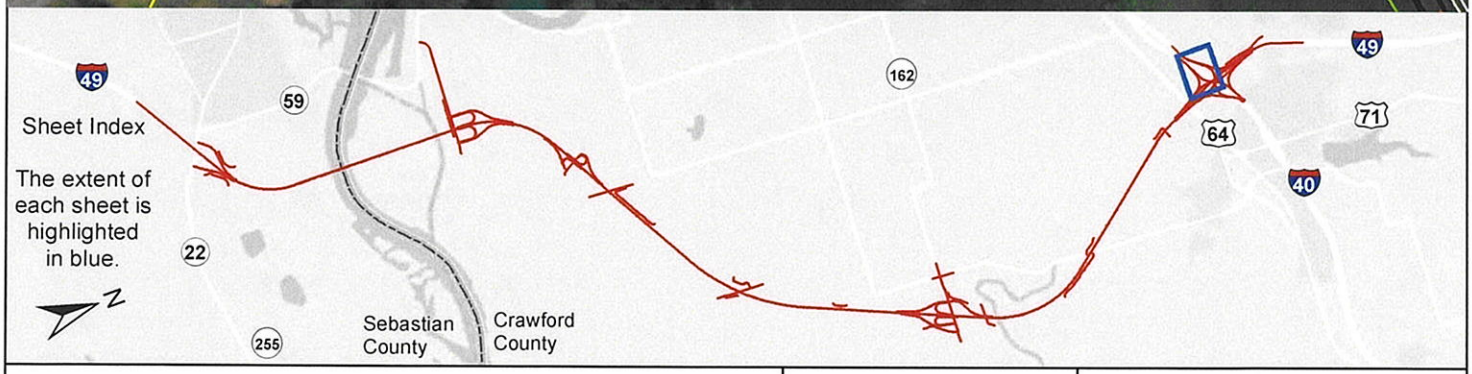
WETLAND AND STREAM IMPACTS MAP
(Sheet 26 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

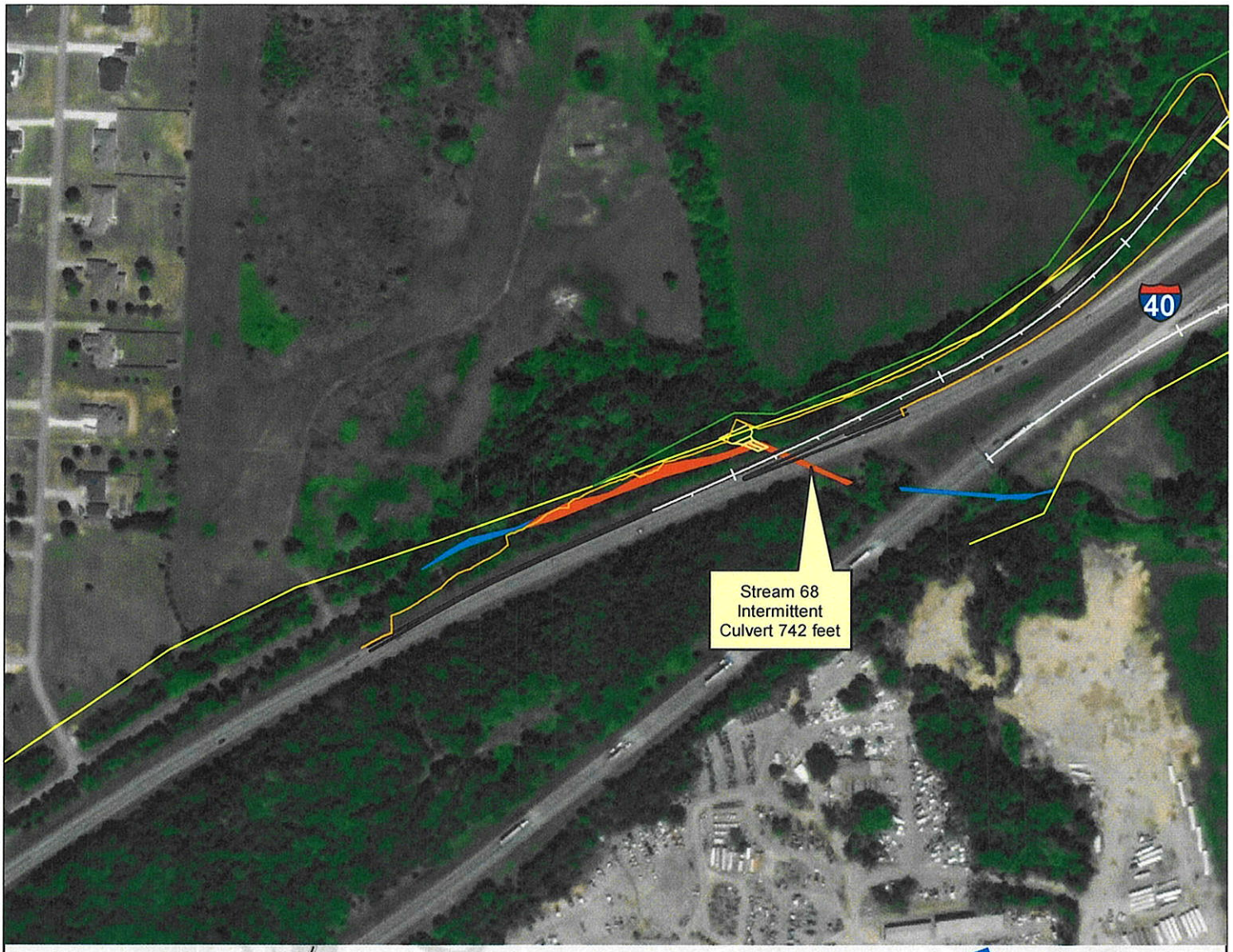
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

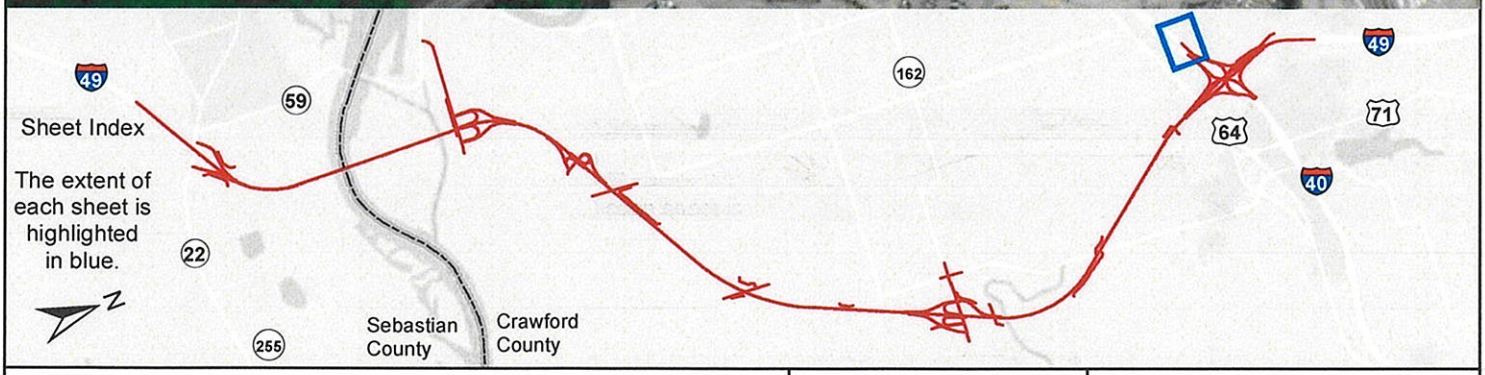
WETLAND AND STREAM IMPACTS MAP (Sheet 27 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

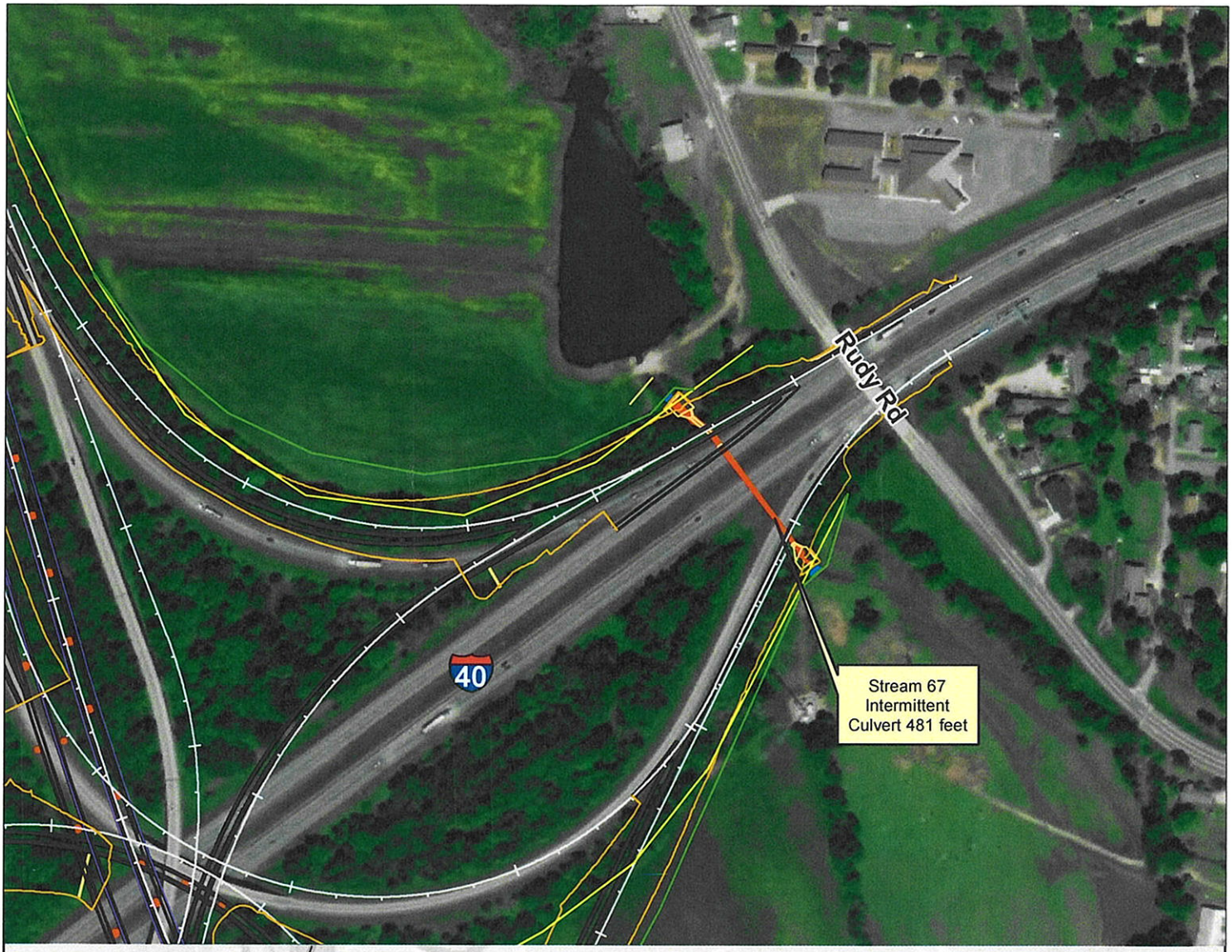
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

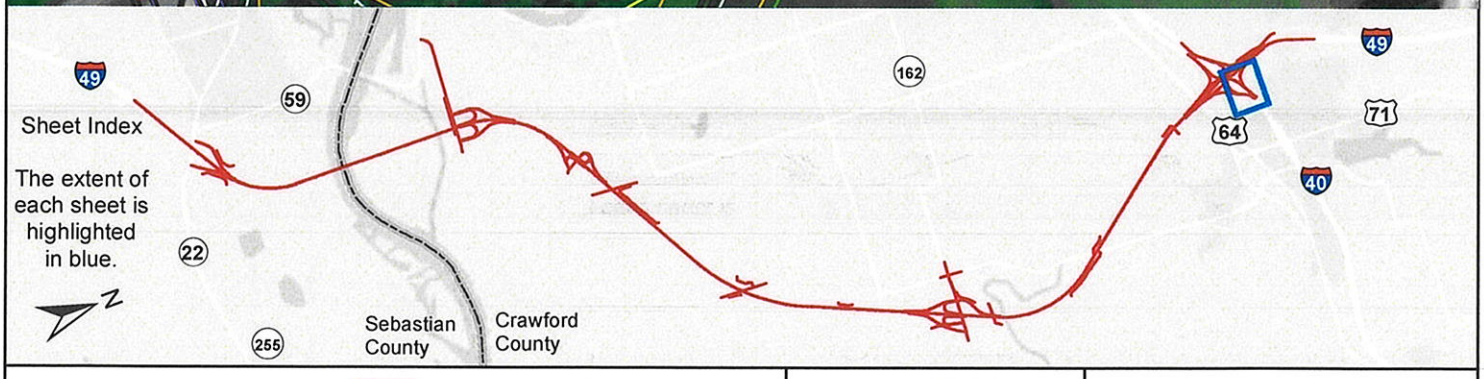
WETLAND AND STREAM IMPACTS MAP
(Sheet 28 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
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- Water Feature (Stream/River)
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- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

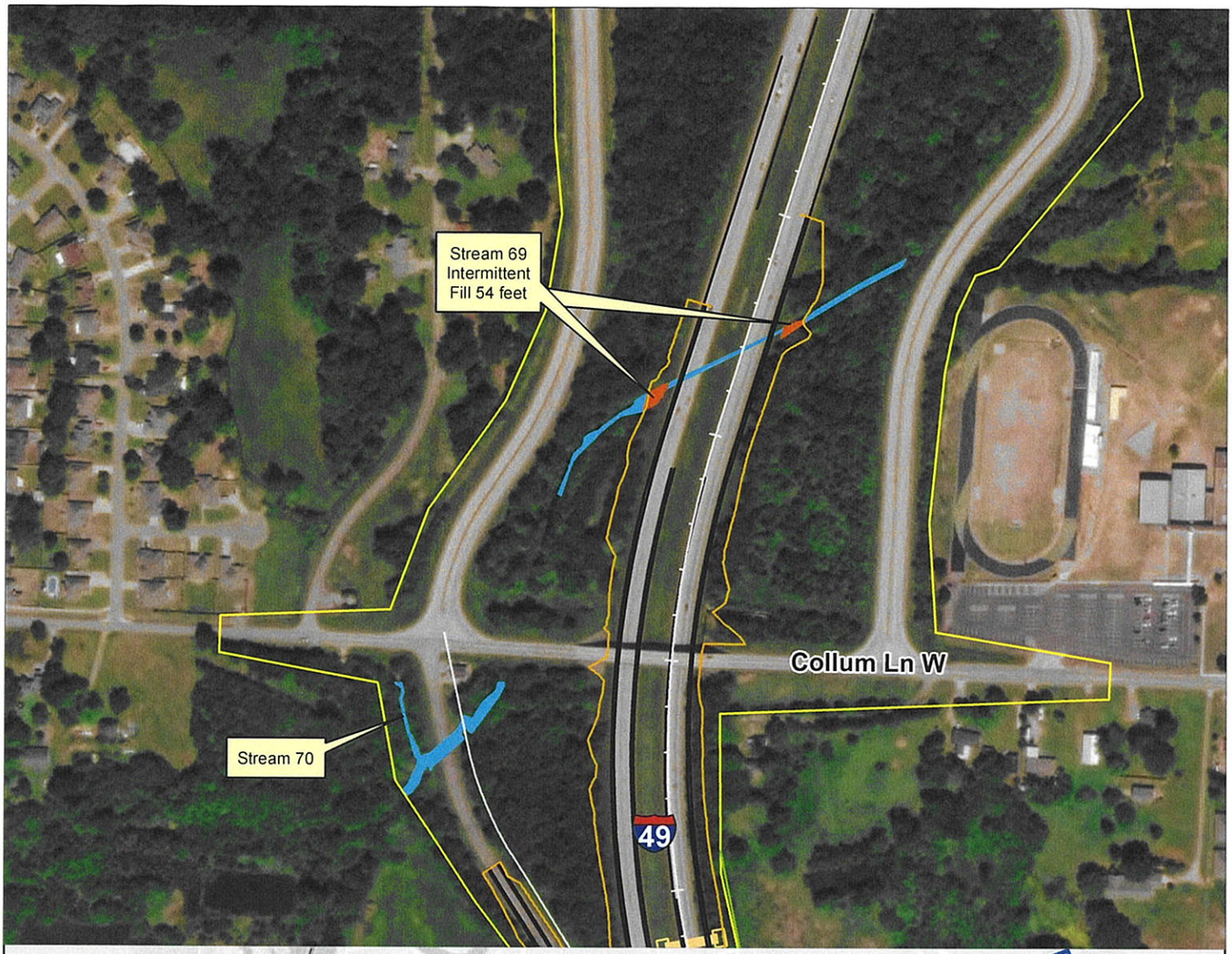
ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

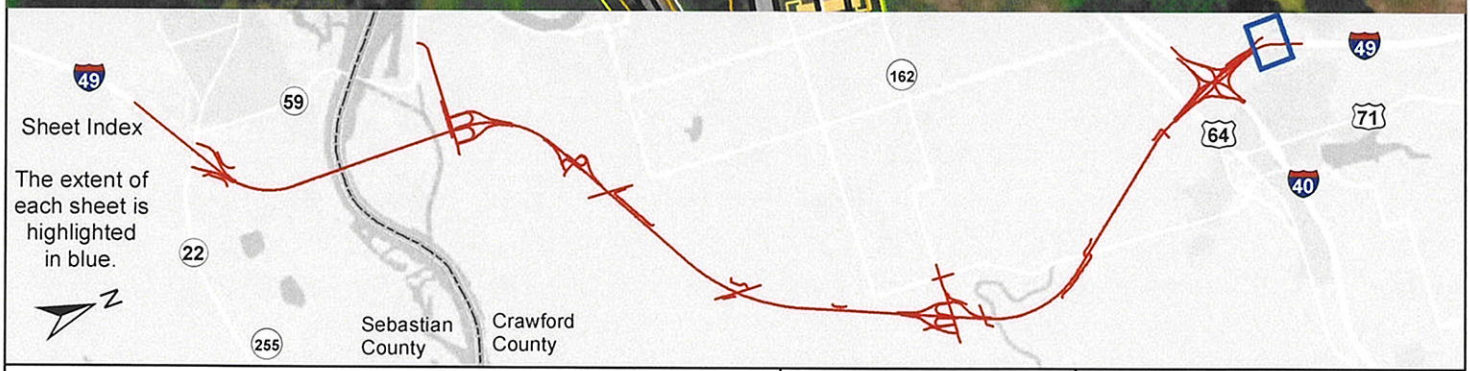
WETLAND AND STREAM IMPACTS MAP
(Sheet 29 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.





- Construction Limits
- Existing ROW
- Proposed ROW
- Temp Constr Easement
- Tree Clearing
- Project Centerline
- Proposed Pavement
- Proposed Bridge
- Proposed Culvert
- County Boundary
- Bridge Piers
- Water Feature (Stream/River)
- Water Feature (Impoundment)
- Wetland Feature
- Wetland Mosaic
- Permanent Wetland Impact
- Permanent Water Impact
- Temporary Water Impact
- Water of the U.S.

N

0 150 300 Feet

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

WETLAND AND STREAM IMPACTS MAP (Sheet 30 of 30)

Interstate 49 FEIS Re-evaluation
Highway 22 to Interstate 40
Job 040748

Crawford and Sebastian Counties, Arkansas

Source: Esri World Imagery.

June 28, 2024

Mr. Josh Seagraves
Environmental Division Head
AR Department of Transportation
10324 Interstate 30
Little Rock, AR 72209
josh.seagraves@ardot.gov

RE: 401 Water Quality Certification – **DEQ No. 20240137**
I-49 Corridor (Barling to Alma)

Dear Mr. Seagraves,

The Division of Environmental Quality (DEQ) has completed the review of the above referenced 401 Water Quality Certification application to construct a four-lane divided highway (I-49) from Barling, Arkansas to Alma Arkansas in Crawford and Sebastians Counties.

DEQ has determined that there is a reasonable assurance that this activity will be conducted in a manner which, according to the Arkansas Pollution Control and Ecology Commission's (APC&EC) Rule 2, will comply with applicable water quality requirements.

Pursuant to §401 of the Clean Water Act, DEQ hereby issues a water quality certification for the above referenced project and **U.S. Corps of Engineers Project No. SWL-2021-00223.** This certification is based on the plans, specifications, and supporting information supplied by the project proponent at the time of this response. The following conditions shall be applicable:

1) In accordance with APC&EC Rule 2.305, the applicant shall obtain a Short Term Activity Authorization (STAA) when performing work in the wetted area of waters of the state as defined by Arkansas Code Annotated (A.C.A.) §8-4-102. Activities approved under a STAA are subject to the provisions that no permanent or long-term impairment of beneficial uses is likely to result from such activity. More information can be obtained by visiting https://www.adeq.state.ar.us/water/planning/instream/ or https://eportal.adeq.state.ar.us/
2) The applicant shall implement all practicable best management practices (BMPs) and provide and maintain natural buffers with native vegetation, except where unfeasible or unavailable, to avoid excessive impacts of pollutants to waters of the state, 40 CFR §122.26(c).
3) The applicant will take all reasonable measures to prevent the spillage or leakage of any chemicals, oil, grease, gasoline, diesel, or other fuels. In the unlikely event such spillage or leakage occurs, the applicant must contact DEQ immediately.
4) The applicant shall limit construction to low flow periods as much as possible to minimize adverse effects on water quality and aquatic life.

5) If the construction will disturb equal to or greater than one (1) acre and less than five (5) acres, the applicant shall comply with the requirements in Rule 6.203 for stormwater discharge associated with a small construction site, as defined in APC&EC Rule 6. If the construction will disturb five (5) acres or more, the applicant shall comply with the terms of the Stormwater Construction General Permit, Number ARR150000 prior to the start of construction. BMPs must be implemented regardless of the size of the disturbance. More information can be obtained by contacting the NPDES Stormwater Section of DEQ at (501) 683-0962.
6) To the extent practicable, the project construction activities shall include BMPs selected to preserve the existing native species and include re-planting and re-establishment of native riparian vegetative features if disturbed.

In issuing this certification, DEQ does not assume any liability for the following:

A. Damages to the proposed project, or uses thereof, as a result of other permitted or unpermitted activities or from natural causes.
B. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity specified in this certification.
C. Design or construction deficiencies associated with this proposed project.

If you have any questions, please contact Mr. Jim Wise (jim.wise@arkansas.gov) (501) 682-0663.

Sincerely,

Joe Martin
Interim Deputy Associate Director, Office of Water Quality

cc: Johnny McLean, johnny.McLean@usace.army.mil
Daniel Bagby, EPA
Chris Davidson, USFWS
Jennifer Sheehan, AGFC
Amy Huneycutt, DEQ Inspector Supervisor
Lindsay Zweifel, Lindsay.zweifel@ardot.gov