Port Site Evaluation Study

Central Arkansas Intermodal Authority

Conway County and Perry County

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1.0 Executive Summary

1.1 Introduction

The Central Arkansas Intermodal Authority (CAIA) was formed by Conway and Perry Counties to improve economic well-being through the development of a riverport terminal and associated industrial site along the Arkansas River. The CAIA, in partnership with the Arkansas Department of Transportation (ARDOT), commissioned a study to assess potential market demand for a riverport in the two-county region. The resulting study, which included a strength, weaknesses, opportunities, and threats (SWOT) analysis, showed the region has the potential to meet the minimum requirements for developing a sustainable port facility. The study, dated November 2017, also developed recommendations for next steps which included completing a port site evaluation.

1.2 Study Objectives

The purpose of this port site evaluation study is to determine the engineering and environmental feasibility through conceptual engineering analysis and environmental screening of potential riverport terminal locations and supporting industrial sites. The following objectives are specifically addressed in this study.

- Coordinate with identified stakeholders
- Inventory existing infrastructure
- Evaluate site characteristics
- Develop cost comparisons
- Explore funding availability
- Complete environmental constraints mapping

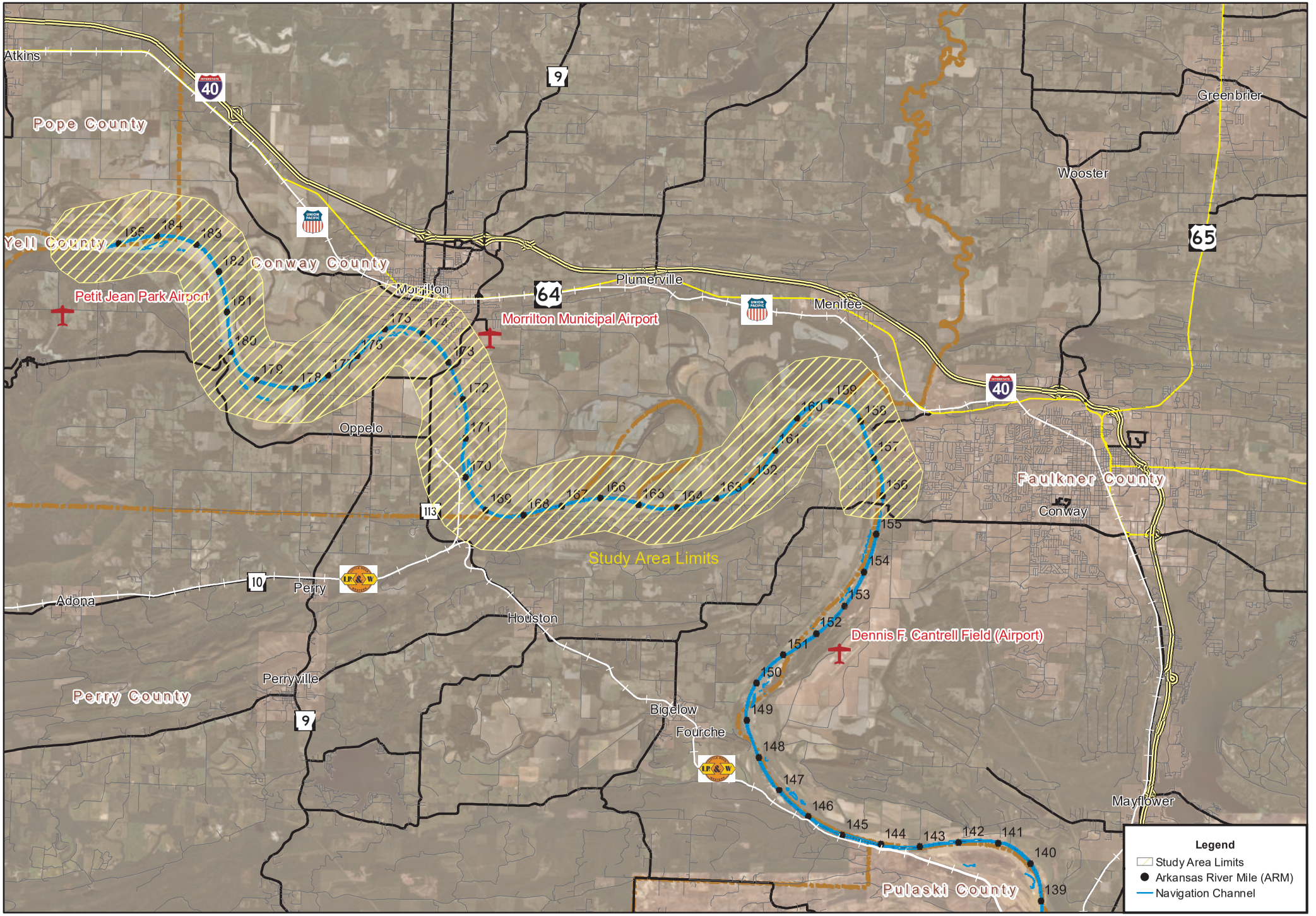
The results of this study may be used to assist in further port development decisions regarding location and integration within the local infrastructure.

1.3 Study Area

The study area includes portions of Conway and Perry Counties located along the McClellan-Kerr Arkansas River Navigation System (MKARNS). The study boundary stretches from the Conway/Yell County line near river mile 185.8 downstream to the Toad Suck Lock & Dam No. 8/Highway 60 Bridge near river mile 155.8 as shown on **Figure 1-1**.

1.4 Study Findings

A summary of the conceptual engineering analysis and environmental screening of alternative port sites and industrial supersites is shown pictorially in **Table 1-1** and **Table 1-2** respectively.



CAIA Port Site Evaluation Study
Figure 1-1: Study Area Map

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0 2.5 5 10 Miles

N W E S

Table 1-1: Engineering Analysis Summary

Alternatives	Location Relative to Existing Industry	Location Relative to Interstate Access	Location Relative to Existing Railroad Infrastructure	Location Relative to Navigation Channel Access	Location Relative to Existing Utilities
Riverport Terminal Sites					
Winrock Farms					
Charlie's Hidden Harbor					
Oppelo Bottoms Site 1					
Oppelo Bottoms Site 2					
Cypress Creek					
Rogers Group					
Industrial Supersites					
Winrock Farms Supersite				N/A	
Oppelo Bottoms Supersite				N/A	

Table 1-2: Environmental Screening Summary

Alternatives	Hazardous Materials	Threatened & Endangered Species	Farmlands	Sensitive Sites	Streams	Wetlands	Overall Community/ Environmental
Riverport Terminal Sites							
Winrock Farms	Low	Low	High	Low	Low	Medium	Medium
Charlie's Hidden Harbor	Low	Low	Medium	High	Low	Low	Medium
Oppelo Bottoms Site 1	Low	Medium	Low	Low	Low	Low	Low
Oppelo Bottoms Site 2	Low	High	Low	Low	Low	Low	Low
Cypress Creek	Low	High	High	Low	Low	Low	Medium
Rogers Group	Medium	Medium	Low	Low	Low	Low	Low
Industrial Supersites							
Winrock Farms Supersite	Low	Low	High	Low	High	Medium	High
Oppelo Bottoms Supersite	High	Low	High	Medium	Medium	Low	High
Cadron Creek Supersite	Low	Low	Low	High	Medium	High	High

Environmental constraints ratings provided in this table only address certain constraints. The affected resources are potential impacts based on desktop constraints review and known, direct impacts will be determined during final design. Section 5 provides additional details related to the environmental setting of each alternative.

1.5 Recommendations for Next Steps

- Continue coordination with stakeholders to determine future plans in the study area along with potential uses of the riverport terminal and industrial supersite.

- The use of federal funds in the development of the proposed port facility will trigger the requirement to complete environmental studies as required by the National Environmental Policy Act (NEPA). NEPA will not formally begin until the federal funding and a federal lead agency are in place, however, the CAIA should be cognizant of this forthcoming requirement and follow general NEPA guidelines and provide documentation of these efforts so that when the NEPA process does begin the CAIA does not have to backtrack and redo any completed tasks as the project is advanced through the environmental, design, and permitting phases.

2.0 Stakeholder Coordination

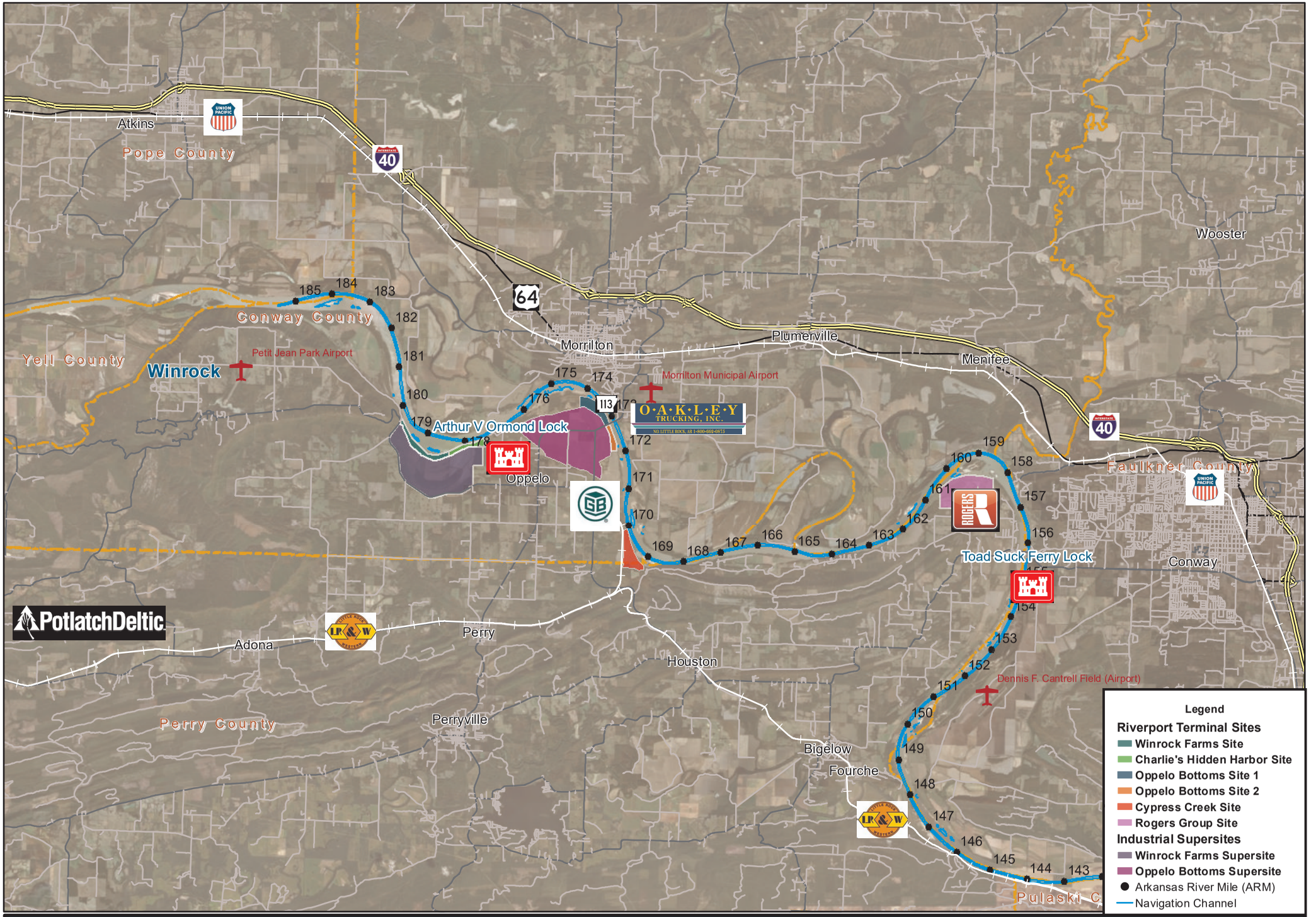
Several specific stakeholders, as shown in **Figure 2-1**, were identified during the study scoping meetings. Each stakeholder was selected to provide early coordination throughout the site evaluation process. Each stakeholder offered varying levels of input based on the limited information available at this conceptual stage of development. Continued dialogue with each stakeholder listed below, among others, will be crucial to the successful development of a riverport within the study area.

2.1 US Army Corps of Engineers

A meeting was held at the US Army Corps of Engineers (USACE) Little Rock District office on May 25, 2018 at 9:00am. USACE Operations Division provided input on the identified riverport terminal sites and the potential use of the Arthur V. Ormond Lock & Dam for a proposed railroad bridge. The individual riverport site maps were discussed independently with respect to operations along the river. Detailed meeting minutes are provided in **Appendix A**. The following summarizes the comments for each location:

- Winrock Farms
    - Excessive distance from the river navigation channel to a proposed harbor would likely require frequent dredging to maintain a navigable channel.
- Charlie's Hidden Harbor
    - Operations at the Arthur V. Ormond Lock and Dam would likely be impacted at this location due to its close proximity to the arrival point and associated lock staging.
- Oppelo Bottoms
    - Removal of existing dykes may be necessary and would require additional hydraulic analysis by USACE for approval.
    - Site 2, downstream of the Highway 9 bridge, was preferred based on being located downstream of the bridge substructure.
- Cypress Creek
    - Natural embayment near the outlet of Cypress Creek appears to be a desirable site from an operations standpoint.
- Rogers Group
    - Concerned about the location of existing dykes and resulting siltation issues to maintain a navigable access channel.

In addition to port terminal sites, USACE provided feedback on the potential use of the Arthur V. Ormond Lock and Dam as substructure for a proposed railroad crossing of the river. The Operations Division informed the Central Arkansas Intermodal Authority that any structure constructed on the dam itself would become federal property and must be maintained by USACE. The maintenance alone would add additional burden on the Maintenance Division's duties in maintaining an already aging infrastructure system. Based on previous discussions, USACE Engineering Division performed a cursory analysis of adding a rail bridge to the dam which resulted in considerable concerns particularly relating to lateral loads induced by locomotive braking. The Big Dam Bridge located atop the Murray Lock and Dam was referenced by USACE as being acceptable based on relatively light pedestrian loads and recreational use.



CAIA Port Site Evaluation Study
Figure 2-1: Stakeholder Map

0 2.5 5 10 Miles

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2.2 Union Pacific Railroad

The Union Pacific Railroad (UPRR) is located approximately 0.75 mile north of the Arkansas River near Morrilton. The Van Buren Subdivision, regionally, runs from Van Buren to North Little Rock. Connection to the UPRR mainline is restricted by the river as all the sites considered in this study are located on the south side. The UPRR was contacted to discuss the site evaluation study and potential mainline rail connection. UPRR is interested in the development of a port and intermodal site particularly once industry is realized and demands rail service. The UPRR industrial development team committed to provide informal reviews of any future industrial track concepts connecting to the UPRR mainline.

2.3 Genesee & Wyoming Inc.

Genesee & Wyoming Inc. (GWRR) owns the Little Rock & Western (LRWN) short line railroad which is operational from Ola (MP 141) to Little Rock (MP 210). The shortline railroad is located approximately 1 mile south of the Conway/Perry County line near Highway 113. Green Bay Packaging, Arkansas Kraft Division, currently has an industrial connection to the LRWN. GWRR was contacted to discuss the site evaluation study and potential shortline rail connection. The GWRR is willing to work with the CAIA through development and possibly provide infrastructure if industry is identified with rail demand. GWRR provided existing right of way information, allowable gross weight limits, and rail weights.

2.4 Green Bay Packaging Inc.

Green Bay Packaging is a manufacturer of custom packaging and corrugated cardboard boxes and operates a mill operation, Arkansas Kraft Division, south of Morrilton on the west side of the Arkansas River. Green Bay Packaging Inc. has been involved with the development of the CAIA although hasn't disclosed detailed benefits or uses of the port development. The company is an important stakeholder and partner for the CAIA port development.

2.5 Rogers Group

Rogers Group owns and operates the Toad Suck Quarry which is located just off Highway 60 approximately one mile west of the Arkansas River. Rogers Group had shown previous interest in port development at or near the quarry location and was contacted to discuss the site evaluation study. Rogers Group expressed that their day to day operations don't currently demand access to a port terminal but could see the benefit of being able to load barges using off road equipment and bypassing conventional highway truck transport. Port sites located off site would not benefit their operation.

2.6 Bruce Oakley, Inc.

Bruce Oakley, Inc. is a diverse commodity trading, distribution, and transportation company. The company operates the existing port terminal located at Arkansas River Mile (ARM) 172.6 directly across the river from the Oppelo Bottoms Site 2. Use of additional port facilities in the study area are unlikely for the company as the relative distance to another, fully capable, private port located in North Little Rock makes the necessity of the existing Morrilton port marginal. Unless a large industry that is currently supported by Bruce Oakley, Inc. locates within the associated industrial supersite, direct benefit will not be realized. The company would entertain selling the existing port to the CAIA.

2.7 PotlatchDeltic

PotlatchDeltic is a timber company that includes timberland holdings and timber manufacturing operations within the southern two-thirds of the state of Arkansas including the study area. The company owns and operates an existing sawmill in Ola. Company representatives were contacted by phone and email several times with no responses received by the completion of this study.

2.8 Winrock

Winrock Farms is a substantial land holder within the study area including river bank pastureland. Winrock Farms was contacted regarding the port site evaluation study and agreed to meet once more information is available about site selection and layout.

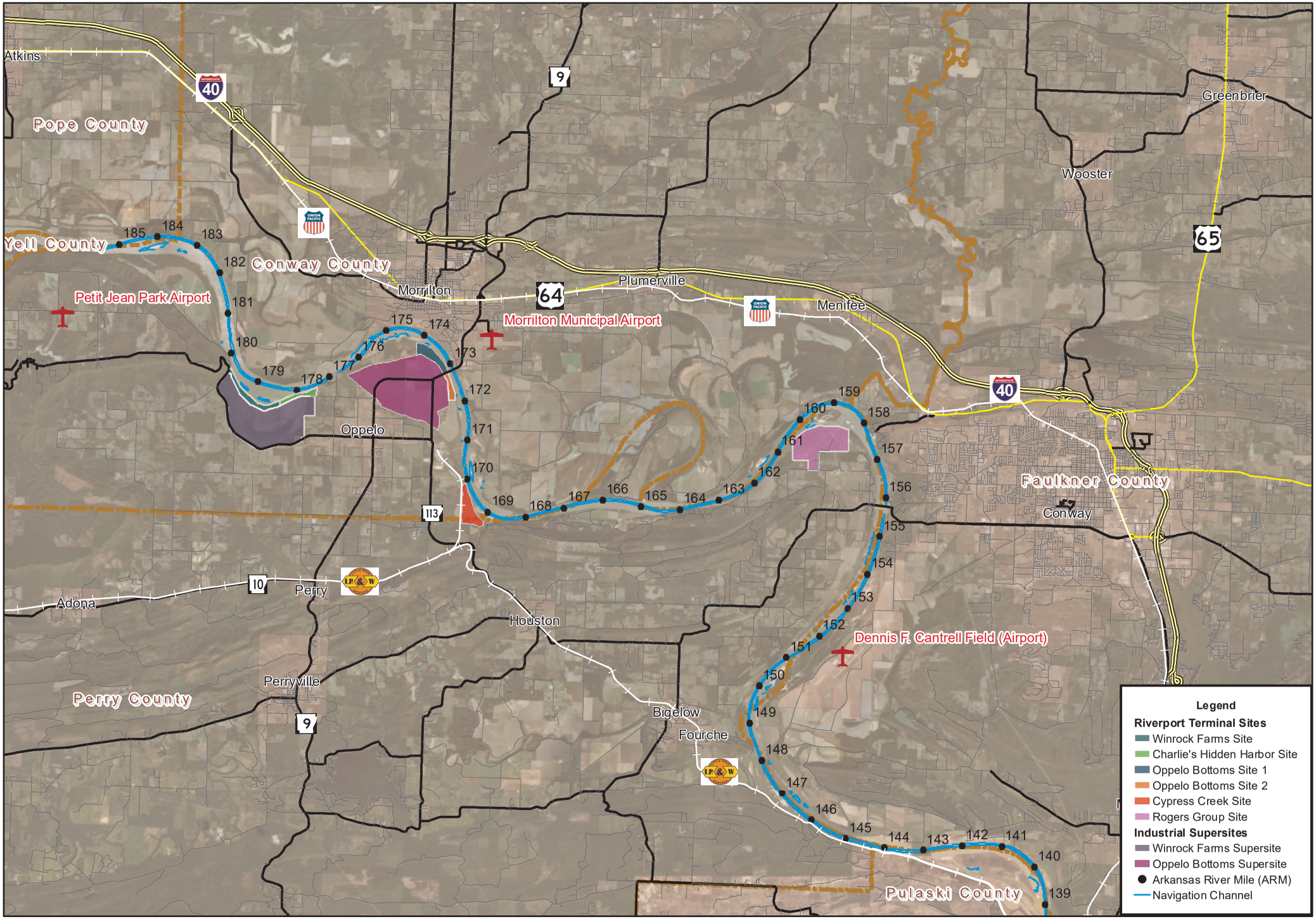
3.0 Existing Infrastructure

3.1 Landside Access

Landside access allows for the movement of freight from ports and industrial sites to internal land locations by utilizing roadway, rail, and airport facilities. Better access to these facilities promotes efficient and cost effective distribution of freight. **Figure 3-1** provides an overview of highways, railroads, and airports located within the study area.

3.1.1 Highway

The primary form of roadway access to the Oppelo Bottoms area is provided by Highway 9. Highway 9 provides access to Interstate 40 and Highway 65 to the north and access to Highway 5 and Interstate 30 via Highway 70 to the South. Highway 154 would provide the main access to Winrock Farms and Charlie's Hidden Harbor. Highway 154 intersect Highway 9 providing access to the above mentioned routes. The Cypress Creek site would gain access to Highway 9 via Highway 113. Northbound traffic from the Rogers Group site could gain access to Highway 9 via Highway 60 and Highway 113. Southbound traffic from this site could gain access to Highway 9 via Highway 60. Existing roadway features for Highway 9 access to the study area are listed in **Table 3-1**.



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CAIA Port Site Evaluation Study
Figure 3-1: Existing Landside Access Map

Table 3-1: Existing Highway Access

Highway	Typical Section	2017 ADT (% Truck)
Highway 9 From: Hwy. 5 To: Riverview Rd.	Two 11-foot lanes w/ var. shoulders	1,200 4,200
Highway 9 From: Riverview Rd. To: Arkansas River Bridge	Two 12-foot lanes w/ 3-foot shoulders	5,300 (6%)
Highway 9 From: Arkansas River Bridge To: Hwy. 64 Bridge	Two 12-foot lanes w/ 10-foot shoulders	10,000
Highway 9 From: Hwy. 64 Bridge To: Interstate 40	Two 12-foot lanes w/ 10-foot shoulders	9,900
Highway 9 From: Interstate 40 To: Highway 65	Two 11-foot lanes w/ var. shoulders	4,900 2,300 (14%)

3.1.2 Railroad

Two railroads are located within the study area and include the Union Pacific Railroad (UPRR) and the Little Rock & Western (LRWN) which is owned by the Genesee & Wyoming Inc. The UPRR is located north of the Arkansas River and the LRWN is located south of the Arkansas River. A summary of each railroad's existing infrastructure is provided in the following sections.

3.1.2.1 Union Pacific Railroad

The Union Pacific Railroad (UPRR) is a Class I railroad which owns and operates the Van Buren Subdivision. The Van Buren Sub. regionally connects Van Buren (MP 498.5) to North Little Rock (MP 343.6) and generally follows Highway 64 through the study area. At the closest point, the Van Buren Sub. is located 0.75 mile north of the Arkansas River near the city of Morrilton. The subdivision has an allowable gross weight limit of 286,000 lbs. (143 ton) with cars and unit trains permitted.

3.1.2.2 Genesee & Wyoming

The Genesee & Wyoming Railroad (GWRR) is a Class III railroad, or short-line, which owns and operates the Little Rock & Western (LRWN) Subdivision. LRWN Sub. is operational from Ola (MP 141) to Little Rock (MP 210) and utilizes approximately three miles of trackage rights over UPRR to facilitate interchange with UPRR and BNSF Railway in the Little Rock - North Little Rock area. The LRWN Sub. has an allowable gross weight limit of 286,000 lbs. (143 ton). Although the allowable gross weight limits are comparable to that of the UPRR Van Buren Sub., the track condition and typical lightweight rail limit speeds considerably. Rehabilitation of the existing LRWN Sub will likely be necessary to adequately accommodate heavier railcars and additional rail traffic generated by a fully operational riverport terminal and associated industrial supersite.

3.1.3 Airport

Three general aviation airports near the study area include Morrilton, Petit Jean, and Conway. Existing runway statistics are summarized in **Table 3-2** for each airport including runway length, width, and strength of pavement. For comparison purposes, specifications of the Bill and Hillary Clinton National Airport (LIT) in Little Rock were also included in the table.

Table 3-2: Existing Airport Statistics

Airport	Length (ft.)	Width (ft.)	Strength (lbs.)		
			Single Wheel	Dual Wheel	Dual Tandem
Morrilton	4,000	75	4,000	N/A	N/A
Petit Jean	5,852	75	17,000	N/A	N/A
Conway	5,500	100	30,000	60,000	120,000
Little Rock	8,273	150	75,000	200,000	350,000

3.2 River Access

The McClellan-Kerr Arkansas River Navigation System (MKARNS), as shown in **Figure 3-2**, is the nation's most inland waterway and provides access to ocean commerce. It is 445 miles long and begins at the confluence of the White and Mississippi Rivers and continues 1.5 miles upstream to the Arkansas Post Canal, then 9 miles through the canal to the Arkansas River. The system then travels up the Arkansas River crossing the Arkansas state line into Oklahoma until it meets the confluence of the Arkansas and Verdigris River where it then follows the Verdigris River 51 miles upstream until it ends at the Port of Catoosa, near Tulsa, Oklahoma. A map of the complete MKARNS is provided in **Appendix B.**

The following are statistics related to the MKARNS:

- Minimum depth of nine feet
- Width of 300 feet on the White River
- Width of 300 feet on the Arkansas Post Canal
- Width of 250 feet on the Arkansas River
- Width of 150 feet on the Verdigris River
- 18 Locks, each 110 feet wide and 600 feet long

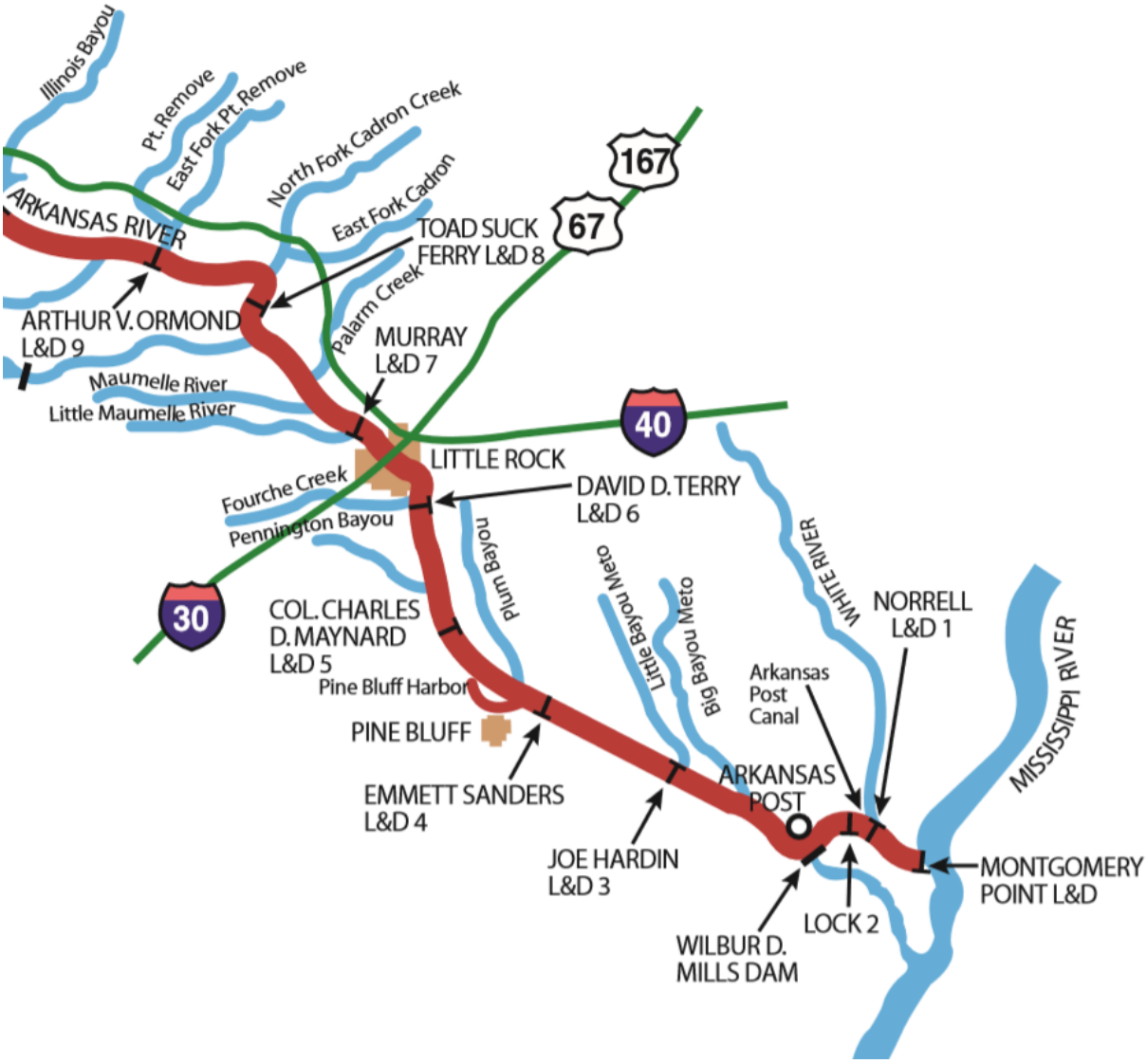


Figure 3-2: McClellan-Kerr Arkansas River Navigation System

3.3 Utilities

An inventory of existing utilities was taken to identify size, location, distance to identified site boundaries, and ownership. Existing electric, gas, and water infrastructure are summarized below based on correspondence with utility owners and operators.

3.3.1 Electric

Electric service in the study area, south of the Arkansas River, is predominately provided by First Electric Cooperative Corporation. Entergy provides electric service north of the river within the study area. **Table 3-3** provides a summary of existing electric infrastructure relative to each site.

Table 3-3: Existing Electric Utilities

Site	Electric			
	Capacity	Location	Distance	Owner
Winrock Farms	3 Phase 1/0 ACSR Circuit	Hwy. 154	Onsite	First Electric Cooperative
	3 Phase 3/0 ACSR Circuit			
Oppelo Bottoms	3 Phase 1/0 ACSR Circuit*	Hwy. 154/ Oats Rd.	Onsite	First Electric Cooperative
Cypress Creek	3 Phase 1/0 ACSR Circuit	Stoney Point Rd.	Onsite	First Electric Cooperative
Rogers Group	3 Phase 1/0 ACSR Circuit	Rock Crusher Rd.	Onsite	First Electric Cooperative

ACSR - Aluminum Conductor Steel Reinforced Cable

*An existing Entergy transmission line crosses the Arkansas River at the northwest corner of the Oppelo Bottoms site which could be utilized for a substation area for service.

3.3.2 Natural Gas

Natural gas service is provided by CenterPoint Energy throughout the study area. **Table 3-4** provides a summary of existing natural gas infrastructure relative to each site.

Table 3-4: Existing Natural Gas Utilities

Site	Natural Gas			
	Size	Location	Distance	Owner
Winrock Farms	3" Main	Hwy. 154	Onsite	CenterPoint Energy
Oppelo Bottoms	4" HP Main	Hwy. 9 (1800' North of Hwy. 154)	0.5 Mile	CenterPoint Energy
Cypress Creek	2" Main	Hwy. 154	2.25 Miles	CenterPoint Energy
Rogers Group	2" Main	Hwy. 60 (east of river)	2.50 Miles	CenterPoint Energy

3.3.3 Water

Water service in Conway County is provided by Conway County Regional Water. All sites are serviced by Conway Regional Water with the exception of the Rogers Group site where water is provided by Toad Suck Public Facilities. **Table 3-5** provides a summary of existing water infrastructure relative to each site.

Table 3-5: Existing Water Utilities

Site	Water			
	Size	Location	Distance	Owner
Winrock Farms	6"	Hwy. 154	Onsite	Conway County Regional Water
	10"	Riverview Rd.	1.25 Miles	
Oppelo Bottoms	12"	Hwy. 9	Onsite	Conway County Regional Water
Cypress Creek	12"	Hwy. 113 (Arkansas Kraft)	2 Miles	Conway County Regional Water
Rogers Group	4”	Rock Crusher Rd.	Onsite	Toad Suck Public Facilities

4.0 Site Evaluation

4.1 Riverport Terminal Alternatives

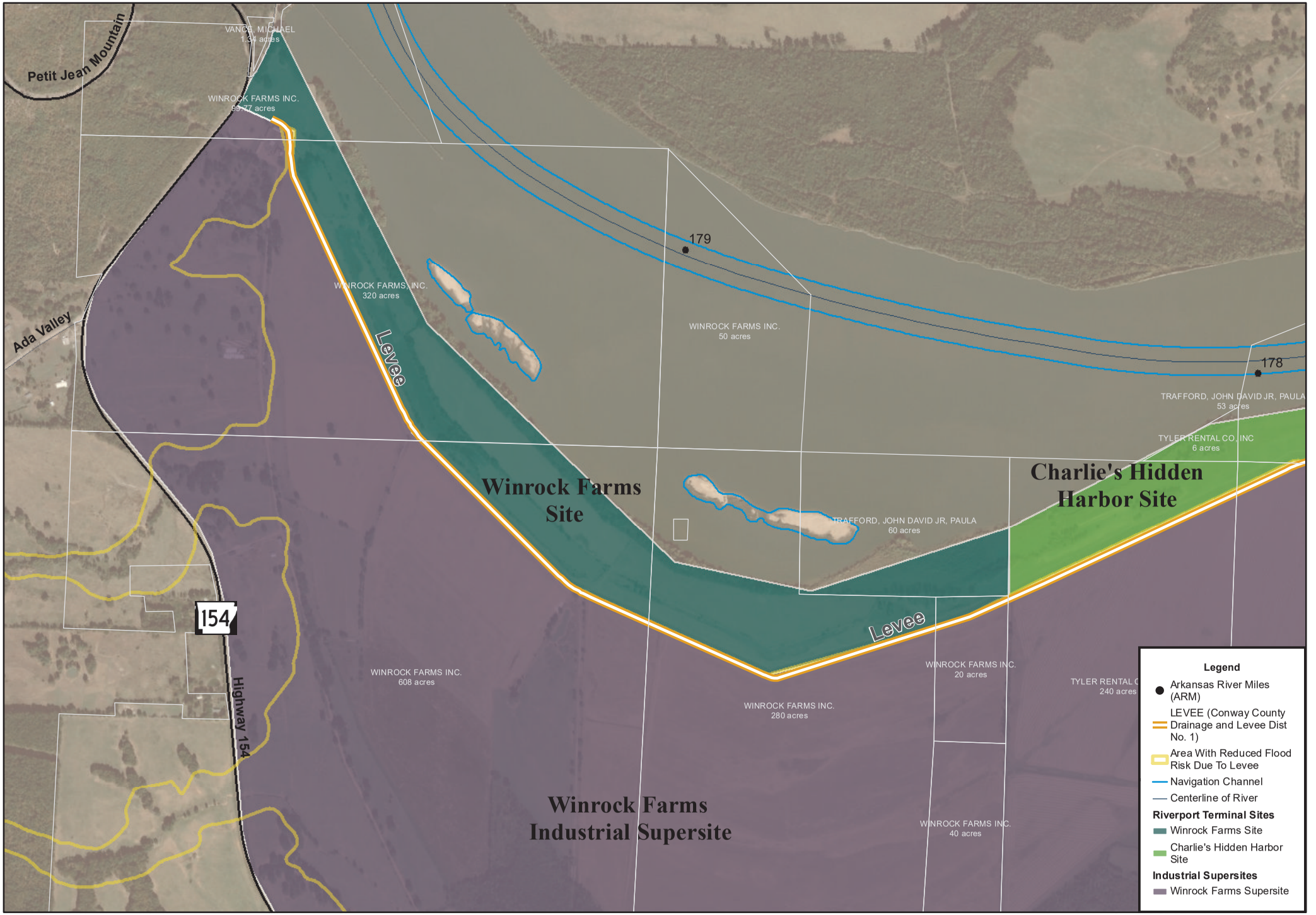
A total of six alternative locations for placement of a riverport terminal were identified during study scoping meetings with the Central Arkansas Intermodal Authority (CAIA). The following alternative locations, listed from upstream to downstream, were considered for inclusion in the study.

- Winrock Farms
- Charlie’s Hidden Harbor
- Oppelo Bottoms Site 1 (upstream from Hwy. 9)
- Oppelo Bottoms Site 2 (downstream from Hwy. 9)
- Cypress Creek
- Rogers Group

All locations considered for riverport terminal sites are located on the south side of the Arkansas River. Therefore, the Arkansas River serves as a barrier for direct access to the Union Pacific Railroad. A railroad river crossing alternative was evaluated independently in Section 6.2.2.

4.1.1 Winrock Farms

As shown on **Figure 4-1**, the Winrock Farms site is located near Arkansas River Mile (ARM) 179 along the right descending bank of the river just east of Petit Jean Mountain. This site consists of gently rolling terrain consisting of primarily pasture land. The Conway County Drainage & Levee District No. 1 levee is located at this site and protects a large tract of adjacent land which may be a viable option to support industrial development. **Figure 4-2** graphically shows Federal Emergency Management Agency (FEMA) flood profile elevations for the site resulting from the local flood insurance study. In addition to flood elevations, the figure also shows normal pool elevation, existing ground elevations, and top of existing levee elevation.



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CAIA Port Site Evaluation Study
Figure 4-1: Winrock Farms Site Map

0 0.125 0.25 0.5 Miles

N W E S

Existing infrastructure proximal to this site includes Highway 154 and the Little Rock & Western (LRWN) shortline railroad located within approximately 9 miles. The navigable channel of the river is approximately 2,000 feet from the right descending river bank at this location. Frequent dredging to maintain a navigable channel to the site for barge access would be a maintenance concern.

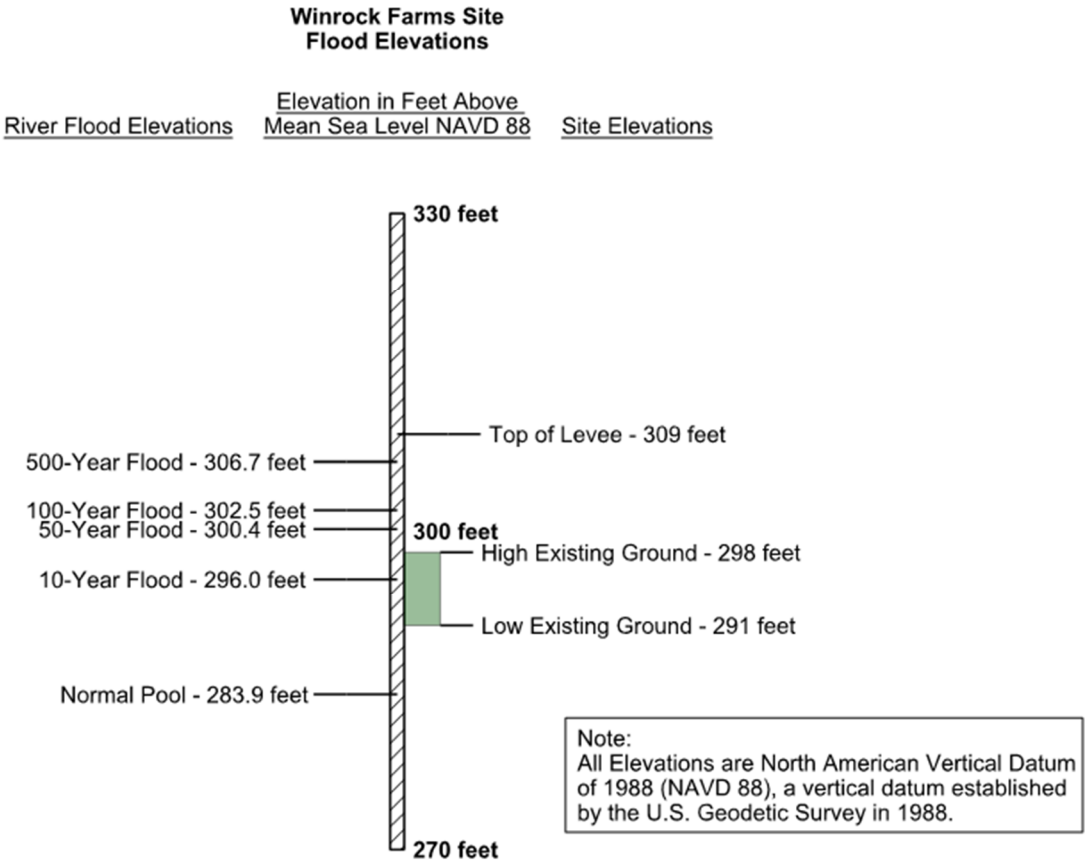
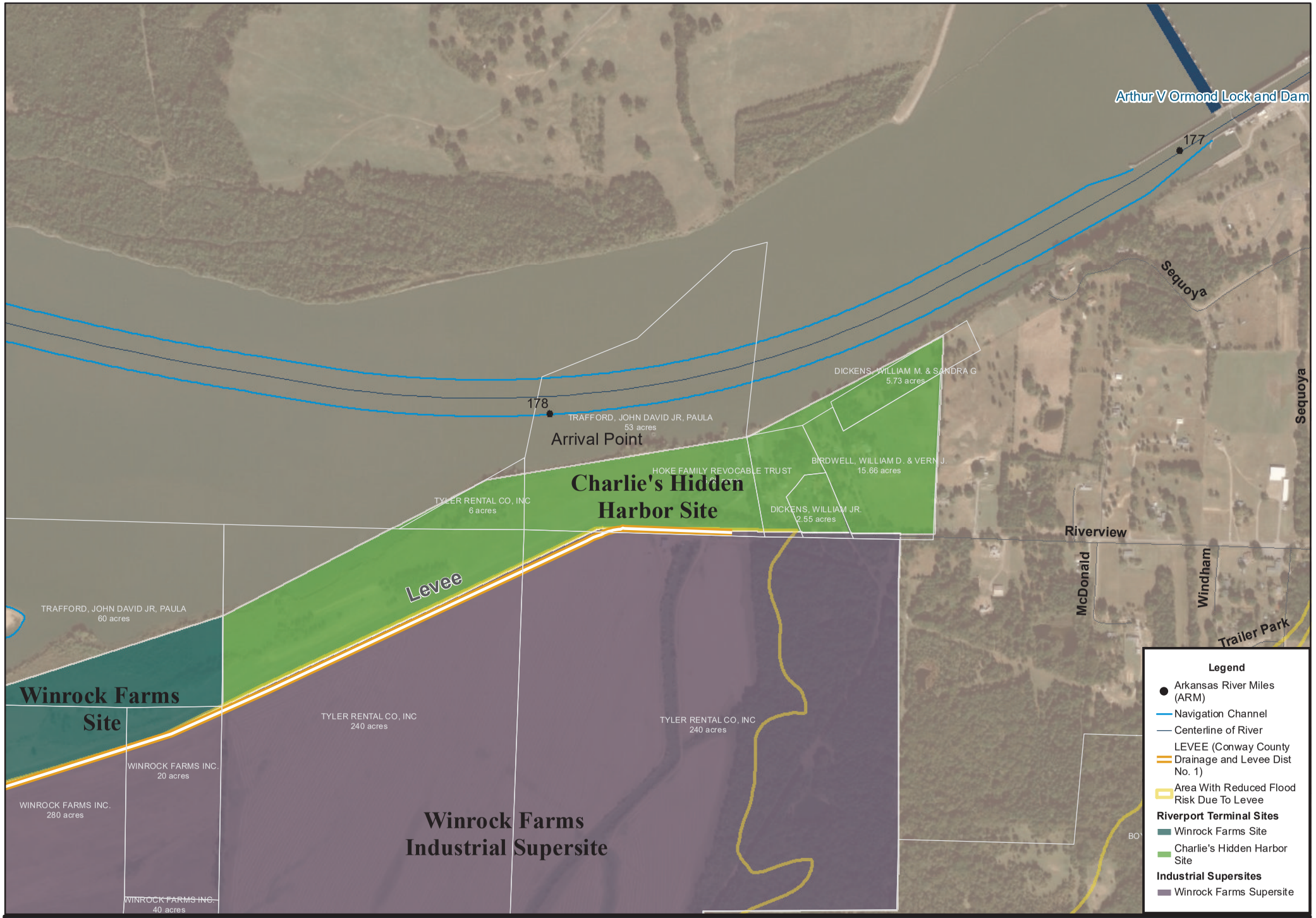


Figure 4-2: Winrock Farms Flood Elevations

4.1.2 Charlie's Hidden Harbor

As shown on **Figure 4-3**, the Charlie's Hidden Harbor site is located near ARM 178 along the right descending bank of the river just west of the Arthur V. Ormond Lock & Dam No. 9. This site is located in the same general vicinity as the Winrock Farms site and consists of gently rolling terrain consisting of primarily pasture land. Similar to the Winrock Farms site, the Conway County Drainage & Levee District No. 1 levee is located at this site and protects a large tract of adjacent land which may be a viable option to support industrial development. **Figure 4-4** graphically shows FEMA flood profile elevations for the site resulting from the local flood insurance study. In addition to flood elevations, the figure also shows normal pool elevation, existing ground elevations, and top of existing levee elevation.



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CAIA Port Site Evaluation Study

Figure 4-3: Charlie's Hidden Harbor Site Map

An existing embayment, locally known as Charlie's Hidden Harbor, was considered for enlargement into a slackwater Harbor. Although, the US Army Corps of Engineers (USACE) expressed concerns with the location relative to the Arthur V. Ormond Lock and Dam Arrival Point. The existing harbor is actually located between the arrival point and the lock causing concern over conflict with barges staged for lock entrance.

Existing infrastructure proximal to this site includes Highway 154 and the LRWN shortline railroad located within approximately 7 miles. In contrast to the Winrock Farms site, the navigable channel of the river at this location is considerably closer to the right descending river bank at approximately 500 feet. Dredging to maintain a navigable channel to the site for barge access would likely be minimized when compared to the Winrock Farms site.

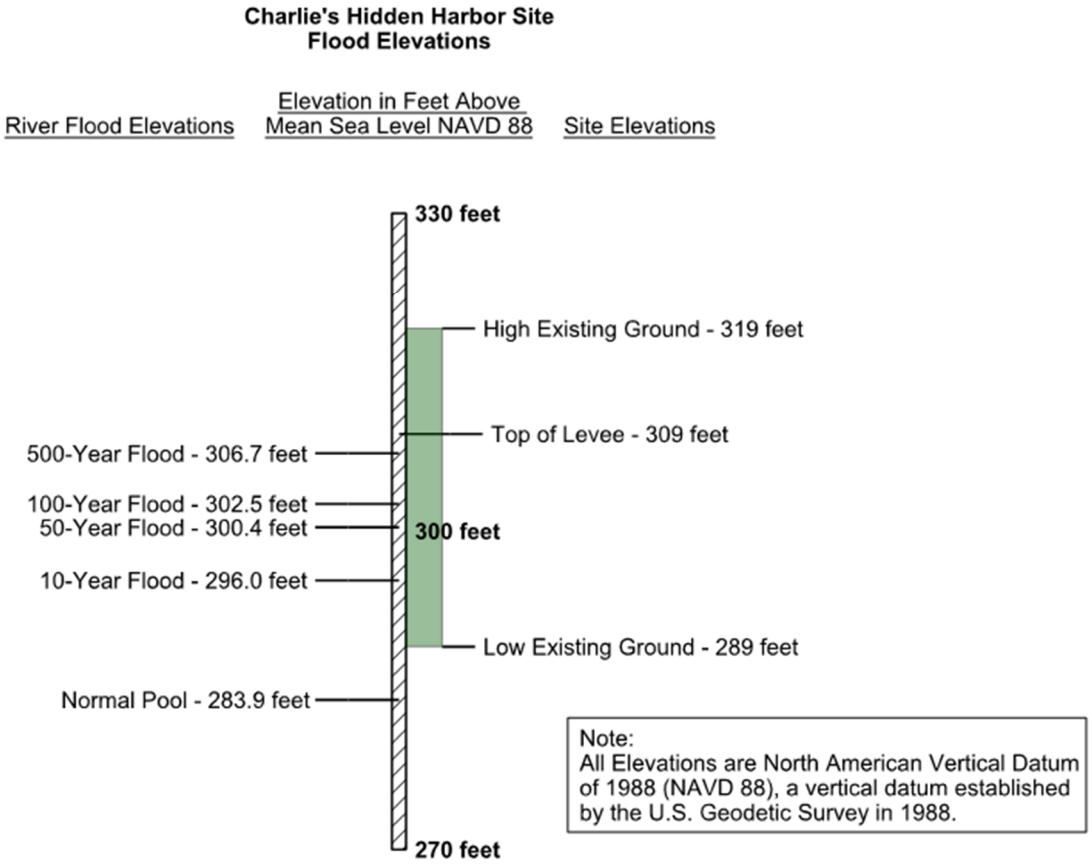


Figure 4-4: Charlie's Hidden Harbor Flood Elevations

4.1.3 Oppelo Bottoms

As shown in **Figure 4-5** and **Figure 4-6**, the Oppelo Bottoms location is divided into two riverport terminal sites separated by the Highway 9 Bridge. Site 1 is located upstream of the bridge and Site 2 is located downstream. **Figure 4-7** graphically shows FEMA flood profile elevations for this area resulting from the local flood insurance study. In addition to flood elevations, the figure also shows normal pool elevation, existing ground elevations, and top of existing levee elevation.

4.1.3.1 Site 1

The Oppelo Bottoms Site 1 is located near ARM 174.5 along the right descending bank of the river just west of the Highway 9 Bridge. This site consists of relatively flat terrain primarily used as pasture land. The Conway County Levee District No. 6 levee is located at this site and protects a large tract of adjacent land which may be a viable option to support industrial development.

Existing dykes are located along the right descending river bank which would likely need to be modified or removed. Additional studies in cooperation with USACE would be necessary to verify the sites potential to accommodate a slackwater harbor opening. A harbor opening directly upstream of the existing Highway 9 bridge may also warrant additional bridge pier protection due to an increased risk of a loose barge impact.

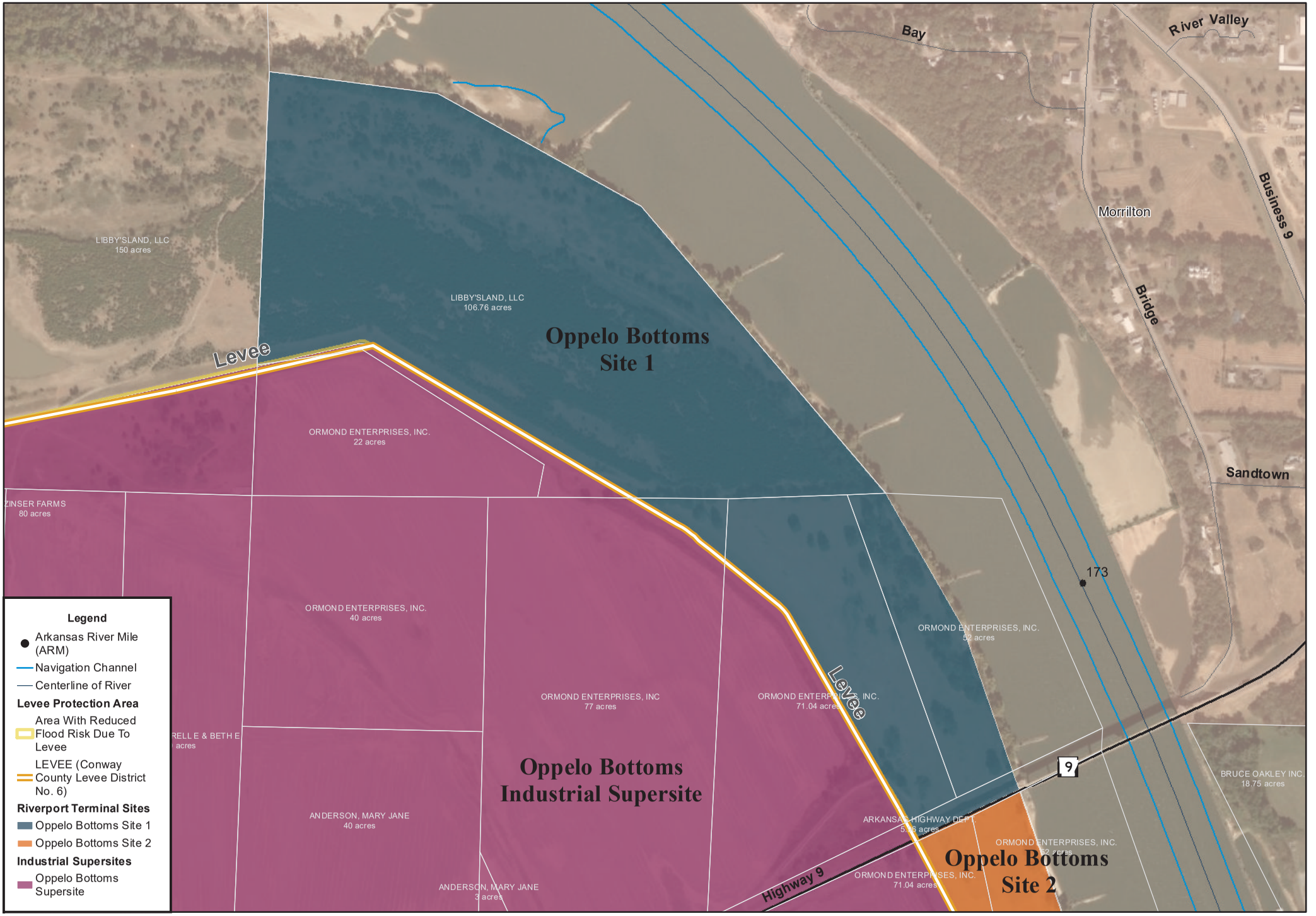
Existing infrastructure proximal to this site includes Highway 9 which provides better access to Interstate 40 compared to Winrock Farms and Charlie's Hidden Harbor sites. The LRWN shortline railroad is located within approximately 5 miles. The navigable channel of the river at this location is on the opposite side of the river but remains within 600 feet of the bank.

4.1.3.2 Site 2

The Oppelo Bottoms Site 2 is located near ARM 172.5 along the right descending bank of the river just west of the Highway 9 Bridge. This site consists of relatively flat terrain primarily used as pasture land. The Conway County Levee District No. 6 levee is located at this site and protects a large tract of adjacent land which may be a viable option to support industrial development.

Similar to Site 1, existing dykes are located along the right descending river bank which would likely need to be modified or removed. The harbor opening would be downstream of the existing Highway 9 Bridge reducing the risk of impact.

Existing infrastructure proximal to this site includes Highway 9 and the LRWN shortline railroad is located within approximately 4 miles. Site 2 prevents the need for an at grade rail crossing with Highway 9 when compared to the other sites. Similar to Site 1, the navigable channel of the river at this location is on the opposite side of the river but remains within 700 feet of right descending bank.



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CAIA Port Site Evaluation Study
Figure 4-5: Oppelo Bottoms Site 1 Map

0 0.125 0.25 0.5 Miles

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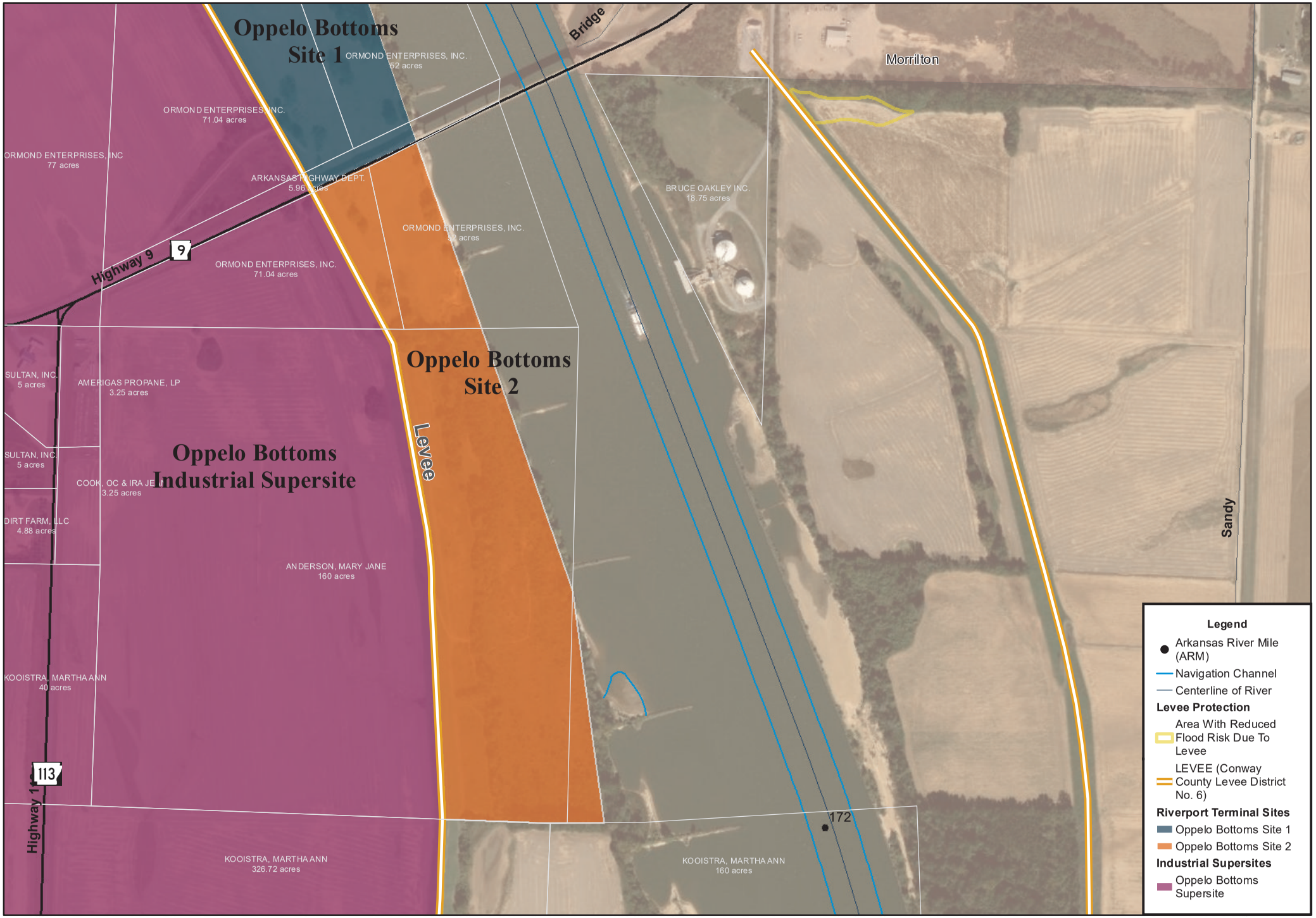

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CAIA Port Site Evaluation Study
Figure 4-6: Oppelo Bottoms Site 2 Map

0 0.125 0.25 0.5 Miles

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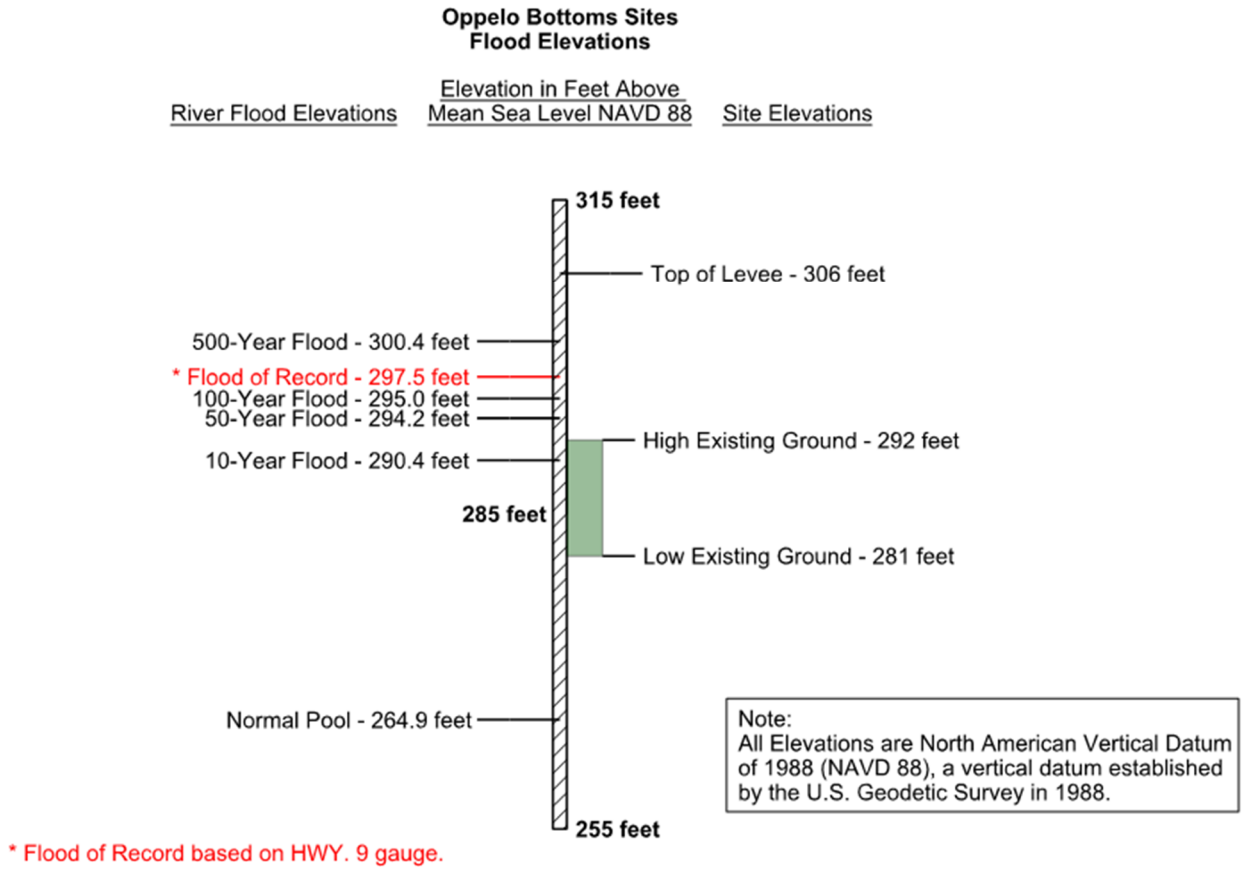
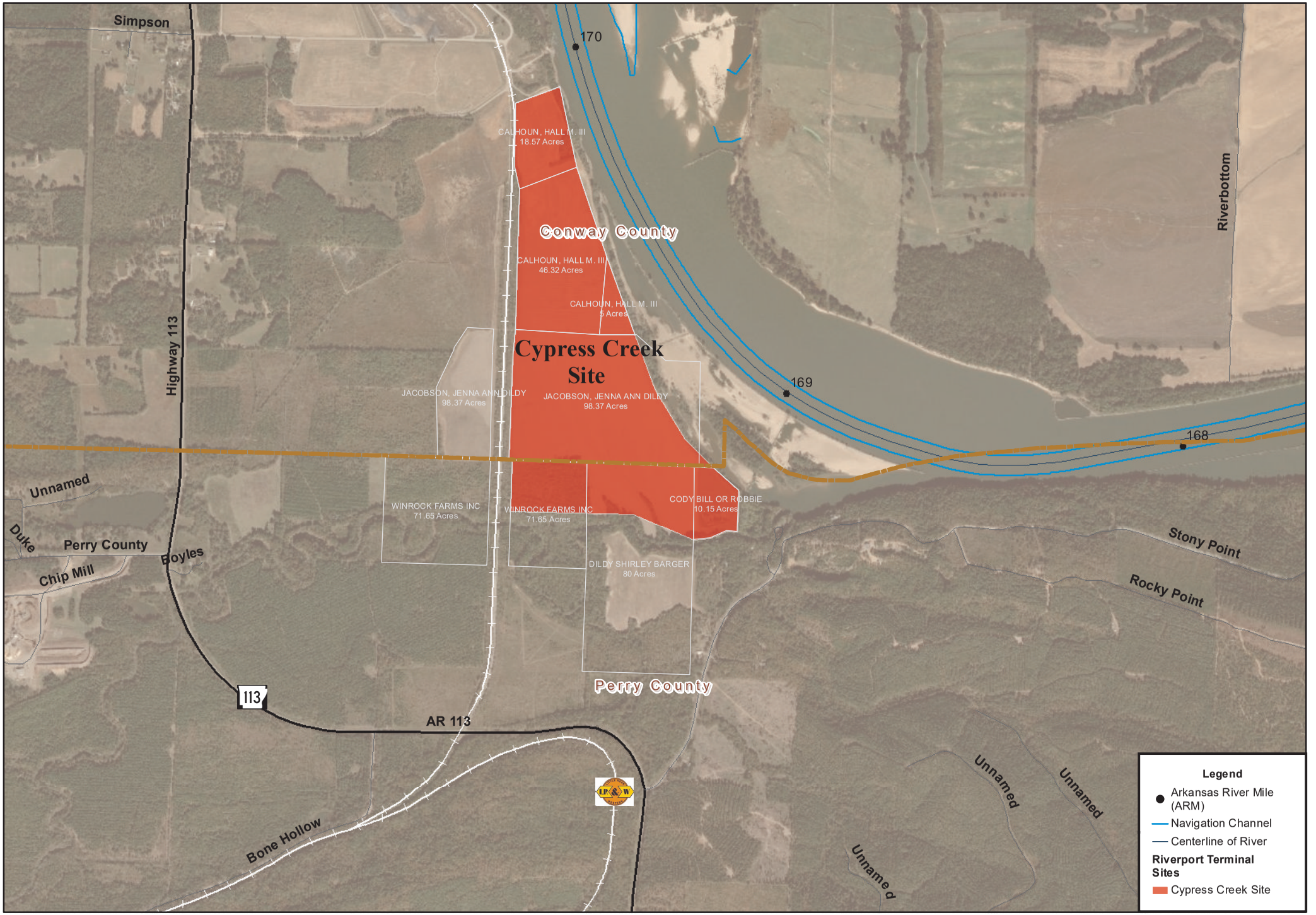


Figure 4-7: Oppelo Bottoms Flood Elevations

4.1.4 Cypress Creek

As shown in **Figure 4-8**, the Cypress Creek site is located near ARM 169 along the right descending bank of the river near the outlet of Cypress Creek. This site consists of relatively flat terrain primarily used as farmland. The site is completely within the FEMA floodplain as no levee system exists. In contrast with the previously evaluated sites, no additional acreage protected by levee or located outside of the FEMA floodplain is available for adjacent industrial development. A riverport terminal located at the Cypress Creek site could potentially service the Oppelo Bottoms Industrial Supersite alternative. **Figure 4-9** graphically shows FEMA flood profile elevations for the site resulting from the local flood insurance study. In addition to flood elevations, the figure also shows normal pool elevation and existing ground elevations.

Existing infrastructure proximal to this site includes Highway 113 and the LRWN shortline railroad located adjacent to the site. The navigable channel of the river is against the right descending river bank at this location. An existing embayment near the mouth of Cypress Creek could potentially be utilized and expanded to serve as a slackwater harbor.



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CAIA Port Site Evaluation Study
Figure 4-8: Cypress Creek Site Map

0 0.25 0.5 1 Miles

N W E S

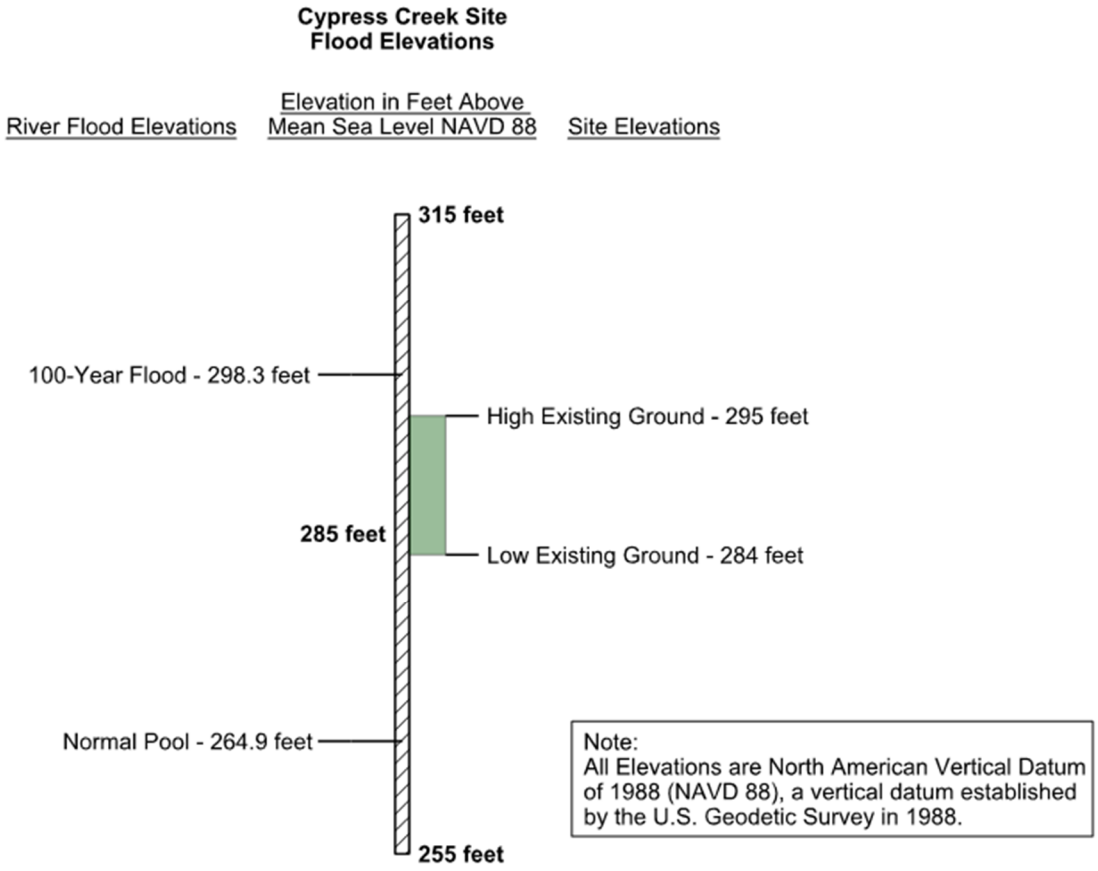
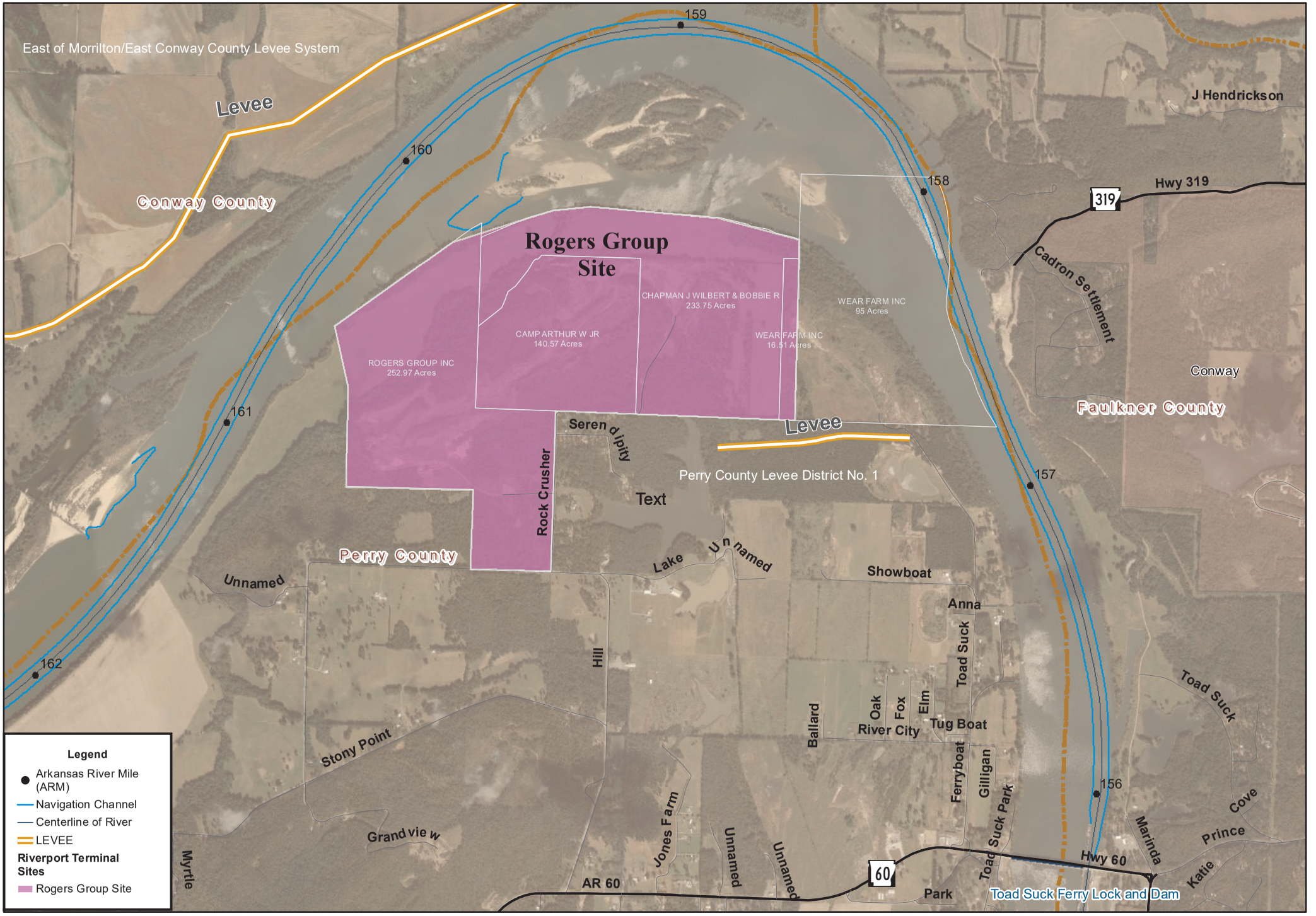


Figure 4-9: Cypress Creek Flood Elevations

4.1.5 Rogers Group

As shown in **Figure 4-10**, the Rogers Group site is located near ARM 160 along the right descending bank of the river approximately 5 miles upstream of the Toad Suck Ferry Lock and Dam. This site consists of considerably rolling terrain consisting of an active quarry operation. The site is not protected by a levee system although most of the property is located outside of the FEMA floodplain. The terrain of the site would not easily accommodate industrial development. **Figure 4-11** graphically shows FEMA flood profile elevations for the site resulting from the local flood insurance study. In addition to flood elevations, the figure also shows normal pool elevation and existing ground elevations.

Existing infrastructure proximal to this site includes approximately 1.5 miles of local roadway connection to Highway 60 which provides the least desirable access of all the sites evaluated. The LRWN shortline railroad is located approximately 10 miles away and the existing terrain makes rail service unfeasible. The navigable channel of the river is approximately 1600 feet away from the right descending bank creating a potential maintenance issue maintaining navigable access. The Rogers Group site is least desirable location to develop a slackwater harbor with supporting industry. Any port development at this site would likely only serve the quarry operation and would not require a harbor or extensive facilities.



CAIA Port Site Evaluation Study
Figure 4-10: Rogers Group Site Map

0 0.25 0.5 1 Miles

N W E S

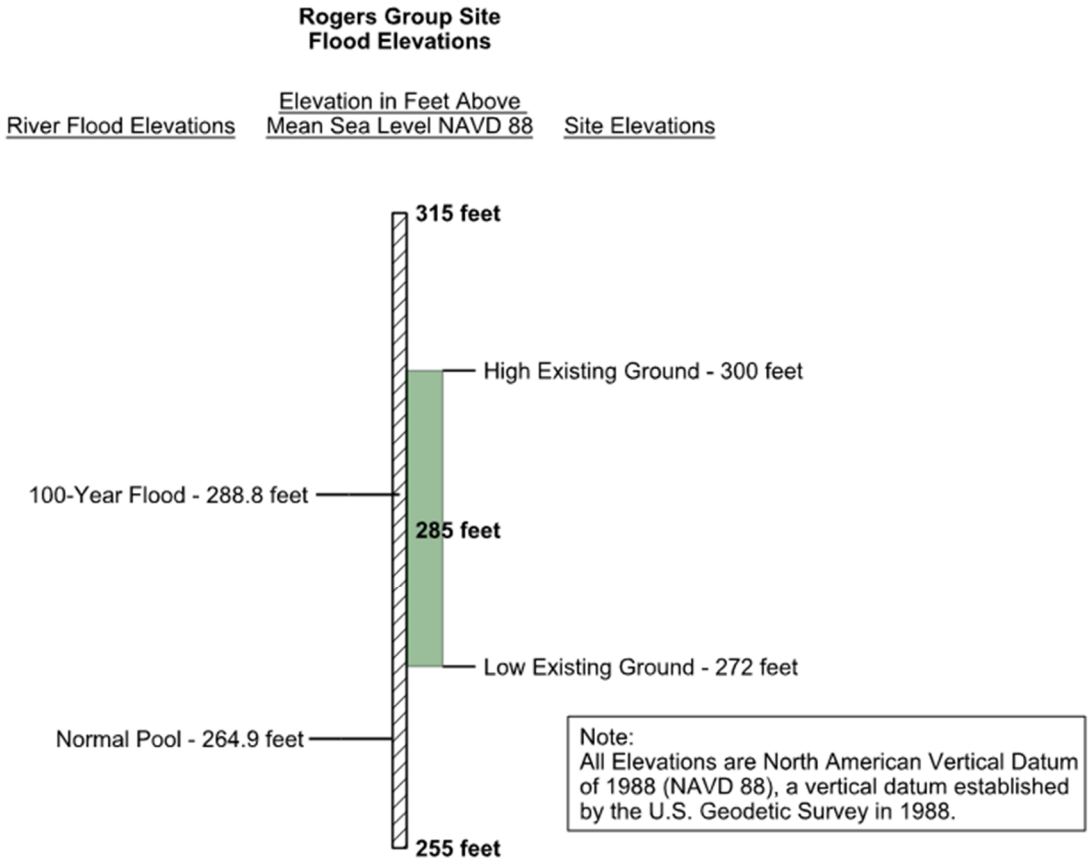


Figure 4-11: Rogers Group Flood Elevations

4.2 Industrial Supersite Alternatives

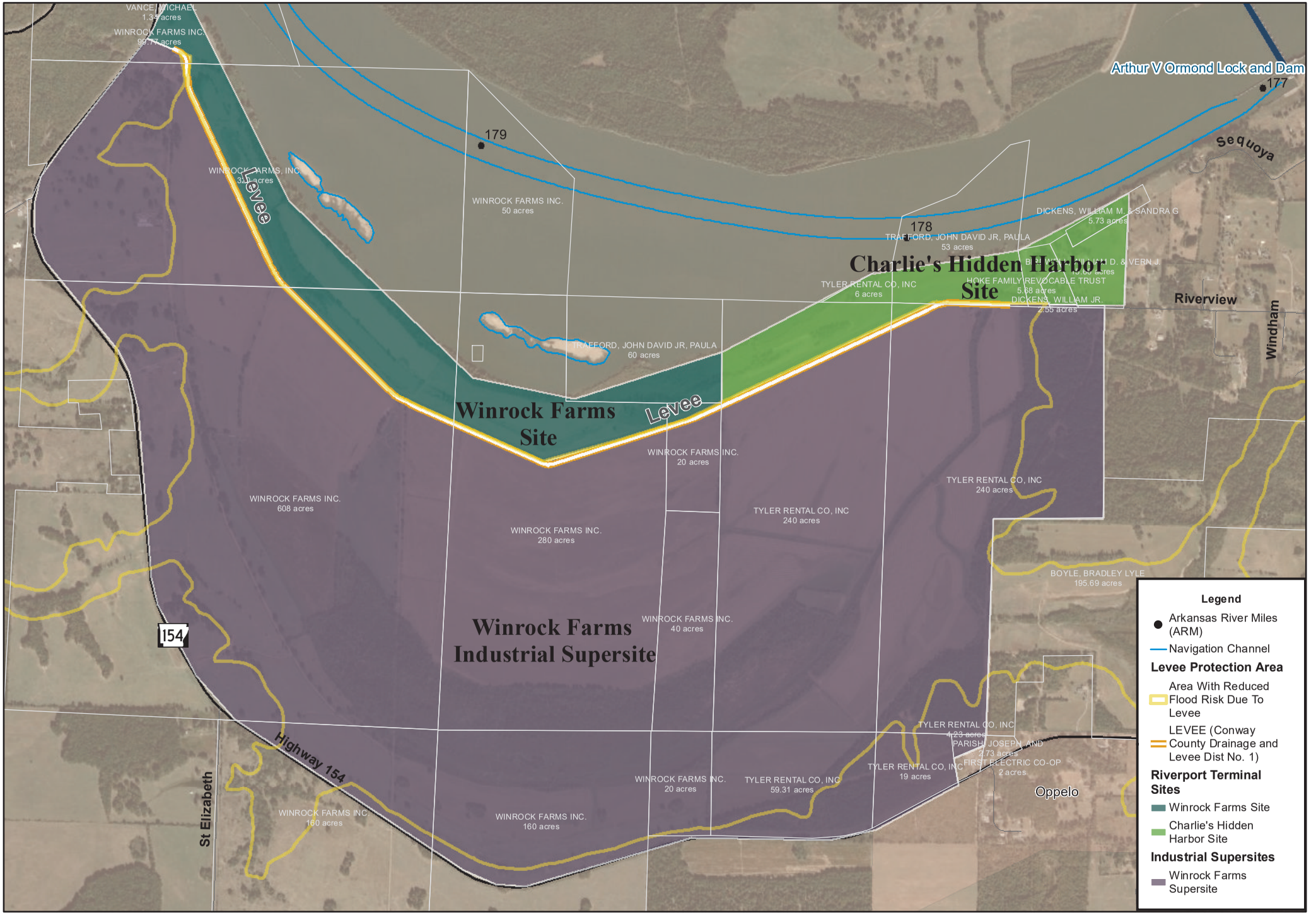
Two industrial supersites, each over 1,000 acres, are evaluated and compared in the following sections. The supersites are intended to provide ample industrial development space in close proximity to the riverport terminal alternatives.

4.2.1 Winrock Farms

As shown in **Figure 4-12**, the Winrock Farms Industrial Supersite is located south of and adjacent to the Winrock and Charlie's Hidden Harbor riverport site alternatives. The Conway County Drainage & Levee District No. 1 levee protects the supersite from river flooding which would otherwise stretch south to Highway 154. The site is adjacent to Highway 154 which provides access to Interstate 40 via Highway 9. The terrain is gently rolling which may produce a viable option to support industrial development.

4.2.2 Oppelo Bottoms

As shown in **Figure 4-13**, the Oppelo Bottoms Industrial Supersite is located west of and adjacent to the Oppelo Bottoms riverport sites. Highway 9 and Highway 113 both traverse the site providing several access opportunities. Highway 9 frontage provides improved access to Interstate 40 when compared to the Winrock Farms Industrial Supersite. The site is protected from river flooding by the Conway County Levee District No. 6 levee system. The terrain is relatively flat which is ideal for industrial development and rail access.

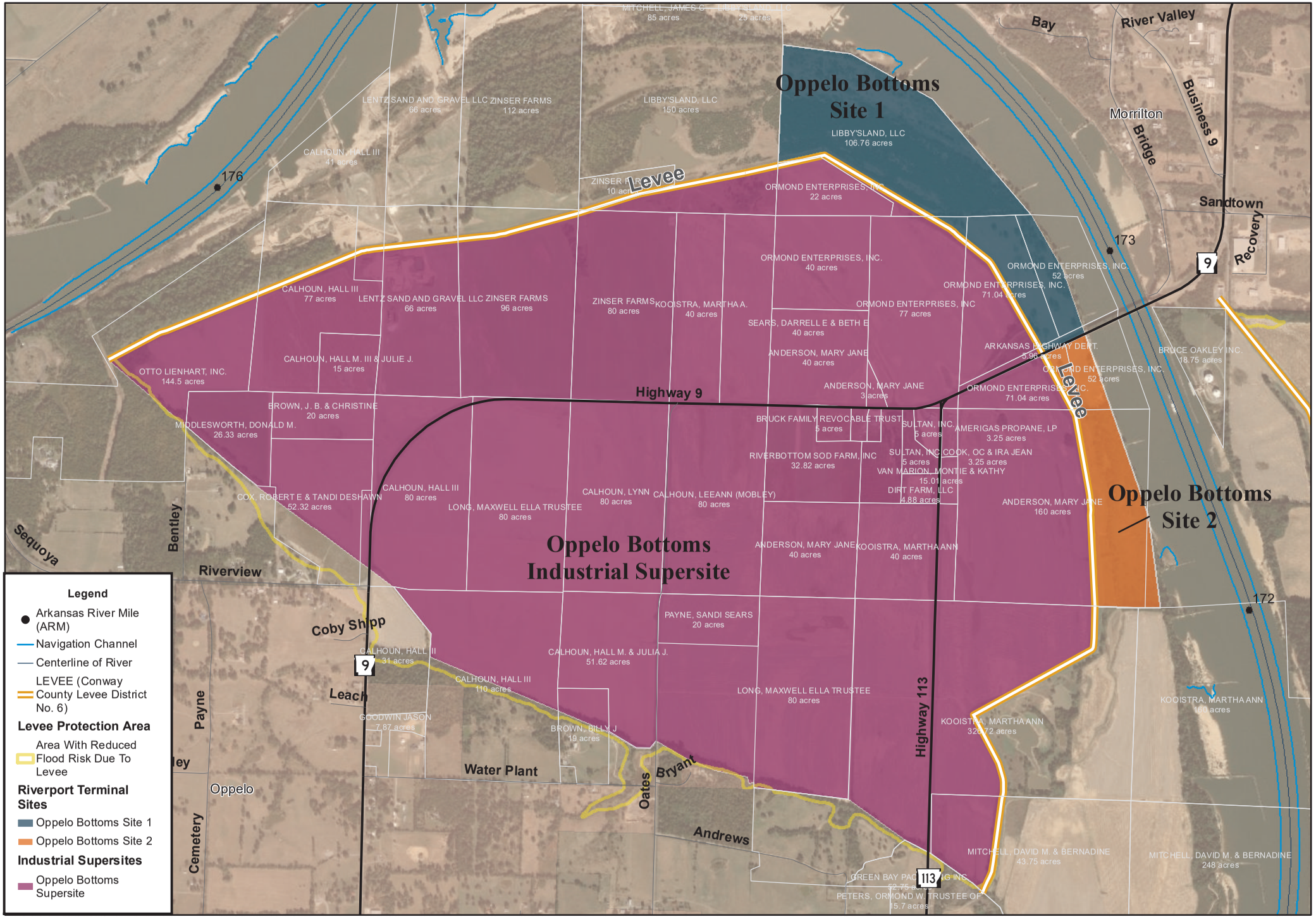


GARVER

CAIA Port Site Evaluation Study
Figure 4-12: Winrock Farms Industrial Supersite Map

0 0.25 0.5 1 Miles

N W E S



CAIA Port Site Evaluation Study
Figure 4-13: Oppelo Bottoms Industrial Supersite Map

0 0.25 0.5 1 Miles

N W E S

5.0 Environmental Constraints

Environmental constraints mapping was conducted to identify environmental resources that may be impacted by future project development, such as, but not limited to, wetlands, floodplains, hazardous waste sites, existing structures, and cemeteries. This information will help determine regulatory requirements, permitting and agency approvals that may be required for developments in the project area.

A cursory environmental review was performed on each of the alternative sites for the Central Arkansas Intermodal Authority (CAIA) riverport terminal and industrial supersite as shown in **Figure 5-1**. Identified constraints for each location are shown in **Figure 5-2** through **Figure 5-6**. The environmental and community constraints of each alternative were qualitatively evaluated and briefly summarized. All summarizations are cursory in nature, and further study would be required through the National Environmental Policy Act (NEPA) process if federal funding becomes involved. The nine sites considered for review include:

- Winrock Farms Site
- Charlie's Hidden Harbor Site
- Winrock Farms Industrial Supersite
- Oppelo Bottoms Site 1
- Oppelo Bottoms Site 2
- Oppelo Bottoms Industrial Supersite
- Cypress Creek Site
- Cadron Creek Industrial Supersite
- Rogers Group Site

In addition to sites analyzed in previous sections, the Cadron Creek Industrial Supersite was scoped to be included in the environmental screening.

5.1.1 Winrock Farms

Environmental constraints located at this site are shown on **Figure 5-2** and include:

- Several wetlands and freshwater ponds are located at this site.
- This site is adjacent to the Arkansas River.
- This site is also within the viewscape of the overlook at Petit Jean State Park.
- There is threatened and endangered species habitat located adjacent to the site along the Arkansas River.
- 40 acres of farmland

N

Environmental Constraints

- Industrial Supersite Boundaries
- Riverport Terminal Site Boundaries

Petit Jean State Park

Winrock Farms

Charlie's Hidden Harbor

Oppelo Bottoms Site 1

Oppelo Bottoms Site 2

Oppelo Bottoms Industrial Supersite

Winrock Farms Industrial Supersite

Cypress Creek

Cadron Creek Industrial Supersite

Rogers Group

City of Morrilton

Conway County

Perry County

Faulkner County

Arkansas River

113 40 64 61 9 154 9 11 62 2511 70 71 64 60 113 10 68 60 77

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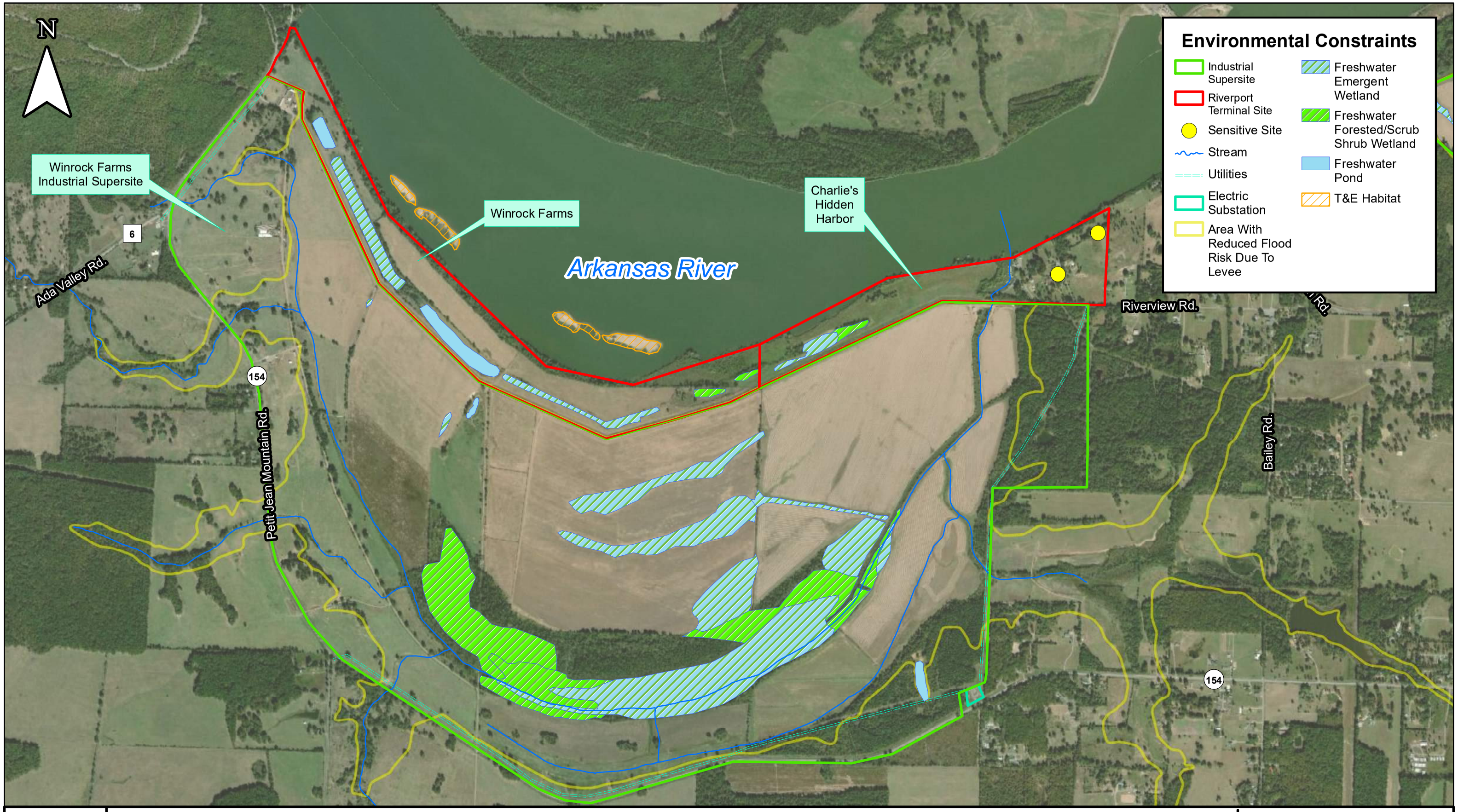
CAIA Port Site Evaluation Study
Environmental Constraints - Overview

Perry, Conway and Faulkner Counties, Arkansas

ESRI GIS INFORMATION

0 0.5 1 1.5 2
Miles

Figure 5-1



GARVER

CAIA Port Site Evaluation Study
Environmental Constraints - Winrock Farms, Charlie's Hidden Harbor, and Winrock Farms Industrial Supersite

Conway County, Arkansas

ESRI Aerial Image; ESRI GIS INFORMATION

0 500 1,000 1,500 2,000 2,500
Feet

Figure 5-2

5.1.2 Charlie's Hidden Harbor

Environmental constraints located at this site are shown in **Figure 5-2** and include:

- There are several residences concentrated at the east end of this site.
- This site is located within the viewscape of the overlook at Petit Jean State Park.
- There are two sensitive sites present at this site.
- One perennial stream that flows from south to north through this site into the Arkansas River.
- This site is adjacent to the Arkansas River.

5.1.3 Winrock Farms Industrial Supersite

Environmental constraints located at this site are shown in **Figure 5-2** and include:

- Several residences are located within and adjacent to this site along Petit Jean Mountain Road.
- The majority of this site is farmland, with channelized field drainages, and levees built to restrict flood waters from the Arkansas River.
- There are significantly more wetlands at this site than at most of the other sites reviewed, with the exception of the Cadron Creek site.
- Seven perennial and intermittent streams intersect the site.
- This site is located within the viewscape of the overlook at Petit Jean State Park.
- 1,126 acres of farmland

5.1.4 Oppelo Bottoms Site 1

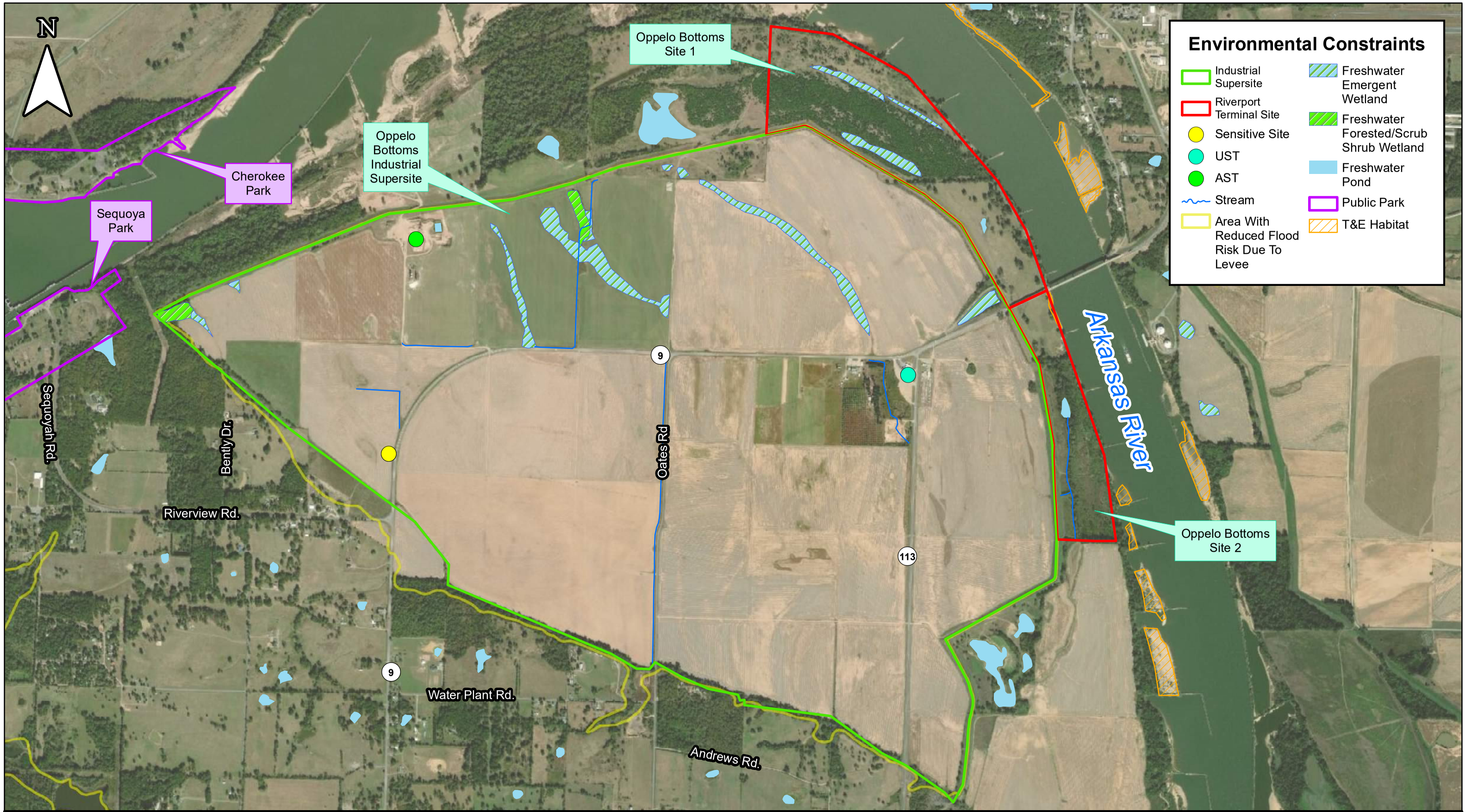
Environmental constraints located at this site are shown in **Figure 5-3** and include:

- There is one small freshwater pond at this site.
- This site is adjacent to the Arkansas River.
- There is threatened and endangered species habitat located across the Arkansas River from the site.

5.1.5 Oppelo Bottoms Site 2

Environmental constraints located at this site are shown in **Figure 5-3** and include:

- There is one small freshwater pond at this site.
- There are two intermittent streams that flow through the site.
- This site is adjacent to the Arkansas River.
- There is threatened and endangered species habitat located adjacent to the site along the Arkansas River.



GARVER

CAIA Port Site Evaluation Study
Environmental Constraints - Oppelo Bottoms Site 1, Oppelo Bottoms Site 2, and Oppelo Bottoms Industrial Supersite

Conway County, Arkansas

ESRI Aerial Image; ESRI GIS INFORMATION

0 500 1,000 1,500 2,000 2,500
Feet

Figure 5-3

5.1.6 Oppelo Bottoms Industrial Supersite

Environmental constraints located at this site are shown in **Figure 5-3** and include:

- Several wetlands are located at this site, north of State Highway 9.
- The site is intersected by five perennial and intermittent streams.
- There is at least one above ground storage tank (AST) associated with farm operations located in the northwest part of the site.
- There is at least one underground storage tank (UST) associated with the gas station located on State Highway 9.
- There is one sensitive site located at this site.
- The majority of site is farmland, with channelized field drainages and levees built to restrict flood waters from the Arkansas River located at this site.
- 1,765 acres of farmland

5.1.7 Cypress Creek

Environmental constraints located at this site are shown on **Figure 5-4** and include:

- There is one small freshwater pond and one emergent wetland at this site.
- This site is adjacent to the Arkansas River.
- There is threatened and endangered species habitat located adjacent to the site along the Arkansas River.
- 166 acres of farmland

5.1.8 Rogers Group

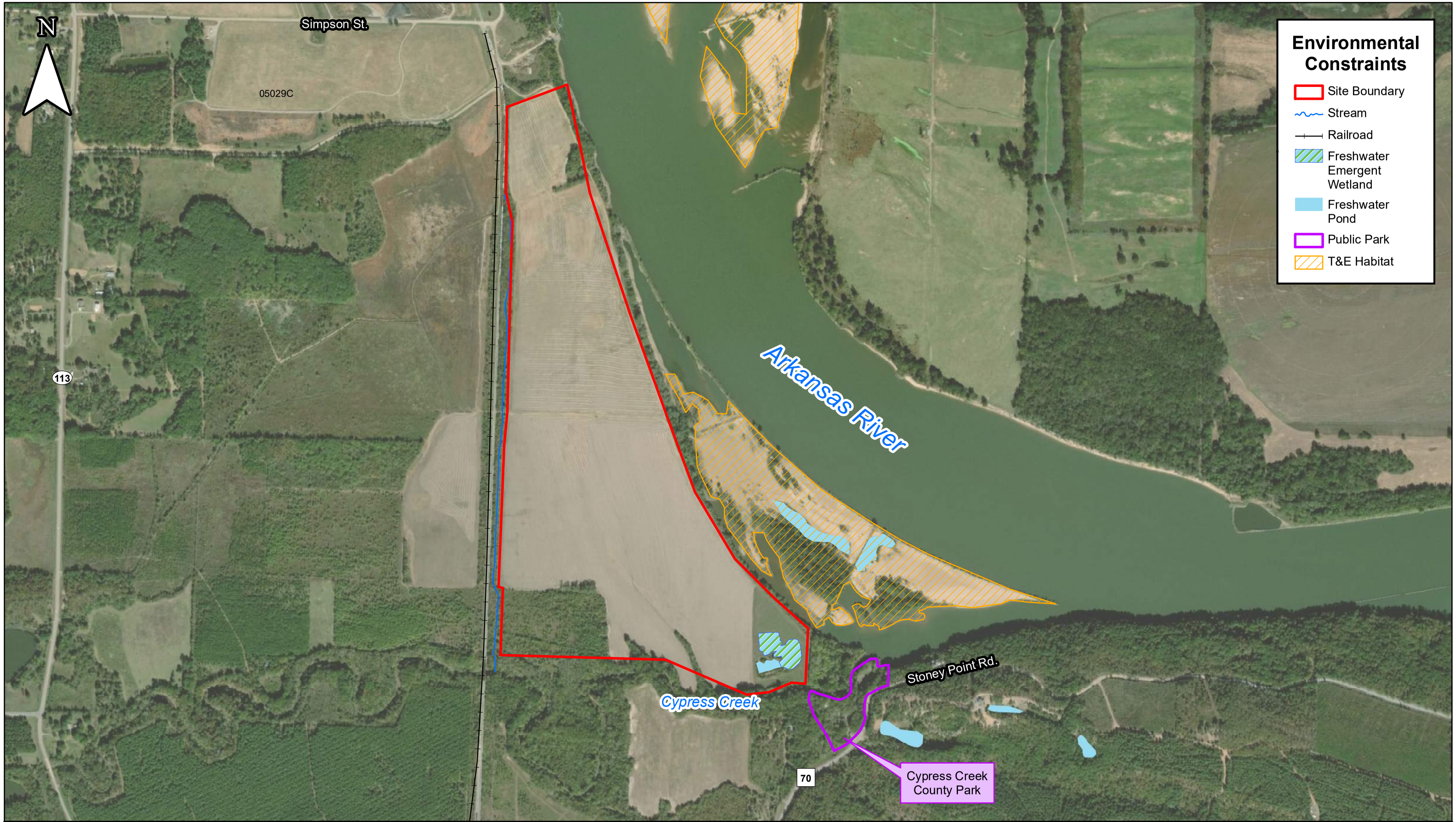
Environmental constraints located at this site are shown in **Figure 5-5** and include:

- There is an active quarry located at this site.
- There are several small wetlands and freshwater ponds scattered throughout this site.
- This site is adjacent to the Arkansas River.
- There is threatened and endangered species habitat located adjacent to the site within the Arkansas River.
- 147 acres of farmland

5.1.9 Cadron Creek Industrial Supersite

Environmental constraints located at this site are shown in **Figure 5-6** and include:

- Several residences exist at this site.
- There are significantly more wetlands at this site than at any of the other sites reviewed.
- Two sensitive sites exist at this site.
- This site is adjacent to the Arkansas River.
- There is threatened and endangered species habitat located adjacent to the site within the Arkansas River.
- 115 acres of farmland



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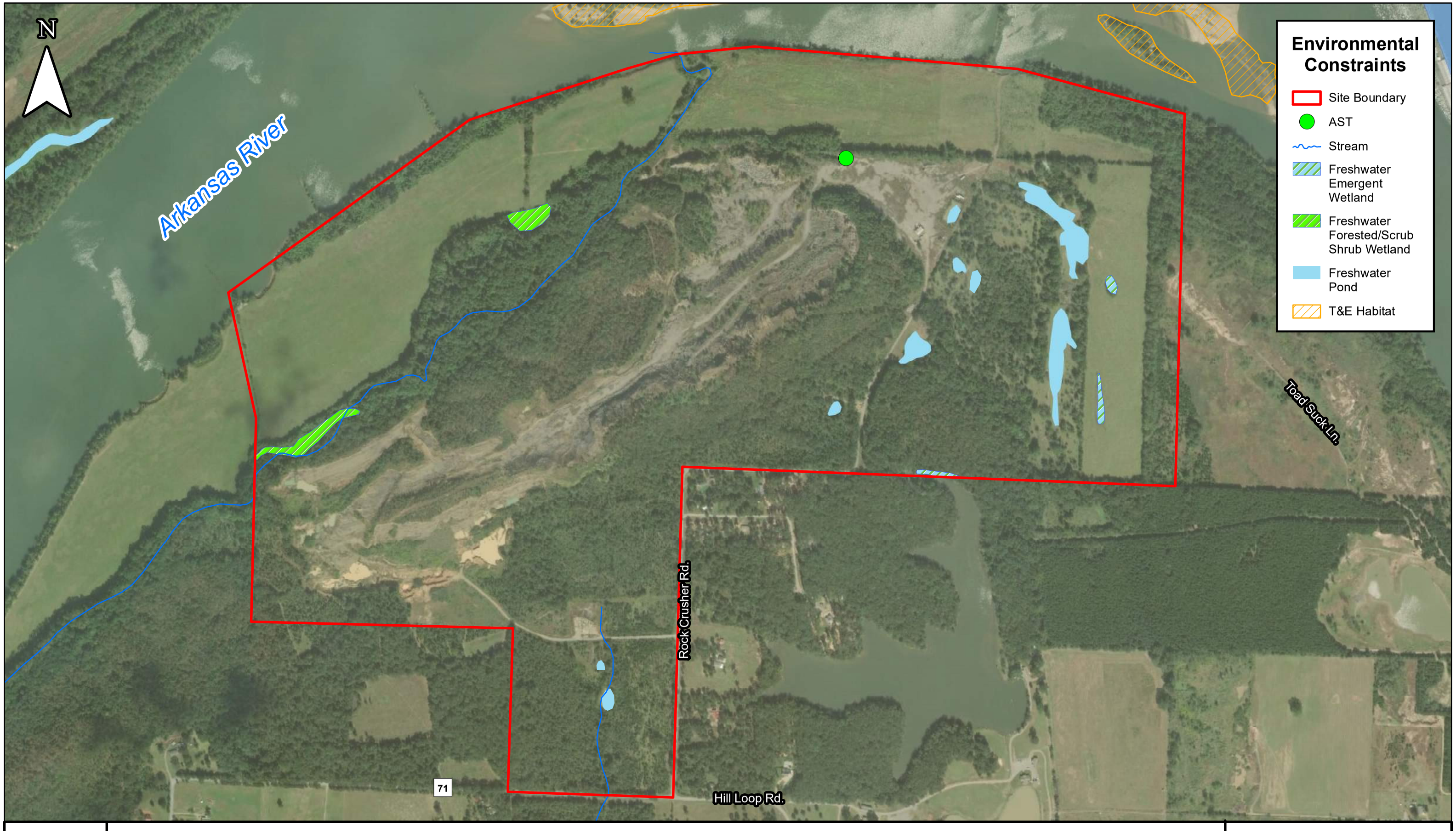
CAIA Port Site Evaluation Study
Environmental Constraints - Cypress Creek

Perry and Conway Counties, Arkansas

ESRI Aerial Image; ESRI GIS INFORMATION

0 500 1,000 1,500
Feet

Figure 5-4



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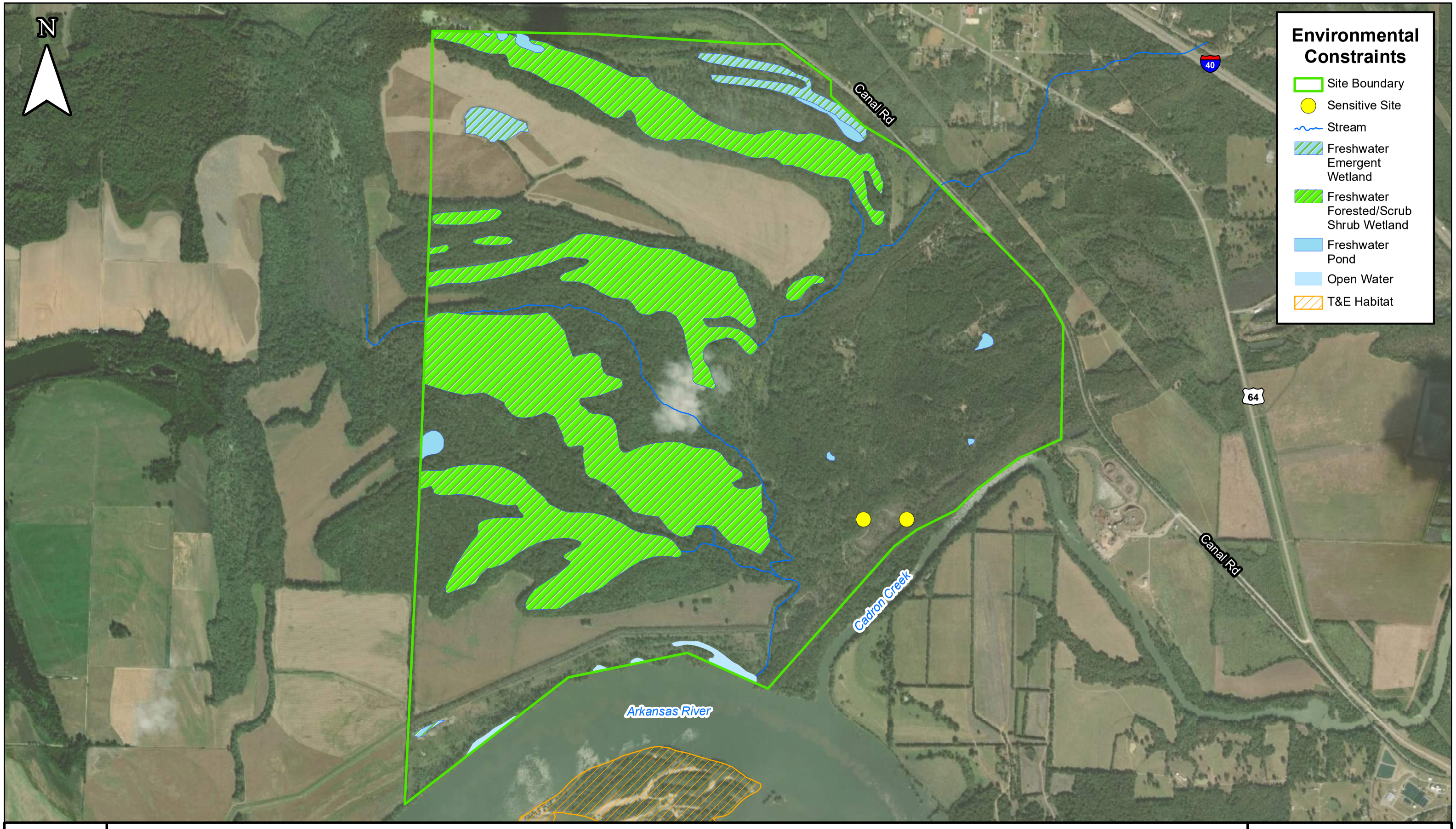
CAIA Port Site Evaluation Study
Environmental Constraints - Rogers Group

Perry County, Arkansas

ESRI Aerial Image; ESRI GIS INFORMATION

0 500 1,000 1,500
Feet

Figure 5-5



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CAIA Port Site Evaluation Study
Environmental Constraints - Cadron Creek Industrial Supersite

Conway County, Arkansas

ESRI Aerial Image; ESRI GIS INFORMATION

0 500 1,000 1,500 2,000 2,500
Feet

Figure 5-6

6.0 Infrastructure Improvements

The following section evaluates infrastructure improvements that will not significantly differ based on port site location. Most infrastructure improvements presented will not likely be a prerequisite to begin developing a riverport terminal. Many unknown factors including site selection, industry type, and riverport terminal usage will be realized through continued project development. These factors will govern the ancillary improvements necessary to support the port development and provide safe and efficient movement of goods.

6.1 Highway

Highway improvements, particularly from the proposed sites to Interstate 40, may be necessary to accommodate additional truck traffic generated by the proposed riverport terminal and industrial development. Additional, regional, long term improvements may also be necessary to safely and efficiently move freight from a fully utilized riverport terminal and developed industrial supersite. Potential local and regional highway improvements are shown on **Figure 6-1** and considered in the following sections for planning purposes.

6.1.1 Local Improvements

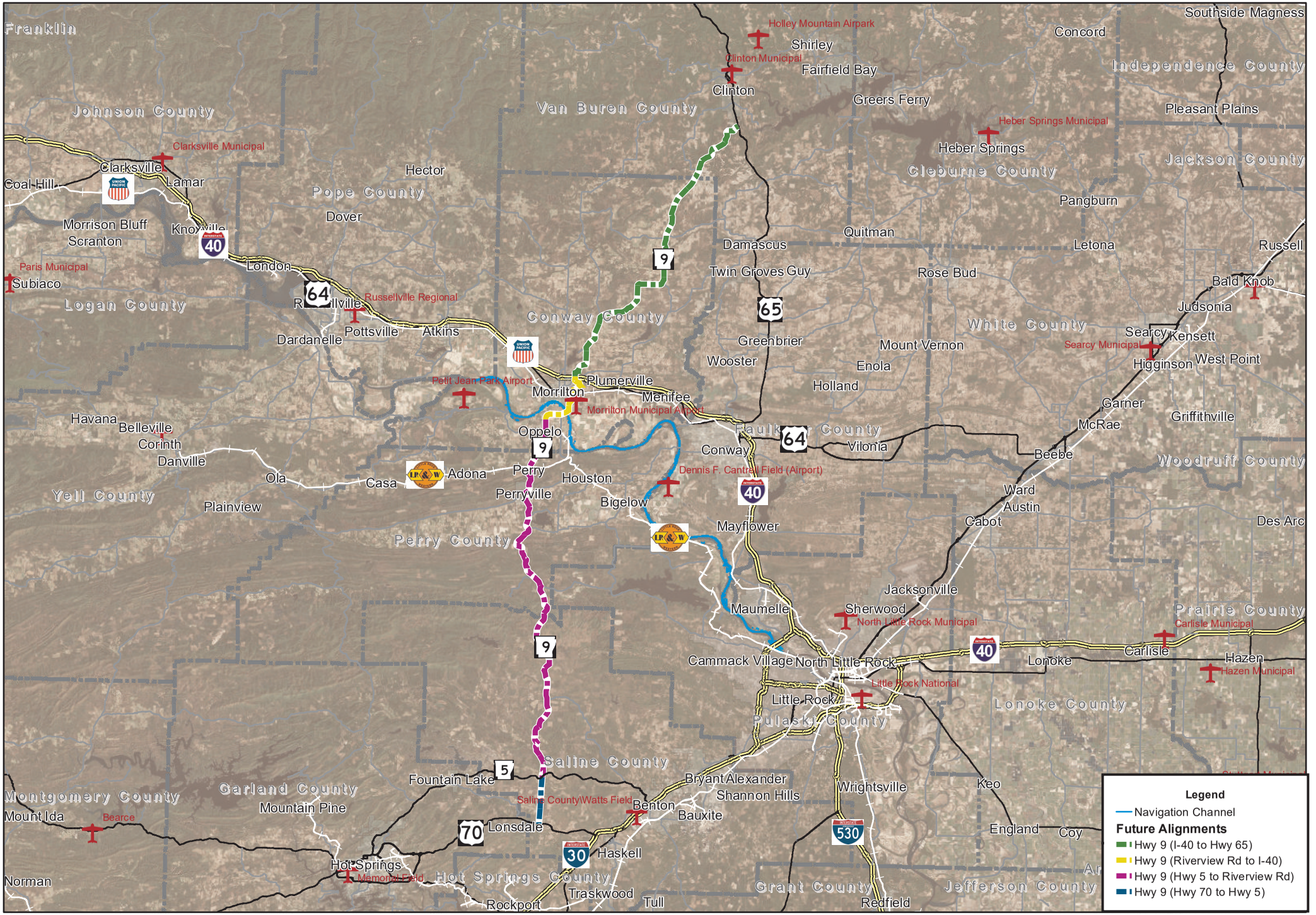
Highway 9 provides the main local access to Interstate 40 for site alternatives. The stretch of Highway 9 from Riverview Rd. to Interstate 40 may require improvements once an industrial supersite and riverport terminal develops creating an increase in truck traffic. The current existing features of this section of Highway 9 can be seen in **Table 3-1** and would likely support initial operations of a developing riverport terminal particularly north of the Arkansas River. For planning level construction cost estimates, roadway improvements include widening Highway 9 to four travel lanes including bridge improvements over the Arkansas River and Highway 64. Two scenarios were used for estimating costs of the Highway 9 Bridge improvements over the Arkansas River and include full replacement with a new four lane bridge and utilization of the existing bridge with the addition of a mirrored structure to carry two additional lanes in the opposite direction. The Highway 9 Bridge over Highway 64 could be widened to accommodate four travel lanes, while retaining the bridge's existing substructure and possibly the existing deck. **Table 6-1** provides planning level cost estimates associated with future Interstate 40 connection improvements. Planning level construction cost estimates, including assumptions, are documented in **Appendix E**.

Table 6-1: Local Highway Improvements Cost Estimate

Local Improvement	Location	Cost Estimate
Hwy. 9 Widening	Riverview Rd. to Arkansas River Bridge	$7,100,000.00
Hwy. 9 Bridge Replacement	Over Arkansas River	$33,400,000.00**
Hwy. 9 Widening	Arkansas River Bridge to Hwy. 64 Bridge	$6,500,000.00
Hwy. 9 Bridge Widening	Over Hwy. 64	$800,000.00
Hwy. 9 Widening	Hwy. 64 Bridge to I-40 EB Ramps	$6,300,000.00
	Contingency (20%)	$10,800,000.00
	Total Opinion of Probable Construction Cost (2018)*	**$64,900,000.00**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

**$20,000,000.00 utilizing the existing two lane bridge structure and constructing a new, separate, two lane structure


Franklin
Johnson County
Clarksville Municipal
Clarksville
Coal Hill
Lamar
Hector
Pope County
Dover
Morrison Bluff
Scranton
Paris Municipal
Subiaco
London
Logan County
Russellville Regional
Dardanelle
Pottsville
Atkins
Holley Mountain Airport
Shirley
Clinton Municipal
Clinton
Fairfield Bay
Van Buren County
Greers Ferry
Heber Springs Municipal
Heber Springs
Cleburne County
Concord
Southside Magness
Independence County
Pleasant Plains
Jackson County
Pangburn
Quitman
Damascus
Twin Groves Guy
Rose Bud
Letona
Russell
Bald Knob
Judsonia
Searcy
Searcy Municipal
Kensett
Higginson
West Point
White County
Greenbrier
Mount Vernon
Wooster
Enola
Holland
Conway County
Petit Jean Park Airport
Plumerville
Morrilton
Morrilton Municipal Airport
Menifee
Garner
McRae
Griffithville
Vilonia
Beebe
Faulkner County
Conway
Oppelo
Havana
Belleville
Corinth
Danville
Ola
Casa
Adona
Perry
Houston
Perryville
Bigelow
Dennis F. Cantrell Field (Airport)
Yell County
Plainview
Perry County
Mayflower
Ward
Austin
Cabot
Des Arc
Woodruff County
Jacksonville
Maumelle
Sherwood
North Little Rock Municipal
Cammack Village
North Little Rock
Little Rock National
Little Rock
Pulaski County
Carlisle Municipal
Carlisle
Lonoke
Hazen
Hazen Municipal
Prairie County
Lonoke County
Saline County
Fountain Lake
Bryant
Alexander
Shannon Hills
Benton
Bauxite
Saline County Watts Field
Wrightsville
Keo
England
Coy
Montgomery County
Garland County
Mountain Pine
Mount Ida
Bearce
Lonsdale
Hot Springs
Memorial Field
Haskell
Hot Springs County
Norman
Traskwood
Rockport
Tull
Grant County
Redfield
Jefferson County
Legend
Navigation Channel
Future Alignments
Hwy 9 (I-40 to Hwy 65)
Hwy 9 (Riverview Rd to I-40)
Hwy 9 (Hwy 5 to Riverview Rd)
Hwy 9 (Hwy 70 to Hwy 5)
GARVER
CAIA Port Site Evaluation Study
Figure 6-1: Highway Access Improvements
0 5 10 20 Miles
N
W
E
S

6.1.2 Regional Improvements

During study scoping meetings, the Central Arkansas Intermodal Authority (CAIA), requested that long-term regional roadway improvements including connections to Highway 65 and I-30 via Highway 9 and Highway 70 be evaluated on a conceptual level. The regional roadway improvements include widening existing Highway 9 to four lanes with adequate shoulders and widening or replacing existing bridge structures on the following segments:

- Highway 70 to Highway 5 (New Alignment)
- Highway 5 to Riverview Rd.
- I-40 Eastbound Ramps to Highway 65

Table 6-2 provides planning level construction construction cost estimates associated with future regional highway improvements.

Table 6-2: Regional Highway Improvement Cost Estimate

Regional Improvement	Location	Cost Estimate (2018)*
Hwy. 9 New Alignment	Hwy. 70 to Hwy. 5	$44,000,000.00
Hwy. 9 Widening	Hwy. 5 to Riverview Rd.	$205,000,000.00
Hwy. 9 Widening	I-40 EB Ramps to Hwy. 65	$155,000,000.00

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

6.2 Railroad

Railroad service is critical to the success of the proposed intermodal facilities. Improvements to the Little Rock & Western (LRWN) Railway and new industrial track connection to the Union Pacific Railroad (UPRR) are evaluated in the following sections. A new connection to the UPRR would be necessary to gain access to the mainline rail as the river serves as a physical boundary from all the sites considered in this study. Improvements to the LRWN would likely be required to safely and efficiently move freight along the shortline railroad to an interchange with UPRR and/or BNSF Railway in the Little Rock – North Little Rock area.

6.2.1 Little Rock & Western Railway

The current condition and existence of lightweight, 90lb., rail considerably slows the movement of freight along the LRWN shortline. **Table 6-3** provides planning level construction cost estimates associated with track rehabilitation for approximately 40 miles from near Perry to Little Rock. The planning level construction cost estimates assume the existing bridge structures are adequate and would not require replacement. Track condition could likely be evaluated and prioritized to improve the infrastructure in phases as the level of demand increases.

Table 6-3: LRWN Rail Rehabilitation Cost Estimate

LRWN Improvement	Location	Length (miles)	Cost (per mile)	Cost Estimate (2018)*
Rail Rehabilitation	Perry to Little Rock	40	$500,000	$20,000,000.00

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

6.2.2 Union Pacific Railroad

All sites considered in this port site evaluation are located on the south side of the Arkansas River which prohibits direct connection to the UPRR near Morrilton. The US Army Corps of Engineers (USACE) was consulted about the possibility of utilizing the Arthur V. Ormond Lock & Dam as existing substructure for an industrial track bridge over the Arkansas River. Based on several discussions as detailed in Section 2.1, this alternative river crossing was dropped due to legal, long-term maintenance, and unresolved existing infrastructure issues.

For comparison, **Table 6-4** provides a planning level construction cost estimate for a new, standalone, railroad crossing of the Arkansas River with connection to the UPRR Van Buren Subdivision located along Highway 64 south of Morrilton. The width of the navigation channel within the study area would likely require a truss span with more conventional spans on the approaches.

Table 6-4: UPRR Connection Cost Estimate

UPRR Improvement	Location	Cost Estimate (2018)
Bridge (Truss)	Over Arkansas River (Navigation Span)	$9,600,000.00
Bridge (Conv.)	Over Arkansas River (Approaches)	$26,800,000.00
Bridge (Conv.)	Over Point Remove Creek	$10,000,000.00
Industrial Track	Arkansas River to UPRR	$4,200,000.00
	Contingency (20%)	$10,100,000.00
	Total Opinion of Probable Construction Cost (2018)*	**$60,700,000.00**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

6.3 Airports

Air freight is typically transported by large aircraft weighing well in excess of 100,000 pounds. These aircraft require longer runways with instrument landing systems to allow operations in all weather conditions. Currently Bill and Hillary Clinton National Airport (LIT) in Little Rock is the only airport in Central Arkansas that has the infrastructure in place to support large air freight operations. The runway and taxiway system at LIT can support aircraft that transport freight. In addition the airport has the space available for freight aircraft to load and offload.

The general aviation airports near the study area do not have the infrastructure in place to support air freight operations. Currently there are three airports located in this area. The new Conway airport is the largest of the three general aviation airports, however the pavement is only designed to accommodate large corporate aircraft that weigh less than 100,000 pounds. The two remaining airports, Petit Jean and Morrilton, have very light weight asphalt pavement sections. These airports were designed to accommodate small single engine aircraft and light twin engine aircraft. In order to accommodate air freight operations each of these three airports would require major reconstruction of the airfield pavements. This reconstruction would be necessary in order to get the pavement strength and runway length required by large freight aircraft.

7.0 Construction Cost Comparisons

Based on limited knowledge of facility arrangement and use at this time, the following common infrastructure was considered constant for each site in order to develop a functioning riverport terminal. The cost estimates do not include infrastructure to support industrial development within the proposed supersite alternatives. Planning level construction cost estimates were developed assuming the following infrastructure is implemented at each riverport terminal site:

- 2000' x 350' slackwater harbor with direct connection to the Arkansas River
- 150' x 200' dock
- 80,000 S.F. warehouse facility
- 3,500 L.F. industrial team/side tracks for loading/unloading and storage

In addition to the fixed infrastructure assumptions above, planning level construction cost estimates were developed based on the following minimum improvements unique to each riverport terminal site:

- Industrial track connection to the Little Rock & Western Railway near Perry
- Required levees for flood protection
- Access road to nearest highway
- Dredged fill in addition to the slackwater harbor excavation (if required)

Table 7-1 shows the resulting planning level cost estimates for each of the six sites considered for a riverport terminal. The estimates are construction costs only and do not include property acquisition, planning and engineering, inspection, or utility relocation. Planning level cost estimate details, including assumptions, are documented in **Appendix E**.

Table 7-1: Planning Cost Estimate for Riverport Terminal Sites

Riverport Terminal Site	Cost Estimate (2018)*
Winrock Farms	$37,090,000.00
Charlie's Hidden Harbor	$34,900,000.00
Oppelo Bottoms Site 1	$30,490,000.00
Oppelo Bottoms Site 2	$29,400,000.00
Cypress Creek	$32,500,000.00
Rogers Group	$45,000,000.00

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

8.0 Federal Funding

Examples of federal funding opportunities for port development are provided in the following section. Use of federal funding requires that National Environmental Policy Act (NEPA) policies are followed. Many federal grants and loans emphasize, or give preference to, project readiness. In most cases, the NEPA documentation and associated planning and environmental clearance is complete prior to funding application.

8.1 BUILD Discretionary Grants

The Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program replaced the pre-existing Transportation Investment Generating Economic Recovery (TIGER) grant program. BUILD Transportation grants are for investments in surface transportation infrastructure and are awarded on a competitive basis for projects that will have a significant local or regional impact. BUILD funding can support roads, bridges, transit, rail, ports or intermodal transportation. Currently the maximum grant award is $25 million, and no more than $150 million can be awarded to a single State, as specified in the FY 2018 Appropriations Act. At least 30 percent of funds must be awarded to projects located in rural areas.

By statute, BUILD funds must be obligated within three years of the end of the fiscal year for which they are authorized. Obligation occurs when a selected applicant enters a written, project-specific agreement with the U.S. Department of Transportation and is generally after the applicant has satisfied applicable administrative requirements, including transportation planning and NEPA requirements. Because of this deadline for obligation, it is important that the application package include sufficient evidence of project milestones (including planning, NEPA, and permitting milestones) achieved and remaining, as well as financial capacity and commitment in order to support project readiness.

8.2 WIFIA Loans

The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program currently administered by EPA for eligible water and wastewater infrastructure projects. WIFIA provides Long-term, Low-cost, Supplemental Credit Assistance Loans. Eligible borrows include local, state, tribal, and federal government entities, partnerships and joint ventures, corporations and trusts. The credit terms of WIFIA include a maximum five year repayment deferment after substantial project completion, maximum 35 year maturity date, and the maximum portion of eligible project costs that can be funded is 49%. Although, for the Central Arkansas Intermodal Authority (CAIA) to utilize this funding mechanism, the US Army Corps of Engineers (USACE) must develop implementation guidelines and administer the WIFIA loan program.

9.0 Summary

A summary of the conceptual engineering analysis and environmental screening of alternative port sites and industrial supersites is shown pictorially in **Table 9-1** and **Table 9-2** respectively.

Table 9-1: Engineering Analysis Summary

Alternatives	Location Relative to Existing Industry	Location Relative to Interstate Access	Location Relative to Existing Railroad Infrastructure	Location Relative to Navigation Channel Access	Location Relative to Existing Utilities
Riverport Terminal Sites					
Winrock Farms					
Charlie's Hidden Harbor					
Oppelo Bottoms Site 1					
Oppelo Bottoms Site 2					
Cypress Creek					
Rogers Group					
Industrial Supersites					
Winrock Farms Supersite				N/A	
Oppelo Bottoms Supersite				N/A	

Table 9-2: Environmental Screening Summary

Alternatives	Hazardous Materials	Threatened & Endangered Species	Farmlands	Sensitive Sites	Streams	Wetlands	Overall Community/ Environmental
Riverport Terminal Sites							
Winrock Farms	Low	Low	High	Low	Low	Medium	Medium
Charlie's Hidden Harbor	Low	Low	Medium	High	Low	Low	Medium
Oppelo Bottoms Site 1	Low	Medium	Low	Low	Low	Low	Low
Oppelo Bottoms Site 2	Low	High	Low	Low	Low	Low	Low
Cypress Creek	Low	High	High	Low	Low	Low	Medium
Rogers Group	Medium	Medium	Low	Low	Low	Low	Low
Industrial Supersites							
Winrock Farms Supersite	Low	Low	High	Low	High	Medium	High
Oppelo Bottoms Supersite	High	Low	High	Medium	Medium	Low	High
Cadron Creek Supersite	Low	Low	Low	High	Medium	High	High

Environmental constraints ratings provided in this table only address certain constraints. The affected resources are potential impacts based on desktop constraints review and known, direct impacts will be determined during final design. Section 5 provides additional details related to the environmental setting of each alternative.

APPENDIX A

USACE Coordination Meeting Minutes

831 Parkway
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MEETING MINUTES

Date: May 31, 2018

To: Central Arkansas Intermodal Authority
Conway County Judge's Office
117 S. Moose St.
Ste. 203
Morrilton, AR 72201

Attn: Dr. Don Bradley, Board Chair

From: Dustin Tackett

RE: CAIA Port Site Evaluation Study

Copies To: Attendees, Todd Mueller

A meeting was held on the subject project at US Army Corps of Engineers (USACE) Little Rock District office on May 25, 2018 at 9:00am. Below is a list of meeting attendees:

Name	Representing	Email
Don Bradley	CAIA	don.bradley@conwaycorp.net
Eddie Jackson	CAIA	ejackson@lanier-engineers.com
Dennis Shannon	USACE	Harland.D.Shannon@usace.army.mil
Gil Wootten	USACE	Gil.H.Wootten@usace.army.mil
Nick Mitchell	USACE	Carsno.N.Mitchell@usace.army.mil
Glynn Fulmer	Garver	GAFulmer@GarverUSA.com
Dustin Tackett	Garver	DLTackett@GarverUSA.com

The meeting was held to get USACE Operations Division input on the port terminal sites being evaluated within the port site evaluation study and possible use of Arthur V. Ormond Lock & Dam No. 9 as a rail crossing.

Discussion:

1. Garver and the CAIA gave a brief history on the formation of the intermodal authority. The Authority's goal is to develop a river port terminal, likely a slackwater harbor, and supporting industrial site to increase economic growth in Conway and Perry Counties.
2. Garver explained that the CAIA previously partnered with the Arkansas Department of Transportation to complete a market analysis study which showed that the two-county region has the potential to meet the minimum requirements for developing a sustainable port facility. The study also provided recommendations for next steps which included completing a port site evaluation.
3. Garver provided an overview of the port site evaluation study scope which includes:
    a. Stakeholder Correspondence
    b. Engineering Screening
        i. Existing Infrastructure
        ii. Site Evaluation
        iii. Lock & Dam No. 9 Review
        iv. Cost Comparison

   c. Environmental Screening
      i. Constraints Mapping
4. The CAIA and Garver representatives discussed the barrier that the river presents for sites located on the south side of the river gaining rail access to the Union Pacific mainline. Based on previous discussions between USACE Operations and Garver regarding the potential use of the dam as a substructure for a rail bridge crossing the river, USACE reiterated that this was likely a legal issue that could potentially make this unfeasible. USACE also stated that the Engineering Section took a cursory look at the potential rail loads and had concerns particularly relating to lateral loads induced by a train stopping while on the structure. USACE stated that anything constructed on the dam would become federal property and must be maintained by USACE which would add additional burden on the Maintenance Section's duties in maintaining an already aging infrastructure system. The Big Dam Bridge pedestrian trail constructed on the Murray Lock & Dam was referenced for comparison with the major difference being recreational use allowing the action.
5. The Group had an open discussion regarding the individual port sites as follows:
   a. Winrock Farms
      i. Concerned about the distance (+/- 2000') from river navigation channel and potential for frequent dredging to maintain a navigable channel to the proposed harbor.
   b. Charlie's Hidden Harbor
      i. Concerned about the proximity to the Arthur V. Ormond Lock & Dam No. 9 arrival point. Barges often stage for lock entry near dolphins located immediately west of the existing embayment.
   c. Oppelo Bottoms
      i. Agreed that the downstream side of the Hwy. 9 bridge would be preferable.
      ii. Removal of existing dikes may be necessary and would require Hydraulics Section review to determine affects. Could cause a siltation issue requiring frequent dredging to maintain a navigable channel to the harbor.
   d. Cypress Creek
      i. Natural embayment near the outlet of Cypress Creek appears to be a desirable site although the adjacent land is not protected by levee and is within the 100yr. floodplain
   e. Rogers Group
      i. Concerned about location of existing dikes and potential for frequent dredging to maintain navigable access.
   f. Cadron Creek
      i. Briefly discussed. No substantial comments.
6. Garver and CAIA discussed possible partnership opportunities to work with the USACE moving forward. Discussions need to occur with the Planning Section following conclusion of this report. Some items of assistance may include archeological, hydraulic analysis, and additional studies.

Attachments: 11

Copy to File:

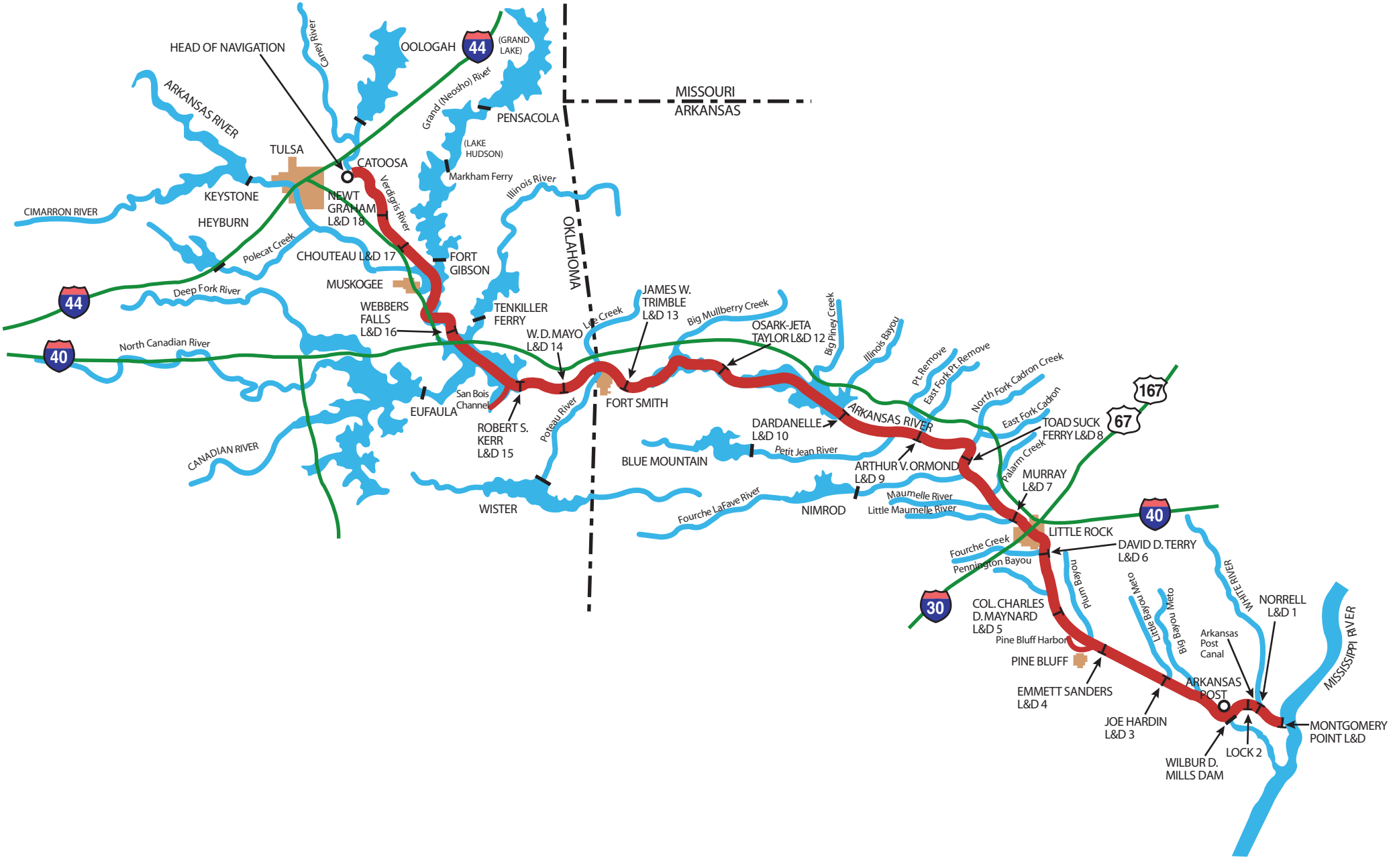
L:\2014\14017090 - CAIA - Port Site Evaluation Study\Correspondence\Meeting Minutes\Meeting Minutes 18-04-11 Utilities Coordination Meeting #5.docm

Agenda
CAIA - USACE Coordination Meeting
Port Site Evaluation Study
May 25, 2018 @ 9:00 am

1. Central Arkansas Intermodal Authority
    a. Conway and Perry Counties
    b. Develop Port Terminal and Supporting Industrial Site
        i. Slackwater Harbor
2. Completed Market Analysis Study w/ARDOT
    a. Study Area Meets Minimum Requirements for Developing a Sustainable Port
    b. Next Steps
3. Port Site Evaluation Study
    a. Stakeholder Correspondence
    b. Engineering Screening
        i. Existing Infrastructure Inventory
        ii. Site Evaluation
        iii. Lock & Dam No. 9 Review
        iv. Cost Comparison
    c. Environmental Screening
        i. Constraints Mapping
4. Port Terminal Sites
    a. Winrock Farms
        i. Distance from Navigation Channel
    b. Charlie's Hidden Harbor
        i. Proximity to Arthur V. Ormond Lock & Dam No. 9 Arrival Point
        ii. Use of Existing Embayment as Harbor
    c. Oppelo Bottoms
        i. Site 1 (Upstream Hwy. 9) vs. Site 2 (Downstream Hwy. 9)
        ii. Location of Bridge
        iii. Distance to Navigation Channel
    d. Cypress Creek
        i. Limited availability of land w/suitable topography
        ii. Large Drainage Area
        iii. Floodplain
    e. Rogers Group
        i. Difficult Rail Access
        ii. Distance to Navigation Channel
    f. Cadron Creek
    g. Other Sites?
5. Miscellaneous
    a. Flowage Easements
    b. Partnership Opportunities Moving Forward

APPENDIX B

McClellan-Kerr Arkansas River Navigation System (MKARNS) Map


HEAD OF NAVIGATION
Caney River
OOLOGAH
44
(GRAND LAKE)
Grand (Neosho) River
ARKANSAS RIVER
MISSOURI
ARKANSAS
PENSACOLA
(LAKE HUDSON)
TULSA
CATOOSA
Markham Ferry
Illinois River
KEYSTONE
NEWT GRAHAM L&D 18
Verdigris River
CIMARRON RIVER
HEYBURN
Polecat Creek
CHOUTEAU L&D 17
FORT GIBSON
OKLAHOMA
MUSKOGEE
Deep Fork River
44
WEBBERS FALLS L&D 16
TENKILLER FERRY
JAMES W. TRIMBLE L&D 13
Lee Creek
Big Mullberry Creek
Big Piney Creek
Illinois Bayou
40
North Canadian River
W.D. MAYO L&D 14
OSARK-JETA TAYLOR L&D 12
Pt. Remove
East Fork Pt. Remove
North Fork Cadron Creek
East Fork Cadron
167
67
San Bois Channel
EUFAULA
FORT SMITH
ROBERT S. KERR L&D 15
Poteau River
DARDANELLE L&D 10
ARKANSAS RIVER
TOAD SUCK FERRY L&D 8
Petit Jean River
Palarm Creek
CANADIAN RIVER
BLUE MOUNTAIN
ARTHUR V. ORMOND L&D 9
MURRAY L&D 7
Maumelle River
Little Maumelle River
WISTER
Fourche LaFave River
NIMROD
40
LITTLE ROCK
Fourche Creek
DAVID D. TERRY L&D 6
Pennington Bayou
30
Plum Bayou
WHITE RIVER
NORRELL L&D 1
COL. CHARLES D. MAYNARD L&D 5
Pine Bluff Harbor
Little Bayou Meto
Big Bayou Meto
Arkansas Post Canal
PINE BLUFF
ARKANSAS POST
MISSISSIPPI RIVER
EMMETT SANDERS L&D 4
JOE HARDIN L&D 3
MONTGOMERY POINT L&D
LOCK 2
WILBUR D. MILLS DAM

APPENDIX C

FEMA Flood Profiles

CITY OF MORRILTON

Charlie's Hidden Harbor

Oppelo Bottoms

Winrock Farms

LIMIT OF DETAILED STUDY

CONFLUENCE OF POINT REMOVE CREEK

ARTHUR V. ORMOND LOCK & DAM #9

LIMIT OF DETAILED STUDY

STATE HIGHWAY 9

ELEVATION IN FEET (NAVD 88)

360
340
320
300
280
260
240
220
200
180

172.0 172.5 173.0 173.5 174.0 174.5 175.0 175.5 176.0 176.5 177.0 177.5 178.0 178.5

STREAM DISTANCE IN NAVIGATION MILES ABOVE CONFLUENCE WITH MISSISSIPPI RIVER

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

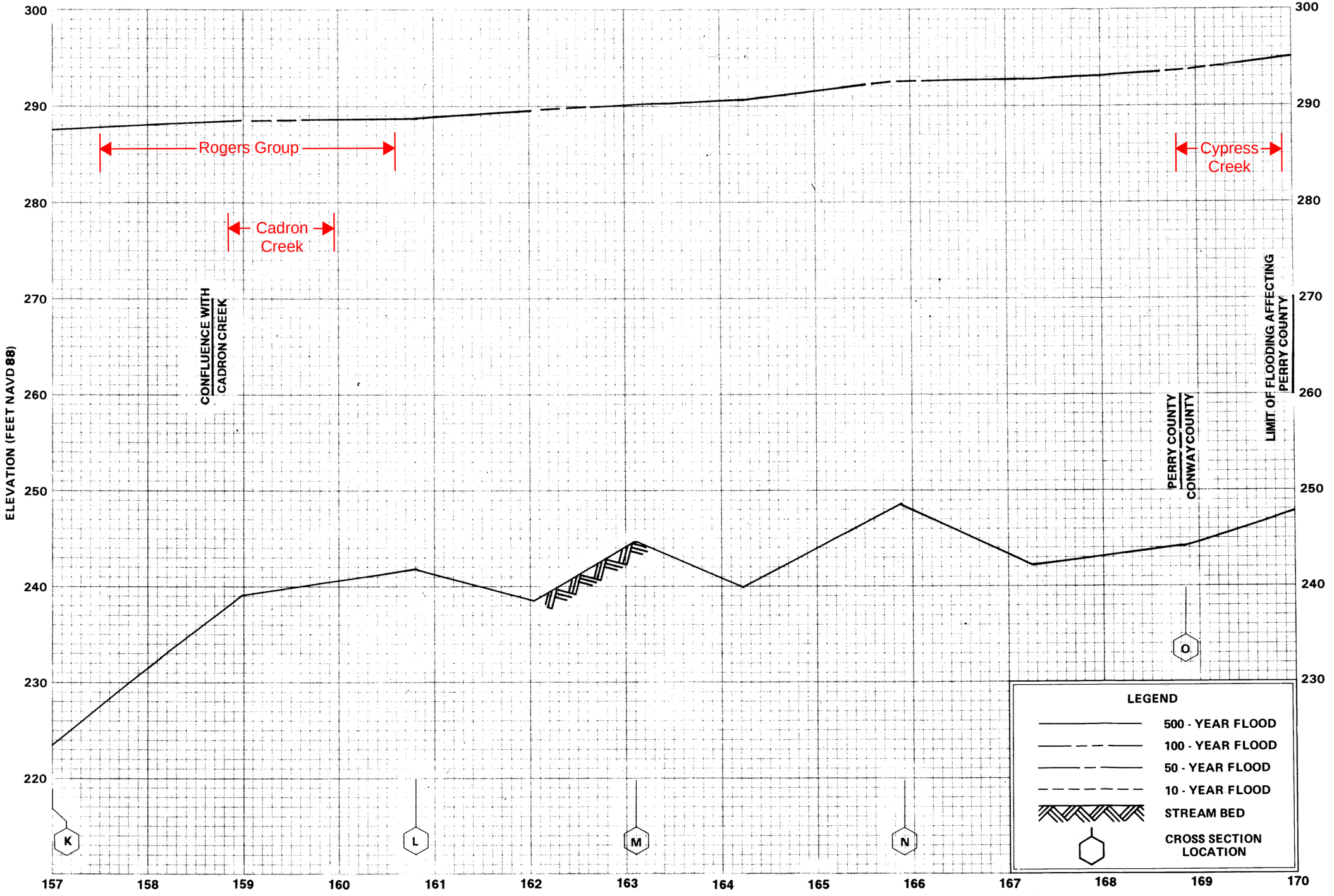
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

CONWAY COUNTY, AR

AND INCORPORATED AREAS

01P



FLOOD PROFILES

ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PERRY COUNTY, AR
AND INCORPORATED AREAS

02P

APPENDIX D

Arkansas River Effective Floodplain Mapping

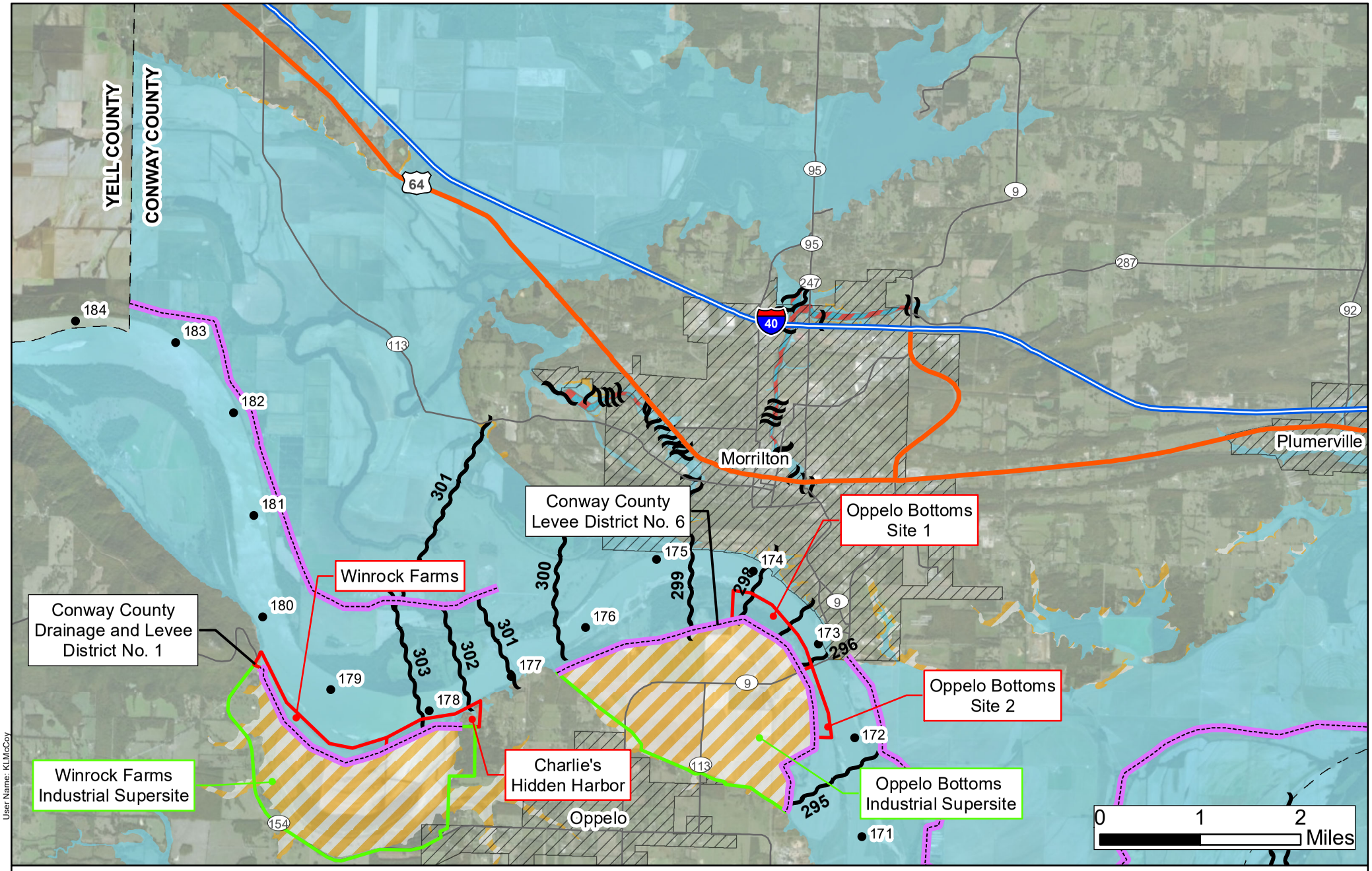


FIGURE 1 OF 3
ARKANSAS RIVER EFFECTIVE FLOODPLAIN MAPPING

N
W
E
S

- ARKANSAS RIVER MILE
- BASE FLOOD ELEVATION
- LETTERED SECTION
- LEVEE
- INDUSTRIAL SUPERSITE BOUNDARY
- RIVERPORT TERMINAL SITE BOUNDARY
- EFFECTIVE FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD AREA
- 0.2% ANNUAL CHANCE FLOOD HAZARD
- AREA WITH REDUCED FLOOD RISK DUE TO LEVEE

GARVER

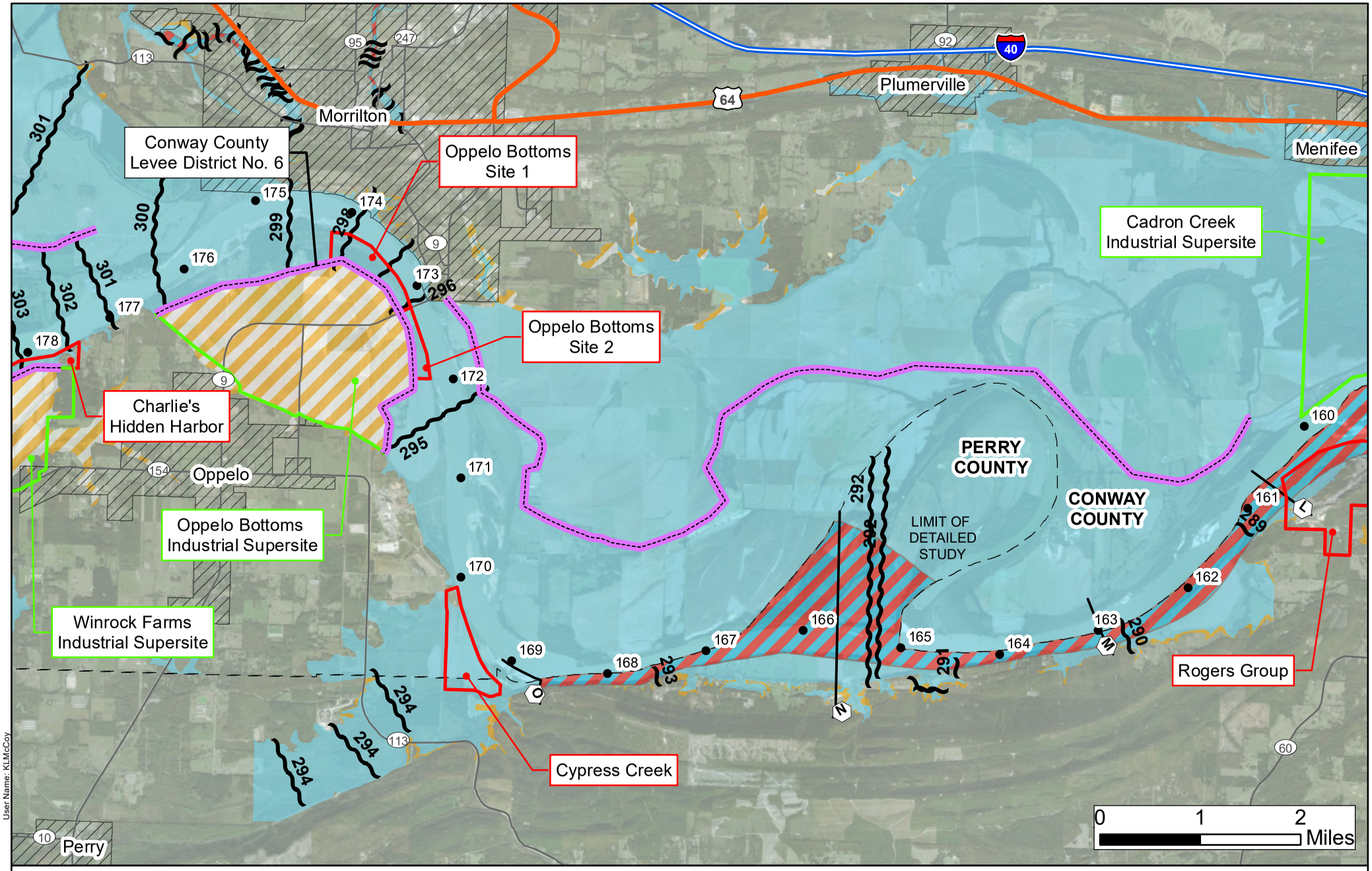


FIGURE 2 OF 3
ARKANSAS RIVER EFFECTIVE FLOODPLAIN MAPPING

N
W
E
S

- ARKANSAS RIVER MILE
- BASE FLOOD ELEVATION
- LETTERED SECTION
- LEVEE
- INDUSTRIAL SUPERSITE BOUNDARY
- RIVERPORT TERMINAL SITE BOUNDARY
- EFFECTIVE FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD AREA
- 0.2% ANNUAL CHANCE FLOOD HAZARD
- AREA WITH REDUCED FLOOD RISK DUE TO LEVEE

GARVER

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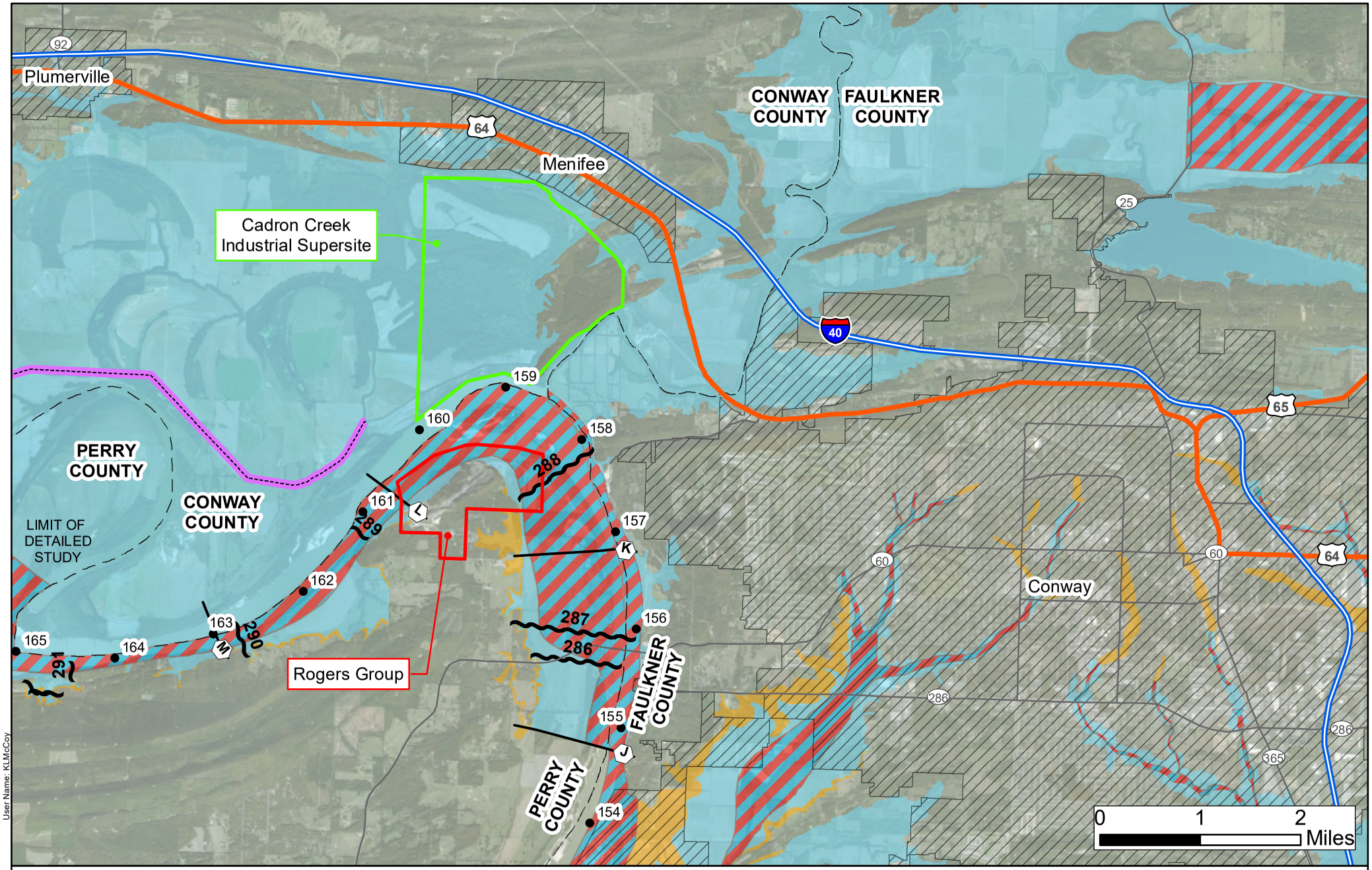

FIGURE 3 OF 3
ARKANSAS RIVER EFFECTIVE FLOODPLAIN MAPPING

N W E S

- ARKANSAS RIVER MILE
- BASE FLOOD ELEVATION
- LETTERED SECTION
- LEVEE
- INDUSTRIAL SUPERSITE BOUNDARY
- RIVERPORT TERMINAL SITE BOUNDARY
- EFFECTIVE FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD AREA
- 0.2% ANNUAL CHANCE FLOOD HAZARD
- AREA WITH REDUCED FLOOD RISK DUE TO LEVEE

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User Name: KLMcCoy

APPENDIX E

Planning Level Cost Estimates

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

HWY 9 IMPROVEMENTS - RIVERVIEW RD. TO I-40

CONSTRUCTION COSTS

	Length (ft)	Cost (per mile)	Total Cost	
Riverview Road to River Bridge	11,100	$3,375,000.00	$7,100,000.00	2 Lanes to 4 Lanes (Rural)
River Bridge to Hwy 64 Bridge	10,200	$3,375,000.00	$6,500,000.00	2 Lanes to 4 Lanes (Rural)
Hwy 64 Bridge to I-40 EB Ramps	9,900	$3,375,000.00	$6,300,000.00	2 Lanes to 4 Lanes (Rural)
		Total =	$19,900,000.00	

	Area (sq.ft.)	Cost (per sq. ft.)	Total Cost	
River Bridge (1290')	82,560	$290.00	$23,900,000.00	4-12' lanes and 8' shoulders
River Bridge Approach Spans (600')	38,400	$200.00	$7,700,000.00	4-12' lanes and 8' shoulders
Existing Bridge Demo	60,480	$30.00	$1,800,000.00	
Hwy. 64 Bridge Widening (275')	6,600	$115.00	$800,000.00	2 Additional 12' lanes
		Total =	$34,200,000.00	

Total Estimated Construction Cost = **$54,100,000**
Contingency (20%) = **$10,800,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $64,900,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

UPRR IMPROVEMENTS - INDUSTRIAL TRACK CONNECTION

CONSTRUCTION COSTS

	Length (ft)	Cost (per mile)	Total Cost	
Arkansas River to UPRR	11,000	$2,000,000.00	$4,200,000.00	Industrial Track
		Total =	$4,200,000.00	

	Length (ft)**	Cost (per ft.)	Total Cost	
River Bridge Navigation Span	320	$30,000.00	$9,600,000.00	Truss
River Bridge Approach Spans	2,680	$10,000.00	$26,800,000.00	Conventional
Bridge over Point Remove Creek	1,000	$10,000.00	$10,000,000.00	Conventional
		Total =	$46,400,000.00	

Total Estimated Construction Cost =	**$50,600,000**
Contingency (20%) =	**$10,100,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included
** Estimated bridge length. Hydraulic analysis required to determine bridge length during design

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $60,700,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

WINROCK FARMS SITE - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor =	300,000	C.Y.	$8.00	$2,400,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$11,600,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	9.3	MILES	$1,750,000.00	$16,300,000.00
Levee =	100,000	C.Y.	$20.00	$2,000,000.00
Access Road =	2,200	L.F.	$450.00	$990,000.00
			Total =	$19,290,000.00

Total Estimated Construction Cost = **$30,890,000**
Contingency (20%) = **$6,200,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $37,090,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

CHARLIE'S HIDDEN HARBOR SITE - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor =	300,000	C.Y.	$8.00	$2,400,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$11,600,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	7.3	MILES	$1,750,000.00	$12,800,000.00
Levee =	100,000	C.Y.	$20.00	$2,000,000.00
Access Road =	6,000	L.F.	$450.00	$2,700,000.00
			Total =	$17,500,000.00

Total Estimated Construction Cost =	**$29,100,000**
Contingency (20%) =	**$5,800,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $34,900,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

OPPELO BOTTOMS SITE 1 - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor =	300,000	C.Y.	$8.00	$2,400,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$11,600,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	5.0	MILES	$1,750,000.00	$8,800,000.00
Levee =	200,000	C.Y.	$20.00	$4,000,000.00
Access Road =	2,200	L.F.	$450.00	$990,000.00
			Total =	$13,790,000.00

Total Estimated Construction Cost = **$25,390,000**
Contingency (20%) = **$5,100,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $30,490,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

OPPELO BOTTOMS SITE 2 - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor =	300,000	C.Y.	$8.00	$2,400,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$11,600,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	4.6	MILES	$1,750,000.00	$8,000,000.00
Levee =	200,000	C.Y.	$20.00	$4,000,000.00
Access Road =	2,000	L.F.	$450.00	$900,000.00
			Total =	$12,900,000.00

Total Estimated Construction Cost = **$24,500,000**
Contingency (20%) = **$4,900,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $29,400,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

CYPRESS CREEK - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor** =	150,000	C.Y.	$8.00	$1,200,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$10,400,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	1.7	MILES	$1,750,000.00	$3,000,000.00
Levee =	0	C.Y.	$20.00	$0.00
Access Road =	2,000	L.F.	$450.00	$900,000.00
Dredged Fill*** =	1,600,000	C.Y.	$8.00	$12,800,000.00
			Total =	$16,700,000.00

Total Estimated Construction Cost = **$27,100,000**
Contingency (20%) = **$5,400,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included
** Quantity reduced assuming partial use of existing embayment
*** Site located in FEMA floodplain without existing levee protection

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $32,500,000

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PROJECT PLANNING COST ESTIMATE

CAIA - PORT SITE EVALUATION STUDY
CONWAY AND PERRY COUNTY, ARKANSAS

ROGERS GROUP - RIVERPORT TERMINAL

CONSTRUCTION COSTS

	Quantity	Unit	Unit Cost	Total Cost
Slackwater Harbor =	300,000	C.Y.	$8.00	$2,400,000.00
Dock =	30,000	S.F.	$100.00	$3,000,000.00
Warehouse =	80,000	S.F.	$60.00	$4,800,000.00
Team/Side Tracks =	3,500	L.F.	$400.00	$1,400,000.00
			Total =	$11,600,000.00

	Quantity	Unit	Unit Cost	Total Cost
Industrial Track =	10.0	MILES	$2,500,000.00	$25,000,000.00
Levee =	0	C.Y.	$20.00	$0.00
Access Road =	2,000	L.F.	$450.00	$900,000.00
			Total =	$25,900,000.00

Total Estimated Construction Cost =	**$37,500,000**
Contingency (20%) =	**$7,500,000**

* Property acquisition, planning and engineering, construction inspection, and utility relocation not included

TOTAL OPINION OF PROBABLE CONSTRUCTION COST (2018)*: $45,000,000