PUBLIC REVIEW AND COMMENT IS INVITED ON A RE-EVAULATION OF THE ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED ARKANSAS RIVER VALLEY INTERMODAL FACILITY (ARVIF)

The Federal Highway Administration (FHWA) approved a Record of Decision (ROD) for the ARVIF in November 2013 after completing an Environmental Impact Statement (EIS) in March 2013 to support the project. Since the EIS was completed and approved for public dissemination, the U.S. Army Corps of Engineers (USACE) made a slight modification to the design of the slackwater harbor component of the intermodal facility. The design modification was not included in the original EIS or ROD. The FHWA has completed a re-evaluation of the EIS that includes this design modification.

The re-evaluation document is available for your review at the following locations:

- Arkansas River Valley Library, 501 N. Front Street, Dardanelle, AR
- Pope County Library, 116 East 3rd Street, Russellville, AR
- Arkansas State Highway and Transportation Department District 8 Headquarters, 372 Aspen Lane, Russellville, AR
- Arkansas State Highway and Transportation Department Website: www.arkansashighways.com

Interested citizens are encouraged to stop by these locations where the document can be viewed during normal business hours.

Any comments you wish to make on this proposal should be received no later than 4:30 p.m. on Thursday, September 10, 2015 and may be sent via e-mail to: Arkansas.FHWA@dot.gov

Written comments may be sent to:

Federal Highway Administration
700 West Capitol Avenue, Room 3130
Little Rock, AR 72201-3298
Ph. (501) 324-5625

Draft

Final Environmental Impact Statement Reevaluation

Arkansas River Valley Intermodal Facilities

Federal Aid Project HPP-0268(2)

Prepared by:

U.S. Department of Transportation
Federal Highway Administration
Arkansas Division Office

In Cooperation with:

United States Army Corps of Engineers
Arkansas State Highway and Transportation Department
River Valley Regional Intermodal Facilities Authority

July 2015

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1. INTRODUCTION

This Reevaluation is being prepared by the Arkansas Division office of the Federal Highway Administration (FHWA) to examine the March 2013 Final Environmental Impact Statement (FEIS) and November 2013 Record of Decision (ROD) or the March for the River Valley Intermodal Facilities (RVIF) project (the "Project") in the Arkansas River Valley (ARV) (Figure 1 shows a January 2015 aerial of the Project area). 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.

A reevaluation is required to update the analysis in NEPA documents when there are changes to the Project which could affect the prior determination of potential environmental impacts. 23 C.F.R. § 771.129(c). In late 2014 the Little Rock District of the U.S. Army Corps of Engineers (Corps) advised FHWA that it had re-designed the entrance and layout of the slack water harbor component of the Project. The altered harbor design necessitates the preparation of this Reevaluation. FHWA will re-examine the size and scope (context and intensity) of the Project's environmental impacts given the re-design. Furthermore, this document will also examine the other sections and components of the 2013 FEIS to see if there are any other changes in the Project area, not previously studied or documented. Depending on the findings made herein, FHWA will either conclude that the 2013 FEIS and ROD still remain valid or that further environmental documentation is required.

2. PROJECT HISTORY

The City of Russellville and Pope County established a multi-jurisdictional intermodal facilities authority in Arkansas pursuant to the authority of the Intermodal Authority Act, Act 690 of 1997. The purpose of the Authority was to promote economic development and job creation in a six county region (i.e., Conway, Johnson, Logan, Perry, Pope, and Yell Counties) within the ARV by constructing and operating a multi-modal transportation complex in the ARV.

The Authority proposed to construct and operate an approximate 800-acre intermodal facilities complex in the ARV. The proposed transportation complex would include three modes of transportation: water (commercial navigation via a slack water harbor connected to the Arkansas River), highway (via connection to the interstate highway system), and rail (via connection to the national railroad grid). The geographic limits of the proposed action consist of the six-county ARV region, which extends along the Arkansas River from Highway 109, located just west of Clarksville, Arkansas, to Highway 9 near Morrilton, Arkansas. The cost estimate range for the proposed intermodal facilities alternatives was found to be between $10 and $30 million.

Additional services at the intermodal facilities were planned to include on-site rail/truck transfers, truck/water transfers, rail/water transfers, freight tracking, a foreign trade sub-zone, warehousing, distribution, consolidation, just-in-time inventory services, and material storage capabilities.

It was found that three public ports/terminals existed along the Arkansas portion of the MKARNS. These facilities are located in Pine Bluff, Little Rock, and Fort Smith, and one is being considered in Van Buren. There are no public port facilities within 30 miles of the project area. However, within this same 30 mile area three private docks exist, including: Pine Bluff Sand & Gravel, the Port of Dardanelle, and Oakley Port. None of these existing ports include a slack water harbor.

3. PROJECT'S NEPA BACKGROUND

The FEIS, which was approved by FHWA in March 2013, (found online at www.rivervalleyintermodal.org) contains a summary of the NEPA process; a discussion and determination of the Project's Purpose and Need, a description of the preferred alternative and summary of other alternatives considered; revisions since the completion of the SDEIS (especially related to Phase II testing of cultural resources) an examination of the Project's Direct, Indirect and Cumulative environmental impacts, proposed mitigation, a summary of the comments received on the SDEIS; and a copy of the Cultural Resources Programmatic Agreement. Also attached was the Corps' Floodplain Analysis Report (Appendix B).

The FEIS identified and selected the Green Alternative for the Project (Figure 2). Two other alternatives, the Red and the Purple, (Figures 3 and 4) were also evaluated in the FEIS. The FEIS presented new and updated information with regard to the proposed Project and environmental impacts that had occurred since the October 2010 Supplemental Draft Environmental Impact Statement (SDEIS) public review. A Record of Decision (ROD) was signed by the Federal Highway Administration (FHWA) in November 2013. The ROD selected the Green Alternative (Figure 2).

4. REEVALUATION OF THE PROJECT

The Project Reevaluation was determined to be necessary given the re-design of the configuration of the slack water harbor portion of the Project. The re-design was required due to the ongoing gravel mining operations being conducted within the proposed area to construct the entrance to the slack water harbor (Figure 1).

Since the Corps' original design of the slack water harbor in 2000 it has been modified several times. The Corps completed a revised design in 2014. It is this current design that FHWA now must examine to determine if any new or significant additional environmental impacts are present due to the design change. The Corps' design changes for the harbor are discussed in Section 4.3.1. Overall the design changes lessen the potential environmental impacts through a reduction of size of the harbor entrance, reduction of the harbor footprint and an elimination of a berm that was to have been constructed to help protect the harbor.

The Reevaluation was prepared by FHWA, along with the assistance and cooperation of the Arkansas State Highway and Transportation Department (AHTD), the River Valley Regional Intermodal Facilities Authority (Authority) and the Corps. To update the and re-evaluate the 2013 FEIS the FHWA staff in the Arkansas Division completed a field inspection of the project area in April 2015, contacted and discussed the Project with the relevant Federal and state agencies, reviewed information on the area generated since the completion of the FEIS, considered the Flood Plain Analysis Report of the Corps along with its report on the new HEC-RAS computer modeling information on the slack water harbor, consulted with FHWA Hydraulic engineers in FHWA headquarters and also reviewed and reconsidered all prior technical reports on the Project to determine if anything needed to be re-analyzed. With the issuance of this Reevaluation the FHWA, and its local, state and Federal partners, are providing the public the opportunity to review and comment on the Project and this update to the FEIS. FHWA further plans to review and respond to any and all comments prior to its final decision.

The following sections document the process and review of the 2013 FEIS and the November 2013 ROD.

4.1 REVIEW OF THE PURPOSE AND NEED OF THE PROPOSED ACTION

As noted in the FEIS, the purpose of the proposed action was to establish collocated intermodal facilities in the ARV. Establishing intermodal facilities was determined to promote economic development by creating new jobs, specifically higher wage jobs, improve transportation capacity and competitiveness necessary for attracting new businesses and industries to the area, and enhance modal interrelationships by providing more shipping capabilities and capacity.

The RVIF is continues to be supported by local, statewide, and nationwide land use, economic, and growth objectives. Within these objectives, specific needs for the RVIF were identified in the FEIS. These needs included an integrated regional economy; promotion of social and economic growth by creating higher wage jobs in the ARV region; larger industrial sites with access to multimodal transportation, and additional freight capacity through large-scale freight projects.

A current examination of the Project's Purpose and Need statement finds the determination made in the 2013 FEIS and ROD still remains valid. FHWA has reviewed the 2013 FEIS and ROD and the underlying materials referenced in the 2013 documentation. FHWA has also consulted with the relevant agencies, revisited the Project area site and reviewed additional documentation. No significant changes have occurred which would alter the Purpose and Need findings made in 2013.

4.2 REVIEW OF PROJECT ALTERNATIVES

The RVIF, as found in the March 2013 FEIS and November 2013 ROD, is planned to be located within an area with suitable access to a slack water harbor, the national railroad grid, and the interstate highway system. For purposes of the original alternatives analysis, the geographic limits of the proposed project area within the six-county ARV region extend from Highway 109, located just west of Clarksville, to Highway 9 near Morrilton (Figure 5).

A full range of potential project alternatives, including a No Action Alternative, was considered during the development of the RVIF Draft EIS (DEIS). Objective screening criteria were developed cooperatively with input from FHWA, Corps, the Authority, AHTD, and the public to help identify potential reasonable alternative locations for the project. Over time, the screening criteria referenced in the FEIS were further refined based on additional information gathered for all of the potential sites being considered and additional comments from various agencies and the public following the review of the DEIS.

The screening criteria were established to facilitate the identification of an alternative (or alternatives) for detailed evaluation that would meet the purpose and need of the project, could be constructed in a cost effective manner, and would minimize adverse impacts to human, environmental, and cultural resources.

A total of nine potential build alternative locations (Figure 5) for placement of the intermodal facilities were identified within the geographic limits of the six-county ARV region during January through April 2005. No additional sites were identified during the agency scoping meeting. One of the nine sites was identified following public comments received at a March 15, 2005 Public Informational Meeting associated with the DEIS. A preferred alternative was not identified as part of the DEIS or later SDEIS, but the Green Alternative was identified as the preferred alternative in the FEIS.

After employing the screening criteria, six build alternatives were eliminated from further consideration, and three build alternatives were chosen to be evaluated in the FEIS. The three alternatives chosen to be further evaluated were the Russellville Bottoms (Green) Alternative, North Dardanelle (Red) Alternative, and Bend (Purple) Alternative. These alternatives met the screening criteria and were considered reasonable alternatives for the Project's implementation. These alternatives and the No Action Alternative were carried forward and fully evaluated in the 2013 FEIS.

4.2.1 REVIEW OF NO ACTION ALTERNATIVE

FHWA still finds that there could be long-term adverse social and economic impacts from this alternative. The existing substandard economic conditions of the project area still are found to exist in July 2015 and would continue. Lack of development of the area as a potential employment center could contribute to stagnant population growth in the region. No additional employment, personal income, or tax revenues would be realized under this alternative. These findings all still remain valid in July 2015.

4.2.2 REVIEW OF GREEN (SELECTED) ALTERNATIVE

In completing the Reevaluation it was found that there would still be both direct short-term adverse and long-term beneficial social impacts. The proposed development would enhance economic functionality and viability of the project area and foster interaction between the project area and the local and regional communities in the form of new transportation and employment opportunities. Short-term beneficial impacts would be realized by employment associated with the construction of the intermodal facilities. Long-term beneficial impacts would be realized by the operation of the intermodal facilities. Additional long-term economic benefits would be realized from increased real property taxes and other tax revenues resulting from development of the intermodal facilities. Because the land would be owned and leased by the Authority, tax revenues would only be generated by private improvements within the project area. Short-term adverse economic impacts would be realized with the loss of tax revenue-producing real property and subsequent removal from the tax rolls because of acquisition by a public entity.

Long-term beneficial social impacts could still include additional population growth attributable to direct and indirect employment and other opportunities afforded by the intermodal facilities. Development of the project area would result in long term beneficial impacts in the provision of public services.

It is not anticipated that the Green (Selected) Alternative would have a disproportionate impact on minorities, elderly populations, or low-income populations. In July 2015 FHWA still finds that substantial long-term beneficial impacts to commercial navigation would still result with the construction of an intermodal center with a slack water harbor.

The detailed mitigation measures for the proposed action will still be developed primarily during the permitting stage of this project. The Authority will still work directly with the regulatory agencies responsible for the various resources that would be impacted by the intermodal facilities.

4.2.3 SUMMARY OF REVIEW OF ALTERNATIVES ANALYSIS

In completing this Reevaluation of the Project alternatives, FHWA has consulted with the relevant agencies, revisited the Project area and reviewed all Project area documentation. No significant changes in the Project area have been found or noted to have occurred since the issuance of the ROD. The

factors and information used in the FEIS and referenced in the ROD, for selecting the Green Alternative, all remain valid as of July 2015.

4.3 REVIEW OF AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In completing this Reevaluation all other potential impact areas, discussed in the FEIS, including Land Use & Infrastructure, Farmland, Soils, & Physical Environment, Social Environment, Relocations, Economics, Pedestrian & Bicyclist Considerations, Air Quality, Noise, Water Quality, Wetlands, Water Body Modification, Wildlife, & Vegetation, Floodplains, Commercial Navigation, Threatened & Endangered Species, Cultural Resources (including Section 4F), and Hazardous Waste/Materials, were all also reviewed and reconsidered.

The only potential new impacts not studied or analyzed by FHWA, in the 2013 documentation, stem from potential Floodplains impacts due to the Corps' redesign of the layout for the proposed slack water harbor. The harbor redesign and potential changes in impacts are discussed in the next sub-section (Section 4.3.1). Further, Appendix A provides summary reports of the floodplain issues from the Corps and FHWA.

As to any other potential changes in the Project area, FHWA has consulted with the relevant agencies, revisited the project area and also has reviewed all Project area documentation. The potential environmental impacts found and discussed in the FEIS dated March 2013, with the noted exception of Floodplain impacts, are all found to remain unchanged. The factors and information used in the FEIS and referenced in the ROD, for determining the affected environment and consequences, still remain valid as of July 2015.

4.3.1 REVIEW OF PROJECT DESIGN CHANGES - SLACK WATER HARBOR

The FEIS and ROD from 2013 for the slack water harbor was modified from the plan that was presented in the in the 'Slack Water Harbor, Russellville, Arkansas, Detailed Project Report and Environmental Assessment, dated May 2001. The Corps Little Rock District office, modified the design and approved a smaller plan on 26 August 2002 that reduced the size of the General Navigation Features (GNF) to 416,000 square feet from 452,000 square feet. Additional design work was completed in 2006. The site conditions at the location of the GNF continued to change between 2002 and 2014. The harbor site has been extensively dredged for ongoing gravel mining; additional design modifications were made in order to take advantage of existing excavation. (Figure 6). This design can be compared with those completed earlier showing a reduction in area needed for the design. (Figure 7). The revision decreases the need for placement of dredge material and will reduce the cost of construction. Based on the site changes the Corps completed the current design in December 2014.

The slack water harbor was originally designed with an entrance channel that was 250-feet wide. That entrance has now been reduced. The harbor was also initially designed to be surrounded by a berm that would be constructed with a top elevation of 322.0 feet NGVD. However, especially in light of the levee proposed to protect the rest of the RVIF in the FEIS, USACE has determined that a berm would be

unnecessary to solely protect the Harbor and has removed it from the design. Finally, the original design also required 11.78 acres in area. In 2014 the design was modified to require only 10.84 acres.

To complete the study of the potential impacts of the re-design, the smaller entrance, the smaller harbor footprint and the elimination of a berm, the Corps relied upon the modeling available from the Hydrologic Engineering Centers River Analysis System (HEC-RAS). The HEC-RAS program models the hydraulics of water flow through natural rivers and other channels. The program was developed by the US Department of Defense, Army Corps of Engineers, in order to manage the rivers, harbors, and other public works under their jurisdiction. The Corps' Hydrologic Engineering Center (HEC) developed the River Analysis System (RAS) to aid hydraulic engineers in channel flow analysis and floodplain determination. It includes numerous data entry capabilities, hydraulic analysis components, data storage and management capabilities, and graphing and reporting capabilities. The HEC-RAS model, which had been employed to the study the Green Alternative, has now been used to reflect the re-design of the slack water harbor completed in December 2014. The results of the Corps' new HEC-RAS analysis are attached as Appendix A to this Reevaluation.

FHWA, through its Arkansas Division office and its senior hydraulic engineers, have reviewed the new Corps study and the HEC-RAS modeling.[1] The model does not show any changes from the original design regarding flooding impacts on the Project area – including on the City of Dardanelle. The modeling approach used by the Corps, enhanced to detect any small change in water surface elevation as a result of a change in storage volume, was found to be valid and reasonable. FHWA agrees with the Corps' conclusion that the gravel mining activities have no significant impact on water surface elevations for various flood flows modeled. The redesign results in less dredged material to be removed from the harbor entrance than previous designs. It also lessens the potential environmental impacts by reducing the footprint of the harbor.

FHWA finds, based upon the studies completed, that the harbor redesign does create any new significant environmental impacts. The determinations of potential floodplain impacts on the Project area and particularly on the City of Dardanelle, made in the March 2013 FEIS and November 2013 ROD, still remain valid.

4.4 REVIEW OF DIRECT, INDIRECT and CUMULATIVE IMPACTS

Direct and indirect impacts associated with implementing any of the FEIS' four alternatives (no action and three build alternatives) were associated with the following changes to the 2013 baseline conditions: socio-economic changes as a result of the action; commercial, industrial, and infrastructure development; land-based construction activities; water-based construction activities; and increased truck, rail, and river commerce in the region.

At the end of Section ES.4 of the Executive Summary of the FEIS, a table summarizing the direct impacts of the No Action, Green (Selected), Red, and Purple Alternatives was provided and can be found in FEIS

[1] The agency's hydraulic engineers prepared a memo reviewing the Corps' HEC-RAS model results. It is included as a part of Appendix A.

Appendix B. The following development elements are required to support general purpose intermodal facilities: transportation facilities including the slack water harbor, rail, and highway access; material handling equipment; support facilities; industrial/distribution facilities; and utility infrastructure. The build-out of these elements is still found to contribute to the following impacts, as is discussed below for the selected and no action alternative.

The cumulative impacts for the Project Alternatives was discussed and summarized in the FEIS Table ES.2. After consulting with the relevant agencies, revisiting the Project area, and completing a re-examination of the FEIS, ROD and underlying studies and documents, no significant changes are found in the Project's potential direct, indirect or cumulative impacts. Further information on Project impacts is available in Appendix B.

5.0 CONCLUSIONS

In completing this Reevaluation FHWA has not found any new significant impacts. The 2014 slack water harbor design change is the only major change in the Project area since November 2013. As noted above there are no new significant impacts resulting from this redesign. After reviewing the HEC-RAS modeling completed by the Corps, FHWA agrees that it does not show any additional or new significant environmental impacts. The determinations made in the March 2013 FEIS and November 2013 ROD, still remain valid.

6.0 NEXT STEPS

This Reevaluation, appendices and results will be made available to the public, stakeholders, and resource agencies for review in August 2015. After review and consideration of all comments, FHWA will make a final determination of whether the FEIS needs to be supplemented or if the November 2013 ROD remains valid.

FIGURES 1 – 8

Figure 1. New Aerial View of Project Area (January 2015)

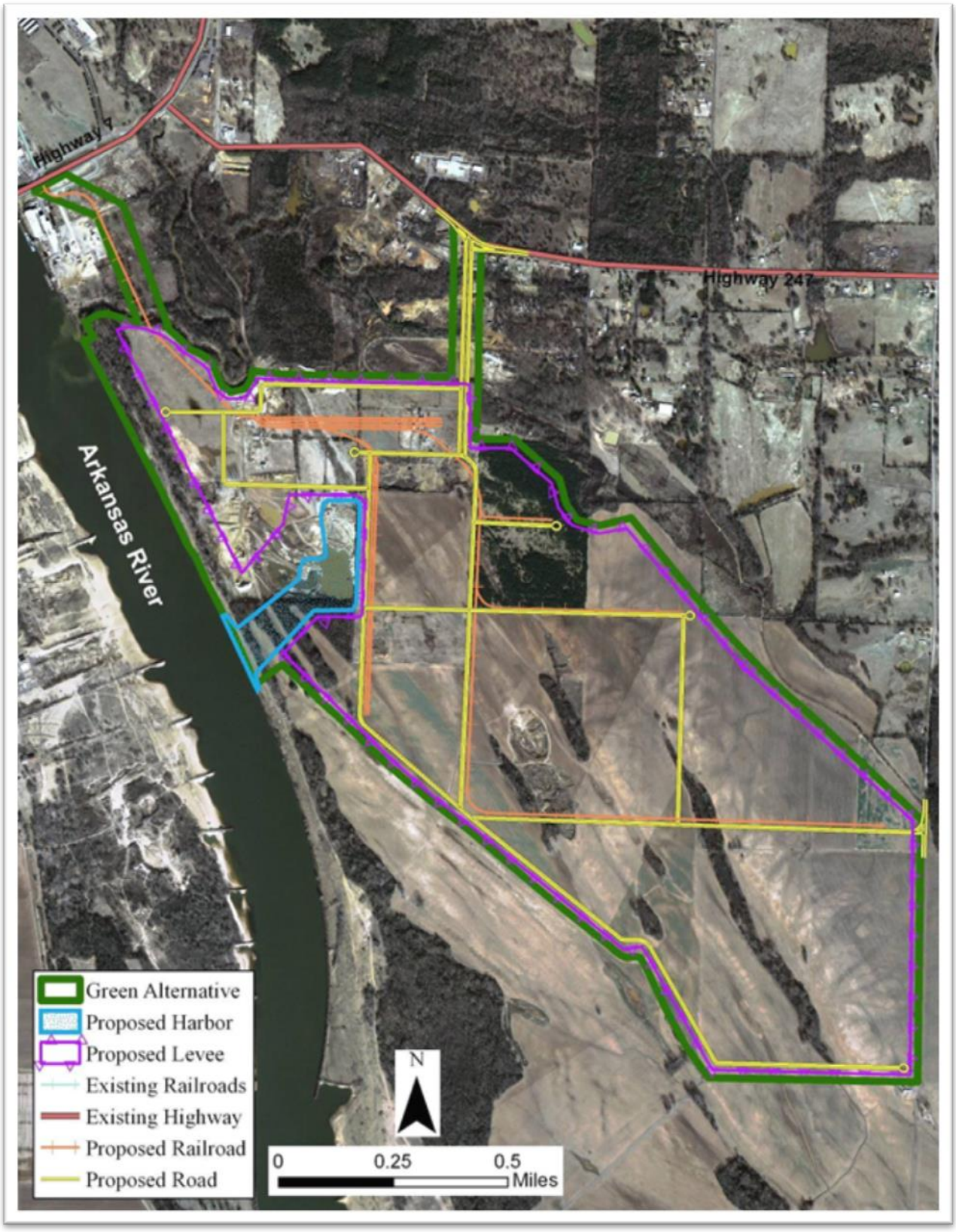

Figure 2. Conceptual Site Layout of the Selected Alternative (Green Alternative)

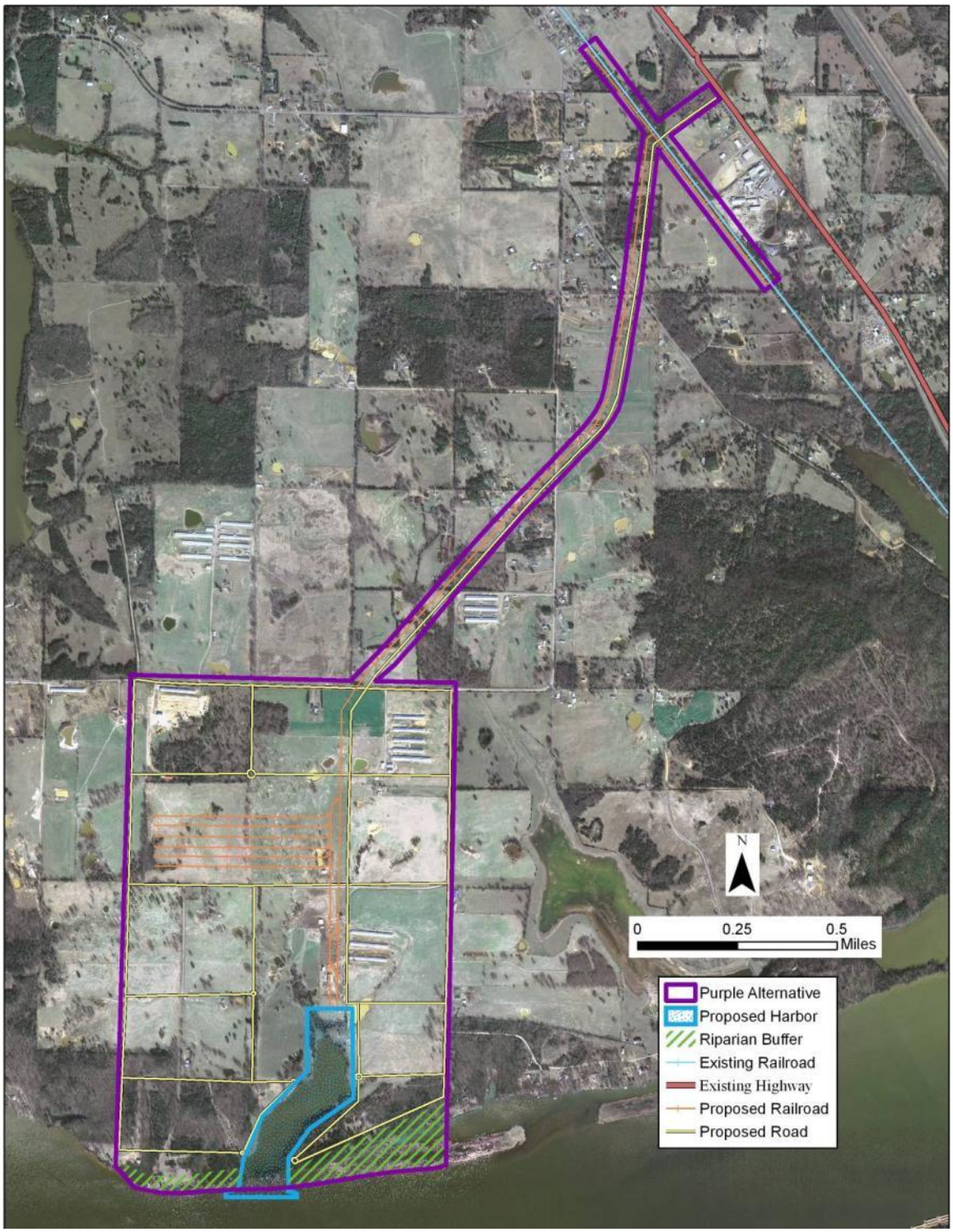

Figure 3. Conceptual Site Layout of the Purple Alternative

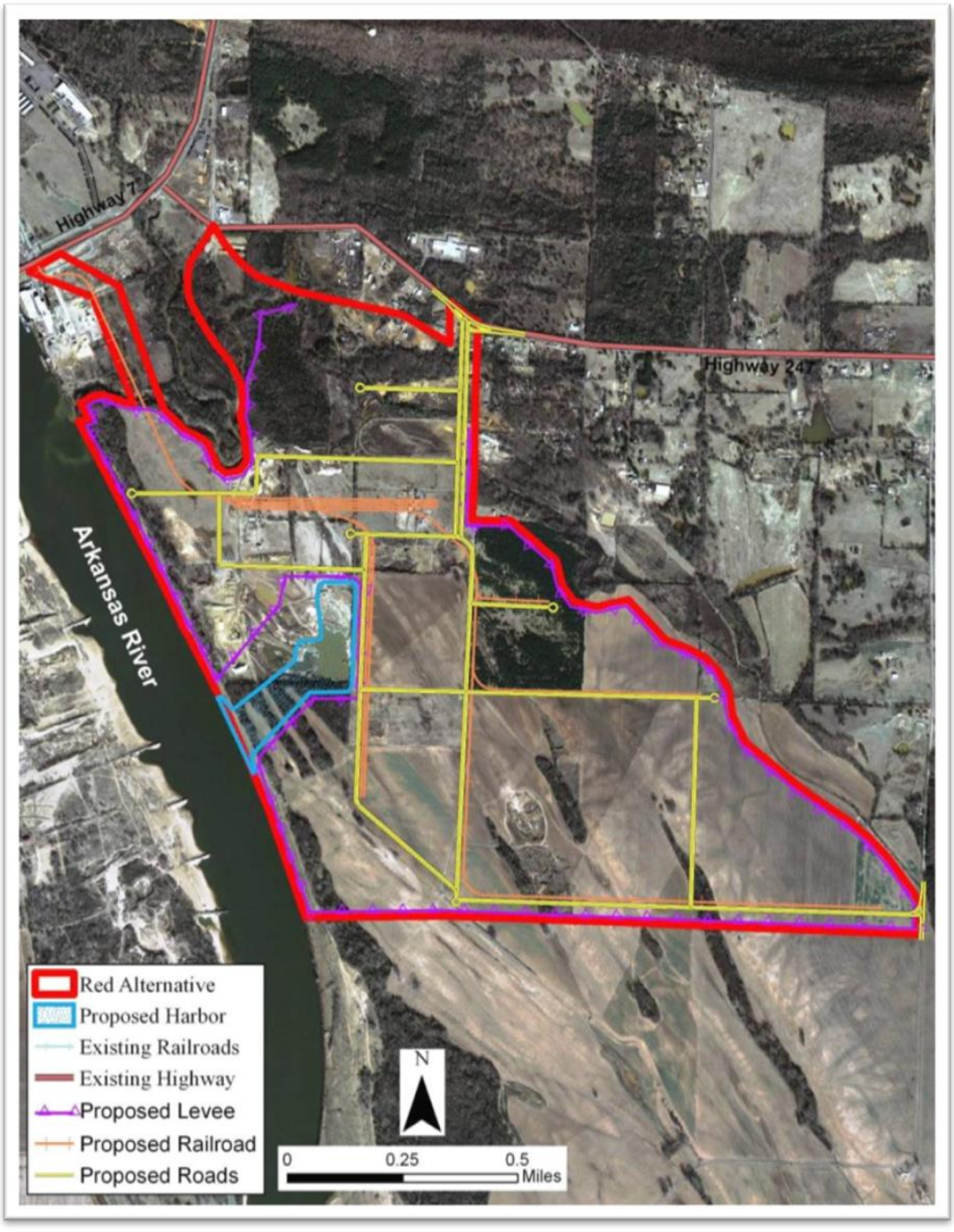

Figure 4. Conceptual Site Layout of the Red Alternative

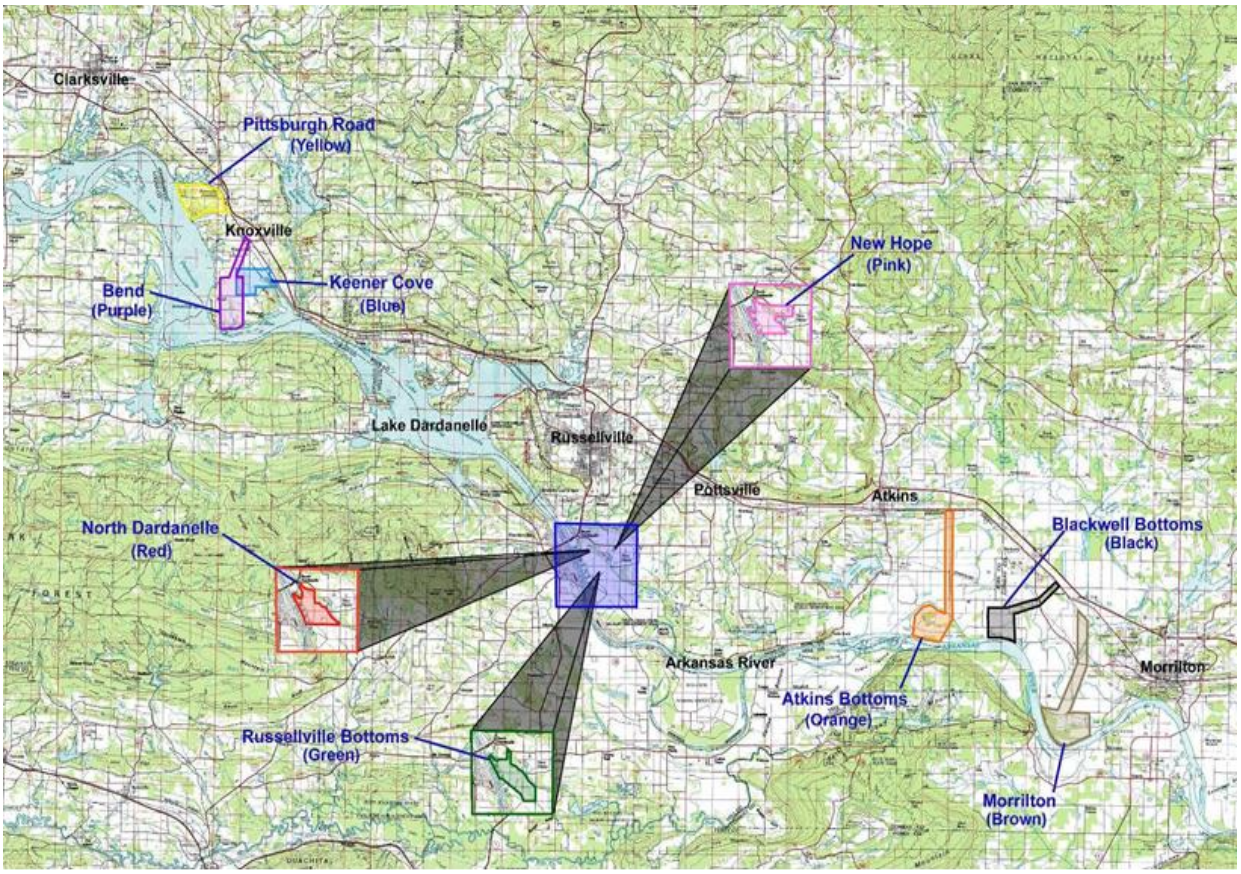

Figure 5. Overview Map of Study Area and Alternative Locations Considered for Inclusion in the River Valley Intermodal Facilities FEIS.

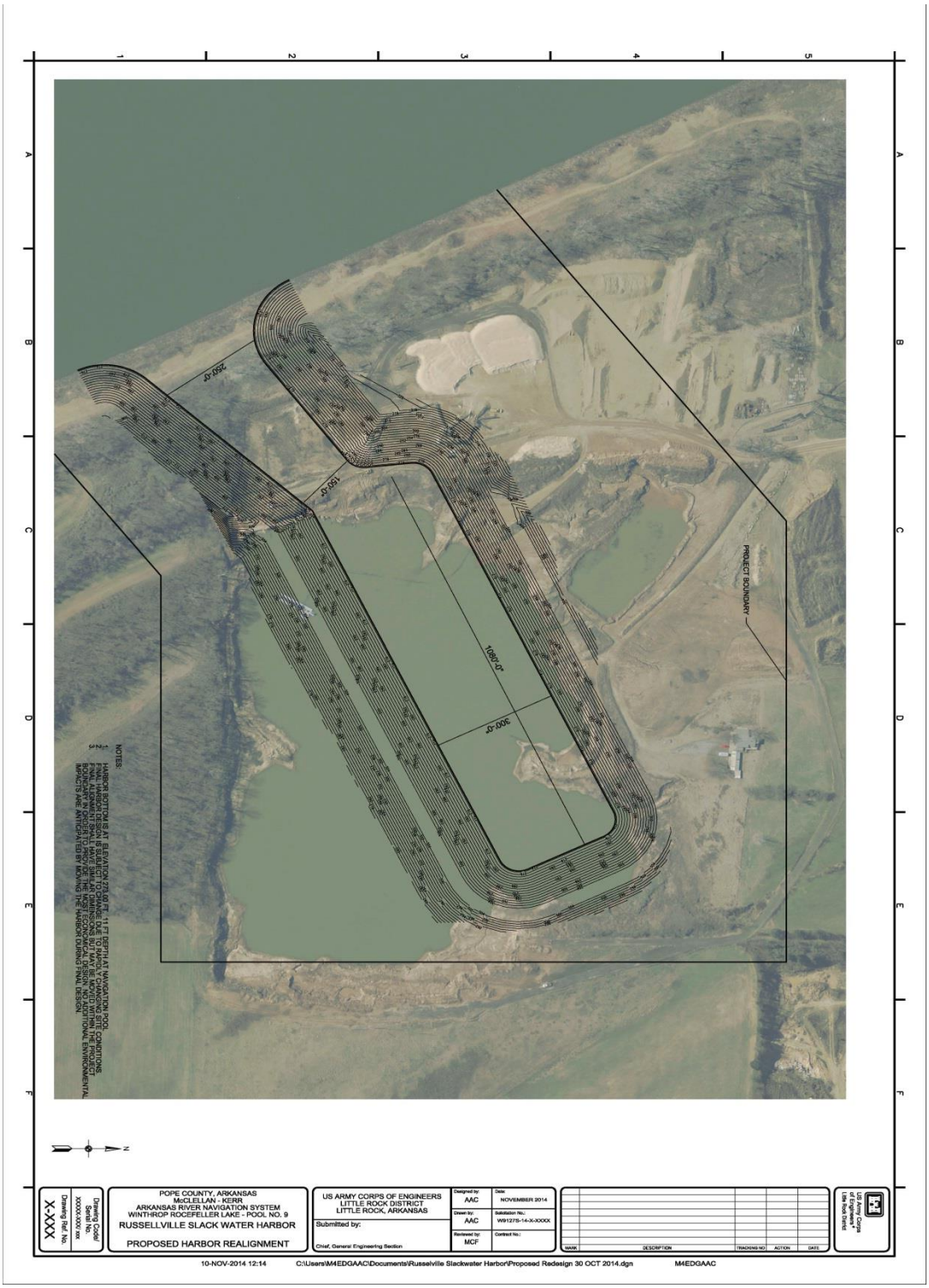

Figure 6. Layout showing the November 2014 Re-Designed Slack Water Harbor

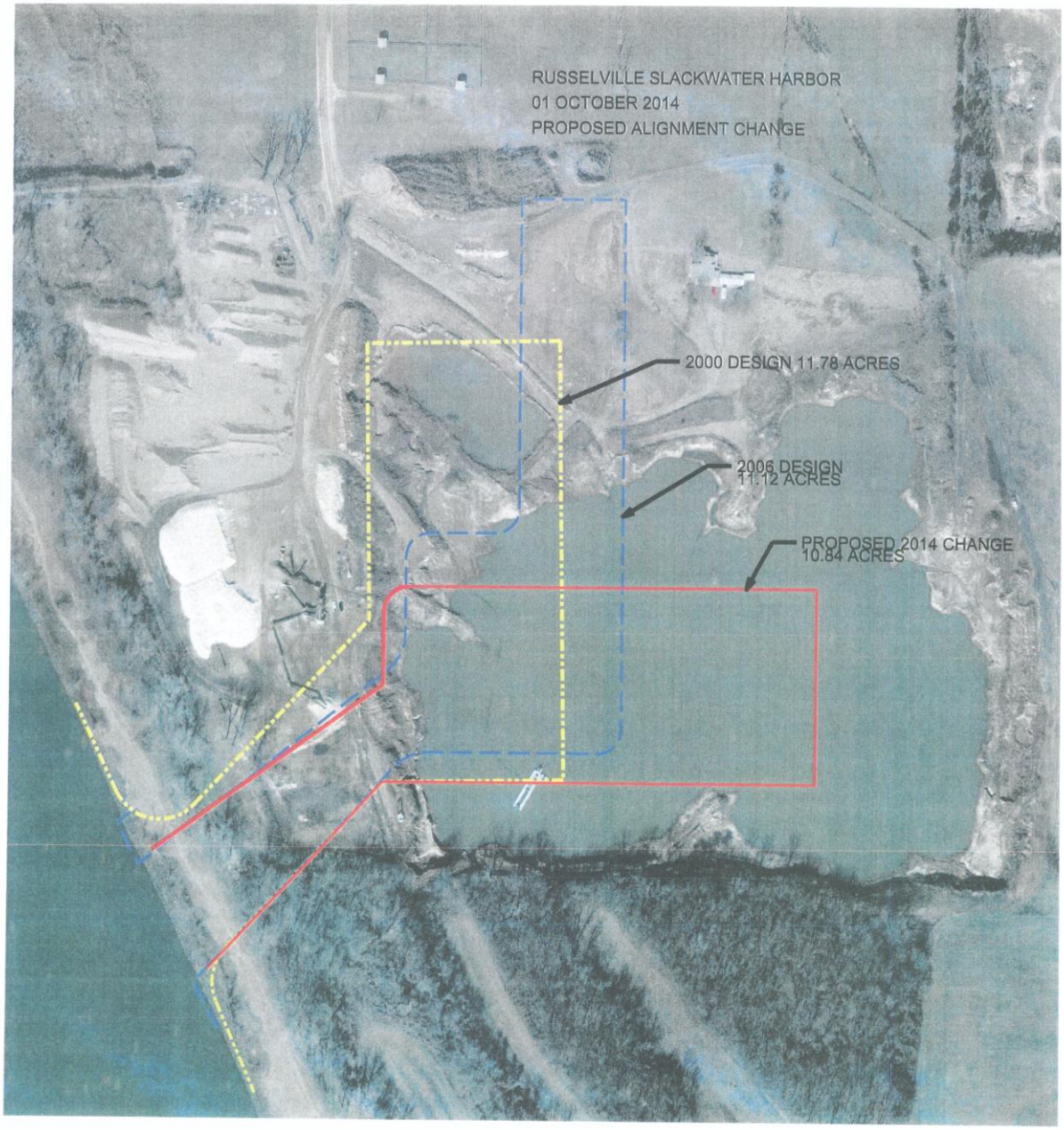

Figure 7. Proposed Project and Harbor Designs – 2000, 2006, and 2014

Figure 8. Area of Proposed Project and Harbor

Appendix A

US Army Corps of Engineers HEC-RAS Analysis

Re-design of Slack Water Harbor

2014

and

FHWA Hydraulic Engineering Review of

the USACE HEC-RAS Analysis

April 2015

US Army Corps of Engineers

Summary

The objective of the analysis was to compare and contrast the harbor design for the previously selected "Green Alternative" to the "New Alternative" hydraulic features. The orientation of the "New Alternative's" harbor design does not affect the facilities ring levee alignment allowing the intermodal facilities for both alternatives to remain the same. Also, the size of the new harbor is the same as the previous alternative harbor. The different orientation between the "Green Alternative" and the "New Alternative" takes advantage of a gravel mine dug since the previous analysis of the "Green Alternative." The gravel mine operating at the proposed harbor location has since removed a 342 acre-feet (ac-ft) of material from the site. This analysis finds no differences between the current site conditions to the previous conditions for the 10-year (10% Annual Chance of Exceedance), 50-year (2% ACE), 100-year (1% ACE), and 500-year (0.2% ACE) flow event water surface elevations. Figure 1 shows the latest proposed design for the harbor entrance at the time of the Reevaluation ("New Alternative").

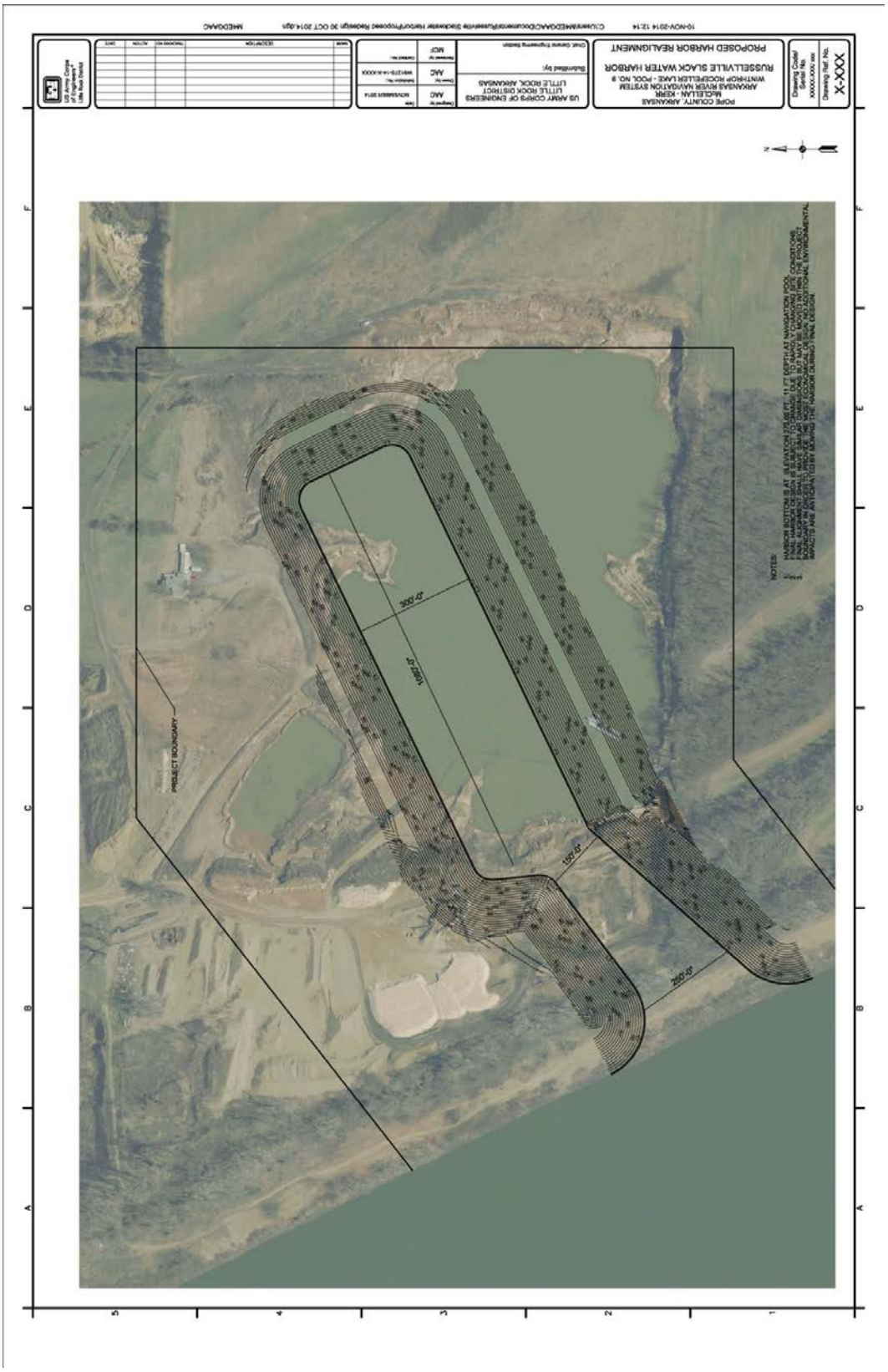

Figure 1. US Army Corps of Engineers - Current Alternative

Modeling and Assumptions

Estimation of Removed Materials: To determine the amount of materials removed from the harbor site since the original design, terrain computations were completed using the Geographic Information System (GIS) program ArcMap 10.1. A terrain layer was created using LiDAR data that was collected along the Arkansas River in 2001. This terrain represents the condition of the site when the "Green Alternative" was developed. To represent the current site condition another terrain layer was created. The average depth of the gravel mine and the area of the mine were used to create the existing conditions terrain layer. The Spatial Analyst extension in ArcMap 10.1 was used to determine the amount of material that has been removed since 2001. This volume amounted to 342 acre-feet of cut, or material removed. Figure 1: Change in Storage between Alternatives shows the difference in storage as a function of elevation between the two alternatives.

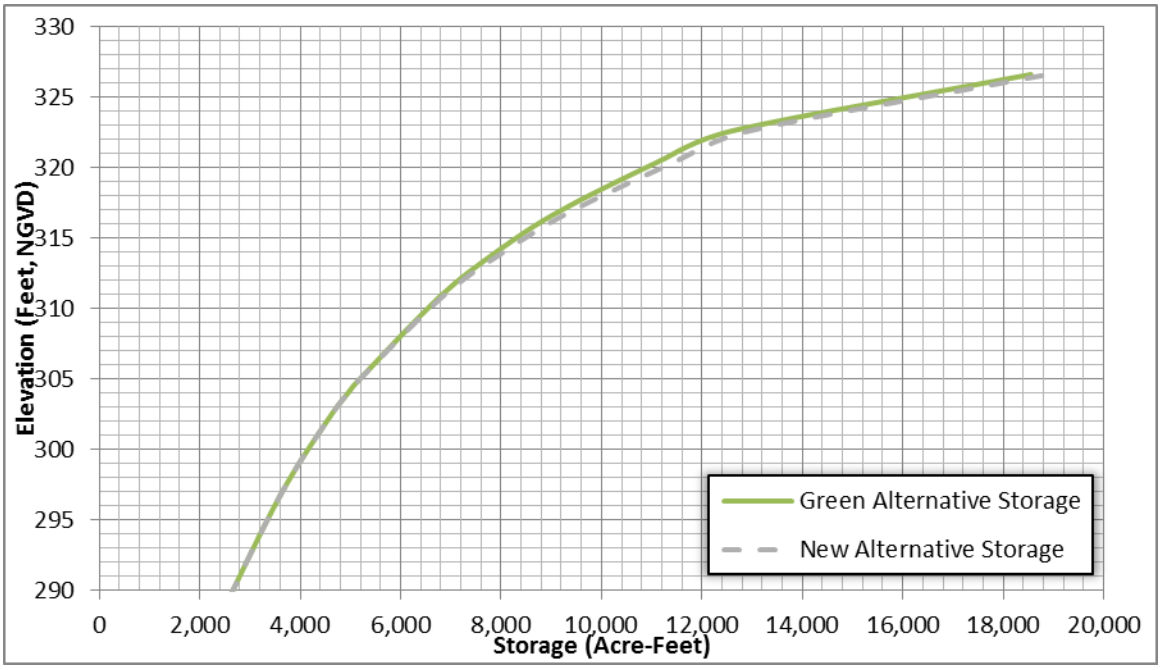

Figure 2: Change in Storage-Elevation Curve

Hydraulic Modeling Approach: The Hydrologic Engineering Center's River Analysis System (HEC-RAS) Version 4.2 (January 2010) program was used to compare the effects the removed material has on the water surface elevation. The original "Green Alternative" HEC-RAS model was modified to represent the current site conditions. Since the majority of the intermodal facilities are located behind the proposed ring levee that protects from the flows modeled (10%, 2%, 1%, and 0.2% ACE), the harbor site located outside the levee is the only distinction between the models. The "New Alternative" cross-section located at Navigation Mile 202.09 was modified to account for the removal of 342 acre-feet of material from the site. The modification was made to the "New Alternative" model so that the left overbank storage between cross-sections 202.09 and 202.61 was 342 acre-feet greater that the

"Green Alternative." Figure 3 below, Modified Cross Section, shows how the model was adjusted to accommodate the additional storage.

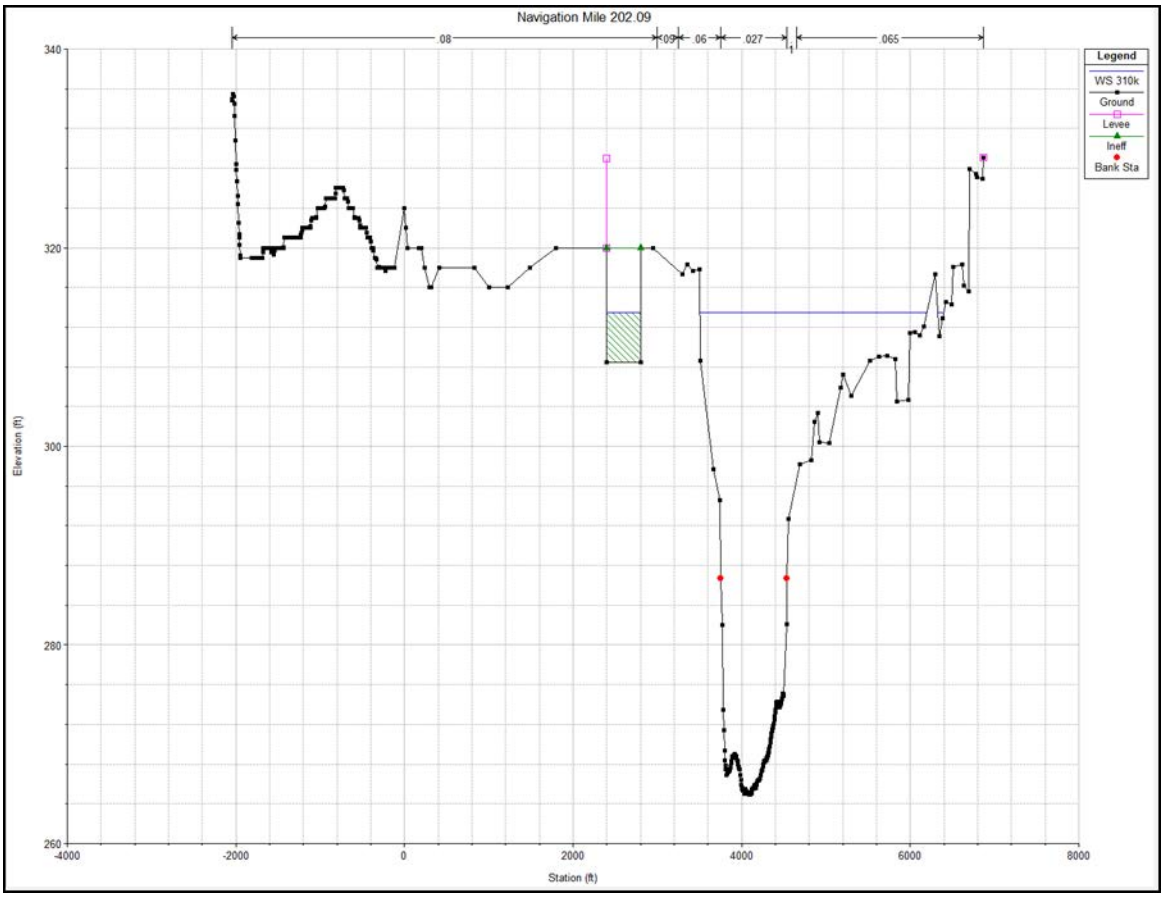

Figure 3: Modified Cross Section

Hydraulic Modeling Limitation: The mathematical modeling approach, while standard to evaluating flood impacts, is not well suited to testing very small changes in relative storage. The greatest difference as a percent of volume, 3%, is at elevation 320.33 FT NGVD (334 ac-ft of 11,000 ac-ft). The modeling choice to model the storage change outside of the levee and closer to the main channel was done to maximize the chance of detecting a change in water surface.

Model Results

The HEC-RAS program was used to compute the water surface elevation for the 10-year (10% ACE), 50-year (2% ACE), 100-year (1% ACE), and 500-year (0.2% ACE) flow events. Tables 1 – 4 display the HEC-RAS results for the 10-year (10% ACE), 50-year (2% ACE), 100-year (1% ACE), and 500-year (0.2% ACE) flow events. The HEC-RAS analysis shows that the "New Alternative" harbor design does not affect the water surface elevations upstream or downstream of the harbor. This is an indication that the material excavated by the gravel mine does not provide enough storage to change the water surface elevation.

Table 1. 10-year Profiles			
River Stationing	Water Surface Profiles		
	Green Alternative	New Alternative	Change in Water Surface Elevation
Navigation Mile	ft	ft	ft
205.25	316.13	316.13	0
205.04	316.07	316.07	0
204.71	315.78	315.78	0
204.39	315.54	315.54	0
204.00	315.09	315.09	0
203.86	314.99	314.99	0
203.47	314.81	314.81	0
Bridge 203.42			
203.38	314.69	314.69	0
203.10	314.43	314.43	0
202.61	314.07	314.07	0
202.09	313.48	313.48	0
201.31	313.22	313.22	0
200.43	312.87	312.87	0
199.00	312.21	312.21	0
198.22	311.48	311.48	0

Table 2. 50-year Profiles			
River Stationing	Water Surface Profiles		
	Green Alternative	New Alternative	Change in Water Surface Elevation
Navigation Mile	ft	ft	ft
205.25	322.85	322.85	0
205.04	322.77	322.77	0
204.71	322.39	322.39	0
204.39	322.07	322.07	0
204.00	321.48	321.48	0
203.86	321.39	321.39	0
203.47	321.19	321.19	0
Bridge 203.42			
203.38	321.01	321.01	0
203.10	320.73	320.73	0
202.61	320.30	320.30	0
202.09	319.66	319.66	0
201.31	319.37	319.37	0
200.43	319.14	319.14	0
199.00	318.47	318.47	0
198.22	317.75	317.75	0

Table 3. 100-year Profiles			
River Stationing	Water Surface Profiles		
	Green Alternative	New Alternative	Change in Water Surface Elevation
Navigation Mile	ft	ft	ft
205.25	325.39	325.39	0
205.04	325.31	325.31	0
204.71	324.89	324.89	0
204.39	324.51	324.51	0
204.00	323.88	323.88	0
203.86	323.79	323.79	0
203.47	323.56	323.56	0
Bridge 203.42			
203.38	323.37	323.37	0
203.10	323.08	323.08	0
202.61	322.60	322.60	0
202.09	322.01	322.01	0
201.31	321.75	321.75	0
200.43	321.50	321.50	0
199.00	320.83	320.83	0
198.22	320.10	320.10	0

Table 4. 500-year Profiles			
River Stationing	Water Surface Profiles		
	Green Alternative	New Alternative	Change in Water Surface Elevation
Navigation Mile	ft	ft	ft
205.25	330.24	330.24	0
205.04	330.14	330.14	0
204.71	329.60	329.60	0
204.39	329.09	329.09	0
204.00	328.26	328.26	0
203.86	328.17	328.17	0
203.47	327.88	327.88	0
Bridge 203.42			
203.38	327.60	327.60	0
203.10	327.28	327.28	0
202.61	326.60	326.60	0
202.09	326.09	326.09	0
201.31	325.81	325.81	0
200.43	325.68	325.68	0
199.00	325.00	325.00	0
198.22	324.32	324.32	0

U.S. Department of Transportation
Federal Highway Administration

MEMORANDUM

MEMORANDUM FOR RECORD

SUBJECT: Review of Russellville Slack Water Harbor Evaluation of Alignment Change

TO: Sandra Otto, Division Administrator, Arkansas Division, FHWA

FROM: Brian Beucler, Senior Hydraulic Engineer, Office of Infrastructure, FHWA

DATE: April 13, 2015

At the request of the FHWA Arkansas Division Office, the FHWA Office of Bridges and Structures (HIBS) reviewed a seven page, January 5, 2015 memorandum/report (memo) produced by Mr. Gabe Knight of the US Army Corps of Engineers (Corps). The HIBS reviewers consisted of Brian Beucler (Senior Hydraulic Engineer) and Joe Krolak (Principal Hydraulic Engineer).

During the review, HIBS had several technical questions requiring Corps clarification. As a result, on April 9, 2015, HIBS participated in a conference call with the Corps, FHWA Arkansas Division Office staff, and FHWA attorneys during which, the Corps clarified those questions. The following paragraphs represent the results of the HIBS review, including those technical clarifications.

The Corps memo describes a comparison of water surface elevations between two alternatives: the "Green Alternative" and the "New Alternative." The Corps investigated these alternatives using the HEC-RAS one dimensional, step backwater hydraulic software model. Within the United States, the HEC-RAS is the primary model for conducting such investigations.

The "Green Alternative" represents a past condition of the Arkansas River in the vicinity of the project area when alternatives were being considered as part of the NEPA process. The "New Alternative" represents more recent conditions that reflect the removal of approximately 343 acre-feet of material from gravel mining in the Arkansas River. Mining the gravel resulted in additional storage within the floodplain. In the "New Alternative" scenarios, the Corps modelers represented this additional storage volume as an approximately half mile long trench dug in front of the proposed levee location between cross sections 202.09 and 202.61. Additionally, the Corps applied HEC-RAS model options to designate the flow area within this trench as "ineffective flow." Simply stated, modeling practice assumes an ineffective flow area to have no velocity, and water does not flow into the area or out from the area upstream and downstream respectively. Figure 2 of the memo illustrates a modeled cross section, depicting both the trench and the ineffective flow (cross-hatched in the figure).

The Corps ran HEC-RAS hydraulic model scenarios for a variety of flow frequencies (10-, 50-, 100-, and 500-year discharges) for both the "Green" and "New" alternatives. The "New Alternative" scenarios did not reveal any changes in the one-dimensional water surface elevations for profiles ranging from river miles 198.2 through 205.25.

The reviewers feel these results appear reasonable. In general, in a major river such as the Arkansas; having wide and relatively shallow floodplains areas; and where the floodplain water is not travelling very fast compared to the main channel flow, practitioners would not expect significant increases in overall water surface elevations if comparing developed and undeveloped conditions.

Additionally, (as shown in Figure 1 and stated on Page 3 of the Corps memo), the amount of extra storage provided by gravel mining activities was very small, amounting to no more than 3% of volume. The report states "The modeling choice to model the storage change outside of the levee and closer to the main channel was done to maximize the chance of detecting a change in water surface." The reviewers feel that such an approach appears reasonable and did not result in any change in water surface elevations.

In summary, the study and methods described in the memo are valid and acceptable. The modeling approach, enhanced to detect any small change in water surface elevation as a result of a change in storage volume, was reasonable. We agree with the Corps' conclusion that the gravel mining activities had no significant impact on water surface elevations for various flood flows modeled.

Appendix B

Updated Table ES-1 from Original FEIS

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Land Use & Infrastructure	Land uses within the proposed project areas would continue without major changes. Without major public or private investment, lack of infrastructure within the project area would continue to pose limitations to future development.	Land use impacts would consist of the conversion of primarily low-density residential and agricultural land to industrial and commercial uses. Beneficial impacts to infrastructure would result as utilities, roadways, and railroads would be extended into the project area to support the intermodal facilities.	Impacts would be similar to those of the Green (Selected) Alternative.	Impacts would be similar to those of the Green (Selected) Alternative.
Farmland, Soils, & Physical Environment	No direct impacts to farmland, soils, and physical environment.	Minor, long-term adverse impacts to topography and soils of the proposed project area resulting from earth moving activities. Approximately 615 acres of land would be removed from agricultural production.	Impacts would be similar to those of the Green (Selected) Alternative. Approximately 155 fewer acres would be removed from agricultural production than under the Green (Selected) Alternative.	Moderate short-term and long-term adverse impacts to soils resulting from earth moving activities in the proposed project area are expected. Minor short-term adverse impacts would occur as a result of soil disturbance.
Social Environment	There could be long-term adverse social impacts as a result of lack of development.	There would be both short-term adverse (displacements and relocations) and long-term beneficial (population growth and employment) social impacts.	Short-term and long-term social impacts would be similar to those under the Green (Selected) Alternative.	Short-term and long-term social impacts would be similar to those under the Green (Selected) Alternative.
Relocation	There would be no relocation impacts.	There would be six residential relocations, one business displacement, and a partial business displacement.	There would be eight residential relocations, one business displacement, one partial business displacement, and one institutional displacement.	There would be fifteen residential relocations.
Economic	The project area would most likely remain under-utilized and undeveloped.	Short-term and long-term beneficial (employment, increased tax revenues) and adverse (loss of property tax revenue) economic impacts would occur.	Economic impacts would be similar to those of the Green (Selected) Alternative.	Economic impacts would be similar to those of the Green (Selected) Alternative.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Pedestrian & Bicyclist Considerations	No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.	No new pedestrian or bicycle routes are proposed as part of this project. No impacts would occur to existing pedestrian or bicycle routes.
Air Quality	There would be no impacts to air quality.	Short-term impacts to air quality will occur during construction due to operation of construction vehicles and dust created.	Impacts would be similar to those of the Green (Selected) Alternative.	Impacts would be similar to those of the Green (Selected) Alternative.
Noise	There would be no impacts as a result of noise.	Noise impacts will occur due to the increase of barge, truck, and train traffic related to the new facilities. Machinery at the facilities and dredging activities will also increase noise around the site. Short-term increases in noise levels will occur during construction due to construction vehicles and general noise created during construction.	Impacts would be similar to those of the Green (Selected) Alternative.	Impacts would be similar to those of the Green (Selected) Alternative.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Water Quality	There would be no impacts to water quality.	The potential for water quality impacts to the tributary to Whig Creek, the tributary to Flagg Lake, and Whig Creek would be slightly less than under the Red Alternative. Because the levee at the Green (Selected) Alternative site would be set back from the bank of the Arkansas River, potential water quality impacts to the river would be less than those under the Red Alternative. A long-term potential impact exists due to the possibility for small incremental releases or large accidental spills of contaminants into the Arkansas River or Whig Creek.	Impacts would be similar to those for the Green (Selected) Alternative. However, because the Red Alternative area is closer to Whig Creek and contains more of its tributaries, impacts would be slightly greater under the Red Alternative. Short-term adverse impacts to Whig Creek could occur from a railroad bridge required to cross the creek. Water quality could be reduced by potential channel modifications for the tributary to Whig Creek and the tributary to Flagg Lake. Construction of a levee on the bank of the Arkansas River would adversely impact the river due to sedimentation during construction.	Short-term adverse impacts could be caused by construction of a roadway and railroad bridge across the unnamed tributary to the Lake Dardanelle State Fish Hatchery and the unnamed tributary to the embayment east of the Fish Hatchery. Water quality could be reduced by potential channel modifications to the tributary to the embayment that would be converted into a slackwater harbor. Excavation and maintenance dredging of the harbor would cause some sediment to be released into the reservoir. A long-term potential impact exists due to the possibility for small incremental releases or large accidental spills of contaminants into the tributaries of Lake Dardanelle.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Wetlands	There would be no impacts to wetlands.	It is likely that unavoidable long-term adverse impacts would occur to approximately 18 acres of wetlands during the construction phase of the proposed action. The total number of wetland acres adversely affected would be determined using the final site development plans.	It is likely that unavoidable long-term adverse impacts would occur to approximately 21 acres of wetlands during the construction phase of the proposed action. The total number of wetland acres adversely affected would be determined using the final site development plans.	The total number of wetland acres adversely affected would be determined using the final site development plans. The total impact would be less than 4 acres.
Water Body Modification, Wildlife, & Vegetation	There would be no impacts to water bodies, wildlife, or vegetation	Long-term and short-term adverse impacts to the Arkansas River, Whig Creek, the tributary to Whig Creek, and the tributary to Flagg Lake are anticipated with construction of the intermodal facilities. Long-term adverse impacts to wildlife would occur due to the permanent loss of old field, grassland, forest, wetlands, and cropland habitats. There would be a long-term potential for minor releases of chemicals and fuels that could result in short-term adverse impacts to fish and wildlife and their habitats.	Impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Selected) Alternative. However, impacts to riparian forests and wetlands would be more under the Red Alternative.	Long-term and short-term adverse impacts to Lake Dardanelle, the embayment, the intermittent streams, and several ponds are anticipated with construction of the intermodal facilities. Long-term adverse impacts to wildlife would occur due to the permanent loss of pasture and forested habitats. Other impacts to water bodies, wildlife, and vegetation would be similar to those of the Green (Selected) Alternative.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Floodplains	There would be no impacts to the floodplain Without major public or private investment, floodplain within the Green (Selected) Alternative project areas would continue to pose limitations to future development.	The computer program HEC-RAS was used to compute existing condition water surface elevations for the 10-year, 50-year, 100-year, and 500-year flow events. The HEC-RAS analysis shows the proposed Intermodal Facilities will increase 100-year floodplain water surface elevations by a maximum of 0.09 feet for the Green (Selected) Alternative. Therefore, the Green (Selected) Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management. HEC-RAS model was updated in December 2014 based on current design for entrance to the slackwater harbor. No changes from the previous model output were detected in the analysis.	HEC-RAS analysis shows the proposed Intermodal Facilities will increase 100-year floodplain water surface elevations by a maximum of 0.12 feet for the Red Alternative. Therefore, the Red Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management.	A floodplain analysis and HEC-RAS model were not performed for the Purple Alternative based on direction from the CORPSCORPS, Little Rock District. Although portions of the Purple Alternative are within the flowage easement of Lake Dardanelle, and therefore the Arkansas River floodplain, negligible floodplain would be removed as a result of this alternative. Therefore, the Purple Alternative is consistent with EO 11988 and satisfies the requirements of FEMA for good floodplain management.
Commercial Navigation	There would be no realization of the region's potential for greatly expanded intermodal transportation opportunities.	Substantial long-term beneficial impacts (savings in transportation costs, employment, personal income, and additional business revenue) to commercial navigation would be incurred.	Impacts on commercial navigation would be similar to those of the Green (Selected) Alternative.	Impacts on commercial navigation would be similar to those of the Green (Selected) Alternative. There would be minor adverse impacts to commercial navigation due to congestion from recreational boating in Lake Dardanelle.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Threatened & Endangered Species	There would be no impacts to any federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.	There would be no measurable impacts to federally listed threatened or endangered species.
Cultural Resources	There would be no impacts to cultural resources.	Implementation of the Green (Selected) Alternative would disturb or destroy nine archaeological sites that are considered eligible or potentially eligible for the NRHP. A programmatic agreement is in place to first avoid or otherwise protect these sites, or conduct Phase III archeology if they cannot be avoided.	Implementation of the Red Alternative would disturb or destroy nine archaeological sites that are considered eligible or potentially eligible for the NRHP. A programmatic agreement is in place to first avoid or otherwise protect these sites, or conduct Phase III archeology if they cannot be avoided.	Implementation of the Purple Alternative would disturb or destroy one archaeological site that is eligible for the NRHP resulting in an adverse effect to archaeological resources. Additional archaeological sites are likely to occur in the unsurveyed portions of the Purple Alternative project area and some may be considered NRHP-eligible. These sites would also be disturbed or destroyed with the implementation of this alternative.
Hazardous Waste Sites	There would be no impacts associated with Hazardous Waste Sites.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.	Because no hazardous waste sites exist in the project area, impacts associated with existing hazardous waste sites would not occur at this site.

Table 1. Summary of Direct Impacts of the No Action, Green (Selected), Red, and Purple Alternatives				
	No Action Alternative	**Green (Selected) Alternative**	**Red Alternative**	**Purple Alternative**
Visual Impacts	No impacts to the view shed are anticipated, because no activities related to the proposed intermodal facilities would occur.	The intermodal facilities would reduce the visual quality of the project area in terms of loss of undeveloped habitats (e.g., cropland, old fields, forests, etc.), and the modification of wetlands. Under the Green (Selected) Alternative, the view from Dardanelle would be preserved because the riparian forest along the river would remain, resulting in substantially less visual impact in terms of loss of forested areas. During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.	Impacts due to the implementation of the Red Alternative would be similar to those of the Green (Selected) Alternative. However, under the Red Alternative, the view from Dardanelle would be considered a negative impact by some due to the removal of the riparian forest and the creation of a grass levee to protect the facilities. During construction, there would be several temporary visual impacts, such as exposed earth, jobsite equipment, and vegetation loss.	Impacts to the view shed would include a reduction in the visual quality of the project area in terms of loss of undeveloped habitats (e.g., cropland, old fields, forests, etc.), and minimal modifications of wetlands and floodplains. Additionally, where the intermodal facilities will be in the view shed of existing residences, or residences now shielded by trees, shrubs, and/or distance, there will be an adverse visual impact due to the nearness of the facilities, the effects of traffic, and the loss of trees and shrubs.

Reserved for Public Comments and Responses (to be received and reviewed)