APPENDIX A

Public Notice

PUBLIC NOTICE

Permit No. 2015-1321
Issue Date: June 15, 2015
Expiration Date: July 15, 2015

US Army Corps
of Engineers
Kansas City District

30-Day Notice

JOINT PUBLIC NOTICE: This public notice is issued jointly with the Missouri Department of Natural Resources, Water Pollution Control Program. The Missouri Department of Natural Resources will use the comments to this notice in deciding whether to grant Section 401 water quality certification. Commenters are requested to furnish a copy of their comments to the Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

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

PROJECT LOCATION (As shown on the attached drawings): The proposed project, Tadpole Island Side Channel Modification Project, is located on is located on approximately 600 acres of the Overton Bottoms Missouri River Recovery Program project lands in Moniteau County, Missouri. Overton Bottoms consists of 5,459 acres of land that was purchased by the federal government from willing sellers between the years 1994 and 2010. Overton Bottoms is managed by the USFWS as part of the Big Muddy National Fish and Wildlife Refuge. The area is adjacent to the right descending bank of the Missouri River, at river miles 178 to 180. See Figures 1 and 2.

AUTHORITY: The project would be completed under the authority of the Missouri River Fish and Wildlife Mitigation Project (Mitigation Project) from Water Resource Development Acts (WRDA) of 1986, 1999, and 2007. The proposed action is regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act (33 USC 1344).

ACTIVITY (As shown on the attached drawings): PROPOSED WORK: The purpose of the proposed project is to improve connectivity between the side channel at Tadpole Island and the mainstem of the Missouri River while maintaining adequate flow to the navigation channel adjacent to the island. The side channel was constructed in 2006 and is approximately 9,600 feet in length. At the time it was constructed, it was expected that the side channel would widen and meander. Due in part to a series of flood events in the years following project construction, the side channel deepened and widened but did not develop any meandering characteristics. By 2012, approximately 30% of the water flow of the Missouri River was flowing through the side

channel. Typically, USACE does not divert more than 10% of the river flow through side channels, although this varies in accordance with site specific conditions. It was noted that shoaling had started to occur in the mainstem navigation channel in 2011 in the vicinity of the downstream end of Tadpole Island. It is believed that this occurred, at least in part, because of the large amount of water that was flowing through the side channel instead of the navigation channel. Consequently, in 2012, rock was placed at the entrance of the side channel to reduce the amount of water that would flow through the channel. Currently, approximately 15% of the mainstem flow currently enters the side channel, primarily from the surface of the river as it overtops rock structures at the entrance of the side channel. While this has reduced the concern about negative impacts to the navigation channel, it is still desirable to reduce the amount of water that flows through the side channel even further. Also, the rock that was placed at the entrance of the side channel in 2012 now limits fish and other aquatic organisms access the side channel from the upstream end

As with the other alternatives, the Recommended Plan would lengthen Tadpole Island side channel in order to slow down water velocities. Approximately six rock dikes would be constructed at alternating locations to form the foundation of the inside bends of the side channel meanders. The rock dikes would not exceed 300 feet in length, including the portion of the dikes that would be buried in the banks. The height of the dikes would be about the same height as the water surface elevation during typical navigation flows. Approximately 80,000 cubic yards of material would be extracted from the top five to six feet of the outside portions of the meanders (Figure 3). The material excavated from the outside bends would be used to bury the rock dikes and fill the upstream and downstream sides of the rock dikes while forming point bars. A maximum of five acres of trees would be removed as a result of the excavation. To the extent possible, trees from the excavated locations would be used to further stabilize the inside bends to further diversify fish and wildlife habitat. It is estimated that the overall length of the side channel would increase approximately 25%, to about 12,000 feet in length. However, the side channel is expected to be dynamic in nature and its length would fluctuate over time. Two new dikes would be constructed, and another extended in length, on the mainstem of the Missouri River as shown in Figure 5. The purpose of these dikes would be to prevent shoaling to further maintain the navigation channel. Approximately 20,000 tons of rock would be used to construct all of the dikes. Because this alternative includes extensive excavation, it is expected that construction access road(s) would be constructed to complete the work. Although the final locations of the road(s) have not been identified at this time, it is estimated that approximately 12 acres of trees would be removed for this purpose. As a conservation measure for threatened and endangered bats and to minimize potential impacts to migratory birds, all tree clearing would between November 1 and March 31. Trees would be allowed to naturally regenerate following project construction. Wetland and other environmentally sensitive locations would be avoided to construct the access road(s). Additional bat habitat surveys would be conducted for the access road(s) once the route(s) is selected to minimize bat habitat impacts. Once the project is completed access road(s) would be seeded with native grasses, milkweed, and forbs to prevent erosion and spread of invasive species.

The rate at which meanders would develop would be dependent on river flows. It is expected over time that erosion would cause trees along the banks to fall into the side channel, further diversifying the aquatic habitat. After water velocities have been sufficiently reduced in the side

channel, the rock at the entrance of the side channel would be removed to improve access for fish and other aquatic organisms. In the future, additional modifications to rock structures near the entrance and within the side channel may be undertaken in order to specifically benefit pallid sturgeon. Although it is not known what the modifications to these structures would entail at this time, it is expected that any environmental impacts would be similar to those for this alternative. If, in the future, it is determined that modifications to benefit pallid sturgeon are within the scope of impacts described for this action, a memorandum would be prepared documenting such. If the potential impacts are outside the scope impacts described, then a new environmental assessment would be prepared.

The proposed action would not result in any negative impacts to any adjacent private property, including the Cooper County Levee. If, at any time in the future, private property adjacent to the project were to become threatened by the dynamic nature of the side channel, rock would be used to direct the side channel away from the private property. The proposed action would meet the objectives of increasing connectivity between the side channel and the Missouri River to improve access for fish and other aquatic organisms, while maintaining the navigation channel. If this plan were selected for implementation, detailed engineering plans and specifications would be developed that could result in minor modifications to the quantities presented herein. The project may be constructed in phases over several years depending on the availability of funding.

WETLANDS/AQUATIC HABITAT: Prior to being purchased by the federal government, Tadpole Island was used as agricultural cropland. In January 2015, areas that had a potential to be directly disturbed as part of the proposed action was surveyed for wetlands. It was determined that there were approximately 31 acres of forested wetlands directly in or immediately adjacent to the project work area. Using remote sensing information, an additional five acres were identified within the study area but outside any proposed project work areas. The total number of wetlands, all forested, within the study area is approximately 36 acres (Figure 4).

The proposed action would not result in any direct impacts to wetlands. When this plan was initially developed, it included excavation in a location that was later identified as forested wetland. After the forested wetland area was identified, the plan was modified to avoid direct impacts to this location. Indirect impacts to wetlands may occur as a result of creating a more dynamic side channel. This would occur if the alignment of the side channel migrated to locations with existing wetlands. However, new wetlands would likely develop as part of the channel migration process.

APPLICANT'S STATEMENT OF AVOIDANCE, MINIMIZATION, AND COMPENSATORY MITIGATION FOR UNAVOIDABLE IMPACTS TO AQUATIC RESOURCES: The proposed project has been designed to incorporate all practicable measures to avoid, minimize, and mitigate unavoidable adverse impacts to aquatic resources while still meeting the project purpose.

ADDITIONAL INFORMATION: Additional information about this application may be obtained by contacting Mr. Chris Name, Environmental Resources Specialist, U.S Army Corps of Engineers, Kansas City District, ATTN: Environmental Resources Section, 601 East 12th

Street, Kansas City, Missouri 64106, by email at chris.name@usace.army.mil, or by telephone at (816)389-3829. All comments to this public notice should be directed to the above address.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) OF 1968, as amended:
A draft environmental assessment, titled Tadpole Island Side Channel Modification Project and a Section 404(b)(1) evaluation is available online at:
http://www.nwk.usace.army.mil/Media/PublicNotices/PlanningPublicNotices.aspx

The Corps has made a preliminary determination that the proposed project would not result in any significant impacts to the human environment and therefore the proposed project would support a Finding of No Significant Impact (FONSI). The Corps will utilize comments received in response to this Public Notice to complete the evaluation of the project in compliance with the requirements of NEPA, Section 404 of the Clean Water Act, and other Federal, state, and local regulations. The Corps has made a preliminary determination that the proposed project would not be contrary to the public interest and is in compliance with the Section 404(b)(1) Guidelines. The Draft Section 404(b)(1) Evaluation is included as Appendix C in the draft environmental assessment.

CULTURAL RESOURCES: An archeological background review of the project area was conducted that included an examination of the National Register of Historic Places on-line (NRHP), the Missouri Department of Natural Resources Archeological Viewer, and pertinent cultural resource reports and shipwreck location maps on file at the Kansas City District.

The Recommended Plan would be expected to have no affect on any cultural resources. Cultural resource investigations took place prior to the side channels construction and no cultural resources were indicated or found during construction. Furthermore, the project is located on accreted lands formed from construction of the BSNP and is not likely to contain any cultural resources. The Missouri State Historic Preservation Officer concurred with USACE determination that there would be no historic properties affected in a letter dated February 11, 2015. If cultural materials were encountered during project activities, all construction would be halted and the State Historic Preservation Officer would be notified as soon as possible in order to determine the appropriate course of action.

ENDANGERED SPECIES: The proposed action would result in the clearing of up to 17 acres of trees. This would be from clearing up to 12 acres of trees for construction access roads and clearing five acres from the outside bends of the side channel meanders. USACE has determined that the Recommended Plan may affect, but is not likely to adversely affect, federally listed Indian bat and northern long-eared bat. As a conservation measure, trees would be cleared between November 1 and March 31, a time of the year when these species are not expected to be present. The USFWS concurred with this determination in an email dated 27 April 2015 (Appendix D). This alternative would have no affect on gray bats. The nearest known roosting habitat for gray bats is roughly five miles away from the project area. It would not adversely impact the overall populations of insects that any threatened and endangered bats use for forage. Furthermore, this alternative is not likely to adversely affect pallid sturgeon. Pallid sturgeon have the ability to move out of any areas that would be temporarily disturbed during project construction. Also, there is no known spawning of pallid sturgeon within the areas that would be

disturbed during project construction. Long-term, the proposed action may provide beneficial effects to pallid sturgeon by providing greater connectivity between the mainstem of the Missouri River and the Tadpole Island side channel. In order to complete an evaluation of this activity, comments are solicited from the U.S. Fish and Wildlife Service and other interested agencies and individuals.

FLOODPLAINS: This activity is being reviewed in accordance with Executive Order 11988, Floodplain Management, which discourages direct or indirect support of floodplain development whenever there is a practicable alternative. By this public notice, comments are requested from individuals and agencies who believe the described work will adversely impact the floodplain.

WATER QUALITY CERTIFICATION: Section 401 of the Clean Water Act (33 USC 1341) requires that all discharges of dredged or fill material must be certified by the appropriate state agency as complying with applicable effluent limitations and water quality standards. This public notice serves as an application to the state in which the discharge site is located for certification of the discharge. The discharge must be certified before a Department of the Army permit can be issued. Certification, if issued, expresses the state's opinion that the discharge will not violate applicable water quality standards.

PUBLIC INTEREST REVIEW: The decision to issue a permit will be based on an evaluation of the probable impact including the cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, esthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and, in general, the needs and welfare of the people. The evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency under authority of Section 404(b) of the Clean Water Act (33 USC 1344). The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

COMMENTS: This notice is provided to outline details of the above-described activity so this District may consider all pertinent comments prior to determining if issuance of a permit would be in the public interest. Any interested party is invited to submit to this office written facts or

objections relative to the activity on or before the public notice expiration date. Comments both favorable and unfavorable will be accepted and made a part of the record and will receive full consideration in determining whether it would be in the public interest to issue the Department of the Army authorization. Copies of all comments, including names and addresses of commenters, may be provided to the applicant. Comments should be mailed to the address shown on page 3 of this public notice.

PUBLIC HEARING: Any person may request, in writing, prior to the expiration date of this public notice, that a public hearing be held to consider this application. Such requests shall state, with particularity, the reasons for holding a public hearing.

Figure 1: Location of Tadpole Island in Moniteau County, Missouri.

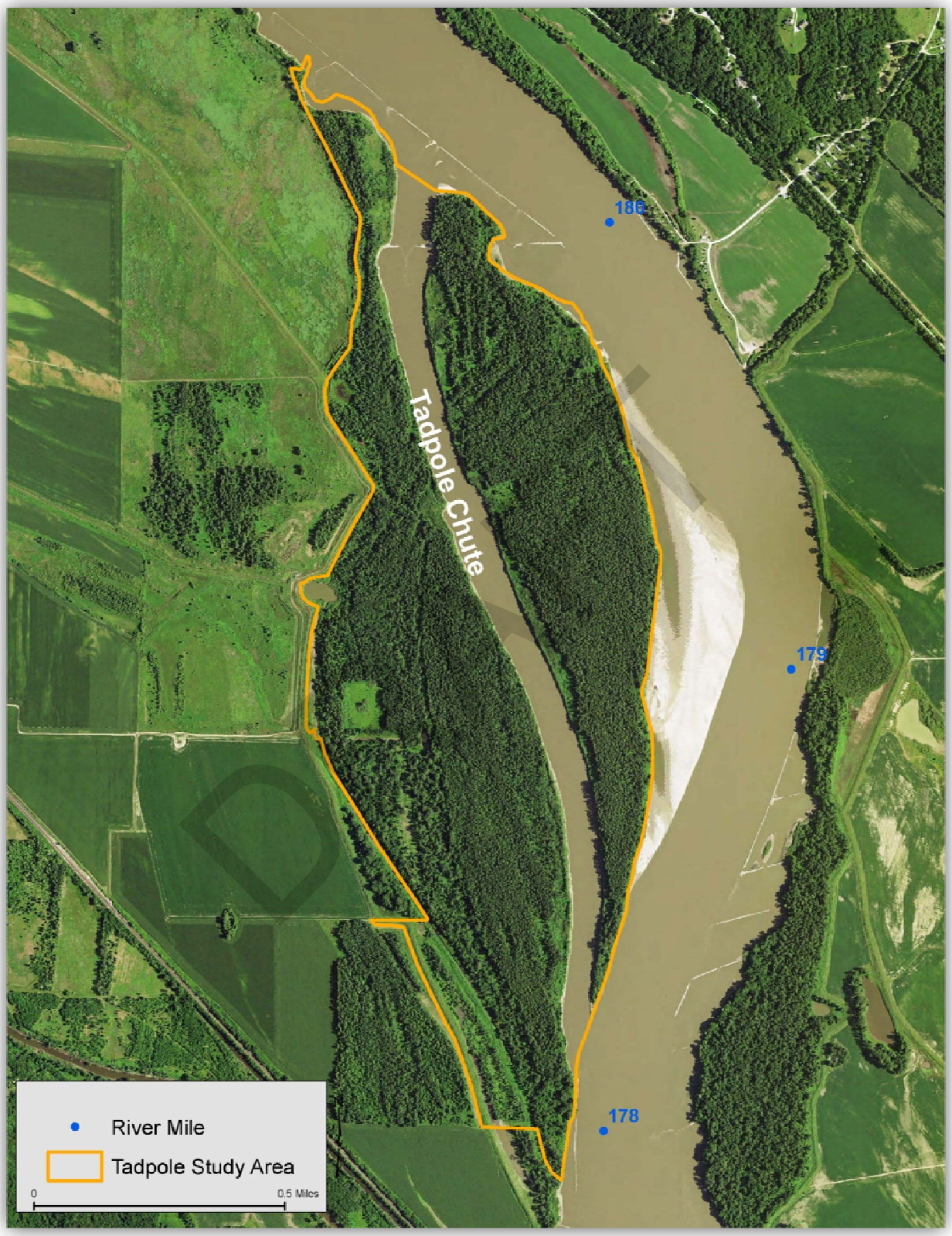

Figure 2: The Tadpole Island side channel is located between Missouri River miles 178 to 180 The 600 acre study area is indicated within the outlined area.

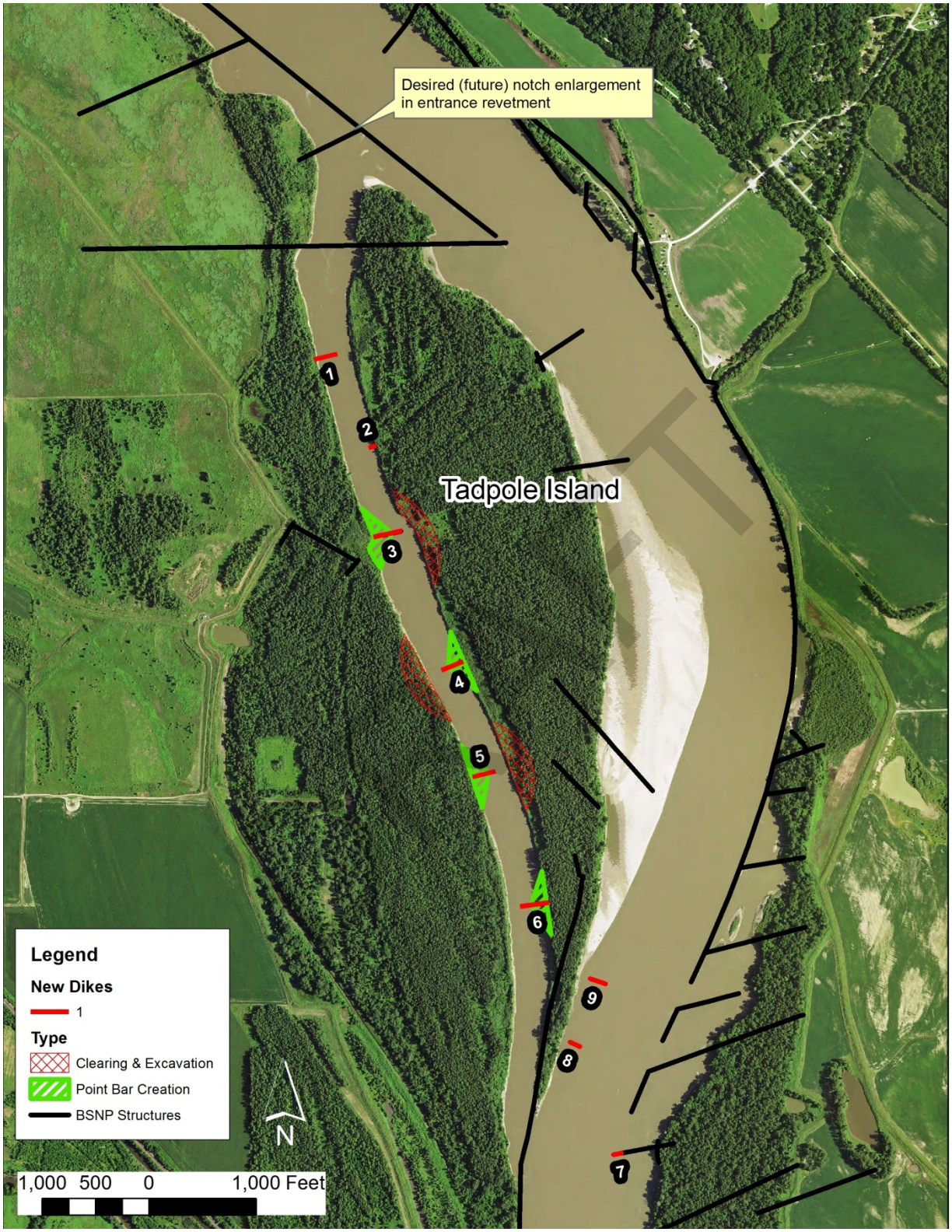

Figure 3: The proposed action would increase the length of the side channel by using a cut and fill technique to reduce water velocities.

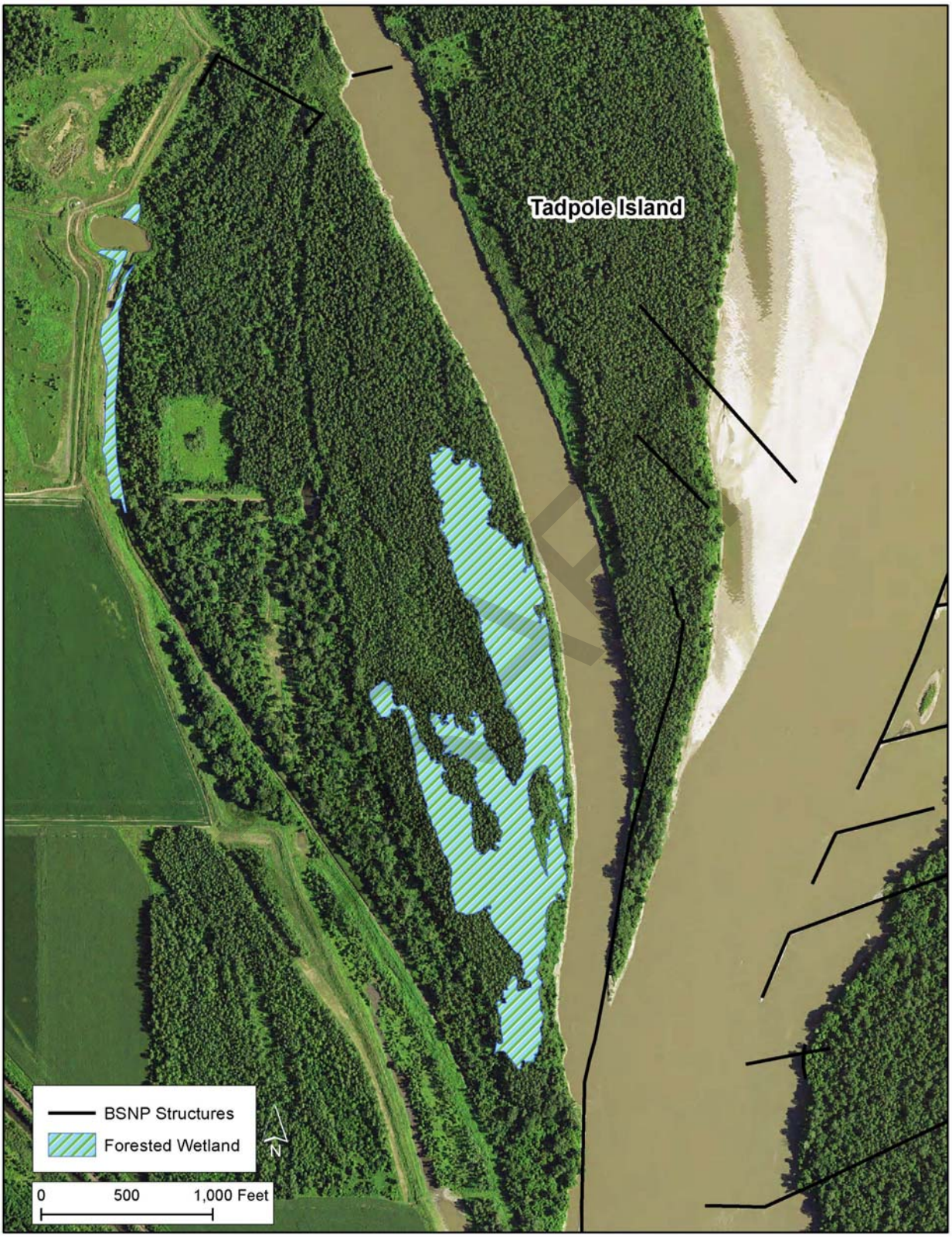

Figure 4: Wetlands within the study area.

APPENDIX B

Indiana Bat Habitat Assessment

INDIANA BAT HABITAT ASSESSMENT WORKSHEET

Project Name: **Missouri River Recovery Program - Tadpole Island Project Modifications** Date: **01/29/2015**

Township/Range/Section: **T48N R14W S19**

Latitude/Longitude: **Latitude: 38.896069°N / Longitude: -92.484026°W** Surveyor: **Chris Name**

Project Description

The US Army Corps of Engineers project would involve modifying an existing side channel project at Tadpole Island, Missouri in order to slow down water velocities and improve connectivity with the main channel. The project would consist of lengthening the side channel by installing a series of approximately six dikes to create meanders. This would involve excavating some of the bends in the initial meander alignment.

Project Area

	Total Acres	Forest Acres		Open Acres	
Project		% of site	% w/in 1 mile	% of site	% w/in 1 mile
	575	**70**	**21**	**30**	**79**

	Completely cleared	Partially cleared (with leave trees)	Reserve acres-no clearing
Tree Removal (ac)	**7.5**	**0**	**392.5**

Landscape within 3 mile radius

Corridors to other Forested Areas?

Project is located in the riparian corridor of the Missouri River.

Describe Adjacent Property (e.g. forested, grassland, commercial or residencial development, water sources)

The project is located on the Missouri River in Moniteau County, Missouri. Adjacent land consists of cleared row crop agricultural fields and strips/patches of riparian forest along the Missouri River. Other land types consist of open areas formally used in agricultural production and forested bluffs with some residential housing. The city of Huntsdale, MO is also within a three mile radius.

Proximity to Public Land

What is the distance (mi.) from the project area to public lands (i.e., national or state forests, national or state parks, conservation areas)?

The project area is located on public land and a portion of the project is on Overton Bottoms MRRP project lands. Overton Bottoms consists of 5,459 acres and is managed by the USFWS as part of the Big Muddy National Fish and Wildlife Refuge. The project is approximately 2.5 miles from the border of Eagles Bluff Conservation Area (MDC land).

Use additional sheets to assess habitat at multiple sites in a project area

Include a map depicting locations of sample sites if assessing habitat at multiple sites in a project area

A single description can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): 1

Site Area- Approximately 6 acres.

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	N/A	N/A	N/A	
Pools/Ponds (# and size)	0	Open and accessible to bats?		Project is located in the riparian corridor of the Missouri River.
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	N/A	N/A		

Forest Resources at Sample Site

Closure/Density	Canopy	Midstory	Understory	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	3	1	1	
Dominant Species of Mature Trees	Willow			
% Preferred Tree Species ≥9 in dbh (species list @ right)	write in tree species: Cottonwood			
	% 10%			
% Trees w/ ≥ 30% Exfoliating Bark	0			
Size Composition of Live Trees (%)	Small (4-8 in)	Med (9-15 in)	Large (>15 in)	
	30%	70%		
No. of Suitable Snags		0		

Preferred Tree Species

Shagbark hickory

Cottonwood

White oak

Maple

American elm

Shortleaf pine

Other oak species

Standing dead trees with sloughing bark ≥ 30%, crevices, or holes. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? NO

IF SUITABLE: HIGH MODERATE LOW

Additional Comments:

Most of the trees in this location are 6-12" diameter Willows. The understory is a mix of Hedge and Hackberry ranging from 3-7" diameters. The area is generally open with pockets of 2-4" diameter Willows mixed with Giant Ragweed.

Use additional sheets to assess habitat at multiple sites in a project area

Include a map depicting locations of sample sites if assessing habitat at multiple sites in a project area

A single description can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): 2

Site Area- Approximately 3 acres.

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	N/A	N/A	N/A	
Pools/Ponds (# and size)	0	Open and accessible to bats?		Project is located in the riparian corridor of the Missouri River.
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	N/A	N/A		

Forest Resources at Sample Site

Closure/Density	Canopy	Midstory	Understory	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	5	2	1	
Dominant Species of Mature Trees	Cottonwood			
% Preferred Tree Species ≥9 in dbh (species list @ right)	write in tree species Cottonwood			
	% 60			
% Trees w/ ≥ 30% Exfoliating Bark	0			
Size Composition of Live Trees (%)	Small (4-8 in)	Med (9-15 in)	Large (>15 in)	
	30	70		
No. of Suitable Snags		1		

Preferred Tree Species

Shagbark hickory

Cottonwood

White oak

Maple

American elm

Shortleaf pine

Other oak species

Standing dead trees with sloughing bark ≥ 30%, crevices, or holes. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? No

IF SUITABLE: HIGH MODERATE LOW

Additional Comments:

The mid & understory of this forested area consisted of 3-8" diameter Hedge with some Hackberry. The transitional area between the forested area and the river is a mix of Willow and Giant Ragweed and some grasses.

Use additional sheets to assess habitat at multiple sites in a project area

Include a map depicting locations of sample sites if assessing habitat at multiple sites in a project area

A single description can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): 3 Site Area- Approximately 2.7 acres.

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	N/A	N/A	N/A	
Pools/Ponds (# and size)	0	Open and accessible to bats?		Project is located in the riparian corridor of the Missouri River.
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	N/A	N/A		

Forest Resources at Sample Site				
Closure/Density	Canopy	Midstory	Understory	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	3	2	2	
Dominant Species of Mature Trees	Cottonwood			
% Preferred Tree Species ≥9 in dbh (species list @ right)	write in tree species Cottonwood			
	% 80			
% Trees w/ ≥ 30% Exfoliating Bark	0			
Size Composition of Live Trees (%)	Small (4-8 in)	Med (9-15 in)	Large (>15 in)	
	65	30	5	
No. of Suitable Snags		0		

Standing dead trees with sloughing bark ≥ 30%, crevices, or holes. Snags without these characteristics are not considered suitable.

Preferred Tree Species

Shagbark hickory

Cottonwood

White oak

Maple

American elm

Shortleaf pine

Other oak species

IS THE HABITAT SUITABLE FOR INDIANA BATS? No

IF SUITABLE: HIGH MODERATE LOW

Additional Comments:
The mid & understory of this forested area consisted of 3-8" diameter Hedge, Hackberry, and Box Elder trees. There is little transitional area between the forested area and the river . This transitional area is mostly 2-5" willows.

Use additional sheets to assess habitat at multiple sites in a project area

Include a map depicting locations of sample sites if assessing habitat at multiple sites in a project area

A single description can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): 4

Site Area- Approximately 3.2 acres.

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	N/A	N/A	N/A	
Pools/Ponds (# and size)	0	Open and accessible to bats?		Project is located in the riparian corridor of the Missouri River.
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	N/A	N/A		

Forest Resources at Sample Site

Closure/Density	Canopy	Midstory	Understory	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	5	4	1	
Dominant Species of Mature Trees	Cottonwood			
% Preferred Tree Species ≥9 in dbh (species list @ right)	write in tree species Cottonwood			
	% 60			
% Trees w/ ≥ 30% Exfoliating Bark	0			
Size Composition of Live Trees (%)	Small (4-8 in)	Med (9-15 in)	Large (>15 in)	
	30	65	5	
No. of Suitable Snags		0		

Standing dead trees with sloughing bark ≥ 30%, crevices, or holes. Snags without these characteristics are not considered suitable.

Preferred Tree Species

Shagbark hickory

Cottonwood

White oak

Maple

American elm

Shortleaf pine

Other oak species

IS THE HABITAT SUITABLE FOR INDIANA BATS? No

IF SUITABLE: HIGH MODERATE LOW

Additional Comments:

Mostly Cottonwood, but the forested area did have some of 2-6" diameter Hedge trees. The transitional area between the forested area and the river was mostly Giant Ragweed with some Willows.

Use additional sheets to assess habitat at multiple sites in a project area

Include a map depicting locations of sample sites if assessing habitat at multiple sites in a project area

A single description can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): 5

Site Area- Approximately 3 acres.

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	N/A	N/A	N/A	
Pools/Ponds (# and size)	0	Open and accessible to bats?		Project is located in the riparian corridor of the Missouri River.
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site

Closure/Density	Canopy	Midstory	Understory	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	2	1	1	
Dominant Species of Mature Trees	Cottonwood			
% Preferred Tree Species ≥9 in dbh (species list @ right)	write in tree species Cottonwood			
	% 60			
% Trees w/ ≥ 30% Exfoliating Bark	1			
Size Composition of Live Trees (%)	Small (4-8 in)	Med (9-15 in)	Large (>15 in)	
	15	80	5	
No. of Suitable Snags		3		

Preferred Tree Species

Shagbark hickory

Cottonwood

White oak

Maple

American elm

Shortleaf pine

Other oak species

Standing dead trees with sloughing bark ≥ 30%, crevices, or holes. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes

IF SUITABLE: HIGH MODERATE (LOW)

Additional Comments:

Nearly all Cottonwood trees and there are numerous (maybe 5-10% of the standing trees) small snags that are less than 15' tall on average and less than 9" dbh. The transitional area (approximately 40-60' width) between the forested area and the river was mostly Willows and some Giant Ragweed. This transitional area is raised, almost levee like 8-10' high next to the side channel bank.


Tadpole Island
Missouri River Recovery Program project modification location.
Legend
Project Area
Tadpole Island
DRAFT
Google earth
© 2015 Google
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1 mi


Tadpole Island
Missouri River Recovery Program project modification location.
Site #1
Approximately 6 acres
Site #2
Approximately 3 acres
Site #3
Approximately 2.7 acres
Site #4
Approximately 3.2 acres
Site #5
Approximately 3 acres
Legend
Project Area
Tadpole Island
Note: The boundaries of each site location are approximated.
DRAFT
Google earth
© 2015 Google
N
3000 ft

APPENDIX C

Clean Water Act
Section 404(b)(1) Evaluation

Missouri River Recovery Program
Tadpole Island Side Channel Modification Project
Moniteau County, Missouri

Section 404(b)(1) Evaluation

1. Introduction

This Section 404(b)(1) Evaluation is for the Missouri River Recovery Program, Tadpole Island Side Channel Modification Project, Moniteau County, Missouri. The purpose of the project is to improve connectivity between the side channel at Tadpole Island and the mainstem of the Missouri River while maintaining adequate flow to the navigation channel adjacent to the island. The side channel was constructed in 2006 and is approximately 9,600 feet in length. At the time it was constructed, it was expected that the side channel would widen and meander. Due in part to a series of flood events in the years following project construction, the side channel deepened and widened but did not develop any meandering characteristics. By 2012, approximately 30% of the water flow of the Missouri River was flowing through the side channel. Typically, USACE does not divert more than 10% of the river flow through side channels, although this varies in accordance with site specific conditions. It was noted that shoaling had started to occur in the mainstem navigation channel in 2011 in the vicinity of the downstream end of Tadpole Island. It is believed that this occurred, at least in part, because of the large amount of water that was flowing through the side channel instead of the navigation channel. Consequently, in 2012, rock was placed at the entrance of the side channel to reduce the amount of water that would flow through the channel. While this has benefited the navigation channel, there is now limited ability for fish and other aquatic organisms to access the side channel from the upstream end. This evaluation meets the requirements found in 40 CFR 230, Section 404(b)(1): Guidelines for Specification of Disposal Sites for Dredged and Fill Material.

2. Project Description

a. Location: The project (Proposed Action) is located along the Missouri River between river miles 178 and 180 in Moniteau County, Missouri. The study area is located on approximately 600 acres of the Overton Bottoms MRRP project lands. Overton Bottoms consists of 5,459 acres of land that was purchased by the federal government from willing sellers between the years 1994 and 2010. Overton Bottoms is managed by the USFWS as part of the Big Muddy National Fish and Wildlife Refuge.

b. General Description: A detailed description of the proposed action, including illustrations, is described in Section 2 of the Missouri River Recovery Program, Tadpole Island Side Channel Modification Project Environmental Assessment

The proposed action would lengthen Tadpole Island side channel in order to slow down water velocities. Approximately six rock dikes would be constructed to form the foundation of the inside bends of the side channel meanders. The rock dikes would not exceed 300 feet in length. Approximately, 20,000 tons of rock would be used to construct the dikes. The height of the dikes would be about the same height as the water surface elevation during typical navigation flows. Approximately 80,000 cubic yards of material would be extracted from the top five to six feet of the outside portions of the meanders. The material excavated from the outside bends would be used to bury the rock dikes and fill the upstream and downstream sides of the rock dikes to speed up the formation of point bar development. A maximum of five acres of trees would be removed for as a result of the excavation. To the extent possible, trees from the excavated locations would be used to further stabilize the inside bends. It is estimated that the overall length of the side channel would increase approximately 25%, to about 12,000 feet in length. However, the side channel is expected to be dynamic in nature and its length would fluctuate over time. Two new dikes would be constructed, and another extended in length, on the mainstem of the Missouri River. Because this alternative would result in the need for extensive excavation, it is expected that construction access road(s) would need to be constructed to complete the work. Although the final locations of the road(s) have not been identified at this time, it is estimated that an additional 12 acres of trees would need to be removed for this purpose. Trees would be allowed to naturally regenerate following project construction. Access road(s) would be reseeded with native grasses, milkweed, and forbs for erosion and invasive species control. Wetland and other environmentally sensitive locations would be avoided to construct the access road(s). After water velocities have been sufficiently reduced in the side channel, the rock at the entrance of the side channel would be removed to improve access for fish and other aquatic organisms. Additional modifications to rock structures near the entrance and within the side channel may be undertaken. This alternative has the lowest amount of risk and uncertainty associated with its performance when compared to the other alternatives. The project may be constructed in phases over several years depending on the availability of funding.

c. Authority: The project would be completed under the authority of the Missouri River Fish and Wildlife Mitigation Project (Mitigation Project) from Water Resource Development Acts (WRDA) of 1986, 1999, and 2007. The proposed action is regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act (33 USC 1344).

3. Review of Compliance (§ 230.10 a-d)

a. No practicable alternative to the proposed project would have a less adverse impact on the aquatic ecosystem while meeting the project objectives. Additional information on the impacts of various alternatives to waters of the U.S. can be found in Section 4 of the Missouri River Recovery Program, Tadpole Island Side Channel Modification Project Environmental Assessment.

b. The proposed project would not violate any applicable state water quality standards, or applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act. The proposed project is not likely to jeopardize the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, to result in the likelihood of the destruction or adverse modification of critical habitat. Furthermore, the proposed project would not violate the requirements of any federally designated marine sanctuary.

c. The proposed project would not cause or contribute to significant degradation of waters of the U.S. This includes no adverse effects on human health, life stages of organisms' dependant on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values.

d. Appropriate and practical steps have been taken which will avoid, minimize, and mitigate potential adverse impacts on the aquatic ecosystem.

4. Technical Evaluation Factors (Subparts C-F)

a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)

1) Substrate: The proposed action would result in the placement of rock and excavated material into the Missouri River, including the Tadpole Island side channel. Approximately six rock dikes would be constructed to form the foundation of the inside bends of the side channel meanders. The rock dikes would not exceed 300 feet in length. Approximately, 20,000 tons of rock would be used to construct the dikes. The height of the dikes would be about the same height as the water surface elevation during typical navigation flows. Approximately 80,000 cubic yards of material would be extracted from the top five to six feet of the outside portions of the meanders. The material excavated from the outside bends would be used to bury the rock dikes and fill the upstream and downstream sides of the rock dikes to speed up the formation of point bar development. A maximum of 5 acres of trees would be removed as a result of the excavation. To the extent possible, trees from the excavated locations would be used to further stabilize the inside bends. It is estimated that the overall length of the side channel would increase approximately 25%, to about 12,000 feet in length. However, the side channel is expected to be dynamic in nature and its length would fluctuate over time. Two new dikes would be constructed, and another extended in length, on the mainstem of the Missouri River.

2) Suspended particulates/turbidity: Based on experience from other similar projects, the proposed plan would result in minor, short-term

impacts to suspended particulates and an increase in turbidity during project construction. These increases would be most evident during construction when the side channels meanders would be constructed using approximately 60,000 tons of clean rock rip rap, and 80,000 cubic yards of other fill material excavated from the bank. The amount of material that would enter the river would be minimal compared to the amount of material that enters the Missouri River by natural processes. It would also be minimal compared to the amount of material that entered the river during construction of the original project in 2006, 800,000 cubic yards, which did not result in any significant impacts to water quality. It has been documented by Gosch *et al.* (2013) that construction of side channel projects on the Missouri River have not resulted in any significant impacts to water quality or exceeded state water quality criteria. No significant adverse impacts to the chemical and physical properties of the water column were identified. The proposed plan would not violate any general criteria of the Missouri Water Quality Standards, 10 CSR 20-7.037(3) (A)-(H).

3) Water: The project would not result in any long-term negative impacts to water quality.

a) Salinity: Not applicable.

b) Water Chemistry: Minor, temporary, and localized effects to water chemistry (see below) would primarily include an increase in turbidity due to construction activities.

c) Clarity: A minor temporary increase in turbidity would potentially occur during construction of the project that could impact clarity. Even at the increased level the clarity would be within baseline conditions of the Missouri River and therefore not expected to adversely impact native species.

d) Color: A minor temporary change in color is possible due to the potential increased turbidity. Similar to Clarity above, any color change would be greatest during construction and would quickly become unnoticeable within a short distance downstream. Any changes in color would be expected to be within the range that is typically found where natural erosion occurs along the river or out of tributaries during high flow events and therefore not expected to adversely impact native species or result in adverse aesthetic impacts.

e) Odor: No impacts are anticipated.

f) Taste: Not applicable.

g) **Dissolved Gas Levels:** No changes to dissolved gas levels are anticipated.

h) **Nutrients:** Any alluvial sediments and associated nutrients that may be mobilized to construct the proposed action are materials deposited from river transport that are in temporary storage in the flood plain. Under natural conditions, the river would flood, rework, remove, and deposit these materials in a dynamic fashion. Any sediment and nutrients being remobilized are not a net addition to the system. This material, or its equivalent, would have been transported through the system by natural geomorphic processes in an unaltered river. This activity will not adversely affect life forms in the immediate project area or in areas downstream.

i) **Eutrophication:** The proposed action would not result in any eutrophication to the Missouri River or other water bodies downstream. It has been documented by the National Research Council that other, larger scales, Missouri River Recovery Projects have not contributed to an increase in the increase the areal extent of the Gulf of Mexico hypoxic zone.

4) **Current patterns and water circulation:** There are no anticipated changes to normal water fluctuations that would result from the proposed project. Up to 10% of the flow of the Missouri River may be directed through the Tadpole Island side channel. Presently, about 15% of the flow of the Missouri River is directed through the side channel. Excavated material placed into the Missouri River would not alter flow or circulation patterns substantially. The Tadpole Island side channel would be allowed to meander and would integrate additional sediment and woody debris into the river and create depositional areas where sand bars would form within the project area. Restoration of this dynamic process is a critical element to the ecological benefits of the side channel. Fish and wildlife resources would not be adversely impacted by the resulting change in current patterns and circulation. The project is designed to ensure that flows and sediment transport on the main channel of the Missouri River would not be adversely impacted. It is not anticipated that this would result in any adverse significant changes to the location, structure and dynamics of the aquatic community, or the rate and extent of the mixing of dissolved and suspended components of the water body.

5) **Normal water fluctuations:** There are no anticipated changes to normal water fluctuations that would result from the proposed project. Up to 10% of the flow of the Missouri River may pass through the Tadpole Island side channel. There would not be any change to existing water elevation

on the Missouri River within the vicinity of the project as a result of diverting water through the side channel.

6) **Salinity Gradients:** The proposed project would not impact any salinity gradients. The Missouri River is a freshwater system and this would not change as a result of the project.

b. Potential Impacts to the Biological Characteristics of the Aquatic Ecosystem (Subpart D)

1) **Threatened and endangered species:** The federally listed endangered Indiana bat (*Myotis sodalis*), the endangered gray bat (*Myotis grisescens*) and the threatened northern long-eared bat (*Myotis septentrionalis*) are presumed to occur in the project area because of suitable foraging and/or roosting habitat in the general vicinity. The federally endangered pallid sturgeon also occupies the Missouri River. The Recommended Plan would result in the clearing of up to 17 acres of trees. This would result from clearing up to 12 acres of trees for construction access road(s) and clearing 5 acres from the outside bends of the side channel meanders. USACE has determined that the Recommended Plan may affect, but is not likely to adversely affect, federally listed Indian bat and northern long-eared bat. As a conservation measure, trees would be cleared between November 1 and March 31, a time of the year when these species are not expected to be present. The USFWS concurred with this determination in an email dated 27 April 2015 (Appendix D). This alternative would have no affect on gray bats. The nearest known roosting habitat for gray bats is roughly five miles away from the project area. It would not adversely impact the overall populations of insects that any threatened and endangered bats use for forage. Furthermore, this alternative is not likely to adversely affect pallid sturgeon. Pallid sturgeon have the ability to move out of any areas that would be temporarily disturbed during project construction. Also, there is no known spawning of pallid sturgeon within the areas that would be disturbed during project construction. Long-term, this alternative may provide beneficial effects to pallid sturgeon by providing greater connectivity between the mainstem of the Missouri River and the Tadpole Island side channel.

2) **Fish, crustaceans, mollusks, and other aquatic organisms in the food web:** The project would not result in significant adverse impacts to aquatic organisms. Minor, short-term impacts to the aquatic community may result from the smothering of immobile organisms, direct displacement of organisms, and an increase in turbidity, during project construction. The impacts may affect individual organisms in a limited stretch of the Missouri River, but would be unlikely to have a significant impact on the overall population of any particular species within the river system. Long-

term, there would be a positive impact to the aquatic ecosystem by improving the connectivity of the Tadpole Island with the mainstem of the Missouri River. It would also result in a more dynamic geomorphic condition which would benefit native fish and wildlife. No significant adverse long-term impacts are anticipated.

3) **Other wildlife:** Wildlife associated with aquatic ecosystems includes resident and transient mammals, birds, reptiles, and amphibians. There would be minor, short-term impacts to these types of wildlife as a result of construction activities. All disturbed land areas would be seeded with native grasses as part of project construction. No significant adverse long-term impacts are anticipated.

c. Potential Impacts on Special Aquatic Sites (Subpart E)

2) **Sanctuaries and Refuges:** The project area is managed by the U.S. Fish and Wildlife Service as part of the Big Muddy National Fish and Wildlife Refuge. The proposed action would benefit the refuge by increasing connectivity between the Tadpole Island side channel and the mainstem of the Missouri River. It would also result in a more dynamic geomorphic condition which would benefit native fish and wildlife.

3) **Wetlands:** The proposed action would not result in any direct impacts to wetlands. When this plan was initially developed, it included excavation in a location that was later identified as potential forested wetland. After the forested wetland area was identified, the alternative was modified to avoid direct impacts to this location. Indirect impacts to wetlands may occur as a result of creating a more dynamic side channel. This would occur if the alignment of the side channel migrated to locations with existing wetlands. However, new wetlands would likely develop as part of the channel migration process.

4) **Mud flats:** No mud flats would be impacted by the proposed project.

5) **Vegetated shallows:** No vegetated shallows would be impacted by the proposed project. Because of the velocity of the Missouri River, little to no rooted aquatic vegetation is located within the project area. The proposed action may result in some vegetated shallows in the side-channel.

6) **Coral reefs:** The project area does not provide the necessary environmental conditions to support corals.

7) **Riffle and pool complexes:** Because of the low gradient and sandy/silty nature of the Missouri River in the vicinity of the project site, a stable riffle and pool complex does not exist.

d. Potential Effects on Human Use Characteristics (Subpart F):

1) **Municipal and private water supplies:** The project would not impact any municipal or private water supplies. The project is designed to benefit commercial navigation on the Missouri River.

2) **Recreational and commercial fisheries:** The project would not affect the suitability of any recreational or commercial fisheries. The proposed action is expected to benefit aquatic organisms, including species targeted by recreational and commercial fisheries.

3) **Water-related recreation:** The project would not impair or destroy any resources which support recreation activities. There may be minor, short-term impacts to recreation during project construction due to restricted access. Long-term, creation of the side channel may provide additional recreation opportunities.

4) **Aesthetics:** The project may result in minimal impacts to the aesthetics of the area as a result of land disturbance during project construction. This impact is expected to be short term.

5) **Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves:** The project would not impact any of the above mentioned property types.

5. Evaluation of Fill Material (Subpart G)

a. General evaluation of fill material: Fill material associated with the project would include clean earthen fill material mechanically excavated from the bed and banks of the Missouri River, clean rock riprap obtained from commercial sources or from existing BSNP structures, woody debris including tree root wads, large trunks and limbs.

b. Chemical, biological, and physical evaluation and testing: Prior experience indicates that commercially available rock fill would be free from chemical, biological, or other pollutants. There is no reason to believe that the earthen material or the clean rock fill would be a carrier of harmful contaminants.

6. Disposal Site Delineation (§230.11 f)

The discharge sites would be within the Tadpole Island side channel and portions of the mainstem of the Missouri River.

7. Actions to Minimize Adverse Effects (Subpart H)

Steps to minimize impacts would include implementation of project appropriate construction best management practices (BMPs). Several measures would be implemented during construction to minimize water quality impacts that would include both structural and non-structural BMPs. Structural BMPs include: perimeter controls that may include straw bales and/or silt fencing and earthen berms. Non-structural BMPs would include: keeping heavy construction equipment out of the waterway whenever possible, protecting construction materials from precipitation/ flooding, and stabilizing bare soil by mulching, re-vegetating exposed soil. Utilizing erosion control to prevent sediment from entering existing wetlands adjacent to the side channel alignment and preventing deleterious material from entering the adjacent wetlands or the Missouri River are examples of BMPs that would be used to reduce the amount of potential pollutants that reach the water resources adjacent to / downstream of the project area. Access road(s) would be reseeded with native grasses, milkweed, and forbs for erosion and invasive species control.

8. Factual Determinations (§230.11)

A review of the information in items 4 through 7 of this report indicates that there is minimal potential for long-term environmental effects of the proposed fill. Additionally, there are not expected to be any adverse cumulative or long-term, secondary impacts as a result of the project.

9. Findings (§230.12)

The proposed Missouri River Recovery Program, Tadpole Island Side Channel Modification Project has been evaluated and determined to be in compliance with Clean Water Act Section 404(b)(1) guidelines, with the inclusion of appropriate and practical conditions to minimize pollution and adverse effects on the aquatic ecosystem.

Prepared by: _____ _____
Mr. Jesse Granet Date
Environmental Resources Specialist
Environmental Resources Section

Reviewed by: _____ _____
Mr. Jason Farmer Date
Chief, Environmental Resources Section

Approved by: _____ _____
Andrew D. Sexton Date
Colonel, Corps of Engineers
District Commander

APPENDIX D

Agency Coordination

From: Ledwin, Jane
To: Granet, Jesse J NWK
Cc: Tom Bell
Subject: Re: [EXTERNAL] Fwd: Tadpole Chute Modifications (UNCLASSIFIED)
Date: Monday, April 27, 2015 12:35:41 PM

Hi Jesse -

Thanks for the materials. They were as thorough as I have seen so THANK YOU!

Based on that information the Service concurs with the Corps determination that the proposed work may affect, but is not likely to adversely affect federally listed bat species. We appreciate your consideration of migratory bird effects as well and using the seasonal cutting window as a conservation measure.

FYI in the future, include river resources in the habitat section for streams, ponds, etc. There are significant perennial water sources for bats in the project area:)

Thanks for the great job. Any questions, please contact me.

Best regards -

Jane

Jane Ledwin
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
101 Park DeVille Drive
Columbia, Missouri 65203
Phone 573/234-2132, extension 109
cell 573/356-1721
email jane_ledwin@fws.gov

APPENDIX E

Cultural Resources Coordination

DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
600 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

February 3, 2015

REPLY TO
ATTENTION OF

Environmental Resources Section
Planning Branch

Mr. Mark Miles
Director and Deputy State Historic Preservation Officer
State Historic Preservation Office
Department of Natural Resources
P. O. Box 176
Jefferson City, Missouri 65102-0176

Dear Mr. Miles:

The U.S. Army Corps of Engineers, Kansas City District's Missouri River Fish and Wildlife Project is planning a modifications to the Tadpole Island wetland restoration project located in Moniteau County. This project is one component of the larger mitigation project that has been conducted at various locations on the Missouri River. The proposed Tadpole Island project was initially coordinated with your office in 1999 as part of the lager Overton Bottoms project in Cooper and Moniteau Counties. The existing chute project was coordinated with your office by public notice on September 28, 2005 with a determination that no historic properties would be affected by the project. This letter continues Section 106 coordination of project changes to that project area.

The proposed project is located within the Overton Bottoms Missouri River Recovery Project lands located approximately 14 miles west of Columbia, Missouri between river miles 178.0 and 180.4 (Figure 1 and 2). The project site is located in portions of Sections 19 and 30, Township 48 North, Range 14 West. The existing chute was excavated in 2006 and is a side channel with few bends. The proposed alterations to the existing chute would increase the sinuosity of the existing chute as shown in Figure 3. The curved chute segments would be excavated so the channel could meander according to river flows. Approximately 6 rock dikes would be constructed to form the inside bends of the channel. The project would increase the length of the chute by an estimated 25%. The modifications would increase water depth and water velocity then is currently in the chute.

A review of archeological site location and shipwreck location maps from the Corps office and the Missouri Department of Natural Resources Archeological Viewer again found no sites or shipwrecks mapped within or near the proposed project area (Figure 4). In addition, former Missouri River channel location maps from 1879 and 1894 crossed the entire project area. As the present landform post dates these meander crossings, there is little likelihood of intact prehistoric or early historic archeological sites being encountered. Therefore, we request your continued concurrence that the proposed project will have no effect on historic properties and that the project be allowed to proceed with no further consultation from your office.

In the unlikely event that archeological materials are discovered during construction, work in the area of discovery will cease and the discovery investigated by a qualified archeologist. The findings on the

discovery would be coordinated with your office and appropriate federally recognized Native American tribes, if appropriate.

Thank you for your consideration in this matter. If you have any questions or have need of further information please contact me at (816) 389-3138 or at timothy.m.meade@usace.army.mil.

Sincerely,

Enclosure

Timothy Meade
District Archeologist

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

February 11, 2015

Timothy Meade
District Archaeologist
Kansas District, Corps of Engineers
600 federal Building
Kansa City, Missouri 64106-2896

Re: Tadpole Island Wetland Restoration Project Revisions (COE) Moniteau County, Missouri

Dear Mr. Meade:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the information provided concerning the above referenced project. Based on this review we concur with your recommendation that there will be **no historic properties affected** and, therefore, we have no objection to the initiation of project activities.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number (**001-MU-15**) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles
Director and Deputy State
Historic Preservation Officer

MAM:jd