



**DEPARTMENT OF THE ARMY**  
CORPS OF ENGINEERS, NORTHWESTERN DIVISION  
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CENWD-RBT

MEMORANDUM FOR Commander, Kansas City District (CENWK-PM-CJ /Whitney Wolf)

SUBJECT: Review Plan (RP) Approval for the Missouri River Recovery Program  
Baltimore Bend MRRP Project

1. References:

a. Review Plan for the Missouri River Recovery Program Baltimore Bend MRRP Project.

b. EC 1165-2-214 Civil Works Review, 15 December 2012.

2. Reference 1.a. above has been prepared in accordance with reference 1.b. above.

3. The RP has been coordinated with the Business Technical Division, Northwestern Division, U.S. Army Corps of Engineers, which is the Review Management Organization for the plan. The Review Plan includes District Quality Control and Agency Technical Review.

4. I hereby approve this RP, which is subject to change as circumstances require, consistent with the study development process and the Project Management Business Process. Subsequent revisions to this RP or its execution will require written approval from this office.

5. For further information, please contact Mr. Douglas Putman, P.E. at (503) 808-3883.

Encl

Joseph P. Kellett, PE  
Chief, Regional Business Technical  
Northwestern Division, USACE

**Review Plan  
U.S. Army Corps of Engineers  
Northwest Division  
Kansas City District**

**Missouri River Recovery Program**

**Baltimore Bend MRRP Project**



**US Army Corps  
of Engineers®**

*DECEMBER 2015*

# **1. PURPOSE AND REQUIREMENTS**

## **1.1 PURPOSE**

This Review Plan is intended to ensure a quality-engineering project is developed by the U.S. Army Corps of Engineers – Kansas City District (NWK) and is developed for the Baltimore Bend MRRP Project Environmental Assessment and Plans/ Specifications/ Design Documentation Report/O&M Manual. This Review Plan was prepared in accordance with Engineering Circular (EC) 1165-2-214, “Civil Works Review Policy” and provides a value added process that assures the correctness of the information shown. It is imperative that vertical teaming efforts are proactive and well coordinated to assure collaboration of the report findings, conclusions, and recommendations, and that there is consensus at all levels of the organization with the recommended path forward. This Review Plan describes the scope of review for this project and is included in the Project Management Plan (P2 #395637). All appropriate levels of review are included in this Review Plan and identifies the skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project.

## **1.2 GUIDANCE AND POLICY REFERENCES**

- ER 5-1-11, USACE Business Processes
- EC 1165-2-214, Civil Works Review Policy, 15 DEC 2012
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 31 MAR 2014
- ER 1110-1-12, Quality Management, 31 MAR 2011

## **1.3 REQUIREMENTS**

This Review Plan is developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects.

## **1.4 REVIEW MANAGEMENT ORGANIZATION**

The U.S. Army Corps of Engineers – Northwest Division (NWD) is the Review Management Organization (RMO) for this project.

## **2. PROJECT DESCRIPTION AND INFORMATION**

A recently completed “Effects Analysis” study identified multiple hypotheses related to the current lack of pallid sturgeon recruitment on the Missouri River. Several of these hypotheses were related to the loss of habitat and changes in the hydraulic conditions of the lower Missouri River as a result of the Bank Stabilization and Navigation Project (BSNP). The objective of the Baltimore Bend project is to enhance sturgeon embryo interception and rearing habitat at the project location or, more specifically, to promote the transfer of free drifting sturgeon embryos (interception) into channel margin habitats (food producing and foraging habitats). This project will use AdH modeling to better understand pre-project conditions and assist with the evaluation of proposed alternatives. Post construction, physical and biological surveys will be conducted to better understand project performance and model refinement. These lessons learned may be used in future habitat restoration projects designed to improve interception and rearing habitats on the lower Missouri River.

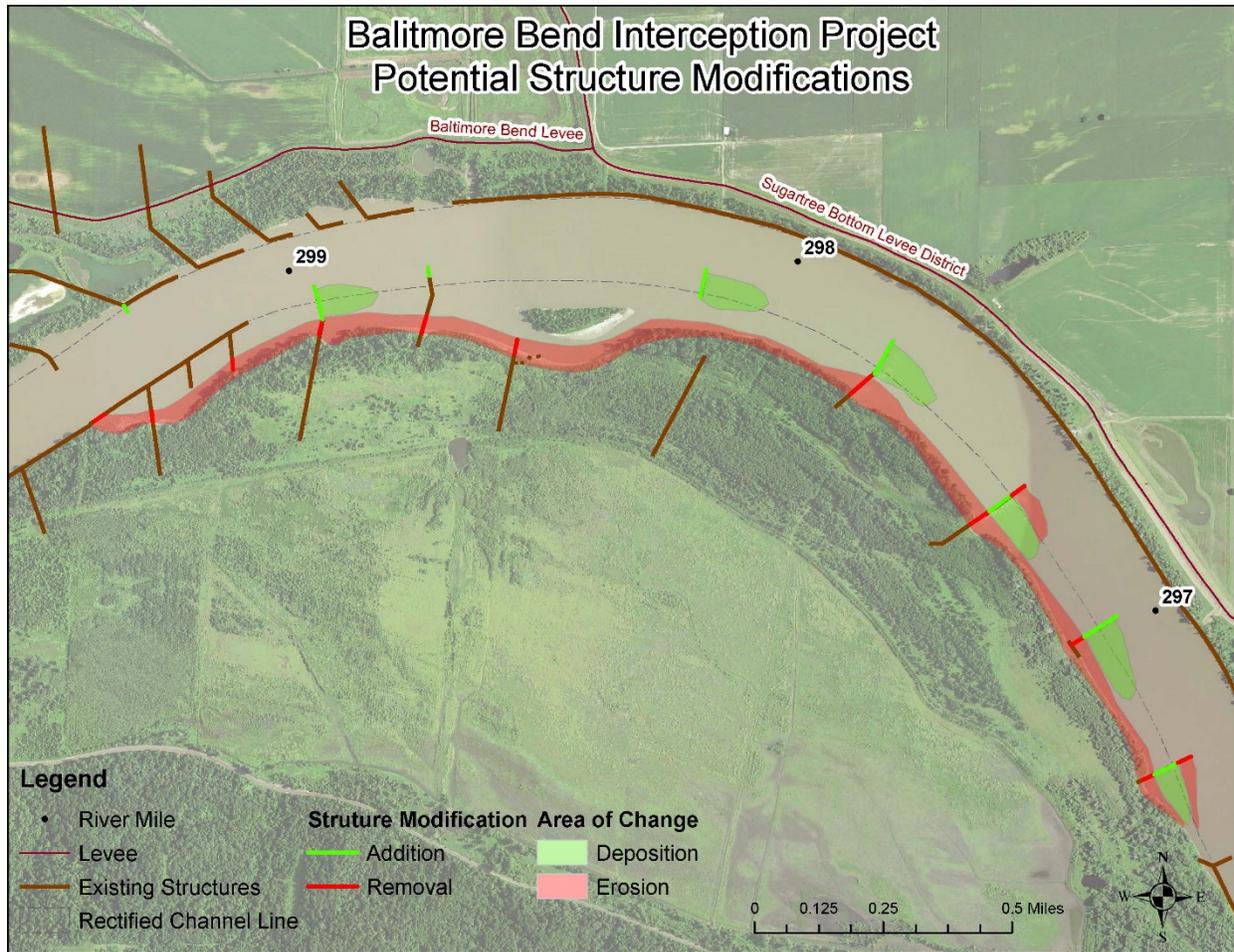
In an effort to meet the needs stated above, the following elements are proposed for design: A series of new or modified rock dikes and rock dike notching and/or revetment notching to promote particle capture with the intent to increase interception and rearing habitat at the project location.

The scope of this project is to develop a design for the above solution and contract this work out to the Bank Stabilization and Navigation Project (BSNP) MATOC contractor pool for construction of the proposed design.

The design will meet all current guidance, regulations, and requirements, and ensure continued operation in the future with minimal O&M costs.

This project includes the generation of an Environmental Assessment (NEPA), construction drawings, specifications, design documentation, and creation of an Operations and Maintenance Manual and Record Drawings. All items will be reviewed in accordance with this Review Plan.

Refer to Figure 1 below for a project location map and general position of the proposed dikes notches in red and added dike extensions in green. The green areas are projected natural deposition, not manually place deposition. The red areas are anticipated erosion after dike modification. This is a draft concept plan example that will likely change after the through the modeling process.



### 3. REVIEW REQUIREMENTS

#### 3.1 DISTRICT QUALITY CONTROL

District Quality Control (DQC) consists of quality assurance reviews, in-progress reviews, and chiefs' reviews. Peer reviews will be conducted by an engineering peer within each discipline for all design products. DQC will be conducted on calculations, conceptual analysis, system designs, decision documentation, risk determinations, completeness of the plans and specifications, ensure all aspects of the project are included in the documentation, etc. Interdisciplinary reviews will be conducted by the PDT to ensure cross coordination between disciplines. All team members will review all products to ensure it accurately accounts for all discipline specific aspects and the documents collectively correlate with each other.

Select section, branch, and division level chiefs in Engineering, Construction and Project Management will review the documentation, analysis, and decision-making process in the documentation to verify the plans, specifications, and design

documentation are correct and accurately reflect current policy and guidance in accordance with Engineering Regulation (ER) 415-1-11.

### **3.2 AGENCY TECHNICAL REVIEW**

An Agency Technical Review (ATR) is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers.

The four key parts of a quality review comment will normally include:

- The review concern. Identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
- The basis for the concern. Cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- The significance of the concern. Indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- The probable specific action needed to resolve the concern. Identify the action(s) that the reporting officers must take to resolve the concern.

At the conclusion of the ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

### **3.2.1 ATR Team Expertise**

The ATR team shall be chosen based on each individual's qualifications and experience with similar projects. Specifically for this project, the reviewers should be familiar with large river design, dike construction, and large river pallid sturgeon habitat development. Therefore, this ATR team shall consist of a River Engineer, Geotechnical Engineer, Environmental/ NEPA Ecologist, and Civil Engineer. All members are required to have a minimum of five years of experience in design of similar projects, be a licensed engineer, and registered in CERCAP.

The draft charge question for the ATR team is: do the implementation documents support the goal of promoting particle capture with the intent to increase interception and rearing habitat at the project location or, more specifically, to promote the transfer of free drifting sturgeon embryos (interception) into channel margin habitats (food producing and foraging habitats).

The ATR for this project is to be conducted by the St Louis (MVS) and St. Paul District (MVP) qualified cadre. The reviewers are identified and listed below. The ATR will be in compliance with EC 1165-2-214. Comments from the ATR team will be captured, resolved, and backchecked via DrChecks. After resolution of the comments, and in accordance with NWK BQP 7.3.01, an ATR Certification will occur. Certification requires that the reviewers have witnessed the resolution of their comments sufficiently and accurately addressed on the contract documents. Disputes and significant unresolved ATR concerns will be handled in accordance EC 1165-2-214. A site visit will not be scheduled for the ATR team.

The planned ATR reviewers from MVP/MVS/MVR include the following:

ATR Lead –

Kniep, Michelle R

MVS-CEMVP-PD-F

Michelle.R.Kniep@usace.army.mil

Hydraulic Engineering-

Gordon, David

MVS-CEMVS-EC-HD

David.Gordon@usace.army.mil

Ecologist-

George, Timothy K

MVS-CEMVP-PD-C

Timothy.K.George@usace.army.mil

GeoTechnical-

Conroy, Patrick J

MVS-CEMVS-EC-GT

Patrick.J.Conroy@usace.army.mil

Civil Engineering

Sunderman, Kirk J MVR

MVR-CEMVR-EC-DM

Kirk.J.Sunderman@usace.army.mil

### **3.2.2 ATR Lead**

The ATR team lead shall be a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs. The lead shall have the necessary skills and experience to lead a virtual team through the ATR process.

The ATR lead for this review is Michelle Kniep. Michelle is a Water Resources Planner, St. Paul District Michelle Kniep serves as a Water Resources Planner in the Plan Formulation Section of MVD's Regional Planning and Environment Division North. She is currently a Regional Technical Specialist for General Plan Formulation in the Mississippi Valley Division. She received her Bachelor of Science degree in civil engineering from Washington University in 1997. She has been a study manager and project manager for civil works projects involving flood risk management and ecosystem restoration for both Continuing Authorities and specifically-authorized projects since 1997.

### **3.3 INDEPENDENT EXTERNAL PEER REVIEW DETERMINATION**

An Independent External Peer Review (IEPR) is required for some implementation documents under certain circumstances. IEPR is the most independent level of review and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is

made as to whether an IEPR is appropriate. Type I IEPR, which is conducted on project studies, is not applicable to the this project as it is in the implementation phase.

The dike additions/alterations project is not considered a flood risk management project, but is considered concept evaluation to develop lessons learned that may be used in future habitat restoration projects designed to improve interception and rearing habitats on the lower Missouri River. Furthermore, the project: does not include the use of innovative materials or techniques; does not present complex challenges; does not contain precedent-setting methodology as dike construction/notching, with the intent to erode or deposit sediment, has been a predominant control method of the BSNP project for decades; does not present conclusions that differ from prevailing practices; does not include any unique construction sequencing or scheduling challenges.

The project has low life safety risks. The probability of un-intended erosion during or after construction that would affect navigation or public areas of this Missouri River is unlikely. However, if irregular erosion were to occur, the scope and severity impact would be low. There is a low risk that construction problems occur during the construction process.

The NWK Chief of Engineering has determined that the project does not pose a significant threat to human life and therefore a Type II IEPR is not necessary for this project. The decision process is document in Attachment 2 of this Review Plan.

### **3.4 POLICY AND LEGAL COMPLIANCE REVIEW**

All documents will be reviewed throughout the project for their compliance with current law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies.

## **4. REVIEW SCHEDULE AND COSTS**

To the extent practical, reviews should not extend the design schedule but should be embedded in the design process. Reviewers should be involved at key decision points and are encouraged to provide timely over the shoulder comments.

### **4.1 ATR COST**

The anticipated cost for the ATR is \$16,000. The team will consist of 4 reviewing disciplines and the Tech Lead.

## 4.2 REVIEW SCHEDULE

Peer Reviews, Inter-disciplinary reviews, ATRs, and BCOES reviews will be completed at the 65% submittal and all comments will be closed out with the final 100% submittal. The current schedule for the reviews is listed below. The schedule has been setup to accommodate these constraints. The ATR team have agreed to this schedule.

Task	Review Start	Review Complete
<b>ENVIRONMENTAL ASSESSMENT (EA)</b>		
35% BCOES Concept Reviw	03/03/2016	03/03/2016
95% Submittal development	03/03/2016	03/27/2016
DQC (Peer, InterDisciplinary Reviews)	03/27/2016	04/08/2016
95% ATR - ATR Comment Closeout	04/08/2016	04/26/2016
Pre-Public Notice Checklist	04/26/2016	
<b>65%to 95% to 100% Plans/SPECs/DDR O&amp;M</b>		
35% BCOES Concept Reviw	03/03/2016	03/03/2016
65% ATR Review Comments	04/26/2016	04/08/2016
95% Submittal development	04/09/2016	04/26/2016
95% ATR Review coments	04/26/2016	05/31/2016
95% to 100% Submittal development	05/31/2016	06/02/2016
ATR Comment Closeout	06/02/2016	06/06/2016
Final BCOES Review	06/09/2016	06/22/2016
<b>Ready to Advertise</b>	07/01/2016	

## 5. PUBLIC PARTICIPATION

As required by EC 1165-2-214, the approved Review Plan will be posted on the District public website ([http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksPrograms and Projects/CivilWorksReviewPlans.aspx](http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsandProjects/CivilWorksReviewPlans.aspx)). Information will be conveyed to the public through the use of press releases and media interviews, as necessary, and through the use of posting information to the Kansas City District's website. There is no formal public review planned for the plans and specifications under development. The PDT has not yet determined the need for a Public Meeting for the Environmental Analysis /Project at the time of this writing. However, a public comment period is likely to occur with the development of the Environmental Assessment

## 6. REVIEW PLAN APPROVAL AND UPDATES

The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input as to the appropriate scope and level of review for the study. Like the PMP, the Review Plan is a living document and may change as the study progresses. NWK is responsible for keeping the Review Plan up to date. Minor

changes to the review plan since the last MSC Commander approval will be documented. Significant changes to the Review Plan (such as changes to the scope and/or level of review) will be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the Kansas City District's webpage and linked to the HQUSACE webpage. The latest Review Plan will also be provided to the MSC.

# ATTACHMENT 1

## COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the construction documents for the Missouri River Recovery Project (MRRP) Baltimore Bend MRRP project. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

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Name

ATR Team Leader

Office Symbol/Company

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Date

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Name

Project Manager (home district)

Office Symbol

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Date

### CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution. As noted above, all concerns resulting from the ATR of the project have been fully resolved.

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Name

Chief, Engineering Division (home district)

Office Symbol

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Date

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Name

Dam Safety Officer<sup>2</sup> (home district)

Office Symbol

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Date

## ATTACHMENT 2

### DOCUMENTATION OF TYPE II IEPR RISK-INFORMED DECISION

This attachment documents the vertical team's risk informed recommendation to not conduct Type II IEPR.

The following table, based on the US Army Field Manual 5-19, *Composite Risk Management*, was used to assess each identified risk.

#### Risk Assessment Matrix

	Risk Probability			
Risk Severity	Frequent	Likely	Seldom	Unlikely
Catastrophic	Extremely High	Extremely High	High	Medium
Critical	Extremely High	High	Medium	Low
Marginal	High	Medium	Medium	Low
Negligible	Medium	Low	Low	Low

The following table details the risks, frequency, severity, risk assessment, and how the risk contributes to the IEPR decision. The risks were developed by reviewing the IEPR triggers from EC 1165-2-214.

Based on the below assessment, it is the risk-informed decision of the vertical team that a Type II IEPR is not required for this project.

TODAY'S DATE		21-DEC-15		Baltimore Bend MRRP Project	RISK MATRIX
UPDATED		21-DEC-15			
BY WHOM		WKW			
RISK IDENTIFICATION		PROBABILITY	SEVERITY	TOTAL RISK	MITIGATION/PREVENTION
Does the project address hurricane and storm risk management and flood risk management.		UNLIKELY	MARGINAL	LOW	The work will not impact any flood control structures. If abnormal flooding were to occur the contract duration would be extended.
Does the project include a Federal action justified by life safety.		UNLIKELY	NEGLIGIBLE	LOW	The purpose of the work is focused on pallid sturgeon habitat development and is not a Federal action justified by life safety.
Does a failure in the project pose a significant threat to human life.		UNLIKELY	MARGINAL	LOW	The probability of a failure during this project is low. Failure would be defined as the new dikes do not cause erosion or deposition as modeled and Interception Rearing Complex characteristics do not develop (deposition of specific depth and velocity.)
Does the project involve the use of innovative materials or techniques where the engineering is based on novel methods, present complex challenges for interpretations, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.		UNLIKELY	NEGLIGIBLE	LOW	This project does not contain any innovative or complex design or construction methods. The work is anticipated to be performed by the same contractors that perform dike construction on the MO River main channel for BSNP purposes.
Does the project require redundancy, resiliency, and robustness.		UNLIKELY	NEGLIGIBLE	LOW	The design parameters dictate dike construction sufficient to withstand normal river erosive effects. This specification is inherently robust and redundant. Sediment deposition and erosion is to be regularly monitored as part of the lessons learned process for this program.
Does the project include unique construction sequencing or a reduced or overlapping design and construction schedule.		UNLIKELY	NEGLIGIBLE	LOW	This work type/location is the same as our normal dike construction/maintenance performed annually.