DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

REPLY TO
ATTENTION OF
CENWD-DE

15 AUG 2013

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

SUBJECT: Review Plan (RP) Approval for Wolf Creek Project of the Missouri River Recovery Program (Supplement to the Missouri River Recovery Master Review Plan)

1. References:

a. Memorandum, CENWK-ED, 5 June 2013, subject: Review Plan for the Wolf Creek Project of the Missouri River Recovery Program, Holt County, Missouri, Kansas City District, Northwestern Division (Encl).

b. EC 1165-2-214, *Civil Works Review Policy*, 15 December 2012 (EC).

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

3. The subject RP is a supplement to the Missouri River Recovery Program (MRRP) Master Review Plan. Review of the supplemental RP has been coordinated within the Business Technical Division, Northwestern Division, U.S. Army Corps of Engineers. The Review Plan includes District Quality Control, Agency Technical Review (ATR), and Type II Independent External Peer Review (IEPR). NWD will serve as the Review Management Office for ATR and IEPR.

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 Review Plan or its execution will require written approval from this office.

5. For further information, please contact Mr. Steve Bredthauer, NWD Technical Review Program Manager, at (503) 808-4053.

for COL, EN

Encl

JOHN S. KEM
COL, EN
Commanding

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E 12TH STREET
KANSAS CITY MO 64106-2824

REPLY TO
ATTENTION OF

CENWK-ED

5 June 2013

MEMORANDUM FOR Commander, Northwestern Division, USACE

SUBJECT: Review Plan for the Wolf Creek Project of the Missouri River Recovery Program, Holt County, Missouri, Kansas City District, Northwestern Division

1. Enclosed for Major Subordinate Command approval is the review plan for the Wolf Creek Project of the Missouri River Recovery Program. The project is in the implementation phase and this is the first version of the Review Plan. It is prepared according to EC 1165-2-214, *Civil Works Review Policy*.

2. The District point of contact (POC) for questions or requests for additional information is Mr. Whitney Wolf, Project Manager, at (816) 389-3315 or email at whitney.k.wolf @usace.army.mil.

Encl.
As Stated

DAVID L. MATHEWS, P.E.
Chief, Engineering Division
Kansas City District

REVIEW PLAN

Wolf Creek Project
Missouri River Recovery Program
Holt County, Missouri

Implementation Phase

Kansas City District
Northwestern Division

P2#: 372817
Date: 5 June 2013
Last MSC Approval Date: N/A
Last Revision Date: N/A

US Army Corps of Engineers ®

REVIEW PLAN

Wolf Creek Project
Missouri River Recovery Program
Holt County, Missouri
Implementation Phase

Kansas City District
Northwestern Division

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1. PURPOSE AND REQUIREMENTS

Purpose. This Review Plan defines the scope and level of review for the Wolf Creek Project of the Missouri River Recovery Program, Holt County, Missouri, Implementation Phase, Kansas City District, Northwestern Division.

a. References

(1) Engineering Circular (EC) 1165-2-214, *Civil Works Review*, 15 Dec 2012
(2) EC 1105-2-412, *Assuring Quality of Planning Models*, 31 Mar 2011
(3) Engineering Regulation (ER) 1110-1-12, *Quality Management*, 30 Sep 2006
(4) ER 415-1-11, *Biddability, Constructibility, Operability, Environmental, and Sustainability (BCOES) Reviews,* 1 January 2013.
(5) ER 1105-2-100, *Planning Guidance Notebook*, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(6) US Army Field Manual 5-19, *Composite Risk Management*, 21 August 2006
(7) Wolf Creek MRRP Project Management Plan

b. 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 from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). This review plan (RP) describes the scope of review for the current phase of work. All appropriate levels of review, District Quality Control Plan (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR) and Policy and Legal Review, are included in this RP. The RP identifies the review disciplines needed, the objective of the review, and the specific advice sought, thus setting the appropriate scale and scope of review for the individual Project.

c. Project Authority. The Wolf Creek project is authorized by Section 601(a) of WRDA86 (Public Law 99-662) and Section 334(a) of WRDA99 (Public Law 106-3).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall review effort described in this Review Plan. For the Wolf Creek project, the RMO duties are split between Northwestern Division (NWD) and the Risk Management Center (RMC). NWD is the RMO for the ATR portion of this project and the RMC is the RMO for the IEPR.

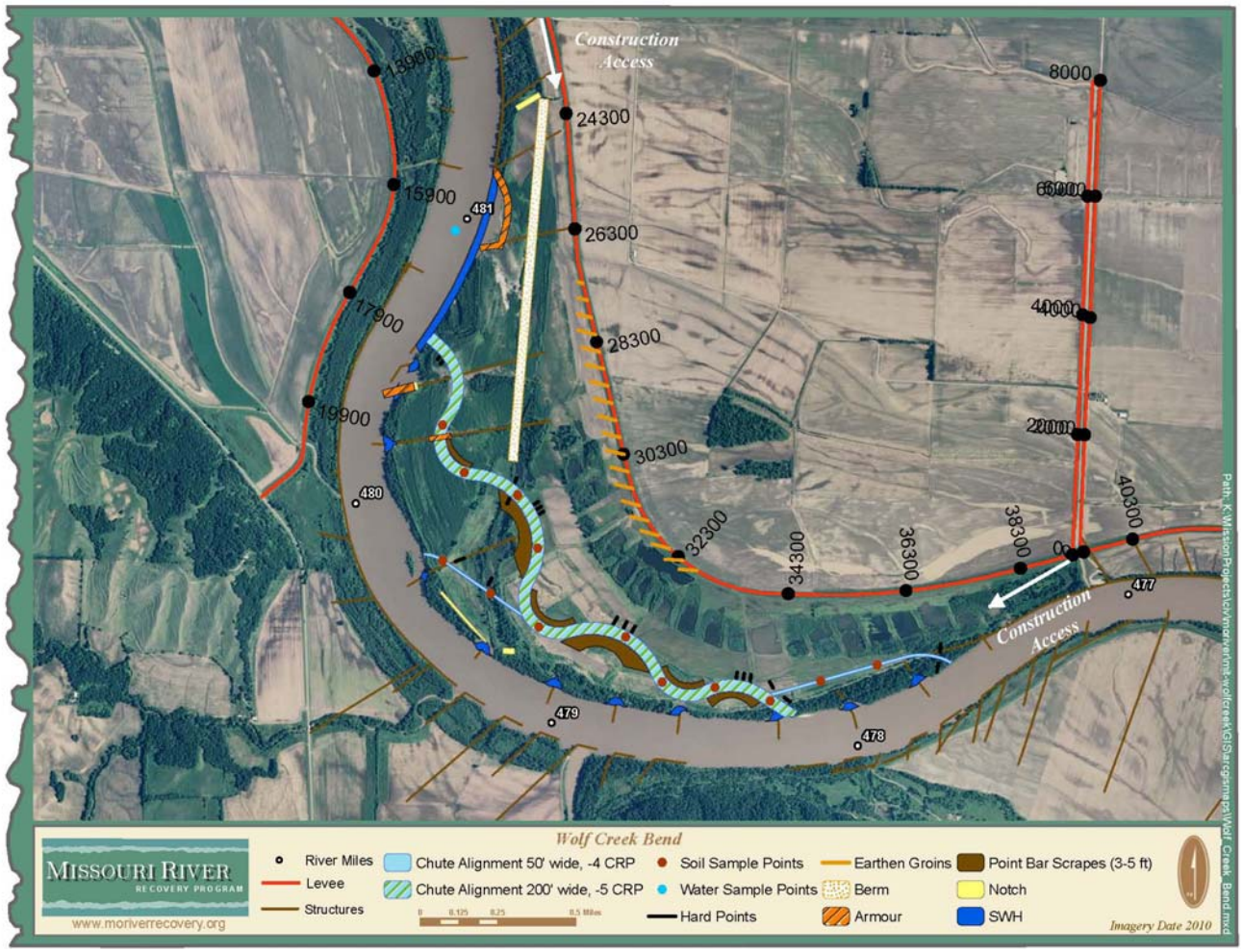
3. PROJECT INFORMATION

a. Implementation Documents. The implementation documents are project implementation report (PIR), plans, specifications, design documentation report (DDR), and operation, maintenance, repair, replacement and rehabilitation (OMRR&R) manual for the project. These documents are used as a detailed plan for construction and operation of the project features. The documents do not require congressional authorization. No updates to the National Environmental Policy Act (NEPA) documentation will be necessary.

b. Project Description. The Wolf Creek Site was purchased from willing sellers in 2004 and 2005. It consists of approximately 974 acres of land owned by the U.S. Army Corps of Engineers (Corps) and managed by the Missouri Department of Conservation (MDC) in Holt County, Missouri. Wolf Creek Bend is located approximately three miles south of Forest City, Missouri and about one mile south of the Bob Brown Conservation Area (CA). The site is located within rural Holt County, Missouri and is adjacent to the left descending bank of the Missouri River between river miles (RM) 477 and 482. The site is also adjacent to a Federal Levee of the Missouri River Levee System (MRLS) 497-L. Project objectives are to:

- Maximize habitat and species diversity.
- Reconnect the river to the floodplain.
- Optimize habitat conditions for that individual site.
- Maximize shallow water habitat for native fisheries that incorporates current research recommendations to the extent possible given site-specific conditions.
- Maintain pre-2011 flood level of levee flood protection provided by FL MRLS 497-L.
- Avoid impacts to navigation channel and adjacent private property.
- Minimize impacts to existing habitat development.

Project features include a flow-through chute, hard points to prevent excessive chute erosion, riprap armoring, a flow modification berm, and notches in the agricultural levee. See the figure below for a proposed draft of the project features.



c. Project Status. The project is currently in the implementation phase. This consists of developing a Project Implementation Report (PIR), plans, specifications, DDR, and an OMRR&R manual, as well as constructing the project features and operating and maintaining the completed project.

d. Factors Affecting the Scope and Level of Review.

- **Life Safety.** The project is adjacent to a levee that protects human life. It is critical that project features are designed to not increase the risk to human life.

- **Controversy.** Wolf Creek is a complex site with diverse parties and interests. These include a private campground at the northern end of the site, farm land and farmers on the landward side of the levee, a Missouri Department of Conservation boat ramp at the southern end of the site, and the Forest City levee district (It is also the confluence of many natural and man-made features: the floodplain is very narrow (about 3,400 feet wide); Wolf Creek discharges into the Missouri River on the opposite side (right descending bank) of the project site; a revetment notch on the northern end of the site constructed in 2007; and the location of the proposed Wolf Creek project site has raised concerns with the area's levee district (Forest City Levee District).

- **Flood Control.** Wolf Creek is adjacent to MRLS L-497. This levee received extensive rehab after the Missouri River flood of 2011. During this flood, large scour holes developed adjacent to the levee and threatened the ability of the levee to provide protection. Also, a large scour hole adjacent to the levee developed during the 1993 flood.

- **Desire for an Independent Review**. Several stakeholders are concerned about impacts of the proposed chute at Wolf Creek on the evee L-497. These concerns were magnified by the flooding and damage that occurred in 2010 and 2011. An independent review of the implementation documents will help the District address stakeholder concerns and provide additional assurances that the Forest City Levee District concerns are considered.

e. Factors considered but not deemed influential. The engineering employed to support the implementation documents is geotechnical evaluation, hydraulic, biology, and civil engineering. The design and design methods in the implementation documents are not based on novel methods, do not present complex challenges for interpretation, do not contain precedent-setting methods or models, and do not present conclusions that are likely to change prevailing practices. This project does not have significant environmental impacts nor does it disturb known cultural or historically significant sites.

f. In-Kind Contributions. The project is 100% federally funded with no in-kind contributions.

4. DISTRICT QUALITY CONTROL (DQC)

All implementation documents (including supporting data, analyses documents, etc.) undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district will manage DQC. Documentation of DQC activities is required and will be in accordance with the Quality

Manual of the District and the home MSC. DQC is overseen by the District's Chief of Engineering and the District's Quality Program Manager.

a. Conduct of DQC, AE-Developed Products. A-E developed products are not expected for this Project.

b. Conduct of DQC, District-Developed Products. For products developed by the District, the District conducts both quality control (QC) and quality assurance (QA). QC at this level is conducted by the PDT and includes peer review and an interdisciplinary review, with a focus on ensuring the design meets current criteria and standards, and is technically acceptable. QA is conducted by the district and includes oversight on the quality control processes, a legal review, and a Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) review prior to advertisement of a construction contract.

c. Documentation of DQC. DQC documentation is provided to the ATR team at the start of the ATR review. Basic quality tools used on the project include a Quality Management Plan, a BCOE review, product development checklists, and established Business and Quality Procedures (BQPs) used to ensure quality procedures are followed. Implementation documents follow quality procedures described in the district's Business Quality Processes (BQPs).

d. DQC Review Descriptions.

(1) Peer Reviews. The peer review is conducted by a peer in the same discipline who double checks calculations, criteria, assumptions, and other design details used in the design, specifications, and DDR. A certification is prepared once issues raised by the reviewers are addressed to the reviewer's satisfaction. Indication of this concurrence is documented by a quality assurance certification statement by the Project Delivery Team (PDT).

(2) Interdisciplinary Review. The District conducts an interdisciplinary review on District-developed products. This review ensures the work developed by one discipline does not conflict or interfere with the work of another discipline. As the project progresses, check prints or draft documents are provided to all members of the PDT. Each member will check other discipline's work for coordination with their work and comment on work by other team members that does not appear to satisfy criteria or client requirements. Included is a review of correctness of application of methods, validity of assumptions, adequacy of basic data, correctness of calculations, and completeness of documentation, compliance with guidance and standards, and BCOES considerations. The term "interdisciplinary review" for the purpose of this document is synonymous to the internal portion of the "PDT Review" defined in Chapter 3 of ER 1110-1-12.

(3) Plan in Hand Review. Before a construction contract is advertised, the PDT conducts a plan in hand review. Aptly named, this review is conducted onsite with the plans "in hand". The PDT, including construction branch and field office representatives, conducts the review. This review is to determine if any significant changes to the site have occurred since the last site visit and to visualize the completed plan from the perspective of standing at the site. Following the plan in hand, the PDT tech lead produces a memorandum to document comments and the planned resolution of any issues.

(4) Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review. The BCOES reviews all aspects of the documents used to bid for a construction contract to ensure they will result in a biddable and constructible project. The BCOES Review occurs three times (in accordance with ER 415-1-11): at the concept approval stage; at the final design stage; and as a backcheck prior to bid opening. The BCOES reviewers are listed in Attachment 1.

e. Products to Undergo DQC. The PIR, plans, specifications, DDR, and OMRR&R manual receive DQC.

f. Timing of DQC. DQC on each product is completed prior to ATR of the particular product, with the exception of the BCOES and plan in hand reviews, which are completed after ATR but before advertisement of a construction contract.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all implementation documents (including supporting data, analyses, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR assesses 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. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams are comprised of senior USACE personnel supplemented by outside experts as appropriate. The ATR team lead is from outside the home MSC.

a. Products to Undergo ATR. The PIR, plans, specifications, DDR, and OMRR&R manuals receive ATR.

b. Timing of ATR. ATR on all products will occur at the 65% design phase starting in January of 2014.

c. Required ATR Team Expertise.

ATR Team Members/Disciplines	Expertise Required
ATR Lead (All Products)	The ATR team leader shall hold a professional license in geotechnical or civil engineering with a BS degree or higher in civil or geotechnical engineering. The ATR leader shall have a minimum of 10 years of design experience with multi-million dollar levee, environmental, or hydraulic projects. The team leader shall be a recognized leader with good communication skills and demonstrated ability to lead a diverse review team comprised of individuals located at various districts across the nation. The ATR lead should be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR leader may also serve as a reviewer for one of the specific disciplines below, if qualified.
Biology (PIR only)	The reviewer for biology shall be an experienced environmental

	designer or biologist with at least 10 years of similar experience and a BS degree or higher in the environmental field or biological field. The reviewer must be familiar with USACE regulations and standards.
Planning (PIR only)	The planning reviewer shall be an experienced planner with at least 10 years experience in the development of Project Implementation Reports and/or Environmental Assessments. The reviewer shall also have completed PROSPECT classes PCC1 (Civil Works Orientation) through PCC6 (Plan Formulation). Should also possess familiarity of the NEPA process and permit requirements, including permits required under the Clean Water Act (401, 402, and 404). The reviewer must be familiar with USACE regulations and standards.
Hydraulic/River Engineering (All Products)	The reviewer for hydraulics shall hold a professional engineer registration with a BS degree or higher in engineering science. The reviewer shall have a minimum of 10 years experience in hydrologic analysis and/or design of hydraulic structures as it relates to riverine projects. Reviewer should have experience in the analysis and design involving hydraulic models HEC-RAS and ADH (2D modeling software). This member should also possess knowledge on dredging, channel morphology, and large river systems. Reviewer should be experienced with similar projects and should have participated in review of riverine environmental or flood risk management projects. The reviewer must be familiar with USACE regulations and standards.
Geotechnical Engineering (All Products)	The reviewer for geotechnical features shall be a registered professional engineer with a BS degree or higher in civil or geotechnical engineering. Reviewer shall have a minimum of 10 years experience in subsurface investigations, levee and underseepage berm design, riprap placement, seepage and slope stability evaluations, erosion protection design, construction and earthwork, dredging, and exploratory drilling. The reviewer must be familiar with USACE regulations and standards.

d. Documentation of ATR. DrChecks review software is used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments are limited to those required to ensure adequacy of the product. The PDT will work with the PM to ensure resolution of all issues raised by USACE reviews. The four key parts of a quality review comment normally include:

1. The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
2. The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
3. 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

4. The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

When resolution on ATR comments is not readily achievable, the RMO should engage the MSC subject matter experts (SMEs) to help facilitate resolution, and they in turn may choose to engage HQUSACE SMEs. The Agency Technical Review team will identify significant issues that they believe are not satisfactorily resolved and will note these concerns in the Technical Review Certification documentation. The ATR team will prepare a Review Report which includes a summary of each unresolved issue. Review Reports will be considered an integral part of the ATR documentation.

Significant unresolved ATR concerns that are documented by the RMO forwarded through the MSC to the HQUSACE RIT, including basic research of USACE guidance and an expression of desired outcome, for further resolution. HQUSACE may choose to defer the issue to the policy compliance review process or address it directly. At this point the ATR documentation for the concern may be closed with a notation that the concern has been elevated for resolution by HQUSACE. Subsequent submittals of reports for MSC and/or HQUSACE review and approval shall include documentation of the issue resolution process.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any ensuing discussion, including any vertical coordination, and lastly the agreed upon resolution.

ATR is certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. Before the ATR certification is completed, the PDT shall ensure that all agreed upon changes have been incorporated into the final product. For those cases where commitments are made to incorporate changes in the next phase of work, agreed upon deferrals shall be documented in the ATR certification. The ATR Lead will prepare a statement of technical review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

Implementation documents may require IEPR 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 IEPR is appropriate. IEPR panels consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review. There are two types of IEPR:

- Type I IEPR. Conducted during the study phase of a project on decision documents. This project is not anticipated to require Type I IEPR because it is in the implementation phase and not the study phase.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), is managed outside the USACE and is conducted on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). Type II IEPR panels conduct reviews of the

design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a. Decision on IEPR. Based on the analysis provided in Attachment 3, it is recommended that this project receive a Type II IEPR. The risk informed decision explicitly considered:

- Whether requests to conduct IEPR from a head of a Federal or state agency charged with reviewing the project were received. None were received.

- Whether the proposed project meets the criteria for conducting Type II IEPR described in Paragraph 2 of Appendix E of EC 1165-2-214, including:

  - Whether the project poses a significant threat to human life (public safety). This project could pose a threat to human life.

  - Whether the project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices. The project does not use innovative materials or techniques.

  - Whether the project design requires redundancy, resiliency, and robustness.

    (1) Redundancy. Redundancy is the duplication of critical components of a system with the intention of increasing reliability of the system, usually in the case of a backup or fail-safe. The design requires redundancy.

    (2) Resiliency. Resiliency is the ability to avoid, minimize, withstand, and recover from the effects of adversity, whether natural or manmade, under all circumstances of use. The project requires resiliency.

    (3) Robustness. Robustness is the ability of a system to continue to operate correctly across a wide range of operational conditions (the wider the range of conditions, the more robust the system), with minimal damage, alteration or loss of functionality, and to fail gracefully outside of that range. The project requires robustness.

  - Whether the project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems. The project does not have a unique construction sequence or reduced/overlapping design construction schedule.

b. Products to Undergo Type II IEPR. The plans, specifications, DDR, and draft OMRR&R manual will receive a Type II IEPR.

c. Timing of IEPR. Type II IEPR occurs after DQC and before the second BCOES review. It is either concurrent with ATR or after ATR, depending on schedules. The IEPR team shall perform reviews and a site visit at the 95% design phase. The current plan is to award a Type II IEPR contract in FY13

and conduct the IEPR in FY14, in order to have a fully reviewed design in time to award a construction contract by the end of FY14. It is not necessary to conduct a site visit during construction or review construction activities due to the routine low-risk nature of the anticipated construction efforts.

d. Required Type II IEPR Panel Expertise. The IEPR team consists of 2 members, with one of the members also serving as the team leader. See Attachment 1 for a list of the IEPR team members. The IEPR team is coordinated through the RMO.

External panels conduct reviews of the design and construction activities prior to the initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. The Review Management Organization (RMO) for Type II IEPR review is the Risk Management Center (RMC), and for all other Reviews the RMO is the MSC, NWD. Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers. Type II IEPR is not exempted by statute from the Federal Advisory Committee Act (FACA) which was created to ensure that advice by the various advisory committees formed over the years is objective and accessible to the public. The Act formalized a process for establishing, operating, overseeing, and terminating these advisory bodies and created the Committee Management Secretariat to monitor compliance with the Act.

The IEPR will be performed by an A/E firm, using a USACE Indefinite Delivery Indefinite Quantity (IDIQ) Contract. The A/E firm provides USACE with the final independent external expert reviewer list, including their credentials. Expert reviewers shall have experience in design and construction of projects similar in scope to the project. Expert reviewers shall be registered professional engineers in the United States, or similarly credentialed in their home country. The expert reviewers must have an engineering degree. A Master's degree in engineering is preferable, but not required, as hands-on relevant engineering experience in the listed disciplines is also important.

The Type II IEPR panel members will not have prior involvement in the development of the decision document, meet the National Academy of Sciences guidelines for independence, and will be chosen by an outside organization. The following types of expertise may be represented on the Type II IEPR team:

IEPR Panel Disciplines	Expertise Required
IEPR Team Leader	One of the team members below shall also perform the duties of team lead. The team leader shall hold a professional license in geotechnical or civil engineering with a BS degree or higher in civil or geotechnical engineering. The IEPR leader shall have a minimum of 10 years of design experience with multi-million dollar levee, environmental, or hydraulic projects. The team leader shall be a recognized leader with good communication skills and demonstrated ability to lead a diverse review team comprised of individuals located at various districts across the nation. The IEPR lead should be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting IEPR. The lead should also have the necessary skills and experience to lead a virtual team through the

	IEPR process. The IEPR leader may also serve as a reviewer for one of the specific disciplines below, if qualified.
Geotechnical/Civil Engineer	The reviewer for geotechnical features shall be a registered professional engineer with a BS degree or higher in civil or geotechnical engineering. Reviewer shall have a minimum of 10 years experience in levee design and construction, seepage and slope stability evaluations, erosion protection design, dredging, construction and earthwork.
Hydraulic/River Engineer	The reviewer for hydraulics shall be a registered professional engineer with a MS degree or higher in engineering science. The reviewer shall have a minimum of 15 years experience in hydraulic analysis and design of hydraulic structures as it relates to riverine projects. Reviewer should have experience in the analysis and design involving riverine models using HEC-RAS and ADH (a 2D hydraulic model). This member should also possess knowledge on dredging, channel morphology, and large river systems. Reviewer should possess experience with similar projects in a rural setting and have participated in review of riverine flood risk management projects.

e. Panel Selection. When selecting panel members, the National Academy of Sciences' policy for committee selection with respect to evaluating the potential for conflicts (e.g., those arising from investments; agency, employer, and business affiliations; grants, contracts and consulting income) shall be adopted or adapted. Peer reviewers shall not have participated in development of the submittal to be reviewed or the decision document. External Reviewers are paid labor and any necessary travel and per diem expenses in accordance with their contract.

Peer reviewers are advised whether information about them (name, credentials, and affiliation) will be disclosed. The RMO shall notify reviewers in advance regarding the extent of disclosure and attribution planned by USACE. The RMO shall comply with the requirements of the Privacy Act. Review is conducted in a manner that respects confidential business information and intellectual property.

f. IEPR Panel Approval. The RMO approves the panel members selected by the A/E. The RMO may only disapprove a selected panel member if the member does not meet the objective criteria established in this review plan.

g. IEPR Charge. The RMO will prepare the charge to the reviewers, containing the instructions regarding the objective of the peer review and the specific advice sought. Reviewers are charged with reviewing scientific and technical matters, leaving policy determinations for USACE and the Army. The charge should specify the structure of the review comments to fully communicate the reviewer's intent by including: the comment, why it is important, any potential consequences of failure to address, and suggestions on how to address the comment. It should include specific technical questions while also directing reviewers to offer a broad evaluation of the overall document. The charge should be determined in advance of the selection of the reviewers.

The District provides reviewers with sufficient information, including background information about the project, to enable them to understand the data, analytic procedures, and assumptions.

Reviewers are informed of applicable access, objectivity, reproducibility and other quality standards under the federal laws governing information access and quality. Information distributed for review must include the following disclaimer: "*This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It has not been formally disseminated by USACE. It does not represent and should not be construed to represent any agency determination or policy*."

The panel of experts established for a review for a project shall:

- Conduct the review for the subject project in a timely manner in accordance with the study and RP schedule;
- Follow the "Charge", but when deemed appropriate by the team lead, request other products relevant to the project and the purpose of the review.
- Receive from USACE any public written and oral comments provided on the project;
- Provide timely written and oral comments throughout the development of the project, as requested;
- Assure the review avoids replicating an ATR and focuses on the questions in the "Charge", but the panel may recommend to the RMO additional or alternate questions.
- Offer any lessons learned to improve the review process.
- Submit reports in accordance with the review plan milestones.
- The panel leader is responsible for insuring that comments represent the group, are non-attributable to individuals, and where there is lack of consensus, note the non-concurrence and why.
- Record of Review. The review team will prepare a review report. All review panel comments are entered as team comments that represent the group and be non- attributable to individuals. The team lead seeks consensus, but where there is a lack of consensus, note the non-concurrence and why. A suggested report outline is an introduction, the composition of the review team, a summary of the review during design, a summary of the review during construction, any lessons learned in both the process and/or design and construction, and appendices for conflict of disclosure forms, for comments to include any appendices for supporting analyses and assessments of the adequacy and acceptability of the methods, models, and analyses used. All comments in the report are finalized by the panel prior to their release to USACE for each review plan milestone.

h. Documentation of Type II IEPR. The IEPR panel is selected and managed in accordance with EC 1165-2-214, Appendix E. A contractor will be used to carry out the IEPR including selecting panel members. Panel comments will be compiled by the contractor and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 5.d above. The contractor will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- 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; 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.

After receiving the report from the IEPR panel, the District will consider all comments contained in the report and prepare a written response for all comments and note concurrence and subsequent action or non-concurrence with an explanation. The District Chief of Engineering shall submit the panel's report and the District's responses shall be submitted to the MSC for final MSC Commander approval, and then make the report and responses available to the public on the District's website (http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsandProjects/CivilWorksReviewPlans.aspx).

7. POLICY AND LEGAL COMPLIANCE REVIEW

The Kansas City District Office of Counsel is responsible for legal review of implementation documents and signs a certification of legal sufficiency prior to construction of the project. The proposed IEPR responses will be coordinated with the MSC District Support Teams and HQUSACE to ensure consistency with law, policy, project guidance, ongoing policy and legal compliance review, and other USACE or National considerations.

a. REVIEW SCHEDULES AND COSTS.

The remaining project's implementation documents will receive ATR's and Type II IEPR as listed in the tables below.

SUMMARY OF DQC, ATR AND IEPR II REVIEWS

Implementation Product	DQC	ATR	IEPR II (SAR)
PIR	Yes	Yes	No
Plans	Yes	Yes	Yes
Specifications	Yes	Yes	Yes
DDR	Yes	Yes	Yes
Draft OMRR&R Manual	Yes	Yes	Yes

b. ATR Schedule (for both PIR and Plans/Specs)

Action/Activity	Calendar Days After ATR Start
DQC Complete; review documents and ATR charge sent to ATR Team	0
ATR milestone to enter comments in DrChecks	14
NWK milestone to complete DrChecks evaluations	28
NWK PDT completes revisions	42
ATR DrChecks backchecks complete	49
ATR certification form signed	54
ATR final report complete	60
Report sent to RMO	67

c. ATR Cost (PIR Only)

Discipline	Estimated Labor Cost
ATR Team Lead	$5000
Supporting Disciplines	$5000 ea. @ 4 =$20,000
TOTAL	$30,000

d. ATR Cost (PIR Excluded)

Discipline	Estimated Labor Cost
ATR Team Lead	$5000
Supporting Disciplines	$7000 ea. @ 3 =$21,000
TOTAL	$26,000

e. Type II IEPR Schedule of Deliverables and Milestones

Deliverable (D) or Milestone (M)	Action/Activity	Calendar Days After NTP
M	Type II IEPR Safety Assurance Review NTP	0
D	Submit Final Peer Review QCP (PRQCP)	7
D	Submit list of final IEPR expert reviewers	7
M	Expert reviewers under contract	14
D	Peer Review Critical Items List	21
M	Corps provides materials for Orientation Meeting	21
M	Orientation Meeting	28
M	Final Charge to Expert Reviewers	28
M	Corps provides PIR, 95% Plans & Specs, DDR, and draft OMRR&R to IEPR Contractor	28
M	Site visit	35
M	Panel's review complete; comments entered in DrChecks	45
M	Comment clarification meeting	50
M	District concurrence or non-concurrence entered in DrChecks for all comments	57
D	Comment Review Conference Call	58
D	Panel submits IEPR Review Report	68
M	Panel report and District response report sent to MSC for approval	75
M	Report and comments posted to website	90

This table will be updated as the project progresses. Days after NTP are estimates.

f. Type II IEPR Cost. The IEPR is expected to cost between $90,000 - $140,000. Type II IEPR costs are 100% federal costs.

8. PUBLIC PARTICIPATION

Public comments are welcome on the review plan. The most recent version of the approved review plan is posted on the Kansas City District's web page located here: http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsandProjects/CivilWorksReviewPlans.aspx.

The public comment period is 30 days. The Kansas City District will consider public comments and recommend changes to the review plan if necessary to the RMO. Significant and relevant public comments will also be provided to reviewers prior to conduct of the review. Also, due to changes in the project, the review plan may require updates. Updates are posted to the same website and the Public will have a similar opportunity to comment on review plan updates. The Public will not be asked to nominate potential reviewers because the decision has been made to use an independent A/E firm. Public comments on the review plan may be made by writing or emailing the following contact:

Kansas City District, Corps of Engineers
c/o Whitney Wolf, CENWK-PM-CJ
601 E. 12th St.
Kansas City, MO 64106
Email: whitney.k.wolf@usace.army.mil

9. REVIEW PLAN APPROVAL AND UPDATES

The Northwestern Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, RMC, and HQUSACE members as applicable) as to the appropriate scope and level of review for the implementation documents. Like the PMP, the Review Plan is a living document and may change as the project progresses. The home district is responsible for keeping the Review Plan up to date. Significant changes to the Review Plan (such as changes to the scope and/or level of review) are 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, is posted on the Home District's webpage. The RMO and home MSC will also receive the latest Review Plan.

10. REVIEW PLAN POINTS OF CONTACT

Direct questions or comments from the public to the following points of contact:

District Quality Control
Kansas City District……Mr. Whitney Wolf (816) 389-3315

Review Management Office (ATR)
Northwestern Division……Mr. Stephen Bredthauer (503) 808-4053

Review Management Office (IEPR)
Risk Management Center……Mr. Tom Bishop (303) 963-4556

--Attachments follow—

ATTACHMENT 1: Team Rosters

District-level names will be redacted on the version posted for public comment to protect privacy.

a. Project Delivery Team

Name	District	Discipline
[redacted]	CENWK	Project Management
[redacted]*	CENWK	River Engineering
[redacted]	CENWK	Civil
[redacted]	CENWK	Geotechnical
[redacted]	CENWK	Biologist
[redacted]	CENWK	Geology
[redacted]	CENWK	Hydraulics
[redacted]	CENWK	Construction
[redacted]	CENWK	Cost Engineering
[redacted]	CENWK	Real Estate

*Technical Lead

b. Vertical Team

Name	District	Discipline
David Mathews	CENWK	Chief of Engineering
Steven Bredthauer	CENWD	Quality Assurance Manager
Brigadier General Anthony Funkhouser	CENWD	Northwestern Division Commander
Tom Bishop	CEIWR-RMC	Senior Program Manager

c. Agency Technical Review Team (all Phases)

Name	District	Discipline
[redacted]	CEMVS	ATR Team Lead and Biologist
[redacted]	CEMVS	Biology
[redacted]	CEMVS	Planning
[redacted]	CEMVS	Hydraulics/River Engineer
[redacted]	CEMVS	Geotechnical/Civil Engineer

d. BCOE Certifiers and Quality Assurance Team for In-House Products

Name	District	Discipline
[redacted]	CENWK	Construction QA Team Leader
[redacted]	CENWK	Construction Branch Chief
[redacted]	CENWK	Construction Division Chief
[redacted]	CENWK	Geotechnical Engineering Branch Chief and District Quality Program Manager
[redacted]	CENWK	Hydrologic Engineering Branch
[redacted]	CENWK	Engineering Division Chief

e. IEPR Reviewers

Name	Firm	Discipline
[redacted]	TBD	IEPR Team Lead
[redacted]	TBD	Hydraulics/River Engineer
[redacted]	TBD	Geotechnical Engineer

ATTACHMENT 2: Sample Statement of Technical Review for Implementation Documents

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<type of product>* for *<project name and location>*. 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[sm].

SIGNATURE _____ _____

[Name] Date
ATR Team Leader
[Office Symbol or Name of AE Firm]

SIGNATURE _____ _____

[Name] Date
Project Manager (home district)
[Office Symbol]

SIGNATURE _____ _____

[Name] Date
Review Management Office Representative
[Office Symbol]

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Describe the major technical concerns and their resolution and specifically list any agreed-upon deferrals to be completed in the next phase of work..*

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE _____ _____

[Name] Date
Chief, Engineering Division
[Office Symbol]

ATTACHMENT 3: Documentation of Type II IEPR Risk-Informed Decision

The project is in the implementation phase and therefore does not require a Type I IEPR. This attachment documents the vertical team's risk informed recommendation to conduct Type II IEPR.

The following table, based on the US Army Field Manual 5-19, *Composite Risk Management*, is used to assess each identified risk. Refer to this reference for definitions of the risk probability and severity categories.

Risk Assessment Matrix

	Risk Probability			
Risk Severity	**Frequent**	**Likely**	**Seldom**	**Unlikely**
Catastrophic	Extremely High	Extremely High	High	Moderate
Critical	Extremely High	High	Moderate	Low
Marginal	High	Moderate	Moderate	Low
Negligible	Moderate	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.

Wolf Creek MRRP Project Type II IEPR Risk Assessment for Implementation Documents

Risk	Risk Probability	Risk Severity	Risk Assessment	Risk Contributes to IEPR Decision?	Notes
Project poses a significant threat to human life	Unlikely	Catastrophic	Moderate	Yes	As a chute construction project near a federal levee, the completed project could have an effect on the threat to human life.
Project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices	Unlikely	Marginal	Low	No	This project does not involve any innovative materials or techniques based on novel methods or complex challenges.
The project design requires redundancy, resiliency, and robustness to minimize risk of failure	Seldom	Critical	Moderate	Yes	The natural erodability of the chute design will require redundancy, robustness, and resiliency. Also, the design cannot contribute to levee failure.
The project has unique construction sequencing or a reduced or overlapping design construction schedule	Unlikely	Marginal	Low	No	The project has no unique construction sequencir or overlapping design construction schedule.
Risk of a faulty or incomplete design making it to construction	Seldom	Marginal	Moderate	No	DQC and ATR by personnel with experience on similar projects will mitigate the risk of faulty or incomplete design.
Risk of contractor misinterpreting design which results in project failure	Unlikely	Catastrophic	Moderate	No	Established and extensive construction quality control procedures will mitigate this risk.

Based on the above assessment, it is the risk-informed recommendation of the vertical team that Type II IEPR is required for the Wolf Creek Project's implementation documents.