



**DEPARTMENT OF THE ARMY**  
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER  
CORPS OF ENGINEERS  
550 MAIN STREET  
CINCINNATI, OH 45202

CELRD-PDS-R

*14 Jan 13*

MEMORANDUM FOR Commander, U.S. Army Engineer District, Louisville, Attention, Amy Babey (CELRD-PM-P), Louisville District, U.S. Army Corps of Engineers, 600 Dr. Martin Luther King Jr. Place, Louisville, Kentucky

SUBJECT: Review Plan for the Ohio River Shoreline, Paducah, Kentucky Local Flood Protection Project (Reconstruction) Approval Memorandum

1. The attached Review Plan (RP) for the Ohio River Shoreline, Paducah, Kentucky Local Flood Protection Project (Reconstruction) was distributed for review to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-209 "Civil Works Review" on 30 Nov 2012.
2. The City of Paducah is located in the northern portion of McCracken County, Kentucky, on the left bank of the Ohio River, approximately 934 river miles below Pittsburgh, immediately below the mouth of the Tennessee River. The City of Paducah is bounded on the north and northeast by the Ohio and Tennessee Rivers and lies within the alluvial valley of the Ohio River. A significant portion of its residential and commercial districts is situated on a level and relatively high flood plain terrace that extends to the low hills on the south. The average elevation of this alluvial terrace is about 337 feet, mean sea level (msl). Island Creek flows through the eastern part of the city to join the Ohio River and immediately below the mouth of the Tennessee River, and Perkins Creek is located along the western portion of the city. According to the U.S. Census Bureau, in 2000, Paducah had a population of 26,275. Paducah, KY is the official county seat of McCracken County.
3. The existing project/study area contains approximately 10,850 acres. The existing local protection project consists of approximately 48,700 feet of earthen levee, 15,870 feet of concrete flood wall, 12 pumping plants, approximately 55 closure and service openings, 8 ramps, 5 diversion channels and other necessary appurtenances. The top elevation of the protection was designed to be at least three feet higher than the 1937 flood elevation, which included the impact of constructing the Brookport, Illinois levee/floodwall project on the opposite bank of the Ohio River at this location. In addition to these flood protection measures, Corps reservoirs were constructed throughout the Ohio River Basin, further reducing the impacts of flooding on the receiving streams of these reservoirs as well as along the Ohio River.
4. The Paducah Feasibility Study is a single-purpose flood risk management study. The Paducah Local Flood Protection Project is an aging project, and after more than 60 years of operation is in need of reconstruction/rehabilitation. The type of measure to be studied is a reconstruction alternative versus a no action alternative. The estimated cost of the project for the recommended plan is \$19M. Several items, such as refurbishment and/or replacement of pumps

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and motors; a potential new pump plant (within the existing footprint) to alleviate ponding of water; slip-lining of deteriorating pipes; and an upgrade to Bee Branch will be included in the reconstruction cost estimate. These reconstruction items were not included in the cost estimate from the 905 (b) study which were the basis of the current project authorization. Additional legislative language is in the draft phase to increase the authorization. The non-federal sponsor is the City of Paducah, KY. This feasibility study will culminate in an interim report (focusing on the Paducah, KY) under the broad authority of the Paducah authorization of Section 5077 of WRDA 2007.

5. The Review Plan (RP) is the key to ensuring credibility and accountability for the Ohio River Shoreline, Paducah, Kentucky Local Flood Protection Project through the definition of scope and level of peer review for the decision document. Additionally, this RP is the basis for compliance with the Information Quality Act requirement to ensure and maximize the quality, objectivity, utility and integrity of information provided in this report to be disseminated by the agency.

6. The USACE LRD Review Management Organization (RMO) has reviewed the attached RP and concurs it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-209.


7. I concur with the recommendations of the RMO and approve the enclosed RP for Ohio River Shoreline, Paducah, Kentucky Local Flood Protection Project.

8. The District is requested to post the RP to its website. Prior to posting, the names of all individuals identified in the RP should be removed.

9. If you have any questions or need additional information, please contact Dr. Hank Jarboe, CELRD-PDS-P, at (513) 684-6050.

Encls

1. RMC Memo, dated 14 Dec 2012
2. Review Plan

  
MARGARET W. BURCHAM  
Brigadier General, USA  
Commanding

# **IMPLEMENTATION DOCUMENT REVIEW PLAN**

**Ohio River Shoreline, Paducah, KY  
(Paducah, KY LFPP) Reconstruction Project**

**Louisville District**

**MSC Approval Date: 15 January 2013**

**Last Revision Date: None**



**US Army Corps  
of Engineers ®**

**IMPLEMENTATION DOCUMENT REVIEW PLAN**

**Ohio River Shoreline, Paducah, KY  
(Paducah, KY LFPP) Reconstruction Project**

**Louisville District**

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## 1. PURPOSE AND REQUIREMENTS

- a. **Purpose.** This Review Plan defines the scope and level of peer review, in accordance with EC 1165-2-214, for the Ohio River Shoreline, Paducah, KY (Paducah KY LFPP) Reconstruction project life cycle for the design and implementation of the project. The name of the authorized study is “Paducah, Kentucky”. Therefore, throughout the Peer Review Plan “Paducah, Kentucky” will be used for the project name.
- b. **References.**
- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 January 2010 (which supersedes EC 1105-2-410)
  - (2) EC 1105-2-412 Assuring Quality of Planning Models, 31 March 2011
  - (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sept 2006
  - (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
  - (5) Project Management Plan (PMP) for Paducah, KY Feasibility Study & Certification of Levee System
- c. **Requirements.** This review plan was 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 from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and ensuring that planning models and analysis are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports (per EC 1105-2-412).

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the MSC and/or Risk Management Center. The RMO for the implementation document review plan is the home MSC and RMC. The MSC will coordinate and approve the review plan. The Louisville District will post the approved review plan on its public website.

## 3. STUDY INFORMATION

- a. **Decision Document.** A Feasibility Study was conducted in cooperation between the Louisville District of the Corps of Engineers and the local project sponsor to address reconstruction of a project that has project components that are greater than 60 years old (they are beyond their normal service life). The Detailed Project Report was completed in May of 2011 and revised in September 2011. Although an Environmental Assessment (EA) was not required (the project had a categorical exclusion), the Louisville District was directed at the Civil Works Review Board (June 2011) to prepare an EA. The Finding of No Significant Impact (FONSI) was signed on 6 June 2012 (HQUSACE wanted to wait for approval of the report prior to having the EA signed). The Detailed

Project Report was approved by the MSC in May of 2011. The Chief's Report package was transmitted to Congress on 11 September 2012. The authorized name of the flood risk management project at Paducah, Kentucky is "Paducah, Kentucky". The level of approval for the document was the Civil Works Review Board (CWRB), which ultimately culminated with a Chief of Engineers Report. Authority for the Paducah, Kentucky Feasibility Report and reconstruction are contained in Section 5077 of the Water Resources Development Act of 2007. This section reads as follows:

***"SEC. 5077. PADUCAH, KENTUCKY.***

***The Secretary shall complete a feasibility report for rehabilitation of the project for flood damage reduction, Paducah, Kentucky, authorized by section 4 of the Flood Control Act of June 28, 1938 (52 Stat. 1217), and, if the Secretary determines that the project is feasible, the Secretary may carry out the project at a total cost of \$3,000,000."***

The above authorizing language provides the Corps the authority to review water resources issues concerning the City of Paducah, KY as related to the existing flood risk management project which began construction in August 1939 and was completed in January 1950. The cost estimate has increased since the 905 (b) study was completed in May 2000. Additional authorization by Congress is required to complete reconstruction of the project.

The standing authority to conduct feasibility studies examining the reconstruction of structural flood damage reduction projects constructed by the Corps is Section 216 of the Flood Control Act of 1970 (Public Law 91-611) which states:

*"The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significantly changed physical or economic conditions, and to report thereon to Congress with recommendations of the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest."*

NEPA compliance for this project is covered by a categorical exclusion for activities at completed Corps projects which carry out the authorized project purposes. The project has been analyzed to determine that no extraordinary circumstances exist. Therefore the categorical exclusion can be used.

**b. Study/Project Description.** The City of Paducah, KY stated in a letter, in 1997, that they were interested in cost sharing a feasibility study of the Paducah, KY Local Protection Project with the U.S. Army Corps of Engineers. The signatures by the City and of Paducah, KY and Corps' executives of the Feasibility Cost Sharing Agreement (FCSA) on January 30, 2009 initiated this most-recent feasibility study. This feasibility study will culminate in an interim report (focusing on the Paducah, KY) under the broad authority of the Paducah authorization of Section 5077 of WRDA 2007.

The Paducah Feasibility Study is a single-purpose flood risk management study. The Paducah Local Flood Protection Project is an aging project, and after more than 60 years of operation is in need of reconstruction/rehabilitation. The type of measure to be studied is a reconstruction alternative versus a no action alternative. The estimated cost of the project for the recommended plan is \$19M. Several items, such as refurbishment and/or replacement of pumps and motors; a potential new pump plant (within the existing footprint) to alleviate ponding of water; slip-lining of deteriorating pipes; and an upgrade to Bee Branch will be included in the reconstruction cost estimate. These reconstruction items were not included in the cost estimate from the 905 (b) study

which were the basis of the current project authorization. Additional legislative language is in the draft phase to increase the authorization. The non-federal sponsor is the City of Paducah, KY.

The City of Paducah is located in the northern portion of McCracken County, Kentucky, on the left bank of the Ohio River, approximately 934 miles below Pittsburgh, immediately below the mouth of the Tennessee River. The City of Paducah is bounded on the north and northeast by the Ohio and Tennessee Rivers and lies within the alluvial valley of the Ohio River. A significant portion of its residential and commercial districts is situated on a level and relatively high flood plain terrace that extends to the low hills on the south. The average elevation of this alluvial terrace is about 337 feet, mean sea level (msl). Island Creek flows through the eastern part of the city to join the Ohio River and immediately below the mouth of the Tennessee River, and Perkins Creek is located along the western portion of the city. According to the U.S. Census Bureau, in 2000, Paducah had a population of 26,275. Paducah, KY is the official county seat of McCracken County.

The existing project/study area contains approximately 10,850 acres. The existing local protection project consists of approximately 48,700 feet of earthen levee, 15,870 feet of concrete flood wall, 12 pumping plants, approximately 55 closure and service openings, 8 ramps, 5 diversion channels and other necessary appurtenances. The top elevation of the protection was designed to be at least three feet higher than the 1937 flood elevation, which included the impact of constructing the Brookport, Illinois levee/floodwall project on the opposite bank of the Ohio River at this location. In addition to these flood protection measures, Corps reservoirs were constructed throughout the Ohio River Basin, further reducing the impacts of flooding on the receiving streams of these reservoirs as well as along the Ohio River.

- c. Factors Affecting the Scope and Level of Review.** This Implementation Phase review plan describes the review process and levels of review during Engineering and Design (E&D) and construction for the Paducah, Kentucky Reconstruction Project and is a standalone document to accompany the Project Management Plan. District Quality Control and Agency Technical Review are both mandatory levels of review for all decision documents, per EC 1165-2-214. The DQC will be managed from within the district in accordance with the PMP and District Quality Management Plans. The ATR will be managed by the Review Management Organization (RMO); in this case the Risk Management Center. The ATR team members, identified by the RMO, will come from outside the home district and the ATR team lead will be selected from outside the home MSC.

Independent External Peer Review is required by EC 1165-2-214 when certain criteria are met, in addition to being required for all flood risk management projects where issues of life safety are present. If the Paducah project is reconstructed, the residual risk of the project would be minimal and more a factor of a possible system component failure than any defeat of the project by a large flood event. Specifically, the risk to human life under the existing condition would be greater due to the inevitable degradation of aging system components. The proposed plan recommends the replacement or rehabilitation of these components. Therefore, the risks to human life under the recommended plan of reconstruction would be lower than the risks under the existing condition.

This assessment of the threat to human life is further supported by Stephen G. Durrett, P.E., Louisville District Chief of Engineering, who stated:

“The current condition of the project does pose a significant threat to human life. All levee projects that protect populated areas present a threat to human life. This is the very nature of inhabiting a flood plain protected by a levee. This reconstruction project is not proposing to change the alignment or to increase the protected height of the levee system; it is a rehabilitation of the existing project. The Paducah project provides protection to greater than a

500 year event. With an event of this severe magnitude, the Ohio River will be an extremely slow rising river system that will permit for ample warning time of any potential overtopping events. Additionally, there are multiple routes to evacuate from the protected area in the case of an overtopping event. Furthermore, the city has in place a Flood Warning Emergency Evacuation Plan (FWEEP) that will provide several hours warning. The sponsor has always been an active player in maintaining and operating the protection system. As stated in paragraph 11.d (1) (a); the proposed project will provide a more reliable and safer structure for the people living and working behind the protection system. The report is proposing to bring the project up to current design standards. As a result, the current design standards will decrease the significant threat to human life based on its current condition. It is my recommendation as Chief of Engineering and the Levee Safety Officer in the Louisville District that a Type I IEPR is not required.”

The following paragraph discusses the additional criteria laid out in EC 1165-2-214, as these considerations are helpful not only in determining the need for independent external review, but also in determining the scope of this review, and on which aspects of the project it should be focused.

Since this project entails primarily reconstruction of aging equipment, it is not likely to create new influential scientific information or be a highly scientific assessment. The models, methodology and approach of the study do not deviate from the standards of Flood Risk Management studies and the study itself presents no extraordinary challenges. An Environmental Assessment was not required, but was completed following discussion at the Civil Works Review Board. The project falls under the realm of a categorical exclusion because it was federally-constructed and will remain within the existing project footprint. The project has been analyzed to determine that there are no extraordinary circumstances that would require further environmental requirements. All environmental requirements have been met. The project is unlikely to possess significant interagency interest. It is not likely that the project will have significant economic, environmental, or social effects to the nation, such as (but not limited to) more than negligible adverse impacts on scarce or unique cultural, historic, or tribal resources; substantial impacts on fish and wildlife species or their habitat, prior to implementation of mitigation; more than negligible adverse impact on species listed as endangered or threatened, or to the designated critical habitat of such species, under the Endangered Species Act, prior to implementation of mitigation. There have not been any requests by the Governor of Kentucky for a peer review by independent experts. This project has been authorized by Congress, however, legislative language is being drafted to increase the authorized amount to include additional items needed for rehabilitating/reconstructing the project. It is not anticipated that this request for additional authorization would involve a project of a complex, controversial, or excessively costly nature. It is not expected that implementation costs will exceed the \$45 million IEPR mandatory trigger.

An exclusion from policy for the Type I IEPR requirement was granted. Type II IEPR/Safety Assurance Review (SAR) will be performed on design and construction activities for the project. Type II IEPR will be accomplished by contract with and coordinated by an Outside Eligible Organization (OEO) external to the Corps to ensure independence. The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule. The reconstruction effort is expected to be awarded in three consecutive construction contracts over a period of two years.

- d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. In-kind contributions from the sponsor (City of Paducah, Kentucky) will consist of administrative costs related to sponsor participation in all decision-point



meetings, among other things. The sponsor is currently reviewing the Project Management Plan to determine which items they can complete for in-kind contributions. Peer review of in-kind contributions will be accomplished by having the sponsor provide documentation of in-kind services, followed by the applicable discipline providing estimates of the value of those contributions, and reconciling the documentation from the sponsor and that discipline.

**4. DISTRICT QUALITY CONTROL (DQC)**

**Documentation of DQC.** All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall 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 shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

DQC was performed on the decision document and all related work products during the feasibility phase, as well as the work products completed during the Pre-Engineering and Design phase. ATR was conducted on the Detailed Project Report in January of 2011.

**5. AGENCY TECHNICAL REVIEW (ATR)**

ATR is mandatory for all decision and 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 assessed 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 will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.. Other ATR team members may come from within the home MSC, but must be from outside the home district that produces the Plans and Specifications (P&S)

**a. Products to Undergo ATR.** ATR will be performed on the final plans and specifications.

**b. Required ATR Team Expertise.** The ATR team will be comprised of six technical experts. When these are selected they will be listed in Attachment 1. In accordance with EC 1165-2-214, the ATR team lead will come from outside the MSC. Upon project authorization, ATR team members will be identified and presented to both the RMC and the MSC for review/approval of an updated review plan.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead will be from outside the home District but within the MSC.
Civil/ Site Engineering	The Civil Engineer should be a senior engineer with extensive

	experience and understanding of site and design requirements for flood risk management projects including levees, floodwalls, pump plants, and channel improvements.
Geotechnical	The geotechnical reviewer will have experience in the evaluation of flood risk management structures such as static and dynamic slope stability evaluation, evaluation of seepage through earthen embankments and underseepage through the foundation of flood risk management structures including levee embankments, floodwalls, closure structures and other pertinent features, and in settlement evaluation of the structures.
Hydraulic Engineering	The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of interior flood hydrology, as well as experience with the HEC-RAS software.
Structural Engineering	The structural engineering reviewer should have extensive knowledge of I-Walls, T-Walls and pumping stations founded on shallow foundations as well as design of levees and flood protection structures. He or she should also have considerable experience with stability analyses of existing concrete structures and should also have an understanding of seismic evaluation of existing structures.
Real Estate	The Real Estate Representative should have experience in plan formulation and implementation of Flood Risk Management (FRM) projects and applicable underlying policies

**c. Documentation of ATR.** Dr. Checks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will 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.

In some situations, especially addressing incomplete or unclear information, comments could seek clarification in or to then assess whether further specific concerns may exist.

The ATR documentation in Dr. Checks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-2-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team prepared a Review Report summarizing the review. Review Reports will be considered to be 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.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. 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 prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

## **6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**

IEPR may be required for decision 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 IEPR is appropriate. IEPR panels will 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 being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study.
- Type II IEPR. Type II IEPR, or Safety Assurance Reviews (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will 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 shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

A Type II IEPR (Safety Assurance Review) will be conducted during PED and construction phases, to focus on unique features and changes from the assumptions made and conditions that formed the

basis for the design during the decision document phase, ensuring that project features adequately address redundancy, resiliency, and robustness.

- a. **Decision on IEPR.** An exclusion for the Type I IEPR requirement was granted by HQUSACE on 28 April 2011. A Type I IEPR will not be performed.
- b. **Products to Undergo Type I IEPR.** Not applicable
- c. **Type I IEPR Panel Expertise.** Not applicable
- d. **Documentation of Type I IEPR.** Not applicable

## **7. POLICY AND LEGAL COMPLIANCE REVIEW**

All implementation documents and updates will be reviewed throughout the study process for their compliance with 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, particularly policies on analytical methods and the presentation of findings in decision documents.

The decision document was submitted and approved with a Planning Chief's Certification and a legal certification. The final design plans will contain an engineering certification following completion of ATR. The project will also undergo BCOE certification in accordance with ER 415-1-11.

## **8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

## **9. REVIEW SCHEDULES AND COSTS**

a. **ATR Schedule and Cost.** Individual members of the ATR team (shown in Attachment 1) shall review technical products as they are completed, submitting comments to the PDT (shown in Exhibit A), receiving responses, and resolving and certifying individual products.

It is anticipated that the ATR of plans and specifications will be conducted in February of 2014 at an approximate cost of \$25,000.

b. **Type II IEPR Schedule and Cost.** The Type II IEPR Review will be initiated during 2014 at an approximate cost of \$80,000.

## **10. PUBLIC PARTICIPATION**

Throughout the feasibility study, meetings have been held with the City Engineer. Local officials involved fully support the recommended plan. The study underwent a public review and comment period of thirty days and received no negative comments. Copies of the Environmental Assessment,

fully describing the recommended plan and its impacts, were made available to agencies, public officials, and interested individuals. No public review comments were received on the draft feasibility report. Therefore, only comments of the draft Paducah, Kentucky, Feasibility Report received from the HQUSACE RIT were provided to the ATR team as the comments became available. None of the tribes expressed concerns about the project. A general public meeting was held on 8 November 2010. A public notice was prepared to make the public aware of the public meeting and to let them know the draft report was available for public review and comment for a 30-day period. The public, including scientific and professional societies, were given the opportunity to nominate potential external peer reviewers on the website.

Additional public coordination will occur throughout the construction phase. State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures.

## **11. REVIEW PLAN APPROVAL AND UPDATES**

The Great Lakes and Ohio River Division Commander MSC that oversees the home district is responsible for approving this Review Plan. Approval is provided by the MSC Commander. The commander's approval reflects vertical team input (involving district, MSC, PCX, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. Minor changes to the Review Plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to scope and/or level of review) should 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 Commander's approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

## **12. REVIEW PLAN POINTS OF CONTACT**

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Louisville District POC: Project Manager; 502-315-6875
- Louisville District Technical POC: Project Engineer; 502-315-6434
- Great Lakes and Ohio River Division POC: Senior Regional Engineer; 513-684-3018
- Review Management Organization POC: Senior Review Manager; 303-963-4556

**ATTACHMENT 1: TEAM ROSTERS**

**PDT TEAM ROSTER**

<b>Team Member</b>	<b>Area of Expertise</b>	<b>Contact Information</b>
	Local Sponsor	(270) 444-8511
	Project Manager	(502) 315-6875
	Project Engineer	(502) 315-6434
	Real Estate	(502) 315-6956
	Cost Engineer	(502) 315-2621
	H&H Engineer, Chief of Hydrology & Hydraulics Design Section	(502) 315-6380
	Structural Engineer	(502) 315-6394
	Geotechnical Engineer	(502) 315-6305
	Environmental	(502) 315-6900

**DQC TEAM ROSTER**

<b>Team Member</b>	<b>Area of Expertise</b>	<b>Contact Information</b>
TBD	Geotechnical Engineer	(502) 315-_____
Terry Sullivan	Structural Engineer	(502) 315-6299
Richard Pruitt	H&H Engineer	(502) 315-6380
Monica Greenwell	Civil Engineer	(502) 315-6360
Jim Vermillion	Cost Engineering	(502) 315-6384

**ATR TEAM ROSTER**

<b>Team Member</b>	<b>Area of Expertise</b>	<b>Contact Information</b>
TBD	ATR Lead/Civil Engineer	
TBD	Geotechnical Engineer	
TBD	H&H Engineer	
TBD	Structural Engineer	
TBD	Real Estate Specialist	

**ATTACHMENT 2: STATEMENT OF TECHNICAL REVIEW FOR PLANS AND SPECIFICATIONS**

**COMPLETION OF AGENCY TECHNICAL REVIEW  
IMPLEMENTATION PHASE**

The Agency Technical Review (ATR) has been completed for plans and specifications for the Ohio River Shoreline, Paducah, Kentucky (Paducah, Kentucky LFPP) Reconstruction Project to comply with the requirements of EC 1165-2-214 and Director of Civil Works' Policy Memorandum #1. 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>.

_____	_____
ATR Team Leader Civil Engineer	Date
_____	_____
Project Manager	Date
_____	_____
Senior Regional Engineer, CELRD RMO	Date
_____	_____
Project Engineer	Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows:

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

_____	_____
Acting Chief, Engineering Division	Date

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>



#### ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<b><u>Term</u></b>	<b><u>Definition</u></b>	<b><u>Term</u></b>	<b><u>Definition</u></b>
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CWRB	Civil Works Review Board	O&M	Operation and maintenance
DQC	District Quality Control/Quality Assurance	OMB	Office and Management and Budget
DX	Directory of Expertise	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	OSE	Other Social Effects
ER	Engineering Regulation	PCX	Planning Center of Expertise
FCSA	Feasibility Cost Sharing Agreement	PDT	Project Delivery Team
FDR	Flood Damage Reduction	PMP	Project Management Plan
FEMA	Federal Emergency Management Agency	PL	Public Law
FONSI	Finding of No Significant Impact	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FWEEP	Flood Warning Emergency Evacuation Plan	QC	Quality Control
Home District/MS	The District or MSC responsible for the preparation of the CAP project.	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
LFPP	Local Flood Protection Project	SAR	Safety Assurance Review
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
NED	National Economic Development	WRDA	Water Resources Development Act