



DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER  
CORPS OF ENGINEERS  
550 MAIN STREET  
CINCINNATI, OH 45202-3222

CELRD-PDS-O

6 FEB 13

MEMORANDUM FOR Commander, U.S. Army Engineer District, Huntington, Attention, [REDACTED]  
[REDACTED] (CELRH-EC-Q), Huntington District, Corps of Engineers, 502 Eighth Street,  
Huntington, WV 25701

SUBJECT: Review Plan for Martin County, Kentucky, Section 202 Nonstructural Flood  
Damage Reduction Project

1. The attached Review Plan (RP) Martin County, Kentucky, Section 202 Nonstructural Flood Damage Reduction Project was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-214 "Civil Works Review" dated 15 December 2010.
2. The project area encompasses those portions of eastern Martin County adjacent to the Tug Fork River including portions of Tug Fork tributaries affected by the April 1977 flood. The downstream limit of the study area begins at the Martin and Lawrence County border (river mile 19.2) and extends upstream nearly 30 miles to the Martin and Pike County border (river mile 48.4).
3. The RP defines the scope and level of peer review for the activities to be performed for the subject project. The USACE LRD Review Management Organization (RMO) has reviewed the attached RP and concurs that it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-214.
4. I concur with the recommendations of the RMO and approve the enclosed RP for the Review Plan for Martin County, Kentucky, Section 202 Nonstructural Flood Damage Reduction Project.
5. 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.
6. If you have any questions please contact [REDACTED] CELRD-PDS-P, at [REDACTED]  
[REDACTED]

Colonel, EN  
Acting Commander

Encls

1. Memo: CELRH-PM, dated 14 December 2012
2. Review Plan



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
HUNTINGTON DISTRICT, CORPS OF ENGINEERS  
502 EIGHTH STREET  
HUNTINGTON, WV 25701

CELRH-PM

14 December 2012

MEMORANDUM FOR CELRD-PDS-H [REDACTED], GREAT LAKES & OHIO RIVER  
DIVISION, 550 MAIN STREET #10032, CINCINNATI OH 45202-3222

SUBJECT: Review Plan for Martin County, Kentucky, Section 202 Nonstructural Flood Damage  
Reduction Project

1. In Accordance with EC 1165-2-209, attached is the initial submission of the Review Plan for Martin County, Kentucky, Section 202 Nonstructural Flood Damage Reduction Project for your approval. The review plan does not include Agency Technical Review (ATR) outside of the District because ATR is not required for any of the products addressed in this review plan. Independent External Peer Review (IEPR) is not recommended since this project is nonstructural in nature and does not contain the typical risk associated with traditional flood damage reduction projects.

2. Please direct any question or comments to me at [REDACTED]. After your approval, the Review Plan will be posted to the CELRH Intranet.

Encl

[REDACTED]  
Project Manager  
Section 202 Program Manager

CF:  
CELRH-EC-Q

# IMPLEMENTATION REVIEW PLAN

## MARTIN COUNTY, KENTUCKY SECTION 202 NONSTRUCTURAL FLOOD DAMAGE REDUCTION PROJECT

Design and Construction Activities

Huntington District

MSC Approval Date: Pending

Last Revision Date: None



US Army Corps  
of Engineers ®

**REVIEW PLAN**

**MARTIN COUNTY, KENTUCKY  
SECTION 202 NONSTRUCTURAL  
FLOOD DAMAGE REDUCTION PROJECT  
Design and Construction Activities**

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## 1. PURPOSE AND REQUIREMENTS

- a. **Purpose.** This Review Plan (RP) defines the scope and level of peer review for the remaining design and construction activities to be performed for the Martin County, Kentucky, Section 202 Nonstructural Flood Damage Reduction Project. These are primarily floodproofing and acquisition of individual structures. The general location of Martin County is shown in Figure 1 below.



Figure 1 – General location of Martin County, Kentucky

## b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012.
  - (2) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006.
  - (3) ER 1105-2-100, Planning Guidance Notebook, 22 April 2000.
  - (4) Martin County, Kentucky, Section 202 Nonstructural, Flood Damage Reduction Project, Project Management Plan.
  - (5) Martin County Nonstructural Project, Detailed Project Report, Appendix Q, Section 202 General Plan, Jul 1996.
- c. **Requirements.** This RP 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. The EC outlines four general levels of review: District Quality Control (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this RP. The RMO for implementation documents is typically either a Major Subordinate Command (MSC) or the Risk Management Center (RMC). The RMO for the peer review effort described in this RP is the Great Lakes and Ohio River Division (LRD).

The RMO will coordinate with the Cost Engineering DX to ensure the appropriate expertise is included on the ATR teams to assess the adequacy of cost estimates, construction schedules, and contingencies.

The Flood Risk Management Planning Center of Expertise (PCX), Ecosystem Restoration PCX, and the Cost Engineering Directory of Expertise (DX) were not involved in the development or review of the Detailed Project Report (DPR). The DPR was completed in 1996, prior to the requirements for PCX and DX involvement. Since this RP is for the design and construction activities, the Flood Risk Management PCX, and Ecosystem Restoration PCX will not review this RP.

### 3. PROJECT INFORMATION

- a. **Floodproofing- and Acquisition-Related Documents.** For the Martin County Section 202 Nonstructural Flood Risk Management Project in Martin County, Kentucky, the only remaining work pertains to floodproofing or acquisition of individual residential or commercial structures located in the floodplain within project limits. Only DQC will be performed for documents prepared for these efforts, as described in this RP.
- b. **Project Description.** The project area encompasses those portions of eastern Martin County adjacent to the Tug Fork River affected by the April 1977 flood. This also includes portions of Tug Fork tributaries in the study area that were inundated by either headwater or backwater flooding during the April 1977 flood. The downstream limit of the study area begins at the Martin and Lawrence County border (river mile 19.2) and extends upstream nearly 30 miles to the Martin and Pike County border (river mile 48.4).

The project area has been devastated by numerous floods during the past years. The April 1977 flood caused severe damages to the project area totaling approximately \$18.5 million (October 1995 Price Level) in damages to residential and nonresidential structures. The April 1977 flood ranged from a 10-year to a 300-year-plus frequency flood within the project area. Again in May 1984, the Tug Fork River flooded the project area with damages totaling approximately \$2.4 million (October 1995 Price Level).

The most cost effective plan addressing the 500 eligible residential and non-residential structures in the project area consists of a voluntary program of floodproofing (raise in place and veneer walls) and permanent evacuation of those structures not eligible for floodproofing. The plan calls for the floodproofing of 302 residential structures, two nonresidential structures, the acquisition of 134 residential and 58 nonresidential structures, and the construction of veneer walls on four structures. These measures have been effectively implemented by the U.S. Army Corps of Engineers (USACE), Huntington District (CELRH) in the Tug Fork areas of Williamson, Matewan, Upper Mingo County, Lower Mingo County, Wayne County, and McDowell County, West Virginia; and Martin, South Williamson, and Pike County, Kentucky; and Grundy, Virginia.

The project components are further described in the Detailed Project Report (DPR), which was completed in August 1996. The DPR was completed before the requirement for Independent Technical Review (ITR) was implemented. The Directorate of Civil Works approved the DPR in 1996.

The following paragraphs indicate the current status of each project feature at the time of preparation of this RP:

- (1) **Floodproofing.** A total of 140 structures have been floodproofed within the project area. Floodproofing of individual structures is on hold due to lack of funds.

(2) **Permanent floodplain evacuation.** Eighty-nine structures have been acquired and removed from the floodplain within the project area. Acquisition of individual structures is on hold due to lack of funds.

**c. Factors Affecting the Scope and Level of Review.**

The Martin County project is a nonstructural project and remaining components of the project do not include any impoundments, floodwalls, or levees. From a life safety perspective, there is minimum risk. Raising-in-place of structures is not challenging, from a design perspective. This project is a nonstructural project and the threat to human life is not significant.

**d. In-Kind Contributions.** Products and analyses provided by Non-Federal Sponsors as in-kind services are subject to DQC, ATR, and IEPR. There are no in-kind services anticipated as part of the cost share. The projected total project cost is approximately \$68 million. To date, Martin County has provided \$1.7 million in cash and has not requested credit for any lands, easements, rights-of-way, relocation, and disposals (LERRDs).

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

All implementation documents 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). CELRH shall manage DQC. Documentation of DQC activities is required and shall be in accordance with the Quality Manual of the District and LRD as managed in Qualtrax.

DQC is completed in accordance with the [LRD Regional Business Processes Manual](#) (the Region's Quality Management Plan). The [LRD Regional Business Processes Manual](#) is an ISO 9001 certified Quality Management System. DQC includes Quality Production, Internal Quality Checks and Reviews, Design Checks, and Project Delivery Team (PDT) Reviews as described in procedure [08504 LRD - QC / QA Procedures for Civil Works](#).

- a. Documentation of DQC.** In accordance with [08504 LRD - QC / QA Procedures for Civil Works](#), all drawings, computations, quantity estimates, and analyses provided to the DQC team for review will be annotated to show the initials of the designer and the checker and the date of the action.
- b. Products to Undergo DQC.** Any Detailed Design Reports (DDRs) and Plans & Specifications (P&S) would undergo DQC in accordance with [08504 LRD - QC / QA Procedures for Civil Works](#).
- c. Required DQC Expertise.** In accordance with [08504 LRD - QC / QA Procedures for Civil Works](#), anyone conducting design checks and reviews will be qualified to originate the design that they are checking. The disciplines involved in the DQC review will depend on the project feature being designed but will generally follow those presented in Table 2 of Attachment 1.

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

ATR is mandatory for all implementation documents per EC 1165-2-214 (note that DDRs and P&S produced before the implementation of EC 1165-2-209, 31 January 2010, underwent Independent Technical Review (ITR) in accordance with the quality control requirements in effect at the time). 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 U.S. Army Corps of Engineers (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.

**a. Products to Undergo ATR.**

- (1) **Floodproofing.** USACE does not prepare P&S for raising-in-place of individual structures. General guide plans are prepared and provided to participating landowners who hire their own contractors to accomplish the necessary work. Neither the general guide plans nor the homeowner-acquired plans will undergo ATR.
- (2) **Permanent floodplain evacuation.** If a structure cannot be floodproofed, then USACE may acquire the structure in the name of the Non-Federal Sponsor, vacate it, and demolish it. A simple scope of work is prepared describing how the demolition is to be performed. The demolition scopes of work will not undergo ATR.

**b. Required ATR Team Expertise.** Since ATR is not required for any of the current phases of the project, no team members are required at this time.

**c. Documentation of ATR.** Since ATR is not required for any of the current phases of the project, no documentation of ATR is required at this time.

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

IEPR may be required for 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 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 IEPRs 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. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.

- Type II IEPR. Type II IEPRs, or Safety Assurance Reviews (SARs), 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. **Decision on IEPR.** No IEPR is recommended for the remaining components of the Martin County project. Although this project will reduce flood impacts to the town, the solution does not contain the typical risk associated with traditional flood damage reduction projects and does not pose a significant threat to human life. The remaining components of the Martin County project are nonstructural in nature. There are no floodwalls, levees, impoundments, or dams. Since the project does not impound or control floodwater in any way, there are no downstream life safety impacts. The project has a very low design and construction risk. Consequently, an IEPR is not warranted.

Major risk factors considered include the following:

- (1) This project does not meet the intent of the “innovative materials or techniques” factor. It primarily includes routine raising-in-place of individual structures, which CELRH has performed numerous times as a means of flood risk management.
- (2) The project design does not require redundancy, resiliency, or robustness.
  - (i) This project is not “redundant” in nature. Each individual structure will be acquired and removed, raised in place, or replaced on-site above the flood elevation. Performing two or more of these for a structure is not an option.
  - (ii) The project does not have any operational features in which to instill “resiliency.” There are no ringwalls, flood walls, levees, or flood gates.
  - (iii) This project is not “robust” in nature. A perceived failure would occur during a flood greater than the 100-year event. However, this failure would not be due to the design or construction of the project, but due to its limiting legislative authorization.
- (3) This project does not have a unique construction sequencing or a reduced or overlapping design construction schedule. Individual structures will be floodproofed as funding is available.

Further, an incomplete project, which could result from a lack of project funding, does not contain more risk to human life or life safety than the without-project condition. Structures may be floodproofed on an individual basis as funding is received, which will cause no increase in the risk to life safety.

- b. **Products to Undergo Type I IEPR.** Not applicable. The DPR was completed in 1996 prior to the requirements of EC 1165-2-209.
- c. **Products to Undergo Type II IEPR SAR.** Not Applicable. A Type II IEPR is not recommended for the Martin County project.

## 7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents have been reviewed throughout the study process for compliance with the 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 DPR, completed in 1996, authorized a nonstructural project that would include floodproofing and permanent floodplain evacuation. The Directorate of Civil Works approved the DPR in 1996.

## **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.

The DPR, completed in 1996, authorized a nonstructural project that would include floodproofing and permanent floodplain evacuation. The DPR was not coordinated with the Cost Engineering DX. As stated above, the DPR was completed in 1996, prior to the requirement for Cost Engineering DX involvement.

The RMO will coordinate with the Cost Engineering DX to ensure the appropriate expertise is included on the ATR teams to assess the adequacy of cost estimates, construction schedules and contingencies.

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

- a. **ATR Schedule.** At this time there are no established schedules for ATR because ATR is not required for any of the products addressed in this RP.
- b. **ATR Cost.** Since ATR is not required for any of the current phases of the project, no costs have been calculated at this time.

## **10. PUBLIC PARTICIPATION**

As part of the peer review, opportunities were and will continue to be provided for the public to comment on the study and decision documents that are to be reviewed. CELRH made the draft Martin County DPR and Environmental Assessment (EA) document available to the public for comment and sponsored several public meetings and workshops prior to its approval. Several National Environmental Policy Act (NEPA) public scoping meetings were held presenting information at various stages during the feasibility study to receive input from the public. Information obtained during public meetings was used to assist in plan formulation and to complete the draft environmental documents necessary to meet both Federal and State requirements. This includes State and Federal agency reviews as well. Additional public meetings will be conducted, as necessary, throughout the project phases. Information will also be conveyed to the public through the use of press releases and media interviews as necessary and through the use of posting information to CELRH's web site. There is no formal public review for the DDR, P&S, and

construction phases. However, the cost share partner, Martin County Fiscal Court, will have opportunities to review the construction phase as part of the PDT. Public facility owners will also have opportunities for review per the relocation contracts. Upon MSC approval of this RP, the RP will be posted on the CELRH Internet for Public Review: ([http://www.lrh.usace.army.mil/approved\\_review\\_plans\\_rps](http://www.lrh.usace.army.mil/approved_review_plans_rps)).

## 11. REVIEW PLAN APPROVAL AND UPDATES

The MSC Commander is responsible for approving this RP. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the project. Like the PMP, the RP is a living document and may change as the study progresses. CELRH is responsible for keeping the RP up to date. Minor changes to the RP since the last MSC Commander approval will be documented in Attachment 3. Significant changes to the RP (such as changes to the scope and/or level of review) shall be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the RP, along with the Commanders' approval memorandum, will be posted on CELRH's webpage. The latest RP will also be provided to the RMO and MSC.

## 12. REVIEW PLAN POINTS OF CONTACT

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

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

**ATTACHMENT 1: TEAM ROSTERS**

<b>TABLE 1: Product Delivery Team</b>		
<b>Functional Area</b>	<b>Name</b>	<b>Office</b>
Project Manager		CELRH
Lead Engineer / Civil Design / Relocations		CELRH
Planning		CELRH
Real Estate		CELRH
Contracting		CELRH
Legal		CELRH
Public Affairs		CELRH
Architecture		CELRH
Structural		CELRH
Surveys		CELRH
Hydrology and Hydraulics		CELRH
Geotechnical (Soils)		CELRH
Geology		CELRH
Cost Engineering		CELRH
HTRW		CELRH
Construction		CELRH
Specifications		CELRH
Environmental		CELRH

<b>TABLE 2: District Quality Control Team</b>		
<b>Functional Area</b>	<b>Name</b>	<b>Office</b>
DQC Lead / Civil Design / Relocations		CELRH
Planning		CELRH
Real Estate		CELRH
Contracting		CELRH
Legal		CELRH
Public Affairs		CELRH
Architecture		CELRH
Structural		CELRH
Surveys		CELRH
Hydrology and Hydraulics		CELRH
Geotechnical (Soils)		CELRH
Geology		CELRH
Cost Engineering		CELRH
HTRW		CELRH
Construction		CELRH
Specifications		CELRH
Environmental		CELRH

<b>TABLE 3: Agency Technical Review Team</b>
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NAME	DISCIPLINE	OFFICE
TBD	None at this time	TBD

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW**

**COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) of the *<type of product>* for the *<Project Feature>* for the Martin County, Kentucky, Section 202 Nonstructural Project has been completed. 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 the following: 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>.

*SIGNATURE*

*Name*

ATR Team Leader

*Office Symbol/Company*

Date

*SIGNATURE*

Project Manager

CELRH-PM-PP-P

Date

*SIGNATURE*

TBD

Title TBD

CELRD-RBT

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.

*SIGNATURE*

Chief, Engineering & Construction Division

CELRH-EC

Date

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

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

**ATTACHMENT 4: COMPLETED ATR REVIEW REPORTS**