REVIEW PLAN
IMPLEMENTATION PHASE

Des Plaines River Phase I

Chicago District

MSC Approval Date: 13 January 2013

Last Revision Date: 14 December 2012

US Army Corps
of Engineers ®

REVIEW PLAN

DES PLAINES RIVER PHASE I

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the design, construction, operation, and maintenance of Des Plaines River Phase I project.

b. References

- EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- Des Plaines River Phase I Project Management Plan, June 2012
- WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
- Army Regulation 15–1, Committee Management, 27 November 1992 (Federal Advisory Committee Act Requirements)
- National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, 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.

(1) District Quality Control (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). Basic quality control tools include a Quality Control Plan (QCP) and Quality Assurance Plan (QAP) providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. It is managed in the home district. Quality checks is performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Additionally, the PDT is responsible for a complete reading of any reports and accompanying appendices prepared by or for the PDT to assure the overall coherence and integrity of the report, technical appendices, and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC) Regional Business Process/District Quality Control addresses the conduct and documentation of this fundamental level of review.

(2) Agency Technical Review (ATR). EC 1165-2-209 requires that USACE Risk Management Center (RMC) shall serve as the RMO for Dam Safety Modifications projects and Levee Safety Modification projects. For all other projects, the MSC shall serve as the RMO. ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The

ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home MSC.

(3) Independent External Peer Review (IEPR). 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. For clarity, IEPR is divided into two types, Type 1 is generally for decision documents and Type II is generally for implementation documents.

A Type II IEPR (SAR) shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where potential hazards pose a significant threat to human life. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. External panels will review the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed. The review shall be on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring that good science, sound engineering, and public health, safety, and welfare are the most important factors that determine a project's fate.

d. Review Progress. The review plan will be reviewed and updated on an annual basis, or as needed, to reflect the progress in project completion.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the project. The RMO for ATR reviews shall be the USACE Risk Management Center (RMC). The RMO for the IEPR II shall be USACE Risk Management Center (RMC).

3. GENERAL INFORMATION

a. Decision Document. The approved Des Plaines River Phase I decision document was prepared in accordance with ER 1105-2-100 and approved in June 1999. An Environmental Impact Statement (EIS) was prepared along with the decision document.

b. Project Description. The Des Plaines River project for flood damage reduction will reduce existing average annual flood damages of $25,000,000 by about 24 percent. The project has two levees (Levee 37 and Levee 50), two expansions of existing reservoirs (Buffalo Creek Reservoir Expansion and Big Bend Lake Reservoir Expansion), one lateral storage area (Van Patten Woods Lateral storage area), one dam modification, (North Mill Creek Dam Modification) and a flood warning system required for levee operation, as described below. Both levees will meet Federal Emergency Management Agency certification requirements to provide 95 percent reliability in containing the 1 percent chance flood. Environmental mitigation for 24.8 acres of wetlands habitat losses will be

provided by developing 65.00 acres of scrub-shrub and forested wetlands. The mitigation will be provided at four locations: 13.5 acres at the Buffalo Creek Reservoir site and 51.5 acres at the Van Patton Woods site.

The project was authorized by the Water Resources Development Act (WRDA) of 1999, section 101(b) (10). The authorization was subject to a final report of the Chief of Engineers, if a favorable report of the Chief is completed no later than December 31, 1999. The Chief's report was signed on 17 December 1999. Section (10) states " *DES PLAINES RIVER, ILLINOIS. - The project for flood control, Des Plaines River, Illinois, at a total cost of* [illegible] *with an estimated Federal cost of* [illegible] *and an estimated non-Federal cost of* [illegible]

The purpose of this project is to reduce flood damages along the Des Plaines River. The Des Plaines River has a long history of flooding that has caused significant economic losses. The maximum flood of record, September 1986, caused an estimated $35 million in damage to 10,000 dwellings and 263 business and industrial sites. More than 15,000 residents were evacuated from the flooded area. In this area of 33 municipalities along 67 miles of river in two counties, severe impacts to the area transportation networks were also identified and a large proportion of project benefits accrue to motorists. Average annual flood damage prevention benefits are estimated at $6,000,000. Additional detail about the project features is included below:

Mount Prospect/Prospect Heights Levee (Levee 37) consists of a concrete floodwall along the east side of Milwaukee Avenue from Palatine Road to the intersection of Des Plaines River Road and then along the east side of Des Plaines River Road to a point just north of Euclid Avenue. The levee is approximately 8500 feet long including the tie-back section along Palatine Avenue. The Illinois Department of Transportation is proposing major revisions to Milwaukee Avenue at this location which will need to be addressed in the Corps plans. The levee will have gravity drainage facilities and a 20,000-gallon-per-minute (gpm) pumping plant. ITR certification was dated 30 May 2006. This product is under construction and scheduled to be completed near the end of calendar year 2013.

Rand Park Levee (Levee 50), in the City of Des Plaines, was divided into three construction contracts. The design and construction of the levee was completed by the Local Sponsor. There are a few miscellaneous items to be completed on the product. A closure structure will be built on Golf Road, and closures structures will be built on the pipes though the 294 embankment, to complete the line of protection. These features are scheduled to be completed by the Local Sponsor in 2013.

- Contract I - Construction of a culvert extension and backflow gate on Union Pacific RR embankment.
- Contract II - Construction of a 3800 ft. clay blanket on the Des Plaines River side of Union Pacific RR and a closure structure and 250 cfs pump station on Farmer's Creek.
- Contract III - Construction of a 100-year frequency flood protection floodwall/ levee and appurtenant works along the left bank of the Des Plaines River from Union Pacific RR to Rand Road; road closure structures at Rand Road and Ballard; and an earthen levee along Rand Road to the northwest on-ramp of I-294 and constructing a backflow gate on the IDOT 96" interceptor sewer outlet at Big Bend Lake.

Buffalo Creek Reservoir Expansion in Lake County will lower the design elevation of two existing permanent pools to create one permanent pool at elevation 687 NGVD to add 476 acre-feet of

additional flood storage to elevation 700 NGVD. This product will be completed in 2018. ATR certification will be completed during the design phase.

Big Bend Lake Expansion in Cook County will excavate parts of the existing lake to help create a berm around the lake with a crest elevation of 633 NGVD. This berm will also be used to separate the 96" IDOT culvert from the lake itself by creating a riffle structure to outlet the culver to the river. The lake will be maintained at 619 NGVD by a small pump system and a large pump station will be used to fill the lake at 2' below the forecasted flood peak. The expansion will provide an additional net 600 acre-feet of storage. This product is at 50% design but it is on-hold waiting for the land owner's approval for construction as of 2012. ATR certification will be completed during the design phase.

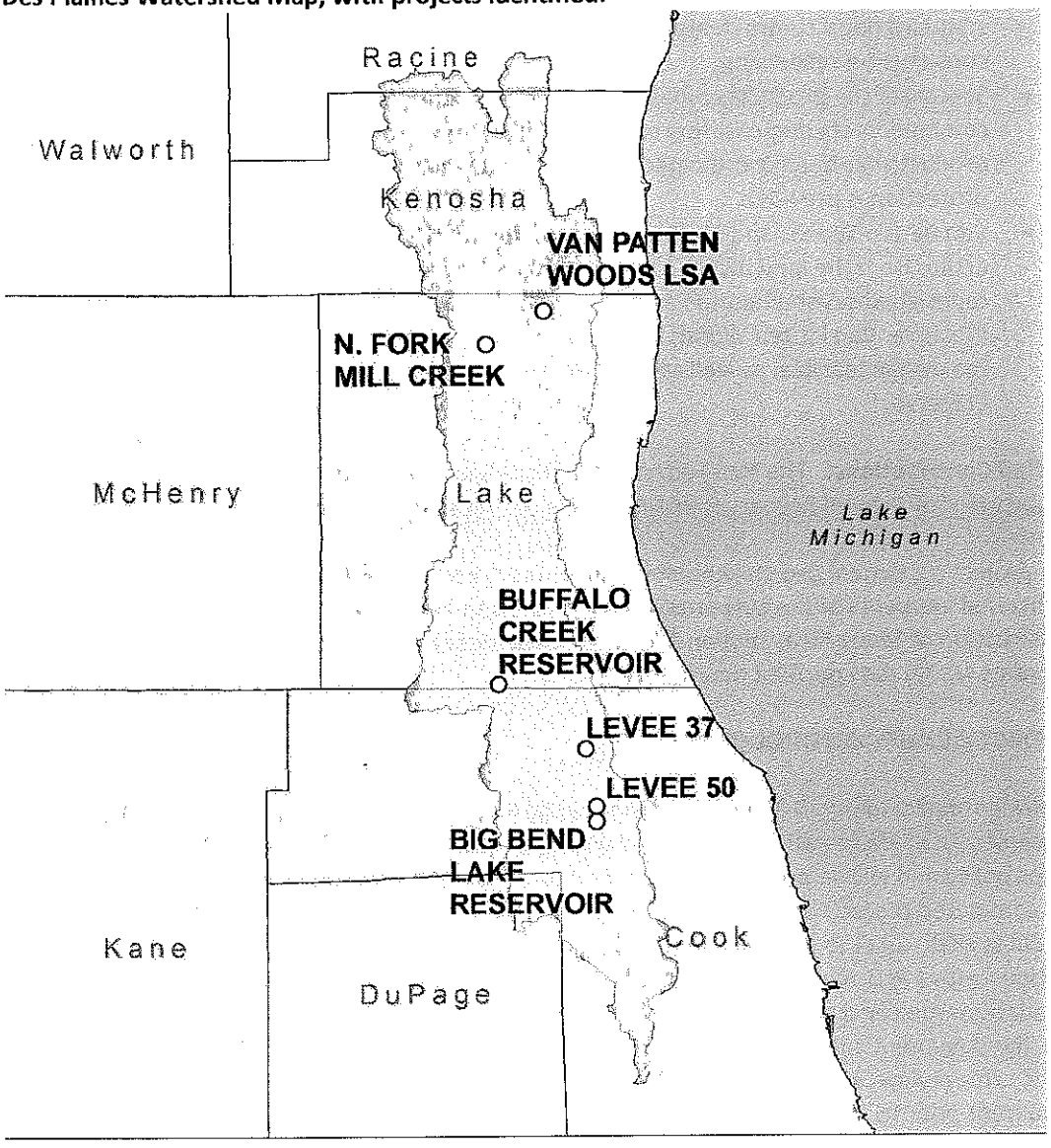
Van Patten Woods Lateral Storage area will have two storage areas created by earthen berms, one east and one west of the river, with crest elevation of 674.7 NGVD for a total of 412 acre-feet of storage. An inlet weir and outlet pipes with flap gates will be provided. This project is undergoing redesign as of 2012, as the original design turned out not to be viable. Providing that a new design for a reservoir with pump station is approved by the land owners, the project will continue through design. ATR certification will be completed during the design phase.

North Fork Mill Creek Dam Modification will raise the existing 550-foot dam 3 feet or replace the dam to a height of 738.9 feet NGVD. The modification will increase the dam length to 990 feet. This will increase the existing storage volume of 500 acre-feet to 1,040 acre-feet (an additional 540 acre-feet). ATR certification will be completed during the design phase. This product will be designed in 2015.

Below the various products are summarized:

Feature	Type	Location/City	Expanded Storage Volume (acre-feet)
Van Patten Wood	Lateral Storage Area	Wadsworth/Russell	412
North Fork Mill Creek Dam	Dam Modification	Lake County	500
Buffalo Creek Reservoir	Reservoir Expansion	Buffalo Grove Wheeling	476
Big Bend Lake	Reservoir Expansion	Des Plaines	600
Levee 37	Levee/Floodwall	Prospect Heights/Mount Prospect/Wheeling Twp.	N/A
Levee 50	Levee	Des Plaines	N/A
Total Storage Volume			1,975

Des Plaines Watershed Map, with projects identified:



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

- The project does involve a significant threat to human life/safety assurance, as the products include design and construction of levees and floodwalls.
- The project is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project.
- The information in the anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that

are likely to change prevailing practices. Similar flood control projects have been built prior to this date.

- The project design is not anticipated to require redundancy, resiliency, unique construction sequencing, or a reduced or overlapping design construction schedule; products include standard flood control features, with no particular challenges that will majorly affect the construction scheduling.
- Several of the products contain unique challenges however. Levee 37 is depending on completion of compensatory storage. The schedule for completion between the two products has been coordinated in order to minimize the amount of time before flood protection is provided.
- Van Patten Woods and Big Bend Lake products both have encountered resistance on real estate from the land owners, the local forest preserve districts. Big Bend Lake has been redesigned several times in an effort to satisfy the needs of the Cook County Forest Preserve. Van Patten Woods is currently undergoing design modifications in order to make the design feasible, as well as to satisfy the requirements of the Lake County Forest Preserve.

d. **In-Kind Contributions.** The Non Federal Cost Share Sponsor for this project is the Illinois Department of Natural Resources (IDNR), Office of Water Resources.

The project customers and stakeholders expect the Corps to design and construct five of the six authorized elements of the authorized project. The non-Federal sponsor is completing design and construction of Levee 50 as section 104 credits. The stakeholders expect the Corps to accomplish all activities within the specified timeframes.

4. DISTRICT QUALITY CONTROL (DQC)

All design shall undergo DQC in accordance to the Regional Business and District Quality Control processes. DQC efforts will include the necessary expertise to address compliance with published Corps policy and will be performed on all work products of the project. DQC was performed on all of the completed projects and will be performed on all the remaining work products of the project. All products shall undergo appropriate Chief's review. Chief's review will involve the Chief's of all sections with a PDT member reviewing the completed document and submitting edits. All design calculations are checked and signed-off by an independent peer reviewer. Edits will be incorporated into the document and rerouted for final approval requiring sign-off from the reviewers and Branch Chief. This review, in conjunction with the PDT review is completed to ensure consistency of the document prior to ATR.

a. **Documentation of DQC.** Comments and responses from peer and Chief's reviews for the studies and design products shall be documented and maintained in shared electronic folders. The design product PDT member checklist will be completed and signed by the Section Chiefs. All calculations will be checked and initialed by the reviewer.

b. **Products to Undergo DQC:** All remaining design products listed in Table 1 will undergo DQC

(1) Van Patten Woods,
(2) Big Bend Lake expansion,
(3) Buffalo Creek Reservoir and

(4) North Form Mill Creek Dam Modification

5. AGENCY TECHNICAL REVIEW (ATR)

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. 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.** The ATR team will review the following documents:

(1) Van Patten Woods
(2) Big Bend Lake expansion
(3) Buffalo Creek Reservoir
(4) North Fork Mill Creek Dam modification

b. **Required ATR Team Expertise.** ATR teams will be comprised of senior USACE personnel, (Regional Technical Specialists (RTS), Subject Matter Expect (SME), etc.), with the appropriate technical expertise, and may be supplemented by outside experts as appropriate. The disciplines represented on the ATR team will reflect the significant disciplines involved in the design. The ATR disciplines will be assembled during the development of the Quality Control Plan for each product. A list of the ATR disciplines is provided and expertise required is provided below:

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional preferably with experience in flood damage reduction projects 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 Hydraulics and Hydrology, Geotechnical Engineer, Structural Engineer, etc). The ATR Lead MUST be from outside the home MSC.
Hydraulic Engineering	Hydraulic engineering reviewer shall be a senior engineer, an expert in the field of hydraulics, and have a thorough understanding of the application of levees and floodwalls, dams, non-structural solutions involving flood warning systems and flood proofing, etc and computer modeling techniques that will be used such as HEC-RAS, FLO-2D, UNET, TABS, etc. The hydraulic engineer shall be a licensed Professional Engineer.
Geotechnical Engineering	The Geotechnical Engineer shall be a senior engineer, an expert in the field of engineering, and have knowledge of advance engineering concepts, principles and practices of geotechnical engineering including design of levees, floodwalls, dams, and

	reservoirs. The reviewer shall have thorough understanding of soil mechanics, subsurface investigation, groundwater hydrology and seepage, slope stability analyses, earthwork construction and other geotechnical applications. The geotechnical engineer shall be a licensed Professional Engineer.
Civil Engineering	The civil engineer shall be a senior engineer, an expert in the field, and have a thorough understanding of the application of levees, floodwalls, and reservoirs. The reviewer shall have experiences in the design and layout of floodwalls and levees structures. The civil engineer shall demonstrate engineering knowledge regarding hydraulic structures, earthwork, utility relocation, erosion control and general site development features. The civil engineer shall be a licensed Professional Engineer.
Cost Engineering	The cost engineer shall be a senior engineer, an expert in the field, and have a thorough understanding of the development of a cost estimate for implementation documents. The cost engineer shall be familiar with current cost estimating software. A licensed professional engineer is preferred.
Structural Engineering	The structural engineer shall be a senior engineer, an expert in the field of structural engineering, and have thorough knowledge of stability analyses and structural design of floodwalls, dams, and retaining walls. The structural engineer shall be familiar with current design software. The structural engineer shall be a licensed Professional Engineer and/or Structural Engineer.
Mechanical Engineering	The Mechanical engineering reviewer shall be a senior engineering and have experience with the design of mechanical structures for pump stations. A licensed professional engineer is preferred.
Real Estate	Team member must be approved by the LRD to perform ATR for FRM projects and have knowledge of Real Estate acquisition process.

c. **Documentation of ATR.** DrChecks 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 been 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 may seek clarification in order to then assess whether further specific concerns may exist.

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 discussion, including any vertical team coordination (the vertical team includes the district, RMC, 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 will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations;
- 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 sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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 1165-2-209, 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 project or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For projects 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 1165-2-209.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (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. **Decision on Type I IEPR.** Type I IEPR will not be performed for the project, as the project decision document was approved in 1999, prior to the IEPR requirements of WRDA 2007. Future decision documents may be subject to Type I IEPR, which will be decided when that point is reached.

b. **Products to Undergo Type I IEPR.** Not Applicable

c. **Documentation of Type I IEPR.** Not Applicable

d. **Decision on Type II IEPR.** In accordance with EC 1165-2-209, a Type II IEPR (SAR) will be conducted on design and construction activities for flood risk management projects. The Des Plaines I project provides flood protection for highly urbanized communities in the State of Illinois and failure of the system poses a significant threat to human life. The IEPR II review is critical to ensure that safety risks and concerns are addressed and levee safety standard is emphasized.

e. **Products to Undergo Type II IEPR.** Type II IEPR will be performed on the remaining design products of the project including:

(1) Van Patten Woods
(2) Big Bend Lake expansion
(3) Buffalo Creek Reservoir
(4) North Fork Mill Creek Dam modification
(5) Operations and Maintenance Manuals of Levee 37 and Levee 50

f. **Required Type II IEPR Panel Expertise.** SAR Type II IEPR Review Team will be established, in consultation with the RMC, and will comprise 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. The IEPR will be performed by an AE firm, using a USACE Indefinite Delivery Indefinite Quantity (IDIQ) Contract. The AE firm will provide the 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 team members shall have working knowledge of applicable Corps of Engineers design criteria as well as industry design criteria. 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. Expert reviewers shall have a

minimum of 7 - 10 years experience and responsible charge of engineering work in the following disciplines (at a minimum):

(1) Geotechnical Engineer will be a recognized expert in the field of geotechnical engineering analysis, design and construction of levees, floodwall, and dams with extensive experience in subsurface investigations, soil mechanics, seepage and slope stability evaluations, erosion protection design, and construction and earthwork construction.

(2) Hydraulic Engineer with extensive experience in the analysis and design of levees. The Hydraulic Engineer must have performed work in hydrologic analysis and design of hydraulic structures.

(3) Structural Engineer with extensive experience in the field of structural engineering. The Structural Engineer should be experienced in the stability analysis and structural design of floodwall, retaining walls, and dams.

In addition, at least one of the expert reviewers shall have recent and relevant experience on multi-million dollar projects verifying the constructability of the proposed designs.

g. **Documentation of Type II IEPR.** Dr Checks review software will be used to document IEPR comments and aid in the preparation of the Review Report. Comments 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 Paragraph 5c, *Documentation of ATR*. The IEPR team will be responsible for compiling and entering comments into DrChecks. The IEPR team will prepare a Review Report for each review that will accompany the publication of the final report for the project 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 prepared by the RMO
- 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.

7. REVIEW SCHEDULES AND COSTS

a. **DQC Schedule and Cost.** The District Quality Control reviews will cost approximately each, with a total estimate of to DQC will occur seamless during throughout the EDR and the P&S. Quality checks and reviews occur during the development process and are carried out as a routine management practice. The schedule of the PDT review of the plans and specifications for each product will be determined during the development of the product Quality Control Plans.

b. **ATR Schedule and Cost.** The estimated cost for ATR is approximately to each, with a total estimate of to ATR will occur during the 100% review of P&S. The ATR team is invited to take part in weekly team meetings. An approximate schedule for the products ATR reviews are shown below and will be further defined during the development of the product's

Quality Control Plans. Comment resolution meetings will be scheduled with the ATR team, if necessary.

ATR Schedule	
Van Patten Woods	TBD
Big Bend Lake expansion	TBD
Buffalo Creek Reservoir	2018
North Fork Mill Creek Dam modification	2015

c. **Type II IEPR Schedule and Cost.** EC 1165-2-209 estimates that the cost of the Type II IEPR will range between .10 to 1.50 percent of the total project cost. Funding for IEPR will be requested as a part of the normal budget development process. The Type II IEPR reviews will cost approximately to The IEPR for the products listed have not been determined at this time. The review timeline will be scheduled with the RMO upon review and approval of this review plan. Comment resolution meetings will be scheduled with the IEPR team, if necessary.

Type II IEPR Schedule	
Van Patten Woods	TBD
Big Bend Lake expansion	TBD
Buffalo Creek Reservoir	TBD
North Fork Mill Creek Dam modification	TBD
Operations and Maintenance Manuals of Levee 37 and Levee 50	TBD

8. PUBLIC PARTICIPATION

Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. Since initiation of the Des Plaines River Phase I Project, numerous public meetings have been conducted. Close coordination with the Illinois Department of Natural Resources, Cook County Forest Preserve, Lake County Forest Preserve, and local municipalities regarding each phase of the project has occurred over the last decade. As a result, some municipalities have taken a more active role in the operation and maintenance of the portion of the project within their boundaries. Additional public meetings will be conducted, as necessary, through the design and construction phases for the Van Patten Woods and Big Bend Lake expansion products. Information will also be conveyed to the public through the use of press releases and media interviews as necessary and through the Chicago District's web site. There is no formal public review for the design documents of the Van Patten Woods and Big Bend Lake expansion products. However, the Illinois Department of Natural Resources, Cook County Forest Preserve, Lake County Forest preserve and local municipalities will have opportunities to review the plans and specifications of the design products during the design phases.

9. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River Division Commander is responsible for approving the review plan. The commander's approval should reflect vertical team input (involving district, MSC, RMC, and HQUSACE members) as to the appropriate scope and level of review for the project. Like the PMP, the review plan is a living document and may change as the design progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval will be documented in Attachment 3. Significant changes to the Review Plan (such as changes to the 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 Commanders' 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.

10. REVIEW PLAN POINTS OF CONTACT

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

ATTACHMENT 1: TEAM ROSTERS.

District Quality Control Review Team

Role	Name	Telephone
PM - Point of Contact	[redacted]	[redacted]
Civil Engineer (Lead)		
Structural Engineer		
Mechanical Engineer		
Electrical Engineer		
Geotechnical Engineer		
Environmental Engineer		
Hydraulic Engineer		
Real Estate		
Cultural Resources	[redacted]	[redacted]
Environmental Resources		
Construction	[redacted]	[redacted]
Cost Estimating		
Specifications		

Agency Technical Review Team

Role	Name	District	Telephone
ATR Leader/Civil Engineer	[redacted]	SAJ	[redacted]
Cost Engineer	[redacted]	NWW	[redacted]
Geotechnical Engineer		LRH	
Structural Engineer		LRB	
Mechanical Engineer		LRL	
Hydrologic Engineer		LRP	
Real Estate		LRP	

Independent External Peer Review Team

Role	Name	Telephone
Structural Engineer	TBD	
Geotechnical Engineer	TBD	
Hydraulic Engineer	TBD	

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW

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 1165-2-209. 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 _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager (home district)
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager[1]
Company, location

SIGNATURE _____ Date _____
Name
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.*

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

SIGNATURE _____ Date _____
Name
Chief, Design Branch (home district)
Office Symbol

SIGNATURE _____ Date _____
Name
Chief, Planning Branch (home district)
Office Symbol

[1] Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	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
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act

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-PD-G

13 Jan 2013

MEMORANDUM FOR Commander, U.S. Army Engineer District, Chicago, Attention, Susanne Davis (CELRC-PM-PL), Chicago District, Corps of Engineers, 111 N. Canal Suite 600, Chicago, IL, 60606-7206

SUBJECT: Review Plan for Des Plaines River Phase I

1. The attached Review Plan (RP) for Des Plaines River Phase I was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-209 "Civil Works Review" dated 31 Jan 2010.

2. The project is located in Cook and Lake Counties, Illinois.

3. The purpose of this project is to reduce flood damages along the Des Plaines River. The Des Plaines River has a long history of flooding that has caused significant economic losses. The maximum flood of record, September 1986, caused an estimated $35 million in damage to 10,000 dwellings and 263 business and industrial sites. More than 15,000 residents were evacuated from the flooded area. In this area of 33 municipalities along 67 miles of river in two counties, severe impacts to the area transportation networks were also identified and a large proportion of project benefits accrue to motorists. Average annual flood damage prevention benefits are estimated at $6,000,000.

4. The project has two levees (Levee 37 and Levee 50), two expansions of existing reservoirs (Buffalo Creek Reservoir Expansion and Big Bend Lake Reservoir Expansion), one lateral storage area (Van Patten Woods Lateral storage area), one dam modification, (North Mill Creek Dam Modification) and a flood warning system required for levee operation, as described below. Both levees will meet Federal Emergency Management Agency certification requirements to provide 95 percent reliability in containing the 1 percent chance flood. Environmental mitigation for 24.8 acres of wetlands habitat losses will be provided by developing 65.00 acres of scrub-shrub and forested wetlands. The mitigation will be provided at four locations: 13.5 acres at the Buffalo Creek Reservoir site and 51.5 acres at the Van Patton Woods site.

5. 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 1165-2-209.

6. I concur with the recommendations of the RMO and approve the enclosed RP for the Des Plaines River Phase I project.

7. 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.

8. If you have any questions please contact

Margaret W. Burcham
MARGARET W. BURCHAM
Brigadier General, USA
Commanding

Encl
1. Review Plan

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-PD-G

16 May 13

MEMORANDUM FOR Commander, U.S. Army Engineer District, Chicago (Susanne Davis/CELRC-PM-PL), 111 N. Canal, Suite 600, Chicago, IL, 60606-7206

SUBJECT: Decision Document Review Plan for Des Plaines River Phase II

1. The attached Review Plan (RP) for Des Plaines River Phase II was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-214 "Civil Works Review" dated 15 Dec 2012.

2. The study area of the upper Des Plaines Feasibility Phase II Study includes the entire drainage area upstream of Salt Creek and is approximately 485 square miles in area, 87 miles from north to south and 10 miles wide from east to west. Tributaries within the study area include about 331 miles of perennial and intermittent streams.

3. The Upper Des Plaines River Feasibility Phase II Study is a continuation of the Upper Des Plaines River Feasibility Phase I Study that was approved November 1999. The Feasibility Cost Sharing Agreement was signed in 2002. The Phase I study focused primarily on flooding problems along the main stem of the upper Des Plaines River (upstream of its confluence with Salt Creek), and recommended implementation of six projects to reduce main stem flooding. Study recommendations were authorized in the Water Resources Development Act of 1999 (P.L. 106-53). The Phase I study was preceded by a Reconnaissance study that was completed in 1989.

4. The Phase II study has two primary purposes: flood risk management (mainstem and tributary damages) and environmental restoration of degraded ecosystems within the basin. Secondary purposes include water quality, recreation, and related purposes as noted in the authority. The study will consider sites located within tributary watersheds and along the main stem for both Flood Risk Management (FRM) and Ecosystem Restoration (ER) potential. The effects of FDR sites located within tributary watersheds on mainstem flooding will also be evaluated.

5. The Phase II study is taking a systems approach to planning by building upon the Phase I analyses and integrating analyses aimed at multi-purpose solutions to problems across the entire watershed.

6. 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.

7. I concur with the recommendations of the RMO and approve the enclosed RP for the Des Plaines River Phase II 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 please contact [redacted]
or [redacted]

Margaret W. Burcham

MARGARET W. BURCHAM
Brigadier General, USA
Commanding

2 Encls
1. Review Plan
2. FRM-PCX memo, 19 Apr 2013