

DECISION DOCUMENT REVIEW PLAN

**City of Joliet, Illinois
Continuing Authorities Program Section 205
Small Flood Risk Management Project**

Chicago District

LRD Commander Approval Date: 14 January 2021

Revision Date: N/A



**US Army Corps
of Engineers®**

1. PURPOSE, AUTHORITY, STUDY DESCRIPTION, AND PRODUCTS

- a. Purpose. This review plan defines levels and scopes of review required for the feasibility phase products.
- b. Authority. Section 205 of The Flood Control Act of 1948, as amended.
- c. Review Management Organization (RMO). The RMO is responsible for managing the overall peer review effort described in this review plan. The RMO for CAP Section 205 studies is LRC. The LRC Commander is responsible for approving the Review Plan. LRD has delegated to the Chicago District all RMO responsibilities identified in EC1165-2-217. (Memorandum from CELRD-PDS; Subject: Delegation of Decision-Making and Approval Authority for Specified Elements of the Continuing Authorities Program (CAP) to the Chicago District; dated 23 November 2020).
- d. Study Description. This study was initiated to investigate measures that can address flood risks in the City of Joliet, Illinois from the Des Plaines River. See Attachment 2 for map of study area. The primary flood risk area is located on the east side of the Des Plaines River, north (upstream) of the Brandon Road Lock and Dam. The City of Joliet is bisected by the Des Plaines River. The west side of Joliet is on relatively high ground. The east side is low-lying. In some areas, downtown Joliet is more than 15 feet below the 0.01 annual chance exceedance (ACE) flood elevation of the Des Plaines River. The area historically has been protected from flooding on the left descending bank of the river (east side) by a combination of the channel wall that is part of the Brandon Road Lock and Dam system, non-engineered embankments and high ground.

In February 2019, FEMA issued revised floodplain maps for Will County, including the City of Joliet. During the course of the floodplain map revision analysis, FEMA and the Illinois State Water Survey (ISWS) determined that the non-engineered embankment north of Columbia Street did not meet the FEMA standards for levees and could provide an overland flow path from the Des Plaines River into Joliet. Floodwaters would flow south through the urban area of Joliet, eventually discharging into Hickory Creek which is maintained at a lower elevation by the Brandon Road Lock and Dam.

In November 2019, the embankment between Columbia Street and the railroad was inspected by USACE which noted several deficiencies that increase risk of failure including utility poles (including one significantly leaning), depressions and thick woody vegetation, especially on the riverside. The embankment soil is silty sand and gravel, which carries a high risk of seepage that could lead to failure and/or erosion breach in the event of overtopping.

Based on the investigations conducted to support the Federal Interest Determination (FID) Report approved by LRD on June 18, 2020, alternatives to

be considered during the feasibility phase to manage flood risks include the construction of a levee/floodwall system, as well as non-structural measures. Total First Costs were estimated in the FID to be \$7.2M, and average annual benefits were estimated to be \$59K with a BCR of 1.17. The non-Federal sponsor for this study is the City of Joliet.

Alternative plans will use established and proven measures for addressing flood risks. Therefore, it is not expected that there will be any significant technical, institutional or social challenges associated with the design of the recommended plan. Through preliminary investigations, there do not appear to be threatened and endangered species or high-quality habitat in the area. The I&M Canal and Joliet Iron Works are known cultural resources within the study area, and alternatives will be developed to minimize impacts. Major study risks include HTRW and real estate concerns associated with railroad tiebacks. Based on the screening level HTRW investigation, there are potential soil contamination concerns that will need to be further investigated during the feasibility phase. Additionally, a structural plan would require coordination with Canadian National Railroad to obtain appropriate real estate interest for an FRM project. The sponsor has been made aware of these two issues, and they began railroad coordination in October 2020.

- e. Feasibility Study Products. The feasibility study products/documents to be prepared and reviewed include products listed in Table 1.

Table 1 Feasibility Study Products

Product/Document	Type of Review				
	Prepared By	DQC/QA	ATR	IEPR I	Policy/Legal
HEC-FDA (Existing/Future Conditions) and HEC-LifeSim	In-house Resources	X	X		
HEC-RAS and HEC-HMS (Existing/Future Conditions)	In-house Resources	X	X		
HEC-RAS Downtown Joliet 2D Modeling (QA)	NFS WIK	X	X		
Design Drawings (QA)	NFS WIK	X	X		
MII Cost Estimate	In-house Resources	X	X		
Semi-Qualitative Risk Assessment (SQRA)	In-house Resources	X	X		
Real Estate Map and Gross Appraisal	In-house Resources	X	X		
Integrated Detailed Project Report (DPR) and Environmental Assessment	In-house Resources	X	X		X
Economic / Risk Assessment Appendix	In-house Resources	X	X		X

Product/Document	Type of Review				
	Prepared By	DQC/QA	ATR	IEPR I	Policy/ Legal
Real Estate Appendix	In-house Resources	X	X		X
Civil Appendix	In-house Resources	X	X		X
Cost Appendix	In-house Resources	X	X		X
Geotechnical Appendix	In-house Resources	X	X		X
Hydrology and Hydraulic (H&H) Engineering / Climate Preparedness and Resiliency (CPR) Appendix	In-house Resources	X	X		X
HTRW Assessment – Phase 1	In-house Resources	X	X		X
HTRW Assessment – Phase 2	A-E Contract	X	X		X
Environmental Coordination Appendix	In-house Resources	X	X		X

2. REVIEW REQUIREMENTS

a. Types of Review. The feasibility phase activities and documents are required to be reviewed in accordance with ER 1110-1-12 and EC 1165-2-217. This study will undergo the reviews identified and described below.

(1) District Quality Control (DQC): DQC procedures will be performed and fully documented for all study products, including supporting documents.

- a. The District will perform and manage DQC procedures in accordance with the District DQC process.
- b. DQC will be documented with a summary report / certification.
- c. Supervisors within each area of responsibility will assign appropriate, qualified staff to perform QC on their respective products. Personnel performing QC shall have the necessary expertise to address compliance with Corps policy.
- d. The disciplines required for DQC for this study are listed in Table 2.
- e. Quality Assurance (QA) Review of the NFS WIK modeling and design drawings will be completed using the District’s DQC process.

Table 2 Required DQC Expertise

DQC Team Technical Disciplines and Expertise		
Technical Discipline	Peer DQC Reviewer	Chief Level DQC Reviewer
Plan Formulation	Each peer-level DQC reviewer will have no production role in the study and will have the necessary expertise to thoroughly review the study products identified in Table 1. The DQC Team is listed in Attachment 1.	Planning Branch Chief
Economist/Risk Assessment		Design Branch Chief
Biologist/Cultural Resources		
Civil Engineer		
Cost Engineer		
Geotechnical Engineer		
H&H Engineer/CPR		
Environmental Engineer		
Real Estate (RE)		

- (2) Agency Technical Review (ATR): ATR will be scaled to a level commensurate with the risk and complexity of the products to be reviewed. 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 mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.).
- a. 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.
 - b. ATR teams will be comprised of senior USACE personnel.
 - c. ATR reviewers must be certified to perform ATR by USACE. Multiple disciplines may be covered by a single reviewer based on appropriate experience, expertise and certification.
 - d. The team lead will be from outside LRD.
 - e. ATR will be documented using DrChecks, and an ATR Summary Report and Certification will be completed.
 - f. Due to categorization of study risks in Section 1d, the disciplines required for ATR for this study are listed in Table 3. The ATR Lead has been identified, and the remaining team members will be assembled during the feasibility phase.

Table 3 ATR Technical Disciplines and Expertise Required

Disciplines	Expertise Required	Justification / Rationale
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing CAP Section 205 decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.	The ATR lead is necessary to coordinate all ATR activities. The ATR lead may also serve as a reviewer for a specific discipline.
Plan Formulation	The Plan Formulation Reviewer should be a senior planner with experience in <ul style="list-style-type: none"> Flood risk management (FRM) plan formulation Evaluation of structural and non-structural measures CAP Section 205 projects 	A Plan Formulation Reviewer is necessary to review the plan formulation of structural and non-structural FRM measures and alternatives.
Environmental/Cultural Resources (NEPA)	The NEPA Reviewer should be experienced in analysis of impacts as required by the National Environmental Policy Act (NEPA) and other applicable laws, regulations, and executive orders.	A NEPA Reviewer is necessary to review NEPA compliance.
Economics	The Economics Reviewer should be experienced with <ul style="list-style-type: none"> HEC-FDA RECONS Risk assessment Evaluation of structural and non-structural measures 	An Economics Reviewer is necessary to review the HEC-FDA and RECONS modeling and life safety risk assessment.
Hydrology and Hydraulic (H&H) Engineering	The H&H Engineering Reviewer should be an expert in the field of hydraulics, and have a thorough understanding of <ul style="list-style-type: none"> Open channel 1D and 2D unsteady flow models Levees and floodwalls Non-structural FRM measures 	An H&H Engineering Reviewer is necessary to review the FWOP & FWP HEC-RAS and HEC-HMS modeling. The H&H and CPR review may be completed by a single reviewer.
Climate Preparedness and Resiliency (CPR)	The CPR Reviewer should be certified by the CPR CoP.	As required by Engineering and Construction Bulletins (ECB) 2018-14, at least one member of the ATR Team will be CPR certified by the CPR CoP. If qualified, the H&H and CPR review may be completed by a single reviewer.
Flood Risk Analysis	The Flood Risk Analysis Reviewer should be a subject matter expert in multi-discipline flood risk analysis.	As required by Engineering Circular 130-2-217, a Flood Risk Analysis Reviewer is necessary to ensure consistent and appropriate identification, analysis and written communication of risk and uncertainty. If qualified, this reviewer may also serve as a reviewer for another discipline such as Economics or H&H.
Geotechnical Engineering	The Geotechnical Engineering Reviewer should be an LSOG member experienced with the design of FRM projects, particularly <ul style="list-style-type: none"> Levees and floodwalls Risk assessment 	A Geotechnical Engineering Reviewer is necessary to review the feasibility-level design of alternatives and life safety risk assessment. ECB 2019-15 requires that an LSOG member will participate in the ATR team for studies involving existing levees.
Civil Engineering	The Civil Engineering Reviewer should be experienced with the design of FRM projects, particularly levees and floodwalls	A Civil Engineering Reviewer is necessary to review the feasibility-level design of alternatives.
Cost Engineering	The Cost Engineering Reviewer will have experience preparing cost estimates for <ul style="list-style-type: none"> Levees and floodwalls Nonstructural FRM measures 	A Cost Engineering Reviewer is required by the Cost Mandatory Center of Expertise (MCX). A Cost MCX staff member or Pre-Certified Professional will be assigned by the Walla Walla MCX. The Cost ATR will also complete the Cost Certification as part of the P&LCR.
Real Estate	The Real Estate Reviewer will have experience with preparing real estate plans for structural and non-structural FRM projects. The Real Estate Reviewer will be approved by the Real Estate CoP as a FRM reviewer.	A Real Estate Reviewer is necessary to review the real estate plan.

- (3) Type I Independent External Peer Review (IEPR): A Type I IEPR is not required based on the mandatory triggers outlined in the Memorandum for Major Subordinate Command (MSC) and District Commanders dated April 05, 2019; the memorandum provides interim guidance on streamlining IEPR for improved civil works product delivery. Paragraph 4 states a project study may be excluded Type I IEPR if the project does not meet any of the three mandatory IEPR triggers. This feasibility study does not meet any of the mandatory IEPR triggers for the following reasons:
- a. The estimated total cost of the project, including mitigation costs, is not greater than \$200 million.
 - b. The Governor of Illinois has not requested a peer review by independent experts.
 - c. The study is not controversial due to significant public dispute over size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

When none of the three mandatory triggers for IEPR are met, MSC Commanders have the discretion to conduct IEPR on a risk-informed assessment of the expected contribution of IEPR to the project. An IEPR would not provide additional benefit to the study for the following reasons:

- a. This study does not include the development or use of any novel methods.
 - b. This project does not pose likely threats to health and public safety.
 - c. There is no anticipated interagency interest.
 - d. Chicago District has not received a request from the head of any Federal or State agency for an IEPR.
 - e. The proposed project is not anticipated to have unique construction sequencing or a reduced or overlapping design construction schedule.
- (4) Type II Independent External Peer Review (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. Because there are preliminary life safety concerns that will be further evaluated during the feasibility study, as confirmed by the LRC Chief of Engineering and Construction in the District Chief of Engineering Assessment of Life-Safety Risk, a Type II IEPR may be considered once the project reaches detailed design and construction.
- (5) Policy and Legal Review: All decision documents will be reviewed for compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100.
- (6) Public Review:
- a. A public involvement program will be included to satisfy NEPA requirements and solicit public and government agency input.

- b. The District shall contact agencies with regulatory review for coordination as required by applicable laws and procedures.
- c. The District will review comments resulting from public and agency review and will provide the ATR team copies of public and agency comments and responses.

3. MODEL CERTIFICATION OR APPROVAL. The models listed in Table 4 and Table 5 may be used to develop the decision documents.

Table 4 Planning Models

Model Name and Version	Model Description and How It Will Be Used	Certification and Approval Status
HEC-FDA 1.4.2 (Flood Damage Analysis)	The Hydrologic Engineering Center’s HEC-FDA program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans.	Certified Dec. 2, 2014
HEC-LifeSim 1.0.1	HEC’s LifeSim dynamic simulation modeling system estimates potential life loss from floods. The program simulates population redistribution during an evacuation and will be used to assess life safety risk associated with the Recommended Plan.	Certified Sept. 27, 2019
RECONS 2.0 (Regional Economic System)	Institute for Water Resources’ RECONS is a regional economic impact modeling tool that provides accurate and defensible estimates of regional economic impacts associated with Federal expenditures. This tool will be used to quantify regional economic development (RED) benefits associated with the plan alternatives.	Certified Sept. 24, 2019
FQI V11 (Floristic Quality Index)	This assessment tool was designed to be used as an all-inclusive method for assessing the quality of plant communities. This model will be used to assess the ecological value of the existing site condition, determine whether there is a need for mitigation and evaluate proposed mitigation measures based on the function of the plant community.	Certified Nov. 17, 2017

Table 5 Engineering Models

Model Name and Version	Model Description and How It Will Be Used	Certification and Approval Status
HEC-RAS 5.0.7 (River Analysis System)	The software performs 1-D steady and unsteady flow river hydraulics calculations and has capability for 2-D unsteady flow calculations. It will be used for steady flow analysis to evaluate FWP and FWOP conditions.	HH&C CoP Preferred Model
HEC-HMS 4.6 (Hydrologic Modeling System)	The software simulates the complete hydrologic processes of dendritic watershed systems. It will be used to generate hydrographs for the watershed to be used as inputs to the HEC-RAS hydraulic model.	HH&C CoP Preferred Model
MII	MII is the second generation of the Micro-Computer Aided Cost Estimating System (MCACES). It is a detailed cost estimating software application developed in conjunction with Project Time & Cost LLC. MII provides an integrated cost estimating system that meets USACE requirements for preparing cost estimates.	Enterprise Model

4. REVIEW SCHEDULE AND BUDGET. The schedule and budgets for formal reviews are shown in Table 6.

Table 6 Product Review Schedule and Review Budget

Product(s) to undergo Review	Review Level	Start Date	End Date	Budget (\$)
Geotechnical Engineering	DQC	10/9/2020	12/18/2020	\$2K
HEC-RAS and HEC-HMS	DQC	11/9/2020	12/18/2020	\$2K
I&M Canal HEC-RAS Model	District Quality Assurance	11/9/2020	12/18/2020	\$0.5K
Real Estate Map	DQC	2/1/2021	2/5/2021	\$1K
Gross Appraisal	DQC (including LRD Review)	2/8/21	4/2/2021	\$1K
Design Drawings	DQC	1/7/2021	2/5/2021	\$1K
MII Cost Estimate	DQC	2/8/2021	3/9/2021	\$1K
HEC-FDA and HEC-Life Sim	DQC	3/8/2021	4/16/2021	\$1K
Semi-Qualitative Risk Assessments (SQRA)	DQC	5/4/2021	5/9/2021	\$2K
HTRW Assessment – Phase I	DQC	10/16/2020	12/16/2020	\$2K
HTRW Assessment – Phase II	District Quality Assurance	12/16/2021	4/26/2021	\$5K
Draft Detailed Project Report and Integrated Environmental Assessment (Integrated DPR/EA), including Technical Appendices	DQC & LRC Policy and Legal Sufficiency Review	6/17/2021	7/29/2021	\$11K
Draft DPR & EA	ATR	8/13/2021	11/16/2021	\$37K
Draft DPR & EA	LRD Policy and Legal Review (MDM)	8/13/2021	11/16/2021	\$11K
Draft DPR & EA	Public & Agency Review	11/17/2021	1/12/2022	\$24K
Final DPR & EA	DQC	1/18/2022	2/7/2022	\$11K
Final DPR & EA	ATR	1/18/2022	2/28/2022	\$25K
Final DPR & EA	LRD Policy and Legal Review	3/1/2022	5/4/2022	\$5K

ATTACHMENT 1 – Contacts

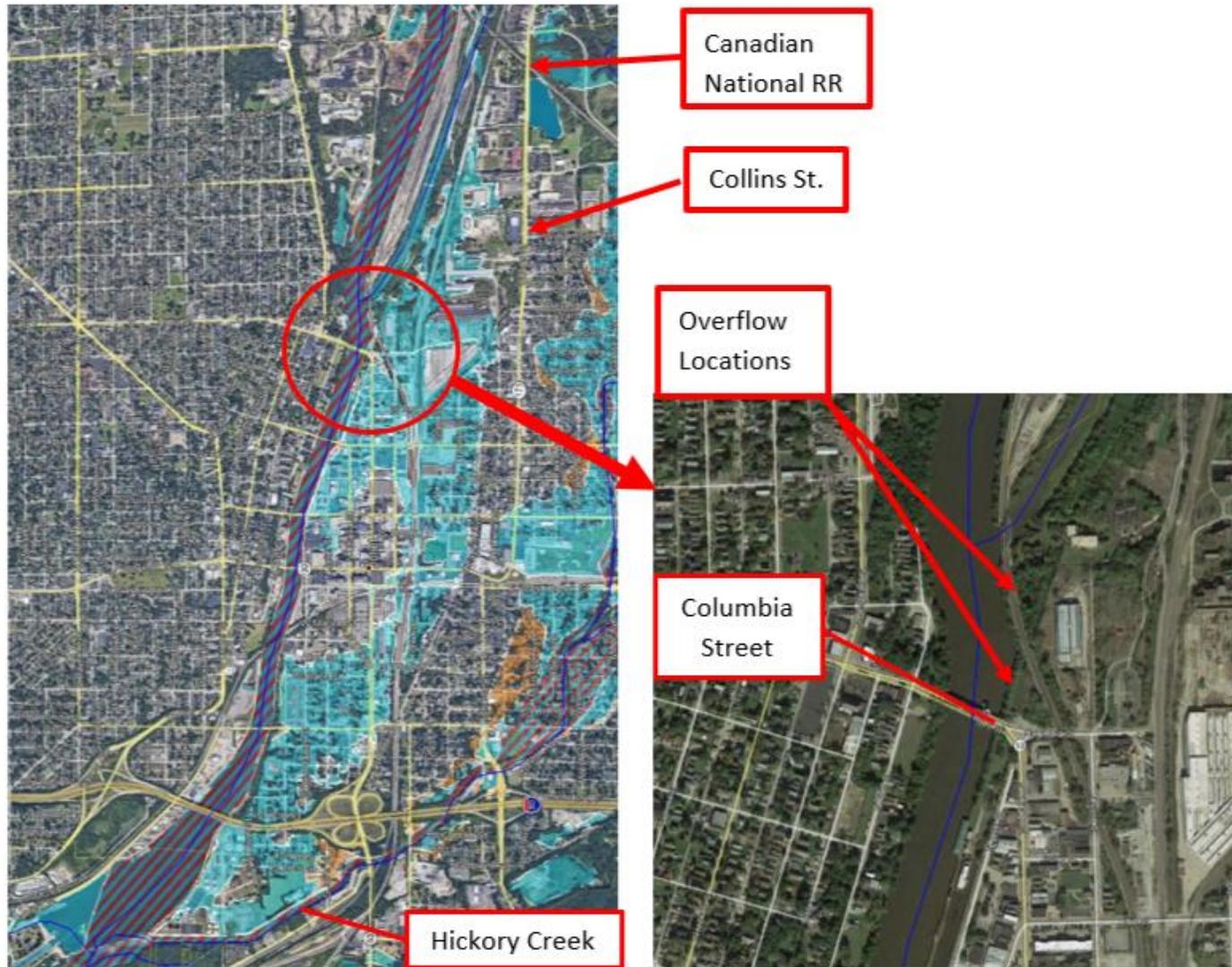
Function	Name (Last, First)	Phone	Office
RMO Contact	██████████	██████████	CELRC-PD
MSC Contact – District Support Program Manager	██████████	██████████	CELRD-PD-S

PROJECT DELIVERY TEAM			
Function/Discipline	Name (Last, First)	Phone	Office
Project Manager (Lead)	██████████	██████████	CELRC-PDP-S
Planner			CELRC-PDB-M
Planner			CELRC-PDB-M
NEPA			CELRC-PDB-M
Cultural Resources			CELRC-PDB-R
Biologist			CELRC-PDB-R
Geotechnical Engineer			CELRC-ENG-G
Economist/Risk Assessment			CELRC-PDB-M
Cost Engineer			CELRC-ENG-C
Civil Engineer			CELRC-ENG-C
H&H Engineer/CPR			CELRC-ENG-H
Environmental Engineer			CELRC-ENG-H
Real Estate			CELRE-RE-O

District Quality Control (DQC) Team			
Function/Discipline	Name (Last, First)	Phone	Office
Planner	██████████	██████████	CELRC-PDB-M
Biologist / Cult. Resources			CELRC-PDB-R
Geotechnical Engineer			CELRC-ENG-G
Economist / Risk Assessment			CELRC-PDB-M
Civil/Cost Engineer			CELRC-ENG-C
H&H Engineer / CPR			CELRC-ENG-H
Environmental			CELRC-ENG-H
Real Estate			CELRE-RE-O
Legal			CELRC-GOC
Policy Compliance			

Agency Technical Review (ATR) Team			
Function/Discipline	Name (Last, First)	Phone	Office
ATR Lead			CEMVP-PD-F
Plan Formulation			
NEPA			
Economics/Risk Assessment			
H&H Engineering/Climate Preparedness and Resiliency (CPR)			
Geotechnical Engineering/LSOG			
Flood Risk Analysis			
Civil Engineering			
Cost Engineering			
Real Estate			

ATTACHMENT 2 – Study Overview



ATTACHMENT 3 – STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Continuing Authority Program Section 205 Joliet Levee, IL. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecksSM.

SIGNATURE

Name

Date

ATR Team Leader

Office Symbol/Company

SIGNATURE

Name

Date

Project Manager (home district)

Office Symbol

SIGNATURE

Name

Date

Review Management Office Representative

Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: [Describe the major technical concerns and their resolution.](#)

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

SIGNATURE

Name

Date

Chief, Engineering Division (home district)

[Office Symbol](#)

SIGNATURE

[Name](#)

Date

Chief, Planning Division (home district)

[Office Symbol](#)

ATTACHMENT 4 – REVIEW PLAN REVISIONS LOG

Revision Date	Description of Change	Page / Paragraph Number