REVIEW PLAN
USING THE MVD MODEL REVIEW PLAN
for
Continuing Authorities Program
Section 103 and 205 Projects,
or Projects Directed by Guidance to Use CAP Processes

Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa
Section *205* Project

Rock Island District

MSC Approval Date: *Pending*
Last Revision Date: *03 January 2017*

US Army Corps
of Engineers ®

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Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa
Section *205* Project

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Section 205 Project

1. Purpose and Requirements

a. Purpose. This Review Plan defines the scope and level of peer review for the *Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa, Section 205 Project* (Project) products. *Products for review include a Project Factsheet; Feasibility Report with Integrated Environmental Assessment (EA); a Cultural Assessment; a Cost Estimate; an Economic Analysis; a Hydraulic and Hydrologic Analysis; a Geotechnical Analysis; a Real Estate Plan; a Design Documentation Report (DDR); and Plans and Specifications (P&S).*

Section 205 of the Flood Control Act of 1948, as amended, provides a continuing authority for the Corps of Engineers to develop and construct small flood control projects. This is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Unlike the traditional Corps' civil works projects that are of wider scope and complexity, the Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization.

Additional Information on this program can be found in Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook, Appendix F, Amendment #2.

b. Applicability. This Review Plan is based on the MVD Model Review Plan for Section 103 or 205 Projects or Programs directed by guidance to follow CAP processes, which is applicable to projects that do not require an Environmental Impact Statement (EIS).

c. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 December 2012.

(2) Director of Civil Works' Policy Memorandum #1, CECW-P, dated 19 January 2011.

(3) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2010.

(4) ER 1110-1-12, Quality Management, 30 September 2006.

(5) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 January 2007.

(6) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 November 2007.

(7) USACE Quality Management System.

(8) Muscatine Island Levee System Project Management Plan.

2. Review Management Organization (RMO) Coordination

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for Section *205 Projects* is MVD. MVD will coordinate and approve the Review Plan and manage the Agency Technical Review (ATR). If Type I Independent External Peer Review (IEPR) will be performed, MVD will initiate coordination with the FRM-PCX , which will administer the Type I IEPR. The home District will post the approved Review Plan on its public website. A copy of the approved Review Plan (and any updates) will be provided to the *National Flood Risk Management*

Planning Center of Expertise (FRM-PCX) to keep the PCX apprised of requirements and review schedules.

3. Project Information

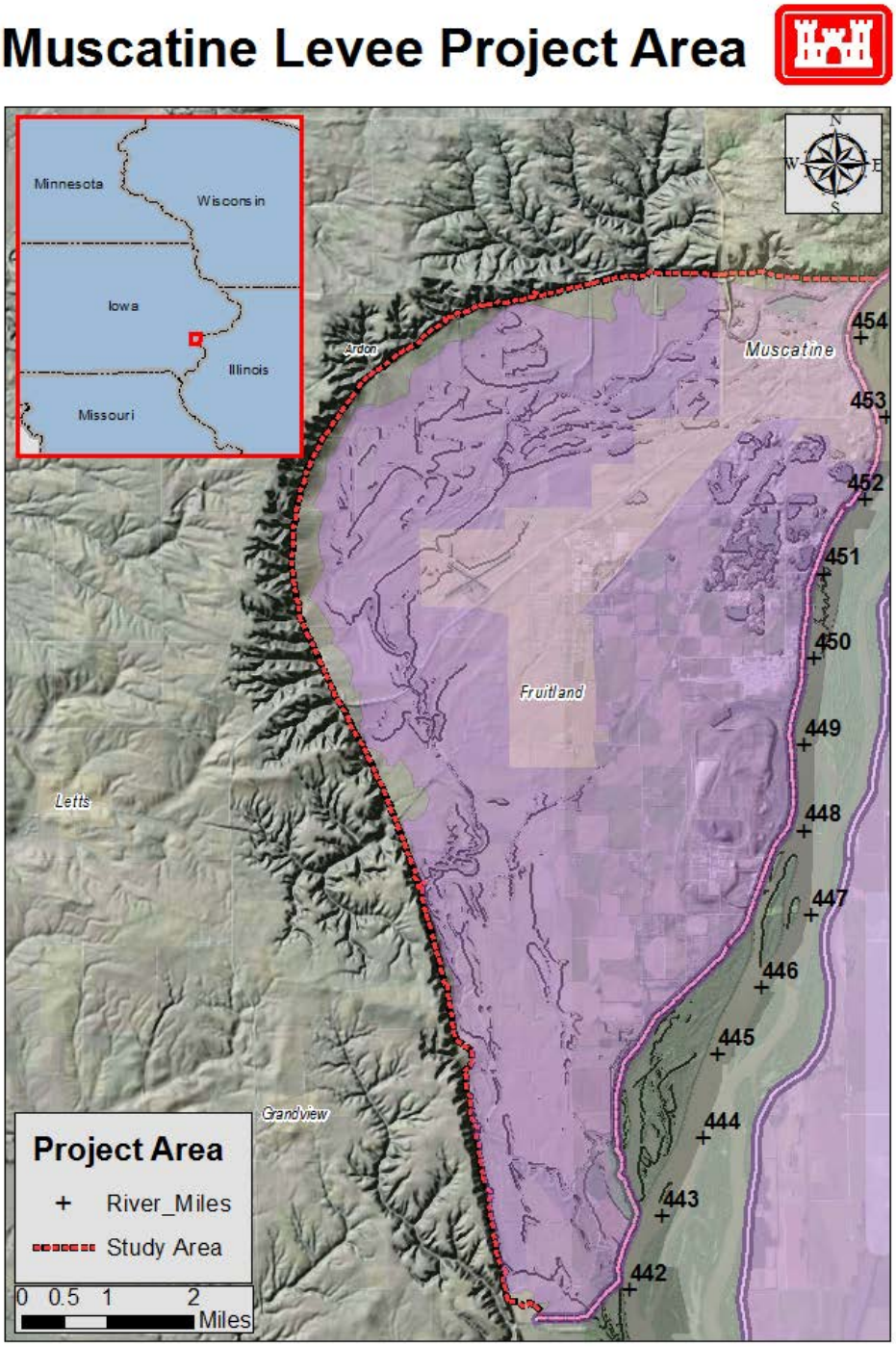
a. Decision *and Implementation* Documents. The *Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa, Section 205, Continuing Authorities Program* decision document will be prepared in accordance with ER 1105-2-100, Appendix F, Amendment #2. The approval level of the decision document (if policy compliant) is MVD. An EA will be prepared along with the decision document. *If a project in the federal interest is identified and the project moves to the Design and Implementation Phase, Plans and Specifications will be prepared.*

b. Study/Project Description. *The Muscatine Island Levee System (MILS), is located at the northern advent of the City of Muscatine in Muscatine County, Iowa, and terminates near Port Louisa in Louisa County, Iowa. The MILS Project Area is situated along the right descending bank of the Mississippi River between river miles 455.1 and 442.28.*

The non-Federal Sponsor for this Project is the Muscatine Island Levee District. The Sponsor has requested Corps assistance in seeking a solution to prevent inundation of the leveed study area in an effort to reasonably mitigate any losses from a major flood event. As flooding has become more frequent and severe over the past 20 years inundation of infrastructure within the study area has evolved into a growing concern among the communities potentially affected. Should a flood inundate the 30,000 acres protected by the MILS, there would be catastrophic damage to major industrial assets which would disrupt major regional and national economic networks. There would also be major damage to critical infrastructure such as evacuation routes, emergency services access, a power plant, and municipal wastewater facilities. Lastly, there would be major environmental devastation should either the grain processing facility or the herbicide plant become inundated with flood waters.

In addition to the No Action Plan, the measures considered at this time are complete infrastructure relocation, partial infrastructure relocation, ring levees, tieback levees built to the 500 year level, and the entire remaining 11 miles of levee built to the 500 year level of protection. Some of these measures may be used together or separately. The cost for the Project of the 11 mile levee raise is currently estimated to be $13,000,000, which includes all real estate and mitigation costs. Based on other levee systems in the Rock Island District, the operation and maintenance costs are not anticipated to exceed $2,000,000 during the project's life. The costs of the other mentioned alternatives will be determined during the feasibility phase.

Policy waivers [pursuant to per paragraph F-10.f.(4) of ER 1105-2-100, Appendix F, Amendment #2] are not anticipated at this time.



(Figure 1 – Study Area and Site Location Map for the Muscatine Island Levee System Project)

c. Factors Affecting the Scope and Level of Review. *This section discusses the factors affecting the risk-informed decisions regarding the appropriate scope and level of review. The discussion is intended to be detailed enough to assess the level and focus of the review and support the Project Delivery Team (PDT) and vertical team decisions regarding the appropriate level of review. Issues are addressed as follows:*

- ***Project Cost:*** *The estimated total Project study costs will not exceed the Type I IEPR mandatory trigger.*
- ***Life Safety:*** *At this time it does appear the project involves a significant threat to human life or safety assurance since the project objective is the protection of critical infrastructure within the bounds of industrial, commercial, and residential land uses. The study team will continue to assess the risk to life safety as more details emerge and the study progresses. This information will be used in evaluating the need for Type I and II IEPR.*
- ***Public Dispute:*** *The Project will not likely involve significant public debate based on its size, nature, effects, economics, or environmental consequences. The without project environmental and economic consequences is significant and would have an adverse impact to those within the MILS protected area. Public support is expected to be high as a result.*
- ***Request by Governor:*** *There has not been a request to study this project by a State Governor or an affected state.*
- ***Novel Methods:*** *It is not likely this study will implement novel methods, innovative materials or techniques, contain precedent-setting methods or models, or present conclusions likely to change current practice. The formulation, evaluation, and design of all study measures and alternatives will be performed using standard practices and methods.*
- ***Redundancy, Resiliency, or Unique Construction Sequencing:*** *This study is not likely to require unusual redundancy, resiliency, or unique construction sequencing. The formulation, design, and construction of all measures and alternatives will be performed using standard practices and methods, which include provisions for redundancy, resiliency, and robustness, where necessary.*
- ***Environmental Considerations:*** *It is assumed that the Project would result in no significant adverse impacts to the environment and an Environmental Impact Statement would not be required. Actions which require placement of material into wetlands would require additional evaluation and analyses for mitigation. It is expected this will be minimal, if any, and opportunities exist to fully minimize and mitigate any disturbance.*
- ***Economic Considerations:*** *At this time there is a low risk of error and/or minimal consequences to planning, design, or construction regarding structure values, structure elevations, depth-damage curves, project costs, or project feasibility.*

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to District Quality Control (DQC) and ATR, similar to any products developed by USACE. *No in-kind products are anticipated for the decision documents at this time.*

4. District Quality Control (DQC)

All decision and implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC prior to ATR. 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. The home district shall manage DQC in accordance with MVD and district Quality Management Plan. Any discrepancies between a reviewer and a PDT member will be resolved face-to-face. If a concern cannot be satisfactorily resolved between the DQC team and the PDT, it will be elevated to the section supervisor for further resolution.

- ***Feasibility Phase.*** *Technical supervisors will assure that experienced personnel, who have been involved with similar work, check team members' technical work for completeness, accuracy and clarity. The DQC of the Feasibility portion of the Project will be documented by a completed (signed) memorandum for record of technical review. A District Quality Control Review (DQCR) will be conducted prior to ATR.*

- ***Plans and Specifications Phase.*** *The DQC consists of at least a 35% Biddability, Constructability, Operability, Environmental (BCOE) Review ; a DQCR; and a 100% Biddability, Constructability, Operability, Environmental (BCOE) Review. Review comments and resolutions will be entered into DrChecks, in accordance with ER 1110-1-8159. The review will be documented by a completed (signed) Statement of Technical Review and Certification, to which all review comments and resolutions will be attached.*

  BCOES occurs in the P&S phase of the Project. In accordance with ER 415-1-11, the Project Engineer will conduct a BCOES review at the final design level, after all ATR comments have been resolved and incorporated. The review documents will include a complete drawing set, complete specifications (with special clauses), and Engineering Considerations. The review will commence at least 30 days prior to advertisement. Review comments and resolutions will be entered into DrChecks. The BCOES review will be documented by a complete (signed) BCOES certification, to which all review comments and resolutions will be attached.

5. Agency Technical Review (ATR)

One ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.), however additional ATRs may be performed if deemed warranted. ATR will normally be performed on the AFB documentation with a continuing review on major changes leading up to completion and the District Commander signing the final report. 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.

1. Products to Undergo ATR

- ***Feasibility Report ATR*** *will be performed throughout the study in accordance with the District and MVD Quality Management Plans. The Feasibility ATR shall be documented (ATR Certification of the Draft Report) and discussed at the MSC Decision Milestone (MDM) Briefing. Certification of the Feasibility ATR will be provided prior to the District Commander signing the Final Report. The Feasibility Report package includes*

alternative formulation; economic analysis; design calculations, drawings and cost; and a real estate plan.

- ***Plans and Specifications** will also undergo ATR prior to BCOE review. A P&S ATR will be conducted at the 95 percent design level and consist of design calculations, drawings, certified DQCR documentation, and cost.*

b. Required ATR Team Expertise. The ATR team will be comprised of individuals that have not been involved in the development of the feasibility study or plans and specifications. and will be chosen based on expertise, experience, and/or skills. The members will reflect the significant disciplines involved in the planning, engineering, design, and construction efforts. The ATR team members will be identified at the time the review is conducted. General descriptions of required ATR team expertise and disciplines are as follows:

ATR Team Members/Disciplines	***Expertise Required***
ATR Lead	*The ATR lead should be a senior professional preferably with experience in preparing 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. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead MUST be from outside MVD.*
Planning	*The Planning reviewer should be a senior water resources planner with experience in FRM planning processes and general planning policy.*
Economics	*The reviewer should be a senior Economist with expertise evaluating benefit to cost ratios developed for FRM studies.*
Environmental Compliance Specialist	*The Environmental Compliance Specialist should have experience in the ecology of large river habitat types and evaluation of environmental consequences as a result of FRM measures for National Environmental Policy Act (NEPA) compliance.*
Cultural Resources	*The Cultural Resources reviewer should be a senior archaeologist with experience in Section 106 of the National Historic Preservation Act Compliance.*
Hydrology and Hydraulic Engineering	*The Hydrology and Hydraulic Engineering reviewer should be an expert in the field of hydrology and hydraulics and have a thorough understanding in application of levees and other FRM measures. The reviewer should have a demonstrated experience applying and interpreting outputs from models such as HEC-RAS. In addition the reviewer will have the necessary certification or experience to review and ensure the report is in compliance with ECB 2016-25.*
Geotechnical Engineering	*The Geotechnical Engineer should be an expert in the field and have recent experience in the design requirements for FRM measures. This person should also have experience in investigating existing subsurface conditions and materials,*

	determining their physical/mechanical and chemical properties that are relevant to the project considered, and assessing risks posed by site conditions.
Civil Engineering	*The Civil Engineering reviewer should be an expert in the field and have a thorough understanding of the applicability, design, and construction characteristics of FRM measures such as levees, closure structures, toe drainage, and cut-off walls .*
Cost Engineering	*The Cost Estimator reviewer will be chosen from the pre-certified district cost personnel within the region or by the Walla Walla Cost DX for FRM studies.*
Real Estate	*The Real Estate reviewer should be an expert in Real Estate issues for FRM studies, have experience with ROW determination and maps, and evaluation of necessary easements.*
Hazardous, Toxic and Radioactive Waste (HTRW)	*The HTRW reviewer should be an expert in the field and have experience with HTRW compliance.*

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. Any editorial comments should be provided informally by email to the PDT. 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, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-2-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

(1) identify the document(s) reviewed and the purpose of the review;

(2) disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;

(3) include the charge to the reviewers;

(4) describe the nature of their review and their findings and conclusions;

(5) identify and summarize each unresolved issue (if any); and

(6) include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

6. Independent External Peer Review (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. 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.

  For Section 103 and 205 decision documents prepared under the MVD Model Review Plan, Type I IEPR may or may not be required.

- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), is managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and FRM 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.

For Section 103 and 205 decision documents prepared under the MVD Model Review Plan, Type II IEPR may or may not be required in the design and implementation phase.

a. Decision on IEPR. It is the policy of USACE that Section *205* project decision documents should undergo Type I IEPR unless ALL of the following criteria are met:

- Federal action is not justified by life safety or failure of the project would not pose a significant threat to human life;
- Life safety consequences and risk of non-performance of a project are not greater than under existing conditions;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The project does not require an EIS;
- The project/study is not likely to involve significant public dispute as to the size, nature, or effects of the project;
- The project/study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project;
- The information in the decision document or 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;
- The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule; and
- There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.

Further, if Type I IEPR will not be performed:

- Risks of non-performance and residual flooding must be fully disclosed in the decision document and in a public forum prior to final approval of the decision document;
- The non-Federal sponsor must develop a Floodplain Management Plan, including a risk management plan and flood response plan (and evacuation plan if appropriate for the conditions), during the feasibility phase; and

- The non-Federal sponsor must explicitly acknowledge the risks and responsibilities in writing in a letter or other document (such as the Floodplain Management Plan) submitted to the Corps of Engineers along with the final decision document.

The decision on whether the above criteria are met (and a Type I IEPR exclusion is appropriate) is the responsibility of the MVD Commander. Additional factors the MVD Commander might consider include in deciding if an exclusion is appropriate include, but are not limited to: Hydrograph/period of flooding, warning time, depth of flooding, velocity of flooding, nature of area protected, and population protected.

A Type I IEPR, including SAR, is anticipated at this time. This conclusion will be reevaluated and confirmed throughout the study as new information is gathered. It is anticipated a Type II IEPR will be needed on design and implementation documentation due to the current assessment of the life safety risk. The RP will be updated at the completion of the Feasibility Phase to reflect the documentation, written response format, dissemination of any Type II IEPR Review Report, USACE Responses and other materials to the internet.

b. Products to Undergo Type I IEPR. The Draft Feasibility Report and technical appendices will be reviewed. Planning and engineering models will be reviewed for how they were applied to the project and contributed to decisions made throughout the planning process.

c. Required Type I IEPR Panel Expertise.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should *have extensive experience in evaluating and conducting economic analyses for FRM feasibility studies.*
Environmental	*The environmental reviewer should have expertise in NEPA evaluations and documentation, Clean Water Act compliance, Fish and Wildlife Coordination Act, and Endangered Species Act. The reviewer should also have experience in developing Environmental Assessments in support of FRM studies.*
Civil Engineering	*The Civil Engineering reviewer should have extensive experience in the design and construction of levees, toe drainage structures, cut-off walls, and closure structures related to FRM.*
Hydraulic Engineering	*The hydraulic engineering reviewer should have expertise in FRM study formulation and alternative evaluation in large riverine environments.*
Geotechnical Engineering	*The geotechnical engineering reviewer should have extensive experience in evaluation of FRM structures evaluation of the seepage through earthen embankments and underseepage through the foundation of the FRM structures, including dam and levee embankments, floodwalls, closure structures, and in settlement evaluation of the structure.*

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the

same four key parts as described for ATR comments in Section 4.c. above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- include the charge to the reviewers;
- describe the nature of their review and their findings and conclusions; and
- include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. Policy and Legal Compliance Review

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in ER 1105-2-100, Appendix H. 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 MVD 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.

8. Cost Engineering Directory of Expertise (DX) Review and Certification

For CAP projects, ATR of the costs may be conducted by pre-certified district cost personnel within the region or by the Walla Walla Cost DX. The pre-certified list of cost personnel has been established and is maintained by the Cost DX at https://kme.usace.army.mil/EC/cost/CostAtr/default.aspx. The cost ATR member will coordinate with the Cost DX for execution of cost ATR and cost certification. The Cost DX will be responsible for final cost certification and may be delegated at the discretion of the Cost DX.

9. Model Certification and Approval

Approval of planning models under EC 1105-2-412 is not required for CAP projects. MSC commanders remain responsible for assuring the quality of the analyses used in these projects. ATR will be used to ensure that models and analyses are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports.

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

a. Planning Models. The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
HEC-FDA 1.2.5 (Certified)	*The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating FRM plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Mississippi River at Muscatine Island to aid in the selection of a recommended plan to manage flood risk.*
Habitat Suitability Index Models (HSI; Approved for Use)	*HSI models will be selected from the list of approved for regional use (per EC 1105-2-412) to assist in mitigation planning, if needed. Species appropriate for riverine wetland environments and those associated with the geography of the area will be considered for use.*

b. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
HEC-RAS 4.1 (HH&C CoP Preferred Model)	*The Hydrologic Engineering Center's River Analysis System (HEC RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. This model will be used for with- and without-project river conditions and levee design for this project.*
MCACES (Enterprise Model)	*This is a cost estimating model that was developed by Building Systems Design Inc. The Corps began using this model in 1989. This will be used as a tool to determine cost estimates for project alternatives before Design*

10. Review Schedules and Costs.

a. ATR Schedule and Cost. *The cost for ATR is estimated to be $90,000 for the feasibility document and P&S. It is estimated approximately $5,000 is reserved for the participation of the ATR Lead in study milestones and IPR meeting with the vertical team. An estimated cost and schedule for ATR activities is included in the following table.*

Product	***Start Date***	***Duration***	***Cost Estimate***
Draft Feasibility Report	*May 2019*	*4 weeks*	*$45,000*
Final Feasibility Report (Cost Certification; Final Backchecks)	*September 2019*	*3 weeks*	*$10,000*
P&S	*October 2020*	*4 weeks*	*$35,000*

b. **Type I IEPR Schedule and Cost.** *A type I IEPR is anticipated to commence in June 2019 and cost approximately $55,000.*

c. **Model Certification/Approval Schedule and Cost.** *All of the models anticipated to be used are already certified or approved for use.*

11. Public Participation.

State and Federal resource agencies may be invited to participate in the study covered by this Review Plan as partner agencies or as technical members of the PDT, as appropriate. Interested and consulting agencies/parties will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments. Public involvement is anticipated throughout the Feasibility Study. At least one public meeting is likely to be held during the 30-day public review period approximately June 2019. Any additional information will be conveyed to the public through the use of press releases/media interviews, as necessary, and through the use of posting information to the District's website.

12. Review Plan Approval and Updates

The MVD Commander is responsible for approving this Review Plan and ensuring that use of the MVD Model Review Plan is appropriate for the specific project covered by the plan. The Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the Review Plan since the last MVD approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be reapproved by MVD following the process used for initially approving the plan. Significant changes may result in MVD determining that use of the MVD Model Review Plan is no longer appropriate. In these cases, a project specific Review Plan will be prepared and approved in accordance with EC 1165-2-214. The latest version of the Review Plan, along with the MVD approval memorandum, will be posted on the home district's webpage.

13. Review Plan Points of Contact

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

- *David Gossett, Rock Island District Plan Formulator, (309) 794-5286*
- *Jason Smith, Rock Island District CAP 205 Program Manager, (309) 794-5690*
- *Gabe Harris, Rock Island District Support Team Program Manager, (601) 634-5926*
- *Matthew Mallard, Mississippi Valley Division CAP Program Manager, (601) 634-5869*

ATTACHMENT 1: TEAM ROSTERS

Product Delivery Team Roster

Name	Title	Email
Keith Bartenhagen	MILD President	gatorb62@hotmail.com
David Gossett	Study Manager	billie.d.gossett@usace.army.mil
Jason Smith	Program Manager	jason.t.smith2@usace.army.mil
Tom Davison	Project Manager	thomas.j.davison@usace.army.mil
Diana Hassaballa	Economist	diane.m.hassaballa@usace.army.mil
Erica Stephens	Project Engineer	erica.l.stephens@usace.army.mil
Matt Zager	Hydraulic & Hydrologic Engineer	matthew.s.zager@usace.army.mil
Joshua Hendrix	Geologist	joshua.m.hendrix@usace.army.mil
Diane Karnish	Economist	diane.e.karnish@usace.army.mil
Jason Appel	Real Estate Specialist	jason.c.appel@usace.army.mil
TBD	Technical Services (cost and specs)	
TBD	District Counsel	
Kathryn Herzog	Environmental & NEPA Compliance	kathryn.herzog@usace.army.mil
Cindy Peterson	Cultural Resources Specialist	cythhia.l.peterson@usace.army.mil
TBD	Contracting	
TBD	Cost Estimating	

District Quality Control Roster

Name	Title	Email
Marshall Plumley	Plan Formulator Team Leader	marshall.b.plumley@usace.army.mil
Mark Cornish	Environmental Section Supervisor	mark.a.cornish@usace.army.mil
Michael Tarpey	Senior Environmental Engineer	michael.j.tarpey@usace.army.mil
Toby Hunemuller	Senior Hydraulics/Hydrologist	toby.j.hunemuller@usace.army.mil
Charles Bishop	Senior Geotechnical Engineer	charles.e.bishop@usace.army.mil
Charles Van Laarhoven	Senior Cost Estimator	charles.r.vanlaarhoven@usace.army.mil

Agency Technical Review Team (Feasibility and Design) Roster

Name	Title	Email
TBD	ATR Lead	
TBD	Planning	
TBD	Economics	
TBD	Environmental Compliance Specialist	
TBD	Cultural Resources	
TBD	Hydrology & Hydraulic Engineering	
TBD	Geotechnical Engineering	
TBD	Civil Engineering	
TBD	Cost Engineering	
TBD	Real Estate	

Major Subordinate Command Roster

Name	Title	Email
Matthew Mallard	DST Planner	matthew.s.mallard@usace.army.mil
Matthew Mallard	Program Manager	matthew.s.mallard@usace.army.mil
Matthew Mallard	CAP Coordinator	matthew.s.mallard@usace.army.mil

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

Completion of Agency Technical Review

The Agency Technical Review (ATR) has been completed for the *Draft Feasibility Report with Integrated EA and Appendices for the Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa, Section 205 Project*. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

SIGNATURE _____ _____
Name Date
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ _____
Name Date
Project Manager
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 _____ _____

Roger Perk Date
Chief, Engineering and Construction Division
CEMVR-EC

SIGNATURE _____ _____

Aaron Snyder Date
Chief, Planning Division
CEMVP-PD-F

ATTACHMENT 3: DQCR CERTIFICATION STATEMENT

Statement of District Review for Decision Documents
Completion of District Quality Control

District Quality Control (DQC) Review has been completed for the *Review Plan* for *Muscatine Island Levee System, Mississippi River, Muscatine & Louisa Counties, Iowa, Section 205 Project*. DQC was conducted as defined in the Review Plan to comply with the requirements of EC 1165-2-214. During the DQC, compliance with established policy principles and procedure's, 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 U.S. Army Corps of Engineers policy. The Project Delivery Team conducted a complete reading of the report and appendices to ensure coherence and consistency through the document. All comments resulting from the DQC have been resolved and closed in Dr.Checks.

SIGNATURE	
Name	Date
DQC Team Leader	
Office Symbol	
SIGNATURE	
Name	Date
Project Manager	
Office Symbol	
SIGNATURE	
Name	Date
Lead Planner	
Office Symbol	

ATTACHMENT 4: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page/Paragraph Number