Project Title: **HONEY CREEK AQUATIC ECOSYSTEM RESTORATION**

Authority: **Continuing Authority Program Section 206**

P2/Project Number: **487441**

Review Plan

PREPARED BY: [redacted]

[redacted]
Project Manager
USACE, Chicago District

RECOMMENDED BY: [redacted]

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District Engineer
USACE, Chicago District

ENDORSED BY: [redacted]

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Senior Regional Engineer
USACE, Great Lakes and Ohio River Division

APPROVED BY: [redacted]

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Regional Business Director
USACE, Great Lakes and Ohio River Division

MSC APPROVAL DATE:

REVIEW PLAN
ENGINEERING AND DESIGN PRODUCTS
HONEY CREEK CAP SECTION 206 AQUATIC ECOSYSTEM RESTORATION
CHICAGO DISTRICT

Current Version Date: 1 October 2023
Mandatory Revision Date: 1 October 2026

1. PURPOSE AND REFERENCES

a. Purpose. Purpose. This review plan describes necessary quality reviews for engineering and design (E&D) products for the Honey Creek Aquatic Ecosystem Restoration Project.

b. References.

(1) Engineering Regulation (ER) 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January 2013
(2) Engineering Regulation (ER) 1165-2-217, Civil Works Review Policy, 01 May 2021
(3) Qualtrax 08504 LRD, Supplemental Quality Procedures for Civil Works (CW) Engineering and Design (E&D) Products
(4) Honey Creek Project Management Plan (PMP)

2. REVIEW MANAGEMENT ORGANIZATION (RMO). The RMO for this project is the MSC (Great Lakes and Ohio River Division).

3. PROJECT SCOPE AND PRODUCTS

a. Project Description and Scope of Work. The Honey Creek Sec 206 CAP Aquatic Ecosystem Restoration project is an environmental restoration project located in Wauwatosa, Wisconsin. The project is currently in the Engineering and Design (E&D) phase, in which design documents, plans, and specifications will be developed by the Chicago District. The goal of the project is to restore fluvial-geomorphic processes (riverine habitat), restore hydrologic regime, increase the size of the riparian zone, increase species richness (riverine and riparian native species), and reconnect stream channels and riparian zones. The project will consist of eight primary components: (i) site preparation, (ii) concrete channel removal, (iii) geomorphic contouring, (iv) Honey Creek channel restoration, (v) invasive species eradication, (vi) native plant community establishment, (vii) best management practices (BMPs) and (viii) incidental recreational features.

Project Number	487441
Business Line	Environmental
Project Type	Aquatic Ecosystem Restoration, CAP Section 206
Geographic Location	Wauwatosa, WI
Main Project Features	Restoration of fluvial-geomorphic processes, hydrologic regime and reconnection of stream channels and riparian zones.
Estimated Construction Cost:	$11,171,000
E&D Product Method Delivery:	In-House Design
Construction Delivery Method:	Invitation for Bid (IFB)

b. Products. The E&D products to be reviewed include the following:

(1) Design Documentation Report (DDR)
(2) Plans and Specifications (P&S)
(3) Engineering Considerations and Instructions for Field Personnel (ECIFP)
(4) Engineering Products during Construction

4. DOCUMENTATION OF RISKS AND ISSUES

a. Life Safety Assessment: The District Chief of Engineering has reviewed the project requirements and determined there is not a significant threat to human life if the project were to fail.

b. Technical Complexities and Risks. The project delivery team (PDT) performed a thorough risk analysis of the anticipated project construction and operations activities and identified the following key technical complexities and risks. Quality reviews will be focused to manage these risks.

(1) Existing Works Progress Administration (WPA) Walls. The most significant risk is going to be the management of the WPA Walls in the design. During the Feasibility Study it was assumed that they would not be impacted, therefore it will be important to manage any potential cost increases and changing State Historic Preservation Office (SHPO) requirements.

(2) Plantings Establishment. Native plants will be re-established on the project site. There is a risk that native plantings may not initially establish due to unpredictable events such as extreme weather and predation from herbivorous animals and insects. The native plant establishment design and execution would mitigate most adverse conditions. As well, warranties required by the contract, and adaptive management options placed in the contract will provide for the means of replanting over the 5-year construction period should the need arise.

(3) Hydraulic Modeling: Hydraulic modeling will be required to ensure post project impacts are avoided. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program will be used for steady flow analysis to evaluate future without and with project conditions along Honey Creek.

(4) Construction Means and Methods. During the Feasibility stage it was determined that the contractor will be required to complete all work in the dry. While assumptions were made in the Cost Estimate consistent with this assumption, the actual means, and methods for bypassing water in the creek must be further examined to ensure practicality and that any potential permit requirements are identified.

(5) Concrete Disposal. The Feasibility Study assumed that the concrete from the channel would be disposed of offsite on property acquired by MMSD. Property acquisition is being done and the sponsor has expressed interest in identifying a beneficial use for the concrete. Beneficial reuse may be cost prohibitive and if the land acquisition is not finalized prior to the start of construction, concrete disposal could become a significant risk.

(6) Wisconsin Avenue Bridge Replacement. The city of Wauwatosa and Wisconsin Department of Transportation are in the process of designing the replacement for the Wisconsin Avenue Bridge. The design and construction schedule for this project is very similar to the Honey Creek Project therefore regular communication and coordination with the bridge design team is essential.

(7) Hazardous, Toxic, Radioactive Waste (HTRW): There is one location in the project footprint with two PAH concentrations that slightly exceed the State risk exposure screening level, and the samples are close to background levels. Additional analysis will be conducted in design phase. The expected result is either: 1) show, by use of approved data averaging methods, that material generated onsite meets the risk screening levels resulting in unrestricted reuse onsite, or 2) we propose restricted reuse of impacted materials onsite by burying materials within a berm or incorporated into site grading using a Wisconsin low hazard exemption. The additional analysis will occur when the 60% grading plan is developed.

5. REVIEW EXECUTION

a. Project Delivery Team (PDT): PDT members are listed in Attachment 1. PDT members will work collaboratively with review team members to ensure effective execution of quality reviews.

b. District Quality Control (DQC): DQC is required for all products. Follow DQC procedures in Chapter 4 of ER 1165-2-217 and District local work instructions. The Engineering Technical Lead and DQC Lead will collaborate to oversee and ensure effective DQC execution.

c. Biddability, Constructability, Operability, Environmental, Sustainability (BCOES): BCOES reviews are required for all products. Follow BCOES review procedures in ER 415-1-11 and District local work instructions. The Engineering Technical Lead and DQC Lead will collaborate to oversee and ensure effective BCOES execution.

d. Agency Technical Review (ATR): ATR is required for all products and will follow ATR procedures in Chapter 5 of ER 1165-2-217. ATR will address the technical risks described in sub-section 4.b. Required senior technical disciplines and expertise needed for ATR are shown in Table 1. The assigned ATR team member is listed in Attachment 1. The RMO has made a risk-informed decision to utilize an internal LRD employee as the ATR lead / reviewer. PDT and review team leaders will collaborate to oversee and ensure effective review execution.

Table 1. ATR Technical Disciplines and Required Expertise	
Hydraulic Engineer/ATR Team Leader	Team member will have a thorough understanding of river dynamics and computer modeling techniques that will be used such as Hydrologic Engineering Center - River Analysis System (HEC-RAS). Team member shall be CPR certified in CERCAP. The ATR lead should be a senior professional preferably with experience in preparing Section 206 design documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.

e. Safety Assurance Review (SAR): The District Chief of Engineering has reviewed the project requirements in accordance with ER 1165-2-217 and determined that a Safety Assurance Review (SAR) is not required.

f. Review Charge. Reviewers will refer to and perform ATR per Section 5.7 of ER 1165-2-217, Objectives, Scope, and Review Criteria. Reviews shall check to confirm the design addresses the technical complexities and risks described in paragraph 4.b.

6. REVIEW SCHEDULE AND BUDGETS. The schedule and budgets for reviews are shown in Table 2.

Table 2. Review Schedule and Budgets			
Review Activities	Start Date	Finish Date	Budget ($)
DQC – 30% Design	31 JAN 23	13 FEB23	$10,000
BCOES – 30% Design	13 FEB 23	27 FEB 23	$10,000
DQC – 60% Design	27 NOV 23	04 DEC 23	$10,000
ATR – 60% Design	04 DEC 23	11 DEC 23	$15,000
BCOES – 60% Design	11 DEC 23	18 DEC 23	$10,000
DQC – 90% Design	25 MAR24	01 APR 24	$10,000
ATR – 90% Design	01 APR24	08 APR 24	$15,000
BCOES / ATR Backcheck	08 APR 24	15 APR 24	$18,000

7. REVIEW DOCUMENTATION. The ATR leader will prepare an ATR report per Section 5.10 of ER 1165-2-217. The ATR report with certification form will be provided to the approval signatories, including the RMO representative. Review documents will be stored with the official project records.

8. REVIEW PLAN POINTS OF CONTACT

Questions and comments relating to this review plan can be directed to the following points of contact:

a. District Project Leaders.

(1) Project Manager: [redacted]

(2) Engineering Technical Lead: [redacted]

b. Review Management Organization (RMO) Representative: [redacted]

8. APPROVAL SIGNATURES:

[redacted]

RECOMMEND FOR APPROVAL: [redacted]
Chief, Design Branch

[redacted]

DISTRICT APPROVAL: [redacted]
Chief, Engineering and Construction Division

Attachment A – TEAM MEMBERS

PROJECT DELIVERY TEAM		
Function/Discipline	Name (Last, First)	Office
Customer	[redacted]	Milwaukee Metropolitan Sewerage District (MMSD)
Customer	[redacted]	Milwaukee County Parks
Project Manager	[redacted]	CELRC-PDP-D
Technical Lead/Civil Engineer	[redacted]	CELRC-ECE-C
Cost Engineer	[redacted]	CELRC-ECE-C
Value Engineer	[redacted]	CELRC-ECE-C
Geospatial	[redacted]	CELRC-ECE-S
Geotechnical Engineer	[redacted]	CELRC-ECE-G
Environmental Engineer	[redacted]	CELRC-ECE-H
Hydraulic Engineer	[redacted]	CELRC-ECE-H
Structural Engineer	[redacted]	CELRC-ECE-T
Real Estate Specialist	[redacted]	CELRE-REP
Biologist	[redacted]	CELRC-PDL-E
Contract Specialist	[redacted]	CECT-GAT
Construction	[redacted]	CECT-GAT
Planning	[redacted]	CELRC-PDL-E
DQC REVIEWERS		
Function/Discipline	Name (Last, First)	Office
DQC Lead / Civil	[redacted]	CELRC-ECE-C
Cost	[redacted]	CELRC-ECE-C
Geospatial	[redacted]	CELRC-ECE-S
Geotechnical	[redacted]	CELRC-ECE-G
Environmental	[redacted]	CELRC-ECE-H
Hydraulic	[redacted]	CELRC-ECE-H
Structural	[redacted]	CELRC-ECE-T
Real Estate	[redacted]	CELRE-REP
Biologist/Ecologist	[redacted]	CELRC-PDL-E
BCOES REVIEWERS		
Function/Discipline	Name (Last, First)	Office
Biddability/Constructability	[redacted]	CELRC-ECC
Operability	[redacted]	CELRC-ORR
Operability	[redacted]	MMSD
Operability	[redacted]	County Parks
Environmental	[redacted]	CELRC-PDL-E
Safety	[redacted]	CELRC-GAO
Legal	[redacted]	CELRC-GAC
ATR REVIEWER		
Function	Name	Office
Hydraulic Engineer/ATR Lead	[redacted]	CELRB-TDD-WH