Grand Calumet River, Indiana Section 312 Feasibility Study Final Peer Review Plan

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INTRODUCTION

The International Joint Commission has listed the Grand Calumet River/Indiana Harbor Canal as an Area of Concern (AOC) since 1986. This designation was based on impairments in 14 beneficial use categories. A number of these use impairments can be directly attributed to the quality of the existing aquatic environment, specifically to the contaminated sediments. Impairments to wildlife, i.e. fish and waterfowl, as well as to recreational uses of the waterway are directly linked to the contaminated sediments. These heavily contaminated sediments continue to be a source of pollutants to the water column, while also providing a toxic environment for aquatic species and foraging wildlife. The Grand Calumet River basin is fairly typical in terms of degraded environmental quality resultant from decades of unchecked industrial and urban development. However, what is unique about this basin, are the potential impacts of restoration and remediation of the ecosystem. The Grand Calumet River Basin contains unique remnants of a once expansive (30,000 acres) dune and swale ecosystem adjacent to Lake Michigan. These remnants (about 2,000 acres) provide habitat for 66 state rare and endangered species. Consequently, restoration of the aquatic habitat and adjacent wetland shelves will provide many benefits to the local flora and fauna.

The Grand Calumet River system is comprised of the East and West Branches of the Grand Calumet River and the Indiana Harbor Canal and Lake George Canal. The East Branch extends 12 river miles to the junction with the Indiana Harbor Canal, while the West Branch extends 4 river miles from the junction with the Indiana Harbor Canal to the Illinois-Indiana State line. The upstream reach of the Indiana Harbor Canal is about 1.5 miles in length and the Lake George Canal extends about 0.5 miles. The flow regime of the river system is complex and driven primarily by lake level fluctuations in Lake Michigan, in addition to the many discharges along the river that are associated with the urban/industrial nature of the watershed.

The purpose of the Grand Calumet River Environmental Dredging Feasibility Study is to investigate and recommend remediation alternatives, including dredging and disposal of the contaminated sediments in the Grand Calumet River and in the non-federal portions of the Indiana Harbor and Lake George Canals, Indiana, and ecosystem restoration within the river channel and wetland shelves. Estimated implementation costs range from $220-270 million. The study is being conducted under Section 312 of the Water Resource Development Act (WRDA) 1990, as amended, which provides authority for the U.S Army Corps of Engineers (USACE) to participate in the removal of contaminated sediments (a) outside of the boundaries of and adjacent to Federal navigation projects as part of operations and maintenance, and (b) for the purposes of ecosystem restoration, not related to operations and maintenance of navigation channels. Section 312 authority, as amended, is cited below.

SEC. 312. ENVIRONMENTAL DREDGING.

(a) OPERATION AND MAINTENANCE OF NAVIGATION PROJECTS.- Whenever necessary to meet the requirements of the Federal Water Pollution Control Act, the Secretary, in consultation with the Administrator of the Environmental Protection Agency, may remove and remediate, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel.
(b) NONPROJECT SPECIFIC.-
(1) IN GENERAL.- The Secretary may remove and remediate contaminated sediments from the navigable waters of the United States for the purpose of environmental enhancement and water quality improvement if such removal and remediation is requested by a non-Federal sponsor and the sponsor agrees to pay 35 percent of the cost of such removal and remediation.
(2) MAXIMUM AMOUNT. - The Secretary may not expend more than $50,000,000 in a fiscal year to carry out this subsection
(c) JOINT PLAN REQUIREMENT.- The Secretary may only remove and remediate contaminated sediment under subsection (b) in accordance with a joint plan developed by the Secretary and interested Federal, State and local government officials. Such plan must include, an opportunity for public comment, a description of the work to be undertaken, the method to be used for dredged material disposal, the roles and responsibilities of the Secretary and non-Federal sponsors, and identification of sources of funding.
(d) DISPOSAL COSTS. - Costs of disposal of contaminated sediments removed under this section shall be shared as a cost of construction.
(e) LIMITATION ON STATUTORY CONSTRUCTION. - Nothing in this section shall be construed to affect the rights and responsibilities of any person under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.
(f) PRIORITY WORK. - In carrying out this section, the Secretary shall give priority work in the following areas:

(1) Brooklyn Waterfront, New York.
(2) Buffalo Harbor and River, New York.
(3) Ashtabula River, Ohio.
(4) Mahoning River, Ohio.
(5) Lower Fox River, Wisconsin.
(6) Passaic River and Newark Bay, New Jersey
(7) Snake Creek, Bixby, Oklahoma
(8) Willamette River, Oregon

The purpose of the peer review plan is to assign the appropriate level and review independence, establish the procedures, and assign responsibilities for conducting the Independent Technical Review (ITR) and External Peer Review (EPR). This peer review plan is compliant with the requirements of the Corps peer review process, which is documented in EC1105-2-408, dated 31 May 2005. This peer review plan is a stand alone document that is one part of the Project Management Plan (PMP). It is a being provided to the public on the District's web site. As part of the review plan for the feasibility study an external peer review will be conducted on metrics used to evaluate with and without

project conditions based on indicator contaminants and biological indices, and separately on the reactive sediment cap. Additionally, documentation will be provided on the academic peer review that has already been performed on the biological indices developed to evaluate with and without project conditions for the aquatic ecosystem. The necessity of an EPR for this study is based on the project (cost) magnitude. Neither the technology to be employed for implementation nor the scientific methods used in the evaluation will be precedent setting or novel.

The project delivery team is presented in table 1. The Project Manager is the primary point of contact at the Chicago District for the study and the peer review plan.

Table 1 – Grand Calumet River Feasibility Study Project Delivery Team

Discipline	Office/Agency
Project Manager	CELRC-PM-PM
Quality Manager	CELRC-TS-DH
Lead Planner	CELRC-PM-PL-E
Planning	CELRC-PM-PL
Environmental Analysis	CELRC-PM-PL-E
Environmental & Social Analysis	CELRC-PM-PL-E
Economic Analysis	CELRC-PM-PL-F
GIS	CELRC-PM-PL
Real Estate	CELRE-RE
Design	CELRC-TS-D
Design Analysis	CERLC-TS-DC
Geotechnical Analysis	CELRC-TS-DG
Geotechnical Analysis	CELRB-TD-DC
Structural Analysis	CERLC-TS-DS
Hydraulic Analysis	CERLC-TS-DH
Environmental Engineering	CELRC-TS-DH
Cost Engineering	CELRC-TS-DC
Cost Engineering	CELRB-TD-DE
Design & Cost Analysis	CELRB-TD-DG
Office of Counsel	CELRC-OC
Office of Counsel	IDEM
Office of Counsel	IDEM
Sediment Coordinator	IDEM
GIS	IDEM
Communications	IDEM
Regulatory Issues	IDEM
Environmental Assessment	InDNR
Environmental Assessment	InDNR
Environmental Assessment	USFWS-Bloomington, IN
Environmental Assessment	USEPA Region 5
Office of Counsel	USEPA Region 5

GENERAL REVIEW PROCESS

As noted above, External Peer Review for this study will be limited to two specific technical areas that are important elements of the Feasibility Study formulation and design. Great Lakes and Ohio River Division (LRD) and Office of Water Project Review, HQUSACE (OWPR) were consulted on the use of a selected ERP for this study.

An Independent Technical Review (ITR) of the Feasibility Report and EIS at specific phases during development have been and continue to be conducted to ensure that planning and NEPA guidelines are met and that products are appropriate from a technical point of view. This is a formal and comprehensive review of the draft and final products by the ITR team. The goal of the ITR is to improve product quality and ensure compliance with policy and standard technical practices. The basis for review comments should be the verification that an acceptable design and/or alternatives are being proposed and that the design complies with standard practices. While the ITR team may need to perform calculations as a check, the ITR process is not intended to be a detailed check of design calculations, spelling, or grammar. This is part of the quality control process and the responsibility of the Product Development Team (PDT).

The Project's Independent Technical Review Team has been integral throughout the Feasibility Study process, and have already participated in a review of the draft feasibility study. The entire feasibility study report, including the NEPA documentation, will undergo ITR by a large multi-disciplinary team from Buffalo, Nashville and Rock Island Districts.

The Walla Walla Center of Expertise for Cost Estimating will conduct the ITR Review of the project cost estimate. In addition, the CX will conduct, in conjunction with Chicago and Buffalo Districts, a Risk Analysis on the Cost Estimate.

Dr. Checks is being utilized by both the review teams. The design of the sediment cap and the biological indices will be peer reviewed by an external panel. A small number of reviewers (4-5) will constitute the external review panel for the study. The ITR team is listed in Table 2.

Table 2 – Grand Calumet River Feasibility Independent Technical Review Team

Discipline	Office/Agency
Plan Formulation	CELRN-PM-P
Environmental Compliance	CELRN-PM-P
Environmental Engineering	CELRB-TD-EE
Risk Assessment (Human Health)	CELRB-TD-EH
Hydraulic Analysis	ERDC
Risk Assessment (Human Health)	USEPA Region V
Ecosystem Restoration	CEMVR-PM-F
Aquatic Toxicology	CEMVR-PM-A
Ecosystem Restoration	CEMVR-PM-A
Cost Engineering	CENWW-EC-X

MODEL CERTIFICATION

EC 1105-2-407, "Planning Models Improvement Program: Model Certification", requires that all planning models and analytical tools that planners use to define water resources management problems and opportunities, and that support decision making, be certified. For the Grand Calumet River Feasibility Study, the District is utilizing existing, peer reviewed indices for the formulation and evaluation of the various plans developed during the study process. In addition to these published indices, IWR-PLAN, a Corps of Engineers model, is being used to conduct the Cost-Effective Incremental Analysis.

The external peer review panel will evaluate the appropriateness of the published indices in the formulation and decision making processes for the Grand Calumet River Study. It is not anticipated that further certification or review is necessary for these indices.

Use of IWR-PLAN is required for all Ecosystem Restoration Studies. It is assumed that corporate certification of this Corps model is being addressed by the appropriate Planning Centers of Expertise and the Institute for Water Resources.

EXTERNAL REVIEW PROCESS

The lead for Ecosystem Restoration External Peer Review is the National Center for Ecosystem Restoration (PCX). The PCX delegated the lead for this work to the Rock Island District. Key members of the external review action team and their roles are shown in Table

Table 3 – External Peer Review Action Team

Office	Organization	Roles and Responsibilities
Rock Island District	CEMVR-PM-F	EPR Project Manager
Alaska District	CEPOA-CW-PE	Main POC with Corps offices P2 and CEFMS processing Peer Reviewer Selection Scope and Document reviews
Detroit District	CELRE-CT	Procurement
Alaska District	CEPOA-CW-PE	Scopes

Additionally, documentation will be provided on the academic peer review that has been completed on the indices utilized in the evaluation of ecosystem outputs. The documentation will be included in an appendix to the Feasibility Study by Chicago District staff.

Alaska District will prepare scopes of work, manage the contracting, and manage the external review. The feasibility study and cap design will be finalized by the Chicago District after ITR and EPR are complete.

EXTERNAL PEER REVIEW PANEL

The external peer reviewers for the sediment cap will address the following:

- Are the design analysis methods and assumptions sound?
- Are there any serious design flaws, or has any important consideration been overlooked in the design of the cap?
- Are the materials used appropriate for the conditions (physical, chemical, and biological) anticipated in the river?
- How constructible is the design, and will the materials be easy to place?
- Does the panel have any suggestions about placement or construction technology or dos/don’ts?

- Is everything commercially and readily available, so that the technology is suitable for open bidding?

- Are there any anticipated problems with gas emissions from the sediment? Is there any design feature that we could incorporate that would mitigate any problems from gas bubbles?

The peer reviewers for the biological indices and indicator contaminants will address the following questions:

- Is the methodology utilized to correlate PAH concentrations to MIBI and IBI scientifically defensible?

- Is the matrix that utilizes the PAH-MIBI/IBI correlation and Indiana index systems to project anticipated outputs for with project conditions scientifically defensible?

One of EPR manager's initial tasks will be to identify a minimum of ten subject matter experts for consideration. The candidates for the panel will meet the following minimum requirements.

- The candidate must be available for the entire review period including responding to Corps responses to peer review panel comments;
- The candidate must be able to complete the work products within the specified review period;
- The candidate must be a subject matter expert in their field;
- The candidate must be unbiased;
- The Candidate is not an employee of the Corps of Engineers;
- The Candidate has not conflict of interest regarding the Grand Calumet River/Indiana Harbor Canal project

From the candidate pool, four to five panelists are expected to be selected for the actual external peer review panel. The Alaska District will lead the selection of the final panelists; the selection of the panelist will be coordinated with the PCX and potentially others designated by the PCX. Chicago District staff will not be consulted on the selection.

SELECTION CRITERIA

The EPR team will identify external peer review panelists who have the requisite qualifications and who can provide good, clear, and objective comments. It is anticipated that the panel may include representatives of non-government entities, academic institutions, and resource agencies. The EPR team will develop the charge to the panelists

and will survey the panelists to ascertain their availability. Once the panelists have been identified, the Alaska District will screen the panelists for eventual selection to the external peer review panel. To make this selection, the following criteria will be evaluated:

- Scientific and technical stature -- Evidence of stature in the broad scientific and technical community (invited contributions to workshops, conferences or panels; evidence of scientific and technical leadership; awards, membership, or important committee assignments in prestigious organizations).
- Advisory experience -- Experience advising top managers and promoting constructive uses of science and technology, especially in arenas relevant to water and sediment management and/or ecosystem restoration.
- Technical publications -- A strong record of publication in peer-reviewed scientific literature or other appropriate venues in an area of expertise relevant to the issues at hand.
- Relevant knowledge -- Evidence of extensive and/or intensive working knowledge of a scientific or technical field related to the specific issues of concern.
- People skills -- Evidence of abilities to work and communicate well with people.
- Reputation for achieving balance -- Evidence of ability to weigh issues in a balanced manner when in an advisory capacity.
- Interdisciplinary skills -- Evidence of ability to work and think across disciplines, and/or experience in working with and advising on complex issues that integrate multiple disciplines.

It is important that the external peer review panel be comprised of multiple technical disciplines covering a broad area of study. However, because the information in the interim report is expected to be technically limited, it is expected that the composition of the external peer review panel should include some, but not necessarily all, of the following disciplines:

- Geotechnical Engineering
- Hydraulic Engineering
- Environmental Engineering
- Aquatic Biology & Toxicology
- Ichthyology
- Ecosystem Restoration
- General Civil Engineering and Operations

a. The anticipated timing of the external peer review is September 2007. Independent Technical Review of the Feasibility Study will be concurrent with the ERP.

b. The external peer review will be conducted through a panel. It will be conducted in accordance with EC 1105-2-408

c. The EIS and feasibility study report will be released for public review as required under NEPA. Public meetings will be held as part of the NEPA process; these will occur after the external peer review is completed. The pubic will be able to view the feasibility study and EIS at selected locations in the communities of East Chicago, Hammond and Gary during the public comment period. Informational meetings in each community will be held prior to the public meeting required by NEPA.

d. The PRP will be posted online via the Mississippi Valley Division (MVD) web site and the District web site. Press releases will be made to advise local residents of the opportunity to comment on the review plan.

e. No public comments will be available to the EPR team since the public review will occur after the external peer review.

f. The anticipated number of external peer reviewers is 4 to 5.

g. Disciplines needed for the external peer review include: geotechnical engineering, hydraulic engineering, environmental engineering, aquatic biology and toxicology, ichthyology, and ecosystem restoration. General civil engineering and operations are also useful fields of experience.

h. External peer reviewers will be selected by staff from the National Center of Expertise for Ecosystem Restoration, Mississippi Valley Division, Rock Island District and Alaska. Rock Island is the Action District for the External Peer Review. The Rock Island POC is Ms. Jodi Staebell. The Alaska District POC is Valerie Hansen

i. The public and professional communities are NOT being asked to nominate external peer reviewers due to time limitations.

KEY ITR and EPR REVIEW ASSUMPTIONS

- All reviews, documents, and information sharing will be handled electronically via electronic mail, ftp website, or CD storage.
- No travel will be required of the external peer reviewers. If panel members are not local, meeting can be held via teleconference or video-teleconference.
- Dr. Checks will be utilized for ITR comments.
- ITR comments will be resolved by PDT and ITR members in Dr. Checks prior to report submittal.

- LRC will provide a written response to comments from the EPR panel addressing agreement or disagreement and associated actions.
- External peer review documentation will be appended to the draft report. ITR documentation will be provided with the Transmittal and Project Guidance Compliance memoranda.

PRODUCTS

The review process will generate two products. The first product is documentation of ITR and comment resolution. The second is documentation of external peer review comments, written PDT responses, and external panel acknowledgement. This product will be appended to the Feasibility Study. A list of the external peer review panel members will be provided in the review product; however, the source of specific comments will not be identified, so as to avoid potential public attribution.

SCHEDULE

Grand Calumet River Study Schedule

Nov 2007

	Scheduled Completion	**Actual Completion/ Revised Scheduled Completion**
Complete ITR AFB package	Feb 16 2007	Feb 16 2007
IPR with LRD/RIT/OWPR	Feb 15 2007	Feb 15 2007
submit AFB package	Mar 1 2007	Mar 1 2007
IPR with LRD/RIT/OWPR, if necessary	Apr 6 2007	-
AFB	Apr 30 2007	May 2 2007
IPR with LRD/RIT/OWPR	-	Jun 26 2007
resolve AFB issues/prepare final PGM	Jul 16 2007	Jul 20 2007
Prepare Draft Feasibility Report & EIS	Aug 10 2007	Sep 21 2007
IPR with LRD/RIT/OWPR	Aug 30 2007	Oct 12 2007
Complete ITR Draft Feasibility Report & EIS	Sep 14 2007	Nov 26 2007
Submit Draft Feasibility Report & EIS to LRD/HQUSACE	Sep 21 2007	Dec 03 2007
Initiate peer review	Sep 24 2007	Sep 4 2007
OWPR/RIT Comments to LRC	Oct 19 2007	Jan 03 2008
IPR with LRD/RIT/OWPR	Oct 26 2007	Jan 11 2008
Release DEIS for 45 day public review	Nov 2 2007	Jan 20 2008
Public and peer review complete	Dec 17 2007	Mar 06 2008
Final public meeting	Dec 17 2007	Mar 06 2008
Prepare Final Feasibility Report & EIS	Jan 31 2007	Apr 07 2008
IPR with LRD/RIT/OWPR	Feb 15 2008	Apr 23 2008

Complete ITR Final Feasibility Report & EIS	Mar 7 2008	May 13 2008
Submit Final Feasibility Report & EIS to LRD/HQUSACE	Mar 21 2008	May 27 2008
Project Authorization Type 312		
Pre-Brief w/LRD	N/A	N/A
DE's Notice	N/A	N/A
Dry Run for Mock CWRB	N/A	N/A
Mock CWRB	N/A	N/A
CWRB	N/A	N/A
Public review of FEIS begins	Apr 4 2008	May 12 2008
Public review of FEIS complete	May 4 2008	Jun 12 2008
State and Agency Review of FEIS begins	N/A	N/A
S&A review complete	N/A	N/A
Final Policy Compliance Certification	May 12 2008	Jun 20 2008
RIT prepares submittal package for ASA(CW)	May 28 2008	Jul 7 2008
Chief's Report Complete	N/A	N/A
Submit to ASA(CW)	Jun 16 2008	Jul 25 2008
Final Report Processing	TBD	TBD
ASA(CW) approves report	Sep 30 2008	Oct 30 2008
ROD signed	TBD	TBD
Chief's Report to Congress	N/A	N/A
ASA (CW) transmit report to OMB	Oct 31 2008	Nov 30 2008
Project Approval	Feb 2009	Mar 2009

Assumptions:
1/ General funding assumption - $250K of FY07 funds will be provided in addition to Administration FY07 Budget request and sufficient funding will be available in FY08
2/ Sponsors (IDEM and IDNR) complete work-in-kind for Draft EIS on schedule
3/ Comments of RIT and the public/agencies will not require significant changes to the project design, and that a limited ITR will suffice
4/ Assumes all agency letters are received in a timely manner
5/ Letter from USEPA stating support for project is necessary for final report to be approved
6/ No DE notice required with submittal of draft final decision document to LRD/HQ per implementing guidance for 312(b) and no requirement for specific authorization
7/ No Chiefs Report required per implementing guidance for 312(b)

Abbreviations:
ITR – Independent Technical Review
AFB – Alternative Formulation Briefing
LRD – Great Lakes and Ohio River Division
LRC – Chicago District
RIT – Regional Integration Team, HQUSACE
OWPR – Office of Water Project Review, HQUSACE
PGM – Policy Guidance Memorandum
CWRB – Civil Works Review Board
IPR – In Progress Review
ROD – Record of Decision