OCT 22 2008

DEPARTMENT OF THE ARMY
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS
FORT HAMILTON MILITARY COMMUNITY
BROOKLYN, NEW YORK 11252-6700

OCT 22 2008

REPLY TO
ATTENTION OF

OCT 22 2008

CENAD-PSD-P

MEMORANDUM FOR Commander, New York District, ATTN: CENAN-PP

SUBJECT: Review Plan Approval for Mamaroneck and Sheldrake Rivers Basin General Reevaluation Study, Village Of Mamaroneck, Westchester County, New York

1. Reference:

a. EC 1105-2-410, Review of Decision Documents, 22 August 2008.

b. Memorandum, CECW-CP, 30 March 2007, subject: Peter Review Process.

2. The enclosed Review Plan for the Mamaroneck and Sheldrake Rivers Basin General Reevaluation Study, Village Of Mamaroneck, Westchester County, New York has been prepared in accordance with the referenced guidance.

3. The Review Plan has been made available for public comment, and any comments received have been incorporated. It has been coordinated with the Planning Center of Expertise for Flood Risk Management. The Review Plan currently includes independent external peer review.

4. I hereby approve this Review Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.

Encl

for Joseph R. Vietri
Chief, Planning & Policy Community of Practice
Program Support Division
Programs Directorate

REVIEW PLAN

MAMARONECK AND SHELDRAKE RIVERS BASIN
GENERAL REEVALUATION STUDY
VILLAGE OF MAMARONECK, WESTCHESTER COUNTY, NEW YORK

NEW YORK DISTRICT

August 2008
Revised October 2008 - Final

US Army Corps
of Engineers®
New York District

REVIEW PLAN

MAMARONECK AND SHELDRAKE RIVERS BASIN
GENERAL REEVALUATION STUDY
VILLAGE OF MAMARONECK, WESTCHESTER COUNTY, NEW YORK

NEW YORK DISTRICT

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REVIEW PLAN

MAMARONECK AND SHELDRAKE RIVERS BASIN
GENERAL REEVALUATION STUDY
VILLAGE OF MAMARONECK, WESTCHESTER COUNTY, NEW YORK

NEW YORK DISTRICT

1. PURPOSE AND REQUIREMENTS

A. **Purpose.** This document outlines the review plan for the Mamaroneck and Sheldrake Rivers Basin General Reevaluation Study. Engineer Circular (the Circular) *Peer Review of Decision Documents* 1105-2-410, dated 22 August 2008 a) establishes procedures to ensure the quality and credibility of Corps decision documents by adjusting and supplementing the review process and b) requires that documents have a review plan. The Circular applies to all feasibility studies and reports and any other reports that lead to decision documents that require authorization by Congress. The feasibility level type report in this effort may lead to Congressional Re-Authorization and is therefore covered by the Circular. Additionally, any models used in developing a decision document is subject to the requirements of EC 1105-2-407 "Planning Models Improvement Program: Model Certification" (May 31, 2005)

B. **Requirements.** The Circular outlines the requirement of the two review levels [agency technical review (ATR) and independent external peer review(IEPR)] and provides guidance on Corps Planning Centers of Expertise (PCX) involvement in the approach. This document addresses review of the decision document as it pertains to both levels of review, to the extent warranted, and planning coordination with the appropriate Center.

(1) ATR. Districts are responsible for reviewing the technical aspects of the decision documents through an initial ATR level or approach. ATR is a critical examination by a qualified person or team that was not involved in the day-to-day technical work that supports the decision document. ATR is intended to confirm that such work was done in accordance with clearly established professional principles, practices, codes, and criteria. In addition to technical review, documents should also be reviewed for their compliance with laws, regulations and policy. The Circular also requires that DrChecks (https://www.projnet.org/projnet/) be used to document all ATR comments, responses, and associated resolution accomplished.

(2) IEPR. The Circular added independent external peer review to the existing Corps review process. This approach does not replace the standard ATR process. The independent external peer review requirement applies in special cases where the magnitude and risk of the project are such that a critical examination by a qualified person outside the Corps is necessary. IEPR can also be used where the information is based on novel methods, presents complex interpretation challenges, contains precedent-setting methods or models, or is likely to affect policy decisions that have a significant

impact. The degree of independence required for technical review increases as the project magnitude and project risk increase. For this project, we expect to conduct an ATR using other Corps of Engineers Districts as well as IEPR utilizing outside sources.

(3) PCX Coordination. The Circular outlines PCX coordination in conjunction with preparation and execution of the review plan. Districts should prepare the plans in coordination with the appropriate PCX. The Corps PCX is responsible for the accomplishment and quality of ATR and IEPR for decision documents covered by the Circular. Centers may conduct the review or manage the review to be conducted by others, with IEPR always being conducted by outside experts. Reviews will be assigned to the appropriate PCX based on business line programs. Each PCX is required to post review plans to its website every three months as well as links to any reports that have been made public.

2. PROJECT DESCRIPTION

A. Decision Document. The purpose of this study is to identify and evaluate Flood Risk Management (FRM) options in the Mamaroneck and Sheldrake Rivers Basin authorized project, specifically within the Village of Mamaroneck. The decision document will present planning, engineering and implementation details of the recommended plan to allow final design and construction to proceed subsequent to approval of the plan. The effort is a General Investigations funded study undertaken to evaluate structural and non-structural flood damage reduction measures, including but not limited to, a diversion tunnel and channel modifications. The General Reevaluation of this study is cost shared 75/25 with the project sponsor, the New York State Department of Environmental Conservation.

B. General Site Description. The Mamaroneck and Sheldrake Rivers basin has a 23 square mile drainage area and is located along the northern coast of Long Island Sound within the New York City metropolitan area. The Mamaroneck and Sheldrake Rivers Basin lies entirely within Westchester County, New York and contains portions of the Village and Town of Mamaroneck, the Cities of New Rochelle and White Plains, the Towns of Harrison and North Castle, and the Village of Scarsdale. Both the Mamaroneck and Sheldrake Rivers travel through heavily urbanized areas and have inadequate capacity to control flood flows. The Village of Mamaroneck is located at the bottom of the drainage basin. Twice in the Spring of 2007, the Village of Mamaroneck was inundated by flooding from both rivers.

C. Project Scope. The study will focus on FRM alternatives along the Mamaroneck and Sheldrake Rivers Basin within the Village of Mamaroneck. Estimates of total project cost range from $65M to over $150M if a tunnel plan is the selected alternative.

D. Problems and Opportunities. The primary water resources problem within the Mamaroneck and Sheldrake Rivers Basin is flooding.

E. Potential Measures. At a minimum, the potential FRM measures that may be examined in the reevaluation report include channel modification, levees, floodwalls, detention, diversion, as well as non-structural measures and the "no action" alternative. Solutions may include, but will not be limited to; variations of the recommended plan's components such as channel work, diversion

tunnel, levees and floodwalls. More specifically, the tunnel's alignment, desired level of protection and detention upstream will be formulated. Non-structural measures such as "buyouts" and preservation and/or creation of open space in the floodplain will also be reconsidered in light of changes to existing conditions and changes to environmental policy.

However, since the Feasibility Report and GDM have already been completed, we may be able to focus efforts on review of plans which were the most feasible, based on the prior information. Therefore, we propose to examine a number of preliminary alternatives as listed below.

1. The original plan (channel modification and diversion tunnel);
2. Channel modification only;
3. Channel modification with new tunnel alignment (along Mamaroneck Avenue or another route with an outlet into the East Basin of Mamaroneck Harbor);
4. Non-structural plan alone.
5. Non-structural plan in combination with any of the plans mentioned above.
6. No Action Plan.

The previously authorized plan would have provided for Standard Project Flood (SPF) protection on the Sheldrake River and 200-year protection on the Mamaroneck River. The non-Federal sponsors and the local interests have indicated that SPF protection is not necessarily required and they would accept a lower level of protection for the Village. Therefore, we believe that a plan could be formulated which would provide protection to the Village, be economically justified, and acceptable to the local community.

F. Project Delivery Team. The Project Delivery Team (PDT) is comprised of those individuals directly involved in the development of the decision document. Individual contact information and disciplines are presented in Appendix B.

G. Vertical Team. The Vertical Team includes District Management (Resource Providers), District Support Team (DST) and Regional Integration Team (RIT) staffs as well as members of the Planning Community of Practice (PCoP). Specific points of contact for the Vertical Team can be found in Appendix B.

H. Planning Model Certification. The PCX should recognize that they are responsible for identifying which models qualify as planning models and the extent to which they need to be processed under current model certification processes in use by the PCXs. The computational models to be employed in the Mamaroneck and Sheldrake Rivers Basin General Reevaluation Study have either been developed by or for USACE. However, the District will coordinate the use and certification of these models with the appropriate PCX. More specifically, the models to be employed in the completion of this General Reevaluation Study are as follows:

• MCACES: This is a cost estimating model that was developed by Building Systems Design Inc. The Army Corps of Engineers began using this model in 1989.

• HEC-FDA: This model, developed by the Corps' Hydrological Engineering Center, will assist the PDT in applying risk analysis methods for flood damage reduction studies as required by, EM 1110-2-1419. This program:

- Provides a repository for both the economic and hydrologic data required for the analysis
- Provides the tools needed to understand the results
- Calculates the Expected Annual Damages and the Equivalent Annual Damages
- Computes the Annual Exceedance Probability and the Conditional Non-Exceedance Probability
- Implements the risk-based analysis procedures contained in EM 1110-2-1619

• HEC-RAS: The function of this model is to complete one-dimensional hydraulic calculations for a full network of natural and man made channels. HEC-RAS major capabilities are:

- User interface
- Hydraulic Analysis
- Data storage and Management
- Graphics and reporting

• HEC-HMS: By applying this model the PDT is able to:

- Define the watersheds' physical features
- Describe the metrological conditions
- Estimate parameters
- Analyze simulations
- Obtain GIS connectivity

In addition, the PDT has determined that in order to evaluate impacts of the alternatives, the project may use Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service and other agencies. The specific HEP models have not yet been identified.

The HEP is an established approach to assessment of natural resources. The HEP approach has been well documented and is approved for use in Corps projects as an assessment framework that combines resource quality and quantity over time, and is appropriate throughout the United States. The Habitat Suitability Index (HSI) models are the format for quantity determinations that are applied within the HEP framework. The following guidelines are provided to help determine the need for certification. ATR of input data may also be appropriate.

- New HSI models developed by the Corps are subject to certification.
- Published HSI models, while peer-reviewed and possibly tested by the developers, are subject to review and approval by the PCX.
- Modifications to published HSI models, where relationships or formulas are changed, may be subject to certification.

Model certification and approval for all identified planning models will be coordinated through the appropriate PCX as needed. Project schedules and resources will be adjusted to address this process for certification and PCX coordination.

I. District Quality Control. Initial Quality Control (QC) review will be handled within the Branch performing the work. Additional QC will be performed by the Project Delivery Team (PDT) during the course of completing the General Reevaluation Study. The detailed checks of

computations and methodology should be performed at the District level, and the processes for this level of review are well established.

3. Agency Technical Review Plan

As outlined above in paragraph 1.B. (1), the District is responsible for ensuring adequate technical review of decision documents. The responsible PDT District of this decision document is New York (NAN). It is recommended that the Flood Risk Management PCX nominate individuals to serve as the review team, however, proposed Districts to undertake the review are included in Appendix B.

A. General. An ATR Manager from a district outside of NAD will be designated for the ATR process by the PCX. The ATR Manager is responsible for providing information necessary for setting up the review, communicating with the New York District's Plan Formulation Team Leader, providing a summary of critical review comments, collecting grammatical and editorial comments from the ATR team (ATRT), ensuring that the ATRT has adequate funding to perform the review, facilitating the resolution of the comments, and certifying that the ATR has been conducted and resolved in accordance with policy.

B. ATR Team (ATRT). The ATRT will be comprised of individuals that have not been involved in the development of the decision document and will be chosen based on expertise, experience, and/or skills. The members will roughly mirror the composition of the PDT. It is anticipated that the team will consist of approximately 8 reviewers. The ATRT members will be identified at the time the review is conducted and will be presented in Appendix B. The PCX will coordinate with the Cost Estimating Directorate of Expertise (DX) (Walla Walla District) for their participation in ATR. Furthermore, if the total project cost is greater than $40 million, a cost risk analysis will also need to be performed by the DX. A description of the disciplines needed for the ATRT is also provided in Appendix B.

C. Communication. The communication plan for the ATR is as follows:

(1) The team will use DrChecks to document the ATR process. The Plan Formulation Team Leader will facilitate the creation of a project portfolio in the system to allow access by all PDT and ATRT members. An electronic version of the document, appendices, and any significant and relevant public comments shall be posted in Word format at: ftp://ftp.usace.army.mil/pub/ at least one business day prior to the start of the comment period.

(2) The PDT shall host an ATR kick-off meeting virtually to orient the ATRT during the first week of the comment period. If funds are not available for an on-site meeting, the PDT shall provide a presentation about the project, including photos of the site, for the team.

(3) The Plan Formulation Team Leader shall inform the ATR manager when all responses have been entered into DrChecks and conduct a briefing to summarize comment responses to highlight any areas of disagreement.

(4) A revised electronic version of the report and appendices with comments incorporated shall be posted at ftp://ftp.usace.army.mil/pub/ for use during back-checking of the comments.

(5) Team members shall contact ATRT members or leader as appropriate to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks, but a summary of discussions may be provided in the system.
(6) Reviewers will be encouraged to contact PDT members directly via e-mail or phone to clarify any confusion. DrChecks shall not be used to post questions needed for clarification.

D. Funding

(1) The PDT district shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Plan Formulation Team Leader and the District's Project Manager will work with the ATR manager to ensure that adequate funding is available and is commensurate with the level of review needed. The current cost estimate for each review is $35,000 (AFB, Draft Report, Final Report). Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.
(2) The team leader shall provide organization codes for each of the team members and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes.
(3) Reviewers shall monitor individual labor code balances and alert the ATRT Study Manager to any possible funding shortages.

E. Timing and Schedule

(1) Throughout the development of this document, the team will hold planning meetings to ensure planning quality. Senior staff and subject matter experts from the PDT District and members of the vertical team (DST, PCX, Planning CoP, and RIT, as needed) will attend the meetings and provide comments on the product (2) The ATR will begin with the Alternative Formulation Briefing (AFB). This will include the formulation process, economics, environment impact assessment, preliminary engineering design and the recommended plan.
(2) The PDT will hold a "page-turn" session to review the draft report to ensure consistency across the disciplines and resolve any issues prior to the start of ATR. Writer/editor services will be performed on the draft prior to ATR as well.
(3) The ATR process for this document will follow the timeline below. Actual dates will be scheduled once the period draws closer. It is estimated that review of the AFB will begin in the 2nd Quarter of FY 2010.

Task	**Date**
ATR of draft AFB documentation begins	January 2010
Draft Report Complete	April 2011
ATR of Draft Report Complete	May 2011
IEPR of Draft Report Complete	August 2011
Public Review of Draft Report	September 2011
ATR Certification/Completion	October 2011
Final Report	January 2012

F. Review

(1) ATRT responsibilities are as follows:

(a) Reviewers shall review the draft report to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the report shall be submitted into DrChecks.

(b) Reviewers shall pay particular attention to one's discipline but may also comment on other aspects as appropriate. Reviewers that do not have any significant comments pertaining to their assigned discipline shall provide a comment stating as such.

(c) Grammatical and editorial comments shall not be submitted into DrChecks. Comments should be submitted to the ATR manager via electronic mail using tracked changes feature in the Word document or as a hard copy mark-up. The ATR manager shall provide these comments to the Plan Formulation Team Leader.

(d) Review comments shall contain these principal elements:

- a clear statement of the concern
- the basis for the concern, such as law, policy, or guidance
- significance for the concern
- specific actions needed to resolve the comment

(e) The "Critical" comment flag in DrChecks shall not be used unless the comment is discussed with the ATR manager and/or the Plan Formulation Team Leader first

(2) PDT Team responsibilities are as follows:

(a) The team shall review comments provided by the ATRT in DrChecks and provide responses to each comment using "*Concur*", "*Non-Concur*", or "*For Information Only*". *Concur* responses shall state what action was taken and provide revised text from the report if applicable. *Non-Concur* responses shall state the basis for the disagreement or clarification of the concern and suggest actions to negotiate the closure of the comment.

(b) Team members shall contact the PDT and ATRT managers to discuss any "Non-Concur" responses prior to submission.

G. Resolution

(1) Reviewers shall back check PDT responses to the review comments and either close the comment or attempt to resolve any disagreements. Conference calls shall be used to resolve any conflicting comments and responses.

(2) Reviewers may "agree to disagree" with any comment response and close the comment with a detailed explanation. If reviewer and responder cannot resolve a comment, it should be brought to the attention of the ATR manager and, if not resolved by the ATR manager, it should be brought to the attention of the planning chief who will need to sign the certification. ATRT members shall keep the ATR manager informed of problematic comments. The vertical team will be informed of any policy variations or other issues that may cause concern during HQ review.

H. Certification

To fully document the ATR process, a statement of technical review will be prepared. Certification by the ATR manager and the Plan Formulation Team Leader will occur once issues raised by the reviewers have been addressed to the review team's satisfaction and the final report is ready for submission for HQ review.

Indication of this concurrence will be documented by the signing of a certification statement (Appendix A). A summary report of all comments and responses will follow the statement and accompany the report throughout the report approval process. An interim certification will be provided by the ATR team lead to indicate concurrence with the report to date until the final certification is performed when the report is considered final.

I. Alternative Formulation Briefing (AFB)

The AFB for this project will occur after the PDT has developed the alternatives to a sufficient level of detail that would allow for review of the plan formulation process. It is possible that the briefing will result in technical or policy comments from high level reviewers for resolution. The resolution of significant policy comments may result in major changes to the document. Therefore, the ATR team lead will perform a brief review of the report to ensure that technical issues are resolved.

4. Independent External Peer Review Plan

This decision document will present the details of a General Reevaluation study undertaken to evaluate structural and non-structural flood damage reduction measures including a diversion tunnel and channel modification in the Mamaroneck and Sheldrake Rivers Basin at the Village of Mamaroneck, Westchester County, New York as described in Paragraph 2, above. At this time, our assumption is that this project will trigger the requirements for Independent External Peer Review(IEPR) as described in the Circular and in Section 2034 of WRDA 2007 based on project costs alone, which are anticipated to be over $100M for construction. It is not expected that the report will disseminate influential scientific information or conduct any influential scientific assessments. It is expected that the PCX will select the organization to be utilized to conduct the External Peer Review. The PMP for this study includes a maximum placeholder of $500K for the cost of the IEPR, which is a 100% Federal cost.

A. Project Magnitude. Project magnitude was assessed using table 4.1 below. Other District projects were considered as a comparison to the anticipated magnitude of the Mamaroneck and Sheldrake Rivers Basin General Reevaluation Study.

B. Project Risk. Project Risk was assessed using Table 4.2 below. Other District projects were considered as a comparison and previous project experience was also considered when making this analysis.

Table 4.1: Project Magnitude Assessment

Project Magnitude Item	**Assessment Score (Low Degree to High Degree)**					**Score**
	Low		Medium		High	
Project Schedule/Cost	1	2	3	4	5	4
Project Complexity	1	2	3	4	5	3
Project Benefits	1	2	3	4	5	4

Project Scale	1	2	3	4	5	4
Avg. Project Magnitude Score						**3.75**

Table 4.2: Project Risk Assessment

Project Risk Item	**Assessment Score (Low Degree to High Degree)**					**Score**
	Low		Medium		High	
Potential for Failure	1	2	3	4	5	3
Uncertainties of Predictions	1	2	3	4	5	4
Long Term Cumulative Effects/Customer Expectations	1	2	3	4	5	5
Staff Technical Experience	1	2	3	4	5	2
Failure Impact and Consequences	1	2	3	4	5	5
Avg. Project Risk Assessment Score						**3.8**

C. Vertical Team Consensus. This review plan will serve as the coordination document to obtain vertical team consensus. Subsequent to PCX approval, the plan will be provided to the NAD for approval. MSC approval of the plan will indicate vertical team consensus. A separate IEPR will be conducted on the decision document. The ATR, IEPR, Public and Agency Review will serve as the main review approaches.

5. Public and Agency Review

Public review of the draft report will occur after completion of the ATR and IEPR and concurrence by NAD and HQUSACE that the document is ready for public release. As such, public comments other than those provided at any public meetings held during the planning process will not be available to the review team. However, the PDT may hold an "information session" with the public to describe the recommendations and findings and to gather public opinion information, which will then be available to the IEPR Panel.

Public review of the draft report will begin approximately one (1) month after the completion of the ATR/IEPR process and policy guidance memo. The period will last 30 days as required. Public review comments will be forwarded to the ATR and IEPR Team Leads upon completion of the public review comment period.

A formal State and Agency review will occur concurrently with the public review. However, it is anticipated that intensive coordination with these agencies will have occurred concurrently with the planning process.

Upon completion of the review period, comments will be consolidated and addressed if needed. A comment resolution meeting will take place if needed to decide upon the best resolution of comments. A summary of the comments and resolutions will be included in the final document.

6. PCX Coordination

The appropriate PCX for this document is the National Flood Risk Management Center of Expertise located at South Pacific Division (SPD). This review plan will be submitted to the

PCX Director, for approval and designation of an ATRT manager. Since it was determined that the total project costs will likely exceed the $45M threshold, IEPR will be required. As such, the PCX will be asked to manage the Peer Review process and is requested to nominate the ATR team as discussed in Paragraph 3.b above. The approved review plan will be posted to the PCX website.

7. APPROVALS

The PDT will carry out the review plan as described. The Plan Formulation Team Leader will submit the plan to the PDT District Planning Chief for approval. Coordination with the PCX will occur through the PDT District Planning Chief.

APPENDIX A
STATEMENT OF TECHNICAL REVIEW

COMPLETION OF AGENCY TECHNICAL REVIEW
MAMARONECK AND SHELDRAKE RIVERS BASIN
GENERAL REEVALUATION STUDY
WITH ENVIRONMENTAL IMPACT STATEMENT AND APPENDICES

The New York District has completed the project implementation report (General Reevaluation Report) with an Environmental Impact Statement and appendices for the Mamaroneck and Sheldrake River Basin Study. Notice is hereby given that an agency technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. During the agency technical review, 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 result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ATR was accomplished by an agency team composed of staff from multiple districts. All comments resulting from the ATR have been resolved.

TBD_____ _____

NAME DATE

Team Leader, Mamaroneck and Sheldrake Rivers Basin
Agency Technical Review Team

_____

Plan Formulation Team Leader
New York District

CERTIFICATION OF AGENCY TECHNICAL REVIEW

A summary of all comments and responses is attached. Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact and resolution)

As noted above, all concerns resulting from the agency technical review of the study have been fully resolved.

_____ _____

Chief, Planning Division
New York District

Date

REVIEW PLAN

MAMARONECK AND SHELDRAKE RIVERS BASIN
GENERAL REEVALUATION STUDY
VILLAGE OF MAMARONECK, WESTCHESTER COUNTY, NEW YORK

NEW YORK DISTRICT

APPENDIX B

REVIEW PLAN TEAMS

PROJECT DELIVERY TEAM

Name	Discipline	Phone	Email
Stricken	Project Management		
Stricken	Team Leader, Plan Formulation		
Stricken	Plan Formulation		
Stricken	Economics		
Stricken	Team Leader, Environmental Analysis		
Stricken	Biology/NEPA		
Stricken	Cultural Resources		
Stricken	Lead Project Engineer		
Stricken	Cost Engineering		
Stricken	Real Estate		
Stricken	Hydrology		
Stricken	Hydraulics		

AGENCY TECHNICAL REVIEW TEAM

Name	Discipline	Possible Review District**
TBD	ATR Manager/Plan Formulation	Norfolk
TBD	Civil Design	Fort Worth or Chicago
TBD	Biology/NEPA	New England
TBD	Hydrology/Hydraulics	Fort Worth or Chicago
TBD	Economics	Baltimore
TBD	Cost-Engineering*	New England
TBD	Real Estate	Baltimore
TBD	Cultural Resources	St. Louis

* The cost engineering team member nomination will be coordinated with the NWW Cost Estimating Center of Expertise as required. NWW will determine if the cost estimate will need to be reviewed by PCX staff. **All resumes will be reviewed and approved by the PCX prior to initiating any ATR.

INDEPENDENT EXTERNAL PEER REVIEWPANEL DISCIPLINES

Name	Discipline
TBD	Plan Formulation
TBD	Civil Design
TBD	Biology/NEPA
TBD	Hydrology/Hydraulics
TBD	Economics
TBD	Cost-Engineering

AGENCY TECHNICAL REVIEW TEAM AND INDEPENDENT EXTERNAL PEER REVIEWPANEL DISCIPLINE DESCRIPTIONS

Discipline-Specific Guidance & Requirements. ATR and IEPR Team representation is required in the disciplines listed below. In general, the ATR and IEPR team members will each have a

minimum of 15 years experience in their respective discipline. A statement of qualifications is required for each team member prior to acceptance as an ATR and IEPR Team member and for any subsequent changes thereto.

Hydrology & Hydraulics: Team member will be an expert in the field of urban hydrology & hydraulics, have a thorough understanding of the dynamics of the both open channel flow systems, enclosed systems, application of detention / retention basins, effects of best management practices and low impact development on hydrology, approaches that can benefit water quality, application of levees and flood walls in an urban environment with space constraints, non-structural measures especially as related to multipurpose alternatives including ecosystem restoration, non-structural solutions involving flood warning systems, and non-structural alternatives related to flood proofing. The team member will have an understanding of computer modeling techniques that will be used for this project (HEC-HMS, HEC-RAS, UNET, and TABS). A certified flood plain manager is recommended but not required.

Structural: Team member will have a thorough understanding of non-structural measures, levee, flood wall, and retaining wall design, and structures typically associated with levees (pump stations, gate well structures, utility penetrations, stoplog & sandbag gaps, and other closure structures). A certified professional engineer is recommended though not required.

Mechanical: Team member shall be familiar with levee pump station and closure structure design. Engineering disciplines other than Mechanical may be acceptable for review of this area of work subject to meeting the experience requirement stated above.

Electrical (if deemed necessary): Team member shall be familiar with levee pump station and electrical utilities design. Electrical ATR AND IEPR requirements for this study are very minimal.

Geotechnical: Team member will have extensive experience in levee & floodwall design, post-construction evaluation, and rehabilitation. A certified professional engineer is recommended.

Economics: Team member will have extensive experience in related flood damage reduction projects, and have a thorough understanding of HEC-FDA.
Plan Formulation: Team member will be familiar with watershed level projects, current flood damage reduction planning and policy guidance, and have experience in plan formulation for multipurpose projects, specifically integrating measures for flood risk management, ecosystem restoration, recreation, a watershed approach, and planning in a collaborative environment.

Plan Formulator: Team member will have extensive experience in the Corps planning process, policies, and guidelines. Team member will be familiar with watershed level projects, water resources, flood risk management, etc.

Civil / Site / Utilities / Relocations: This discipline may require a dedicated team member, or may be satisfied by structural or geotechnical reviewer, depending on individual qualifications. Team member will have experience in utility relocations, positive closure requirements and internal drainage for levee construction, and application of non-structural flood damage reduction, specifically flood proofing. A certified professional engineer is suggested.

Cost Estimating: Team member will be familiar with cost estimating for similar projects using MCACES. Team member will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. A separate process and coordination is also required through the Walla Walla District DX for cost engineering.

Other disciplines/functions involved in the project include Hazardous/Toxic Waste, Environmental/NEPA, Real Estate, Cultural Resources, and Legal. In each case, any required Independent Technical Review within these disciplines may be accomplished within District or by other independent sources. The general experience requirements and principles contained in this document also apply to these disciplines/functional areas.

(Exception: Legal review is not under the purview of the ATR AND IEPR Team Leader but is instead responsible to the Corps of Engineers Ofc of Counsel chain-of-command).

ATR AND IEPR Team Leader. One member of the ATR AND IEPR Team will act as the ATR AND IEPR team leader. Team leader designation will be finalized based on input from ATR AND IEPR Team members and the Project Manager, the PDT, and staff. The ATR AND IEPR leader shall, in addition to discipline-specific review requirements, be responsible for:

Acting as a liaison between the Product Development Team and the ATR Team
In conjunction with the PM, the ATR team leader will perform active coordination of theATR process and study findings with the Corps Flood Risk Management Center Expertise (FRM) in San Francisco District, and ensure compliance with an adequate level of FRM review.

Distributing information for review and coordinating efforts of the ATR Team. Ensuring that individual ATR Team members are operating IAW the guidelines established for ATR by ER 1110-1-105 (see enclosed exhibit for summary of the major ATR requirements described in this regulation).The ATR team is not geographically co-located. Therefore, it is of paramount importance that the ATR Team Leader be capable of organizing the total ATR efforts across District and Division boundaries. A substitute ATR Team Leader from the ATR team will be named by the ATR team leader for periods of extended (over 60 days) absence.

VERTICAL TEAM

Name	Discipline	Phone	Email
Stricken	NAN Plan Formulation Branch Chief		
Stricken	NAN PPMD Civil Works Branch Chief		
Stricken	NAN Environmental Analysis Branch Chief		
Stricken	NAN Civil Resources Branch Chief		
Stricken	NAD Planning CoP		
Stricken	NAD DST Lead		
Stricken	NAD RIT		
Stricken	FRM PCX Lead		
Others as necessary			