DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO CA 94103-1399

REPLY TO
ATTENTION OF

CESPK-PDC

12 JUN 2015

MEMORANDUM FOR Commander, Sacramento District, ATTN: Mr. Stacey Samuelson (CESPD-PD-P), 1325 J. Street, Sacramento, CA 95814-2922

SUBJECT: Review Plan approval for the Sacramento River Bank Protection Project (Phase III), California, General Reevaluation Report

1. The enclosed review plan for the Sacramento River Bank Protection Project (Phase III) General Reevaluation Report (GRR), dated 9 June 2015 (Enclosure 1) and review plan checklist, dated 21 April 2015 (Enclosure 2), was prepared in accordance with EC 1105-2-214.

2. The review plan was coordinated internally within the District Support Team and with the Flood Risk Management Planning Center of Expertise (FRM PCX) (Enclosure 3). The FRM PCX will serve as the Review Management Office.

3. With MSC approval, the review plan will be made available for public comment via the internet and comments received will be incorporated into future revisions.

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

5. For any additional information or assistance, contact Ms. Cynthia Jo Fowler, Acting District Support Team Lead, (415) 503-6870, Cynthia.J.Fowler@usace.army.mil.

BUILDING STRONG *and Taking Care of People!*

R. MARK TOY
Brigadier General, USA
Commanding

4 Encls
1-3. as
4. Revised Review Plan, 9 Jun 15

CF:
CESPD-PDC (Cynthia Jo Fowler)
CESPK-PD (Alicia Kirchner)

Enclosure 1

Flood Risk Management Planning Center of Expertise (FRM-PCX)
Sacramento River Bank Protection Project, California, General Reevaluation Report,
Review Plan
Approval Memorandum

21 May 2015

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

REPLY TO
ATTENTION OF

CESPD-PDP (FRM-PCX) 21 May 2015

MEMORANDUM FOR Stacy Samuelson, Sacramento District

SUBJECT: Sacramento River Bank Protection Project, CA General Re-evaluation Report Review Plan

1. The Flood Risk Management Planning Center of Expertise (FRM-PCX) has reviewed the review plan dated 20 May 2015 for the subject study and concurs that the plan satisfies peer review policy requirements outlined in Engineering Circular (EC) 1165-2-214 Civil Works Review, dated 15 December 2012, and outlines an appropriate scope and level of review given the available information in the review plan.

2. The initial FRM-PCX review was performed by Mr. Miki Fujitsubo, FRM-PCX Regional Manager for the South Pacific Division (SPD). A summary of the primary comments and District responses is attached. I performed the final FRM-PCX review and provided additional informal comments. All PCX comments have been satisfactorily resolved.

3. The FRM-PCX endorses the review plan for approval by the South Pacific Division (SPD), with the understanding the review plan will be updated promptly after the scope of the general evaluation study is refined through a planning charette process (currently scheduled for 30 November 2015). Upon approval of the review plan, please provide a copy of the approved plan, a copy of the SPD Commander's approval memorandum, and the link to where the plan is posted on the District website to Mr. Fujitsubo and me.

4. The review plan is a living document and should be updated as needed as the study progresses. Please provide any updates to the Agency Technical Review Lead (once assigned), Mr. Fujitsubo, and me to enable us to provide effective and timely PCX support for the study.

5. Thank you for the opportunity to assist in the preparation of the review plan. Please coordinate the peer review efforts defined in the plan with Mr. Fujitsubo, 916-557-7440.

E. Thaut

Digitally signed by
THAUT.ERIC.WILLIAM.1231631824
Date: 2015.05.21 12:47:42 -07'00'

Encl

Eric Thaut
Deputy Director, FRM-PCX

FRM-PCX Review Plan Comments and PDT Responses

11 May 2015

Project/Decision Document: Sacramento River Bank Protection Project, CA GRR
Program Code (CWIS or AMSCO):
P2 Code:
Review Plan Revision Date: 06 May 2015
District Office: SPK
PDT POC: Stacy Samuelson
FRM-PCX Reviewer: Miki Fujitsubo

Review Plan submitted to PCX: 13 March 2015
Funding provided to PCX: $3K
PCX comments provided: 08 April 2015 (first)
PDT response provided: 05 May 2015 (last)
PCX backcheck completed: 06 May 2015

A. Substantive Comments

Substantive comments address issues associated with the identifying the correct scope and/or level of peer review or with significant policy requirements of EC 1165-2-209. Substantive comments need to be resolved prior to the PCX recommending approval of the review plan by the home MSC. The District should provide written responses to these comments below and provide a revised review plan to the PCX for backcheck. The substantive PCX comments are:

Comment 1:

Basis: Study History and Study Area appears taken directly from previous Phase PMP/RP. Currently very limited, but important to frame the study area for a GRR level study. Study history has relevance to why the project evolved for the need of a GRR.

Significance: Study Area and History provides the context and clear footprint of study scope.

Recommended Action:

Study Area- Look at current descriptions which limit study to just the current SRBPP footprint on the river bank. Need to look beyond the banks and levees and into the watershed. Also, need to acknowledge the State CVFPP regions and planning areas. Coordinate CVFPP information

History-need to provide additional important history points to provide background and context for GRR. Coordinate CVFPP document information.

PDT Response: Added Revisions. Will update PMP.

Comment 2:

Basis: RP is unclear on how or if ecosystem restoration is being sought as a purpose or used for as an objective.

Significance: GRR is the opportunity to seeking new authorization and/or new purposes. Past history on the SRBPP with the resource agencies makes ecosystem an important component to consider for any SRBPP study.

Recommended Action: Clarify the significance of ecosystem restoration and how it will be (or not) integrated into any future study.

PDT Response: Added Revisions. Will update PMP.

Comment 3:

Basis: RP appears mainly to be copied from a previous RP for Sac Bank and revised to meet the needs for a GRR level and complexity of study.

Significance: RP needs to reflect the needs and specifics for this GRR.

Recommended Action: PDT to review entire RP to revise and update sections as needed to meet the GRR needs. Examples PDT and ATR team disciplines, list targeted ATR and interim IEPR review tools.

PDT Response: Added Revisions. Will update PMP.

Comment 4:

Basis: RP was based on PMP that was the basis of unclear RP information.

Significance: PMP should reflect the study and contain the most current and clear information for the study.

Recommended Action: PDT needs to review the PMP and update and revise as needed. RP then needs to be revised and updated.

PDT Response: Will update PMP and RP.

B. Non-substantive Comments

Non-substantive comments are provided for information only and may be minor policy concerns, editorial clarifications, etc. Written responses to the comments below ARE NOT REQUIRED. The District should consider these comments and make modifications to the review plan as appropriate prior to submittal to the home MSC for approval. The non-substantive PCX comments are:

Note: After going back and forth, I made direct suggested edits to parts of the RP. Level of focus on this RP was not as it should have been.

Enclosure 1.1

Sacramento River Bank Protection Project, California, General Reevaluation Report
Review Plan Checklist

21 April 2015

Review Plan Checklist
For Decision Documents

Date: 21 APR 15
Originating District: Sacramento District
Project/Study Title: Sacramento River Bank Protection Project, CA General Reevaluation Report
PWI #:
District POC: Charles Austin
PCX Reviewer: Miki Fujitsubo

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate PCX. Any evaluation boxes checked 'No' indicate the RP may not comply with ER 1105-2-410 (22 Aug 2008) and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
1. Is the Review Plan (RP) a stand alone document?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan? b. Does it include a table of contents? c. Is the purpose of the RP clearly stated and EC 1105-2-410 referenced? d. Does it reference the Project Management Plan (PMP) of which the RP is a component? e. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)? f. Does it include a paragraph stating the title, subject, and purpose of the decision document to be reviewed? g. Does it list the names and disciplines of the Project Delivery Team (PDT)?* **Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*	EC 1105-2-410, Appendix B, Para 4a	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ e. Yes ☒ No ☐ f. Yes ☒ No ☐ g. Yes ☒ No ☐ **Comments:**

2. Is the RP detailed enough to assess the necessary level and focus of peer review?	EC 1105-2-410, Appendix B, Para 3a	Yes ☒ No ☐
a. Does it indicate which parts of the study will likely be challenging?	EC 1105-2-410, Appendix B, Para 3a	a. Yes ☒ No ☐ b. Yes ☒ No ☐
b. Does it provide a preliminary assessment of where the project risks are likely to occur and what the magnitude of those risks might be?	EC 1105-2-410, Appendix B, Para 3a	c. Yes ☒ No ☐ d. Yes ☒ No ☐
c. Does it indicate if the project/study will require preparation of an environmental impact statement (EIS)? *Will an EIS be prepared? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410 Para 7c & 8f	e. Yes ☒ No ☐ **Comments:**
d. Does it address if the project report is likely to contain influential scientific information or be a highly influential scientific assessment? *Is it likely? Yes ☐ No ☒* *If yes, IEPR is required.*	EC 1105-2-410, Appendix B, Para 4b	
e. Does it address if the project is likely to have significant economic, environmental, and social affects to the nation, such as (but not limited to):	EC 1105-2-410, Para 6c	
• more than negligible adverse impacts on scarce or unique cultural, historic, or tribal resources?	EC 1105-2-410 Para 8f	
• substantial adverse impacts on fish and wildlife species or their habitat, prior to implementation of mitigation?	EC 1105-2-410 Para 8f	
• more than negligible adverse impact on species listed as endangered or threatened, or to the designated critical habitat of such species, under the Endangered Species Act, prior to implementation of mitigation? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410 Para 8f	

f. Does it address if the project/study is likely to have significant interagency interest? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Para 6c	f. Yes ☒ No ☐ g. Yes ☒ No ☐ h. Yes ☐ No ☒
g. Does it address if the project/study likely involves significant threat to human life (safety assurance)? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	i. Yes ☒ No ☐ j. Yes ☒ No ☐ **Comments:**
h. Does it provide an estimated total project cost? *What is the estimated cost: NA* *(best current estimate; may be a range)* *Is it > $45 million? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	
i. Does it address if the project/study will likely be highly controversial, such as if there will be a significant public dispute as to the size, nature, or effects of the project or to the economic or environmental costs or benefits of the project? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	
j. Does it address if the information in the decision document will likely be based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	
3. Does the RP define the appropriate level of peer review for the project/study?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?	EC 1105-2-410, Para 7a	a. Yes ☒ No ☐

b. Does it state that ATR will be conducted or managed by the lead PCX? c. Does it state whether IEPR will be performed? *Will IEPR be performed? Yes ☒ No ☐* d. Does it provide a defensible rationale for the decision on IEPR? e. Does it state that IEPR will be managed by an Outside Eligible Organization, external to the Corps of Engineers?	EC 1105-2-410, Appendix D, Para 3a EC 1105-2-410, Appendix B, Para 4b EC 1105-2-410, Para 7c	b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ e. Yes ☒ No ☐ n/a ☐ **Comments:**
4. Does the RP explain how ATR will be accomplished?	EC 1105-2-410, Appendix B, Para 4l	Yes ☒ No ☐
a. Does it identify the anticipated number of reviewers? b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? c. Does it indicate that ATR team members will be from outside the home district? d. Does it indicate that the ATR team leader will be from outside the home MSC? e. Does the RP state that the lead PCX is responsible for identifying the ATR team members and indicate if candidates will be nominated by the home district/MSC? f. If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?* **Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*	EC 1105-2-410, Appendix B, Para 4f EC 1105-2-410, Appendix B, Para 4g EC 1105-2-410, Para 7b EC 1105-2-410, Para 7b EC 1105-2-410, Appendix B, Para 4k(1) EC 1105-2-410, Appendix B, Para 4k(1)	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ e. Yes ☒ No ☐ f. Yes ☒ No ☐ n/a ☐ **Comments:**

5. Does the RP explain how IEPR will be accomplished?	EC 1105-2-410, Appendix B, Para 4k & Appendix D	**Yes** ☒ **No** ☐ **n/a** ☐
a. Does it identify the anticipated number of reviewers? b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? c. Does it indicate that the IEPR reviewers will be selected by an Outside Eligible Organization and if candidates will be nominated by the Corps of Engineers? d. Does it indicate the IEPR will address all the underlying planning, safety assurance, engineering, economic, and environmental analyses, not just one aspect of the project?	EC 1105-2-410, Appendix B, Para 4f EC 1105-2-410, Appendix B, Para 4g EC 1105-2-410, Appendix B, Para 4k(1) & Appendix D, Para 2a EC 1105-2-410, Para 7c	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ **Comments:**
6. Does the RP address peer review of sponsor in-kind contributions?		Yes ☒ No ☐
a. Does the RP list the expected in-kind contributions to be provided by the sponsor? b. Does it explain how peer review will be accomplished for those in-kind contributions?	EC 1105-2-410, Appendix B, Para 4j	a. Yes ☐ No ☒ b. Yes ☒ No ☐ n/a ☐ **Comments:** Unknown at this time what in-kind contributions will be.
7. Does the RP address how the peer review will be documented?		Yes ☒ No ☐
a. Does the RP address the requirement to document ATR and IEPR comments using DrChecks? b. Does the RP explain how the IEPR will be documented in a Review Report? c. Does the RP document how written responses to the IEPR Review Report will be prepared?	EC 1105-2-410, Para 8g(1) EC1105-2-410, Appendix B, Para 4k(13)(b) EC 1105-2-410, Appendix B, Para 4l	a. Yes ☒ No ☐ b. Yes ☒ No ☐ n/a ☐ c. Yes ☒ No ☐ n/a ☐

d. Does the RP detail how the district/PCX will disseminate the final IEPR Review Report, USACE response, and all other materials related to the IEPR on the internet and include them in the applicable decision document?	EC 1105-2-410, Para 8g(2) & Appendix B, Para 4l	d. Yes ☒ No ☐ n/a ☐ **Comments:**
8. Does the RP address Policy Compliance and Legal Review?	EC 1105-2-410, Para 7d	Yes ☒ No ☐ **Comments:**
9. Does the RP present the tasks, timing and sequence (including deferrals), and costs of reviews?	EC 1105-2-410, Appendix B, Para 4c & Appendix C, Para 3d	Yes ☒ No ☐
a. Does it provide a schedule for ATR including review of the Feasibility Scoping Meeting (FSM) materials, Alternative Formulation Briefing (AFB) materials, draft report, and final report? b. Does it include interim ATR reviews for key technical products? c. Does it present the timing and sequencing for IEPR? d. Does it include cost estimates for the peer reviews?	EC 1105-2-410, Appendix C, Para 3g EC 1105-2-410, Appendix C, Para 3g	a. Yes ☐ No ☒ b. Yes ☒ No ☐ c. Yes ☒ No ☐ n/a ☐ d. Yes ☒ No ☐ **Comments:** 3x3x3 study - there is no FSM or AFB. Focused reviews for specific products and concurrent review of draft integrated report will be conducted.
10. Does the RP indicate the study will address Safety Assurance factors? Factors to be considered include: • Where failure leads to significant threat to human life • Novel methods\complexity\ precedent-setting models\policy changing conclusions • Innovative materials or techniques • Design lacks redundancy, resiliency of robustness • Unique construction sequence or acquisition plans • Reduced\overlapping design construction schedule	EC 1105-2-410, Para 2 & Appendix D, Para 1c	**Yes ☒ No ☐ n/a ☐** **Comments:**

11. Does the RP address model certification requirements?	EC 1105-2-407	Yes ☒ No ☐
a. Does it list the models and data anticipated to be used in developing recommendations (including mitigation models)? b. Does it indicate the certification/approval status of those models and if certification or approval of any model(s) will be needed? c. If needed, does the RP propose the appropriate level of certification/approval for the model(s) and how it will be accomplished?	EC 1105-2-410, Appendix B, Para 4i	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☐ No ☐ n/a ☒ **Comments:**
12. Does the RP address opportunities for public participation?		Yes ☒ No ☐
a. Does it indicate how and when there will be opportunities for public comment on the decision document? b. Does it indicate when significant and relevant public comments will be provided to reviewers before they conduct their review? c. Does it address whether the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers? d. Does the RP list points of contact at the home district and the lead PCX for inquiries about the RP?	EC 1105-2-410, Appendix B, Para 4d EC 1105-2-410, Appendix B, Para 4e EC 1105-2-410, Appendix B, Para 4h EC 1105-2-410, Appendix B, Para 4a	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ **Comments:**
13. Does the RP address coordination with the appropriate Planning Centers of Expertise?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it state if the project is single or multi-purpose? Single ☐ Multi ☒ List purposes: FRM, ECO b. Does it identify the lead PCX for peer review? Lead PCX: **FRM** c. If multi-purpose, has the lead PCX coordinated the review of the RP with the other PCXs as appropriate?	EC 1105-2-410, Appendix D, Para 3c	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☐ No ☐ n/a ☒ **Comments:**

14. Does the RP address coordination with the Cost Engineering Directory of Expertise (DX) in Walla Walla District for ATR of cost estimates, construction schedules and contingencies for all documents requiring Congressional authorization?	EC 1105-2-410, Appendix D, Para 3	Yes ☒ No ☐
a. Does it state if the decision document will require Congressional authorization? b. If Congressional authorization is required, does the state that coordination will occur with the Cost Engineering DX?		a. Yes ☒ No ☐ b. Yes ☒ No ☐ n/a ☐ **Comments:**
15. Other Considerations: This checklist highlights the minimum requirements for an RP based on EC 1105-2-410. Additional factors to consider in preparation of the RP include, but may not be limited to: a. Is a request from a State Governor or the head of a Federal or state agency to conduct IEPR likely? b. Is the home district expecting to submit a waiver to exclude the project study from IEPR? c. Are there additional Peer Review requirements specific to the home MSC or district (as described in the Quality Management Plan for the MSC or district)? d. Are there additional Peer Review needs unique to the project study?	EC 1105-2-410, Appendix D, Para 1b EC 1105-2-410, Appendix D, Para 1d	**Comments:** Study hydrology will be certified to SPD.
Detailed Comments and Backcheck:		

Enclosure 1.2

Sacramento River Bank Protection Project, California, General Reevaluation Report
Revised Review Plan

9 June 2015

REVIEW PLAN

SACRAMENTO RIVER BANK PROTECTION PROJECT, CALIFORNIA
GENERAL REEVALUATION REPORT

SACRAMENTO DISTRICT

MSC Approval Date: Pending
Last Revision Date: June 9, 2015

US Army Corps
of Engineers ®

REVIEW PLAN

SACRAMENTO RIVER BANK PROTECTION PROJECT, CALIFORNIA
GENERAL REEVALUATION REPORT

TABLE OF CONTENTS

1. Purpose and Requirements 1
2. Review Management Organization (RMO) Coordination 1
3. Study Information 2
4. District Quality Control (DQC) 9
5. Agency Technical Review (ATR) 9
6. Independent External Peer Review (IEPR) 13
7. Policy and Legal Compliance Review 18
8. Cost Engineering Directory of Expertise (DX) Review and Certification 18
9. Model Certification 18
10. Review Schedules and Costs 21
11. Public Participation 23
12. Review Plan Approval and Updates 24
13. Review Plan Points of Contact 24

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Sacramento River Bank Protection Project, California, General Reevaluation Study. This Review Plan covers the Sacramento River Bank Protection Project (SRBPP) General Reevaluation Report (GRR). The scope and review descriptions presented here are very broad in nature, with the strategy of using the planning charette process to narrow, coordinate and refine the definition of the GRR. This will inform future updates of the Review Plan as needed.

b. References

(1) Engineer Circular (EC) 1165-2-214, Civil Works Review Policy, 15 Dec 2012
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
(3) Engineer Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(5) PMP, Sacramento River Bank Protection Project, California, Phase III General Reevaluation Study, October 2014
(6) CESPD Reg. 1110-1-8, Quality Management Plan, 30 December 2002.

c. Requirements. This Review Plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC/QA), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

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 decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Flood Risk Management Center of Expertise (FRM-PCX), in coordination the Ecosystem Restoration Center of Expertise (ECO-PCX) and the Risk Management Center (RMC) as needed.

The RMO will coordinate with the Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on

the review teams to assess the adequacy of cost estimates, construction schedules and contingencies

3. STUDY INFORMATION

Decision Document. The purpose of the study is to identify flood risk related issues and ecosystem restoration opportunities in the Sacramento River watershed and to identify continued Federal interest in modifications or improvements to the Sacramento River Bank Protection Project. The decision document will present planning, engineering, and implementation details of a recommended plan to allow final design and construction. The project is a General Reevaluation Report undertaken to evaluate structural and non-structural flood risk management (FRM) measures including but not limited to: in-basin storage, re-operation of existing reservoirs, improvements to existing levees, construction of new levees, and other storage, conveyance and non-structural measures. Ecosystem restoration and enhancement features such as setback levees and bypass widening will also be investigated. The goals and objectives of the State of California's Central Valley Flood Protection Plan (CVFPP) and State Plan of Flood Control (SPFC) will be instrumental in focusing and coordinating Federal efforts within an integrated water management framework context. The scope of the project will require an Environmental Impact Statement (EIS) to be prepared as part of the integrated General Reevaluation Report.

Due to the aging facilities and changes in the Sacramento River watershed and system of the SRFCP, this GRR is necessary to identify Federal interest for continued support of the SRFCP and how the project fits into the SPFC and CVFPP goals and objectives for flood risk management, ecosystem restoration and integrated water management.

Study Authorization. The SRFCP was authorized in 1917 by the Flood Control Act of 1917, Pub. L. 64-367, § 2, 39 Stat. 948, 949 (1917) and provides appropriations for rectification and enlargement of river channels and the construction of weirs.

The SRFCP is located along the Sacramento River from Elder Creek near Tehama to its confluence with the San Joaquin River in the Sacramento-San Joaquin Delta (Delta). The SRFCP includes a number of tributaries, sloughs and bypass channels. Figure 1 is a map showing the locations the SRFCP levees.

A Chief of Engineers' Report dated 9 May 1960 (Senate Doc. 86-103) recommended a program of remedial bank protection work as a modification of the SRFCP. The initial portion (Phase I), which included recreational facilities, of the SRBPP was authorized by Congress in the Flood Control Act of 1960, Pub. L. 86-645, § 203, 74 Stat. 498 (1960). It was authorized as a long-range program for construction of bank erosion control works and setback levees to protect the SRFCP levees from failures due to erosion. Construction of the 430,000 linear feet (LF) in the Phase I authority was completed in 1974.

A Chief's Report dated 21 September 1972 recommended a second phase consisting of 405,000 LF of bank protection works (H. Doc. 93-151). Phase II was authorized by the River Basin Monetary Authorization Act of 1974, Pub. L. 93-252, § 202, 88 Stat. 49. Construction began in 1975 and is near completion.

In 1982, Congress specifically authorized extension of the SRBPP from the upstream end of the levee system to Chico Landing (RM 176 left/ 184 right to RM 194 (Continuing Appropriations Resolution, Pub. L. 97-377 § 140, 96 Stat. 1916 (1982)). This was done to include the Butte Basin reach. However, no project levees qualifying for work under SRBPP were added to this reach.

A Chief's Report dated 1 September 1981 recommended a fish and wildlife program to provide habitat mitigation for Phase I of SRBPP. The 1981 Chief's Report was supplemented and modified by a Chief's Report dated 2 June 1983 to exclude mitigation for removal of vegetation that is deferred maintenance of SRFCP levees and, therefore, a non-Federal responsibility. The project for mitigation of fish and wildlife losses was authorized at a total cost of $1,410,000 by the Water Resources Development Act of 1986, Pub. L. 99-662, § 601, 100 Stat. 4140. The authorized mitigation for Phase I has been completed.

During implementation of Phase II repairs, a draft jeopardy opinion was issued by the National Marine Fisheries Service in 2001 during consultation on impacts of the program on listed species. The draft opinion resulted in modifications in erosion site design and construction. An Interagency Working Group (IWG) was formed and developed the Standard Assessment Methodology (SAM) model for characterization of impacts to shaded aquatic riparian habitat values as the result of program implementation. Use of the SAM continues as well as coordination with the IWG for site design and implementation.

The authority for Phase II was modified by Congress by WRDA 2007, which modified the existing SRBPP to authorize bank erosion and setback levee work as follows: "SEC. 3031. Section 202 of the River Monetary Authorization Act of 1974 (88 Stat. 49) is amended by striking "and the monetary authorization" and all that follows through the period at the end and inserting "; except that the lineal feet in the second phase shall be increased from 405,000 lineal feet to 485,000 lineal feet."

Study Area and Overview of the Sacramento River Watershed. The Sacramento River watershed is comprised of 26,300 square miles in the northern half of California's Central Valley (Figure 1). The watershed is approximately 240 miles long and up to 150 miles wide bounded by the Sierra Nevada on the east, the Coast Range on the west, the Cascade and Trinity Mountains on the north, and the Sacramento-San Joaquin Delta on the south. Major tributaries of the Sacramento River include the Feather and American Rivers.

In the early 1900s, the Federal and State governments began construction of system-wide flood management facilities, including levees, weirs, and bypass channels. This

included constructing new facilities and reconstructing existing private facilities to meet the Federal engineering standards that existed at the time. The effort focused on protecting lives and property by increasing the conveyance of flood waters through the system. The design goal of the facilities was to aid navigation and flush sediment remaining from the hydraulic mining conducted late in the 19th century. These conveyance facilities improved flood protection and navigation and allowed continued agricultural and urban development. They also constrained the river to specific alignments, significantly reducing channel meandering and further isolating the rivers from their historic floodplain.

The USACE constructed new levees or reconstructed private levees in order to complete the Sacramento River Flood Control Project (Figure 2). This project, authorized by the Flood Control Act of 1917, encompasses approximately 1,100 miles of levee along the Sacramento River and its primary tributaries from Collinsville in the Sacramento and San Joaquin River Delta upstream to Ord Ferry in Glenn County. The non-Federal sponsor for this flood control system is the Central Valley Flood Protection Board (formerly the Reclamation Board), which accepted the responsibility to operate and maintain the system under authority granted in the Flood Control Act of 1944. In accordance with State law, most of these responsibilities have been delegated to local levee and reclamation districts.

Phase I of the SRBPP resulted in erosion protection of approximately 430,000 linear feet of river bank between 1960 and 1974. The focus of Phase I was remediation of critical sites within the SRFCP levee system. Phase II of the SRBPP commenced in 1974 and has accomplished approximately 400,000 linear feet of erosion repairs of an authorized 405,000 linear feet. In the Water Resources Development Act of 2007, the Phase II authorization was expanded by 80,000 linear feet to a total of 485,000 linear feet.

Due to the aging facilities and changes in the Sacramento River watershed and system of the SRFCP, this GRR is necessary to identify Federal interest for continued support of the SRFCP and how the project fits into the SPFC and CVFPP goals and objectives for flood risk management, ecosystem restoration and integrated water management.

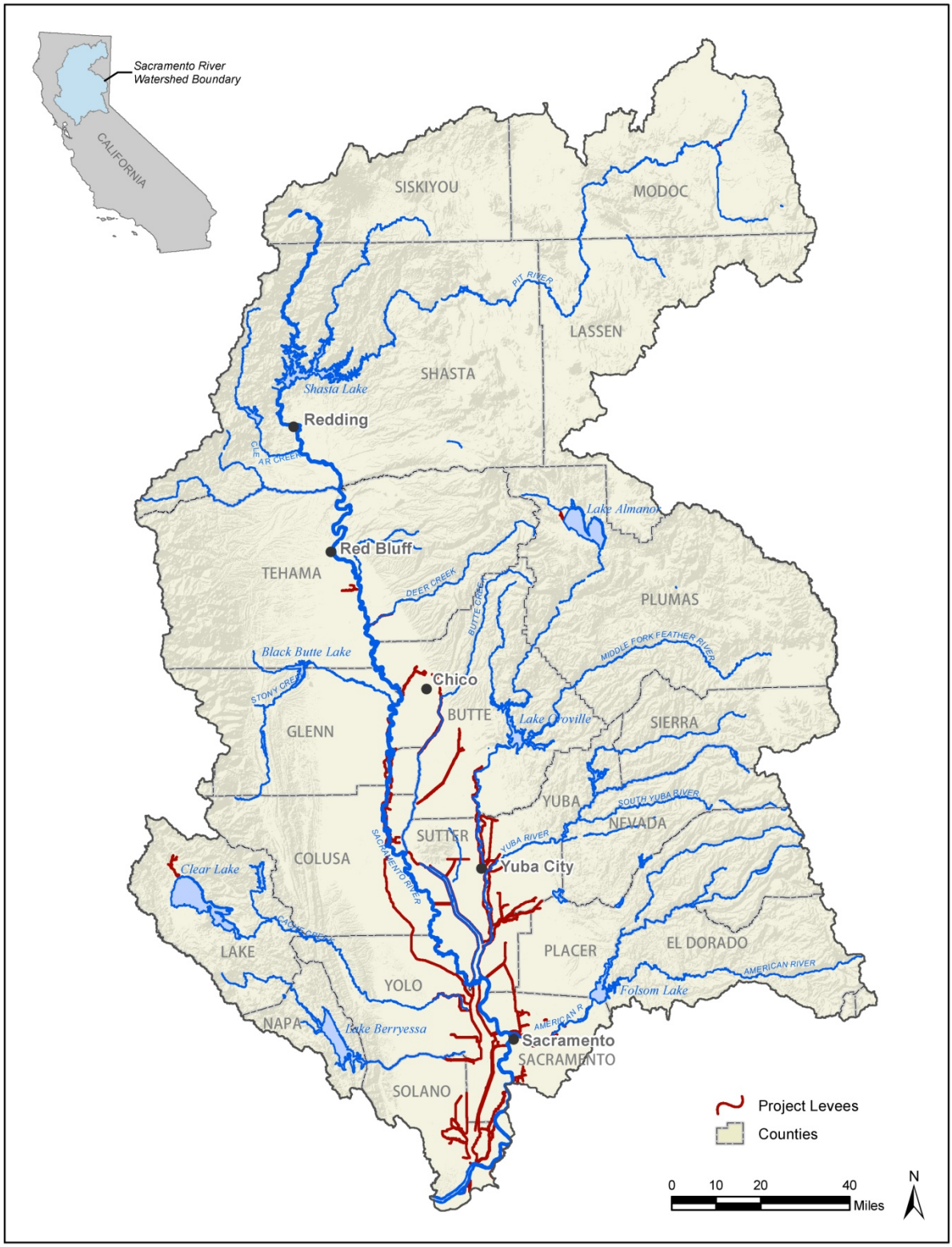

Figure 1. Sacramento River Watershed, California

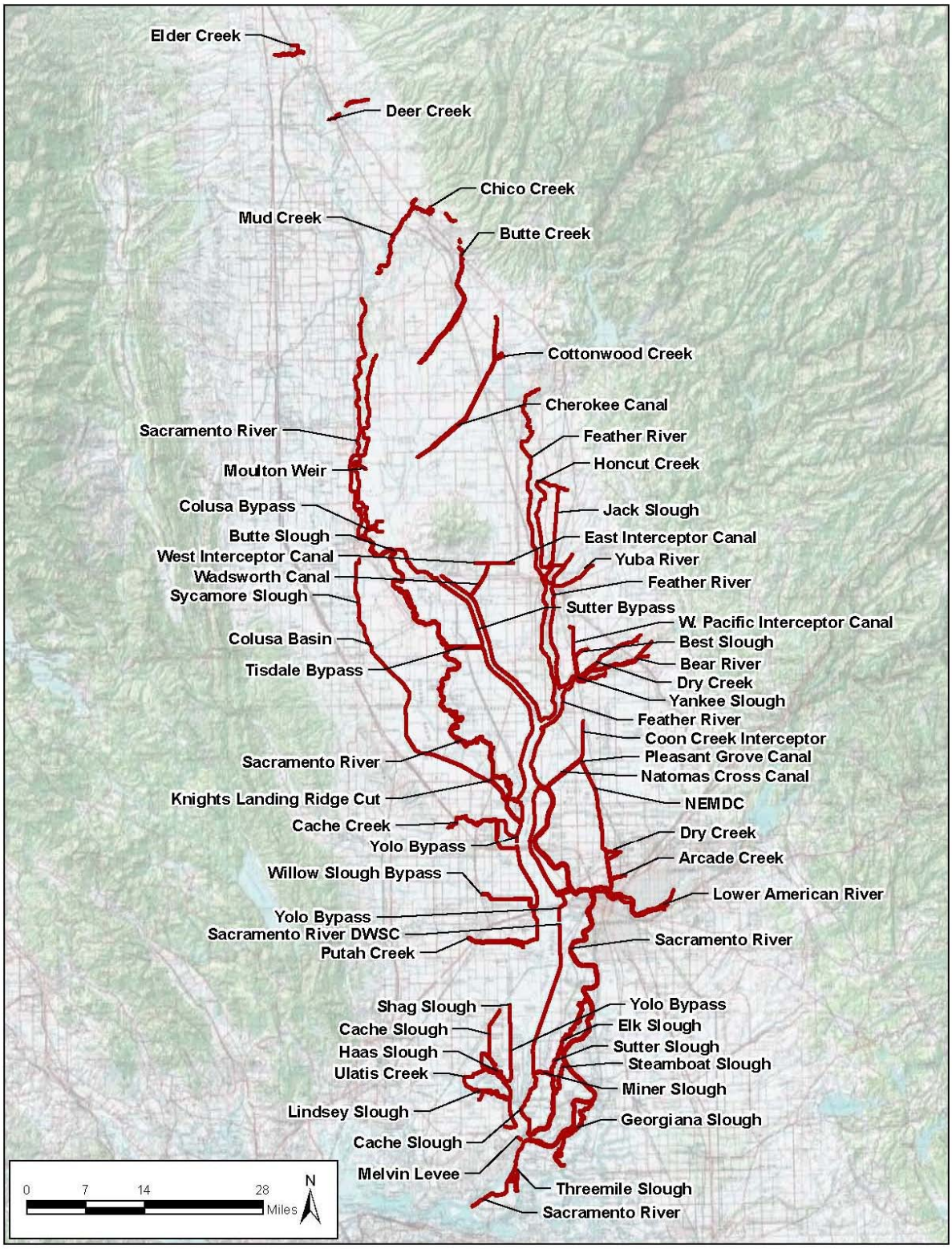

Figure 2. Levees making up the Sacramento River Bank Protection Project

a. Factors Affecting the Scope and Level of Review. Quality control review will be through DQC, ATR, and Type I IEPR. Questions that must be considered in determining the scope and level of review are identified in column 1 of Table 1. The Project Delivery Team's (PDT) assessment of these questions in relation to this study is listed in column 2 of Table 1.

Table 1 - Factors Affecting Scope and Level of Review

Questions to Determine Scope	General Reevaluation Study
Will parts of the study be challenging?	The GRR study area covers levees that provide flood risk management from the Sacramento River, Sacramento Bypass, and Yolo Bypass, and portions of the Feather and American Rivers. In addition, the Sacramento Deep Water Ship Channel is within the project area. The presence of these features increases the complexity of the study. Reservoirs and bypasses within the study area will also represent challenges to the study problem definition.
Will the study report contain influential scientific information or be a highly influential scientific assessment?	It is not anticipated that the study will include influential scientific information.
Will the study have significant economic, environmental, and/or social effects to the Nation?	The study may have significant economic and environmental effects. An Environmental Impact Statement/Report (EIS/EIR) will be required for this study.
Will the study have significant interagency interest?	The study has local, state, and Federal interest. There will be significant interest from Federal resource agencies and the California State Department of Water Resources. Federal agency interest will relate to Endangered Species Act coordination and State interest will be related to coordination with the CVFPP and other initiatives. The USFWS and NMFS will have significant interest in potential impacts or restoration components that may affect special status species.

Questions to Determine Scope	General Reevaluation Study
Will the study have significant threat to human life/safety assurance?	The study includes levees that provide FRM in urbanized and rural areas subject to deep flooding. Failure of the existing levees or flooding above the design event would present a significant threat to human life/safety. So, although the probability of levee failure would decrease as a result of bank improvements, the life safety consequences of a levee failure or overtopping could increase over time.
Will the study be highly controversial?	The project has potential for public controversy.
Will the information in the decision document be based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	It is not likely that the study will result in precedent-setting methods, models, or practices. The study will look at complex challenges requiring careful description and analysis for clear communication to varied audiences.
What are the likely study risks and the magnitude of the risks?	The moderate to high level risks identified by the PDT include: • Vegetation on Levee issues –USACE vegetation on levee policy will generate controversy. • Description of potential project impacts to water conveyance or supply will greatly influence study risk as related to scope and schedule. • Use of existing environmental information for plan formulation rather than performing intensive environmental surveys and analysis will be a high risk for support of special status species coordination with resource agencies. • Public controversy. There is the potential for public controversy with this study. The risk will be somewhat mitigated by careful communications with the public in general and more specifically related to fisheries and water management impacts.

b. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor have yet to be determined.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. 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 (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

a. **Documentation of DQC.** District Quality Control (DQC) may be conducted by staff in the home district as long as they are not doing the work involved in the study, or overseeing contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices, and the recommendations before approval by the District Commander. DQC documentation will be provided to the ATR team prior to the start of ATR review. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review; DQC will be conducted in accordance with SPK standard practice and guidance. The DQC review team is identified in Attachment 1.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The object of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is 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 and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR.

(1) Without-project hydrology (SPD requirement).

(2) Without-project fragility curves.

(3) Without-project economic analysis.

(4) Draft report, including NEPA/environmental compliance documentation and technical appendices for the Sacramento River Bank Protection Project GRR.

(5) Final report, including NEPA/environmental compliance documentation and technical appendices for the Sacramento River Bank Protection Project GRR.

If additional interim products are identified that would benefit from ATR prior to the Draft Report, they will undergo targeted ATR. The Draft Report materials and supporting analyses warrant ATR because they provide the basis for HQUSACE to determine if Washington-level support for the tentatively selected plan is warranted. The final reports and supporting analyses warrant ATR because they will provide the basis for the Chief of Engineers interagency coordination and the Chief's approval or further recommendation to the Secretary of the Army and the Congress, as needed.

ATR members will be provided with any significant technical and scientific public comments made during public meetings and on the products under review.

Each application of ATR should build upon any and all prior cycles of review for the study. Each ATR review iteration only needs to address incremental changes and additions to documents and analyses not addressed in prior ATR reviews, unless the ATR team determines that certain subjects or aspects warrant revisiting due to other changes or a need to adequately understand a larger portion of the project.

The ATR team will be made up of experts having the backgrounds listed in Table 2. All Engineering and Construction ATR reviewers (except Cost, which has its own requirements) are required to be in Corps of Engineers Reviewer Certification and Access Program (CERCAP) (https://maps.crrel.usace.army.mil/apex/f?p=105:LOGIN:342723497626). Should additional skills be identified as required during the study, the ATR team will be supplemented to adequately provide technical review of study documents.

b. Required ATR Team Expertise.

Table 2 - Required ATR Team Expertise

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience

ATR Team Members/Disciplines	Expertise Required
	to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	Team member will be experienced with the civil works process, 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, watersheds, and planning in a collaborative environment.
Economics	Team member will be experienced in civil works and related flood risk reduction projects, and have a thorough understanding of HEC-FDA and Cost Effectiveness/Incremental Cost Analysis.
Environmental Resources	Team member will be experienced in NEPA/CEQA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration. Experience with Cost Effectiveness/Incremental Cost Analysis for ecosystem restoration plan development is required. Riverine fisheries and modeling experience related to river and floodplain systems will be an additional requirement.
Cultural Resources	Team member will be experienced in cultural resources and tribal issues, regulations, and laws.
Hydrology	Team member will be an expert in the field of hydrology and reservoir operations, application of detention / retention basins, effects of best management practices and low impact development on hydrology, approaches that can benefit water quality, and extensive experience with USACE hydrologic models. A licensed professional engineer is required.
Hydraulic Engineering	Team member will be an expert in the field of urban hydraulics, have a thorough understanding of the dynamics of both open channel flow systems, and enclosed systems, application of levees and flood walls in an urban environment with space constraints. 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 licensed professional engineer is required.

ATR Team Members/Disciplines	Expertise Required
Geotechnical Engineering	Team member will be experienced in levee and floodwall design, post-construction evaluation, and rehabilitation. A licensed professional geotechnical engineer is required.
Civil Engineering	Team member will be experienced in levee and floodwall design, post-construction evaluation, and rehabilitation. 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 licensed professional civil engineer is required.
Cost Engineering	Team member will be familiar with cost estimating for similar civil works projects using MCACES version MII. 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 MCX for cost engineering.
Real Estate	Team member will be experienced in federal civil work real estate laws, policies and guidance. Members shall have experience working with respective sponsor real estate issues.
Risk Reviewer	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results.

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. 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 be 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 1110-1-12 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:

- Identify the document(s) reviewed and the purpose of the review;
- 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;
- Identify and summarize each unresolved issue (if any); 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.

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, based on work reviewed to date, for the draft report, and 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.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. 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.

a. Decision on IEPR. The decision to conduct Type I IEPR is made by comparing EC 1165-2-214 criterion to the study, as shown in Table 3. Based on these factors, Type I IEPR will be conducted.

Table 3 - Decision on Type I IEPR

EC 1165-2-214 Criteria	General Reevaluation Study
Is there significant threat to human life?	The study includes levees and reservoirs that provide FRM in urbanized and rural areas subject to deep flooding. Failure of the proposed project or flooding above the design event would present a significant threat to human life/safety.

EC 1165-2-214 Criteria	General Reevaluation Study
Is the total project cost more than $45 million?	The estimated project cost is $45 million or more.
Has the Governor of California requested a Type I IEPR?	The Governor has not requested a Type I IEPR.
Has the head of a Federal or state agency charged with reviewing the project study requested a Type I IEPR?	No requests have been received for a Type I IEPR for this study.
Will there be significant public controversy as to size, nature, or effects of the project?	The project has potential for public controversy.
Will there be significant public controversy as to the economic or environmental cost or benefit of the project?	The project has potential for public controversy based on the potential costs of the project.
Will the study be based on information from novel methods, present complex challenges or interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	The Sacramento River presents complex challenges based on the emphasis placed on flood risk management and water conveyance while acknowledging the need for ecosystem restoration.

The District considered these risks and the District Chief of Engineering has determined that there is a significant threat to human life and a **Type I and a Type II IEPR are required** considering the risks triggers.

A Safety Assurance Review (SAR) of the recommended plan will be addressed during Type I IEPR per Paragraph 2.c.(3) of Appendix D of EC 1165-2-214; safety assurance will also be addressed during the Type II IEPR of implementation products per Appendix E of EC 1165-2-214.

b. Products to Undergo Type I IEPR. Type I IEPR will be conducted on interim products for hydraulic design, geotechnical design and economics before the draft report is released for public review if advantageous to the study. The full IEPR panel will receive the entire draft report, environmental impact statement and all technical appendixes concurrent with public and agency review. The final IEPR report, documenting the review and final IEPR panel comments, must be submitted to USACE within 60 days of the conclusion of public review. The Sacramento District will draft a response to the IEPR final report and process it through the vertical team for discussion at the Civil Works Review Board (CWRB). Following the CWRB, the

USACE will issue a final response to the IEPR panel comments, which will accompany the publication of any report of the Chief of Engineers for the project.

Required Type I IEPR Panel Expertise. The Type I IEPR panel members 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. It is anticipated that the team will consist of 6 reviewers across 5 disciplines. The following types of expertise may be represented on the Type I IERP team. Should additional skills be identified as required during the study, the IEPR team will be supplemented to adequately provide technical and scientific review of study documents.

Table 4 – IEPR Panel Expertise Requirements

IEPR Panel Members/Disciplines	Expertise Required
Planning	Team member will be experienced with the civil works process, 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, watersheds, and planning in a collaborative environment.
Economics	One reviewer will be needed for economics; this reviewer will need experience with water resource economic evaluation and utilization of the HEC-FDA models and Cost Effectiveness/Incremental Cost Analysis.
Environmental	One reviewer will be needed for environmental analysis; this reviewer will be experienced in NEPA/CEQA process and analysis and should have experience with evaluating and conducting NEPA cumulative effects analysis for complex multi-objective public works projects. Experience with Cost Effectiveness/Incremental Cost Analysis for ecosystem restoration plan development is required. Riverine fisheries and modeling experience related to river and floodplain systems will be an additional requirement.
Geotechnical Engineering	Three geotechnical engineers may be needed; one with general geotechnical engineering expertise, one with expertise in geotechnical risk analysis, and one with expertise in seismic characterization of soil and

	analyses. The general geotechnical engineer should have extensive experience in the evaluation and design of flood control structures and levee embankments. The geotechnical risk analysis engineer should have extensive experience in the application of probabilistic methods to geotechnical aspects of flood damage reduction planning studies. The geotechnical seismic analysis panel member should have extensive experience in liquefaction evaluations of flood control structures.
Hydraulic Engineering	One reviewer will be needed for hydraulic engineering; this reviewer should be familiar with the USACE application of risk and uncertainty in flood risk management studies and also familiar with USACE hydrologic and hydraulic computer models.

c. 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. DrChecks review software will be used to document Type I IEPR comments and aid in the preparation of the Review Report. 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.d 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.

Note - IEPR of interim products will be performed as advantageous to the study and these reviews will be documented in Interim Review Reports. DrChecks review software will be used to document the comments and aid in the preparation of the

Interim Review Report, The interim Review Reports will be incorporated into the final Review Report.

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 Appendix H, ER 1105-2-100. 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 home MSC 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 AND AGENCY TECHNICAL REVIEW MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering MCX, located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The MCX will also provide the Cost Engineering MCX certification. The RMO is responsible for coordination with the Cost Engineering MCX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. 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).

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 (SET) Initiative, many engineering models have been identified

as preferred or acceptable for use on USACE 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:

Table 5 – Planning Models Used for Analysis

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.5. (Flood Damage Analysis)	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 flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future with and without-project plans in the project area to aid in the selection of a recommended plan to manage flood risk. (Note – The economics team member is in the process of transitioning to HEC-FDA 1.2.5a.)	Certified
IWR-Planning Suite	This software assists with the formulation and comparison of alternative plans. While IWR-PLAN was initially developed to assist with environmental restoration and watershed planning studies, the program can be useful in planning studies addressing a wide variety of problems. IWR-PLAN can assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or "plan." IWR-PLAN can assist with plan comparison by conducting cost effectiveness and incremental cost analyses, identifying the plans which are the best financial investments and displaying the effects of each on a range of decision variables.	Certified
Standard Assessment Model (SAM)	Provides for quantification and prediction of shaded riparian habitat quality. Uses species specific parameters for salmonids, smelt, and sturgeon to model potential impacts or benefits to species as a result of project implementation.	Certified Additional approval or certification may be required for use outside the Sacramento River Valley.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
Various Habitat Evaluation Procedure models	The Ecosystem Restoration Planning Center of Expertise has responsibility for approving ecosystem output methodologies for use in ecosystem restoration planning and mitigation planning. The Ecosystem PCX will need to certify or approve for use each regionally modified version of these methodologies and individual models and guidebooks used in application of these methods. The PDT will coordinate with the Ecosystem PCX during the study to identify appropriate models and certification approval requirements.	TBD

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

Table 6 – Engineering Models Used for Analysis

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-HMS 3.4.	The Hydrologic Modeling System (HEC-HMS) is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is designed to be applicable in a wide range of geographic areas for solving the widest possible range of problems. This includes large river basin water supply, flood hydrology, and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation. This software program will be used to create inflow hydrographs for development of the with- and without-project conditions.	HH&C CoP Preferred Model

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC ResSim 3.2	The Reservoir System Simulation (HEC-ResSim) software is developed by the U.S. Army Corps of Engineers, Hydrologic Engineering Center. It is used to model reservoir operations at one or more reservoirs for a variety of operational goals and constraints. The software simulates reservoir operations for flood management, low flow augmentation and water supply for planning studies, and detailed reservoir regulation plan investigations. HEC-ResSim can represent both large and small scale reservoirs and reservoir systems through a network of elements (junctions, routing reaches, diversion, and reservoirs) that the user builds. The software can simulate single events or a full period-or-record using available time-steps.	HH&C CoP Preferred Model
HEC-RAS 4.0	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) provides one-dimensional steady and unsteady flow river hydraulics calculations, sediment transport-mobile bed modeling, and water temperature analysis. The HEC-RAS software supersedes the HEC-2 river hydraulics package, which was a one-dimensional, steady flow water surface profiles program. This software program will create the water surface profile elevations for the with- and without-project conditions.	HH&C CoP Preferred Model
FLO-2D.	FLO-2D is a volume conservation flood routing model. The model will simulate river overbank flows, but it can also be used on unconventional flooding problems such as unconfined flows over complex alluvial fan topography and roughness, split channel flows, mud/debris flows, and urban flooding. This software program will be used to develop economic floodplains for the benefits analysis of the with- and without-project conditions.	Allowed for Use
Groundwater Modeling System (GMS), Version 6.5	This model is used to conduct seepage analysis.	Preferred Model
Utexas, Version 4	This model is used to conduct slope stability analysis.	Preferred Model

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The ATR schedule is shown in Table 4. All products for these milestones will be reviewed, including those produced as in-kind services by the non-Federal sponsors. A Value Engineering (VE) study will be conducted shortly after the Alternatives Milestone (or In-Progress Review meeting). The aim of the VE study should be to ensure that the widest range of technically feasible and cost efficient measures are considered and that alternatives formulated from those measures are not limited to those that first come to mind at the initiation of the study.

Putting this step into the process ensures consideration of the fullest range of measures and alternatives. The results will be presented in the feasibility report – integrated into the discussion of the formulation of alternatives. In implementing this policy, the ATR team should act as the core of the feasibility VE team.

Table 7 - ATR Schedule for Sacramento River Bank Protection Project GRR

Task	Date
ATR of interim products	TBD
ATR review of without-project hydrology	January 2016
ATR of Draft report, including NEPA/environmental compliance documentation and technical appendices	February 2017
ATR of Final Feasibility Report, including NEPA/environmental compliance documentation and technical appendices	October 2017

The Sacramento District shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Project Manager will work with the ATR team leader to ensure that adequate funding is available and is commensurate with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The ATR team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the ATR team leader to any possible funding shortages. ATR reviews are estimated to cost the study $150,000.

b. Type I IEPR Schedule and Cost. The Type I IEPR schedule for the SRBPP GRR is shown in Table 8. Additional details for the SRBPP GRR will be added to this schedule when the time period for additional review draws closer. Interim products for hydrology, hydraulics, geotechnical design, and economics will be provided to the panel before the Alternatives Milestone meeting if warranted by study complexity. The full Type I IEPR panel will receive the entire draft feasibility report, environmental impact statement, and all technical appendices concurrent with public and agency review. The final IEPR report must be submitted to the PDT within 60 days of conclusion of public review.

Table 8 - IEPR Schedule for SRBPP GRR

Task	Date
IEPR of interim products prior to Alternatives Milestone	TBD
IEPR of Draft Report, environmental impact statement, technical appendices	February 2017

c. Model Certification/Approval Schedule and Cost. If model certification is needed or other planning models are added during the study, the PDT will coordinate model certification/approval with the appropriate PCX under the ATR effort.

11. PUBLIC PARTICIPATION

Public involvement is anticipated throughout the SRBPP GRR process. The non-Federal sponsors will take the lead in formulating and conducting the outreach and public involvement for the study while coordinating all efforts with the USACE. This primarily consists of coordinating the study scope, results, and solutions with the public; conducting public meetings and workshops; and responding to public inquiries. Table 9 below shows anticipated public comment actions and dates. The schedule will be updated when the schedule for the remaining Sacramento River Bank Protection Project GRR activities is developed.

Table 9 - Anticipated Public Comment Actions and Dates

Public Comment Action	Anticipated Date
Public comments or questions	September – November 2015
Disseminate notice of intent	September 2015
Small group public meetings held by non-Federal sponsors	TBD
Public scoping workshop	September – November 2015
SRBPP GRR Draft report available for public review	February 2017
Public meeting for Draft Integrated Report	March 2017

Release of the draft report for public review will occur after issuance of the Tentatively Selected Plan (TSP) milestone policy guidance memo and concurrence by HQUSACE. The District will make the draft decision document available to the public for a 45-day comment period and sponsor a public meeting or meetings for interested members of the public to ask questions and provide comments. ATR and Type I IEPR reviewers will be provided with significant technical and scientific public comments. Upon completion of the review periods, comments will be consolidated in a matrix and addressed, as needed. A summary of the comments and resolutions will be included in the final GRR integrated document.

12. REVIEW PLAN APPROVAL AND UPDATES

The South Pacific Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving District, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, 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 MSC Commander 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 re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

The Review Plan will be updated promptly after the scope of the general reevaluation study is refined through a planning charette process, scheduled for 30 November 2015. The updated Review Plan will be coordinated with the FRM-PCX to ensure an appropriate scope of review, including cost and schedule, is outlined in the plan.

13. REVIEW PLAN POINTS OF CONTACT

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

- SPK contact, Water Resource Planner, 916-557-6931
- RMO contact, Deputy Director, Planning Center of Expertise for Flood Risk Management, 415-503-6852
- SPD contact, Sacramento District Support Team Lead, 415-503-6557

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM

Roster	Role	Office	Telephone	E-Mail
Austin, Charles	Project Manager	USACE	916-557-7550	Charles.Austin@usace.army.mil
Boyd, Kelly	Real Estate	USACE	916-557-6864	Kelly.Boyd@usace.army.mil
Carota, Hans	Civil Design	USACE	916-557-6826	Carota.P.Hans@usace.army.mil
Clarke, Bob	Project Manager	DWR	916-574-1300	Rclarke@water.ca.gov
DeGroot, Matt	Real Estate	DWR	916-653-9906	Mdegroot@water.ca.gov
Dote, Wesley	Real Estate	DWR	916-653-5361	Wesley.Dote@water.ca.gov
Duong, Tri	Cost Engineering	USACE	916-557-7202	Tri.H.Doung@usace.army.mil
Fuller, Amanda	Legal	USACE	916-557-6927	Amanda.R.Fuller@usace.army.mil
Hansberry, Alarice	Legal	USACE	916-557-7264	Alarice.R.Hansberry@usace.army.mil
Hill, Pam	Landscape Architecture	USACE	916-557-7279	Pamlyn.K.Hill@usace.army.mil
Ho, David	Hydrology	USACE	916-557-6702	David.Ho@usace.army.mil
Kucharski, John SPK	Economics	USACE	916-557-6724	John.R.Kucharski@usace.army.mil
Lasso, Corey	Project Manager	DWR	916-574-1439	Corey.Lasso@water.ca.gov
Mulvey, Brian	Environmental	USACE	916-557-7660	Brian.M.Mulvey@usace.army.mil
Nagy, Laszlo	Geotechnical	USACE	916-557-6772	Laszlo.Nagy@usace.army.mil
Polson, Nikki	Cultural	USACE	916-557-6977	Nikki.Polson@usace.army.mil
Rivas, Todd	Hydraulics	USACE	916-557-7523	Todd.M.Rivas@usace.army.mil

Roster	Role	Office	Telephone	E-Mail
Samuelson, Stacy	Planning	USACE	916-557-6931	Stacy.D.Samuelson@usace.army.mil
Sandberg, Erik	Scheduler	USACE	916-557-7722	Erik.S.Sandberg@usace.army.mil
Sarmiento, Ofelia	Programs	USACE	916-557-7586	Ofelia.P.Sarmiento@usace.army.mil
Scarborough, Bob	Chief Studies Section	DWR	916-574-1422	Robert.Scarborough@water.ca.gov
Young, Casey	GIS	USACE	916-557-7158	Casey.C.Young@usace.army.mil
Young, Kip	Environmental	DWR	916-574-2559	Kip.Young@water.ca.gov
Zenobia, Kent	Chief Project Delivery Branch	DWR	916-574-2639	Kzenobia@water.ca.gov

DISTRICT QUALITY CONTROL REVIEW TEAM

DQC	Telephone	E-mail	Discipline
Jerry Fuentes	916-557-6706	Jerry.M.Fuentes@usace.army.mil	Planning
Nick Applegate	916-557-6711	Nicholas.J.Applegate@usace.army.mil	Economics
Tanis Toland	916-557-6717	Tanis.J.Toland@usace.army.mil	Environmental Resources
James Lee	916-557-7564	James.R.Lee@usace.army.mil	Landscape Architecture/Mitigation Design/Restoration Design
Rob Thompson	916-557-6667	Robert.P.Thompson@usace.army.mil	Hydrology
Saba Siddiqui	916-557-6945	Saba.R.Siddiqui@usace.army.mil	Hydraulic Design
Henri Mulder	916-557-7417	Henri.V.Mulder@usace.army.mil	Geotechnical Engineering
Bob Vrchoticky	916-557-7336	Robert.D.Vrchoticky@usace.army.mil	Cost Engineering
Paul Zianno	916-557-6993	Paul.V.Zianno@usace.army.mil	Real Estate

AGENCY TECHNICAL REVIEW TEAM

Name	Discipline	Years of Releva	Phone	Email
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				
TBD				

TYPE I INDEPENDENT EXTERNAL PEER REVIEW LEADS

Name	Role	Phone	Email
TBD	PCX IEPR Lead		
TBD	OEO IEPR Manager		

VERTICAL TEAM

Name	Discipline	Phone	Email
Karen Berresford	District Support Team Mgr	415-503-6557	Karen.G.Berresford@usace.army.mil
TBD	Regional Integration Team	202-761-4085	

PLANNING CENTER OF EXPERTISE POINTS OF CONTACT

Name	Discipline	Phone	Email
Eric Thaut	Deputy Director, PCX Flood Risk Management	415-503-6852	Eric.W.Thaut@usace.army.mil

Elliott Stefanik	Acting Operational Director, PCX Ecosystem Restoration	309-794-5448	Elliott.L.Stefanik@usace.army.mil

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<type of product>* for Sacramento River Bank Protection Project General Reevaluation Report. 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 _____ _____

Date

ATR Team Leader

SIGNATURE _____ _____

Charles Austin — Date
Project Manager
CESPK

SIGNATURE _____ _____

Eric Thaut — Date
Review Management Office
Representative
CESPD

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 _____ _____

Rick Poeppelman — Date
Chief, Engineering Division
CESPK

SIGNATURE _____ _____

Alicia Kirchner — Date
Chief, Planning Division
CESPK

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
X		

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NEPA	National Environmental Policy Act
ASA(CW)	Assistant Secretary of the Army for Civil Works	O&M	Operation and maintenance
ATR	Agency Technical Review	OMB	Office and Management and Budget
CSDR	Coastal Storm Damage Reduction	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DPR	Detailed Project Report	OEO	Outside Eligible Organization
DQC	District Quality Control/Quality Assurance	OSE	Other Social Effects
MCX	Mandatory Center of Expertise	PCX	Planning Center of Expertise
EA	Environmental Assessment	PDT	Project Delivery Team
EC	Engineer Circular	PAC	Post Authorization Change
EIS	Environmental Impact Statement	PMP	Project Management Plan
EO	Executive Order	PL	Public Law
ER	Ecosystem Restoration	QMP	Quality Management Plan
FDR	Flood Damage Reduction	QA	Quality Assurance
FEMA	Federal Emergency Management Agency	QC	Quality Control
FRM	Flood Risk Management	RED	Regional Economic Development
FSM	Feasibility Scoping Meeting	RMC	Risk Management Center
GRR	General Reevaluation Report	RMO	Review Management Organization
Home District/MSC	The District or MSC responsible for the preparation of the decision document	RTS	Regional Technical Specialist
HQUSACE	Headquarters, U.S. Army Corps of Engineers	SAR	Safety Assurance Review
IEPR	Independent External Peer Review	USACE	U.S. Army Corps of Engineers
ITR	Independent Technical Review	TSP	Tentatively Selected Plan
LRR	Limited Reevaluation Report	WRDA	Water Resources Development Act
MSC	Major Subordinate		

Term	Definition	Term	Definition
	Command		
NED	National Economic Development		
NER	National Ecosystem Restoration		