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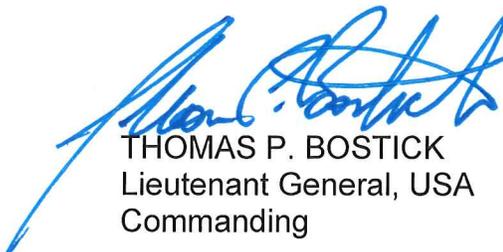
APR 26 2016

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: American River Common Features, California, Flood Risk Management General Reevaluation Report and Environmental Impact Statement\Environmental Impact Report – Final U.S. Army Corps of Engineers (USACE) Response to Independent External Peer Review

1. Independent External Peer Review (IEPR) was conducted for the subject project in accordance with Section 2034 of the Water Resources Development Act of 2007, EC 1165-2-214, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004).
2. The IEPR was conducted by Battelle Memorial Institute. The IEPR panel consisted of four panel members with technical expertise in biology and ecology, economics and Civil Works planning, hydrologic and hydraulic engineering, and geotechnical engineering.
3. The final written responses to the IEPR are hereby approved. The enclosed document contains the final written responses of the Chief of Engineers to the issues raised and the recommendations contained in the IEPR Report. The IEPR Report and the USACE responses have been coordinated with the vertical team and will be posted on the internet, as required in EC 1165-2-214.
4. If you have any questions on this matter, please contact me or have a member of your staff contact Mr. Bradd Schwichtenberg, Deputy Chief, South Pacific Division Regional Integration Team, at (202) 761-1367.

Encl



THOMAS P. BOSTICK  
Lieutenant General, USA  
Commanding

**American River Common Features, California, Flood Risk Management Project  
General Reevaluation Report and  
Environmental Impact Statement\ Environmental Impact Report**

**U.S. Army Corps of Engineers Response to  
Independent External Peer Review  
September 2015**

Independent External Peer Review (IEPR) was conducted for the subject project in accordance with Section 2034 of WRDA 2007, EC 1165-2-209, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004).

The goal of the U.S. Army Corps of Engineers (USACE) Civil Works program is to always provide scientifically sound, sustainable water resources solutions for the nation. The USACE review processes are essential to ensuring project safety and quality of the products USACE provides to the American people. Battelle Memorial Institute (Battelle), a non-profit science and technology organization with experience in establishing and administering peer review panels for the USACE, was engaged to conduct the IEPR of the American River Common Features, California Flood Risk Management Project General Reevaluation Report and Environmental Impact Statement and Environmental Impact Report (EIS\EIR).

The Battelle IEPR panel reviewed the Draft General Reevaluation Report (GRR) and Draft EIS/EIR, as well as supporting documentation. The Final IEPR Battelle Report was issued in June 2015.

Overall, 17 comments were identified and documented; one was identified as having high significance, three were identified as having medium significance, seven had medium/low significance, and six were identified as having low significance. The following discussions present the Final Response to the 17 comments.

Based on the technical content of the study documents and the overall scope of the project, Battelle identified candidates for the panel in the field of Civil Works Planning, National Environmental Policy Act (NEPA) and Biology, Hydrology and Hydraulics Engineering, and Geotechnical Engineering. Four panel members were selected for the IEPR.

**1. IEPR Comment – *High Significance*. It is not clear why the hydraulic profile for the future without-project condition is significantly higher than the profile for Alternative 1. If the baseline condition is not correct, there is a high risk that the flood damage estimates will be incorrect. If, on the other hand, Alternative 1 is incorrect, then there is a risk that the National Economic Development (NED) plan has not been identified.**

The comment includes one recommendation for resolution which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended verifying the profiles and adjusting the analysis as necessary. In response, plates 31 to 56 in the Hydraulic Appendix Executive Report were verified for baseline conditions and Alternative 1 profiles. The water surface profiles for Alternative 1 and the future without-project condition are identical. The differences observed in the plates were from a superseded and now out of date strategy to measure hydraulic effects of a combination of projects along the American River including the Joint Federal Project Auxiliary Spillway.

**2. IEPR Comment – *Medium Significance*. Details as to why non-Federal agencies would not continue to undertake incremental improvements to the levee system in the future without-project condition are not included in the GRR.**

The comment includes one recommendation for resolution which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended explaining in the GRR and Economics Appendix why it is anticipated that local interests will not make improvements to the levee system in the FWOP condition. Additional language has been added to Section 2.8 (Future Without-Project Condition) of the GRR and the Economics Appendix to explain that the non-Federal sponsor will have future funding limitations that will hamper their ability to construct the project without the involvement of the Federal Government. It will also note that the sponsor will be seeking both permission to alter the Federal Flood Management Project (Section 408) and Credit Consideration (Section 221) for levee improvement work they intend on constructing prior to implementation of the ARCF GRR recommended project. These actions will not be considered part of the without project condition however, in order that the sponsor may receive credit consideration in the future.

**3. IEPR Comment – *Medium Significance*. Baseline conditions for invasive plants in the project area, and an effects analysis for invasive plant spread as a result of project construction, have not been presented.**

The comment includes two recommendations for resolution which were both adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended discussing existing conditions for invasive plants/noxious weeds in the project area in Section 3.6 (Vegetation and Wildlife) of the Draft EIS/EIR. If recent field or other site-specific data to characterize invasive plant conditions in the study area are not available, then a summary of the expected or likely conditions there based on land cover types, levels of disturbance, and known invasive plant occurrences in nearby areas would be adequate.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended discussing construction-related impacts in the effects analysis and to consider whether mitigation to prevent invasive plant spread during construction is needed. This discussion was added.

**4. IEPR Comment – *Medium Significance*. Some biological resources in the study area potentially affected by project implementation have not been analyzed or presented in sufficient detail to describe the existing conditions and support the Draft EIS/EIR analysis.**

The comment includes ten recommendations for resolution which were all adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended adding figures that depict biological resources within the study area, including vegetation/habitat types in relation to proposed project features.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended adding a table in Section 3.6 that quantifies (in acres) and compares the amount of each land cover type, including waters of the U.S., assumed to be affected under each alternative.

USACE Response (#3): Adopted

**Action Taken:** The IEPR panel recommended clarifying in Section 3.6 whether the vegetation variance to protect riparian vegetation on the waterside of improved levees was factored into the quantification of riparian vegetation impacts (locations, acreages) and describing whether the

estimate of riparian/SRA habitat loss presented in the analysis already accounts for reduced impacts under the vegetation variance.

USACE Response (#4): Adopted

**Action Taken:** The IEPR panel recommended defining in Section 3.8 which categories of special-species were evaluated (e.g., species listed as threatened or endangered under the Endangered Species Act or California Endangered Species Act, designated by California Department of Fish and Wildlife as species of special concern, Fully Protected under the California Fish and Game Code, etc.).

USACE Response (#5): Adopted

**Action Taken:** The IEPR panel recommended adding an analysis of special-status plant species to Section 3.8, including information on existing conditions, a table that summarizes special-status plant species with potential to occur in the study area, an analysis of potential effects, and proposed mitigation.

USACE Response (#6): Adopted

**Action Taken:** The IEPR panel recommended expanding the analysis in Section 3.8 to include all special-status animal species with potential to occur in the study area. In Table 17, include all special-status animals initially considered or with potential to occur. For any of those species that could occur and be affected, analyze potential effects of project implementation and, if needed, describe the proposed mitigation for any significant effects. For a more complete list and discussion of species in the area, refer to USACE's West Sacramento Project EIS/EIR.

USACE Response (#7): Adopted

**Action Taken:** The IEPR panel recommended clarifying in the Draft Biological Assessment (BA) and the Draft EIS/EIR how impacts on elderberry shrubs and the Valley Elderberry Longhorn Beetle (VELB, special status species) were quantified from the survey data; resolve the inconsistency in survey information presented in pages 65 and 71 of the Draft BA.

USACE Response (#8): Adopted

**Action Taken:** The IEPR panel recommended adding, in Section 3.6, a discussion of tree removal as it relates to compliance or conflict with the American River Parkway Plan, the Sacramento County Tree Preservation Ordinance, or the City of Sacramento Protection of Trees Ordinance. Describe whether tree removal would conflict with these plans and ordinances, and how the proposed mitigation would achieve compliance with these plans and ordinances.

USACE Response (#9): Adopted

**Action Taken:** The IEPR panel recommended, in Section 3.6, adding a discussion of project-related impacts on Federally protected wetlands and other waters of the United States, and how

those effects would be mitigated (e.g., completion of a wetland delineation and appropriate compensation, as needed). Also discuss the effects on stream habitats protected under Section 1600 of the California Fish and Game Code (Streambed Alteration Agreements) and mitigation for those effects.

USACE Response (#10): Adopted

**Action Taken:** The IEPR panel recommended, in Section 4.2.4, expanding the discussion of cumulative effects to include all special-status species addressed in Section 3.8 (e.g., VELB, Swainson's hawk, etc.).

**5. IEPR Comment – *Medium/Low Significance*. The justification to use a content-to-structure value ratio of 50% to calculate the value of contents of residential structures has not been explained and the reasonableness of this ratio is unknown.**

The comment includes one recommendation for resolution which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended providing an explanation in the Economics Appendix of why use of a 50% content-to-structure value ratio is appropriate to calculate damageable property for this study.

**6. IEPR Comment – *Medium/Low Significance*. The magnitude of impacts and level of significance for the effects of sedimentation and turbidity on fisheries resources are not easily determined.**

The comment includes two recommendations for resolution which were both adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended expanding the discussion of anticipated project effects on fisheries resources. The discussion should describe impact mechanisms and the types and magnitude of biological effects. Any applicable modeling projections for project-generated in-stream effects (e.g., sediment and turbidity) and/or modeling of effects on fish habitat that may have been conducted for the project would be appropriate to reference in the fisheries analysis.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended discussing the assumptions made about the amount of project-related increased sedimentation and turbidity (relative to baseline conditions) that would result from project implementation, and the amount that would be considered

substantial and therefore significant. If any amount of increase is considered significant, then clarify that point.

**7. IEPR Comment – *Medium/Low Significance*. It is unclear why several of the planning objectives are required; some are redundant or not appropriate to fully evaluate alternatives.**

The comment includes two recommendations for resolution, one of which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended combining the first and second planning objectives into one: reduce the Expected Annual Damages in the study area. This captures both the frequency of flooding and the consequences of flooding in one metric.

USACE Response (#2): Not Adopted

**Action Taken:** The IEPR panel recommended eliminating the final two planning objectives (to encourage wise use of the floodplain and to educate the public about residual risk) and adding them to the future without-project condition. The two final planning objectives have not been eliminated, as these objectives are needed to highlight the importance of addressing life safety and residual risk management and communication.

**8. IEPR Comment – *Medium/Low Significance*. The basis for the assumption that the project will receive total Federal and non-Federal funding for implementation at a rate of \$44 million to \$197 million per year over the entire 10-year implementation period has not been provided, and the construction period may be too short, which would result in an underestimate of the cost of interest during construction.**

The comment includes two recommendations for resolution, one of which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended adding a description of the basis for the assumption that the project will receive \$44 million to \$197 million per year during the implementation of the project, including an explanation of why concurrent Sacramento District project funding requirements will not impact the availability of funds for this project.

USACE Response (#2): Not Adopted

**Action Taken:** The IEPR panel recommended providing a revised funding schedule to evaluate the potential impact on the Tentatively Selected Plan benefit-to-cost ratio to account for additional interest costs if the project completion date is extended. Standard practice is to assume optimal funding. If during construction, optimal funding does not keep pace, it will be

reflected in the mandated Economic Updates which are required at least every three years. However, by policy, "interest during construction will only be calculated based on remaining construction costs and a schedule to complete that assumes adequate funding." Based on this guidance, a schedule delay will impact BCR updates less significantly than if all sund IDC was included. Additionally, with the nature of federal funding, as part of Civil Works Transformation, less projects are being funded, but they are being fully funded; the projects that are in the highest federal interest are the ones that are being fully funded. This project, because of the large population at risk and the strong economic justification, makes it a good contender to being one of these projects that are fully funded. Therefore, it is unlikely that the schedule will be significantly delayed causing a higher IDC cost.

**9. IEPR Comment – *Medium/Low Significance*. The rationale and process for selecting the index points are not described or consistently listed in figures, making it difficult to assess whether the index points are representative of potential economic impacts.**

The comment includes three recommendations for resolution, two of which were adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended explaining the rationale for index point selection.

USACE Response (#2): Not Adopted

**Action Taken:** The IEPR panel recommended including Index Point ARS B on Figure 7 of the Economics Appendix; however, index point ARS B was originally selected but has been replaced with ARS A. Any reference to ARS B in the Economic Appendix was incorrect and has been replaced with a reference to ARS A.

USACE Response (#3): Adopted

**Action Taken:** The IEPR panel recommended confirming that all the figures showing index points in the various appendices are consistently listed.

**10. IEPR Comment – *Medium/Low Significance*. The Geotechnical Report does not include interpretive cross-sections of the five index points chosen to represent critical surface and subsurface conditions in the selected reaches.**

The comment includes two recommendations for resolution, both which were adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended providing an illustrative, interpretive cross-section of each of the five index points where geotechnical analysis was conducted.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended showing topography, subsurface conditions, water levels, phreatic surfaces, and the failure modes considered.

**11. IEPR Comment – *Medium/Low Significance*.** **The seismic vulnerability of the project has not been discussed in the GRR and a strategy to address earthquake-related damage to the project area has not been identified.**

The comment includes two recommendations for resolution, one of which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended describing seismic vulnerability and post-earthquake remediation strategies in the GRR.

USACE Response (#2): Not Adopted

**Action Taken:** The IEPR panel recommended considering the cost of post-earthquake remediation in the economic analysis and allocating the cost among Federal and non-Federal interests; however, the U.S. Army Corps of Engineers Policy does not require consideration of PL 84-99 in the project economics.

**12. IEPR Comment – *Low Significance*.** **It is not clear in the GRR whether a water control plan has been developed and will be adopted when construction of the Joint Federal Project auxiliary spillway at Folsom Dam is complete.**

The comment includes one recommendation for resolution, which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended adding a brief description to the GRR defining the Folsom Dam water control plan that is assumed in the GRR for the future without- and with-project conditions.

**13. IEPR Comment – *Low Significance*.** **Several of the proposed non-structural management measures are already in place and should not be considered management measures in the GRR.**

The comment includes one recommendation for resolution, which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended reviewing the proposed set of non-structural management measures and eliminating those that are currently in place.

**14. IEPR Comment – *Low Significance*.** **The critical volume durations in the Hydrology Executive Report appear to be inconsistent, which makes the discussion of the hydrology difficult to understand.**

The comment includes two recommendations for resolution, both of which were adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended verifying the critical volume durations in the text vs. Figure A-1 and modifying text or graph, as necessary.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended adding text to Section A-3 to clarify the relationship between the stated 3-day critical duration and Figure A-1.

**15. IEPR Comment – *Low Significance*.** **The reason for updating the flow record with additional data for Arcade Creek but not Dry Creek is unclear.**

The comment includes one recommendation for resolution, which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended providing additional text in Section 6.2 or both sections (Sections 5.2 and 6.2), as needed, to clarify the decision to update one set of data and not the other.

**16. IEPR Comment – *Low Significance*.** **The use of the 1-year event stage data has not been described in sufficient detail to understand how it was derived.**

The comment includes one recommendation for resolution, which was adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended adding a brief description of the meaning of “1-year event” for clarification, since a 1-year event cannot be statistically quantified.

**17. IEPR Comment – *Low Significance*.** **The level of significance of impacts on biological resources after mitigation is not presented in sufficient detail.**

The comment includes two recommendations for resolution, both which were adopted as discussed below.

USACE Response (#1): Adopted

**Action Taken:** The IEPR panel recommended, for the biological resources impact discussions presented in Sections 3.6, 3.7, and 3.8 of the Draft EIS/EIR, adding a conclusion statement about which potentially significant effects have been reduced to a less-than-significant level and why, and which (if any) have not. For consistency, this revision could be made to all of the resource sections.

USACE Response (#2): Adopted

**Action Taken:** The IEPR panel recommended reviewing and, if needed, revising Table ES-3 to make it consistent with the analysis conclusions for biological resources.