DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF

CECW-ZB

MAR 0 9 2016

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Picayune Strand Restoration Project, Florida - Final 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 three members with technical expertise in civil engineering, cost engineering, Civil Works planning, economics, and environmental/ecological evaluation.

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. 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 or concerns on this matter, please contact me or have a member of your staff contact Ms. Joana Saviñon, Everglades Program Manager, South Atlantic Division Regional Integration Team, at (202) 761-4241.

Encl

STEVEN L. STOCKTON, P.E.
Director of Civil Works

Comprehensive Everglades Restoration Program
Picayune Strand Restoration Project
Limited Reevaluation Report and Environmental Assessment
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 33 CFR §385.22(b)(1) for Comprehensive Everglades Restoration Plan projects, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004).

The intent of the Picayune Strand Restoration Project (PSRP) is the hydrologic restoration of the Southwest Florida ecosystem by restoration of natural sheetflow to rehydrate the wetlands in the project area, reestablishment of natural freshwater flow to and elimination of point source discharges to the estuary and restoration of its pre-development hydrology and ecology. The integrated PSRP Limited Reevaluation Report and Environmental Assessment (LRR/EA) presents a revised cost estimate and updated economic analysis of the authorized project.

The IEPR was conducted by the Battelle Memorial Institute through their contract with the Army Research Office. The IEPR panel consisted of three individuals selected by Battelle with the technical expertise in the following categories: Civil Engineering, Cost Engineering, Economics and Civil Works Planning and Environmental/Ecological Evaluation.

The IEPR panel reviewed the Draft LRR/EA, as well as supporting documentation. The Final IEPR Battelle Report was issued 26 June 2013. Overall, nine final comments were identified and documented. Of the nine total comments, one was identified as having high significance, five were identified as having medium significance and three were identified as having low significance.

The following discussions present the USACE Final Response to the IEPR comments. Further details on each comment, such as the Basis for the Comment, Significance, Comments Cross-Reference, and Recommendations for Resolution can be found in the IEPR Final Report referenced above.

1. IEPR Comment – High Significance: Three Flood Protection Features (Private Lands, Port of Islands, and 6L's Farm) have been included in the cost estimate, although at least two of them have been eliminated from the Picayune Strand Restoration Project, which could affect the accuracy of the cost estimate.

The comment had three recommendations, all were adopted, as discussed below.

USACE Response Adopted

Action Taken: The IEPR panel recommended confirming the accuracy of the project cost estimate. Unfortunately, the final design effort could not be completed in time for the initiation of the IEPR

effort. At the time, detailed design efforts were still underway for PSRP and we acknowledged that the protection features originally envisioned as necessary in the PIR to protect private interests would be revised and a new cost estimate developed. The design refinements were completed in full in late in 2013, and an updated, certified cost estimate was prepared by the Walla Walla District Cost Engineering MCX (accounting for all the design changes) on December 13, 2013. Data from the certified cost estimate was used in the completion of the final LRR/EA.

2. IEPR Comment – Medium Significance: The report does not clearly explain why the project engineering and design costs increased from the initial estimates.

The comment had two recommendations, both were adopted, as discussed below.

USACE Response Adopted

Action Taken: The IEPR Panel recommended additional details be provided concerning preconstruction engineering and design (PED) costs spent to date as well as estimated to project completion. The Engineering Appendix was revised, providing specific details on expended PED costs by project component to better explain how the PED costs have been spent to date. However, the complexity of each component was more of a consideration on the estimated cost of the PED for the components to be constructed (for example: a pump station is more costly to design/oversee vs. a levee earthwork project) than based on previously completed work. The explanation was provided for the general increase in PED as well as broken out and given for both the components already completed or under construction and the components not yet designed, separately.

3. IEPR Comment – Medium Significance: Without-project conditions are not defined enough to determine and optimize incremental costs and benefits.

The comment had two recommendations, one was adopted and one was not adopted, as discussed below.

USACE Response Adopted

Action Taken: The IEPR Panel recommended additional details be supplied indicating the benefits provided by project feature completed vs remaining, and the development of a graphic depicting hydrologic, biologic and estuarine benefits to be provided by the project features. A conceptual graphic was developed and included in the LRR/EA depicting the benefits (hydrologic, biological and estuarine) achieved for both the completed and remaining construction phases.

USACE Response Not Adopted

Action Taken: The IEPR Panel recommended additional details be supplied indicating the benefits provided by project feature completed vs remaining, yet to be constructed features. This was not possible with the information available. The PSRP was not envisioned to be constructed in phases when the 2004 PIR/EIS was approved. The 2004 PIR/EIS benefit analysis was of the project as a whole instead of individual project components. The subsequent phasing of the construction of the pump stations and associated canal plugging was necessary to accommodate the funding

process. The estimated Habit Unit benefits are all linked in the completed analysis, since water flows from the northeast to southwest across the restored project area.

4. IEPR Comment – Medium Significance: The benefit-to-cost ratio of pump station system redundancy is not explained.

This comment included three recommendations concerning revisions to the pump station design. The first two recommendations were adopted and the third was not as discussed below.

USACE Response Adopted

Action Taken: The IEPR Panel inquired about pump station redundancy being a recommendation or requirement in the 2008 Design Criteria Memorandum (DCM) jointly adopted by the SFWMD and USACE for major pump station design and recommended a summary of hydraulic and hydrologic modeling results be provided.

The hydraulic and hydrologic modeling performed for the project to support the Project Implementation Report determined the required capacity of the pump station to maintain the existing level of service of flood damage reduction. The inclusion of the emergency back-up pump was not specifically modeled since its capacity is only to replace capacity not available due to repair or maintenance of a pumping unit. The decision to include emergency back-up pumps for these pump stations took place during the design of the project following the completion of the DCMs in 2008.

Design Criteria Memorandum No. 5 (DCM-5) established criteria "to be used as engineering guidelines to standardize the process for pumping station design including civil, structural, mechanical and electrical features, for major water control pumping stations. Based on the application of the DCM guidelines to the Picayune Strand Restoration Project, emergency back-up pumps were recommended by the SFWMD technical team, which documented those decisions in Technical Reports.

Subsequently, the construction of these features was shifted from SFWMD to the Corps and the Corps prepared updated Technical Reports to ensure consistency with Corps design criteria and to ensure that design was adequate to support a Corps construction contract. Corps criteria require that pumping stations consider dependability. EM 1110-2-3102, General Principles Of Pumping Station Design And Layout, paragraph 1.5 states:

> “a. Dependability. Pumping stations are one of the more vulnerable features of a flood protection project. The failure of a pumping station during a flood could result in considerable damage within the protected area. This would cause the loss of some or all of the benefits that justified construction of the project. Consequently, station dependability must be the primary consideration, during the design and pump selection process.”

The assessment of the Corps’ technical team was that the original pump station design described in the PIR would maintain the current level of flood protection until either a pump fails or is taken out of service for repair. However, in order to meet the legal requirement to "not reduce levels

of service for flood protection that are (i) in existence on the date of enactment of this Act; and (ii) in accordance with applicable law" the team concurred with the SFWMD recommendation that emergency back-up capacity was needed to provide the required level of flood protection at all times, including in the event of a pump failure or when a pump was down for repair/maintenance."

USACE Response Not Adopted

Action Taken: The IEPR Panel requested a comparison of the Benefit Cost Ratio of a redundant system vs single pump system including specific discussion of preventative maintenance considerations.

Section 601(h)(5)(b) of WRDA 2000 requires that "Implementation of the Plan shall not reduce levels of service for flood protection that are (i) in existence on the date of enactment of this Act; and (ii) in accordance with applicable law." A Benefit Cost Ratio calculation was not prepared for the Project Implementation Report (PIR) since the need for the Pump Stations recommended in the PIR and the back-up pumps subsequently identified during the design phase, are based upon the team's technical assessment of the features that were needed to meet this legal requirement. The original pump stations in the PIR maintain the current level of flood protection until either a pump fails or is taken out of service for repair/maintenance. The emergency back-up pump was added in the design phase to provide the required level of flood protection at all times, including in the event of a pump failure or O&M. Documentation of design changes, including the emergency backup pumps, was included in Technical Reports prepared on the project."

5. IEPR Comment – Medium Significance: The Manatee Mitigation Feature is not consistently described, and the current status of ESA consultations is not clearly presented.

This comment included six recommendations which were not adopted at that time as discussed below. The comment suggests inclusion of additional information on the Manatee Mitigation Feature.

USACE Response Not Adopted

Action Taken: The IEPR Panel made a total of six recommendations, principally concerning the status of the endangered species coordination particularly for manatee protection but for other listed species as well. All six recommendations could not adopted at that time but were acknowledged as important considerations as the endangered species coordination efforts were underway but not concluded at that time. Subsequent to the completion of the IEPR effort, endangered species coordination for all potential species of concern was favorably concluded with the resource agencies with the inclusion of the revised design for the manatee mitigation feature now included with the project. The details of the coordination effort were included in the final LRR/EA as originally requested by the IEPR Panel.

6. IEPR Comment – Medium Significance: The report does not describe the implementation status of the Adaptive Management plan for the PSRP, discuss allocated funding for the plan, or assess its effectiveness should the allocated budget be reduced.

This comment included four recommendations, all were adopted as discussed below.

USACE Response Adopted

Action Taken: The IEPR Panel recommended development of a formal Adaptive Management (AM) Plan as required under WRDA 2007 and the LRR/EA be revised to include the roles and responsibilities of the Management Assessment Group, describe the management strategies and Environmental Monitoring Plan (EMP) to be used, and include the costs for Adaptive Management, and EMP. Accordingly, the role of the Monitoring Assessment Group as identified in the August 20098 Picayune Strand Restoration Project Transfer Agreement was included in the LRR/EA along with the management strategies utilized, the analysis of monitoring data, the allocated costs for implementing the AM plan and EMP, and details of the planned monitoring assessment process.

7. IEPR Comment – Low Significance: The post-implementation monitoring results are not included for the portions of the Picayune Strand Restoration Project (e.g., Prairie Canal) that are already constructed.

This comment included three recommendations, all were adopted.

USACE Response Adopted

Action Taken: The IEPR Panel recommended including post implementation monitoring results into the study documents. Therefore, detailed post implementation monitoring results were included in LRR/EA for the completed phase of the PSRP (e.g., Prairie Canal). Additional text summarizing available monitoring data and preliminary data analysis for the Prairie Canal phase has been added as well. While there have not been any identified unexpected project responses to date, language was added indicating the current status of the completed Prairie Canal phase of the project. Lastly, information of exotic management success was provided along with a summary of key findings from the preliminary analysis as appropriate.

8. IEPR Comment – Low Significance: The report does not explain that the alternative screening process may have been influenced by the fact that the preferred alternative is already under construction.

This comment included one recommendation that was adopted.

USACE Response Adopted

Action Taken: The IEPR Panel expressed concern that the screening process may have been influenced by the fact that the preferred alternative is under construction. Due to the transfer of responsibility for the design of the project back to the USACE, there is limited information available on the development of the tieback levee design, however all available additional information has been added to the report to support the selection of the tieback levee configuration selected.

9. IEPR Comment – Low Significance: The summary of the 404(b)(1) evaluation is too abbreviated and missing detail, for example, on levee siting considerations and source and type of fill material.

This comment included four recommendations, two of which were adopted and two were not, as discussed below.

USACE Response Adopted

Action Taken: The IEPR Panel suggested additional details concerning the 404(b)(1) evaluation be included in the LRR/EA. Specific details concerning the source of the fill material was added to the 404b analysis and descriptions of habitats/wetlands updated.

USACE Response Not Adopted

Action Taken: The IEPR Panel requested an updated analysis of potential effects on listed species and evaluation of tieback levee siting alternatives. However, the endangered species consultation for the construction of the Miller, Faka Union, and Merritt Phases are complete for this project and fully covered by the 2009 Biological Opinion (BO). The tieback levee west of Miller Pump Station is also covered under the 2009 BO. A determination of "may affect, not likely to adversely affect" was reached for the red-cockaded woodpecker. West Indian manatee consultation was completed in a subsequent Biological Assessment as discussed above. Further, the updated information provided regarding the levee siting and selection is the best available as discussed in a previous comment.