

**MINUTES OF
SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY-EAST
COASTAL ADVISORY COMMITTEE MEETING
HELD ON FEBRUARY 15, 2018**

PRESENT: G. Paul Kemp, Chair
Andrew Englande, Committee Member
Richard A. Luettich, Jr., Committee Member
Rusty Gaude, Committee Member
Clay Cosse, Board Member

The Coastal Advisory Committee of the Southeast Louisiana Flood Protection Authority-East (FPA or Authority) met on February 15, 2018, in the Franklin Avenue Administrative Complex, Meeting Room 201, 6920 Franklin Avenue, New Orleans, Louisiana. Mr. Kemp called the meeting to order at 1:35 p.m.

Opening Comments: Mr. Kemp advised that the Coastal Advisory Committee reviews ideas to improve the resiliency of the flood protection system along with coastal restoration efforts.

Adoption of Agenda: The agenda was adopted by the Committee as presented.

Approval of Minutes: The Committee approved the minutes of the Coastal Advisory Committee meeting held on August 17, 2017.

Public Comments: None.

New Business:

A. Progress on Pontchartrain Beach nourishment. John Lopez, Lake Pontchartrain Basin Foundation

Mr. Kemp explained that the Lake Pontchartrain Basin Foundation (LPBF) is working to reopen Pontchartrain Beach to the public. Pontchartrain Beach is located on Orleans Levee District (O.L.D.) property. At previous Committee meetings, John Lopez, LPBF Coastal Sustainability Program Manager, discussed the LPBF's plans for a new regenerated Pontchartrain Beach. The LPBF acquired sand to place on the site; however, a number of engineering issues have been raised (e.g., rusty sheet pile that bisects the site that must be removed). He suggested the collaboration of the FPA, LPBF and Non-Flood Protection Asset Management Authority (NFA) to reopen this major recreational facility. FPA Engineering staff obtained estimates for the removal of the sheet pile; however, the question of who is going to pay for the sheet pile removal remains. He suggested that the sheet pile removal may be an appropriate cost for the O.L.D. and that the FPA may wish to consider the LPBF's plan for an offshore breakwater due to its proximity to the flood protection system.

Derek Boese, Chief Administrative Officer, advised that some legal questions must be answered (e.g., whether the purpose of the project is purely recreational or related to flood protection) before the FPA can commit to the payment of costs. The Lease Agreement between the O.L.D. and LPBF must be reviewed. He added that he would have the FPA's Executive Counsel research this issue.

Wilma Heaton, Director of Governmental Affairs and NFA Chair, explained that she was asked to research this issue some time ago. The preliminary finding was that the shoring up of the shoreline is within the coastal authority outlined in the legislation that created the FPA.

B. Progress on LSU C4G levee crown elevation demonstration.

Mr. Kemp advised that the FPA reached an agreement with LSU C4G for a demonstration at no cost to the FPA of LSU's survey methodology along a levee reach recently surveyed using the conventional RTK approach so that a comparison can be made of the two different methodologies. The demonstration has been delayed due to the recent inclement weather.

C. Report of Eustis Engineering on IHNC I-Wall review

Mr. Kemp advised that the Committee has been looking at potential risks beyond the 100-year level of protection. Robert Jacobsen identified the IHNC I-walls in his report as a potential risk.

Bill Gynn with Eustis Engineering (Eustis) explained that Eustis was tasked with evaluating the risk and prioritizing potential repairs to the IHNC I-walls. Eustis evaluated the Burns Cooley Dennis, Inc. (BCD) report that identified six potential problem areas. Four areas are not likely problematic for a water elevation of +8-ft.; however, two areas may be problematic. He pointed out that there is a problem with the interpretation used in the BCD report of new U.S. Army Corps of Engineers (USACE) guidance on rotational stability and that a spot check by Eustis produced a different result. Eustis will follow up on this issue. In addition, the USACE performed a finite element study on one of the floodwalls it deemed deficient. Eustis had a problem with the input that went into the USACE study, which was based on extrapolated data and not site specific data.

Mr. Gynn advised that the biggest issue Eustis found with the BCD report concerned the basic assumptions of high seepage pressures landside of the floodwall. The assumption is sufficient for the rotational and global stability analysis; however, if the high pressures are assumed, the landside levee toe would tend to have sand boils, which have not happened. There are relief wells to lower the pressure. Eustis was concerned that if the wells are not fully operational, it could be detrimental to the stability of the floodwalls because of sand boils. Eustis contacted the USACE and Coastal Protection and Restoration Authority (CPRA) and was advised that the wells were

evaluated either in 2006 by URS following Hurricane Katrina or in 2011 and for the most part are fine. He recommended that the nine wells that have never been evaluated be evaluated. The USACE requires that the wells be evaluated every five years; therefore, all of the wells are due for evaluation.

Stevan Spencer, Chief Engineer, explained that the FPA is working on a Memorandum of Agreement whereby the USACE would test all 250 relief wells and the FPA would reimburse the USACE for the costs (estimated between \$150,000 and \$200,000).

Mr. Gynn advised that if the wells are found to be fully functional, then the stability analyses performed by BCD and the USACE would be satisfactory with one or two sections that may be problematic with the assumptions. However, if the assumptions are revised for lower water levels due to the relief wells, and the sheet piles are included as a structural element, the problematic areas may also be sufficient.

Mr. Gynn explained that Eustis' draft report included three recommendations relative to the relief wells, the structural element and the interpretation of the ETL. If the interpretation of the ETL cannot be resolved satisfactorily upon discussion with BCD, he suggested that all of the rotational failures below a factor of safety of 1.3 may need to be reviewed. Eustis' final report was anticipated to be issued in a couple of weeks.

Mr. Gynn clarified that Eustis performed a limited equilibrium analysis and that neither Eustis nor BCD assessed the risk of an individual floodwall failing under certain conditions.

Bob Jacobsen explained that he and Robert Turner, Director of Engineering, formulated the broader scope of work and long term list of tasks, and that the concern for the I-walls was a priority. Eustis was initially contacted with the intent that the firm become familiar with the previous work by URS and BCD and provide its evaluation of the work. The scope of work did not request that Eustis develop new fragility functions for all of the I-walls; however, this would ultimately be needed if the FPA wants a risk assessment with respect to the IHNC basin. He pointed out that Mr. Turner's concern was that at some point there may be host of other issues that could be of higher priority in terms of available dollars. Eustis evaluated the prior work and will perform some follow up work. The FPA wants to understand the factors of safety that in Eustis' judgment exists with respect to static water levels. Another concern is the factors of safety with respect to impact loads. The National Flood Insurance Program (NFIP) accreditation process assumes that there are no impact loads and that the entire area is reasonably well regulated by the U.S. Coast Guard and other entities. Mr. Jacobsen and Mr. Turner were attempting to start a conversation with the CPRA about how the area could potentially be regulated in order to reduce the odds of impact loads.

Mr. Jacobsen commented that the Hurricane and Storm Damage Risk Reduction System (HSDRRS) factors of safety are based on a 100-year storm event under the USACE's assumptions of a reasonable event under the NFIP. The USACE assumes a little less than 7-feet of water in the IHNC basin, based almost entirely on direct rainfall

and pumping from the pump stations that feed the IHNC basin. Under the 100-year scenario there is very little overtopping and rainfall is 9-inches or less. However, an event with significantly more rainfall than 9-inches over an extended closure of the basin could easily result in more than six feet of water in the basin. There is a question of whether the FPA wishes to accept the same factors of safety and same static water levels.

D. Central Wetlands Modeling Task Order.

Mr. Jacobsen reviewed prior discussions regarding the hydraulic feasibility of using the Bayou Bienvenue Gate to move water from the IHNC basin into the Central Wetlands during a storm event. Due to permitting and accreditation issues, the conclusion was that the only way the FPA would be able to use this procedure is during an emergency and the FPA made the request to the USACE during the event. It could not be a preplanned event; however, the FPA would need to have certain information available during an emergency (e.g., the hydraulic feasibility). Therefore, the next step is to build a 2-D model of the Central Wetlands and IHNC basin in order to obtain a better understanding of the equalization timing and the feasibility of the effort. Mr. Jacobsen had agreed to prepare a recommendation of a 2-D model and began the setup. A task order with a not to exceed amount of \$49,000 was issued, and a little less than \$30,000 remains on the task order to begin the process of setting up the 2-D model. He advised that the development of the 2-D model was on hold pending today's discussions.

Mr. Jacobsen further explained that the model of a diversion could be converted into an operational methodology in the event that an emergency occurs. A matrix was built to evaluate the model. He briefly discussed software options for the model. The question that needs to be answered is whether the Bayou Bienvenue Gate, which is only 50-feet wide, constrains water equalization or are there other constraints within the Central Wetlands, since the area is divided by Paris Road and has high elevations in some areas along with resistance created by swamp vegetation. The 2-D model will provide a better indication of the feasibility of using the Central Wetlands, and if it is not feasible, discussions can take place regarding other risk management efforts that could potentially be undertaken.

Mr. Kemp asked whether there is enough information to rule out the possibility of using the Central Wetlands for storage and to focus more intently on geotechnical issues of using the Industrial Canal as the main internal reservoir for storage, or does the FPA still want to have the Central Wetlands available as storage under conditions that are more severe than the 100-year conditions.

Mr. Jacobsen advised that the current model treats the Central Wetlands as a series of channels with cross sectional areas that can be filled. However, with a 2-D HEC-RAS model, it would no longer be a series of 1-D transports; the 2-D model would provide a clearer picture regarding resistance issues. The effort would be for a handful of scenarios that correspond to a huge volume of water from a combination of rainfall and overtopping.

Mr. Luettich commented that Mr. Jacobsen's report identified eight issues that need to be better understood in order to be well positioned to have a meaningful conversation with the USACE regarding emergency declarations. I-wall stability was one of the issues. He asked about prioritizing the items in the list, and asked to what extent is the answer to the modeling question known?

Mr. Jacobsen responded that due to the high ground in various parts of the basin, the Central Wetlands is actually not 30,000 acres of available storage. He suggested that he be allowed to build the 2-D model in order to run the scenarios. He added that if the system is opened after the Seabrook Gate and other gates are closed, water coming into the IHNC basin from rainfall or overtopping will equalize. He pointed out that some of the other items on the list are estimated to cost between \$100,000 and \$200,000 just to start the effort. Therefore, the thought was to look at the Central Wetlands issue first.

Mr. Luettich asked is there a complete LIDAR data set for the Central Wetlands? Mr. Jacobsen responded, yes; it is available from U.S. Geological Survey (USGS). He discussed constriction, storage availability and wetland conveyance issues that need to be addressed along with potential scenarios.

Mr. Luettich asked about the potential consequences of an I-wall failure with Seabrook and the IHNC Surge Barrier Gates closed. Mr. Jacobsen responded that the 2016 Report addressed simulations with 30,000 acre feet of water popping through various locations around the system. Two simulations on the Orleans side (east and west) and one on the St. Bernard side demonstrate the result of 30,000 acre feet of water coming from the IHNC Basin.

Mr. Luettich asked about options other than the use of the Central Wetlands. Mr. Jacobsen discussed the option of operating gates, such as Bayou Bienvenue and Seabrook, during a storm either remotely or with personnel who are safe housed; however, reliability issues would need to be addressed. This is one of the options tabled until the Central Wetlands option was addressed. Mr. Kemp pointed out the possibility of being unable to complete an effective closure of the IHNC Basin.

Mr. Luettich commented that he was attempting to understand the potential decision possibilities during an imminent event and to what extent the 2-D model will provide information to assist the decision making process. Mr. Jacobsen explained that Mr. Turner's concern was that in an operational situation during which the FPA asked the USACE for permission to open the Bayou Bienvenue Gate, based on two discussions with USACE personnel, questions such as, how many facilities will be impacted, will be posed. Therefore, at some point the FPA must have information and responses to potential questions. The cost of obtaining the information and data could be high; therefore, the thought was to begin with the cheaper and easier feasibility questions. Initially, the USACE shut down the Central Wetlands option because it was thought that the only way the Bayou Bienvenue Gate would be opened would be in the middle of an event. However, Mr. Turner and Mr. Jacobsen proposed opening the Bayou Bienvenue

Gate at an earlier point for an imminent event that appeared problematic and were attempting to produce a viable scenario.

The Committee discussed some of the specific information and data that the USACE may require in order to open the Bayou Bienvenue Gate and utilize the Central Wetlands should an emergency arise that would address timing issues relative to opening the gate, potential gate closure issues should the gate be opened, the maximum amount of water that could potentially be distributed in the Central Wetlands, and additional data on the potential impact to the Forty Arpent Levee. Mr. Boese pointed out that the FPA recognized that there are potential major security issues associated with remotely controlling features of the HSDRRS because of the risks. The Committee also discussed the question of which entity would ultimately make the final decision during an emergency.

Mr. Kemp commented that it would be useful to have the 2-D modeling done and that the findings could be beneficial. Mr. Boese expressed concern that the modeling may become a never ending exercise. Mr. Jacobsen advised that would not happen and pointed out the need to do a better job of regulating things that could potentially impact the I-walls (e.g., runaway barges). Mr. Cosse stated that he was in favor of the modeling and commented on the potential impact that the diversion of water into the Central Wetlands could have on the Forty Arpent Levee. Mr. Kemp noted that if usage of the Central Wetlands turned out to be a viable strategy, there would also be efforts to improve the Forty Arpent Levee. Mr. Jacobsen pointed out that a breach from a 500-year level event could occur anywhere along the IHNC, as well as substantial prolonged rainfall during a tropical storm event, affecting several polders.

Mr. Luettich advised that in his discussions with Mr. Turner, ideally the Bayou Bienvenue Gate would be opened early enough to keep the water levels low in the IHNC in order to manage the potential impact of a runaway barge. He agreed with proceeding with the 2-D HEC-RAS modeling.

Mr. Jacobsen advised that after Eustis concluded the current scope of work, he and Mr. Turner envisioned delving into the prioritization of the different I-wall sections and exploring the potential for impact issues, and identifying where the factors of safety along the I-wall sections was most problematic in order to identify the need for additional work. He suggested that protective measures could be implemented in the most vulnerable sections, such as the placement of dolphins or protective structures, deep soil mixing or additional relief wells.

The Committee concurred with proceeding with the 2-D HEC-RAS model. Mr. Jacobsen reminded the Committee that the modeling can be done under an existing task order.

There was no further discussions; therefore, the meeting was adjourned at 3:05 p.m.