DEP comments on the proposed bulkhead for the Port Everglades Navigation Improvements Project

November 7, 2018

A meeting was held on September 19, 2018 to discuss the bulkhead component of the proposed Port Everglades Navigation Improvements Project (Project), which is planned to be constructed along the South Access Channel (SAC) as a wave break on top of the sheet pile wall that will be installed to provide structural support for the side slopes of the widened SAC. A partial PowerPoint presentation and some preliminary cross-sectional drawings were provided to the IWG immediately prior to the meeting (attached) and other figures / documents were shared during the meeting via webinar but were not distributed to the IWG. A meeting summary was prepared by Marie Burns. The Department provided comments (attached) on the meeting summary, including:

- A request for a follow-up meeting to discuss the bulkhead once the information requested by the IWG had been provided by the Corps and reviewed by the IWG. The intent of this meeting was to give the IWG an opportunity to provide detailed comments on the design of the bulkhead prior to the Corps producing permit drawings.
- A request for legible enlarged drawings provided at a spatial scale and resolution that allows for close evaluation of the proposed bulkhead design.
- A request for information on the current status of each opening (i.e., whether it is presently open or closed based on the condition of the existing rip-rap materials), including the smaller ones located in the southern end of the project. Lacy referred to some of the smaller openings as “channels”, and DEP requested a consistent / clearly defined terminology for all openings, channels, and other features along the bulkhead.
- A request for a professional delineation of mangroves throughout the entire project area. DEP also requested that the direct impact area(s) be defined and the acreage of impacts calculated based on the wetland delineation. DEP requested that the Corps also quantify the acreage of wetlands and surface waters within the 25’ area landward of the bulkhead that would also be impacted by the contractor during construction.
- A request for figures showing the location of mangrove mitigation areas for prior projects.
- A request for information on the permeability of the proposed structures to water and wildlife. One of the Corps’ engineers indicated that water would “seep” through the bulkhead but the other Corps’ engineer stated that the bulkhead was “extremely permeable” due to the “huge volume of voids” that it would contain. DEP asked about the size and sorting of materials to be used, given that these characteristics would influence permeability. DEP also asked whether these voids would be maintained over time as materials shifted. Additionally, DEP requested evidence (e.g., from similar projects) that could confirm the permeability of the bulkhead.
- A request for the Corps to identify areas along the SAC where there may be opportunities to create new openings in the bulkhead.

RE PE Webinar RE Draft Meeti

The Corps distributed additional documents to the IWG (via emails from Marie Burns, attached) related to the bulkhead on November 1, 2018, including drawings of the current design for the bulkhead proposed to be constructed as part of the Project, drawings of the existing bulkhead from 1983, and a copy of page 166 in the book "Geotechnical Engineering Investigation Handbook, Second Edition".

The Department understands that the drawings that were submitted are preliminary and meant to provide a generic schematic of proposed design features. Additional work will be needed to refine the design and prepare permit-quality drawings. Comments based on the current drawings and suggestions for revisions to the design and drawings are provided below:

- The cross-sectional profiles provided show only two possible designs (one with and one without a tie-back anchor). Final drawings submitted with the application should contain cross-sections at regular intervals (e.g., 50') throughout the project area to illustrate how the structures will be installed based on site-specific conditions. While this level of detail is not expected during the planning phase, it would be helpful for the Corps to produce figures for the three main scenarios, including construction of the structures on / adjacent to 1) mangrove wetlands, 2) surface waters, and 3) upland areas. The figures indicate that the toe of the rock will vary with elevation; please provide information on the range of design parameters that are being considered with respect to the three scenarios presented above.
- The final permit drawings should properly relate cross-sectional profile drawings to the labeled locations on the plan-view maps with consistent intervals between cuts. Final drawings should also include a more distinct depiction of the sheet pile wall so that it is conspicuously different from the grid lines. All components of the design should be labeled on the drawings, including using an arrow and text to identify the required dredge depth and designed equilibrated side-slopes of the channel. The final plan-view drawings should also include a professional delineation of mangroves and should identify all mangrove areas that are mitigation for prior projects.
- The drawings show a 25' construction corridor west of the wetface of the bulkhead / sheet pile wall. The drawings state that "All vegetation west of the corridor is subject to complete removal or trimming" (page 3, Sheet 1) but that "Some portions of the corridor may only require trimming" (page 8). Please provide information on the expected spatial extent (acreage), severity (functional degradation), and persistence of impacts to wetlands and surface waters (e.g., mangrove and seagrass habitats) in and adjacent to this construction corridor. Please be advised that impacts will need to be offset by mitigation, and monitoring will be required to verify that no unauthorized impacts occur due to the construction of the bulkhead.
- The drawings indicate that the footprint of the bulkhead structure will extend into (and up to the edge of) the 25' construction corridor in areas where openings will be constructed (page 8). In these areas, there will be no buffer between construction activities and adjacent natural communities. Please describe the construction methods that will be used to ensure that secondary impacts to adjacent habitats are avoided / minimized (e.g., unauthorized deposition of materials beyond the corridor). Will all work be done from the waterward side of the structures in such areas? Will any work be done on the landward side of the structures, and if so will any construction easements be needed to access these areas?

The drawings submitted of the existing bulkhead from 1983 show a network of canals / ditches that connect areas that are now mangroves to the SAC. A total of 24 openings / gaps in the rip-rap revetment structure are shown on these 1983 drawings. At least 20 of the original openings are visible on the drawings of the current design for the bulkhead proposed to be constructed as part of the Project. However, the captions on the drawings for the current design suggest that only 11 of the original 24 openings / gaps will be retained. Reducing the number of openings may substantially reduce the hydrologic and ecological connectivity and impact the overall function of mangroves behind the bulkhead. Would it be possible to retain any other openings? If not, what monitoring and / or mitigation activities are proposed for secondary impacts associated with the proposed reduction in connectivity of the mangroves behind the bulkhead?

The excerpt from the engineering text provided to the IWG was likely intended to address concerns regarding the permeability of the proposed bulkhead. However, the information in Table 3.11 on this page is for "Permeability Characteristics of Soils and Their Methods of Measurement", not on rock structures, like the proposed bulkhead. The text on the bottom of the page indicates that other sections of this text may contain information pertinent to the IWG's request (i.e., Table 3.12 and Figure 3.15 on "rock masses"). DEP has requested (via communication with Marie Burns) that information on the permeability of rock / rubble structures be provided to the IWG.

Environmentally FW EFB Design.n
Friendly Bulkhead