

APPENDIX A
CLEAN WATER ACT: 404(B)(1) EVALUATION
PORT EVERGLADES, FLORIDA PROJECT

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A INTRODUCTION

This appendix evaluates compliance with the Section 404(b)(1) Guidelines of the Clean Water Act (Guidelines). The goal of the Guidelines is “to restore and maintain, the chemical, physical, and biological integrity of waters of the United States (waters of the US) through the control of discharges of dredged or fill material.” The regulations set forth in 40 CFR Section 230 are the substantive criteria issued by the US Environment Protection Agency (USEPA), used in evaluating discharges of dredged or fill material into waters of the US. The Guidelines provide regulations outlining measures to avoid, minimize and compensate for impacts. Although the USACE does not issue permits to itself under Section 404 of the Clean Water Act, the USACE authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including the Guidelines. This evaluation was conducted to ensure the proposed action complies with the Guidelines.

A.1 PROJECT DESCRIPTION

A.1.1 Location

Port Everglades Harbor is located in Fort Lauderdale, Hollywood, and Dania Beach (Broward County) on the Atlantic coast of Florida.

A.1.2 General Description

The Draft Supplemental Environmental Impact Statement (DSEIS) adds to the analyses presented in the 2016 Final Environmental Impact Statement (FEIS) by including design refinements and avoidance and minimization measures identified during the preconstruction, engineering, and design (PED) phase, and supplements that information with new and updated data and analyses that have revealed additional information not previously analyzed in the 2016 FEIS. USACE analyzed 22 alternatives (including multiple depths for various components) for the 2016 Port Everglades Feasibility Study. This DSEIS analyzes the environmental effects of two action alternatives (1) Alternative A the Preferred Alternative i.e., Alternative 2E involving dredging the Outer Entrance Channel (OEC) to an authorized depth of 48 feet (up to an actual depth of 57 feet), (2) Alternative B the National Economic Development Plan (NED), and two no-action alternatives (3) the No-Action Alternative and (4) NMFS No-Action Alternative. The DSEIS reaffirms Alternative 2E (i.e., the LPP) as presented in the 2016 FEIS as the Recommended Plan with design refinements and avoidance and minimization measures to further avoid and minimize potential impacts on the human environment resulting from construction activities at PEV Harbor. The preferred alternative (actual depth 57-foot OEC alternative) proposes to do the following:

1. Deepen the OEC from an existing project depth of 45 feet (i.e., -45 feet mean low low water (MLLW)) to an authorized project depth of 48 feet (i.e., up to an actual depth of 57 feet, due to an additional 1-foot required overdepth and 1-foot of allowable overdepth and 7 feet additional for squat/under keel clearance, i.e., +1'+1'+7');
2. Widen the OEC from an existing width of 500 feet to a width of 800 feet (maximum width including flare);
3. Extend the OEC 2,200 feet seaward;

4. Deepen the Inner Entrance Channel (IEC) from an authorized depth of 42 feet to 48 feet (+1+1);
5. Deepen the Main Turning Basin (MTB) from authorized depth of 42 feet to 48 feet (+1+1);
6. Widen the Widener (WID) to the southeast of the MTB by about 300 feet and deepen to depth of 48 feet (+1+1);
7. Widen the SAC in the proximity of berths 23 to 26 (referred to as the “knuckle”, by about 250 feet and reconfigure the USCG facility, easterly on USCG property;
8. Shift the existing 400-foot wide SAC about 65 feet to the east from approximately berth 26 to the south end of berth 29 to provide a transition from the knuckle to the existing federal channel limits farther south of the knuckle;
9. To allow for shifting the SAC approximately 65 feet to the east, the project will move the USCG facility boat basin further east within their property boundaries as well as demolish existing structures and construction of new structures within an urban developed government parcel, dredging of the boat basin into the western side of the uplands within the property, construction of a new bulkhead approximately 150 feet east (landward) of the current bulkhead in boat basin. Figure 69 of the 2016 FEIS (page 172) provides an aerial photograph of the existing facility and Section 4.15 of the 2016 FEIS (page 256-257) provides a narrative description of the work to be conducted on the facility.
10. Deepen the SAC from about berth 23 to the south end of berth 32 from authorized depth of 42 feet to 48 feet (+1+1);
11. Deepen the TN, including the expanded portion from authorized depth of 42 feet to 48 feet (+1+1) (following local sponsor dredging of the same area to 42 feet); widening by an additional 100 feet the eastern edge of the SAC over a length of about 1,845 feet (across from the TN); and widen by approximately 130 feet the western edge of the SAC north of the TN from the south end of berth 29 to the TN.
12. Construction of EFBs along approximately 6,500 linear feet on east side (back of MJ park) and 1,000 linear feet on west side (in front of mangroves south of berth 29).
13. Conduct environmental mitigation (see below);
14. Pre-treat rock substrates as necessary and take appropriate measures to safeguard protected species during that process;
15. Dispose of dredged material east of the Port at the Offshore Dredged Material Disposal Site (ODMDS), which is currently proposed for expansion by USEPA. It is anticipated that USEPA will finalize rulemaking for the expansion in Spring 2021. If USEPA does not designate a disposal site with capacity for proposed material from PEDP under Section 103 of MPRSA, then USACE, in consultation with EPA, would select the proposed site in the USEPA Site Expansion EA for short-term use, as authorized under Section 103(b) of MPRSA. The Corps would adopt the NEPA document prepared by EPA for the expansion effort. Placement of material in the ODMDS is not regulated by the CWA, but by MPRSA. Inclusion of effects discussions for placement of dredged material in the ODMDS is for informational purposes only.

A.1.3 Avoidance of Impacts

Impacts to important habitat types have been reduced where possible:

1. Mangrove wetland impacts assessed in 2001 ranged from 33 to 45 acres for various alternatives. While the 2016 EIS estimated 1.16 acres of mangrove impacts, the preferred alternative now proposes to impact 2.32 acres of mangroves.
2. Reductions in the project footprint size during the plan formulation process will result in the avoidance or minimization of certain impacts. Dredging in the DCC, TN and STB have been eliminated from plans. This will decrease the time of operation for construction equipment (originally estimated at four years of uninterrupted construction in 2004), and so decrease the time during which species using the Port and adjacent habitats may be directly or indirectly affected.
3. Finally, the project dredge depth has been reduced from -50 feet MLLW to -48 feet MLLW. This resulted in the reduction of approximately one acre of impacts to hardbottom resources.

A.1.4 Minimization of Impacts

As part of the development of the DSEIS, USACE developed a suite of minimization measures which could be utilized to reduce potential effects on the human environment. The construction methodology that will ultimately be utilized will likely be a combination of these minimization measures. However, in order to construct PEDP in a way that minimizes impacts, USACE proposes that the following minimization measures will be mandatory project bounds or performance measures/metric and will be stipulated within the construction plans and specifications for contract solicitation and award:

1. No overflow from any dredge operating in the IEC, OEC and WID throughout the life of the project; no overflow from hydraulic dredge operating throughout the MTB, SAC, TN; unconfined overflow from mechanical dredges permitted in MTB, SAC and TN with limitations on the amount of spillage with required monitoring and reporting (Minimization Measure 1B);
2. No rock chopping as a rock pretreatment method (Minimization Measure 2A);
3. No anchoring outside of the existing channel for a cutterhead dredge (Minimization Measure 4A); spudding down authorized in pre-cleared areas (Minimization Measure 4B);
4. No dredging of the IEC/OEC during ESA-listed coral spawning coral season from July through September (Minimization Measure 5D).
5. If use of confined underwater blasting is implemented by the dredge contractor, the number of blast events will be limited to 280 blast events in accordance with Appendix E (Minimization measure 2C2).

A.1.5 Mitigation of Unavoidable Impacts

To compensate for the effects of the action on various habitat types, USACE has proposed the following: (a) mitigate for the removal of 7.475 acres of seagrass, (b) the loss of 2.32 acres of mangroves in the project footprint (including within the channel and resulting side slopes), and (c) the loss of 0.05 acres of salt marsh (adjacent to the SAC) through use of an on-going habitat improvement project at West Lake Park. From that project, the Federal project will be permitted to use 1.84 seagrass functional units and 0.83 mangrove functional unit(s), respectively, due to previously permitted restoration, enhancement,

and preservation of like habitats in this county-operated, state-owned natural area located to the south of the project area; (d) mitigate for the direct removal of 28.92 acres of both complex, high-profile, coral reef habitat and less complex, low-profile hardbottom habitat (including channel wall), as well as potential indirect impacts associated with project-related sedimentation to 197-564 acres (dependent upon dredge methodology employed), due to widening and extending the OEC through (1) natural reef enhancement of impacted and degraded reefs, and (2) artificial reef creation (with natural recruitment; i.e. bare substrate), or biological enhancement. As highlighted in DSEIS Table ES-1, a total of 28.92 acres of hardbottom resources will be directly affected by implementation of PEV due to direct removal or as a result of rubble falling from the surface onto the habitats below dredge depth and sedimentation. An additional 128.86 acres of compensatory mitigation will be performed to account for predicted indirect effects from turbidity and sedimentation. If there are any detectable, incidental, direct impacts of dredging equipment and indirect impacts on hardbottom and reef habitats due to sedimentation (in excess of the upfront mitigation), as determined through pre-and post-construction monitoring, additional mitigation will also be provided as detailed in the Mitigation, Monitoring and Adaptive Management Plans (refer to DSEIS Appendices F, G & H, respectively).

A.1.6 Authority and Purpose

PEV was designated as a federal harbor in 1930 and operations and maintenance (O&M) dredging has been conducted over the life of the project in response to shoaling within the harbor. In addition, further deepening and widening events took place in 1935, 1946, 1958 and the early 1980s. In 2016, Congress authorized the expansion of PEV based on the June 2016 Chief of Engineers report in Section 1401(1) of the Water Resources Development Act of 2016 (PL 114-332). See DSEIS Table 1 which lists all the authorized modifications to the federal navigation project at PEV that have resulted in the project's current configuration (DSEIS Figure 1).

A.1.7 General Description of Dredged or Fill Material

Material to be removed includes organic material such as peat, clay, silt, sand, and rock. Most of the material is in situ layered formations of rock and finer materials.

1. **General Characteristics of Material:** The majority of materials within the project area include inter-bedded layers of sand and rock with occasional massive formations of very hard rock. Additional materials include silts, clays, and organic peat material. Sediment constituents encountered at the Port vary greatly according to core boring location and elevation.
2. **Quantity of Material:** A total of 5.8 million cubic yards of material will be dredged over a six-year period from the project area, including the berthing areas. Most of the material will be placed in the ODMDS, and appropriate material (>2 feet in diameter) will be placed on the artificial reef site.
3. **Source of Material:** The dredged material will be removed from the outer and inner entrance channels, interior basins, and access channels within Port Everglades. Material for the artificial reef creation site (approximately 100,000cy) will consist of appropriate rock from these areas as well as native limestone boulders from nearby quarries.

A.1.8 Proposed Disposal Sites

The dredged material will be placed in the ODMDS site located northeast of the Outer Entrance Channel or in the artificial reef mitigation site, as appropriate (for rock at least two feet in diameter).

A.1.9 Description of Disposal Methods

The type of dredge(s) used will affect methods used to convey the material to the disposal sites. For disposal in the ODMDS, split hull or similar barges will most likely be used. If a mechanical dredge is used, the larger dredged material may be removed and segregated at the construction site for use in constructing the hardbottom mitigation sites. Larger rock material would be placed on one barge to be transported to the mitigation site, while other materials would be placed on a separate barge/scow for placement at the offshore disposal site.

A.2 FACTUAL DETERMINATIONS

A.2.1 Physical Substrate Determinations

1. **Substrate Elevations:** The existing depths are between approximately +10 feet and -52 feet.
2. **Sediment Type:** Peat, clay, silt, sand, rock.
3. **Fill Material Movement.** No movement is expected at the artificial reef site or the ODMDS site.
4. **Physical Effect on Benthos.** Wherever material is placed on the substrate, the benthic inhabitants will be lost. However, rapid recovery of the benthic community is expected. The enhancement and artificial reef sites will replace functions lost from the impact sites.
5. **Other Effects.** The artificial reef creation site will result in a beneficial effect to the marine community and recreational fishing. Potential turbidity effects are addressed below.

A.2.2 Water Circulation, Fluctuation and Salinity Determinations

Water fluctuation, circulation and salinity will not be adversely affected.

A.2.3 Suspended Particle/Turbidity Determinations

A.2.3.1 Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Sites

Except for minor disturbances at the dredging site, little turbidity is expected outside the immediate dredging area during construction; state water quality and turbidity standards will be met at all times during construction. Dredges will observe strict adherence to shut-down protocols if there is any risk to downstream water quality during construction. Turbidity levels at the ODMDS will adhere to conditions governing use of that area.

A.2.3.2 Effects (Degree and Duration) on Chemical and Physical Values

1. **Light Penetration.** No long-term adverse effects to light penetration are expected in the vicinity of construction activities. A slight reduction may occur during dredging, but because of tidal action in the harbor these effects will be of short duration. The area deepened by dredging would have slightly less light penetration near the bottom.
2. **Dissolved Oxygen.** Dissolved oxygen (DO) levels should be unaffected by construction activities.
3. **Toxic Metals and Organics.** No toxic metals or organics are known to occur at the sites.
4. **Pathogens.** Not applicable.
5. **Aesthetics.** The presence of equipment during dredging activities will be aesthetically displeasing; however, upon completion of these activities all equipment will be removed. Therefore, there will be no long-term adverse aesthetic impacts.

A.2.4 Contaminant Determinations

A hazardous, toxic, and radioactive waste (HTRW) survey was completed by the Corps in 2017 to determine if any existing contamination was present in the action area. The results indicated one contaminant, Benzo(a)pyrene Equivalents (BaPE), was present at the U.S. Coast Guard (USCG) Dania Station at levels above the residential Soil Cleanup Target Level (SCTL) established in Chapter 62-777, Florida Administrative Code (FAC), but below the Alternative Soil Cleanup Target Level (ASCTL). BaPE is a Polynuclear Aromatic Hydrocarbon (PAH) found in coal tar and is a common contaminant found from paving operations. The soils assessed at the site indicated contamination present that would require special handling and disposal according to state and federal requirements. The BaPE impacted soils were delineated and comprise of approximately 675 cubic yards of soil that will require excavation and disposal within an approved landfill according to the project specifications and drawings. Discovery of additional HTRW as a result of this proposed project will be remediated to the applicable state and federal laws by the contractor. No additional sources of pollutants or contaminants have been identified within the construction or disposal areas. Overall, no discharge of pollutant materials or sediment is proposed to the aquatic environment.

A.2.5 Aquatic Ecosystem and Organism Determinations

1. **Effects on Plankton.** No adverse impacts expected.
2. **Effect on Benthos.** Benthic habitat will be lost in the construction template but will be compensated for at the mitigation site(s). Existing benthic organisms at the artificial reef site will be lost due to replacement of that system by placement of rock materials on the substrate, but long-term population-level effects on benthic infauna in the area are not anticipated. Benthic faunal diversity is anticipated to increase in the area surrounding the mitigation reefs.
3. **Effect on Nekton.** No adverse impacts expected.
4. **Effect on the Aquatic Food Web.** The artificial reef creation will result in a beneficial effect to the aquatic food chain in those areas. In impact areas, foraging species may have to be relocated to adjacent areas for benthic resources.
5. **Effects on Special Aquatic Sites.**

- a) **Sanctuaries or Refuges.** No sanctuaries or refuges are located in the project area.
- b) **Wetlands.** 2.32 acres of mangrove habitat and 0.05 acres of salt marsh will be removed. Mitigation will be provided at West Lake Park.
- c) **Mud Flats.** No adverse impacts expected.
- d) **Vegetated Shallows.** 7.475 acres of seagrasses will be removed. Mitigation will be provided at West Lake Park.
- e) **Reefs.** A total of 28.92 acres of coral reef, rock/rubble, hardbottom, or other colonized habitat will be impacted. These impacts will be mitigated at the enhancement and artificial reef sites (See DSEIS Section 2.7.3 and 4.4).
- f) **Threatened and Endangered Species.** *Halophila johnsonii* (monospecific or mixed beds) will be impacted by dredging. Mitigation will be provided at West Lake Park. Protective measures for other protected species during construction including listed hard corals, the West Indian manatee, smalltooth sawfish, and sea turtles will be implemented accordance with the Biological Opinions issued for the project.
- g) **Other Wildlife.** Adverse impacts to other wildlife and marine species will be avoided and minimized and where appropriate, protective and mitigative measures will be taken.

A.2.6 Proposed Disposal Site Determinations

- 1. **Mixing Zone Determination.** Not applicable.
- 2. **Determination of Compliance with Applicable Water Quality Standards.** State water quality certification will be obtained for the work and applicable state water quality standards will be met during construction.
- 3. **Potential Effects on Human Use Characteristics.** No adverse impacts expected.
 - a) **Municipal or Private Water Supply.** No effect.
 - b) **Recreational and Commercial Fisheries.** No adverse impacts expected.
 - c) **Water Related Recreation.** Minor temporary adverse effects to recreation could occur during dredging operations. However, construction of the enhancement and artificial reef sites would result in a long-term beneficial effect to recreation (See DSEIS Section 4.8).
 - d) **Aesthetics.** The presence of construction equipment during the construction period will be unsightly; however, upon completion of construction the equipment will be removed and there will be no long-term adverse aesthetic impacts.
 - e) **Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites and Similar Preserves.** 2.32 acres of mangrove habitat and 0.05 acres of salt marsh will be lost from Dr. Von D. Mizell-Eula Johnson State Park. This impact will be mitigated.

A.2.7 Determination of Cumulative Effects on the Aquatic Ecosystem

The enhancement of natural reef and creation of the artificial reef sites would offset the loss of productivity from the impacted reef areas (See DSEIS Appendix F). 7.475 acres of seagrass will be lost with the project, but the Federal project will be permitted to use 1.84 seagrass functional units from seagrass habitat created at West Lake Park. The loss of 2.32 acres of mangrove and 0.05-acre of saltmarsh wetlands will be offset by the use of 0.83 mangrove functional units from the creation of mangrove wetlands at West Lake Park. Due to efforts to avoid and minimize the environmental impact of the proposed action within the project area and its vicinity, and due to mitigative actions that have been carried out for past projects, will be carried out for the proposed project, and those that are likely to be required for any future actions, the Corps anticipates that any cumulative impacts at PEV and within its vicinity are not significant incremental impacts and therefore not significant cumulative impacts.

A.2.8 Determination of Secondary Effects on the Aquatic Ecosystem

Secondary impacts on the aquatic ecosystem are not expected.

A.3 Findings of Compliance or Non-Compliance With the Restrictions on Discharge

1. **Adaptation of the Section 404 (b)(1) Guidelines to this Evaluation:** No significant adaptations of the guidelines were made relative to this evaluation.
2. **Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem:** No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States. Further, no less environmentally damaging practical alternatives to the proposed actions exist (See DSEIS Section 2.2.3 and 2.3). The DSEIS reaffirms Alternative 2E (i.e., the LPP) as presented in the 2016 FEIS as the Preferred Alternative with design refinements and avoidance and minimization measures to further avoid and minimize potential impacts on the human environment resulting from construction activities at PEV Harbor. The no action alternative would result in the continued safety and operational restrictions to occur at the Port.
3. **Compliance with Applicable State Water Quality Standards:** After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters.
4. **Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 Of the Clean Water Act:** The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
5. **Compliance with Endangered Species Act of 1973:** Construction dredging activities including the disposal of fill material for creation of the artificial reef for project mitigation will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.
6. **Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972:** No marine sanctuaries are located within the project area.

7. **Evaluation of Extent of Degradation of the Waters of the United States:** The placement of fill material and dredging of material within the project footprint will result in unavoidable adverse effects on hardbottom, seagrass, and mangrove wetland habitats as well as essential fish habitat. These effects will be mitigated for by construction of mangrove and seagrass habitat at West Lake Park and artificial reef habitat near the harbor. Beneficial effects would occur due to increased biotic diversity and lead to an increase in recreational activities within the artificial reef site. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.
8. **Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem:** Appropriate steps have been taken to minimize the adverse environmental impact of the proposed action. The material proposed for artificial reef creation has low silt content, therefore, turbidity due to silt will be low during placement. Turbidity will be monitored so that if levels exceed State water quality standards of 29 NTU's above background, the contractor will be required to cease work until conditions return to normal. Measures would be taken to minimize sediment deposition on sensitive reef organisms.

On the basis of the guidelines, the proposed dredging and disposal sites are specified as complying with the requirements of these guidelines.