

## **APPENDIX G VESSEL OPERATIONS PLAN**

### **BACKGROUND:**

This Vessel Operations Plan prescribes measures to be undertaken by the Contractor in association with vessel operations for the Phipps Ocean Park beach restoration project to avoid impacts to manatees and hard bottom biological communities adjacent to the borrow areas.

### **GENERAL REQUIREMENTS:**

- All dredging will be conducted using a hydraulic pipeline cutterhead dredge.
- Prior to mobilization, the Contractor shall provide a plan for Town approval showing the proposed excavation sequence in each borrow area. The excavation sequencing plan provided for borrow area III should generally depict the work proceeding from west to east across the site to ensure that as the operation nears the buffer and hardbottom, the point of excavation (i.e. the cutterhead) is well below the pre-project bottom elevations. This procedure should prevent the near-bottom turbidity plume from extending outside the cut limits in the vicinity of the hard bottom.
- All operators of dredge vessels will be properly licensed as required by the US Coast Guard. All vessels associated with the project shall operate at “no wake/idle” speeds at all times while in waters where the draft of the vessel provides less than a four foot clearance from the bottom and vessels will follow routes of deep water whenever possible.
- The horizontal limits of the allowable cut area adjacent to the outfall pipe have been chosen considering the fact that the Contractor will likely excavate to the limits using a “box cut” and the resulting initial cut face will subsequently readjust to a natural slope angle. The final location of the upper edge of this slope depends on the slope angle and cut depth. In the vicinity of the outfall pipe, a cut of 15 feet is proposed. We expect the adjusted slope angle to be 1 vertical to 3 horizontal (1V:3H). With a 15 foot cut, a minimum 45-foot buffer might be necessary; a 100' buffer is proposed. At a potentially extreme adjusted slope of 1V:5H, only a 75' buffer would be required. This is a conservative planning value (i.e., flatter than likely) based on experience and literature (e.g., Hydraulic Dredging, Houston, 1970) and the resulting buffer of 100 feet, therefore, includes a reasonable factor of safety of 1.3 to 2.2.
- All floating and/or submerged pipelines will be equipped with US Coast Guard approved flashing yellow all around lights. Submerged pipelines will rest on the

bottom via an anchoring system. Buoyant or semi-buoyant pipeline such as PVC pipe or similar low-density materials will be securely anchored to prevent the pipeline from lifting off the bottom under any conditions. If the Contractor's pipeline does not rest on the bottom, it will be considered a floating pipeline and shall be visible on the surface and clearly marked by flashing yellow all around lights. In no case will the Contractor's pipeline be allowed to fluctuate between the surface and the bottom or lie partly submerged. Lights shall be installed on the floating pipeline per USACE and U.S. Coast Guard specifications governing lights and day signals. The Contractor shall make daily underwater inspections of the submerged pipeline to ensure buoyancy has not loosened the anchors. The location of the entire length of submerged pipeline within the identified pipeline corridor shall be marked with lights and/or flags conforming to US Coast Guard regulations. All deficiencies and corrective actions will be documented within the Contractor's Daily Quality Control Reports.

- If manatee(s) are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area on its own volition.
- Temporary signs concerning manatees shall be posted prior to and during all construction/dredging activities. All signs are to be removed upon completion of the project.

## COORDINATION OF VESSEL OPERATIONS AND CONSTRUCTION ACTIVITIES

At least 7 days prior to the planned commencement date of construction, the permittee shall schedule a pre-construction conference to review the specific conditions of the FDEP permit, including the Vessel Operation Plan, with the contractors, work crews, the Department's staff representatives, and the marine turtle permit holder. The permittee shall provide a minimum of 7 days advance written notification to the following offices advising of the date, time, and location of the pre-construction conference:

DEP Beaches and Coastal Systems, MS 300  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000  
fax: (850) 488-5257

FWC - BPSM  
Office of Environmental Services  
620 South Meridian Street  
Tallahassee, Florida 32399-1600  
fax: (850) 921-4369

DEP - SLERP  
400 North Congress Avenue  
West Palm Beach, Florida 33401  
fax: (561) 681-6780

Palm Beach County DERM  
3323 Belvedere Road, Bldg. 502  
West Palm Beach, FL 33406-1548  
fax: (561) 233-2414

City of Lake Worth Utilities  
Water Systems Superintendent  
1900 2nd Avenue North  
Lake Worth, FL 33460

## VESSEL POSITION AND CONTROL

Electronic positioning equipment shall be kept functioning on the dredge at all times during construction and when the dredge is within one mile of the borrow site during mobilization and demobilization. A continuous record of the locations of the dredge shall be made at all times during dredging and transporting operations. The Contractor will provide proof of electronic positioning equipment calibration as required by the manufacturer. The dredge's location is to be computed by coordinates with a probable range error not to exceed 10 feet and that record shall be available to the Town on a daily basis and to the FDEP on a monthly basis and/or for FDEP inspection during construction operations. The limits of the offshore hardbottom, cut areas, construction corridors, and pipeline locations shall also be shown on the graphs.

The dredging contractor shall also employ electronic positioning equipment, which continuously measures the vertical and horizontal location of the cutterhead, dragarms, dustpan or clamshell at all times during dredging operations. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. Horizontal accuracy for dredge positioning shall be 3.0 feet or better. Vertical accuracy for the dredge depth monitoring shall be 1.0 foot or better.

This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NGVD. As a part of the final report, and upon request at any time during construction, the permittee shall provide a daily record of the position of the dredge equipment which includes the borrow area limits and hardbottom buffer zones referenced to State plane coordinates and NGVD.

#### NO-DREDGE BUFFER ZONE:

A 400-foot No Dredge Buffer Area shall be established around the perimeter of the cut area to protect hardbottom features in the vicinity of the borrow site. The permittee shall ensure that the no dredging buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s). Yellow buoys with reflective international orange square patches or stripes will be placed at 50-foot increments along the edge of the offshore hardbottom and Lake Worth outfall pipe. Flashing yellow all-around lights will be spaced at 100 foot intervals to mark the horizontal limits of the allowable cut area, barge corridors, and floating and/or submerged pipes. Lighted aids to navigation shall be installed prior to any dredging equipment entering the borrow area. The aids to navigation shall be lighted for 24-hour operation. The aids may be lettered. The Contractor shall notify the US Coast Guard regarding the location of all lighted aids to navigation, buoys, and pipe structures.

#### NO-ANCHOR BUFFER ZONE:

A 200-foot anchor buffer zone, in which anchoring is prohibited, shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 200-foot buffer zone. No anchor placement will be allowed during nighttime, and anchor placement shall be diver assisted during daylight. No equipment or structures will be placed within the anchor buffer zone. The permittee shall ensure that no anchoring buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).

#### SEWER OUTFALL BUFFER ZONE:

A 100-foot sewer outfall buffer zone shall be maintained and marked with lighted buoys around the sewer outfall located in Borrow Area III. Dredging and anchoring shall be prohibited within this area. The permittee shall ensure that these buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s). Any damage to the outfall caused by the project (e.g., due to contractor error or failure due to undermining caused by erosion into the borrow site, etc.) shall be restored by the permittee to the satisfaction of the City of Lake Worth Utilities Department.