



Florida Department of Environmental Protection

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Tallahassee, Florida 32399-240

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Governor

Carlos Lopez-Cantera
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Jonathan P. Steverson
Secretary

CONSOLIDATED JOINT COASTAL PERMIT AND INTENT TO GRANT SOVEREIGN SUBMERGED LANDS AUTHORIZATION

PERMITTEE:

St. Lucie County Erosion District
c/o Richard A. Bouchard
3150 Will Fee Road
Fort Pierce, FL 34928

PERMIT INFORMATION:

Permit Number: 0327791-001-JC

Project Name: Fort Pierce Inlet Sediment
Impoundment Basin

AGENT:

Taylor Engineer, Inc.
c/o Michael Trudnak, P.E., Senior Coastal Engineer
10151 Deerwood Park Boulevard, Suite 300
Jacksonville, FL 32256

County: St. Lucie

Issuance Date: May 2, 2016

Expiration Date: May 2, 2031

REGULATORY AUTHORIZATION:

This 15-year joint coastal permit is issued under the authority of Chapter 161 and Part IV of Chapter 373, Florida Statutes (F.S.), and Title 62, Florida Administrative Code (F.A.C.). Pursuant to Operating Agreements executed between the Department of Environmental Protection (Department) and the water management districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing and taking final agency action on this activity.

PROJECT DESCRIPTION:

The project is to construct a 3.1-acre sediment impoundment basin, place the non-compatible dredged material into an Ocean Dredged Material Disposal Site (ODMDS) and periodically bypass the beach-compatible material from the basin to the south side of the Fort Pierce Inlet. The impoundment basin will have a width of approximately 180 feet, a design depth of -30 feet North American Vertical Datum (NAVD), with a two-foot overdepth allowance for a total maximum dredge depth of -32 feet NAVD. The beach placement, including dune restoration, will have a berm width between 180 and 350 feet, a beach berm elevation of +6.8 feet NAVD at the toe of the dune, a beach berm slope of 1:100 (vertical:horizontal), and a berm foreshore slope of 1:10 (vertical:horizontal). The dune crest elevation is authorized to be +11.5 feet NAVD between Department range monuments R-34 and R-36, and +12.5 feet NAVD between R-37 and R-41, a transitional area between R-36 and R-37, and a dune foreshore slope of 1:10 (vertical:horizontal). A 0.3-acre mitigation reef will be constructed to offset 0.2 acres of

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direct impact to low-relief hardbottom located within the sediment impoundment basin construction site.

PROJECT LOCATION:

The sediment impoundment basin site is located adjacent to the entrance channel, within Fort Pierce Inlet, St. Lucie County, in Section 36, Township 34 South, and Range 40 East. The sand placement site is located between R-34 and R-41, extending into the Atlantic Ocean, Class III Waters. The ODMDS is located in federal waters. The mitigation reef sites are located within the Fort Pierce Inlet, St. Lucie County, approximately 8,000 feet to the west of the sediment impoundment basin site.

PROPRIETARY AUTHORIZATION:

This activity also requires a proprietary authorization, as the activity is located on sovereign submerged lands held in trust by the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), pursuant to Article X, Section 11 of the Florida Constitution, and Sections 253.002 and 253.77, F.S. The activity is not exempt from the need to obtain a proprietary authorization. The Board of Trustees delegated to the Department the responsibility to review and take final action on this request for proprietary authorization in accordance with Section 18-21.0051, F.A.C., and the Operating Agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C. This proprietary authorization has been reviewed in accordance with Chapter 253 F.S., Chapter 18-21 and Section 62-330.075, F.A.C., and the policies of the Board of Trustees.

The Department has determined that the beach placement activities and the artificial reef construction qualify for a Letter of Consent to use sovereign submerged lands, as long as the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein. Therefore, consent is hereby granted, pursuant to Chapter 253.77, F.S., to perform the activity on the specified sovereign submerged lands.

As staff to the Board of Trustees, the Department has also determined that the construction of the sediment impoundment basin requires a public easement for the use of those lands, pursuant to Chapter 253.77, F.S. The Department intends to issue the public easement, subject to the conditions outlined in the previously issued *Consolidated Intent to Issue* and in the Recommended Proprietary Action (entitled *Delegation of Authority*).

The final documents required to execute the easement will be sent to the Department's Division of State Lands. The Department intends to issue the easement upon satisfactory execution of those documents. **You may not begin construction of this activity on state-owned, sovereign submerged lands until the easement has been executed to the satisfaction of the Department.**

COASTAL ZONE MANAGEMENT:

This permit constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Zone Management Act.

WATER QUALITY CERTIFICATION:

This permit constitutes certification of compliance with state water quality standards pursuant to Section 401 of the Clean Water Act, 33 U.S.C. 1341.

OTHER PERMITS:

Authorization from the Department does not relieve you from the responsibility of obtaining other permits (Federal, State, or local) that may be required for the project. When the Department received your permit application, a copy was sent to the U.S. Army Corps of Engineers (Corps) for review. The Corps will issue their authorization directly to you, or contact you if additional information is needed. If you have not heard from the Corps within 30 days from the date that your application was received by the Department, contact the nearest Corps regulatory office for status and further information. Failure to obtain Corps authorization prior to construction could subject you to federal enforcement action by that agency.

AGENCY ACTION:

The above named Permittee is hereby authorized to construct the work that is outlined in the Project Description and Project Location of this permit and as shown on the approved permit drawings, plans and other documents attached hereto. This agency action is based on the information submitted to the Department as part of the permit application, and adherence with the final details of that proposal shall be a requirement of the permit. **This permit and authorization to use sovereign submerged lands are subject to the General Conditions and Specific Conditions, which are a binding part of this permit and authorization.** Both the Permittee and their Contractor are responsible for reading and understanding this permit (including the permit conditions and the approved permit drawings) prior to commencing the authorized activities, and for ensuring that the work is conducted in conformance with all the terms, conditions and drawings.

GENERAL CONDITIONS:

The following permit conditions shall apply to all permits issued pursuant to this chapter:

1. All activities authorized by this permit shall be implemented as set forth in the project description, permit drawings, plans and specifications approved as a part of this permit, and all conditions and requirements of this permit. The permittee shall notify the Department in writing of any anticipated deviation from the permit prior to implementation so that the Department can determine whether a modification of the permit is required pursuant to Rule 62B-49.008, F.A.C.
2. If, for any reason, the permittee does not comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department and the appropriate District office of the Department with a written report containing the following information: a description of and cause of noncompliance; the period of noncompliance, including dates and times; and, if not corrected, the anticipated time the

noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

3. This permit does not eliminate the necessity to obtain any other applicable licenses or permits that may be required by federal, state, local or special district laws and regulations. This permit is not a waiver or approval of any other Department permit or authorization that may be required for other aspects of the total project that are not addressed in this permit.
4. Pursuant to Sections 253.77 and 373.422, F.S., prior to conducting any works or other activities on state-owned submerged lands, or other lands of the state, title to which is vested in the Board of Trustees, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees shall not be considered received until it has been fully executed.
5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.
6. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee. The issuance of this permit does not convey any vested rights or any exclusive privileges.
7. This permit or a copy thereof, complete with all conditions, attachments, plans and specifications, modifications, and time extensions shall be kept at the work site of the permitted activity. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
8. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel with proper identification and at reasonable times, access to the premises where the permitted activity is located or conducted for the purpose of ascertaining compliance with the terms of the permit and with the rules of the Department and to have access to and copy any records that must be kept under conditions of the permit; to inspect the facility, equipment, practices, or operations regulated or required under this permit; and to sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
9. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall electronically submit to the Department, by email at JCPCCompliance@dep.state.fl.us and to the appropriate District office of the Department, a written notice of commencement of construction indicating the actual start date and the

expected completion date and an affirmative statement that the permittee and the contractor, if one is to be used, have read the general and specific conditions of the permit and understand them.

10. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, shipwreck remains or anchors, dugout canoes or other physical remains that could be associated with Native American cultures, or early Colonial or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850)245-6333 or (800)847-7278, as well as the appropriate permitting agency office. Project activities shall not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities shall be notified in accordance with Section 872.05, F.S.
11. Within 30 days after completion of construction or completion of a subsequent maintenance event authorized by this permit, the permittee shall electronically submit to the Department, by email at JCPCCompliance@dep.state.fl.us and to the appropriate District office of the Department, a written statement of completion and certification by a registered professional engineer. This certification shall state that all locations and elevations specified by the permit have been verified; the activities authorized by the permit have been performed in compliance with the plans and specifications approved as a part of the permit, and all conditions of the permit; or shall describe any deviations from the plans and specifications, and all conditions of the permit. When the completed activity differs substantially from the permitted plans, any substantial deviations shall be noted and explained on as-built drawings electronically submitted to the Department, by email at JCPCCompliance@dep.state.fl.us.

GENERAL CONSENT CONDITIONS:

1. Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.
2. Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.
3. Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in Sections 253.04 and 258.46, F.S., or Chapter 18-14, F.A.C.

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4. Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged lands and resources.
5. Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in Rules 68A-27.003, 68A-27.004, and 68A-27.005, F.A.C.
6. Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.
7. Structures or activities shall not create a navigational hazard.
8. Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of Rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident, or fire.
9. Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities authorized under paragraph 18-21.004(1)(f), F.A.C., or any other applicable law.

SPECIFIC CONDITIONS:

1. The terms, conditions and provisions of the required easement shall be met. The Notice to Proceed shall not be issued and construction of this activity shall not commence on sovereign submerged lands, title to which is held by the Board of Trustees, until all easement documents have been executed and recorded to the satisfaction of the Department.
2. All reports and notices relating to this permit shall be electronically submitted to the Department's Joint Coastal Permitting (JCP) Compliance Officer (e-mail address: JCPCCompliance@dep.state.fl.us) unless otherwise specified in the specific conditions of this permit.
3. The Permittee shall not store or stockpile tools, equipment, materials, etc., within littoral zones or elsewhere within surface waters of the state without prior written approval from the Department. Storage, stockpiling or access of equipment on, in, over or through beds of submerged aquatic vegetation, wetlands or hardbottom is prohibited unless it occurs within a work area or ingress/egress corridor that is specifically approved by this permit. Anchoring or spudding of vessels and barges within beds of aquatic vegetation or hardbottom is also prohibited.

4. The Permittee shall not conduct project operations or store project-related equipment in, on or over dunes, or otherwise impact dune vegetation, outside the approved staging, beach access and dune restoration areas designated in the permit drawings.
5. No work shall be conducted under this permit until the Permittee has received a written **Notice to Proceed** from the Department for each event. At least 30 days prior to the requested date of issuance of the notice to proceed, the Permittee shall submit a written request for a Notice to Proceed along with the following items for review and approval by the Department:
 - a. Documentation that the **Public Easement** has been executed and recorded to the satisfaction of the Department;
 - b. **Turbidity monitoring qualifications.** In order to assure that turbidity levels do not exceed the compliance standards established in this permit, construction at the project site shall be monitored closely by an independent third party with formal training in water quality monitoring and professional experience in turbidity monitoring for coastal construction projects. Also, an individual familiar with beach construction techniques and turbidity monitoring shall be present at all times when fill material is discharged on the beach. This individual shall have authority to alter construction techniques or shut down the dredging or beach construction operations if turbidity levels exceed the compliance standards established in this permit. The names and qualifications of those individuals performing these functions, along with 24-hour contact information, shall be submitted for approval by the Department;
 - c. A **Scope of Work** for the turbidity monitoring to ensure that the right equipment is available to conduct the monitoring correctly at any location, and under any conditions;
 - d. **A Baseline Nearshore Hardbottom Survey.** A full pre-construction (baseline) survey of the hardbottom impact site (within the impoundment basin as well as potential impact sites of 150 meters surrounding the impoundment basin; applies only to initial construction of impoundment basin); and the hardbottom mitigation site (applies only to initial construction of impoundment basin), the proposed pipeline corridor areas, and the nearshore hardbottom areas adjacent to the beach fill area, if conducting beach nourishment, shall be completed and submitted to the Department prior to the issuance of the Notice to Proceed. This survey shall comply with, and meet the requirements of, the applicable Approved Biological Monitoring Plan;
 - e. A detailed **Physical Monitoring Plan** subject to review and approval by the Department; and

- f. A detailed **Mitigation Plan** subject to review and approval by the Department. See Specific Condition 31 for specific guidance; and
 - g. Documentation from the U.S. Fish and Wildlife Service (FWS) that this work will be covered under a Statewide Programmatic **Biological Opinion** or a Biological Opinions (BO) issued for construction on this project site. If the BO contains conditions that are not already contained herein, the Notice to Proceed will not be issued until the permit has been modified to include those additional conditions.
6. The Permittee shall conduct a pre-construction conference to review the specific conditions and monitoring requirements of this permit with Permittee's contractors, the engineer of record, those responsible for turbidity monitoring, the JCP Compliance Officer (or designated alternate), and representative(s) from the Florida Fish and Wildlife Conservation Commission (FWC) prior to each construction event.
- a. In order to ensure that appropriate representatives are available, at least twenty-one (21) days prior to the intended commencement date for the permitted construction, the Permittee is advised to contact the Department, and the other agency representatives listed below:

Department JCP Compliance Officer
e-mail: JCPCompliance@dep.state.fl.us

Florida Fish & Wildlife Conservation Commission
Division of Marine Fisheries
Artificial Reef Program
620 S. Meridian Street
Tallahassee, FL 32399

Imperiled Species Management Section
Florida Fish & Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600
phone: (850) 922-4330
fax: (850) 921-4369 or email: marineturtle@myfwc.com

FWC Regional Species Conservation Biologist
<http://www.myfwc.com/shorebirds>

- b. At least seven (7) business days in advance of the pre-construction conference, the Permittee shall provide written notification, advising the participants of the agreed-upon date, time and location of the meeting, and also provide a meeting agenda and a teleconference number.

- c. The contractor's draft Environmental Protection Plan (EPP) shall be submitted for review and comment to FWC, and a copy emailed to the JCP Compliance Officer, a minimum of five (5) business days prior to the pre-construction conference. This plan shall include details of monitoring for nesting marine turtles and shorebirds onsite during construction. The final EPP shall be submitted to FWC (copying the JCP Compliance Officer) prior to construction.
- 7. When discharging slurried sand onto the beach from a pipeline, the Permittee shall employ best management practices (BMPs) to reduce turbidity. At a minimum, these BMPs shall include the following:
 - a. Use of shore-parallel sand dike to promote settlement of suspended sediment on the beach before return water from the dredged discharge reenters the Atlantic Ocean; and
 - b. A minimum set-back of 50 feet from open water, or at the landward end of the beach berm (without disturbing the dune), whichever is less, for the pipeline discharge location.
- 8. **In-water Activity.** The Permittee shall adhere to the following requirements for all in-water activity:
 - a. All personnel associated with the project shall be instructed about the presence of marine turtles and manatees, and the need to avoid collisions with (and injury to) these protected marine species. The Permittee/Contractor shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees or marine turtles, which are protected under the Endangered Species Act, the Marine Mammal Protection Act, the Marine Turtle Protection Act and the Florida Manatee Sanctuary Act.
 - b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate project area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
 - c. Siltation or turbidity barriers (if used) shall be made of material in which manatees and marine turtles cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers shall not impede manatee or marine turtle movement.
 - d. All on-site project personnel are responsible for observing water-related activities for the presence of marine turtles and manatees. All in-water operations, including vessels, shall be shut down if a marine turtle or manatee comes within 50 feet of the operation. Activities shall not resume until the animal(s) has moved beyond the 50-

foot radius of the project operation, or until 30 minutes elapses if the animal(s) has not reappeared within 50 feet of the operation. Animals shall not be herded away or harassed into leaving.

- e. Any collision with, or injury to, a marine turtle or manatee shall be reported immediately to the FWC Hotline at 1-888-404-3922, and to FWC at ImperiledSpecies@myFWC.com. Any collision with, and/or injury to, a marine turtle shall also be reported immediately to the Sea Turtle Stranding and Salvage Network (STSSN) at SeaTurtleStranding@myfwc.com.
 - f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the Permittee upon completion of the project. Temporary signs that have been previously approved by the FWC, shall be used. One sign which reads "*Caution Boaters - Watch for Manatees*" shall be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations shall be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to ImperiledSpecies@myFWC.com.
9. **Hopper Dredging.** If a hopper dredge is used for this project, the following requirements shall be met:
- a. Handling of captured marine turtles during hopper dredging activities shall be conducted only by persons with prior experience and training in these activities, and who are duly authorized to conduct such activities through a valid Marine Turtle Permit issued by the FWC, pursuant to Chapter 68E-1, F.A.C.
 - b. In order to minimize impingement or entrainment of marine turtles within the water column, dredging pumps shall be disengaged by the operator, or the draghead bypass valve shall be open and in use when the dragheads are not firmly on the bottom. This precaution is especially important during the cleanup phase of dredging operations
 - c. A state-of-the-art rigid deflector draghead shall be used on all hopper dredges at all times of the year.
 - d. The Sea Turtle Stranding and Salvage Network (STSSN) Coordinator shall be notified at 1-904-573-3930 or via e-mail at Allen.Foley@myfwc.com of the start-up and completion of hopper dredging operations. If a marine turtle is captured or marine turtle parts are recovered, the STSSN shall be contacted at seaturtlestranding@myfwc.com.

10. **Trawling.** If relocation trawling or non-capture trawling for marine turtles is required as per applicable National Marine Fisheries Service (NMFS) Biological Opinions and Incidental Take authorizations, the following is required:
 - a. Any activity involving the use of nets to harass and/or to capture and handle marine turtles in Florida waters requires a Marine Turtle Permit from FWC prior to trawling.
 - b. The Permittee or their contractor shall e-mail (MTP@MyFWC.com) weekly reports to the Imperiled Species Management Section on Friday of each week that trawling is conducted in Florida waters. These weekly reports shall include the species and number of turtles captured in Florida waters, their general health, and release information. A summary of all trawling activity (including non-capture trawling) shall be submitted to MTP@myfwc.com by January 15 of the following year, or at the end of the project. The summary shall be provided on the FWC-provided Excel spreadsheet (available at <http://myfwc.com/media/3333816/Trawl-Report-Template.pdf>), and shall list all turtles captured in Florida waters, the measurements of all captured turtles, the location of captures (latitude and longitude in decimal degrees), the location of tow start-stop points (latitude and longitude in decimal degrees), and times for the start-stop points of the tows (including tows when no turtles are captured).
11. **Beach Related Activities.** The Permittee shall adhere to the following requirements for all beach-related activities:
 - a. *Beach Driving.* All vehicles shall be operated in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (<http://myfwc.com/conservation/you-conserve/wildlife/beach-driving/>). Specifically, the vehicle shall be operated at <6 mph, and run at or below the high-tide line. All personnel associated with the project shall be instructed about the potential presence of shorebirds and marine turtles, and the need to avoid Take of (including disturbance to) these protected species.
 - b. *Beach Maintenance.* All debris, including derelict concrete, metal, and coastal armoring material shall be removed from the beach to the maximum extent practicable prior to any placement of construction material on the beach. If debris removal activities will take place during shorebird or marine turtle nesting seasons, the work shall be conducted during daylight hours only, and shall not commence until completion of daily shorebird or marine turtle surveys each day. If flightless shorebird young are present within or adjacent to the work zone or equipment travel corridor, a Shorebird Monitor shall be present during the operation to ensure that equipment does not operate within 300 feet of the flightless young. It is the Permittee's responsibility to have their Contractor ensure that no chicks are in the path of the moving vehicle, and that the equipment leaves no tracks capable of trapping flightless chicks. All excavations and temporary alteration of beach

topography shall be filled or leveled to the natural beach profile prior to 9:00 p.m. each day. The beach surface shall be inspected subsequent to completion of the project, and all tracks or impressions left by construction equipment on the beach shall be removed.

- c. *Equipment Storage and Placement.* Staging areas for construction equipment shall be located off the beach, if off-beach staging areas are available. Nighttime storage of construction equipment that is not in use shall be located off the beach to minimize disturbance to shorebird and marine turtle nesting and hatching activities. In addition, all construction pipes that are placed on the beach shall be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Pipes placed parallel to the dune shall be 5 to 10 feet away from the toe of the dune. Temporary storage of pipes shall be located off the beach to the maximum extent possible. If it will be necessary to extend construction pipes past a known shorebird nesting site or over-wintering area for piping plovers, then whenever possible, those pipes shall be placed landward of the site before birds are active in that area. No pipe or sand shall be placed seaward of a shorebird nesting site during the shorebird nesting season.

12. **Shorebird Monitoring.** The Permittee shall comply with the following shorebird monitoring requirements:

- a. Shorebird surveys shall be conducted by trained, dedicated individuals (Bird Monitor), with proven shorebird identification skills and avian survey experience.
- b. **Selection of Bird Monitors.** A list of Bird Monitors shall be provided to the FWC, along with their contact information and a summary of qualifications, including bird identification skills and avian survey experience. This information shall be submitted to the FWC Regional Biologist (see contacts available at <http://myfwc.com/conservation/you-conserve/wildlife/shorebirds/>) for review and consultation prior to any construction or shorebird surveys. Bird Monitors shall meet the following minimum qualifications.
 - i. Ability to identify all species of beach-nesting birds that nest in the project area by sight and sound.
 - ii. Ability to identify breeding/territorial behaviors, and find nests of shorebirds and seabirds that occur in the project area.
 - iii. Ability to identify habitats preferred by shorebirds and seabirds nesting in the project area.
 - iv. Completed full introductory course training (online or webinar) on the *Breeding Bird Protocol for Florida's Seabirds and Shorebirds*, including training in data

entry. Training resources can be found on the Florida Shorebird Database website (<https://public.myfwc.com/crossdoi/shorebirds/index.aspx>).

- v. Familiar with FWC beach driving guidelines:
www.myfwc.com/conservation/you-conserve/wildlife/beach-driving .
 - vi. Annually completes refresher course training (online or webinar) for the *Breeding Bird Protocol for Florida's Seabirds and Shorebirds*, including training in data entry.
 - vii. Previously participated in beach-nesting bird surveys associated with FWC, Audubon, or FWS in Florida (please provide references).
 - viii. Experience posting beach-nesting bird sites, consistent with Florida Shorebird Alliance (FSD) Guidelines <http://flshorebirdalliance.org/resources/instructions-manuals.aspx>.
 - ix. Registered contributor to the Florida Shorebird Database.
- c. The Bird Monitor(s) shall review and become familiar with the general information on the FWC's Florida Shorebird Database (FSD) website (www.FLShorebirdDatabase.org). They shall use the data-collection protocol and implement data-entry procedures as outlined in that website. An outline of data to be collected, including downloadable field data sheets, is available on the website.
- d. Breeding season varies by species. Most species have completed the breeding cycle by September 1, but flightless young may be present through September. Please see Shorebird Nest dates at <http://myfwc.com/conservation/you-conserve/wildlife/shorebirds/>.
- e. Surveys during the breeding season shall begin on the first day of the breeding season, or 10 days before any site work begins, whichever is later. Surveys shall be conducted through August 31, or until all breeding activity has concluded, whichever is later. However, if construction is completed before the end of the shorebird breeding season, weekly shorebird surveys shall be conducted until all nesting activity has concluded. If no nesting has been initiated on site prior to July 15, nesting surveys may be concluded on or after that date.
- f. During the breeding season, the Bird Monitor(s) shall survey all potential beach-nesting bird habitats that may be affected by construction or pre-construction activities. The Bird Monitor(s) shall establish one or more shorebird survey routes in the FSD website to cover these areas.

- g. During the pre-construction and construction phases of the project, the Bird Monitor(s) shall complete surveys on a daily basis to detect breeding activity and the presence of flightless chicks before (1) equipment is moved to the area, (2) vehicles are operated in the area, and (3) any other activities occur that have the potential to disrupt breeding behavior or cause harm to the birds, their eggs or their young. Once construction is completed and all personnel and equipment have been removed from the beach, surveys may be conducted at weekly intervals. If no nesting has been initiated on site prior to July 15, surveys may be concluded on or after that date.
 - h. The Bird Monitor(s) shall survey the project area by walking and looking for evidence of (1) shorebirds exhibiting breeding behavior, (2) shorebird chicks, or (3) shorebird juveniles, as outlined in the FSD's Breeding Bird Protocol for Shorebirds and Seabirds. The Bird Monitor(s) shall use binoculars for these surveys.
 - i. If an ATV or other vehicle is needed to cover large project areas, operators shall adhere to the FWC's *Best Management Practices for Operating Vehicles on the Beach* (<http://myfwc.com/conservation/you- conserve/wildlife/beach-driving/>). Specifically, the vehicle shall be operated at a speed under 6 mph, and only on beaches at or below the high-tide line. The Bird Monitor(s) shall stop at no greater than 200-meter intervals to look for breeding activity.
 - j. Once the Bird Monitor(s) confirms that birds are breeding, as evidenced by the presence of a scrape, eggs, or young, the Bird Monitor(s) shall notify the FWC Regional Species Conservation Biologist (see the attached FWC contact information exhibit) within 24 hours. The Bird Monitor(s) shall report all breeding activity to the FSD website within one week of data collection.
13. **Shorebird Buffer Zones and Travel Corridors.** The Bird Monitor(s) shall establish a disturbance-free buffer zone around any location within the project area where shorebirds have been engaged in breeding behavior, including territory defense. The FWC considers a 300-foot-wide buffer to be adequate based on published studies; however, a smaller, site-specific buffer may be established if approved by the FWC Regional Species Conservation Biologist (contact information available at: <http://www.myfwc.com/shorebirds>). All sources of human disturbance (including pedestrians, pets, and vehicles) shall be prohibited in the buffer zone.
- a. The Bird Monitor(s) shall keep breeding sites under sufficient surveillance to determine if birds appear agitated or disturbed by construction or other activities in adjacent areas. If birds do appear to be agitated or disturbed by these activities, then the Bird Monitor(s) shall immediately widen the buffer zone to a sufficient size to protect breeding birds.
 - b. The Bird Monitor(s) shall ensure that reasonable and traditional pedestrian access is not blocked in situations where breeding birds will tolerate pedestrian traffic. This is

- generally the case with lateral movement of beach-goers walking parallel to the beach at or below the highest tide line. Pedestrian traffic may also be tolerated when breeding was initiated within 300 feet of an established beach access pathway. The Bird Monitor(s) shall work with the FWC Regional Species Conservation Biologist to determine if pedestrian access can be accommodated without compromising nesting success.
- c. The Bird Monitor(s) shall ensure that the perimeters of designated buffer zones are marked with posts, twine, and signs stating “Do Not Enter, Important Nesting Area” or similar language. The signs shall include the name and a phone number of the entity responsible for posting. Posts shall not be higher than 3 feet once installed. “Symbolic fencing” (i.e., twine, string, or rope) shall be placed between all posts and be clearly visible to pedestrians. In areas where marine turtles nest, the ropes shall be at least 2.5 feet above the ground. If pedestrian pathways are approved by the FWC Regional Species Conservation Biologist within the 300-foot buffer zone, these shall be clearly marked. The Bird Monitor(s) shall ensure that the posting is maintained in good repair until breeding is completed or terminated. Although solitary nesters may leave the buffer zone with their chicks, the posted area continues to provide a potential refuge for the family until breeding is complete. Breeding is not considered to be completed until all chicks have fledged.
 - d. The Bird Monitor(s) shall ensure that no construction activities, pedestrians, moving vehicles, or stockpiled equipment are allowed within the buffer area.
 - e. The Bird Monitor(s) shall designate and mark travel corridors outside the buffer areas so as not to cause disturbance to breeding birds. Heavy equipment, other vehicles, or pedestrians may go past breeding areas in these corridors. However, other activities such as stopping or turning heavy equipment and vehicles shall be prohibited within the designated travel corridors adjacent to the breeding site.
 - f. If flightless shorebird chicks are present within or adjacent to equipment travel corridors, movement of vehicles shall be adequately monitored by the Bird Monitor. It is the Permittee’s responsibility to ensure that their contractors avoid any chicks that are in the path of the moving vehicles, that chicks are not separated from the family unit, and that vehicles leave no tracks capable of trapping flightless chicks. The Bird Monitor shall conduct a shorebird education and identification program with the Contractor to ensure protection of precocial (mobile) chicks.
 - g. The FWC recommends that some activity in the travel corridor is maintained on a daily basis in order to discourage birds from nesting within the travel corridor. These activities shall not be allowed to disturb shorebirds nesting on site or interfere with marine turtle nesting, especially if the corridors are established before construction has started.

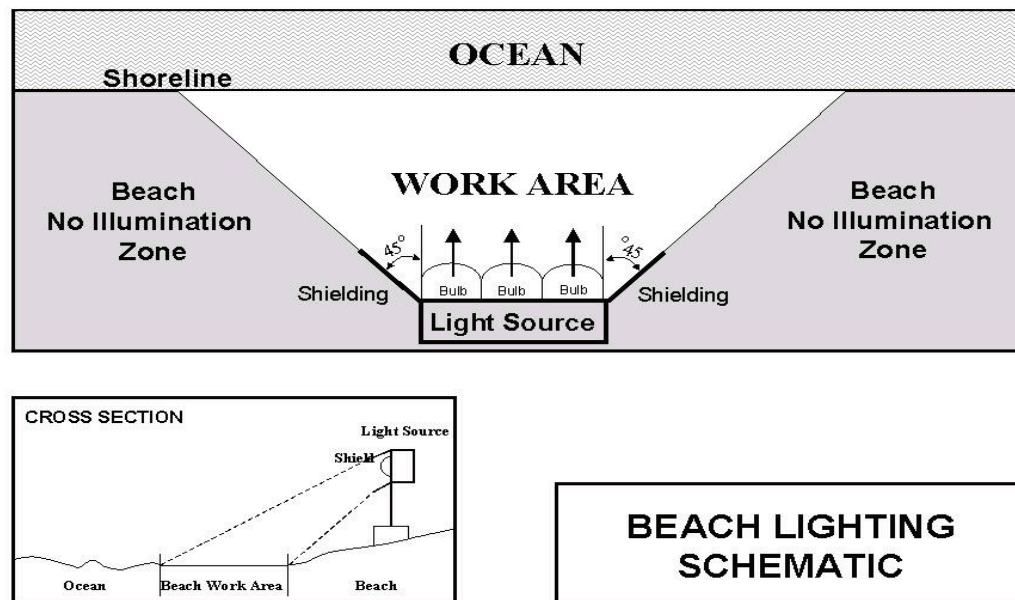
- h. Notification. If the Bird Monitor(s) find that shorebirds are breeding within the project area, he or she shall ensure that an informational bulletin board is placed and maintained in the construction staging area. This bulletin board shall display the location map of the construction site, depict the location(s) of the bird breeding areas, and include a clearly visible warning stating: “NESTING BIRDS ARE PROTECTED BY LAW, INCLUDING THE FLORIDA ENDANGERED AND THREATENED SPECIES ACT AND THE STATE AND FEDERAL MIGRATORY BIRD ACTS”.
14. **Marine Turtle Nest Surveys and Relocation.** Daily surveys shall be conducted between sunrise and 9 a.m., of all sandy beaches within the project area that are seaward of any existing coastal armoring structures or dune crest, and all areas used for beach access. No construction activity outside of the authorized nighttime work area (see Specific Condition 17) may commence until completion of the marine turtle survey each day. All work outside of the authorized nighttime work area shall be conducted during daylight hours only and all depressions, ruts and holes shall be removed from the beach each day prior to 9 p.m.
- a. Turtle Monitors. Nesting surveys and egg relocations shall only be conducted by persons with prior experience and training in these activities and who are duly authorized to conduct such activities through a valid permit issued by FWC, pursuant to Chapter 68E-1, F.A.C. Please contact FWC’s Marine Turtle Management Program in Tequesta at MTP@myfwc.com for information on the turtle permit holder in the project area. It is the responsibility of the Permittee to ensure that nesting surveys are completed by the authorized Marine Turtle Permit Holder.
 - b. Sand placement shall occur outside of the marine turtle nesting season, which starts on March 1 and ends on November 30.
 - c. Construction-related activities are authorized to occur at the beginning and end of the sea turtle nesting season (March 1 through April 30, and November 1 through November 30) under the following conditions:
 - i. Marine Turtle Nesting surveys, to assess hatching success, shall be initiated by March 1 and shall continue through October 31, or until the last marked nest has hatched. After the sand placement is completed, marine turtle nest monitoring and reporting shall continue throughout the nesting season, and shall be conducted according to the *Post-construction Monitoring and Reporting of Marine Turtle Nesting* requirements in Specific Condition 21.
 - ii. During the period from March 1 through April 30, daytime surveys shall be conducted for leatherback sea turtle nests beginning March 1. Nighttime surveys for leatherback marine turtles shall begin when the first leatherback crawl is recorded within the project or adjacent beach area through April 30, or until

completion of the project, whichever is earliest. Nightly nesting surveys shall be conducted from 9 p.m. until 6 a.m. The project area shall be surveyed at 1-hour intervals and eggs shall be relocated per the requirements in Specific Condition 14d. Since leatherbacks require at least 1.5 hours to complete nesting, the 1-hour interval will ensure that all nesting leatherbacks are encountered.

- d. If nests are laid in areas where they may be affected by sand placement activities, eggs shall be relocated per the requirements below.
 - i. Only those nests laid in the area where sand placement will occur shall be relocated. Nest relocation shall no longer occur after the sand placement is completed. Nests requiring relocation shall be moved no later than 9:00 a.m., the morning following deposition, to a nearby self-release beach site in a secure setting, where artificial lighting would not interfere with hatchling orientation. Relocated nests shall not be placed in organized groupings. Relocated nests shall be randomly staggered along the length and width of beach settings that are not expected to experience any of the following: inundation by high tides; severe erosion; previous egg loss; or illumination by artificial lighting. Nest relocations in association with construction activities shall cease when sand placement activities no longer threaten nests.
 - ii. Nests deposited within areas where construction activities will not occur for 65 days, or nests laid in the nourished berm prior to tilling, shall be marked and left in place. The turtle permit holder shall install an on-beach marker at the nest site and shall also install a secondary marker at a point as far landward as possible to assure that the nest can be located in the future should the on-beach marker be lost. No activity shall occur within this area, nor shall any activities occur that could result in impacts to the nest. Nest sites shall be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the project activity.
- 15. **Marine Turtle or Nest Encounters.** Upon locating a dead or injured marine turtle adult, hatchling or egg that may have been harmed or destroyed as a direct or indirect result of the project, the Permittee shall notify FWC Wildlife Alert at 1-888-404-FWCC (3922). Care shall be taken in handling injured marine turtles or eggs to ensure effective treatment or disposition, and in handling dead specimens to preserve biological materials in the best possible state for later analysis. If a marine turtle nest is excavated during construction activities, but not as part of the authorized nest relocation process outlined in these specific conditions, the permitted person responsible for egg relocation for the project shall be notified immediately so the eggs can be moved to a suitable relocation site.
- 16. **Project Lighting.** Direct lighting of the beach and nearshore waters during the period of peak marine turtle egg laying and egg hatching (March 1 - October 31) shall be limited to

the immediate construction area and shall comply with safety requirements. Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering and appropriate placement to avoid excessive illumination of the water's surface and nesting beach, while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting equipment shall be reduced to the minimum standard required by OSHA for General Construction areas, in order to avoid misdirecting marine turtles. Shields shall be affixed to the light housing and shall be large enough to block light from all lamps from being transmitted outside the construction area (Figure 1 below).

Figure. 1



17. **Fill Restrictions.** During the early and late portions of the marine turtle nesting season (February 25 through April 30, and November 1 through November 11), the contractor shall not advance the beach fill more than 500 feet along the shoreline between dusk and the following day until the daily nesting survey has been completed and the beach has been cleared for fill advancement. An exception to this may occur if there is permitted marine turtle monitor present on-site to ensure no nesting and hatching marine turtles are present within the extended work area. If the 500-foot advancement limitation is not feasible for the project, an agreed upon distance shall be established during the preconstruction meeting. Once the beach has been cleared for fill advancement, and the necessary nest relocations have been completed, the contractor shall be allowed to proceed with the placement of fill during daylight hours until dusk, at which time the 500-foot advancement limitation shall apply.

18. **Compaction Sampling.** Sand compaction shall be monitored in the area of sand placement immediately after completion of the nourishment event, and prior to March 1st, for three (3) subsequent years, and shall be monitored in accordance with a protocol agreed to by the FWC and the Permittee. The requirement for compaction monitoring can be eliminated if the placed sand is tilled, regardless of post-construction compaction levels. Out-year compaction monitoring and remediation are not required if placed sand no longer remains on the beach. At a minimum, the protocol provided under Specific Conditions 18.a. and 18.b. (below) shall be followed. If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area shall be tilled immediately prior to March 1st. If values exceeding 500 psi are distributed throughout the project area, but in no case do those values exist at two adjacent stations at the same depth, then the Permittee shall consult with the FWC to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling shall not be required.
- a. Compaction sampling stations shall be located at 500-foot intervals along the project area. One station shall be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station shall be midway between the dune line and the high water line (normal wrack line).
 - b. At each station, the cone penetrometer shall be pushed to depths of 6, 12 and 18 inches three times (i.e., three replicates at each depth). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates shall be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth shall be averaged to produce final values for each depth at each station. Reports shall include all 18 values for each transect line, and the final 6 averaged compaction values.
 - c. No compaction sampling shall occur within 300 feet of any shorebird nest.
 - d. Any vehicles operated on the beach in association with compaction surveys shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (<http://myfwc.com/conservation/you- conserve/wildlife/beach-driving/>).
19. **Tilling Requirements.** If tilling is required, as specified above, the area shall be tilled to a depth of 36 inches. All tilling activity shall be completed prior to the marine turtle nesting season. If tilling occurs during shorebird nesting season, shorebird surveys shall be required prior to tilling, per the Shorebird Conditions included within this document. It is the responsibility of the Permittee to ensure that their contractors avoid tilling, scarp

removal or dune vegetation planting in areas where nesting birds are present. Each pass of the tilling equipment shall be overlapped to allow thorough and even tilling. If the project is completed during the marine turtle nesting season, tilling shall not be performed in areas where nests have been left in place or relocated. If compaction measurements are taken, a report on the results of the compaction monitoring shall be submitted electronically to FWC at marineturtle@myfwc.com prior to any tilling actions being taken.

- a. No tilling shall occur within 300 feet of any shorebird nest.
 - b. When flightless chicks are present within or adjacent to travel corridors, movement of vehicles shall be adequately monitored by the Bird Monitor, who shall advise the contractor whose responsibility it is to ensure no chicks are in the path of the moving vehicles, that chicks are not separated from the family unit, and that vehicles leave no tracks capable of trapping flightless chicks. The Bird Monitor shall conduct a shorebird education and identification program with the Contractor to ensure protection of precocial (mobile) chicks.
 - c. A relatively even surface, with no deep ruts or furrows, shall be created during tilling. To do this, chain-linked fencing or other material shall be dragged over those areas as necessary after tilling.
 - d. Tilling shall occur landward of the wrack line, and shall avoid all naturally vegetated areas that are at least 3 square feet in size, as well as any planted areas that have been authorized by the Department. A 3-foot-wide No-Tilling buffer shall be maintained around the vegetated areas. The slope between the mean high water line and the mean low water line shall be maintained to approximate natural slopes.
 - e. Any vehicles operated on the beach in association with tilling shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (<http://myfwc.com/conservation/you-serve/wildlife/beach-driving/>).
20. **Escarpment Surveys.** Prior to March 1st, visual surveys for escarpments along the project area shall be made immediately after completion of sand placement. If placed sand still remains on the beach, the surveys shall be conducted for three (3) subsequent years. Escarpments that interfere with marine turtle nesting or that exceed 18 inches in height for a distance of at least 100 feet shall be leveled and the beach profile shall be reconfigured to minimize scarp formation by March 1st. Any escarpment removal shall be reported by location to FWC, with a copy sent to the JCP Compliance Officer. If the project is completed during the marine turtle nesting and hatching season, escarpment leveling may be required immediately, while protecting nests that have been relocated or left in place. The Permittee shall contact FWC immediately if subsequent reformation of escarpments occurs during the nesting and hatching season, and the escarpments interfere with marine turtle nesting or if the escarpments exceed 18 inches in height for a distance

of 100 feet. The FWC would then determine the appropriate action to be taken. If it is determined that escarpment leveling is required during the nesting or hatching season, the FWC will provide a brief written authorization that describes methods to be used to reduce the likelihood of impacting existing nests. An annual summary of escarpment surveys and actions taken shall be submitted electronically to marineturtle@myfwc.com along with the annual summary, as described below. If escarpment removal occurs during shorebird breeding season, shorebird surveys shall be required prior to removal, per the Shorebird Conditions included within this document. **NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the dry beach.**

- a. No heavy equipment shall operate within 300 feet of any shorebird nest.
- b. When flightless chicks are present within or adjacent to travel corridors, movement of vehicles shall be adequately monitored by the Bird Monitor, who shall advise the contractor whose responsibility it is to ensure no chicks are in the path of the moving vehicles, that chicks are not separated from the family unit, and that vehicles leave no tracks capable of trapping flightless chicks. The Bird Monitor shall conduct a shorebird education and identification program with the Contractor to ensure protection of precocial (mobile) chicks.
- c. Any vehicles operated on the beach in association with escarpment surveys or removal shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (<http://myfwc.com/conservation/you-conserve/wildlife/beach-driving/>).

21. **Post-construction Protection, Monitoring and Reporting.**

- a. Shorebirds: If the Permittee conducts beach cleaning on the nourished beach, a minimum of 30% of the biotic material within the wrack line shall be left on the beach after cleaning. The biotic material shall be left at the strand line, in a natural configuration to ensure that the nourished beach re-establishes its function as foraging habitat for shorebirds. This shall occur for as long as the placed sand remains on the beach.
- b. Marine Turtles: Reports on all marine turtle nesting activity shall be provided for the initial period of peak marine turtle egg laying and egg hatching (March 1 – November 17) and for up to two additional nesting seasons as follows:
 - i. For the remainder of the nesting season immediately following construction, and for the following year, the number and type of emergences (nests or false crawls) shall be reported per species in accordance with **Table 1** (below). An additional year of nesting surveys may be required if nesting success for any

species on the nourished beach is less than 40%.

- ii. For the remainder of the nesting season immediately following construction, reproductive success shall be reported per species in accordance with **Table 1** (below). Reproductive success shall be reported for all loggerhead, Kemp's ridley, green and leatherback nests.
- iii. If the documented reproductive success for each species meets or exceeds the required criteria, as outlined in **Table 1** (below), monitoring for reproductive success shall be recommended, but not required for the second year post-construction.
- iv. Monitoring of nesting activity in the seasons following construction shall include daily surveys and any additional measures authorized by the FWC. Summaries shall include all crawl activity, nesting success rates, hatching success of all relocated nests, hatching success of a representative sampling of nests left in place (if any) by species, project name, permit number and dates of construction.
- v. Lighting Surveys. Two lighting surveys shall be conducted of all artificial lighting visible from the nourished berm. The first survey shall be conducted between May 1 and May 15 of the first nesting season following construction or immediately after placement if construction is not completed until after May 15. The second survey shall be conducted between July 15 and August 1. The survey shall be conducted from the top of the foreshore slope (i.e., the seaward edge of the filled berm before it slopes into the water), facing landward. The survey shall follow standard techniques for such a survey and include number and type of visible lights, location of lights and photo documentation. For each visible light source, the Permittee shall document that the property owner(s) has been notified of the problem light and has been provided with recommendations for correcting the light. Recommendations shall be in accordance with local lighting ordinances, and a report summarizing all visible lights shall be forwarded to local code enforcement, or if no lighting ordinances exist, the recommendation shall be that no lights, light sources or glow shall be visible from the newly elevated beach. A report summarizing all visible lights shall be submitted to FWC Imperiled Species Management Section at marineturtle@myfwc.com and copied to JCPCCompliance@dep.state.fl.us by the 1st of the month following the survey. A summary report documenting what corrective actions or local enforcement actions have been taken shall also be submitted by December 15 of that year. After the annual report is completed, the Permittee shall set up a meeting with the county or municipality and FWC to discuss the survey report, as well as any documented marine turtle disorientations in or adjacent to the project area.

22. Data shall be reported for the nourished areas in accordance with the **Table 1** (below), and shall include the number of nests that were lost to erosion or that were washed out. Summaries of nesting activity shall be submitted in electronic format (Excel spreadsheets) to the FWC Imperiled Species Management Section at marineturtle@myfwc.com and **copied to** JCPCompliance@dep.state.fl.us. All summaries shall be submitted by January 15th of the following year. The FWC Excel spreadsheet is available upon request from marineturtle@myfwc.com.

Table 1. Marine Turtle Monitoring for Beach Placement of Material

Metric	Duration	Variable	Criterion
Nesting Success	Year of in season construction, two years post construction if placed sand remains on beach and variable does not meet criterion based on previous year. ^{1 and 2}	Number of nests and non-nesting events.	40% or greater.
Hatching Success	Year of in season construction. And one year post construction if placed sand remains on beach and variable does not meet success criterion based on previous year. ^{1 and 2}	Number of hatchlings by species to hatch from egg.	Average of 60% or greater for loggerheads and greens (data must include washed out nests). Report leatherback hatching success.
Emergence Success	Year of in season construction and one year post construction if placed sand remains on beach and variable does not meet success criterion based on previous year. ^{1 and 2}	Number of hatchlings by species to emerge from nest onto beach.	80 percent or greater (a statistically valid number of loggerhead and green nests, and all leatherback nests).
Disorientation	Year of in season construction and two years post construction if placed sand remains on the beach. ^{1 and 2}	Number of nests and individuals that misorient or disorient.	http://myfwc.com/media/418153/Seaturtle_Guidelines_A_L_DIR_Directions.pdf
Lighting Surveys	Two surveys the year following construction, one survey between May 1 and May 15 and second survey between July 15 and August 1. ^{1 and 2}	Number, location and photographs of lights visible from nourished berm, corrective actions and notifications made.	Lighting survey and meeting resulting with plan for reduction in lights visible from nourished berm within one to two month period.
Compaction	Three seasons following construction. Not required if the beach is tilled prior to nesting season each year placed sand remains on beach.	Shear resistance.	Less than 500 psi.
Escarpment Surveys	Weekly during nesting season for up to three years each year placed sand remains on the beach. ²	Number of scarps 18 inches or greater extending for more than 100 feet that persist for more than 2 weeks.	Successful remediation of all persistent scarps as needed.

Notes: ¹ Not required for maintenance dredging.

² Not required if dredged sand is placed in the nearshore swash or littoral zones only.

23. Pursuant to Section 379.249, F.S., the transport and deployment of all artificial reef materials off Florida require a cargo manifest. The attached “Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification” form must be filled out and maintained on the vessel, with the materials onboard, during transport and deployment of artificial reef materials. The completed form must be submitted to the FWC Artificial Reef Program at least 7 days prior to the anticipated deployment via email artificialreefdeployments@myfwc.com, or via fax (850) 487-4847. The form is also available online at: <http://myfwc.com/media/131594/FWCArtificialReefCargoManifest.pdf>

Also pursuant to Section 379.249, F.S., the FWC is required to track all artificial reef deployments state-wide. The attached “Florida Artificial Reef Materials Placement Report and Post-Deployment Notification” form must be filled out and submitted to the FWC and a copy e-mailed to the JCP Compliance Officer within 30 days of completion. In addition to attaching the completed form, please indicate on the e-mail that the information is being submitted for the Fort Pierce Inlet Sand Trap project, Permit No. 0327791-001- JC. The completed form must be submitted to the FWC Artificial Reef Program via email artificialreefdeployments@myfwc.com, via fax (850) 487-4847, or mailed to the FWC Artificial Reef Program, 620 S. Meridian Street, Box 4B2, Tallahassee, FL 32399-1600. The form is also available online at: <http://myfwc.com/media/131597/FWCArtificialReefMaterialPlacementReport.pdf>.

MONITORING REQUIRED:

24. Water Quality - Turbidity shall be monitored as follows:

Units: Nephelometric Turbidity Units (NTUs).

Frequency: Monitoring for a pipeline dredge shall be conducted 3 times daily, approximately 4 hours apart, and at any other time that there is a likelihood of an exceedance of the turbidity standard, during all hydraulic cutterhead construction, and sand placement operations. Monitoring for a hopper dredge shall be conducted for each hopper dredge load during daylight hours. At the dredge site, sampling shall be conducted after overflow from the hopper begins and the associated turbidity plume has reached the edge of the mixing zone. At the fill placement site, sampling shall be conducted after discharge from the pipe begins and the associated turbidity plume has reached the edge of the mixing zone. Sampling shall be conducted **while the highest project-related turbidity levels are crossing the edge of the mixing zone**. Since turbidity levels can be related to pumping rates, the dredge pumping rates shall be recorded, and provided to the Department upon request. The compliance samples and the corresponding background samples shall be collected at approximately the same time, i.e., one shall immediately follow the other.

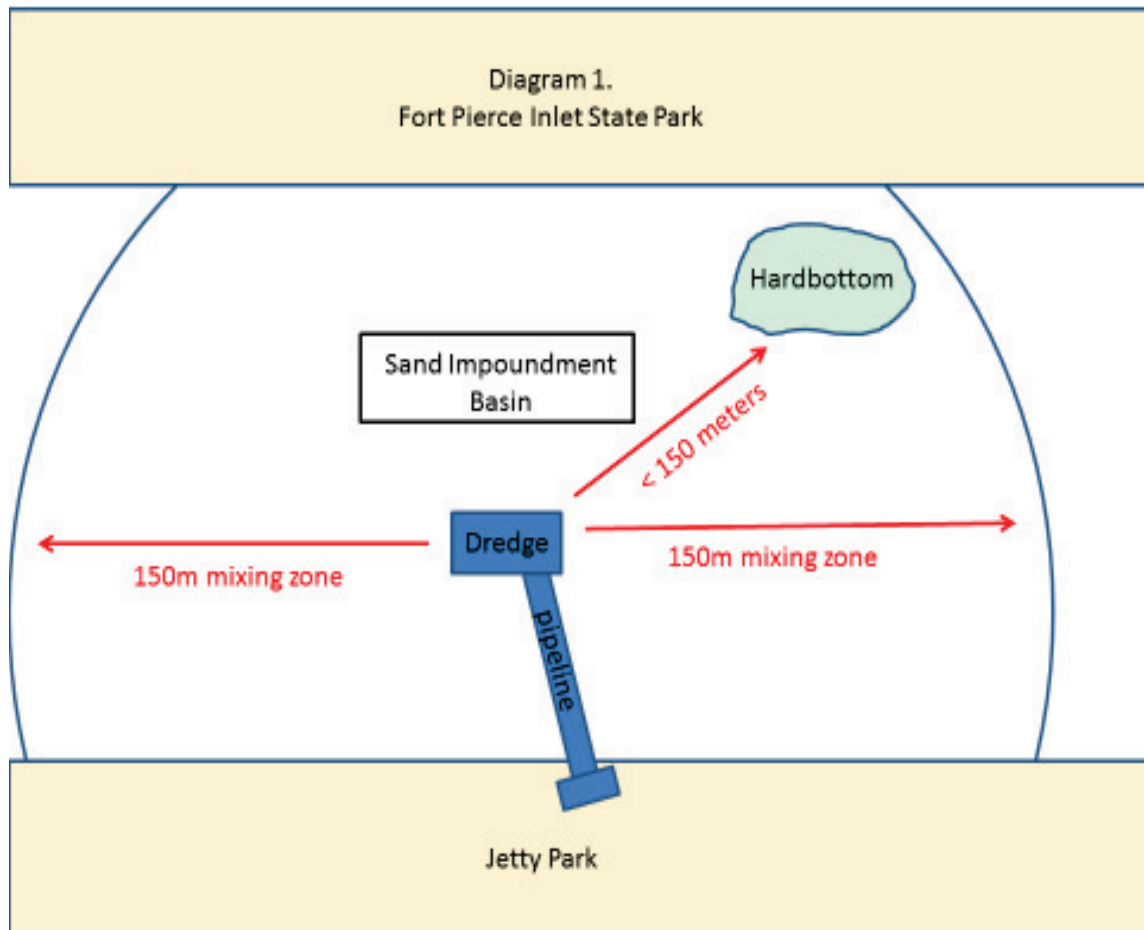
Location: Background: Sampling shall occur at surface, mid-depth, and (for sites with depths greater than 25 feet) 2 meters above the bottom, clearly outside the influence of any artificially generated turbidity plume (at the dredge site or the beach placement site) or the influence of an outgoing inlet plume (at the beach placement site).

Dredging Site: Samples shall be collected at least 300 meters up-current from the source of turbidity at the dredge site.

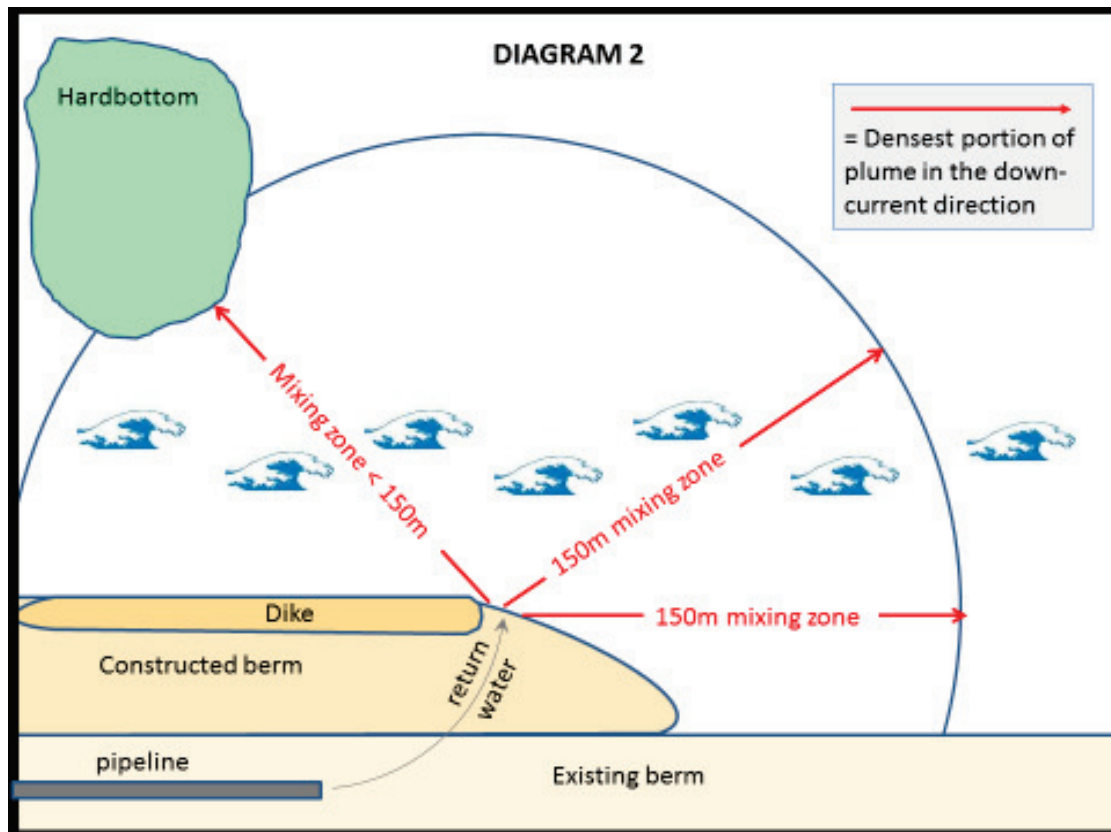
Beach Placement Site: Samples shall be collected at least 300 meters up-current from any portion of the beach that has been, or is being, filled during the current construction event, at the same distances offshore as the associated compliance samples.

Compliance: Sampling shall occur at surface, mid-depth, and (for sites with depths greater than 25 feet) 2 meters above the bottom.

Dredging Site: Samples shall be collected 150 meters down-current from the cutterhead or the hopper dredge overflow point, or at the edge of the nearest hardbottom in the downcurrent direction, whichever is closest to the cutterhead or overflow point **and** from any other source of turbidity generated by the dredge, in the densest portion of any visible turbidity plume. If no plume is visible, follow the likely direction of flow. *See Diagram 1.*



Beach Placement Site: Samples shall be collected 150 meters down-current from the discharge point, or at the edge of the nearest hardbottom in the downcurrent direction, whichever is closest to the discharge point, within the densest portion of the turbidity plume. Turbidity monitoring at the hardbottom edge (if located within 150 meters of the discharge point) is not required for hardbottom located landward of the Equilibrium Toe of Fill (ETOF) or hardbottom for which mitigation has already been provided. *Note: If the plume flows parallel to the shoreline, the densest portion of the plume may be close to shore, in shallow water. In that case, it may be necessary to access the sampling location from the shore, in water that is too shallow for a boat. See Diagram 2.*



Calibration: The instruments used to measure turbidity shall be fully calibrated with primary standards within one month of the commencement of the project, and at least once a month throughout the project. Calibration with secondary standards shall be verified each morning prior to use, after each time the instrument is turned on, and after field sampling using two secondary turbidity “standards” that bracket the anticipated turbidity samples. If the post-sampling calibration value deviates more than 8% from the previous calibration value, results shall be reported as estimated and a description of the problem shall be included in the field notes.

Analysis of turbidity samples shall be performed in compliance with DEP-SOP-001/01 FT 1600 Field Measurement of Turbidity:

<http://publicfiles.dep.state.fl.us/dear/sas/sopdoc/2008sops/ft1600.pdf>

If the turbidity monitoring protocol specified above prevents the collection of accurate data, the person in charge of the turbidity monitoring shall contact the JCP Compliance Officer to establish a more appropriate protocol. Once approved in writing by the Department, the new protocol shall be implemented through an administrative permit modification.

25. The **compliance** locations given above shall be considered the limits of the temporary mixing zone for turbidity allowed during construction. If monitoring reveals turbidity levels at the **compliance** sites that are greater than 29 NTUs above the corresponding background turbidity levels, construction activities shall **cease immediately** and not resume until corrective measures have been taken and turbidity has returned to acceptable levels. Any such occurrence shall also be immediately reported to the JCP Compliance Officer via email at JCPCompliance@dep.state.fl.us and include in the subject line, “TURBIDITY EXCEEDANCE”, and the Project Name and Permit Number. Also notify the Department’s Southeast District office.

Any project-associated turbidity source other than dredging or fill placement for beach nourishment (e.g., scow or pipeline leakage) shall be monitored as close to the source as possible. If the turbidity level exceeds 29 NTUs above background, the construction activities related to the exceedance shall **cease immediately** and not resume until corrective measures have been taken and turbidity has returned to acceptable levels. This turbidity monitoring shall continue every hour until background turbidity levels are restored or until otherwise directed by the Department. The Permittee shall notify the Department, by separate email to the JCP Compliance Officer, of such an event within 24 hours of the time the Permittee first becomes aware of the discharge. The subject line of the email shall state “OTHER PROJECT-ASSOCIATED DISCHARGE, TURBIDITY EXCEEDANCE”.

When reporting a turbidity exceedance, the following information shall also be included:

- a. the Project Name;
- b. the Permit Number;
- c. location and level (NTUs above background) of the turbidity exceedance;
- d. the time and date that the exceedance occurred; and
- e. the time and date that construction ceased.

Prior to re-commencing the construction, a report shall be emailed to the Department with the same information that was included in the “Exceedance Report”, plus the following information:

- a. turbidity monitoring data collected during the shutdown documenting the decline in turbidity levels and achievement of acceptable levels;
- b. corrective measures that were taken; and
- c. cause of the exceedance.

26. **Turbidity Reports:** All turbidity monitoring data shall be submitted within one week of analysis. The data shall be presented in tabular format, indicating the measured turbidity levels at the compliance sites for each depth, the corresponding background levels at each depth and the number of NTUs over background at each depth. Any exceedances of the turbidity standard (29 NTUs above background) shall be highlighted in the table. In addition to the raw and processed data, the reports shall also contain the following information:
- a. time of day samples were taken;
 - b. dates of sampling and analysis;
 - c. GPS location of sample;
 - d. depth of water body;
 - e. depth of each sample;
 - f. antecedent weather conditions, including wind direction and velocity;
 - g. tidal stage and direction of flow;
 - h. water temperature;
 - i. a map, overlaid on an aerial photograph, indicating the sampling locations, dredging and discharge locations, and direction of flow. A sample map shall reviewed and approved by the Department prior to construction;
 - j. a statement describing the methods used in collection, handling, storage and analysis of the samples;
 - k. a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, calibration of the meter, accuracy of the data and precision of the GPS measurements;
 - l. When samples cannot be collected, include an explanation in the report. If unable to collect samples due to severe weather conditions, include a copy of a current report from a reliable, independent source, such as an online weather service.

27. Biological monitoring of the hardbottom area within and surrounding the sediment impoundment basin, the mitigation site, the nearshore hardbottom area adjacent to the beach fill placement area south of the inlet, and all pipeline corridors (if applicable) shall be conducted to provide the Department with reasonable assurance that any project-related persistent or temporary negative impacts (direct or indirect) will be documented if they occur. The Permittee shall adhere to the attached approved **Biological Monitoring Plan** (dated October 2015), which is a binding part of this permit. Note that monitoring firms shall be knowledgeable of all permit conditions pertaining to monitoring requirements (including the approved Monitoring Plan); not just the scope of work in the contract prepared by the Permittee/contractor. Additionally, monitoring firms conducting surveys shall have experience with biological monitoring. The Department's standard operating procedures are available as a guidance document for Department approved methodology. Monitoring firms shall submit resumes for individuals who will be conducting surveys. These resumes shall be emailed to the JCP Compliance Officer for the Department's approval prior to initiating surveys.

The direct impact area within the sediment impoundment basin (Ft. Pierce Inlet) shall be surveyed in detail the summer prior to construction. This community shall serve as the reference community for the artificial reef. The hardbottom area surrounding the sediment impoundment basin (within 150 meters) shall be surveyed prior to and immediately after construction. The nearshore hardbottom adjacent to the beach fill template (between R-35 and R-43) shall be surveyed once during the summer prior to beach nourishment, immediately following construction (within 6 months), and annually for three years post-construction. Each subsequent nourishment shall initiate another complete round of post-construction monitoring (i.e., one survey within six (6) months of construction and three annual surveys). The pre-construction survey (performed prior to the first nourishment) shall serve as the baseline for all subsequent nourishment events conducted under this permit. Any proposed pipeline corridors (if applicable) shall be surveyed prior to and immediately following construction for each beach placement event. Additional mitigation may be required to offset any unpermitted project related impacts documented during the course of monitoring.

Table 2 (below), entitled *Hardbottom Monitoring Summary*, summarizes tasks required in the Biological Monitoring Plan; these are described in detail in the Monitoring Plan itself. Reports are required to be submitted following each survey, according to the Plan. The Permittee shall acquire written approval from the Department prior to implementing any substantial revisions to the approved Biological Monitoring Plan.

Table 2. Hardbottom Monitoring Summary

Survey Area	Description / Information	Task	Frequency	Deliverables
Pipeline Corridors	For each pipeline corridor (if applicable)	Qualitative video along each corridor	1 pre- and 1 immediate post-construction survey; applicable each dredging event	Video
Sediment Impoundment Basin (within Ft. Pierce Inlet)	Impact area	Pre-construction quantitative video survey of randomly placed transects, CPCe BEAMR data collection	1 survey the summer prior to initial construction	Video, Excel spreadsheets
	Perimeter of the impoundment basin (within 150 m mixing zone)	Quantitative video survey of permanent transects (N=4), CPCe BEAMR data collection	(Phase I construction only) 1 pre- and 1 immediate post-construction survey,	Video, Excel spreadsheets
Beach Placement Site (DEP monuments R-34 to R-43)	Permanent Transects (N=9); 6 are full biological transects, 3 are sediment only transects	Line-intercept along all 9 transects	1 pre-construction, 1 immediate (6 months) post-construction, and 3 annual post-construction surveys. Each nourishment initiates a complete round of post-construction monitoring	Excel spreadsheet, PDF of field sheets
		Interval sediment depth along all 9 transects		Excel spreadsheet, PDF of field sheets
		Qualitative video collection along the 6 full biological transects		Video
	Permanent Quadrats (0.5 m ² each)	BEAMR functional group, sediment depth, and physical relief data collected in each quadrat along the 6 full biological transects		Excel spreadsheets, PDF of field sheets
	Hardbottom Edge	Mapping of landward hardbottom edge (R-34 to R-43)		Shapefiles

28. The biological monitoring firm shall notify the Department (JCP Compliance Officer) when biological monitoring has begun and when biological monitoring has been completed. Additionally, the biological monitoring firm shall submit brief weekly progress reports to the Department during the survey period.

All raw data that are collected pursuant to permit conditions shall be submitted simultaneously to the JCP Compliance Officer, the contractor and the Permittee as collected in the field and as entered into spreadsheets for analysis, beginning with the pre-construction monitoring survey. Raw data associated with pre-construction surveys shall be submitted to the JCP Compliance Officer at least 30 days prior to construction. Raw data associated with annual monitoring shall be provided to the JCP Compliance Officer within 45 days of completing annual monitoring. Raw data shall be provided to the JCP Compliance Officer in electronic format, preferably on a single portable hard drive or via an FTP site. All data shall be provided in a standardized format, as specified in the approved Biological Monitoring Plan. The monitoring agent shall confirm that all data submitted in the Excel workbook (transect monitoring data) are consistent with the field datasheets to ensure accuracy, and shall correct any errors or inconsistencies prior to the 45 day deadline. Data provided to the JCP Compliance Officer shall consist of the following: aerial photographs (if required), video and in situ photographs; hardbottom edge survey data; raw transect survey data, and field datasheets (see ***Table 2. Hardbottom Monitoring Summary***, above). Descriptions of all raw data materials (and their formats) to be provided to the JCP Compliance Officer are detailed in the attached approved Biological Monitoring Plan.

Within 90 days of completing annual monitoring, the monitoring agent shall provide a biological monitoring report to the JCP Compliance Officer in electronic format. The monitoring firm(s) shall submit the biological monitoring reports to the JCP Compliance Officer. The content and format of the monitoring report shall meet the criteria set forth in the approved Biological Monitoring Plan.

29. A total of 0.3 net acres of artificial reef shall be constructed to offset 0.2 acres of impact to low relief hardbottom due to the construction of the sediment deposition basin. The mitigation reef shall closely mimic the characteristics of the impacted hardbottom habitat, and shall be constructed concurrent with the construction of the deposition basin in order to minimize the lag time between impact and mitigation. Any delay in the timing of mitigation construction shall result in the Department re-running the Uniform Mitigation Assessment Method (UMAM) to update time lag calculations. The mitigation artificial reef shall be constructed at Site 3, which has been approved by the Department and is located along the north interior shore of the inlet. The mitigation reef at Site 3 shall be constructed as far landward as possible to avoid the steeper slopes along the inlet channel, which could affect the stability of the reef. Due to the limited size of Site 3, artificial reef material may also be placed at the other Department-approved location (Site 2), south of the interior channel if additional space or mitigation is required. The

artificial reef shall be constructed of limestone boulders, which shall be cleaned prior to placement. The artificial reef shall be constructed on top of geotextile fabric in order to limit the depth to which boulders can subside into the sand: however, if any portion of the artificial reef does not remain exposed as a result of subsidence, additional mitigation may be required. The limestone boulders shall be placed in a single layer, and shall be clustered together in order to minimize sand patches between boulders. Sand patches between boulders shall not exceed 30% of the gross artificial reef area (acreage). The artificial reef shall have adequate clearance for navigation purposes. Perimeter buoys shall be placed at the mitigation site to mark the corners of the artificial reef during construction.

30. Monitoring of the artificial reef shall be conducted to determine the success of the mitigation reef in developing a hardbottom community similar to that recorded at the impact site and to assess the performance of the reef in providing the net acreage of appropriate hardbottom community required to offset project impacts (0.3 acres). Monitoring of the artificial reef shall comply with, and meet the requirements of, the attached Biological Monitoring Plan, which is a binding part of this permit. The mitigation reef shall be surveyed immediately following construction and then annually for three years post-construction. A detailed quantitative benthic survey of the sediment impoundment basin site shall be conducted the summer prior to construction in order to assess and characterize the habitat and resources that will be directly impacted by the construction of the basin. The hardbottom characterized in this pre-construction survey of the impact area shall serve as the reference community for the artificial reef.

Table 3 (below) entitled *Mitigation Artificial Reef Monitoring Summary*, summarizes tasks required in the Biological Monitoring Plan; these are described in detail in the Monitoring Plan itself.

Table 3. Mitigation Artificial Reef Monitoring Summary

Survey Type	Description / Information	Task	Frequency	Deliverables
"As-built"	Document gross acreage	<i>In situ</i> reef boundary delineation	Within 6 months of construction, and 3 years post-construction	Shapefiles
	Determine net acreage	Line-Intercept along random transects		Excel spreadsheets, and PDFs of field sheets
Annual	Biological	Quantitative video survey along permanent transects, CPCe BEAMR data collection	Every year post-construction for 3 years	Video, excel spreadsheets, and PDFs of field sheets

31. The mitigation reef shall be monitored for three (3) years to track benthic recruitment and net acreage. The Department typically considers mitigation to be successful, and the artificial reef to have performed adequately, when the benthic community of the artificial reef is comparable to that of the reference community it was intended to mimic, and the net acreage of the artificial reef meets that required to offset the acreage of impacts. Mitigation shall meet the following three success and performance criteria:
 - a. Benthic community composition between the mitigation reef and the natural hardbottom reference community (low relief hardbottom) shall be 90% similar by completion of monitoring, as specified in Specific Condition 32.
 - b. Percent cover of each of the major functional groups shall be statistically indistinguishable between the artificial reef and the natural hardbottom reference community (low relief hardbottom) by completion of monitoring, as specified in Specific Condition 32.
 - c. Net acreage of artificial reef hardbottom shall be (at least) the acreage arrived at by UMAM (0.3 acres) to offset direct impacts at each of two time points (two “as-built” surveys) - immediately following construction and again at the completion of monitoring.
32. If annual mitigation monitoring indicates that mitigation success (i.e., community similarity) has been achieved prior to the end of the three-year annual monitoring period, the Permittee and/or authorized agent may request termination of this portion of mitigation monitoring and that the regulatory agencies consider the mitigation effort completed. It is understood that in such a case, the year three (3) as-built survey shall still be conducted in order to provide the Department with reasonable assurance that the required mitigation acreage has persisted over time. If after three years of monitoring success has not been achieved (community similarity), the Permittee and/or authorized agent shall meet with Department staff to discuss the performance of the mitigation reef and a path forward to complete the mitigation requirement. If during the initial or the final (year 3 post-construction) as-built surveys the net hardbottom acreage is found to be less than that required to compensate for direct impacts, additional limestone reef acreage shall be constructed to fulfill the mitigation requirement.
33. If the Permittee is unable to complete two maintenance events within the 15-year life of the permit, the Permittee may request (prior to the expiration date of the permit), and the Department shall grant, an extension of the permit expiration date in order to allow completion of the second maintenance event. The extension would be documented through an administrative modification.
34. Sediment quality shall be assessed as outlined in the attached Sediment QA/QC Plan, which is dated January 2015. Any placement of material that is not in compliance with

the Plan shall be handled according to the protocols set forth in the Sediment QA/QC Plan, and in accordance with the additional measures as following:

- a. **Compliance Area.** If a sample does not meet the compliance value for construction debris, toxic material, other foreign material, coarse gravel, or rock the Permittee shall determine the aerial extent and remediate regardless of the extent of the noncompliant material. If a sample is noncompliant for the silt content, shell content, or Munsell color and the aerial extent exceeds 10,000 square feet, the Permittee shall remediate.
- b. **Notification.** If an area of newly constructed beach does not meet the sediment compliance specifications, then the Permittee shall notify the JCP Compliance Officer (JCPCompliance@dep.state.fl.us). Notification shall indicate the aerial extent and location of any areas of noncompliant beach fill material and the planned remediation. As outlined in Section d below, the Permittee shall immediately undertake remediation actions without additional approvals from the Department. The results of any remediation shall be reported to the JCP Compliance Officer following completion of the remediation activities, and the report shall indicate the volume of noncompliant fill material removed and replaced.
- c. **Sampling to determine extent.** In order to determine if an area greater than 10,000 square feet of beach fill is noncompliant, the following procedure shall be performed by the Engineer:
 - i. Upon determination that the first sediment sample is noncompliant, at minimum, five (5) additional sediment samples shall be collected at a 25-foot spacing in all directions and assessed. If any of these additional samples are also noncompliant, then another set of additional samples shall be collected at a 25-foot spacing in all directions. This process shall be repeated until the full aerial extent is identified.
 - ii. The samples shall be visually compared to the acceptable sand criteria. If deemed necessary by the Engineer, quantitative assessments of the sand shall be conducted for grain size, silt content, shell content, and Munsell color using the methods outlined in Section D.5 of the attached QA/QC Plan. Samples will be archived by the Permittee.
 - iii. A site map shall be prepared depicting the location of all samples and the boundaries of all areas of noncompliant fill.
 - iv. The total square footage shall be determined.
 - v. The site map and analysis shall be included in the Contractor's Daily Report.

- d. **Actions.** The Permittee or Permittee's Engineer shall have the authority to determine whether the material placed on the beach is compliant or noncompliant. If placement of noncompliant material occurs, the Contractor shall be directed by the Permittee or Permittee's Engineer to take the necessary corrective actions. Should a situation arise during construction that cannot be corrected by the remediation methods described within this QA/QC Plan, the Permittee shall notify the JCP Compliance Officer. The remediation actions for each sediment parameter are as follows:
- i. *Silt:* blending the noncompliant fill material with compliant fill material within the adjacent construction berm sufficiently to meet the compliance value, or removing the noncompliant fill material and replacing it with compliant fill material.
 - ii. *Shell:* blending the noncompliant fill material with compliant fill material within the adjacent construction berm sufficiently to meet the compliance value or removing the noncompliant fill material and replacing it with compliant fill material.
 - iii. *Munsell color:* blending the noncompliant fill material with compliant fill material within the adjacent construction berm sufficiently to meet the compliance value or removing the noncompliant fill material and replacing it with compliant fill material.
 - iv. *Coarse gravel:* screening the coarse gravel from the noncompliant fill material, removing the separated coarse gravel from the beach and replacing it with compliant fill material.
 - v. *Construction debris, toxic material, or other foreign matter:* removing the noncompliant fill material and replacing it with compliant fill material.

All noncompliant fill material removed from the beach shall be transported to an appropriate upland disposal facility located landward of the Coastal Construction Control Line.

- e. **Post-Remediation Testing.** Re-sampling shall be conducted following any remediation actions in accordance with the following protocols:
- i. Within the boundaries of the remediation actions, samples shall be taken at a maximum of 25-foot spacing.
 - ii. The samples shall be visually compared to the acceptable sand criteria. If deemed necessary by the Engineer, quantitative assessments of the sand shall be conducted for grain size, silt content, and Munsell color using the methods outlined in Section D.5 of the attached QA/QC Plan. Samples shall be archived by the Permittee.

- iii. A site map shall be prepared depicting the location of all samples and the boundaries of all areas of remediation actions.
- f. **Reporting.** A post-remediation report containing the site map, sediment analysis, and volume of noncompliant fill material removed and replaced shall be submitted to the JCP Compliance Officer within 7 days following completion of remediation activities.

NOTICE OF RIGHTS

FLAWAC Review

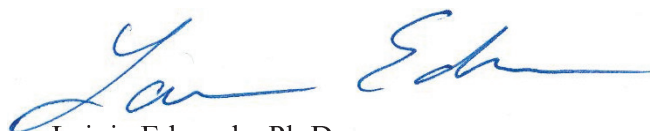
The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Florida Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Florida Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when this order is filed with the Clerk of the Department.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

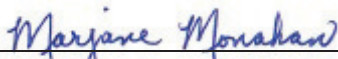
STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

A handwritten signature in blue ink, appearing to read 'Lainie Edwards', is written over a faint circular official seal.

Lainie Edwards, Ph.D.
Program Administrator
Beaches, Inlets and Ports Program
Division of Water Resource Management

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

	5/02/2016
Deputy Clerk	Date

Attachments: Approved Permit Drawings (11 pages dated December 2015)
Biological Monitoring Plan (dated October 2015)
Sediment QA/QC Plan (dated January 2015)