APPENDIX D – AGENCY DOCUMENTS

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Jason J. Spinning
Chief, Planning and Policy Division
Jacksonville District
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, Florida 32207-8175

July 6, 2016

RE: DHR Project File No.: 2015-809, Received by DHR: March 7, 2015
Project: *Draft Environmental Assessment on the Hurricane and Storm Damage Reduction Project, Mid-Reach Segment, Brevard County, Florida*

Mr. Spinning:

The Florida State Historic Preservation Office reviewed the referenced Draft Environmental Assessment in accordance with the National Environmental Policy Act (NEPA).

Thank you for providing our office the opportunity to comment on the Draft Environmental Assessment (EA) for the Proposed Use of Upland Quarries as an Additional Source of Sand to complete the Hurricane and Storm Damage Reduction Project, Mid-Reach Segment, Brevard County, Florida.

Our concern is the project's use of upland borrow sites in addition to the offshore Canaveral Shoals site. As noted in the Draft EA, the Corps has not yet determined if existing commercial quarries will be used or if these quarries need to be established or expanded. If these areas have not been previously surveyed for archaeological sites and other historic properties, a Cultural Resources Assessment Survey may be necessary, pursuant to 36 CFR 800.4(a)-(b). Additionally, if new offshore borrow areas must be established, they should be similarly surveyed for historic properties (such as shipwrecks). It is our understanding that the Corps intends to consult on these potential effects to historic properties as part of their responsibilities under Section 106 of the National Historic Preservation Act of 1966; separate from the NEPA process. Our office looks forward to continued consultation with the Corps concerning this project.

If you have any questions, please contact Christopher Hunt, RPA, Historic Sites Specialist, by email at *Christopher.Hunt@dos.myflorida.com*, or by telephone at 850.245.6333 or 800.847.7278.

Sincerely,

Jason Aldridge
For
Timothy A Parsons, Ph.D., RPA
Director, Division of Historical Resources
& State Historic Preservation Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

March 30, 2016 F/SER4:JK/pw

(Sent via Electronic Mail)

Colonel Jason A. Kirk, Commander
U.S. Army Corps of Engineers, Jacksonville District
Miami Permits Section
9900 Southwest 107th Avenue, Suite 203
Miami, Florida 33176

Attention: Paul E. Stodola

Dear Colonel Kirk:

NOAA's National Marine Fisheries Service (NMFS) reviewed *Draft Environmental Assessment, Proposed Use of Upland Quarries as an Additional Source of Sand, Hurricane and Storm Damage Reduction Project, Mid-Reach Segment, Brevard County, Florida* (Draft EA), dated February 2016 and the corresponding public notice dated March 4, 2016. The Jacksonville District proposes to use sand from upland quarries as an additional sand source for nourishing the beach and rebuilding dunes within the Mid-Reach Segment of the Brevard County Hurricane and Storm Damage Reduction Project. Other than use of quarry sand, a complete description of the project and its coordination with resource agencies is found in *Final Integrated General Reevaluation Report and Supplemental Environmental Impact Statement, Brevard County, Florida, Hurricane and Storm Damage Reduction Project, Mid-Reach Segment* (GRR/SEIS, August 2010, Revised April 2011, and Addendum April 2014). In Section 4.5 of the Draft EA, the Jacksonville District concludes use of upland quarries as an additional sand source would result in effects similar to those evaluated in the GRR/SEIS. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

The GRR/SEIS recommended a small-scale beach fill varying from a 0-foot to 20-foot extension of the mean high water line plus advanced nourishment to maintain the design volume. The recommended source of sand is an offshore borrow site within Canaveral Shoals. Sand from the borrow site would be placed in a Dredged Material Management Area on Cape Canaveral Air Force Station and truck-hauled to the Mid-Reach Beach. As noted above, the Jacksonville concludes use of quarry sand would impact the nearshore environment in a manner similar to use of sand from Canaveral Shoals. Specifically, the amount of hardbottom habitat damaged would be the same, hence, the mitigation requirement is the same; standard best management practices would still allow the project to meet State Water Quality Standards; and the geotechnical compatibility of the quarry material and native beach must meet State of Florida regulations (i.e., the actual geotechnical assessment would be later).

The GRR/SEIS reviews past coordination with the NMFS, including letters dated January 22, 2010, and January 30, 2012. In those letters, the NMFS notes concerns about mining sand from Canaveral Shoals, which is EFH under two fishery management plans, and a recommendation to monitor recovery of benthic communities serving as prey organisms for federally managed fishery species; a recommendation the Jacksonville District did not accept.

Based on the experience NMFS staff have evaluating beach nourishment projects in Florida using quarry sand and the environmental commitments made in Draft EA Section 4.28, the NMFS agrees EFH impacts from using quarry sand are within the scope of those evaluated in the GRR/SEIS. Further, the NMFS encourages use of quarry sand in lieu of sand from Canaveral Shoals to the extent feasible provided the quarry sand is compatible with the native beach.

Thank you for the opportunity to provide comments. Please direct related correspondence to the attention of Pace Wilber at 219 Ft Johnson Road, Charleston, South Carolina, 29412. He also may be reached by telephone at 843-762-8601 or by e-mail at Pace.Wilber@noaa.gov.

Sincerely,

Pace Wilber

/ for

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

cc: CESAJ, Paul.E.Stodola@usace.army.mil
SAFMC, Roger.Pugliese@safmc.net
F/SER4, David.Dale@noaa.gov
F/SER47, Jocelyn.Karazsia@noaa.gov

Proposed Use of Upland Quarries as Additional Land Source Draft EA/FONSI
Hurricane and Storm Damage Reduction Project, Mid-Reach Segment, Brevard County, Florida
March 22, 2016

US Environmental Protection Agency Comments:

1. On page 10, Section 2.1, USACE states, "It would be cost prohibitive to nourish only the Mid-Reach Beach with sand from the shoals." The USACE does not provide any economic justification as to why this would be cost prohibitive and this paragraph lacks significant explanation as why this option would be too expensive. RECOMMENDATION: The EPA recommends the USACE better explain and provide more detail regarding the reasons why this would be cost prohibitive.

2. The EPA had questions regarding Table 1 as described below:

- Page 14 (Water Quality entry): The USACE states, "All work would be performed in compliance with the State permit." However, the USACE does not adequately explain what type of permit it refers to (NPDES or 401 certification, etc). RECOMMENDATION: The EPA recommends the USACE precisely describe the type of permit they are refer to in Table 1.
- Page 15 (Native American entry): The USACE states, "There are no lands belonging to Native Americans in the project area." The EPA understands that Alternative B might not impact Native American owned lands; however, the expansion of existing quarries might lead to impacts to Native American resources such as artifacts or burial grounds. Depending on the situation, the Native American Graves Protection and Repatriation Act (NAGPRA) might apply and the USACE should better describe how this alternative might apply to NAGPRA. RECOMMENDATION: The EPA recommends the USACE consider impacts to NAGPRA resources and other potential impacts to Native American resources.

3. On page 29, Section 4.5.3, the USACE states, "The authorized project would be built in accordance with the EFH conservation recommendations provided by the NFMS." The USACE does not provide a discussion regarding these EFH recommendations nor provide a citation of these recommendations. RECOMMENDATION: The EPA recommends the USACE briefly discuss these EFH recommendations or at least provide a citation or cross reference to other parts of the draft EA.

4. The EPA notes that there is no Climate Change section within Chapter 4 (Environmental Effects). *Executive Order (EO) 13653-Preparing the United States for the Impacts of Climate Change* (Nov 6, 2013) directs Federal agencies to develop climate resiliency and adaption plans. In response to this EO, the USACE developed the *Climate Change Adaption Plan* (June 2014), which discusses the USACE's climate resiliency and adaptation strategy. Also, the *Engineering Technical Letter (ETL) 1100-2-1: Procedures to Evaluate Sea Level*

Change: Impacts, Responses and Adaptation (June 30, 2014) outlines the USACE's procedures for evaluating climate change impacts and adaption measures throughout the USACE's SMART planning process; however, the USACE makes no mention of this guidance or its applicability to this project. RECOMMENDATION: The EPA recommends the USACE consider following ETL 1100-2-1 guidance and evaluate the project's potential climate resiliency and adaption measures. The EPA also recommends the USACE consider disclosing this information within the EA.

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
BOB MARTINEZ CENTER
2600 BLAIRSTONE ROAD

August 4, 2014

Mike McGarry
Brevard County, Natural Resources Management Department
2725 Judge Fran Jamieson Way, Building A
Viera, FL 32940

c/o

Kevin Bodge, Ph.D., P.E.
Senior Vice President and Principal Engineer, II
Olsen Associates, Inc.
2618 Herschel Street
Jacksonville, FL 32204

Re: Permit No. 0254479-001-JC

Dear Mr. Bodge:

We are in receipt of your notice to use the provisions of Section 46 of Chapter 2014-218 Laws of Florida (House Bill 7023) to extend the duration of the above Joint Coastal Permit (JCP) under Part IV of Chapter 373, F.S. Pursuant to the provisions of HB 7023, the expiration date of the permit is changed as follows:

Original Expiration Date: December 30, 2014

New Expiration Date: December 30, 2016

In accordance with the legislation, the permitted activity will continue to be governed by the rules in effect at the time the permit was issued. However, any future request to modify the permit, except where the modification lessens the environmental impact, will be governed by the rules in effect at the time of the modification.

This extension does not:

- Otherwise change any other terms or conditions of the permit.
- Affect the expiration date of any associated state-owned submerged lands lease or

3. Affect the water quality certification determination under Section 401, Public Law 92-500, 33 U.S.C. Section 1341 made as part of the permit.

Coastal Zone Management Program in Section 307 of the Coastal Zone Management Act and 15 CFR 930, Subpart D originally contained in the permit.

5. Affect the expiration date of any state, federal, or local permit, license, or authorization related to this permit, specifically including any federal permit under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899.

Sincerely,

Charles Grisafi
Environmental Specialist I
Beaches, Inlets and Ports Program
Division of Water Resource Management

cc: Martin Seeling, DWRM
Catherine Florko, DWRM
Jennifer Coor, DWRM
Thomas Jacobs, DWRM
Greg Garis, DWRM
JCP Compliance Officer, DWRM
MarineTurtle@myfwc.com
fcmpmail@myfwc.com

Florida Department of
Environmental Protection
Marjory Stoneman Douglas Building
Tallahassee, Florida 32399-3000

CONSOLIDATED JOINT COASTAL PERMIT AND SOVEREIGN SUBMERGED LANDS AUTHORIZATION

PERMITTEE/AUTHORIZED ENTITY:
Brevard County Board of County Commissioners
2725 Judge Fran Jamieson Way, Building A
Viera, FL 32940

AGENT:
Kevin R. Bodge, Ph.D., P.E.
4438 Herschel Street
Jacksonville, FL 32210

PERMIT INFORMATION:
Permit/Authorization Number: 0254479-001-JC

Issuance Date: December 30, 2009

Expiration Date of Construction Phase: December 30, 2014

Project Name: Brevard County Mid-Reach Beach Restoration
County: Brevard

This 5-year 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.

ACTIVITY DESCRIPTION:

The project is to place approximately 900,000 cubic yards of beach-quality material from two borrow areas (Canaveral Shoals I and II) along 7.6 miles of shoreline in Brevard County.

Approximately 600,000 cubic yards of beach fill will be hydraulically placed between FDEP reference monuments R-110 to R-118.7, including a 1,240-foot taper from R-110 to R-111 and a 400-foot taper from R-118.3 to R-118.7 that overlaps with the South Reach project area. The design template for this section starts from the 12.6-foot NGVD (11.2-foot NAVD) elevation intercept on the existing beach profile and extends seaward to create a horizontal dune crest approximately 75 feet wide with a seaward slope of 12.5 vertical:horizontal. This leads down to a berm that is level at an elevation of 10.6 feet NGVD for approximately 50 feet and then slopes slightly seaward at 1 vertical:horizontal for an additional 100 feet to an elevation of 6.6 feet NGVD. Finally, the constructed profile is extended at a slope of 1:12 vertical:horizontal to the existing profile intercept in the water.

this section starts from the 15 foot (NGVD) elevation intercept on the existing beach profile and extends seaward to create a horizontal dune crest varying between 5 and 20 feet wide with a seaward slope of 1:2 (vertical:horizontal). This leads to a berm that is level at a 10.6 foot (NGVD) elevation with the berm width varying between 0 and 15 feet and then slopes slightly seaward at 1:8 (vertical:horizontal) to mean low water (MLW), which is equal to -1.9 feet NGVD and -3.3 feet NAVD in the project area. The truck haul fill template is designed with an average volume of nine (9) cubic yards per foot alongshore and above MLW

The project is expected to impact approximately 2.95 acres of nearshore hardbottom habitat. As mitigation for these impacts, the Permittee will construct 4.8 acres of articulated reef.

ACTIVITY LOCATION:

The beach restoration project extends between DEP reference monuments R-75.4 and R-118.7, comprising portions of the municipal shorelines of Satellite Beach, Indian Harbour, the City of Melbourne, and other unincorporated areas of Brevard County, Sections 23, 26, 35 and 36, Township 26 South, Range 37 East, Sections 1, 12, 13 and 24, Township 27 South, Range 37 East, and Sections 19 and 30, Township 27 South, Range 38 East, Atlantic Ocean, Class III Waters. The borrow areas are located offshore, 1.6 and 4.5 miles east-southeast of Port Canaveral, which is located at DEP reference monument R-1, Brevard County, Atlantic Ocean, Class III Waters. The artificial reef site is located immediately offshore of the southern portion of the proposed restoration area.

This permit constitutes a finding of consistency with Florida's Coastal Management Program, as required by Section 307 of the Coastal Zone Management Act. This permit also constitutes certification of compliance with state water quality standards pursuant to Section 401 of the Clean Water Act, 33 U.S.C. 1341.

This activity also requires a proprietary authorization, as the activity is located on sovereign submerged lands owned by the Board of Trustees of the Internal Improvement Trust Fund, 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 Department has 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 62-343, F.A.C. In addition to the above, this proprietary authorization has been reviewed in accordance with Chapter 253, F.S.

Pursuant to the Operating Agreement, the Department waives review of the activity described

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.

A copy of this authorization has been sent to the U. S. Army Corps of Engineers (USACOE) for review. The USACOE may require a separate permit. Failure to obtain authorization from the USACOE prior to construction could subject you to enforcement action by that agency. You are hereby advised that authorizations also may be required by other federal, state, and local entities. This authorization does not relieve you from the requirements to obtain all other required permits and authorizations.

The above named Permittee is hereby authorized to construct the work shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof. **This permit and authorization to use sovereign submerged lands is subject to the limits, conditions, and locations of work shown in the attached drawings, and is also subject to the General Conditions and Specific Conditions, which are a binding part of this permit and authorization.** You are advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities.

GENERAL CONDITIONS:

1. All activities authorized by this permit shall be implemented as set forth in the 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.

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 Bureau of Beaches and Coastal Systems (Bureau) and the appropriate District office of the Department with a written report containing the following information: a description of and cause of noncompliance; and the period of noncompliance, including dates and times; or, 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 [illegible]

authorization that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of sovereignty land of Florida seaward of the mean high-water line, or, if established, the erosion control line, unless herein provided and the necessary title, lease, easement, or other form of consent authorizing the proposed use has been obtained from the State. The Permittee is responsible for obtaining any necessary authorizations from the Board of Trustees of the Internal Improvement Trust Fund prior to commencing activity on sovereign lands or other state-owned lands.

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. Reasonable time may depend on the nature of the concern being investigated.

10. If historical or archaeological artifacts are discovered at any time on the project site, the Permittee shall immediately notify the State Historic Preservation Officer and the Bureau.

11. Within 30 days after completion of construction or completion of a subsequent maintenance event authorized by this permit, the Permittee shall submit to the Bureau of Beaches and Coastal Systems and the appropriate District office of the Department a written statement of completion and certification by a licensed professional engineer registered in the state of Florida. 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 two copies of as-built drawings submitted to the Department.

SPECIFIC CONDITIONS:

1. Pursuant to Chapter 161.141, F.S., prior to construction of the beach restoration, the board of trustees must establish the line of mean high water for any area affected by this project that does not already have an Erosion Control Line (ECL). This is required to establish the boundary line between sovereignty lands of the state bordering on the Atlantic Ocean and the upland properties. No work shall commence until the Erosion Control Line has been executed to the satisfaction of the Department.

2. All reports or notices relating to this permit shall be sent to the DEP, Bureau of Beaches and Coastal Systems, JCP Compliance Officer, 3900 Commonwealth Boulevard, Mail Station 300, Tallahassee, Florida 32399-3000 (e-mail address: JCPCompliance@dep.state.fl.us) and the DEP Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767

No work shall be conducted under this permit until the Permittee has received a written Notice to Proceed from the Department. At least 30 days prior to the requested date of issuance of the notice to proceed, the Permittee shall submit the following for review and approval by the Department:

Final construction plans and specifications. [illegible]

b. **Turbidity monitoring qualifications.** Construction at the project site shall be monitored closely to assure that turbidity levels do not exceed the compliance standards established in this permit. This monitoring shall be conducted by an independent third party to assure that turbidity levels do not exceed the compliance standards established in this permit. The independent monitor shall not be directly employed by the dredging company, but may be a sub-contractor of the dredging company. 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, who may work for the dredging company, 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 the Department's approval.

c. **Biological monitoring qualifications.** The names and qualifications of those individuals performing the biological monitoring shall be submitted for the Department's approval. All biological monitoring required by this permit shall be conducted by individuals that have a good working knowledge of taxonomy and ecology for algae, coral, and sponge species common to the work area.

d. **Upland sand source identification.** An upland sand source shall be identified if applicable, and the sediment characterization of that source provided to the Department for review and approval. This will allow the Department to approve use of that source should additional material be needed.

e. **Stormwater outfall improvement documentation.** Stormwater outfalls shall be improved to at least the Option 1 level[*] to reduce beach erosion and impacts to water quality over time in accordance with the attached "Summary of Brevard County Beach Outfalls: Existing Conditions and Proposed Plan of Improvements" ("Outfall Plan") dated October 2, 2009. The Outfall Plan provides a proposed schedule for the completion of Option 1 improvements. As assurance that the Permittee is adhering to the Outfall Plan, the following information shall be submitted [illegible] outfalls where improvements are imminent [illegible] completed:

[illegible] significant correspondence from the [illegible] office [illegible] any aspects of the [illegible] submitted by that office; and

[illegible]

*See Brevard County Beach Outfalls Removal Feasibility Study" by Jones Edmunds, dated October 19, 2007 for the outfall design of Option 1.

f. **Erosion Control Line.** Confirmation that the Erosion Control Line has been executed to the satisfaction of the Department.

4. The Permittee shall not begin construction until a pre-construction conference is conducted with representatives of the Department and the Florida Fish and Wildlife Conservation Commission (as indicated below). The pre-construction conference shall be used to review the specific conditions and monitoring requirements of this permit with the Permittee's contractors, the engineer of record, and the indicated agency representatives. The Permittee is advised that the required participants may not be available on short notice, and is encouraged to provide the required notification well in advance of the meeting. The notices shall be sent to the following offices advising of the subject, date, time, location, and teleconference number of the requested pre-construction conference.

DEP Bureau of Beaches & Coastal Systems
JCP Compliance Officer
Mail Station 300
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
phone: (850) 414-7716
fax: (850) 414-7725
e-mail: JCP Compliance@dep.state.fl.us

DEP Central District Office
Submerged Lands & Environmental Resources
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767
phone: (407) 894-7555
fax: (407) 897-2986

[illegible]

Artificial Reef Program,
620 S. Meridian Street
Tallahassee, FL 32399

5. Implementation of, and adherence to, the Mitigation and Monitoring Plan (submitted to, and approved by, the Department on December 15, 2009) is a condition of this permit. However, if the Plan conflicts with Permit Conditions 41, 42 and 43, the permit conditions shall prevail.

6. Implementation of, and adherence to, the attached "Beach Fill Sediment Quality Assurance/Quality Control Plan" (latest revision dated May 14, 2008 and approved by the Department on May 15, 2008) is a condition of this permit.

7. During all borrow area excavations, electronic positioning equipment shall continuously monitor the vertical and horizontal location of the cutterhead or sediment intake location, as established in the Sediment QA/QC Plan referenced above. Measurements shall be taken with a maximum lag time of three (3) minutes between readings. The horizontal accuracy shall be a minimum of sub-meter and the vertical accuracy shall be +/-0.5 feet, with continuous applicable tidal corrections measured at the project site. Any deviations from permit requirements shall be reported to DEP at the time of occurrence and shall include written explanations describing the violation as well as corrective actions taken. A digital ASCII file of the position data shall be provided to the Engineer upon request for reference in the post-construction monitoring report (see Specific Condition No. 40).

8. Following construction of the artificial reef(s), the Permittee shall complete the *FWC MATERIAL PLACEMENT REPORT* on the form provided on the FWC web page at http://myfwc.com/marine/ar/index.asp . Within 30 days following completion of construction, the completed form, along with any post-construction as-built surveys, maps, GIS shapefiles, or other post-construction completion reports of the mitigation artificial reef, shall be submitted to the attention of Mr. Jon Dodrill, FWC Artificial Reef Program, 620 S. Meridian Street, Box 4B2, Tallahassee, FL 32399, or via email to [illegible]. A copy shall also be e-mailed to the JCP Compliance Officer, Bureau of Beaches & Coastal Systems. In addition to attaching the completed [illegible] to the e-mail that the "information is being submitted for the Brevard Mid-Reach Beach Restoration project, Permit No. 0254479-001-JC as required by Specific Condition 8."

[illegible]

MARINE TURTLES:

10. Beach restoration shall be started after October 31 and be completed before May 1. During the May 1 through October 31 period, no construction equipment or pipes shall be placed and/or stored on the beach.

11. If the beach restoration project is conducted during the period from March 1 through May 1 or November 1 through November 30, early morning surveys for sea turtle nests must be conducted daily from March 1 through September 30 or until two weeks after the last documented crawl.

    a. Nesting surveys and egg relocations will only be conducted by personnel with prior experience and training in nesting survey and egg relocation procedures. Surveyors must have a valid FWC permit issued pursuant to Florida Administrative Code Rule 68E-1. Nesting surveys must be conducted daily between sunrise and 9 a.m. The contractor must not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys must be performed in such a manner so as to ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.

    b. Only those nests that may be affected by sand placement activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation: the nest relocation site must be approved by FWC Marine Turtle Management staff in the Tequesta Field office. Relocated nests must not be placed in organized groupings; relocated nests must be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, that are subject to artificial lighting, or that are historically impacted by predation. Nest relocations in association with construction activities must cease when sand placement activities no longer threaten nests.

    Nests deposited within areas where construction activities have ceased or will not occur for 65 days must be marked and left in situ unless other factors threaten the success of the nest. The Marine Turtle Permit Holder must install an on-beach marker at the nest site and/or a secondary marker at a point landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must [illegible]

Nest sites must be inspected daily to ensure nest markers remain in place and the nest has not been disturbed by the restoration activity.

d. If the beach nourishment project will be conducted during the period from November 1 through November 30, then daily early morning surveys for late nesting sea turtles shall be conducted 65 days prior to project initiation and continue through September 30 or until two weeks after the last documented crawl, and eggs shall be relocated per the preceding requirements.

12. For construction between March 1 and November 30, the contractor shall not conduct beach construction activities more than 300 feet along the shoreline from a properly-lighted beach construction area (including travel corridors and staging areas) between 9 PM and 6 AM unless the project area greater than 300 feet away has been surveyed at one-hour intervals during this night-time period, eggs are relocated per the preceding requirements, and the additional beach section is cleared by the Marine Turtle Permit Holder for project advancement.

13. Immediately after completion of the beach restoration and prior to March 1 for three (3) subsequent years, if placed sand still remains on the beach, the beach shall be tilled as described below, or the Permittee may follow the procedure outlined below to request a waiver of the tilling requirement. During tilling, at a minimum, the protocol provided below shall be followed:

a. The area shall be tilled to a depth of 36 inches. All tilling activity must be completed prior to March 1.

b. An annual summary of any tilling operations and/or compaction surveys performed as part of a tilling waiver request (see condition below) shall be submitted to the FWC.

If the project is completed just before the nesting season, tilling shall not occur in areas where nests have been left in place or relocated unless authorized by the U.S. Fish and Wildlife Service.

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 a depth of 6, 12, and 18 inches three times (three replicates). 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.

c. 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.

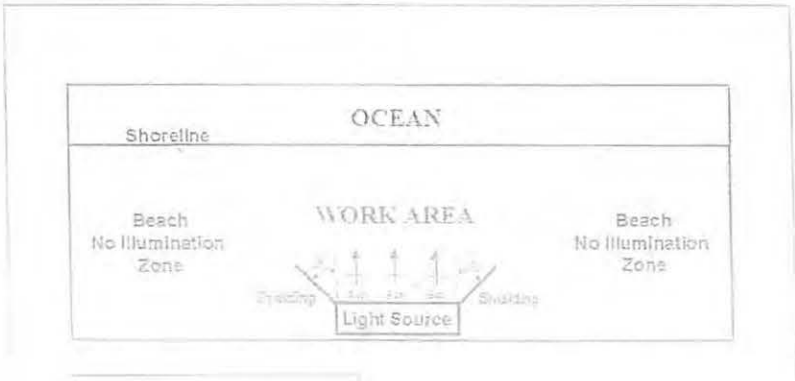
d. If the average value for any depth exceeds 500 psi for any two or more adjacent stations, then that area shall be tilled prior to March 1. If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the FWC shall be required 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.

15. Visual surveys for escarpments along the beach fill area shall be made immediately after completion of the sand placement and prior to March 1 of the following two years. In addition, weekly surveys of the project area shall be conducted during the two nesting seasons following completion of the beach nourishment. The protocol provided below shall be followed:

appropriate action to be taken. Upon written notification, the Permittee shall level escarpments in accordance with mechanical methods prescribed by the Department.

16. From March 1 through April 30 and November 1 through November 30, staging areas for construction equipment shall be located off the beach to the maximum extent practicable and no construction equipment shall be parked on the beach where it can hinder marine turtle nesting or hatchling emergence. In addition, all construction pipes that are placed on the beach shall be located as far landward as practicable without compromising the integrity of the existing or reconstructed dune system. Temporary storage of pipes on the beach shall be in such a manner so as to impact the least amount of nesting habitat and shall likewise not compromise the integrity of the dune systems.

17. During the early (March 1 – April 30) and late (November 1 – November 30) portions of marine turtle nesting season, all on-beach lighting associated with the project shall be limited to the immediate area of active construction only and shall be minimized through reduction, shielding, lowering, and appropriate placement of lights to avoid excessive illumination. Lighting on offshore equipment shall be similarly minimized through reduction, shielding, lowering, and appropriate placement of lights to avoid excessive illumination of the water, while meeting all U.S. Coast Guard and OSHA requirements.



BEACH LIGHTING SCHEMATIC

Permittee shall take actions to notify the property owner(s) and/or the Cities of Satellite Beach, Indian Harbor, and Melbourne (in which the property(s) may be located) of the light and to specify the action(s) recommended for correcting the light within a reasonable resolution timeframe. A summary report of the surveys and of actions taken toward reduction or elimination of visible lights shall be submitted to FWC by December 1 of each year in which surveys are conducted.

19. The Permittee shall arrange a meeting between representatives of the contractor, the Department, the FWC, and the permitted person responsible for marine turtle nest monitoring at least 30 days prior to the commencement of work on this project. At least 15 days advance notice shall be provided prior to conducting this meeting. This will provide an opportunity for explanation and/or clarification of the sea turtle protection measures.

20. Electronic summaries of all nesting activity shall be provided to FWC for the initial nesting season (or portion thereof) following the completion of construction and for two (2) additional nesting seasons thereafter (i.e., post-construction monitoring for a total of three (3) nesting seasons). Monitoring of nesting activity in the seasons following construction shall include daily surveys and any additional measures authorized by the FWC. Information submitted shall include daily report sheets noting 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), dates of construction and names of all personnel involved in nest surveys and relocation activities. Data should be reported separately for the nourished areas and for an equal length of adjacent beach that is not nourished in accordance with the attached Table. Summaries of nesting activity shall be submitted in electronic format (Excel spreadsheets). All reports should submitted by January 15 of the following year.

21. In the event a sea turtle nest is excavated during construction activities, all work shall cease in that area immediately and the permitted person responsible for egg relocation for the project should be notified so the eggs can be moved to a suitable relocation site.

22. Upon locating a dead or injured sea turtle adult, hatchling, or egg that may have been harmed or destroyed as a direct or indirect result of the project, the Corps, permittee, and/or local sponsor shall be responsible for notifying FWC Wildlife Alert at 1-888-404-FWCC (3922) and the U.S. Fish & Wildlife Service Office. Care must be taken in handling injured or dead 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.

Specific Condition No. 24 below. The results of these surveys shall be reported within 7 days to Meghan Koperski at FWC's Tequesta Field Office at (561) 575-5408, and included within the post-construction monitoring report.

24. Marine turtle surveys shall be performed according to the protocol below. Electronic summaries on the distribution and abundance of marine turtles in the vicinity of the near shore hard bottom within the fill placement area, in the transitional buffer area, on the reference reef and on the mitigation site shall be provided to FWC:

a. Two observers and a boat driver, trained in the identification of marine turtles, will conduct systematic visual transect surveys from a shallow draft watercraft equipped with a sighting tower. When a turtle is observed, the boat driver will enter a time-stamped GPS waypoint, record the turtle species and its life-history stage (juvenile or adult).

b. Transects will be conducted parallel to shore at approximately 7 mph. A survey day will consist of conducting at least one transect along the near shore hard bottom (NHB) in approximately 4-6' water depth and one transect over the mitigation reef site (MR) in approximately 15' water depth. Transects will be randomly alternated to begin at either the designated reference location (R-68) and progress south, or begin at the southernmost Fill Area 4 (R-118) and proceed north.

c. Five survey days will be conducted for the pre-construction survey event and for each post-construction survey event for each area (NHB and proposed MR with reference and buffer sites included) for marine turtle distribution. These surveys will be conducted in summer. During the Mid-Reach project construction, monitoring will include similar visual transect surveys; however, since ocean conditions during the construction period (off-summer months) are less conducive for nearshore monitoring, a minimum of one (1) survey day (minimum of two (2) transects) will be conducted per month unless at least three (3) attempts to survey that month are unsuccessful. The depth, temperature, and clarity of the water will be recorded for each survey, as well as the air temperature, wind speed and direction. Sea state and swell conditions will also be recorded. Survey conditions [illegible] and every attempt made to maintain similar sampling conditions [illegible] sea conditions, water clarity, near shore swell conditions, time of day [illegible] optimal data collection.

[illegible] 1 and 2 years [illegible] survey event per month will be conducted [illegible]

e. To the degree possible, species, age class, activity and location shall be collected for all animals observed. Daily survey sheets shall be submitted to FWC within 60 days of monitoring; an annual summary shall be submitted to Meghan.Koperski@myfwc.com as an Excel spreadsheet by January 15 of the following year.

SHOREBIRDS:

25. *Shorebird Surveys.* Shorebird surveys should be conducted by trained, dedicated individuals (Shorebird Monitor) with proven shorebird identification skills and avian survey experience. Credentials of the Shorebird Monitor will be submitted to the FWC Regional Biologist ((352) 732-1225) for review and approval. Shorebird Monitors will use the following survey protocols. If properly trained, a Marine Turtle Permit Holder may serve concurrently as the Shorebird Monitor.

26. *Nesting Season Surveys.* Shorebird Monitors should review and become familiar with the general information and data collection protocols outlined on the FWC's Beach-Nesting Bird Website (http://myfwc.com/shorebirds/). An outline of what data should be collected, including downloadable field data sheets, is available on the website.

a. The nesting season is generally April 1 – September 1, but some nesting may occur through September. In addition, the imperiled snowy plover (*Charadrius alexandrinus*) may nest as early as February along the west coast and panhandle of Florida.

b. Nesting season surveys shall begin on April 1 (or February 15 in snowy plover habitat) or 10 days prior to project commencement (including surveying activities and other pre-construction presence on the beach), whichever is later, and be conducted daily throughout the construction period or through August, whichever is earlier. Weekly surveys of the project site shall continue through August or through fledgling or loss of identified nests or hatchlings, whichever is later.

c. Nesting season surveys shall be conducted in all potential beach-nesting bird habitats within the project boundaries that may be impacted by construction or pre-construction activities during the nesting season. Portions of the project with there is no potential for project-related activity during the nesting season may be excluded.

d. Surveys for detecting new nesting activity will be completed one day prior to movement of equipment, operation of vehicles or other activities that could

27. Once breeding is confirmed by the presence of a scrape, eggs, or young, the Bird Monitor will notify the Regional Nongame Biologist of the FWC at (352) 732-1225 within 24 hours.

    a. All breeding activity will be reported to the Beach-Nesting Bird website within one week of data collection.

    b. Observations of non-breeding shorebirds should be reported to the Shorebird-Seabird Occurrence Database, as described below.

28. *Buffer Zones and Travel Corridors.* Within the project area, the Permittee shall establish a 300 ft-wide buffer zone around any location where shorebirds have been engaged in nesting behavior, including territory defense. Any and all construction activities, including movement of vehicles, should be prohibited in the buffer zone.

    a. The width of the buffer zone shall be increased if birds appear agitated or disturbed by construction or other activities in adjacent areas.

    b. Site-specific buffers may be implemented upon approval by FWC as needed.

    c. Reasonable and traditional pedestrian access should not be blocked where nesting 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 nesting was initiated within 300 feet of an established beach access pathway. The Permittee shall work with FWC staff to determine if pedestrian access can be accommodated without compromising nesting success.

    d. Designated buffer zones must be posted with clearly marked signs around the perimeter. If pedestrian pathways are approved within the 300-foot buffer zone, these should be clearly marked. These markings shall be maintained until nesting is completed or terminated. In the case of solitary nesters, nesting is not considered to be completed until all chicks have fledged.

a. Where such a travel corridor must be established within the project area it should avoid critical areas for shorebirds (known nesting sites, wintering grounds, FWC-designated Critical Wildlife Areas, and USFWS-designated critical piping plover habitat) as much as possible, and be marked with signs clearly delineating the travel corridor from the shorebird buffer areas described above.

b. To the degree possible, the Permittee should maintain some activity within these corridors on a daily basis, without directly disturbing any shorebirds documented on site or interfering with sea turtle nesting, especially when those corridors are established prior to commencement of construction. Passive methods to modify nesting site suitability must be approved by FWC Regional Biologist for that region.

30. *Notification.* If shorebird nesting occurs within the project area, a bulletin board will be placed and maintained in the construction area with the location map of the construction site showing the bird nesting areas and a warning, clearly visible, stating that "BIRD NESTING AREAS ARE PROTECTED BY THE FLORIDA THREATENED AND ENDANGERED SPECIES ACT AND THE STATE AND FEDERAL MIGRATORY BIRD ACTS".

31. *Beach Contours.* All tilling and scarp removal should be done outside the shorebird nesting season. It is the responsibility of the contractors to avoid tilling or scarp removal in areas where nesting birds are present.

a. 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.

b. The slope between the mean high water line and the mean low water line must be maintained in such a manner as to approximate natural slopes.

32. *Placement of Equipment and Sand.* 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 these pipes should be placed landward of the site before birds are present in that area. No pipe or sand shall be placed seaward of a known shorebird nesting site during the designated nesting season.

[illegible]

the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

34. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while within 2000 feet of the beach (excluding the Port Canaveral Entrance Channel) 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.

35. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

36. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

37. Any collision with or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-772-562-3909) for south Florida.

38. 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. Awareness signs that have already been approved for this use by the Florida Fish and Wildlife Conservation Commission (FWC) must be used. One sign measuring at least 3 ft. by 4 ft. which reads *Caution: Manatee Area* must be posted at the primary dredge vessel boarding area. A second sign measuring at least 8 ½" by 11" explaining the requirements of "Idle Speed No Wake" and the shut down of in-water operations must be posted on every vessel in a location prominently visible to all personnel engaged in construction-related activities.

WATER QUALITY MONITORING REQUIRED:

appears to extend beyond the limits of the approved mixing zone such that a water quality violation may exist. Also, twice daily, at least 4 hours apart, during mechanical (i.e., truck-hauled) sand placement operations, beginning only AFTER a work-generated plume is observed to extend beyond the limits of the approved mixing zone. Monitoring at the truck-hauled sand placement sites shall continue until the plume is no longer visible beyond the mixing zone for at least 24 hours or the Department acknowledges in writing that the Permittee has provided sufficient monitoring evidence that the mechanical placement activities are not likely to cause or contribute to a water quality violation.

Location: Background: At mid-depth, clearly outside the influence of any artificially generated turbidity plume.

Dredge Site: At least 300 meters in the opposite direction of the prevailing current flow.

Beach Site: At least 500 meters upcurrent of the point where the return water from the dredged discharge reenters the Atlantic Ocean, and the same distance offshore as the associated compliance sample. At mechanical (truck-hauled) sand placement locations, the distance shall be measured from the location where sand was last placed below MHW.

Compliance: At mid-depth, within the densest portion of any visible turbidity plume generated by this project.

Dredge Site: Samples shall be collected 150 meters downcurrent from the dredge head, in the densest portion of any visible turbidity plume.

Beach Site: Samples shall be collected within the densest portion of the turbidity plume, 150 meters downcurrent from the point where the return water from the dredged discharge reenters the Atlantic Ocean. At mechanical (truck-hauled) sand placement locations, the distance shall be measured from the location where sand was last placed below MHW.

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 by email at JCPCompliance@dep.state.fl.us, and to the Department's Central District office in Orlando.

All monitoring data shall be submitted within one week of analysis with documents containing the following information: (1) permit number; (2) dates of sampling and analysis; (3) a statement describing the methods used in collection, handling, storage and analysis of the samples; (4) a map indicating the sampling locations; (5) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, calibration of the meter and accuracy of the data.

Monitoring reports shall also include the following information for each sample that is taken:

(a) time of day samples taken;
(b) depth of water body;
(c) depth of sample;
(d) antecedent weather conditions;
(e) tidal stage and direction of flow;
(f) wind direction and velocity; and
(g) water temperature.

Monitoring reports shall be submitted to the JCP Compliance Officer by email at JCPCompliance@dep.state.fl.us, and cover letter only to the Department's Central District office. Failure to submit reports in a timely manner constitutes grounds for revocation of the permit. When submitting this information to the Department, please clearly include, at the top of each page or as a cover page to the submittal: "This information is provided in partial fulfillment of the monitoring requirements in Permit No. 0254479-001-JC, for the Brevard Mid-Reach Beach Restoration Project."

PHYSICAL MONITORING REQUIRED:

potentially reducing the need for and costs of unnecessary work, as well as potentially reducing any environmental impacts that may have occurred or be expected.

The Permittee shall adhere to the physical monitoring aspects of the attached "Brevard County Mid Reach Beach Restoration Mitigation and Monitoring Plan" ("Monitoring Plan"), dated December 15, 2009 and approved by the Department on December 15, 2009. Details of the Monitoring Plan that are not specified by the specific conditions of this permit can be revised at any later time by written request of the Permittee and with the written approval of the Department. If subsequent to approval of the Monitoring Plan there is a request for modification of the permit, the Department may require revised or additional monitoring requirements as a condition of approval of the permit modification.

Any revisions to the approved Monitoring Plan shall be consistent with the following sub-conditions unless a permit modification is issued to alter these requirements:

a. Topographic and bathymetric profile surveys of the beach and offshore shall be conducted within 90 days prior to commencement of construction, and within 60 days following completion of construction of the project. Thereafter, monitoring surveys shall be conducted annually for a period of three (3) years, then biennially until the next beach nourishment event or the expiration of the project design life, whichever occurs first. The monitoring surveys shall be conducted during a spring or summer month and repeated as close as practicable during that same month of the year. If the time period between the immediate post-construction survey and the first annual monitoring survey is less than six months, then the Permittee may request a postponement of the first monitoring survey until the following spring/summer. A prior design survey of the beach and offshore may be submitted for the pre-construction survey if consistent with the other requirements of this condition.

The monitoring area shall include profile surveys at each of the Department of Environmental Protection's DNR reference monuments within the bounds of the beach fill area and along at least 5,000 feet of the adjacent shoreline on both sides of the beach fill area. For those project areas that contain erosion control structures, such as groins or breakwaters, additional profile lines shall be surveyed at a sufficient number of intermediate locations to accurately identify patterns of erosion and accretion within the subareas. All work activities and deliverables shall be conducted in accordance with the most update of the Bureau of Beaches and Coastal Systems (BBCS) Monitoring Standards for Beach Projects [illegible]

required above. A prior design survey of the borrow area may be submitted for the pre-construction survey if consistent with the other requirements of this condition.

Survey grid lines across the borrow area(s) shall be spaced to provide sufficient detail for accurate volumetric calculations but spaced not more than a maximum of 250 feet apart, and shall extend a minimum of 250 feet beyond the boundaries of the borrow site. For borrow sites located in tidal inlet shoals, bathymetric surveys of the entire shoal complex, including any attachment bars, shall be conducted unless otherwise specified by the Department based upon the size of the shoal and the potential effects of the dredging on inlet processes. In all other aspects, work activities and deliverables shall be consistent with the BBCS *Monitoring Standards for Beach Erosion Control Projects, Section 01200.*

c. Aerial photography of the beach shall be taken concurrently with the post-construction survey and each annual and biennial monitoring survey required above, as close to the date of the beach profile surveys as possible. The limits of the photography shall include the surveyed monitoring area as described above. All work activities and deliverables shall be conducted in accordance with the latest update of the BBCS *Monitoring Standards for Beach Erosion Control Projects, Section 02000 – Aerial Photography Acquisition.* (Note: If nearshore hardbottom is present within the project area, then aerial photography shall be conducted in accordance with the latest update of the BBCS *Monitoring Standards for Beach Erosion Control Projects, Section 02100 – Environmental Aerial Photography Acquisition.*)

d. The status of the existing seventeen (17) stormwater outfalls along the Mid Reach and adjacent South Reach shorelines, including description of improvements, visual assessment of physical conditions with representative photographs, shall be presented. Assessment of the outfall conditions will be conducted and reported on the same schedule as the post-construction beach profiles. The outfall assessment will include a statement, certified by a registered Engineer, that the completed outfall improvements conform with the Option 1 design criteria for stormwater treatment, as outlined in the "Brevard County Beach Outfalls [illegible]" dated October 10, 2007, [illegible]

The report shall summarize and discuss the data, the performance of the beach fill project and identify erosion and accretion patterns within the monitored area. The volumetric change analysis will include computations for beach profile segments above MHWL and for profile segments below MHWL to the depth of closure. In addition, the report shall include a comparative review of project performance to performance expectations and identification of adverse impacts attributable to the project.

Appendices shall include plots of survey profiles and graphical representations of volumetric and shoreline position changes for the monitoring area. Results shall be analyzed for patterns, trends, or changes between annual surveys and cumulatively since project construction.

f. Monitoring reports and data shall be submitted to the Bureau of Beaches and Coastal Systems in Tallahassee. Failure to submit reports and data in a timely manner constitutes grounds for revocation of the permit. When submitting any monitoring information to the Bureau, please include a transmittal cover letter clearly labeled with the following at the top of each page: "**This monitoring information is submitted in accordance with Item No. [XX] of the approved Monitoring Plan for Permit No. 0254479-001-JC for the monitoring period [XX].**

41. HARDBOTTOM MITIGATION REQUIRED:

As mitigation for impacts to 2.95 acres of nearshore hardbottom habitat, the Permittee shall construct 4.8 acres of artificial reef, consisting of articulated concrete blocks with coquina-rock densely embedded into the surface of the blocks. Each block shall measure 2.6 feet by 2.6 feet by 1 foot. Structural cables shall be used to interconnect eighteen (18) blocks, laid out in 3 rows and 6 columns, to form a mat measuring 8 feet by 16.3 feet. Forty-two (42) mats shall be laid out in six rows and seven offset columns, and a single row of two (2) mats will be laid on top of the landward edge of the structure, to form mitigation modules covering approximately 0.15 acres. Sets of 3 to 5 mitigation modules shall form mitigation reefs in 10 locations in order to establish 4.8 acres of hardbottom mitigation. The mitigation reefs shall be placed in approximately [illegible] feet of water and shall be located approximately 1,000 feet from the shoreline.

HARDBOTTOM SUCCESS CRITERIA AND CONTINGENCY MITIGATION:

[illegible]

Physical Success Criteria:

1. At least 3.8 acres of mitigation reef shall remain fully exposed during the first three years of physical monitoring.

Biological Success Criteria:

1. Seventy-five percent (75%) of all species (or genera if identification to the species is not possible) of macroalgae and attached invertebrates that were recorded on the natural hardbottom are present on the artificial reef.
2. It shall be documented that juvenile green sea turtles are observed utilizing artificial reef as a shelter and foraging habitat.

Contingency Mitigation:

If limited subsidence occurs, the biological success criteria have been met or are trending toward success, and most of the mitigation reef is expected to remain functional, additional mats shall be stacked on top of the subsided mats in order to maintain the full 4.8 acres of mitigation. Based on the monitoring results that document the extent of project impacts to the existing nearshore hardbottom, the Department may consider adjustments to the type and amount of contingency mitigation through an application for a minor modification. Unless such a modification is issued, the addition of mats shall occur within 12 months after timely submittal of the third annual mitigation reef monitoring report that is associated with initial reef construction.

If more than one acre of the mitigation reef subsides and/or the biological success criteria are not met during the first three years of monitoring, the Permittee shall propose additional mitigation for the Department's review and approval after completion and assessment of the initial three-year post-mitigation construction monitoring. If the Permittee cannot provide reasonable assurances that the impacts will be fully offset with mitigation, no future beach nourishment will be authorized. Discontinuing beach nourishment in the area should allow the hardbottom, which was buried by the restoration project, to become re-exposed over time. If a sufficient amount of natural hardbottom is re-exposed, and some reduced portion of the artificial reef is shown to remain stable through extended monitoring such that all of the temporary (recovered) and persistent (remaining) impacts have been offset, the Department may consider authorizing a subsequent nourishment project with a reduced template through an application for a [illegible] permit or permit modification, as deemed appropriate by the Department[illegible]

43. HARDBOTTOM MONITORING REQUIRED:

Physical Parameters

Existing Nearshore Hardbottom. Physical monitoring of the existing nearshore hardbottom shall include wading transects, controlled color aerial photography, and trained multi-spectral image classification. Ninety-nine (99) nearshore wading transects shall be established (49 between R-70 and R-118 and 50 between R-75.3 and R-118.3). Aerial photographs shall be collected along the project area and extend to at least 1.5 miles along the adjacent shoreline (approximately R-70 through R-124). Both wading surveys and aerial photographs shall be conducted as follows: at least twice prior to construction; once within 60 days of completion; and one, two, three, and five years after construction. *NOTE: Aerial photography is highly dependent on weather conditions so the 60 day post-construction deadline will be considered flexible.* Trained multi-spectral image classification (mapping) of the exposed rock shall be conducted when the quality of the surf conditions in the aerial photographs permit meaningful results.

Mitigation Reef. Physical monitoring of the mitigation reef shall consist of side-scan sonar, diver ground-truthing and inspection, and dual-frequency bathymetric surveys. Side-scan sonar surveys shall consist of two shore-parallel transects, one along the western (landward) edge and one along the eastern (seaward) edge. A scaled, rectified mosaic image shall be developed from each transect and used to compute the area of exposed reef structure. The dimensions of exposed reef structure shall be measured by divers at not less than five (5) reef sets. Using a graduated rule, divers shall take discretionary vertical measurements of sediment overburden thickness where it occurs. Divers shall also take at least 10 measurements of sediment thickness on top of the mitigation structure at random locations at not less than five (5) reef sets. The general physical condition of the surveyed reef shall be reported. The bathymetry over and adjacent to the mitigation reef sites shall be measured by dual-frequency acoustic surveys. Survey line spacing shall be less than 50 feet across reef structures and less than 100 feet across adjacent seabed, and shall extend at least 250 feet beyond the limits of the reef structures. This set of surveys shall be conducted within 60 days of reef deployment and at one, two, three and five years after construction.

Biological Parameters

Epibiota Monitoring. Epibiota shall be sampled using [illegible] to [illegible] sessile invertebrate and macroalgal cover and occurrence. Representative samples of algae and sessile organisms may be collected as needed [illegible] to confirm identification. Digital video data shall [illegible]

invertebrate and algal cover and taxonomic composition. Identification shall be made to the lowest practical taxon and ranked in order of percent cover.

Marine Turtles. Pre- and post-construction monitoring for marine turtles shall consist of conducting marine turtle visual transect surveys over the proposed mitigation areas and the existing nearshore hardbottom (project fill, designated buffer, and reference areas). A boat driver and at least two observers, trained in the identification of marine turtles, shall conduct systematic, above-water, visual transect surveys. Transects shall be conducted parallel to shore at approximately 7 mph, with one transect along the nearshore hardbottom and one survey over the mitigation reef completing a survey day. Five (5) surveys shall be conducted for the pre-construction survey event and for each post-construction survey event for each area. Survey events shall be conducted immediately prior to construction and at one, two, three, and five years after project construction.

Reporting. Annual monitoring reports shall be prepared and submitted within 90 days after field data collection.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Michael R. Barnett, P.E., Chief
Bureau of Beaches and Coastal Systems

FILED AND ACKNOWLEDGMENT

Beach Fill Sediment QA/QC Plan (Approved 05-15-08)
Mitigation and Monitoring Plan (Approved 12-15-09)
Summary of Brevard County Beach Outfalls: Existing Conditions and Proposed Plan of Improvements (Revised 10-02-09)

FWC Approved Manatee Educational Sign Suppliers

ASAP Signs & Designs
624-B Pinellas Street
Clearwater, FL 33756
Phone: (727) 443-4878
Fax: (727) 442-7573

Wilderness Graphics, Inc.
P. O. Box 1635
Tallahassee, FL 32302
Phone: (850) 224-6414
Fax: (850) 561-3943
www.wildernessgraphics.com

Cape Coral Signs & Designs
1311 Del Prado Boulevard
Cape Coral, FL 33990
Phone: (239) 772-9992
Fax: (239) 772-3848

Municipal Supply & Sign Co.
1095 Fifth Avenue, North
P. O. Box 1765
Naples, FL 33939-1765
Phone: (800) 329-5366 or
(239) 262-4639
Fax: (239) 262-4645
www.municipalsigns.com

Vital Signs
104615 Overseas Highway
Key Largo, FL 33037
Phone: (305) 451-5133
Fax: (305) 451-5163

Universal Signs & Accessories
2912 Orange Avenue
Ft. Pierce, FL 34947
Phone: (800) 432-0331 or
(772) 461-0665
Fax: (772) 461-0669

New City Signs
1739 28th Street N.
St. Petersburg, FL 33713
Phone: (727) 323-7897
Fax: (727) 323-1897
www.NewCitySigns.com

United Rentals Highway Technologies
309 Angle Road
Ft. Pierce, FL 34947
Phone: (772) 489-8772
or (800) 489-8758 (FL only)
Fax: (772) 489-8757

CAUTION: MANATEE HABITAT

All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work all in-water activities must

SHUT DOWN

Report any collision or injury to

1-888-404-FWCC (1-888-404-3922)

Brevard County Mid Reach Beach Restoration
Beach Fill Sediment QA/QC Plan

Project Description

The project will place beach-compatible sand fill along 7.6-miles of Atlantic Ocean shoreline along Brevard County, Florida, located between Florida Dept. of Environmental Protection (FDEP) reference monument locations R75.4 and R118.3. This shoreline, known as the "Mid Reach", lies between Patrick Air Force Base and the South Reach Federal Shore Protection Project.

The project will place approximately 900,000 cubic yards (cy) of sand by hydraulic dredge from an offshore borrow source along the southern 1.4 miles (approximately) of the Mid Reach, from R110 to R118.3, including a 1240-ft taper from R110 to R111. Of this quantity, approximately 600,000 cy will be placed as conventional berm/beach fill. The remaining 300,000 cy will be placed as a temporary stockpile upon the berm and subsequently transferred to the northern 6.2-miles of the Mid-Reach, between R75.4 and R110, by truck-haul. Alternately, some or all of the fill material to be placed between R75.4 and R110 may be from acceptable upland sand sources, subject to quality and availability. The project is anticipated to impact existing nearshore rock resources and will include construction of mitigation reef.

The sand sources for this project will include the offshore borrow areas of Canaveral Shoals I (CS-I) and/or Canaveral Shoals II (CS-II), located in State and Federal waters, respectively. Alternately, upland borrow sources may be used for portions of the small-scale truck-haul fill placement along the northern 6.2-miles of the project, if/as required.

Background – Sediment Borrow Sources.

The median grain size of the CS-II borrow area ranges from about 0.3 to 0.4 mm (about 0.34 mm on composite-average). The mean grain size typically ranges from about 0.4 to

sediment content is low, typically less than 2% finer than the #200 and #230 sieves. As of the most recent survey in May 2005, there are approximately 22 million cubic yards of sand available within the permitted limits of the CS-II borrow area.

The median grain size of the CS-I borrow area ranges from about 0.18 to 0.3 mm (about 0.27 mm on composite-average). The mean grain size is about 0.33 mm (three-point average). Fine sediment content is typically less than 3% finer than the #200 and #230 sieves. There are at least 16 million cubic yards of sand available within the permitted limits of the CS-I borrow area.

Upland borrow sources have been used for limited-scale dune restoration along the Mid-Reach project area -- principally for post-storm reparations after the 2004 and 2005 hurricane seasons. Standards for establishing and assuring the quality of material from upland sources, for the purposes of small-scale truck-haul beach fill, have been successfully developed by the Permittee (Brevard County, Natural Resource Management Office) through these prior emergency dune-restoration works.

Specifications, operations and monitoring required for the project, as outlined below, are in accordance with State of Florida requirements and reflect prior investigations and experience associated with the native beach sediment, offshore and upland borrow areas, and material previously placed to the beach from the borrow areas.

Native Beach Characteristics

The native beach material of the Mid Reach project area is a fine to medium grain sand with variable carbonate and coarse shell content:

- The median grain size of the native beach ranges between 0.18 and 0.6 mm (sub-tidal to berm, respectively) with a typical composite-profile median grain size of about 0.3 to 0.35 mm, moderate.

Florida Administrative Codes 62B-41.007 (j), 62B-33.002 (8) and 62B-33.0015. In addition the fill shall meet the following requirements.

2. Beach fill material shall be clean sand/ from a permitted source, free of construction debris, asphalt, gravel, rocks, clay balls, branches, leaves and other organics, oil, pollutants and any other non-beach-compatible materials. The sand shall be similar to the existing beach sediments in color and texture.

3. The grain size of the fill material shall conform to the following, by weight measure (all sieve sizes refer to U.S. Std. sieves):
   (a) not more than 5% finer than the No. 230 sieve
   (b) not more than 5% coarser than the No. 4 sieve, and
   (c) not more than 0.5% coarser than 3/4-inch sieve.

4. The mean grain size shall be between 0.25 and 0.45 mm.

5. Maximum carbonate content shall be 45%.

6. Sand color, based upon the Munsell Scale and when graded on the 7.5YR or 10YR Hues, shall have a Value of at least 6.0 or higher and a Chroma of 2.0 or less in moist sample conditions.

7. Sand fill shall be free of components prone to cause cementation, as determined by Brevard County. The potential for cementation shall consider the cohesion of a 5- to 10-ounce sample of material after being saturated-wet, manually compressed and oven-dried. Brevard County reserves the right to reject any submitted material proposed for sand fill.

Sediment Parameter	Compliance Value
Maximum Allowable Silt Content	≤ 5% (wt. passing #230 sieve)
Carbonate content	≤45%
Large whole shell & lag content	≤0.5% (wt. retained on #4 sieve)
Allowable shell content	≤5% (wt. retained on #4 sieve)
Munsell color (moist):	
7.5 YR or 10 YR Hue	≥ 6.0 Value
	≤ 2.0 Chroma
Allowable mean grain size	0.25 to 0.45 mm

controlling dredge and disposal locations.

1) Electronic Positioning and Dredge Depth Monitoring Equipment. The Contractor shall continuously operate electronic positioning equipment approved by the Engineer to monitor the cutterhead or draghead ("intake") locations and depths. A Differential Global Positioning System (DGPS) or equivalent shall be used to determine the horizontal position of the intake(s) and shall be interfaced with an appropriate depth measuring device to determine the intake depth(s). The horizontal positioning equipment shall maintain an accuracy of ±3 feet. Corrections between the location of the master antenna on the dredge and the intake(s), if any, shall be reported on the Daily Reports.

2) Tide correction. The intake positioning devices shall maintain a vertical accuracy of ±0.5 feet with continuous applicable tidal corrections measured proximate to the project site. The Contractor shall install and maintain a properly-functioning radio-transmitting tide gage in the project area and shall verify daily that the tide corrections are properly applied to the vertical position of the intake(s) on a continuous basis. Alternatively, the Contractor may apply continuously-correcting GPS elevation data to the vertical position of the intake(s).

3) Dredge Location Control. The Contractor shall certify on each Daily Report that all dredging has been performed within the permitted limits of the borrow area. The Contractor is required to operate the electronic positioning equipment continuously, record and plot the position of the dredge intakes while dredging. Such fixes, and the accompanying plots, shall be furnished to the Engineer upon request as an attachment to the Daily Reports. Plots shall include the State Plane Coordinate grid system and the borrow area limits, with format subject to approval by the Engineer.

A printout of the intake positions and depths, corrected horizontally and for tide elevation, in State Plane coordinates and NAVD88 datum, with annotated time, shall be developed using an interval of 5 minutes or less. A digital ASCII file of the position data shall be provided to the Engineer upon request.

Dredge Limits. All dredging shall take place within the borrow area [illegible]

a. The Contractor shall monitor the nature of the material filled to the hopper dredge (where applicable) and shall continuously monitor the sediment discharged to the fill area. If rock, clay, or excessive turbidity/shell content/dark-colored material is encountered in the borrow area, the Contractor shall raise the intake(s) and *the location of the dredging shall be immediately changed* by the Contractor. The location of undesirable material shall be noted, reported on the daily report, and avoided unless otherwise directed by the Engineer. Should undesirable sediments continue to be encountered, the Contractor shall cease excavation, move the dredge to another location within the permitted borrow area, and the Engineer shall be notified immediately.

b. A hopper-barge load with material judged to be non-beach compatible material shall be replaced to the borrow area at the area from which it was removed, and subsequently avoided; or, shall be replaced to the borrow area at an area that will be unaffected by future dredging; or, shall be placed to the existing ODMDS site subject to federal requirements for disposal to that site.

c. Rock, clay balls or excessive shell deposited on the beach shall be removed from the site of the work and disposed of in permitted areas at the expense of the Contractor. A sample of the undesirable sediment shall be collected and retained for the Engineer prior to disposal. The sample shall mark station number, time, and day of occurrence. Burial of non-conforming fill within the existing beach or beach fill is not permitted.

2. During -construction sediment sampling will consist of the following:

Hydraulic beach fill – A 300-500 g physical sample from each hopper dredge load shall be collected, labeled with time/date/location, examined promptly for approval by the site inspector designated by the County, and archived for subsequent examination and/or analysis as warranted. For any placed material that visually appears to differ in texture, color or content from the specifications herein, and which is placed to the beach and not rejected prior to placement, samples shall be promptly analyzed for compliance. Samples will be processed to determine grain size distribution between U.S. Standard Sieve sizes 4 (4.76 mm) and 230 (0.625 mm) in addition to the weight [illegible] and categorized as PASS or FAIL with regards to the sand specification. The analysis shall utilize standard sieve sizes at half-phi intervals between U.S. Std. No. 4 and No. 230 (inclusive), and including the #4 sieve and pan. Should noncompliant material be detected after placement, additional testing will be conducted to determine the extent, and all noncompliant fill will be removed and subsequently replaced with compliant fill.

3. The Engineer will seek to enforce the relevant Terms and Conditions of both the contract and FDEP permits related to sediment quality and quantity. In order to do

a. Construction observation by the County and/or Engineer representative (site inspector) will be performed at the beach fill placement area during hydraulic dredging operations. Most inspections will be made during daylight hours; however, random night-time observations will also be made.

b. The site inspector(s) shall have prior training or experience in beach nourishment and construction inspection and testing and shall be knowledgeable of the project design, permit conditions, and requirements for acceptable sediment quality.

c. The site inspector(s) shall retain a physical sample ("standard") of the sediment that is expected to be placed upon the beach. The inspector shall notify the Contractor, County and/or Engineer immediately if the material placed to the beach substantially deviates from that of the standard sample.

d. The Contractor shall prepare and provide, for approval, a Quality Control Plan to be implemented by the Contractor that addresses, in part, requirements for sediment quality assurance. The Plan and its implementation shall be discussed as a matter of importance at the pre-construction meeting.

e. The Contractor shall provide, and the Engineer shall review, daily reports which characterize the nature of the sediments encountered at the borrow area and ultimately placed along the project shoreline. The occurrence of excessive shell hash, large shell, very fine or dark sediments, shall be estimated on a daily basis. Every occurrence of rock or clay balls must be catalogued by the shore crew and reported on the daily report.

f. The Project Engineer, and his duly authorized representative, shall be continuously on call during the period of construction for purposes of making decisions regarding issues which involve QC Plan compliance.