Recommend Modifications to Agency Compliance and Enforcement Protocols. Education and Outreach to Increase Enforcement Review and Actions.

Southeast Florida Coral Reef Initiative
Maritime Industry and Coastal Construction Impacts (MICCI) Focus Team
Local Action Strategy Project 4, 21, 23, 24 – Phase 1

Recommend Modifications to Agency Compliance and Enforcement Protocols. Education and Outreach to Increase Enforcement Review and Actions.

Phase 1 Final Report

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Southeast Florida Coral Reef Initiative
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1. Introduction

In 2002, the U.S. Coral Reef Task Force (USCRTF) adopted the "Puerto Rico Resolution" which called for the development of Local Action Strategies (LAS) by each of its seven member U.S. states, territories and commonwealths. These LAS are locally-driven roadmaps for collaborative and cooperative action among federal, state, territory and non-governmental partners, which identify and implement priority actions needed to reduce key threats to valuable coral reef resources.

The goals and objectives of the LAS are linked to those found in the U.S. National Action Plan to Conserve Coral Reefs, adopted by the USCRTF in 2000. From the thirteen goals identified in the National Action Plan, the USCRTF prioritized six threat areas as the focus for immediate local action: over-fishing, land-based sources of pollution, recreational overuse and misuse, lack of public awareness, climate change and coral bleaching and disease. Additional focus areas were identified in some jurisdictions; and for Florida, the impacts of the maritime industry and coastal construction were added.

With this guidance from the USCRTF, the Florida Department of Environmental Protection (FDEP) and the Florida Fish and Wildlife Conservation Commission (FWC) coordinated the formation of a team of marine resource professionals (state, regional and federal), scientists, non-governmental organization representatives and other coral reef stakeholders. This team, named the Southeast Florida Coral Reef Initiative (SEFCRI) Team, gathered to develop local action strategies targeting coral ecosystems from Miami-Dade County through Broward, Palm Beach and Martin counties. This region was chosen because its reefs are close to an intensely developed coastal region, with a large and diverse human population. Prior to the development of the SEFCRI, there was no coordinated management plan proposed for reefs located north of the Florida Keys and Biscayne National Park.

Led by the FDEP Coral Reef Conservation Program (CRCP), the SEFCRI is targeting four focus teams that address threats to coral reef ecosystems. The four focus areas are: (1) Land-Based Sources of Pollution (LBSP), (2) Maritime Industry and Coastal Construction Impacts (MICCI), (3) Fishing, Diving and Other Uses (FDOU) and (4) Awareness and Appreciation (AA). The SEFCRI Team is comprised of four focus teams, one for each focus area, whose members are working with the FDEP-CRCP to develop and implement LAS projects. The key goals and objectives of the MICCI Focus Team are to:

1. Evaluate existing coastal construction and marine industry practices and their potential (or documented) impacts, develop alternative or innovative methods and processes that significantly minimize or eliminate impacts to marine habitats.
2. Compile and/or develop appropriate procedures for response to reef impacts and reef restoration and monitoring.
3. Review existing regulations and suggest modifications or promote new regulations (as appropriate).
4. Encourage compliance with existing regulations.

For additional information about SEFCRI, its mission, and the LAS please visit the SEFCRI website at: http://www.dep.state.fl.us/coastal/programs/coral/

1.1 Background

The resources currently dedicated to support enforcement efforts for reef-related regulatory conditions are not sufficient to ensure an appropriate level of compliance with the existing number and type of regulatory conditions. This contributes to impacts on reef communities through lack of identification of impacts from non-compliance and inadequate pursuit of corrective activities or actions. To ensure an appropriate level of compliance during reef-related construction activities, as required by rule or permit condition, it is essential for regulatory agencies to increase compliance review and enforcement actions. In addition, the laws that provide the basis for reef-related compliance efforts should be reviewed and, as necessary, revised to bolster the ability of regulatory agencies to execute reasonable enforcement actions that help deter initial or repeat offenses. To support increased agency compliance efforts, it is important to increase the awareness of the marine industry and the affected public to the economic and environmental benefits of regulatory compliance. Phase 1 of this project identified methods and processes that will increase the level and effectiveness of regulatory oversight and compliance monitoring to effect improved compliance with regulatory conditions. This information was obtained by researching regulatory agencies policies and practices, compiling a database of reef-related special conditions currently being utilized, conducting interviews with regulatory officials and compliance and enforcement officers and compiling a history of project oversight (lessons learned). This project targets enforcement personnel in the Federal, State and local permitting agencies including U.S. Army Corps of Engineers (USACE), FDEP, FWC, and Martin, Broward, Palm Beach, and Miami-Dade counties.

1.2 Project Goals

The overall project goals include the development of recommendations for modifications in compliance and enforcement protocols based on the outcomes of previous LAS projects which involved a study on enforcement effectiveness and compliance, a coral injury response and triage/restoration project and a project to develop a list of artificial reef best management practices. This project seeks to develop a process by which the recommendations can be implemented; provide support to agencies to strengthen permit special conditions to favor coral reef protection; and to encourage agencies to initiate rulemaking to fill identified gaps and streamline the regulatory process for all agencies. Another objective of this project is to develop and conduct education and outreach with enforcement agencies regarding coral reef resource protection to help ensure compliance with reef-related laws and permit conditions and promote increased resource agency enforcement response.

1.3 Project Overview

This project has been divided into two phases. This report is the culmination of Phase 1 of the project. In Phase 1, data mining was conducted to create a database of special

permit conditions. Data mining focused on coastal construction project permits from the USACE in Florida, Puerto Rico and U.S. Virgin Islands (USVI), as well as FDEP Joint Coastal Permits (JCPs) and Environmental Resource Permits (ERPs) that directly or indirectly impacted coral reef resources. An enforceability analysis was conducted whereby field level enforcement personnel from each agency rated permit conditions to determine their clarity and enforceability. Permit conditions for the USACE Hawaii district as well as local county agencies, including Miami-Dade, Broward and Martin counties will be compiled, evaluated and added as an addendum to this report as part of Phase 2.

In addition to the enforceability analysis, this report also includes the overall lessons learned from the interviews with enforcement staff (e.g. potential ways to increase enforcement effectiveness) and recommendations regarding standardized permit special conditions.

A draft coral reef resource awareness training program and associated materials have also been developed. The draft training program, along with this report and the final permit conditions database, will be passed on to the contractor for developing the final project deliverables during Phase 2 of the project.

During Phase 2 of the project, the contractor will conduct meetings targeting mid- and high-level regulatory compliance and enforcement staff supervisors. These meetings will be developed for the purpose and benefits of increasing regulatory compliance by networking the various agencies to encourage communication and sharing of ideas and data. The meetings will also serve to gather further information to be used in the development of the coral reef resource awareness training and final project report. The contractor will develop a final recommendations report (recommending specific rule changes) including information gathered from the enforcement supervisors meetings, datamining and enforceability analysis of the USACE Hawaii district and county government agencies. The contractor will also finalize the coral reef resource awareness training program and materials. All materials will be delivered to the compliance and enforcement agencies in the southeast Florida region. The contractor will also be responsible for attaining signed letters of support from participating agencies.

2. Coastal Construction Projects

A permit review was conducted for authorizations of various types of coastal construction activities including: shoreline stabilization, dredging, ports, commercial docks and marinas, energy and utility projects and habitat creation or mitigation projects approved over the past five years. A full review of the potential impacts from these types of coastal construction projects were included as part of the MICCI Project 3: *"A study to identify and evaluate existing and emerging innovative technologies in coastal construction practices and procedures that minimize or eliminate impacts to coral reefs, hard/live bottoms, and associated coral reef resources in southeast Florida"*, the full report can be found at:
http://www.dep.state.fl.us/coastal/programs/coral/reports/MICCI/MICCI_Project3_Report.pdf

The following is an overview of the information from the MICCI Project 3, including the different types of coastal construction activities and their potential impacts on coral reef resources.

2.1 Shoreline Stabilization

Shoreline stabilization projects include "soft" (placement of sand) and "hard" (jetties, seawalls and breakwaters) engineering methods. Both hard and soft stabilization projects aim to reduce or correct coastal erosion.

Beach nourishment/renourishment generally involves transporting suitable sand from offshore borrow areas or upland sources and placing it onto the beach. In the USACE regulatory division, beach nourishment refers to a first time sand placement, while renourishment refers to the subsequent placement of sand onto the same beach over time. However, in the FDEP, beach restoration indicates a first time placement of sand while beach nourishment equates to subsequent sand placement activities. The terms beach nourishment and renourishment (as per USACE definitions) will be utilized throughout this report in order to maintain uniformity. Beach nourishment/renourishment activities can include multiple components such as dredging sand from borrow areas, placement of pipelines from the dredge to the beach along the seafloor to pump the sand onto the beach and physical placement of sand on the beach via trucks and heavy machinery. Direct impacts from these activities can include burial of coral and hardbottom resources through sand placement, sedimentation and turbidity impacts, as well as removal or crushing of organisms as a result of dredging activities and pipeline placement. Inaccurate modeling of the equilibrium toe of fill (ETOF) of the beach profile and use of incompatible sand can increase sedimentation and turbidity impacts well beyond the project boundaries when the sand is washed away from the beach.

Hard stabilization involves the use of structures like groins, jetties, breakwaters and seawalls or bulkheads to control the movement of sand and/or upland soil. Impacts from hard stabilization projects include direct burial of habitat, sedimentation, and turbidity impacts. Increased wave energy and changes in drift patterns could result in secondary impacts to nearshore corals and hardbottom. Repair and replacement of hard stabilization formations often requires extensive coral relocations to prevent loss of colonies that have accumulated on the structure.

2.2 Dredging

Dredging consists of the removal of sand or bottom sediments for purposes of improving navigation and/or for retrieving material for beach nourishment/ renourishment projects. Dredging is usually accomplished through the use of hopper dredges, hydraulic cutterhead/suction dredges, or bucket/clamshell dredges. Dredging machinery can have drag arms, spuds, cables, and/or pipeline components depending on the type of dredge; all of which can contribute to potential coral and hardbottom impacts. Impacts from dredging include direct loss of habitat through drag arm or spud placement, cable drag, pipeline placement or through navigational errors (causing the dredge to operate outside

of the approved construction footprint). Secondary impacts from dredging projects also include sedimentation and turbidity impacts.

2.3 Port Maintenance and Expansion

Commercial deepwater ports including Port Everglades, Port of Miami, Port of Palm Beach, and the Key West Harbor allow large cargo vessels and cruise ships to bring goods and services to South Florida, and can also facilitate naval operations in some cases. Construction or maintenance of port facilities usually involves large-scale dredging to attain water depths necessary to bring in larger ships. This type of dredging may require blasting, or use of explosives to fragment hard consolidated bedrock, prior to dredging or piling installation. Dredging and/or blasting can result in a direct loss of reefs and hardbottom and can cause sedimentation and turbidity impacts. In addition to impacts from dredging and construction of the facility, everyday usage can result in anchor damage and prop scarring if ships do not stay within the appropriate navigation channels and designated anchorage areas. Also, the depth to which these deepwater ports are dredged reduces or eliminates habitat for submerged aquatic vegetation and affects circulation patterns in a manner that can reduce water quality (particularly in terms of dissolved oxygen levels), which can have secondary impacts on the health of reef communities.

2.4 Commercial Docks and Marinas

Docks and piers provide permanent and/or temporary mooring locations for vessels. Impacts from construction include turbidity and sedimentation from pile installation. Impacts from usage include anchor and anchor cable damage, prop scour from vessels and shading from vessels and structures which can reduce the light available for coral zooxanthellae. Treated wood pilings that are not wrapped with a protective coating may leach contaminants (e.g. copper, chromium, and arsenic) into the water; and improper discharges of contaminants associated with vessels and docking facilities (e.g. cleaning agents, fuel, oil, grease, and sewage) may also cause adverse effects to corals and hardbottoms. Maintenance and repair of dock and marina structures may require relocation of any coral colonies that have recruited to the structure.

2.5 Energy and Utility Lines

Subaqueous energy and utility lines include fiber optic cables, gas pipelines and other submerged utility cables. Construction methods usually require a large cable-laying vessel to feed the cable or pipeline across the seafloor. The cable or pipeline is then anchored in place using boulders or concrete mats. Impacts can occur through cable placement (physically crushing underlying coral), cable drags (from the vessel anchor line or from an improperly stabilized cable or pipeline) and anchor damage from the cable-laying vessel (particularly if operating in unfavorable weather conditions).

2.6 Artificial and Mitigation Reefs

Artificial reefs are constructed to create and enhance habitat for fish, coral, and other marine organisms. Many artificial reefs are constructed as mitigation for projects that cause damage to the naturally occurring coral and hardbottom. However, the construction and deployment of artificial reef materials can also cause impacts. Deploying material on top of or too close to naturally occurring coral or hardbottom resources can cause physical damage. Artificial reef materials can also shift during strong currents or storm events. In particular, vessels deployed as artificial reefs may cause damage to surrounding coral resources as they can shift during sever weather events. Sedimentation and turbidity impacts can also occur during material placement. Construction impacts can also include anchor damage, prop scour or anchor cable drags from the deployment vessel. Secondary impacts can be caused by deploying materials that contain metals, soils, toxins, etc. which can result in contaminants leaching into the water column.

3. Coastal Construction Permits

There are several different types of permits for coastal construction activities within southeast Florida. Depending on the project location and plan details, a coastal construction project may require federal authorization from the USACE, state authorization from the FDEP or, less often, from the South Florida Water Management District (SFWMD). Some counties also require a separate local permit authorization; these will be discussed in further detail during Phase 2 of this project. Finally, federal, state or local conservation areas (e.g. the Florida Keys National Marine Sanctuary) may have additional permit requirements, though these sometimes only apply to smaller-scale projects (e.g. research) that are not otherwise regulated by designated permitting agencies.

3.1 Florida Department of Environmental Protection (FDEP)

The FDEP is the state agency generally responsible for regulating coastal construction under Chapter 161, Florida Statutes (F.S.), and activities that affect surface waters of the state under Chapter 373, Part IV, F.S.

3.1.1 Environmental Resource Permit (ERP) Program

Under Chapter 373, Part IV, F.S., the ERP program authorizes activities related to modifying surface water flows, including any activity that creates stormwater runoff from upland construction, as well as any dredging or filling activities in wetlands and other surface waters (http://www.dep.state.fl.us/water/wetlands/erp/permitting.htm). The program ensures that such construction activities do not degrade water quality or damage marine resources (including corals, seagrasses, mangroves or other habitat for manatees or marine turtles). The environmental resource permits include proprietary authorization for projects on sovereign (state-owned) land under Chapters 253 and 258, F.S.

The responsibility for administering the ERP program in the SEFCRI region is divided between the FDEP Southeast District (SED) Office, the FDEP Bureau of Beaches and Coastal Systems (BBCS) and the SFWMD. However, per an operating agreement with

the FDEP, the SFWMD usually only regulates in-water activities that are associated with large-scale residential developments that do not front the Atlantic Ocean or Gulf of Mexico. Because there are a limited number of SFWMD projects that might directly affect coral reefs, input from this agency was not requested as part of this MICCI project. Within the FDEP, ERPs are usually issued by the SED Office for the SEFCRI region, except for deepwater port projects that primarily involve dredging and filling, which are handled by the BBCS. The ERP review is also conducted by the BBCS for projects on state-owned lands that are adjacent to sandy beaches of the state under a combined program that also considers special coastal construction criteria, as explained in the following section.

3.1.2 Joint Coastal Permit (JCP) Program

The JCP program, administered by the FDEP BBCS, combines the review of projects under both the ERP criteria of Chapter 373, Part IV, F.S., and the Coastal Construction criteria of Chapter 161, F.S., for projects that contain ALL of the following elements:

1. Activities located on Florida's natural sandy beaches facing the Atlantic Ocean, the Gulf of Mexico, the Straits of Florida or associated inlets;
2. Activities that extend seaward of the mean high water line;
3. Activities that extend into sovereign submerged lands; and
4. Activities that are likely to affect the distribution of sand along the beach.

Activities that require a JCP include hard and soft shoreline stabilization (beach nourishment/renourishment activities, groins and breakwaters), construction of public fishing piers, maintenance of inlets and inlet-related structures and dredging of navigation channels if the dredged material will be disposed of onto the beach or into the nearshore area (http://www.dep.state.fl.us/beaches/programs/envpermt.htm). However, offshore activities that are not expected to significantly affect the sandy beaches of the state, such as the installation of telecommunication lines, are still regulated by the SED Office under the ERP program.

3.1.3. Coastal Construction Control Line (CCCL) Permit Program

The FDEP's BBCS also manages a CCCL program under Chapter 161, F.S., that is independent of the ERP review. The CCCL permit is designed to provide protection for Florida's beaches and dunes above the mean high water line while maintaining reasonable rights of shorefront owners to develop their private property. Specifically, the CCCL program requires structures seaward of the established CCCL to be located and designed according to criteria above and beyond the structural requirements of Florida's statewide building code. While CCCL permits do not necessarily have any special conditions that are directly related to the protection of coral reef resources, valuable information regarding overall enforcement protocols and agency needs was gleaned from interviews with the CCCL enforcement staff.

3.2 U.S. Army Corps of Engineers (USACE) Permits

The USACE is the federal permitting agency for coastal and wetlands permits. The USACE issues permits under Section 10 of the Rivers and Harbors Act for any work in, over or under any navigable waterway of the U.S. Permits are also issued under Section 404 of the Clean Water Act for the discharge of dredged or fill material into any and all waters of the U.S. (which include wetlands). Activities (including dredging, dock construction, bulkheads, submerged utility line installation, etc.) are reviewed under Section 10 to ensure that they will not cause an obstruction to navigation and are not contrary to the public interest. Regulated discharges under Section 404 include filling wetlands and placing fill material water ward of the mean high water line (MHW) along beaches and coastal zones. The general rule for an activity to receive a 404 permit is that it must comply with the part of the Clean Water Act known as the Section 404(b)(1) guidelines (http://www.usace.army.mil/CECW/Documents/cecwo/reg/materials/40cfr230.pdf). In general, the guidelines require that the activity be the least environmentally damaging alternative that is economically feasible. The guidelines also provide for the sequential avoidance, minimization, and mitigation of any adverse environmental impacts. Like Section 10 permits, activities evaluated for Section 404 permits also must not be contrary to the public interest.

3.3 Florida Keys National Marine Sanctuary (FKNMS) Permits

The FKNMS issues a variety of permits for activities that are otherwise prohibited by National Marine Sanctuary regulations (the primary regulations governing management of the FKNMS are described in the U.S. Code of Federal Regulations, Title 15, Part 922). These permits include authorization for the following types of activities:

- Research/Education,
- Collection of Baitfish,
- Special Use, and
- Maritime Heritage Resources.

The FKNMS also conducts consultations under section 304(d) of the National Marine Sanctuaries Act for other activities that have been exempted from certain Sanctuary regulations including military activities. The FKNMS conducts extensive coordination with the USACE regarding federal projects which include dredging projects (e.g. Key West Harbor) and artificial reef projects (e.g. Hoyt S. Vandenberg). These procedures have resulted in a number of detailed special conditions which have been included in USACE permits for various activities within the FKNMS.

4. Types of Permit Conditions

Essentially, there are two types of permit conditions. Conditions known as general conditions in the regulatory community are usually administrative conditions. These conditions relate information such as the permit expiration date and lay out proper reporting procedures or steps necessary to submit an appeal. The second type of permit

condition is a special condition. Special permit conditions are more activity or resource specific. Coastal construction permits from the past 5 years were reviewed to find special conditions relating to protection of coral reef resources. The following consists of a general overview of these conditions.

4.1. Special Conditions

Among special conditions, there are a number of common conditions that are found across various permits for similar activities. These conditions have been through some level of review by the respective permitting agency whereby the language of the conditions has been standardized to ensure that the conditions are at least relatively consistent and enforceable. Examples of common conditions include those for the reduction of turbidity, conditions requiring certain buffer zones for dredging projects (although the buffer distances vary substantially between projects) and a standard list of conditions used in artificial reef permits. The Final Special Conditions Database contains approximately 600 permit conditions and can be found in Appendix A.

After a review of the Final Special Conditions Database, it was found that special conditions vary widely across agencies and even from project manager to project manager. The number of special permit conditions in a single permit ranged from zero to more that 100. The absence of having special conditions in a permit gives the enforcement agency little to no authority to protect adjacent resources, however having over 100 permit special conditions can make the permit unnecessarily long and confusing to the permittee and may result in reduced compliance. It should be noted that if a permit warrants the inclusion of an extremely high number of permit special conditions (generally, permits tend to average 40 conditions or less) then perhaps the project could be better designed to avoid and minimize potential adverse impacts prior to permit issuance.

4.1.1 Shoreline Stabilization Conditions

Out of the 600 permit special conditions, 226 were related to shoreline stabilization permits, and of these only 4 were related to hard stabilization projects. Overall, permits for beach nourishment/renourishment activities had a high number of permit conditions related to protection of coral reef resources in each permit (averaging between 10 and 30, but in some cases upwards of 60). This may be due to a number of factors. Beach nourishment/renourishment projects tend to be complex projects which require a combination of construction methods; this can result in the need for a higher number of permit special conditions. Secondly, it should be noted that many of the conditions found in soft stabilization permits had the same basic meaning with variations in wording and organization. As mentioned above, soft stabilization projects usually have several components which may impact coral resources including the excavation of sediments as well as the placement of fill material along the beach or in the nearshore environment. A number of these types of projects involve dredging as a means of accumulating the sand for placement on the beach. Therefore, many of the permits had conditions requiring the contractor to conduct a pre-construction survey to mark the location of the nearshore

hardbottom and install navigational equipment that allows for GPS location monitoring of the dredge with an alarm system to ensure that the dredge did not operate too close to coral reef resources. Buffer zones were also common in shoreline stabilization permits, although the set buffer distance varied anywhere from 50-600 feet. In some cases, conditions required the permittee to relocate corals in the project area prior to construction. There were various forms of conditions to prohibit damage from anchors, cables, drag arms, and spud placement, and requirements to monitor these activities. In addition, to avoid impacting nearby resources, permits included conditions that addressed construction during high seas and inclement weather events. In some cases, the contractor was required to push the construction vessels via shallow draft tug boats in areas of shallow water depths to avoid prop scouring of submerged resources. Pre-, post- and during construction monitoring was required in 80 conditions to document any unanticipated or secondary impacts, including sedimentation and turbidity impacts, or to verify the ETOF matched what was predicted in the pre-construction modeling reports. Turbidity controls, monitoring and best management practices were required in most hard and soft shoreline stabilization permits to reduce runoff or spills from the dredge or to reduce turbidity impacts resulting from placement of materials within the nearshore environment. In 3 of the larger projects, the permittee was required to conduct a pre-construction meeting and provide training to all construction personnel on coral reef resource awareness, presence of threatened and endangered species and avoidance and minimization of potential impacts. Many soft stabilization permits also included conditions requiring sand compatibility analysis and a few required dune components and planting plans to further stabilize the shoreline and reduce the need for future renourishments.

The conditions pertaining to hard stabilization required a pre-deployment survey to document the location of any corals as well as relocation of any existing corals from within the construction footprint.

4.1.2 Dredging Conditions

There were 130 permit conditions pertaining to dredging, of these 50 were port related dredging operations and 77 were related to beach renourishment projects. Most of the dredging permits that were reviewed had conditions requiring the contractor to conduct a pre-construction survey to mark the location of any adjacent hardbottom resources and install navigational equipment that allows for GPS location monitoring of the dredge with an alarm system to ensure that the dredge did not operate too close to coral reef resources. Conditions requiring turbidity monitoring and procedures to ensure that there were no leaks or runoff from the dredge or barge (frequently used to transport dredge material to the disposal site) were also common. There were also various conditions to monitor the position of anchors, cables, drag arms, and spud placement to prevent drag or scour injuries to adjacent coral resources. Pipeline placement was also covered in various permit conditions; some required diver assisted placement, some pre- and post-construction surveys of the pipeline, and still others required installation of floating mechanisms to keep the pipeline off of sensitive resources. Two of the permits required relocation of corals prior to construction, and 6 required the submittal of a contingency

plan for spills and/or operating procedures in the case of high seas and inclement weather events. Pre- and post-construction surveys were required in 14 of the dredging permits to document construction impacts and ensure that any proposed mitigation fully offset the loss of resources.

4.1.3 Port Maintenance and Expansion Conditions

Port maintenance and expansion projects accounted for 56 of the 600 permit special conditions reviewed. The construction of a commercial port facility usually includes dredging in addition to the construction of the docking facilities. As noted above, 50 of the conditions found in port permits were related to dredging. Pre-and post-construction surveys were usually required to fully document the hardbottom areas and construction impacts. During construction monitoring was limited to 5 conditions and was related to documenting sedimentation and turbidity impacts. Eight conditions required contingency plans for inclement weather and high seas as well as spill containment. In one case a permit required relocation of existing corals prior to construction activities. Various conditions addressing careful placement of anchors, cables, drag arms and spuds as well as conditions requiring navigational software (similar to other dredge permits) were also frequent. It should be noted that no permit conditions were found that addressed blasting impacts. It is not clear whether any of the permits reviewed included activities in which blasting occurred as none of the permits specifically authorized blasting as a construction practice. Although it is likely that blasting was used in the construction of many commercial port facilities, most of these facilities were constructed by the civil works division of the USACE, which does not go through the same permitting channels, or were constructed prior to the 5-year timeframe reviewed in this project. The environmental impact statement for the construction of the Port of Miami references a blasting plan which was utilized by the USACE Civil Works division as part of the best management practices to minimize adverse impacts to submerged aquatic resources. Due to the fact that Florida has a lot of soft limestone substrate, much of the deepening required for commercial deepwater ports can and has been performed without blasting using larger cutterhead/suction dredges. Recently, the larger dredges capable of removing soft rock have been contracted to do work overseas; as a result, there may be a slight increase in the need for blasting in the near future.

4.1.4 Commercial Dock and Marina Conditions

There were 24 conditions found related to the protection of corals in commercial dock and marina construction permits. Among these were conditions for pre- and post-construction surveys to fully document all direct and indirect impacts to corals. Three permits also had conditions which required relocation of coral colonies within the project footprint prior to construction. Another condition used in commercial dock and marina permits required surveys of the anchorage areas for vessels used during construction of the facility as well as vessels that would utilize the facility upon completion. Standard turbidity monitoring and use of best management practices, including turbidity curtains, were also common. All of the conditions found for commercial docks and marinas were taken from USACE permits. There were no conditions related to protection of coral reef

resources in any of the FDEP permits for commercial docks and marinas that were reviewed as part of this project.

4.1.5 Energy and Utility Line Conditions

There were 29 conditions found related to energy and utility lines. Conditions in these submerged pipeline and cable authorizations were very similar across agencies and from permit to permit. Although there were not a large number of conditions in any one permit, nor were there a lot of permits for these types of activities (only 4 permits were found during the time period reviewed), the conditions were all very concise and descriptive and addressed the majority of the potential impacts from these types of activities. Conditions addressed cable/pipeline laying procedures during high seas and inclement weather as well as proper anchoring and monitoring to ensure post-construction stability during future strong current or storm events. Pre- and post-construction surveys were required and in one case, a pre-construction training was required for construction personnel regarding reef resources and avoidance and minimization of potential project impacts. In some cases, a buffer zone of up to 600 feet from any coral or hardbottom resources was required and relocation/reattachment of coral colonies was frequently required in areas where buffers were unfeasible.

4.1.6 Artificial and Mitigation Reef Conditions

Along with shoreline stabilization permits, habitat creation and mitigation permits (normally permits authorizing the construction of artificial reefs) had the highest number of permit special conditions (236 in total, with an average of 16-20 per permit) directly related to protection of corals. This is not surprising since these activities are carried out very near existing coral reef resources and are specifically designed to enhance coral reef habitat. Most of the artificial reef permits reviewed had conditions delegating the type and proper preparation of suitable materials for deployment as an artificial reef. These varied somewhat in language and organization but tended to include similar lists of approved materials and preparation guidelines. A pre-deployment survey condition to verify the placement location and absence of naturally occurring hardbottom was also common. Buffer distances from existing resources again varied widely between permits. Eleven of the permits reviewed included conditions which authorized construction only during daylight hours and prohibited deployment operations during high seas or inclement weather events. Another common condition was the requirement of a stability analysis to ensure that the material would not shift during future storm events and cause damage to the adjacent resources. Many permits included conditions requiring assurances that the deployed material would not entrap divers, fish, or marine mammals. Most of the USACE permits required a minimum clearance between the top of the reef structure and the surface at mean low water (MLW) for purposes of ensuring safe navigation; although the terminology varied widely between permits. Several permits also required the permittee to notify the U.S. Coast Guard of the location of the artificial reef so that it could be added to future navigational charts. Fewer than 5 conditions addressed the deployment vessel and methodologies to reduce anchor damage and prop scouring during construction.

Although some of the permit authorizations for artificial reefs were issued for habitat enhancement, most of the permits reviewed were for some form of mitigation to offset coral reef resource impacts caused by other coastal construction projects and 70 of the 236 were written as part of a larger beach renourishment permit. Nearly all of these authorizations had conditions requiring post-deployment monitoring. Monitoring conditions varied widely across agencies and from permit to permit within agencies. Monitoring time frames were different for many projects; some required monitoring quarterly, some annually, for a period of anywhere from 2-10 years. Monitoring protocols also varied extensively. Some conditions included monitoring of biological and physical parameters as well as stability and durability of the materials while others required only stability monitoring. A few permits did not require any monitoring at all. Monitoring conditions also differed in survey methodology; some mandated diver surveys (or ROVs in deeper waters), while others only required aerial photography or towed video camera surveys. A separate MICCI project, #27, has been designed to develop guidance which would standardize permit monitoring requirements including pre-, during and post-construction monitoring for coastal construction projects (For more information see http://www.dep.state.fl.us/coastal/programs/coral/documents/2009/FDOU/01-27/MICCI-FDOU_27_47_48_SOW.pdf).

5. Comparison to Conditions from USVI and Puerto Rico (USACE permits only)

The USACE issues permits for similar coastal construction activities in Hawaii, Puerto Rico and USVI [Puerto Rico and USVI permits are issued out of one USACE office located in San Juan, Puerto Rico (the USACE Antilles District)]. The Hawaii District will be reviewed during Phase 2 of this project.

Most of the 69 conditions found in Puerto Rico and USVI permits were related to installation of fiber optic cables or construction of commercial marina and docking facilities. Similarities between these permits and those issued in the southeast Florida region included conditions for the use of best management practices and turbidity curtains as well as conditions limiting work to daylight hours and prohibiting work during high seas and inclement weather.

In general, the conditions found in the Puerto Rico and USVI permits were more explicit and detailed, laying out specific methods for carrying out the conditions complete with sizes, distances and time frames for completion. These permits were also more stringent in requiring avoidance of coral reef resources and 9 conditions required relocation of coral colonies prior to construction. Many of the conditions required the use of divers for guiding anchor placement and cable deployment to ensure that there were no impacts to adjacent coral reef resources. Conditions from Puerto Rico and USVI also required post-construction monitoring more frequently and for longer time periods for both the project site and any relocated coral colonies. Several even required video documentation of the entire cable deployment process to document any impacts. Ten of the permit conditions from Puerto Rico and USVI referenced mitigation in the event that the post-construction monitoring illustrated impacts to coral reef resources. This is due to the inclusion of more stringent conditions requiring careful avoidance of impacts to coral reef resources.

6. Enforceability Analysis

In Phase 1, interviews were conducted with field level compliance and enforcement personnel from the USACE and various programs within the FDEP (similar analyses will be conducted for the local county agencies during Phase 2). Compliance and enforcement personnel were asked to rate a list of permit special conditions, taken directly from permits issued by their respective agencies, based on the following scale:

1- Completely unclear,
2- Relatively clear, but still unenforceable,
3- Partially enforceable,
4- Generally enforceable, but could be improved, and
5- Well written and strongly enforceable.

If any condition was rated less than a 5, staff were asked to provide detailed reasoning as to why they assigned a particular rating as well as suggestions for improving the condition. Staff was also asked to provide comments regarding the overall improvement of permit special conditions.

6.1 USACE

Individuals from the USACE enforcement staff reviewed 48 permit conditions taken directly from USACE permits issued over the past 5 years. Although there are many more conditions from USACE permits included in the full special conditions database, many of the conditions reviewed were very similar in scope or were extremely project specific; therefore an abbreviated list was used for the enforceability analysis (see Appendix B). The USACE enforcement staff rated 26 out of the 48 conditions as a level 5; meaning that the condition was well written and strongly enforceable and no changes would be recommended. Overall permit condition recommendations from the staff included entering a date certain (i.e. the time frame or deadline by which the requirements of the condition must be met) in the permit condition. In addition, staff recommended incorporating specific reporting requirements wherever possible to ensure that the USACE enforcement team is aware of noncompliance issues without having to conduct field investigations for every permit. In other words, the USACE staff would like to have the conditions put the onus on the applicant wherever possible. Staff also suggested developing a template document or self-certification form that the applicant would submit indicating compliance with all the permit conditions. The form could be used to submit all relevant reports and surveys required by the permit and would help to reduce paperwork. USACE staff commented that any permit condition is only enforceable to the extent that the staff receives information regarding a violation or non-compliance as well as the level of authority available to pursue an enforcement action, which is very limited for Section 10 activities (this will be discussed in greater detail under the overall enforcement program review/lessons learned section of this report).

Fourteen conditions were given a rating of level 4. These conditions were considered generally enforceable but could use minor improvements. Many of these conditions could be improved by adding a date certain and/or a reporting mechanism (i.e. a report or

survey to be submitted back to the USACE to document compliance with the condition). Other reasons for rating a condition a level 4 consisted of the inclusion of subjective terms or terms that were not clearly defined and making the condition too long or too complicated to read easily. For example, one condition states that "all watercraft vessels shall operate in sufficient water depths to preclude bottom scouring…etc.", where as the word "sufficient" is a subjective term and could have different meanings depending on the reader. Staff suggested simplifying the language of conditions to make them clearer and more concise, using bullet points if necessary instead of long paragraph formats and clearly defining all important terms in a condition.

Of the 48 conditions reviewed, 6 were rated as a level 3, partially enforceable. Most of these conditions posed a similar problem for the USACE enforcement team; although they were generally well written (with the exception of some of the terms not being clearly defined) they were only partially enforceable due to regulation or procedural practices. The USACE employees are prohibited from diving and snorkeling (or entering the water above their chest); therefore most of the conditions related to underwater monitoring or surveying are unenforceable without some type of reporting mechanism. In order to improve these conditions a reporting mechanism and deadline must be included so that the enforcement staff can verify compliance. It was recommended that 2 of the conditions rated as level 3 be deleted all together. One of these conditions addressed placement of artificial reef materials within shrimp trawling areas which is not under the USACE purview to enforce (although the staff agreed that the condition was otherwise well written). The other condition recommended for deletion was related to dredging and pipeline placement and was suggested due to the complex wording and the fact that there are similar conditions available which are more clearly written and enforceable.

Only 1 condition was rated a level 2 (relatively clear but still unenforceable) and 1 condition was rated level 1 (completely unclear). Both conditions are related to water quality and turbidity which the USACE has no authority to enforce (USACE enforcement abilities and regulations are discussed in greater detail under the Overall Enforcement Program Review/Lessons Learned section below. The level 2 rated condition was a standard permit condition that is included in nearly all USACE Section 10 permits. Staff commented that although the condition is clearly written, they are unable to enforce it due to USACE regulations and policy. The condition required use of turbidity curtains which is a water quality condition and does not fall under their purview. Staff recommended still utilizing the condition in future permits but claimed that it is not likely to be enforced by the USACE. The condition rated as level 1 was actually a FDEP condition that was copied into several USACE permits to ensure that the project would not violate the state water quality certification. It must be noted here that water quality standards for coastal and surface waters differ significantly from water quality standards for drinking water. Whereas drinking water regulations indicate maximum acceptable levels of contaminant which may be toxic for human consumption such as arsenic, lead, copper, methyl-t-butyl ether, radionuclides, radon and bacterium; water quality standards for coastal and surface waters are regulated to control the amounts of nutrients, heavy metals, sedimentation, turbidity, dissolved oxygen, etc. which may have deleterious effects on submerged aquatic resources as well as fish and wildlife species

(http://www.epa.gov/ow). The enforcement staff indicated that water quality is a state issue and that the condition is unenforceable (at the federal level) based on current USACE regulations and policy. Staff also indicated that the condition is extremely long and is complexly worded and suggested that the condition be revised to be more clear and concise.

6.2 FDEP Southeast District (SED) Office

Members of the SED staff reviewed 44 permit conditions taken from both ERP and JCP permits combined (see Appendix C). The SED staff were not as familiar with the ERP conditions, however all FDEP conditions were reviewed together by both the SED and the BBCS JCP teams. Sixteen of these were rated as a level 5 and no changes were recommended. Staff's general recommendations for improving permit conditions included adding a checklist at the beginning or end of the permit conditions which would lay out everything that is to be submitted by the applicant, including the reporting addresses and contact information, as well as the due date for submittal. This would help organize important information and make it easier for contractors/permittees to follow. Staff also suggested that regulators group similar conditions under headings. For example, include a heading titled "mitigation" followed by all the mitigation related conditions to facilitate improved organization and make conditions easier to locate. SED staff echoed the USACE staff's comments to add a date certain and reporting requirements wherever possible so that there is a report and a due date to make it easier to track compliance. SED staff also suggested using bullet points to make conditions shorter and easier to read. Another suggestion was to make permit conditions as uniform as possible across all agencies to help simplify the process for the applicant.

Nineteen of the conditions reviewed were rated level 4. The SED staff rated conditions as a 4 based on the lack of clearly defined terms (making the condition too subjective), as well as the lack of a timeframe for completion and/or reporting mechanism. Another reason cited was that the conditions were too long and complex. Staff suggested rewriting conditions using bullet points or separating into two or more conditions to make them more clear and concise. Other suggestions included clearly defining all terms and adding a reporting mechanism and date certain wherever possible. Staff recommended future rulemaking to unequivocally define terms used in permit special conditions (e.g. coral, reef, ETOF, etc.).

There were 8 conditions given the rating of level 3 by the SED enforcement staff. The main reason a condition was rated as a level 3 was because the condition was too vague and did not provide enough specific details to make it enforceable. Many of the conditions were also too long, taking up several paragraphs which makes them difficult to read and follow clearly. Several used terms without clear definitions and/or had no timeframe for completion and no reporting mechanism. Staff recommended restructuring these conditions; making them clearer and more concise, using bullet points as necessary and including detailed and specific information with clearly defined terms in order to make them more enforceable and easier for the permittee to follow.

Only one condition was rated level 2 and no conditions were given a level 1 rating by the SED staff. The level 2 rated condition was a fairly project specific condition requiring the permittee to submit a biological monitoring plan for post-construction monitoring near a beach fill project. Staff found the condition to be generally unclear, using undefined terms and failing to address areas like buffer zones. The condition also did not provide for any reporting mechanism or monitoring plan approval from FDEP. Staff recommended deleting this condition entirely and instead requiring pre-approval of monitoring plans during the application and review process, prior to permit issuance, thus eliminating the need for such a condition.

6.3 FDEP Bureau of Beaches and Coastal Systems (BBCS)

6.3.1 BBCS Joint Coastal Permit (JCP) Section

The FDEP JCP staff rated 32 out of the 45 conditions they reviewed as a level 5 (see Appendix D). The staff members noted that overall there has been a marked improvement in permit special conditions within their agency over the past 7 years, leading to more clearly written and enforceable conditions. Staff noted that there is frequently a bias in compliance monitoring and reporting because the contractor hired to complete these tasks is paid by the permittee and therefore has an interest in reporting information that is favorable to the permittee. JCP staff suggested requiring a neutral 3rd party to complete these reports as a means of ensuring non-biased data. Other general recommendations included providing a more specific and detailed methodology for completing monitoring and sampling and requiring use of best available technology as part of the sampling protocol. For example, reliable, high-resolution sensors are readily available and affordable that can be deployed to gather turbidity data. These sensors record a multitude of data 24 hours a day throughout the project which can eliminate missed or incorrect sampling due to adverse weather or human error. Staff would also like to require that mitigation be constructed prior to incurring project impacts.

Eight conditions were rated a level 4 by the JCP staff. These conditions were generally enforceable but could use minor modifications. For example, one condition required the transplantation of coral colonies over 15 centimeters (cm), staff felt that this would be a more effective condition if the size limit was 10 cm. Other reasons for rating a condition a 4 included buffer zones that were too small (400 or 600 feet) which staff believe should be larger (1000 feet), and several conditions which required post-construction surveys to report impacts; the staff felt that there should also be a remediation and monitoring component added to these conditions to mitigate for the damage and document any recovery in the damaged areas.

Four conditions were rated as level 3 and no conditions were rated less than 3. One of the level 3 rated conditions was an artificial reef condition and staff recommended that artificial reef materials, size and construction depths be as close as possible to the existing site that is being impacted as well as ensuring that there is both an upper and lower size limit to the reef materials. A second condition included a list of pre-construction requirements including monitoring and mitigation protocols to be submitted

prior to construction. Staff indicated that most of the requirements should have been submitted and approved as part of the permitting process prior to issuance and should not be included in the special conditions. The final two conditions lacked clear details and methodology for completing the sampling and/or monitoring that was required.

6.3.2 BBCS Coastal Construction Control Line (CCCL) Section

The CCCL permits do not contain any special conditions that are directly related to coral reef resource protection. Only 5-10% of the field permits issued are for projects that could have a remote possibility of impacting corals. These permits are issued for dune projects consisting of up to 200 cubic yards of fill landward of the MHW line along coastal beaches. They require a sand compatibility analysis which helps to ensure that the sand placed on the beach will not cause excessive turbidity and sedimentation impacts. Fill volumes larger than 200 cubic yards are generally required to go through a full CCCL review process unless an exception is made by the upper-level management of FDEP. These permits also require a final post-construction inspection. CCCL enforcement staff did recommend that no dune project should be authorized without an approved vegetation plan. Although there were no specific conditions reviewed by the CCCL field inspectors, other valuable information was discovered during interviews which will be discussed in greater detail in the Overall Enforcement Program Review/Lessons Learned sections below.

7. Overall Enforcement Program Review/Lessons Learned

The second part of the interviews conducted with compliance and enforcement personnel included gathering general information and staff perspective of their respective programs as well as determining any specific coral reef resource awareness training or other needs. The purpose was to determine if there were any gaps that could be addressed during Phase 2 of this project and to discover the best way to provide support to these agencies to increase compliance and enforcement activities.

7.1 USACE

During the interviews with the USACE, enforcement staff indicated a definite need for interagency networking and suggested developing an Enforcement Task Force similar to the one that currently exists in the Jacksonville, FL area. This Enforcement Task Force brings together enforcement personnel from various agencies to meet on a monthly basis to share information and assist each other on enforcement cases. Staff indicated that the two most positive components of the USACE enforcement program are the ability to go to other agencies for support and expertise and the ability to assign administrative penalties to Section 404 projects. Under Section 404 of the Clean Water Act, the USACE has the authority to issue Class I penalties for permit violations in addition to the capacity to pursue criminal charges.

Apart from those positive aspects, staff indicated that the most negative element of the program is the lack of authority to pursue enforcement under Section 10 regulations.

Unlike Section 404, the USACE has no authority to issue administrative penalties for Section 10 permit violations. Although they are still capable of pursuing criminal charges, lack of attorney power and agency support result in little to no enforcement authority for Section 10 violations. Under current regulations, the most effective thing the USACE can do is to hold up future permits or delay the permittee from completing work on a violated permit for extensive time periods. Even if a permit has a Section 404 component (for example, many beach renourishment permits have a Section 10 component for the dredging and a Section 404 component for the placement of fill below the MHW line) the USACE enforcement team would have a very difficult time gaining agency and attorney support to try and pursue enforcement for violating a Section 10 condition within the permit.

Another hindrance to USACE compliance and enforcement efforts is related to intra-agency policy and procedural guidelines prohibiting staff from entering the water above their chest. As a result, USACE enforcement personnel can not dive or snorkel to conduct any field inspection. Therefore, all the data for compliance and enforcement would need to come from the applicant in the form of monitoring reports. Regulation and policy also prevents the USACE from enforcing anything related to water quality issues. As mentioned above, the USACE regulates construction in, over, or under navigable waters and dredge and fill into waters of the U.S. They do not regulate water quality, which makes it difficult to gain support in enforcing any conditions related to turbidity as this is viewed as a water quality criterion.

Besides adding the ability to issue administrative penalties for Section 10 violations, staff would also like to be able to issue Class II penalties under both Section 10 and Section 404. Class II penalties would allow them to issue civil penalties for higher dollar amounts and allow them to deal more quickly and effectively with larger permit violations. Enforcement personnel would also like to make sequential avoidance, minimization, and mitigation of impacts a requirement of the Section 10 permitting process. These are currently required under the Clean Water Act 404(b)(1) guidelines for the Section 404 permitting process but are not a prerequisite for Section 10 permits. These changes would require new rule making. Staff suggested that in order to begin making the necessary rule changes to the Rivers and Harbors Act (Section 10 permitting authority) one could follow the steps that were previously taken to amend the Clean Water Act.

USACE staff also commented that the compliance and enforcement process overall is too cumbersome and time intensive; coupled with a severe lack of staff capacity, this results in fewer compliance and enforcement actions than they would ultimately like to pursue. USACE staff found it very helpful when other agencies or project managers sent comprehensive reports of possible permit violations. This helps to prioritize projects and alerts USACE staff members to possible violations they may otherwise not have known about. It also allows them to get the enforcement process started quickly without having to travel to a site prior to issuing a notice of violation. Staff also suggested looking at lessons learned from projects that have been completed and working backwards as a means to develop conditions to prevent repeat problems. For example, utilizing permits from projects like Phipps and the Key West Harbor Dredging to determine what impacts

occurred and if/how they could have been prevented to develop conditions for use in future permits.

7.2 FDEP SED

During interview with SED, the staff commented that the most negative aspect of their program is a deficiency in coral reef resource specific training and reference materials. They also noted a lack of staff capacity, particularly on the dive team as a hindrance to their compliance and enforcement abilities. Currently, there is 1 enforcement staff member for Miami-Dade, 1 for Broward, and 2 for Palm Beach,(who also assist the Port St. Lucie team with Martin, St. Lucie and Okeechobee counties). Most of the dive team is comprised of permitters who are required to divide their duties between permitting activities first and assisting in compliance and enforcement procedures second. The staff suggested that having more enforcement staff would be beneficial. Staff also commented that having more dive team members may allow for some members to prioritize compliance/enforcement cases while others focus on permitting.

SED staff agreed with USACE personnel that some type of enforcement networking would be highly beneficial to their program overall. Sharing data and information between agencies would result in more efficient compliance and enforcement. The SED team also demonstrated a need for rulemaking to clearly define terms that are used in permits and permit special conditions (e.g. coral, reef, ETOF, etc.) in order to reduce ambiguity. This would require rule making because the Noticed General Permit conditions cannot otherwise be changed. Also, a more uniform approach to the permit process, monitoring requirements and special permit conditions would benefit everyone including enforcement staff. They suggested that an interagency task force would assist in making processes more uniform across the various permitting and enforcement agencies.

Staff would also like to look into possibly requiring a qualified/certified 3rd party to conduct certain monitoring and sampling components (e.g. turbidity sampling) to ensure accuracy and prevent bias. An alternative to this, for smaller projects, would be to create a short certification class in order to demonstrate calibration and sampling techniques, or at a minimum, attach clearly written sampling protocols to permits in cases where the contractor will be responsible for conducting the monitoring.

7.3 FDEP BBCS

7.3.1 BBCS JCP Section

Positive aspects of the JCP program included good communication with other agencies as well as an excellent database tracking system for compliance and monitoring reports. This allows them to easily determine whether compliance and monitoring reports have been received in a timely manner.

JCP staff indicated that field compliance is a weakness due to staffing and budgetary constraints on travel as well as lack of proper field equipment (e.g. vessels). JCP staff feel that there is a need to involve the regulatory and permitting staff in compliance and enforcement because they are most familiar with the project and conditions. However, there are potential problems with this due to staffing and workload issues. Improving communications with the local SED and CCCL staff may increase enforcement ability; again workload may be an issue with this approach. Another problem with utilizing local CCCL and SED personnel is that many are not certified to dive and would not be able to conduct field inspections requiring the use of SCUBA.

As with the previous interviews, the staff agreed that networking more closely with other agencies in some type of enforcement task force would be highly beneficial. They suggested meeting on a project specific basis instead of regular meetings as a means to cut down on time requirements and travel expenses.

JCP staff members also noted that their agency seldom involves law enforcement or pursues criminal charges. Part of the reason for this is that it is difficult to prove that the impacts being observed were caused by a particular applicant or project. Permittees are willing to pay exorbitant costs to avoid admitting to any offense rather than pay fines and restoration costs. Staff suggested that standardizing protocols for field visits and data collection could facilitate providing a better case for fines or criminal charges. Standardizing data collection would also allow data to be utilized by a variety of agencies and would limit multiple site visits and duplication of data sampling. Staff also suggested amending current statutes to allow for higher penalty amounts (the current maximum is $10,000) and amending current policy to allow for more support from upper level management in levying penalties. The staff's perception is that upper management currently operates under a philosophy which avoids utilizing the fines and penalties available so as not to create tension by cracking down on violators. This may be due in part to the intense political pressure felt by the FDEP BBCS.

7.3.2 BBCS CCCL Section

CCCL field inspectors cited a lack of staff as the biggest limitation to their program. Currently there is only one enforcement officer covering all of Broward, Miami-Dade, and Monroe counties. Staff is also spending a considerable amount of time conducting windshield surveys to document erosion (taking photographs of known erosion hot spots after minor and major storm events) which takes away from time spent conducting compliance and enforcement activities. Lack of equipment was noted as the second biggest limitation. The staff feels a need for a 4-wheel drive vehicle and an ATV capable of accessing difficult terrain frequently encountered on their site visits. Beach access is a particular problem for many field inspections as most of the coastline of south Florida is privately owned. This makes it arduous and time consuming to negotiate access to many beach sites with the various condominium associations and private land owners. In addition, there is a widespread lack of respect from the public due to the public perception that the FDEP does not enforce any violations or citations.

Another limitation to the effectiveness of their program is that most field permits do not have a requirement for any type of post-construction inspection or as-built survey. This makes it difficult to verify that projects are being constructed according to the permit specifications. Staff also noted that many of the cities have the authority to issue emergency permits which can undermine the authority of the CCCL program. These permits are issued following storm events or for shoreline stabilization activities that the city deems to be urgent. The permits have no compliance reporting aspect and are not enforceable by the FDEP staff.

As with all the previous interviews, the CCCL personnel indicated that networking between agencies would be valuable and may help to alleviate some of the workload issues.

8. Gaps

8.1 Monitoring

One of the most prevalent gaps observed is the lack of pre-, during, and post-construction monitoring requirements. Monitoring requirements are a key factor in documenting coral reef resource impacts. Monitoring protocols based on the before-after, control-impact (BACI) designs are generally used to compare measurements taken from control and impact site locations before and after construction. It is difficult to gather any statistically significant data from this type of monitoring because the experiment is not replicated and the sites can not be randomized (Hart et al. 2007). In order to help avoid and minimize potential impacts, pre-construction and during construction monitoring at multiple sites should be required. Comparing pre- and post-construction monitoring reports can allow for a more accurate assessment of project impacts which can lead to better mitigation requirements.

8.1.1 Biological

Documenting the precise location of coral reef resources during a pre-construction survey enables the permittee to better avoid the resources and allows for the opportunity to transplant corals prior to construction impacts. Ongoing monitoring during construction can alert permittees and regulators to any potential problems (e.g. escalating turbidity within a project site) which would allow for adjustments in construction methodology to alleviate the condition. Using divers and other trained personnel to monitor and assist with activities such as anchor and cable placement can also reduce the risk of potentially damaging sensitive resources.

8.1.2 Physical

During construction monitoring would especially be useful in cases where applicants have requested a variance from the FDEP allowing them to exceed the standard turbidity requirements. During construction turbidity monitoring would provide detailed information regarding whether the variance was necessary as well as provide more information on the actual turbidity increases within the project site. Current permit

conditions do not require the use of up-to-date technology. Reliable, high-resolution sensors should be required in order to gather turbidity records and other physical data throughout construction. This would eliminate missed or incorrect sampling due to adverse weather or human error. There is also a bias in current monitoring reports because the consultants or contractors performing the sampling are usually paid by the permittee. This results in the contractor having a vested interest in reporting data which is favorable to the permittee. In order to correct this bias, a neutral third party should complete the sampling and monitoring. If third party monitoring is not possible, contractors should have to complete a course on sampling and monitoring methods and be required to prove their ability to accurately calibrate and sample prior to beginning construction. Also, attaching clearly written sampling protocols to permits in the case where the contractor will be responsible for conducting the monitoring is recommended.

8.2 Blasting

Another gap found in the permit special conditions that were reviewed was any reference to blasting practices during dredging activities. This could potentially be due to the fact that most of the larger port permits (where blasting was likely used as a construction practice) were authorized prior to the past 5 years (the time range that this project focused on) or because the projects were constructed by the Civil Works division of the USACE which does not go through the same permitting channels. It is unlikely that some of the large-scale dredging projects were completed entirely without the use of blasting to loosen consolidated sediments prior to dredging.

8.3 Temporal Duration of Permit Conditions

Other gaps within permit special conditions included a lack of reporting requirements and end dates. Various members of the enforcement staff that were interviewed indicated that many of the conditions would be more enforceable if these were included. Reporting requirements are crucial to alerting enforcement personnel to potential compliance enforcement issues; particularly in light of the fact that most agencies are understaffed. Also, if the condition doesn't include a date for when it is to be completed, it is very difficult to enforce. Essentially the permittee has and indefinite amount of time to comply with the permit conditions if no due date is included in the permit. For example, a monitoring condition such as the following, "The permittee must monitor the reef creation area for success as an artificially created reef structure. The monitoring must establish the baseline conditions, and annual reporting of the following: (a) the reef's physical stability (b) the biodiversity of fishes, algae, and invertebrates (including species identification and abundance)", does not give any indication of when the permittee must establish the baseline conditions or when they must complete and submit any monitoring reports. This condition would be difficult to enforce because a court would rule that the permittee was not required to conduct the baseline monitoring or submit any reports by a certain date and therefore did not violate the condition by not completing the monitoring within a reasonable timeframe.

8.4 Formatting and Clearly Defined Terminology

There is also a need to use clearly defined terms within permit conditions as well as to attempt to simplify and standardize conditions as much as possible within and between agencies. Using subjective terms or terms with no clear definition make it difficult to build a strong case for enforcement. Conditions must be clear and have terms with concrete definitions in order for enforcement personnel to pursue fines and penalties, particularly when a case may end up in court. Subjective terminology gives the permittee the opportunity to misinterpret (willfully or not) the meaning of the condition. Some agencies, like the FDEP, may require that the terms be defined by statute or through rule making. For example, the Noticed General Permit (NGP) conditions cannot be changed without changes to the statutes. Simplifying conditions would help make permits easier to read and make them less confusing to contractors and permittees. Using bullet points and check-lists wherever possible can make conditions more direct and easier to follow. Standardizing conditions within and between agencies can also reduce confusion and may increase compliance. By standardizing conditions it will make it easier for permittees and contractors to know what to expect for certain project types and will also result in fewer conditions overall as well as a reduction in the number of monitoring reports that they have to coordinate. Currently, different agencies are requiring different types of monitoring and a variety of different reports and reporting timeframes. This can become confusing to a permittee and may result in non-compliance issues.

8.5 Agency Authority

8.5.1 USACE

Based on information gathered from the USACE enforcement staff, there is a significant gap to be addressed regarding Section 10 projects. As noted above, the USACE has no authority to levy civil penalties or fines for any violation of a Section 10 permit condition. While the USACE can pursue criminal charges for these types of violations, attorney support for these actions is extremely limited due to the expense involved in such actions. As such, the USACE is unlikely to pursue any retribution for Section 10 violations unless it is for a flagrant and/or repeat violation. Rule making would be necessary to allow the USACE to levy civil penalties under Section 10 of the Rivers and Harbors Act. This would dramatically improve the USACE's enforcement capacity.

The USACE authority is questionable when it comes to enforcing permit attachments such as monitoring protocols and reasonable and prudent measures found in biological opinions. Current policy is that permit drawings and monitoring reports are enforceable if they are referenced in a permit condition and properly denoted as an attachment (e.g. as per Attachment 1). Reasonable and prudent measures, which are a requirement of a biological opinion provided during endangered species consultations, are not enforceable by the USACE. Another issue which frequently arises with enforcement of permit attachments is that the attachments may be separated from the permit and/or lost and may not be accessible by the enforcement personnel.

8.5.2 FDEP

Although the FDEP has no problems with the current regulations which would prevent them from issuing civil penalties for certain permit violations like the USACE does; the staff (particularly the BBCS JCP staff) feel that there is little support from upper-level management for such actions. This results in a large gap in enforcement. Staff feels that upper-level management does not support issuing fines and citations for permit violations. Again, the reason behind this decision may be due to significant political pressure felt by the agency. This may also be related to ambiguity in the current statutes. Present statutes provide a clear ERP section, but not a separate stand-alone JCP section; therefore clarification is needed to establish that the JCP has the authority to issue penalties and fines for permit violations. The FDEP's permitting and enforcement authority is also undermined by the regulations which allow local municipalities to issue emergency permits for various shoreline stabilization projects. The FDEP is only notified of these projects after-the-fact.

The FDEP staff currently enforces permit attachments. As with the USACE, these attachments are only enforceable when they are properly labeled and referenced within the permit special conditions.

9. Recommendations

In an effort to address the gaps and provide for a more standardized set of permit special conditions the following list includes recommended permit special conditions. The following were compiled using information and recommendations gathered from enforcement staff during the interviews; the list uses conditions rated as level 5 and incorporates the suggested modifications for improvement for conditions that were not originally rated a five. Conditions are formatted into templates wherever possible with replaceable text in **bold/underline** to indicate places where dates, timeframes, sizes, etc. should be entered to tailor the conditions to better fit specific projects. Some conditions also include recommendations in parenthesis which indicate suggested numbers to enter, for example, a recommended buffer zone of 1000 feet is suggested or to signify that a particular condition would be most effective when used in conjunction with certain other conditions. Table 1 below shows a list of all the conditions by number with check marks under corresponding permit activities to which the condition may apply. This table can be used as a cross-reference tool as some conditions are applicable under more than one category.

In general, conditions in permits should be organized under sub-headings where similar conditions are grouped together. For example, all conditions related to mitigation and monitoring requirements should be listed under the sub-headings of "mitigation" and "monitoring", respectively. The word "agencies" appears in many of the following conditions. The relevant agencies should be defined at the beginning of the permit special conditions section and should include the contact information and reporting addresses; this allows for conditions to be used by multiple agencies and organizes all reporting addresses into one location to simplify the process for the permittee. Inclusion of a

checklist at the beginning or end of the permit special conditions is also recommended. The checklist should include a list of all reports due to be submitted listed in order, including the dates due. This will facilitate organization and will serve as a useful tool for the permittee as well as for the agencies to improve compliance. Whenever possible, permit conditions should include a reporting mechanism and a due date. Permits should include an "As-Built" certification form which the permittee is required to submit within 15 days following completion of construction. The "As-Built" certification form should include drawings and/or photographs of the completed project to ensure that the project has been constructed pursuant to the permit specifications. The form should also include documentation of any deviations in plan specifications or building materials as well reasons for the deviations. If a drawing or monitoring protocol is referenced within a condition, the source must be clearly indicated (e.g. as per Attachment 1). The following list is not intended to be exhaustive; however it is proposed as a directory of standardized, enforceable conditions to provide at least a minimum level of protection for coral reef resources.

TABLE 1: Cross-reference list of all recommended conditions (by number) with check marks corresponding to permit activities to which the condition may apply.

Condition Number	Shoreline Stabilization	Dredging	Port Maintenance/ Expansion	Commercial Docks & Marinas	Energy and Utilities	Artificial and Mitigation Reefs
1	X	X	X	X	X	X
2	X	X	X	X	X	X
3	X	X	X	X	X	
4	X	X	X	X	X	X
5	X	X	X	X	X	X
6	X	X	X	X	X	
7	X	X	X	X	X	X
8	X	X	X	X	X	X
9	X	X	X	X	X	X
10	X	X	X	X	X	X
11	X	X	X	X	X	X
12	X					
13	X					
14	X	X			X	
15	X	X				
16	X					
17	X	X	X	X	X	X
18	X	X	X	X		
19	X	X	X	X		
20	X	X	X			
21	X	X	X	X		
22	X	X	X	X		
23	X	X	X	X		

24	X	X	X	X		
25	X	X	X	X		
26	X	X	X			
27	X	X	X	X		
28			X	X		
29		X	X	X		
30			X	X		
31			X	X		
32			X	X		
33					X	
34					X	
35					X	
36					X	
37					X	
38					X	
39					X	
40						X
41						X
42						X
43						X
44	X	X	X	X	X	X
45						X
46						X
47						X
48						X
49						X
50						X
51						X
52						X
53						X
54						X

9.1 Conditions Applicable to Multiple Activities

1. Turbidity Barriers: Prior to the initiation of any of the work authorized by this permit the permittee shall install floating turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized.

2. The permittee shall conduct a pre-construction meeting at a minimum of 30 days prior to commencement of construction. The permittee shall provide a minimum of a 30-day advance written notification of the pre-construction meeting, to the agencies. The permittee shall develop training modules relating to coral reef resource awareness, identifying and mapping of coral communities, and resource protection measures. The

permittee shall submit the training modules to the agencies for review and approval for use during the pre-construction meeting. The permittee will be required to implement these training modules to all staff that are engaged in any aspect of this construction project. The permittee shall submit signed certifications of coral reef resource awareness training completion for each staff member within 7 days of that staff member beginning work on any aspect of this project.

3. Within 60 days prior to construction the permittee shall conduct a pre-construction survey to document the size and position of all coral colonies within the construction footprint. Within 30 days of completion of the construction, a post-construction survey shall be conducted to determine if there have been any direct or indirect impacts to corals. Both surveys will be conducted by **diver (if water depths are 100 feet or less) submersible/ROV (if depths are greater than 100 feet)** and a written report, including pictures and/or video will be submitted to the agencies within 10 days after completion of each survey. The pre-construction survey must be received by the agencies no later than 15 days prior to construction.

4. No impacts to seagrass, hard corals, or soft corals shall occur as a result of construction operations, such as, but not limited to, propeller scouring; and vessel or barge anchoring, grounding or spudding, etc. For any impacts caused by the construction activities, restoration and mitigation will be required. **(This condition is most effective when used in concert with a pre- a post-construction survey requirement as in #3 above).**

5. The permittee shall ensure that all vessels and water craft associated with construction activities maintain a minimum of **X # of feet (recommend a minimum of 1 foot)** clearance between bottom of any vessel and top of any submerged aquatic resources verified by pre-construction bathymetric and resource surveys provided to the agencies within 15 days prior to construction.

6. The permittee shall ensure that scleractinian (hard) corals of 10 centimeters (cm) or greater and soft corals of 15 cm or greater are transplanted from the areas of direct and secondary impact (i.e. indirect impact) no later than 15 days prior to construction. Corals shall be transplanted in accordance with the enclosed approved coral transplantation plan by a qualified professional. In order to be successful, the transplanted corals must maintain a survival rate of **X % of total OR X % coverage.** Qualifications for all individuals performing transplants will be submitted to the agencies for approval no later than 15 days prior to transplant activities. **(This condition is most effective when used in concert with pre-construction survey and post-construction monitoring of the transplantation sites. Also, an approved coral transplantation plan should be a requirement prior to permit issuance).**

7. The permittee shall submit the names and qualifications of all individuals who will perform any of the sampling, surveying or monitoring activities required to the agencies at least 15 days prior to performing any activity.

8. All reporting documents must contain the following information: (1) Permit Numbers; (2) Project Title (3) Dates and times of any sampling and analysis; (4) Statement describing the methods used in collection, handling, storage and analysis of the samples; (5) Map indicating the project location, sampling locations, current direction, plume configuration and the location of any dredge and discharge point(s); and (6) Statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection 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) DGPS position.

9. In the event that additional mitigation, remediation, and/or monitoring is required, as a result of unanticipated impacts identified during monitoring or post construction surveys, the permittee shall provide a draft mitigation and monitoring plan to the agencies for review within thirty days. Mitigation activities shall be completed within one year of agency approval of the plan. **(This condition should be used in concert with a pre- and post-construction monitoring requirement as in #3 above).**

10. The permittee shall immediately alert the agencies of any impacts or accidents that may occur. The permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to living coral in the event of unforeseen accidents. The permittee shall correct or remove (course of action will be determined by the agencies) any structure that causes damage to coral resources within 10 days in a manner that avoids further damage to the resources. The agencies may participate and assist in this effort.

11. All vessel movement and construction activities shall take place during daylight hours only. For the purposes of this permit, daylight shall be defined as occurring from 30 minutes before sunrise to 30 minutes after sunset.

9.2 Shoreline Stabilization

12. The permittee shall establish nearshore monitoring stations/cross-shore permanent transects, extending **X # of feet** seaward of the equilibrium toe of fill (ETOF) a minimum of 30 days prior to construction, to monitor and identify potential effects from sediment and turbidity movement, and stress indicators, on scleractinian (stony) and soft coral species, on adjacent, deeper, and stable nearshore hardbottom communities. The permittee shall conduct surveys of nearshore hardbottom resources, fish populations and epibenthos monitoring sites, and depth of sediment, immediately prior to construction (this will be compared to baseline data to get information on natural variability), and annually for **X # of years** after construction, in accordance with the attached approved Construction/Post-Construction Nearshore Biological Monitoring Tasks. Reports will be submitted to the agencies within 30 days of completion of each monitoring event. **(This condition requires a Biological Monitoring Protocol to be submitted and approved prior to permit issuance).**

13. Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the borrow areas and the beach nourishment sites shall be monitored during construction.

- Turbidity will be measured at background and compliance stations at the surface, mid-depth and 1 m above the bottom utilizing high resolution sensors which will give continuous data throughout the project. (More information on available sensors can be found at http://www.act-us.info/evaluation_reports.php)
- Background measurements will be taken least 300 meters upcurrent from the dredge site, clearly outside of any turbidity generated by the project.
- Compliance measurements will be taken no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume.
- Beach Nourishment and/or Groin Construction Sites measurements will be taken including a background measurement approximately 150 meters offshore and 300 meters upcurrent from the discharge point, clearly outside of any turbidity generated by the project and a compliance measurement approximately 150 meters offshore and no more than 150 meters downcurrent from the discharge point, within the densest portion of any visible turbidity plume.
- Weekly summaries of all monitoring data shall be submitted to the agencies within one week of collection.
- 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 are greater than 15 NTU's above the associated background turbidity levels, the agencies shall be notified and construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.

(This condition is to be used for shoreline stabilization projects including beach renourishments and groin installations. A similar condition tailored for dredging only projects can be found in #27 below).

14. The applicant will provide underwater monitoring and video documentation of adjacent hardbottom resources, along the pipeline corridor, immediately prior to, and following, pipeline placement, and within 30 days of pipeline removal, in order to verify avoidance of impacts to any adjacent hard-bottom resources. The monitoring shall record the following information: (a) general silt and sediment levels on the reefs, (b) notes on any adverse effects, which may result from sedimentation, mucous formation on corals and sponges, bleaching and mottling, morbidity etc. in accordance with the attached approved monitoring protocol. **(requires pre-approved monitoring protocol prior to permit issuance).**

15. At least 15 days prior to construction, the permittee shall provide to the agencies and the dredge contractor, a map identifying approved vessel transit corridors plotted as polygon targets to be used during transit from the borrow areas to the sand pump out facility locations. A hard copy of the map shall be submitted to the agencies and an electronic map in electronic GPS form shall be submitted to the contractor. The electronic GPS form shall be adequate enough to allow for electronic positioning, and to be incorporated with the required continuous tracking system on the dredge vessel. The permittee shall ensure that the selected vessel transit corridors are sand bottom or

corridors of low habitat cover (consisting of areas with 10% coverage or less of any submerged aquatic resources). The approved vessel transit corridors shall be ground-truthed to confirm accuracy of vessel paths, to ensure that adequate vessel operating depths will be achieved, and to ensure no natural resources will be impacted. Ground truth reports shall be submitted to the agencies at least 15 days prior to construction. **(This condition should be used in concert with a buffer zone requirement as in #21 below, and/or pre- and post-construction survey requirements, see #3 above).**

16. Fill material placed on the beach shall be sand that is similar to that already existing at the beach site in both coloration and grain size. All such fill material shall be free of construction debris, rocks, or other foreign matter and shall not contain, on average greater than 10 percent fines (i.e. silt and clay) passing a Number 200 sieve and shall not contain, on average, greater than 5 percent coarse gravel or cobbles exclusive of shell material retained by a Number 4 sieve. Suitability analysis will be submitted to the agencies for approval at least 30 days prior to construction.

17. The permittee shall ensure that precautions are taken to prevent damage from occurring to the existing reef resources as a result of cable drag, equipment drag, scour wash, or other construction activities. The permittee shall prevent scouring of benthic resources during all operations:

- Any towed vessels such as barges, scows and the like, shall be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line.
- All cables must be floated in all water depths to avoid impact to submerged aquatic resources.
- All operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.

(This condition should be used in conjunction with a pre- and post-construction monitoring requirement to confirm there are no impacts and remediation condition in case monitoring shows there are impacts, see conditions #3 and #9 above.)

9.3 Dredging

18. The permittee shall monitor the offshore hardbottom habitat, located adjacent to the borrow sites, for sedimentation, generated by the dredging operations. Amount and duration of sedimentation will be monitored, as well as stress indicators of stony and soft corals affected by the dredge operations, at designated monitoring stations located adjacent to each borrow area.

- The stations shall be monitored once per day, beginning **X # of weeks** prior to construction, during construction, and **X # of weeks** following construction in accordance with the attached approved Construction/Post-Construction Nearshore Biological Monitoring Tasks. In the event that inclement weather prevents monitoring, construction shall also cease for that time period and the event shall be recorded in the monitoring report.

- Construction activities shall cease and the agencies shall immediately be notified if sediment exceeds defined standards (more than 1.5 mm per day). If coral stress indicators exceed defined values, then histological tissue analysis of affected corals will be conducted.
- A minimum of **X # of days** prior to construction, stress indicators and coral stress index values must be established to monitor the viability of the coral habitat during construction. To avoid damage of submerged aquatic habitat, coral stress thresholds shall be developed.
- All reports shall be submitted to the agencies within 30 days following completion of the monitoring event.

(This condition requires submittal of an approved Biological Monitoring Protocol prior to permit issuance).

19. During construction activity, best available navigational and positioning equipment will be used which will sound an alarm notifying the dredge operator that the dredge is approaching a hardbottom location.

20. The permittee shall ensure that the contractor daily inspects the hopper dredge for any leaks or failures. The permittee will ensure that the contractor uses signal devices or alarm devices on all vessels associated with this project to ensure that leaks from the split hull mechanism do not occur. The permittee must ensure that the contractor is operating the hopper dredge in a manner that the split hull mechanism is closed completely at all times before leaving the borrow sites. There shall be no random deposits of dredge material over natural resources. **(This condition should be used in concert with a pre- and post-construction monitoring requirement as well as remediation in case of impacts, see conditions #3 and #9 above).**

21. A **X # of Feet** **(recommend 1000 foot buffer, 400 foot minimum)** buffer zone in which dredging and anchoring is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). The permittee shall ensure that the buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s). **(This condition should be used in concert with pre- and post-construction monitoring requirements, especially if buffer is less than 1000 feet).**

22. All operations including the arm of the hopper dredge, etc., shall be conducted in a manner to eliminate the possibility of equipment dragging on the bottom and damaging natural resources. Before the dredge leaves any/all borrow areas, the drag-arm (hopper arm) must be completely raised out of the water at all times during transit. The permittee must provide, within 30 days prior to construction, a plan that will address what methods or preventions will be taken to avoid any operational failures. If operational failures of the drag-arm occur, the permittee shall immediately notify the agencies and work shall immediately cease until the cause of failure has been corrected. **(This condition should be used in concert with a pre- and post-construction surveys as well as remediation requirement in the event that damage of resources occurs, see conditions #3 and #9 above).**

23. The permittee shall require the dredging contractor to push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation. The equipment shall monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. A final report shall be submitted to the agencies within 15 days following completion of construction. As part of the final project report, the permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88, including complete metadata. Vertical and horizontal accuracy of the positioning equipment shall also be reported. **(This condition should be used in concert with a buffer zone requirement, see condition #21 above).**

24. The permittee shall submit an Emergency Spill Response Plan for all vessels operating in association with the project authorized herein a minimum of thirty days prior to the commencement of construction. Agency approval of the emergency Spill Response Plan will be required prior to commencement of construction.

25. The permittee shall submit an Operational Storm Contingency Plan that describes the actions to be taken in response to storm events (e.g. hurricanes, high-sea conditions and/or operational failures (e.g. breaks in the dredge pipelines) a minimum of thirty days prior to the commencement of const ruction. Agency approval of the Operational Storm Contingency Plan will be required prior to commencement of construction.

26. The permittee shall conduct a stability analysis for the dredged material pipeline for its entire length. The permittee shall anchor or otherwise stabilize the dredge material pipeline consistent with this analysis and in such a manner as to ensure that the pipeline will remain stable in a 50-year storm event. A copy of the analysis shall be provided to the agencies at least 15 days prior to construction.

27. Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the dredging areas shall be monitored during construction.

- Turbidity will be measured at background and compliance stations at the surface, mid-depth and 1 meter above the bottom utilizing high resolution sensors which will give continuous data throughout the project.
- Background measurements will be taken least 300 meters upcurrent from the dredge site, clearly outside of any turbidity generated by the project.
- Compliance measurements will be taken no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume.
- Weekly summaries of all monitoring data shall be submitted to the agencies within one week of collection.
- 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 are greater than 15 NTU's above the associated background turbidity levels, the permittee will immediately notify the agencies and construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.

(This condition is to be used for dredging projects. A similar condition tailored for shoreline stabilization projects can be found in #13 above).

9.4 Port Maintenance and Expansion

28. The permittee shall establish ingress/egress corridors which avoid submerged aquatic resources and vessel exclusion zones within **X # of feet (recommend a minimum of 400 feet)** of any hardbottom resources. The project plans and specifications shall clearly delineate the operation and exclusion zones, and the permittee shall provide a copy to the agencies a minimum of thirty (30) days prior to commencement of transport or disposal of spoil material. **(This condition should be used in concert with a pre- and post-construction survey as in #29 below).**

29. The permittee shall perform pre-project surveys which may include multi-beam bathymetry, side scan sonar, diver reconnaissance, remotely operated vehicle investigations, and photographic and video documentation, of all hardbottom areas adjacent to the ingress/egress corridors and the Ocean Dredged Material Disposal Site (ODMDS) to confirm the presence or absence of deepwater aquatic resources. The assessments shall include quantitative and qualitative descriptions of benthic resources throughout the disposal route and adjacent to the disposal site. If the surveys document any direct or indirect impacts of the transport and disposal project have occurred remediation will be required. The pre-project surveys shall be submitted to the agencies 30 days prior to project commencement. The post-construction survey shall be submitted within 30 days following project completion. The surveys shall be conducted in accordance with the enclosed approved survey and monitoring plan. **(This condition requires that a survey and monitoring plan be approved prior to permit issuance).**

9.5 Commercial Docks and Marinas

30. The permittee shall clearly mark and buoy the exact location of the navigation routes, including approaches to the dock. The navigation routes shall be marked a minimum of 15 days prior to the commencement of the construction activities authorized by this permit. The permittee shall submit survey and photo documentation of the marked channel to the agencies at least 7 days prior to the commencement of the installation activities. **(This condition should be used in concert with a pre-construction survey as in #3 above to ensure no resources within the proposed channel as well as a buffer zone as in #5 above and a condition requiring sufficient depth clearance for any vessel associated with construction or use of the facility, see condition # 5 above).**

31. All piles shall be installed using pile-driving techniques. High speed jetting is not an approved method of pile installation.

32. Blasting is prohibited.

33. The docks shall be constructed to fully adhere to all construction specifications found within the Dock Construction Guidelines. **(The guidelines can be found at http://www.saj.usace.army.mil/Divisions/Regulatory/DOCS/species/dockGuide/DockGuidelines2008_Revised.pdf).**

9.6 Energy and Utility Lines

34. Cable deployment shall not take place during high swells or unfavorable weather conditions, including highest peak of hurricane season (mid September to mid October), during severe currents, when increased damage to corals would be expected to occur. The installation activities shall immediately cease should inclement weather or unexpected severe currents arise during deployment.

35. The permittee agrees to perform aquatic toxicity tests for any and all proposed chemical additives that may be used during construction operations a minimum of 60 days prior to the start of this project. The permittee shall prepare a report with the results of the toxicity tests, the MSDS sheets for each proposed additive, and the proposed concentrations of the additives that will be used. The permittee shall submit the information to the agencies at a minimum of 30 days prior to the start date of construction for the agencies to review and approve the additives to be used. Any additive that is not approved may not be utilized as part of this project.

36. The permittee agrees to position Beacon transponders on the anchors deployed within 100 feet of any existing telecommunications cables to record for any anchor movement or drag. Upon detection of any anchor movement, tension on the anchor line to that anchor will be reduced as necessary to stop the anchor movement. In addition, upon detection of anchor movement divers and/or ROV shall be dispatched within 48 hrs to investigate whether any impacts to resources have occurred, and determine what actions are necessary to avoid additional anchor movement (including possible resetting or replacement of the anchor). If impacts from anchor movement (or communication cable movement caused by anchor movement) are discovered, appropriate reports shall be made to the regulatory agencies within 7 days. **(This condition should be used in concert with a remediation requirement in the event that damage has occurred, see condition #9 above).**

37. Jet burial of the cable [i.e. use of water jets to (re)move seabed material] shall not be used at any time during deployment activities.

38. Large cable laying vessels shall remain offshore during the deployment of the cable. Only small boats of less than 3 ft draft shall be used for nearshore maneuvers during

cable deployment. **(This condition should be used in concert with a minimum clearance condition as in #5 above).**

39. A three-year monitoring program shall be implemented to assess the impacts of the cable on benthic organisms in accordance with the enclosed approved benthic monitoring plan. As part of this program, four monitoring surveys shall be conducted as follows: immediately after cable installation and yearly thereafter. Monitoring reports shall be submitted to the agencies within 30 days from the date of each monitoring event. **(This condition requires an approved survey plan prior to permit issuance. This condition should be used in concert with a pre-construction monitoring plan to determine baseline conditions and a remediation condition in the event that damage to resources is documented, see conditions # 3 and #9 above).**

40. The cable shall be securely anchored to the seafloor. A survey and/or photo documentation of the anchoring system shall be submitted to the agencies within 15 days following completion of construction.

9.7 Artificial and Mitigation Reefs

41. All structures will be constructed in accordance with the attached approved engineering report which provides reasonable assurance that the structure will be stable through a 20 yr storm event. A sediment depth survey shall be conducted immediately prior to construction to ensure that the artificial reefs are placed in areas with underlying rock (for stability) and a persistent cover of sand. **(This condition requires an approved engineering report prior to permit issuance).**

42. The permittee shall deploy only the following authorized reef materials:

- Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials.
- Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches, no more than 48 inches), stormwater junction boxes, power poles (concrete or wood, not treated with creosote).
- Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard.
- Heavy gauge steel components or structures, ½" or more in thickness. Properly prepared, clean steel vessels.
- Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures will be selected, designed, constructed and deployed to create effective, stable and durable reef habitat.

43. The permittee shall deploy all reef materials within the site boundaries as defined on the enclosed permit drawings. A minimum clearance of twice the height of the structure

from the top of the deployed material relative to Mean Lower Low Water (MLLW) shall be maintained at all times. Clearance shall never be less than 6-feet.

44. Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable U. S. Coast Guard, U.S. Environmental Protection Agency, Florida Fish and Wildlife Conservation Commission, or other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis has been completed based on vessel and deployment site characteristics. The permittee shall submit the certifications and/or waivers to the agencies a minimum of 15 days prior to construction. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceans/habitat/artificialreefs/index.html

45. Within **X # of months** the permittee shall create **X # of acres** of artificial reef in **X # of feet** of water depths at the specified location in accordance with the attached permit drawing # **X of X**. In order to be successful the mitigation reef must achieve **X amount of lift** (determined through Uniform Mitigation Assessment Method (UMAM)) within **X amount of time**. If artificial reef construction is not completed and deemed successful within the specified time period, a time lag coefficient shall be applied to increase the mitigation ratio. **(This condition should be used in concert with a monitoring requirement as in #48 below. All parameters of the artificial reef should approximate the conditions of the impacted reef as closely as possible to ensure replacement of ecosystem functions and values)**.

46. The permittee agrees that all deployed artificial reef material will maintain at least a **X # of feet (recommend a minimum of 100 feet)** buffer from any existing hardbottom. **(This condition should be used in concert with a pre-construction survey to document location of existing hardbottom, see condition #3 above).**

47. The artificial reef materials must be placed in shore parallel formations, which mimic the natural hardbottom found in the project area.

48. The permittee agrees to conduct monitoring of the artificial reef in accordance with the attached approved Mitigation Reef Monitoring plan. The monitoring of the artificial reef will include at a minimum:

- Establishment of baseline conditions
- Annual reporting of the reef's physical stability, and the biodiversity of fish, algae, and invertebrates (including species identification and abundance) for 5 years
- Maps will be prepared, showing the location, composition, configuration, depth, scour, extent, ephemeral nature of the reef structures.
- Data will be recorded and an annual report generated, reporting these findings to the agencies within 30 days of each monitoring event.

(This condition requires a mitigation reef monitoring plan be approved prior to permit issuance).

49. No fish attraction devices may be constructed or attached to the permitted artificial reefs or within the site boundaries.

50. In addition to the agencies listed under the agency contact list, the permittee shall also notify the National Ocean Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, Rockville, Maryland, and the Department of Environmental Protection, Division of Marine Resources, Office of Fisheries Management and Assistance Services of the precise location of the reef within 30 days of placement of the reef material.

51. Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the permittee shall submit to the agencies a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the artificial reef locations in the past 12 months. For each deployment, the spreadsheet shall include:

- The local tracking number
- Date deployed
- Latitude and longitude
- Description and quantity of the material deployed
- Depth of water above material
- Approximate area of seafloor covered
- Results of any performance monitoring (description of fish and other biota observed)
- Any known changes in material condition (stability, durability, and location)

52. The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads of the vessel, and small charges in order to create holes of about 8-inches below the water line. Use of these explosives will be limited to the interior of the vessel. **(This condition is to be used for deployment of vessels as an artificial reef).**

53. The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. The survey shall be submitted to the agencies a minimum of 15 days prior to deployment. **(This condition is to be used for deployment of vessels as an artificial reef. This condition should be used in concert with a pre and post-deployment survey as well as a buffer zone and remediation requirement should any damage to existing resources occur).**

54. No less than 15 days prior to deployment of material on an artificial reef, the permittee shall transmit by electronic mail a complete and signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification" form, provided in Attachment **(insert attachment # or letter here)** of this permit, to the agencies to allow

inspection of the proposed reef materials. Inspection is allowable at the staging area. By signing the Pre-Deployment Notification the permittee certifies that all materials are free from asphalt, petroleum, other hydrocarbons and toxic residues. The permittee shall not deploy material if notified by the agencies that the material is questionable. The material needs to be evaluated and released before deployment. Any material that is deemed unacceptable for reef material will be disposed of in an approved upland disposal site. Deployment of the material shall not occur until after the end of the 15-day inspection period. The permittee shall ensure both a copy of all required agency permits and the signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification Form" are maintained aboard the deployment vessel at all times during loading, transit, and deployment.

55. By signing this permit, the permittee certifies and acknowledges ownership of all artificial reef materials deployed on the reef, accepts responsibility for maintenance of the artificial reef, and possesses the ability to assume liability for all damages that may arise with respect to the artificial reef.

10. Coral Reef Resource Awareness Training

In the past various permitting and enforcement agencies have expressed a need for more training regarding coral reef resources. The final segment of the interviews with field level enforcement personnel included a discussion of coral reef resource awareness with a focus on perceived training needs. Many of the enforcement personnel are not trained in coral reef biology and ecology and are hesitant to address enforcement cases because they perceive that the applicants or consultants have more subject knowledge and expertise in these areas.

10.1 USACE

The USACE enforcement staff expressed an interest in coral reef resource awareness training, particularly a classroom setting with a PowerPoint presentation listing characteristics of the important species (e.g. Acropora) as well as the types of projects that could result in potential impacts. The training shall also include a basic coral ecology section and information on best available methods for mitigation and/or remediation. Staff indicated that a classroom setting would be best because time and attention would be allocated more completely to the task. USACE staff also recommended conducting a pre- and pos-test for the class to increase participation as well as to provide something measurable to demonstrate that the class is effective. The USACE would likely conduct the training during one session, possibly broken up into several consecutive days depending on the length of the training. In addition to the classroom training, waterproof information cards with pictures of coral reef resources and examples of coastal construction impacts would assist them in knowing what to look for while completing field inspections. It was also suggested that a checklist would be beneficial to provide to law enforcement personnel who are willing to help conduct field investigations but sometimes lack the subject expertise to fully document impacts to coral resources.

10.2 FDEP SED

The SED staff also expressed an interest in coral reef resource awareness training in the form of PowerPoint presentation during a classroom type setting. The SED staff would like to conduct the training over the course of several weeks or several months by dividing it into sections and reviewing as a group at regular team meetings and following up with several field training sessions. Staff members indicated a strong desire to have location specific coral identification training utilizing pictures and information from the local area (e.g. county by county). Currently available trainings present coral morphology and photos of pristine subjects, usually found in the more southern regions. These can vary widely from the in situ colonies found from Miami-Dade County north through Martin County. SED personnel suggested that the training also include the basic ecology, common diseases, and a variety of morphology features such as pristine conditions vs. stressed conditions to allow them to better recognize evidence of stress in coral reef resources. The training presentation shall also include information on worm rock and deep water corals. Other training materials for field use would also be beneficial. Suggestions included waterproof binders complete with pictures, characteristics and common coral diseases as well as location maps, statutes and regulations. Field data sheets to use for reporting previously undocumented coral colonies may also be useful. Data sheets could include fields for description, DGPS position, condition and photos of previously undocumented corals. These could then be uploaded to a GIS mapping layer and provided to the various agencies.

10.3 FDEP BBCS

10.3.1 BBCS JCP Section

JCP staff members indicated a desire for coral reef resource awareness training in the format of a PowerPoint presentation which could be presented at the local field offices in a classroom setting to avoid budgetary and travel expenditure. Staff would like the training to focus on coral identification, types of coastal construction projects and their potential impacts for coral reef resources. Before and after pictures of project sites (if available) would be helpful to show the types of impacts. Staff also recommended creating a checklist of basic questions to ask during field visits and compliance inspections to assist in gathering necessary data. This would also facilitate standardizing data so that it can be used by multiple agencies. Waterproof coral ID cards including expected range of species and key ways to distinguish similar species as well as notes for which species are most susceptible to particular diseases or impacts (e.g. sedimentation) would also be useful in the field. Vladimir Kosymnin, one of the FDEP's foremost coral experts, also offered to assist in designing and presenting the coral reef resource awareness training to the various agencies.

10.3.2 BBCS CCCL Section

The CCCL staff also indicated an interest in coral reef resource awareness training focusing types of coastal construction projects and their potential impacts. The staff

recommended creating educational materials regarding coral reef resources and potential project impacts to hand out to contractors, consultants and general public to increase awareness.

10.5 Training Development

In an effort to address the training needs and desires of the permitting and enforcement community, this project seeks to develop a coral reef resource awareness training program. Phase 1 of this project utilized information and suggestions compiled from the various permitting and enforcement agencies to develop a basic template for a coral reef resource awareness training module. This template, along with the compilation of suggestions for field training resources (e.g. waterproof information cards, checklists, binders, etc.) will be given to the contractors for further development during Phase 2 of this project. The final product will consist of a PowerPoint training presentation divided into chapters which includes information on basic coral ecology, including worm rock and deep water corals, as well as local coral ID, types of coastal construction projects and their potential impacts and type of successful mitigation procedures. In addition, the contractor will also develop materials to be used in the field which may include waterproof coral ID cards, an overview of pertinent laws and agency regulations, field inspection checklists and/or educational brochures to be distributed among contractors and interested public.

11. Items for Follow-up

Several items were communicated during interviews with enforcement staff which require follow-up. The following are a list of such items:

- There is a need for clarification of how the USACE defines the MHW line, particularly for dune projects, to help determine whether there is a Section 404 violation when dune material is placed on the beach or is washed out into Waters of the U.S. The contact person at the USACE for this matter is Stu Santos.
- All the agencies expressed an interest in developing an Interagency Enforcement Task Force (similar to what already exists in the Jacksonville area). The initial contact person for this task is Jack Dunphy with the USACE.
- There is a possibility of donating/transferring non-transplantable corals (<10cm) that may be directly impacted by a project to coral researchers for their studies. There may be regulations or agency opposition to this practice. The initial contact person for this is Lauri MacLaughlin with the FKNMS.
- Although the FDEP and the USACE both currently enforce permit attachments (e.g. drawings, mitigation and monitoring plans, etc.) both agencies need to follow-up with upper-level management to ensure that this policy is legal and supported by agency protocols.

12. References

Code of Federal Regulations 40 Part 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. 2009. U.S. Army Corps. Internet website: http://usace.army.mil/CECW/Documents/cecwo/reg/materials/40cfr230.pdf

Environmental Protection Agency (EPA). 2009. Office of Water. Internet website: http://www.epa.gov/ow

Florida Department of Environmental Protection (FDEP). 2009. Bureau of Beaches and Coastal Systems. Internet website: http://www.dep.state.fl.us/beaches

FDEP. 2009. Environmental Permitting. Internet website: http://www.dep.state.fl.us/beaches/programs/envpermt.htm

FDEP. 2009. Environmental Resource Permitting. Internet website: http://www.dep.state.fl.us/water/wetlands/erp/permitting.htm

Hart, A., D. Snyder, K. Spring, and R. Hammer. 2007. Application of Scientific Experimental Design in Monitoring Hard Bottom Habitats Associated with Areas of Beach Nourishment. 2006 Proceedings of the National Conference on Beach Preservation Technology. Internet website: http://www.fsbpa.com/06Proceedings/07-AlanHart.pdf

Southeast Florida Coral Reef Initiative (SEFCRI) Maritime Industry and Coastal Construction Impacts (MICCI) Project 27 Scope of Work (SOW). 2009. Internet website: http://www.dep.state.fl.us/coastal/programs/coral/documents/2009/FDOU/01-27/MICCI-FDOU_27_47_48_SOW.pdf

Appendix A: Permit Special Conditions

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	All structures shall be constructed to be stable in a 20-year storm event verified by stability analysis.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Authorized Reef Materials: The Permittee shall deploy only the following authorized reef materials: a) Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. d) Heavy gauge steel components or structures, ½" or more in thickness. Properly prepared, clean steel vessels. Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures will be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Reef Parameters: The Permittee shall deploy all reef materials within the site boundaries as defined on the enclosed permit drawings. A minimum clearance of twice the height of the structure from the top of the deployed material relative to Mean Lower Low Water (MLLW) shall be maintained at all times. Clearance shall never be less than 6-feet.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Violation of Reef Parameters: In the event reef material is deployed in a location or manner that is contrary to the Reef Parameters Special Condition, the Permittee shall immediately notify the USCG Station and provide information as requested by the station. The Permittee shall notify NOAA, USCG and Corps in writing within 24 hours of the occurrence. At a minimum the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place) and the water depth above the material from Mean Lower Low Water. The document will list the information provided by telephone to the USCG as noted above and include the time of the call and the name of the USCG personnel receiving the information.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Protection of Existing Resources: The Permittee shall not deploy artificial reef materials until an assessment of the bottom conditions has been accomplished by diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area may occur at the time of deployment but no more than one year prior to deployment. The Permittee shall maintain a deployment buffer of at least 100 feet from any submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. If during the inspection evidence is observed of cultural/archaeological resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas the Corps will be notified by the Permittee and the above referenced deployment buffer will be implemented. The Permittee shall maintain a record of the information gained during the inspection such that it can be provided upon request to the Corps.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Deployment of Steel Hull Vessels: Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable U. S. Coast Guard, U.S. Environmental Protection Agency, Florida Fish and Wildlife Conservation Commission, or other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceans/habitat/artificialreefs/index.html The Permittee shall maintain a record of all inspections, clearances or waivers and provide to the Corps upon request.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Deployment Summary/Monitoring Report: Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall electronically submit to the Corps and FWC a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the reef in the past 12 months. For each deployment, the spreadsheet will include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet will document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) will be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef site. The report will describe how the Permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal will be submitted to the Corps, NOAA and FWC. This compilation will document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918°, -80.0429°	Broward	Marine Life Entrapment: Neither reef structure nor material or the method of design or deployment should pose more than minimal risk of entrapping fish, marine turtles, or marine mammals. The Permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the Corps and FWC.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	All structures shall be constructed to be stable in a 20-year storm event verified by stability analysis.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	Authorized Reef Materials: The Permittee shall deploy only the following authorized reef materials: Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. Heavy gauge steel components or structures, ½" or more in thickness. Properly prepared, clean steel vessels. Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures will be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.
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USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	Violation of Reef Parameters: In the event reef material is deployed in a location or manner that is contrary to the Reef Parameters Special Condition, the Permittee shall immediately notify the USCG Station and provide information as requested by the station. The Permittee shall notify NOAA, USCG and Corps in writing within 24 hours of the occurrence. At a minimum the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place) and the water depth above the material from Mean Lower Low Water. The document will list the information provided by telephone to the USCG as noted above and include the time of the call and the name of the USCG personnel receiving the information.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	Protection of Existing Resources: The Permittee shall not deploy artificial reef materials until an assessment of the bottom conditions has been accomplished by diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area may occur at the time of deployment but no more than one year prior to deployment. The Permittee shall maintain a deployment buffer of at least 100 feet from any submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. If during the inspection evidence is observed of cultural/archaeological resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas the Corps will be notified by the Permittee and the above referenced deployment buffer will be implemented. The Permittee shall maintain a record of the information gained during the inspection such that it can be provided upon request to the Corps.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	Deployment of Steel Hull Vessels: Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable U. S. Coast Guard, U.S. Environmental Protection Agency, Florida Fish and Wildlife Conservation Commission, or other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceans/habitat/artificialreefs/index.html The Permittee shall maintain a record of all inspections, clearances or waivers and provide to the Corps upon request.
USACE	1989-90804	Broward Artificial Reefs	Artificial Reef	26.1918° , -80.0429°	Broward	Deployment Summary/Monitoring Report: Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall electronically submit to the Corps and FWC a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the reef in the past 12 months. For each deployment, the spreadsheet will include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet will document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) will be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef site. The report will describe how the Permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal will be submitted to the Corps, NOAA and FWC. This compilation will document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.
USACE	2002-2344	Broward Mitigation	Artificial Reef	26º14'4.8" , -80º5'21.3"	Broward	The applicant will place 4’ to 6’ diameter limestone boulders in a single layer over sandy bottom in approximately 15’ of water covering approximately 13.5 acres to create nearshore artificial reefs. The limestone boulders will be spaced a maximum of 7’ apart. These limestone boulders would be placed on the bottom with a sand layer less than 3’ thick to prevent burial. Boulder construction activities would occur over a 3-year period during the summer months and during calm sea conditions.
USACE	2002-2344	Broward Mitigation	Artificial Reef	26º14'4.8" , -80º5'21.3"	Broward	This project will maintain a minimum 50’ wide buffer zone, between the mitigation area and the nearest hard-bottom and/or coral reef.
USACE	2002-2344	Broward Mitigation	Artificial Reef	26º14'4.8" , -80º5'21.3"	Broward	The permittee will identify routes for the construction barges to travel past the existing natural reef tracts which avoid, to the maximum extent possible, any impacts to existing high quality coral reef outcrop areas. The contractor will be required to strictly abide by these identified routes to reduce the likelihood of damage to existing coral resources.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-2344	Broward Mitigation	Artificial Reef	26º14'4.8" , -80º5'21.3"	Broward	The permittee will establish protocol for operation of the construction barges that ensure anchor cables will not swing over natural coral reef and other hard bottom resources. The permittee will ensure that these protocol are carefully followed by the contractor
USACE	2002-2344	Broward Mitigation	Artificial Reef	26º14'4.8" , -80º5'21.3"	Broward	Within 60 days of completion of construction activities, the applicant will provide a draft mitigation and monitoring plan to the Corps, National Marine Fisheries Service, and U.S. Environmental Protection Agency for review. This supplemental monitoring plan will provide, at a minimum, comparative data relative to the prevalence of juvenile fishes and predatory fishes on natural and manmade hard-bottom habitats. The plan will record baseline and periodic survey data using replicate stations on natural hard-bottom habitat, artificial slab/rock ephemeral reef, and stacked boulder reef habitat. The plan will record, map, and analyze the following information: larval, post larval, and juvenile fish species (to include grunt and snapper), species composition, abundance, and size class, at each habitat, and the abundance and types of predatory fish at each habitat. This report will be conducted initially (upon approval by the Corps of the plan and commencement of boulder placement) and semi-annually, from that point forward, for the first two years, and annually, thereafter, during the third and fourth year.
USACE	2007-822	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Divers shall remove tires by hand.
USACE	2007-822	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Tires shall be brushed close to the ocean floor to remove any accumulated sediments before removal to reduce turbidity.
USACE	2007-822	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Attached scleractinian coral colonies of 4-inches in diameter or greater shall be relocated along the adjacent reef face within 30 days of removal from original substrate.
USACE	2007-822	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Tires shall be bundled in groups of 20, attached to a buoy, and lifted by vessel from the surface in an easterly direction to reduce turbidity and sedimentation over the adjacent natural reefs.
USACE	2007-822	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	No impacts to existing harbottom resources are authorized
FDEP	06-0272719-001	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Vessels related to the tire salvage operations shall be restricted to anchoring in areas that are sandy bottom and contain no submerged resources and areas with tires that do not contain transplantable corals.
FDEP	06-0272719-001	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Prior to the commencement of the tire removal, the permittee shall be responsible to install buoys that shall mark the adjacent natural reef areas to ensure that all vessels associated with this project are aware of the approved work areas and any anchoring associated with the project.
FDEP	06-0272719-001	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Equipment shall not be placed or stored on top of the natural reefs.
FDEP	06-0272719-001	Broward County Tire Reef	Artificial Reef	26° 8’0” , -80° 4’ 0”	Broward	Coral transplants shall be completed within 30-days of completion of the tire removal project. All coral transplanting shall be conducted in accordance with the attached "Coral Relocation and Monitoring Plan
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4229	Sunny Isles Artificial Reef	Artificial Reef	25°54; 38.0", -80°05'26.9"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2002-4243	Pfleuger Artificial reef	Artificial Reef	25°50' 19.1", -80°05' 26. 9"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, and 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4250	Anchorage Artificial Reef	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4251	Haulover Artificial Reef	Artificial Reef	25°54' 53. 3", -80° 05'15.9"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4253	Port of Miami site A Artificial Reef	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4253	Port of Miami site A Artificial Reef Mod	Artificial Reef	25°46' 29. 9", -80°06'30.0"	Miami-Dade	Change special condition #2 which requires a 40-foot minimum. Vertical clearance between the artificial reef and the water surface at MLLW to a minimum vertical clearance of 18-feet.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The permittee shall ensure a minimum of 6 feet vertical clearance between the artificial reef and the water surface at MLLW.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4744	Julia Tuttle Artificial Reef	Artificial Reef	25°48' 55.1", -80°10' 17.3"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The permittee shall ensure a minimum of 6 feet vertical clearance between the artificial reef and the water surface at MLLW.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4745	Mercy Hospital Artificial Reef	Artificial Reef	25°44' 26.9", -80°12' 36.5"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The permittee shall ensure a minimum of 6 feet vertical clearance between the artificial reef and the water surface at MLLW.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2004-4750	Brickell Artificial Reef	Artificial Reef	25°44' 58.4", -80°11' 51.8"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The permittee shall ensure a minimum of 6 feet vertical clearance between the artificial reef and the water surface at MLLW.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4751	Dumbfoundling Bay Artificial Reef	Artificial Reef	25°56' 56.5", -80°07' 49.3"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4250	Anchorage Artificial Reef Mod	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	Change special condition #2 which requires a 40-foot minimum vertical clearance between the artificial reef and the water surface at MLLW to a minimum vertical clearance of 25-feet.
USACE	2003-4250	Anchorage Artificial Reef Mod	Artificial Reef	25°49' 7", -80°05' 46"	Miami-Dade	Shift the eastern boundary of the site approximately 475 feet east to incorporate existing artificial reef materials into the footprint of the authorized area.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The permittee shall ensure a minimum of 40 feet vertical clearance between the artificial reef and the water surface at MLLW.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MFMFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to material placement to allow for inspection of the artificial reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The permittee will notify the U.S. Coast Guard Station of the vessel's departure time, providing them with the exact coordinates of the proposed placement, the Corps permit number, and the estimated time of arrival at the reef site. The notification should be within 24 hours of departure time.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The permittee shall monitor the structures annually for a period of 10 years. The monitoring shall consist of annual photographic documentation. The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the materials in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the U.S. Army Corps of Engineers, Attn. Shelly Carter, South Permits Branch, Miami Regulatory Office, Suite 104, 11420 North Kendall Drive, Miami, Florida 33176.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulkheads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2003-4254	Port of Miami site B Artificial Reef	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	The precise planned position for the sinking of vessels shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position. To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed
USACE	2003-4254	Port of Miami site B Artificial Reef Mod	Artificial Reef	25°45' 8.9", -80°05' 44.0"	Miami-Dade	Change special condition #2 which requires a 40-foot minimum. Vertical clearance between the artificial reef and the water surface at MLLW to a minimum vertical clearance of 25-feet.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee shall ensure a minimum 40-foot vertical clearance above the reef at MLLW
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee shall conduct a pre-deployment bottom survey of the reef site fifteen (15) days prior to deployment. No authorization is granted by this permit to place material on sea grasses or macroalgae, coral reefs, live bottom", (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling" marine organisms.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee will notify the U.S. Army Corps of Engineers (Corps) and the U.S. Coast Guard, Florida Fish & Wildlife Conservation Commission, Division of Marine Fisheries, Bureau of Marine Fisheries Management, 620 South Meridian Street, Box MF-MFM, Tallahassee, Florida 32399-1600, no less than 10 working days prior to departure of the vessel to allow for inspection of the reef material. The notification shall include the point of departure, types of material to be used for reef construction, and a point of contact at the departure site
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee shall monitor the structure annually for five years after the initial placement. The monitoring shall consist of annual photographic documentation (north, south, east, and west views) from permanently established photo stations, which should provide complete coverage of the structure The photographs shall be taken at the same location for each monitoring event. A brief report shall be submitted within 30 days of the photographic documentation. The report shall contain information on the durability and stability of the vessel in addition to general information on the diversity and quantity of fish and associated biota. The report and pictures shall be sent to the Corps' Regulatory Division, Enforcement Branch, Post Office Box 4970, Jacksonville, Florida, 32232-0019.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The use of explosives shall be limited to controlled burning for the purpose of creating holes in the bulk heads, and small charges in order to create holes of about 8-inch below the water line. Use of these explosives will be limited to interior of the vessel.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee agrees that materials used for the artificial reef construction will consist only of the surplus U.S. Navy ship; the General Hoyt S. Vandenberg.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee agrees to notify the Florida Keys National Marine Sanctuary when the vessel is prepared and ready for transport to the site so that a representative, if necessary, can inspect the vessel.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The precise planned position for the sinking shall be surveyed prior to the sinking and at least 2 marker buoys, firmly attached to the bottom, will be established to mark the forward extent and the aft extent of the vessel position.
USACE	2000-2402	Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	To as great an extent possible, the vessel shall be scuttled between these 2 buoys during favorable current, wind and sea conditions. If the final anchored position prior to sinking deviates from the surveyed position, the modified position shall be surveyed and a new set of fore and aft buoys shall be established.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee must submit a biological monitoring plan to the Director of the National Marine Sanctuary Program (NMSP Director) in order to investigate and document any change in the environment resulting from placement of the authorized vessel. The permittee must receive written approval of the biological monitoring plan from the NMSP Director prior to the conduct of any activity authorized by this permit. The biological monitoring plan must be deemed acceptable by the NMSP Director and include, at a minimum, a description of: a. A scientific investigation and description of the environmental conditions in the area within which effects of the permitted activity are expected to be detectable (hereafter referred to as "study area"). This study shall record the environmental conditions within the study area as they exist before the permitted activities occur (i.e. ., baseline conditions); b. The geographic scope of the study area and scientific justification for that size; c. A long-term scientific investigation to detect and quantify changes in the distribution and abundance of marine organisms within the study area following permanent placement of the authorized vessel; d. A long-term scientific investigation to detect and quantify changes in the distribution and abundance of marine organisms inhabiting the permitted activity location following permanent placement of the authorized vessel; e. The duration of the investigation and scientific justification for that timeframe; f. Reporting protocols and standards that, at a minimum, include submission of annual status reports to the NMSP Director and FKNMS Superintendent; g. The qualification of persons and entities that will be conducting the scientific investigations described in the biological monitoring plan; and h. The cost of the investigations described in the biological monitoring plan and the availability and source of funding for such investigations.
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee must ensure that the biological monitoring plan submitted and approved pursuant to Special Condition 1 is implemented. In addition, the following conditions shall apply to the biological monitoring plan: a. The permittee must, prior to the conduct of any permitted activities, purchase and maintain a bond for the entire duration of the biological monitoring plan. The amount of the bond must be sufficient to cover the cost of the entire biological monitoring plan. b. The NMSP Director may approve another form of financial assurance that provides an equivalent level of assurance if he determines that purchase of a bond is not practicable. c. Any changes to the biological monitoring plan must be approved by the FKNMS Superintendent in writing. d. The permittee must ensure that all reports required under the approved biological monitoring plan are submitted consistent with the plan.
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee must submit a stability monitoring and remediation plan to the NMSP Director and receive his written approval prior to the conduct of any activity authorized by this permit. The stability monitoring and remediation plan must include, at a minimum, a description of: a. Actions the permittee will take to ensure the authorized vessel will remain stable and intact while it is located within the FKNMS; b. Actions the permittee will take to remove and dispose of loose fragments and other debris from the authorized vessel while it is located within the FKNMS; c. The estimated costs of actions taken under the stability monitoring and remediation plan; and d. The availability and source of funds to undertake actions under the stability monitoring and remediation plan.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee must adhere to the following conditions related to the stability of the authorized vessel and removal and disposal of any fragments dislodged from the authorized vessel while it is located within the FKNMS: a. The permittee must, prior to the conduct of any permitted activities, purchase and maintain a bond to cover all estimated costs associated with the stability monitoring and remediation plan. The amount of the bond must be sufficient to cover all estimated costs under the stability monitoring and remediation plan. b. The NMSP Director may approve another form of financial assurance that provides an equivalent level of assurance if he determines purchase of a bond is not practicable. c. In the event that a storm with sustained winds of greater than 73 knots occurs over the sinking coordinates, or at the request of the FKNMS Superintendent, the permittee must resurvey the position of the authorized vessel and prepare a damage report. This report must be submitted within 30 days of the storm event or at the request by the FKNMS Superintendent and, at a minimum, must include: I. New coordinates (if changed) for the bow, stem, and center; II. The status of the hull integrity; iii. An estimate of the distance the authorized vessel has moved and direction of the movement; IV. A description, including location and condition, of any loose fragments and other debris dislodged from the authorized vessel. v. The distance any loose fragments and other debris from the authorized vessel has moved from the authorized vessel and the direction of that movement; and vi . The approximate distance of any loose fragments and other debris from the authorized vessel to the nearest sensitive resources (e.g., seagrasses, hardbottom, or coral reef). d. The permittee must remove any loose fragments and other debris dislodged from the authorized vessel upon being directed to do so by the FKNMS Superintendent, and must perform such removal operations in a manner and on a schedule directed by the FKNMS Superintendent. The permittee must submit a report of such operations within 30 days following the removal or attempted removal. e. The permittee must dispose of all loose fragments and other debris dislodged from the authorized vessel and required to be removed by this condition outside of the FKNMS boundaries and in accordance with all applicable laws and regulations.
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee must ensure the authorized vessel is cleaned in a manner consistent with the joint Environmental Protection Agency Maritime Administration guidance entitled "Draft National Guidance: Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs," dated August 2, 2004. 69 Fed. Reg. 46141. Prior to sinking the authorized vessel, the permittee must provide a written report to the FKNMS Superintendent documenting that the authorized vessel has been prepared in accordance with these guidelines.
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	The permittee is liable for any damage to Sanctuary resources caused by activities conducted under this permit including, but not limited to, injury to FKNMS resources caused by fragments dislodged from the authorized vessel at any time.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	. Pre-Deployment Notification: No less than 14 days prior to deployment of material on an artificial reef, the Permittee shall transmit by electronic mail ("email") a complete and signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification" form, provided in Attachment of this permit, to the Corps and FWC to allow inspection of the proposed reef materials as deemed necessary by the agencies. Inspection is allowable at the staging area. By signing the Pre-Deployment Notification the Permittee certifies that all materials are free from asphalt, petroleum, other hydrocarbons and toxic residues. The Permittee shall not deploy material if notified by the Corps or FWC that the material is questionable. The material needs to be evaluated and released for deployment. Any material that is deemed unacceptable for reef material will be disposed in an approved upland disposal site. Deployment of the material shall not occur until after the end of the 14-day inspection period. The Permittee shall ensure both a copy of the Corps permit and the signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification form" are maintained aboard the deployment vessel at all times during loading, transit, and deployment.
FKNMS	2003-079	Hoyt S Vandenberg	Artificial Reef	24°27.70 ', -81°44.35'	Monroe	Ownership/Maintenance/Liability: By signing this permit, the Permittee certifies and acknowledges ownership of all artificial reef materials deployed on the reef, accepts responsibility for maintenance of the artificial reef, and possesses the ability to assume liability for all damages that may arise with respect to the artificial reef.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall have the placement area inspected by divers within two weeks prior to or at the time of deployment. No authorization is granted by this permit for the construction of artificial reefs on submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. In addition, the area should be inspected for cultural resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas. If cultural resources are encountered during the inspection or at any time within the project site, the permittee shall cease deploying material in the immediate vicinity of such discoveries and contact the Corps and Florida Department of State, Division of Historical Resources at 850-487-2333 or 1-800-847-7278. Project activities should not resume without written authorization from the Corps.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall call the U.S. Coast Guard, (Coast Guard) at (305) 535-4725 (ask for the Port Operations Division), by phone no less than ten working days prior to departure of the vessel to allow for inspection of the reef material. Also, the permittee shall submit the attached Pre-deployment Form no less than ten working days prior to departure of the vessel to the Corps and Coast Guard. The mailing address for the Corps is listed in special condition 1 of the permit. The mailing address for the Coast Guard is as follows: U. S. Coast Guard, Sector Miami, Attention: Prevention, 100 McArthur Causeway, Miami Beach, Florida 33139.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	Each time material is deployed at the reef site; the permittee will submit the attached Artificial Reef Materials Deployment Form within 5 days after the deployment to the Corps and Florida Fish and Wildlife Conservation Commission (FWC). All latitude and longitude coordinates will be provided in degree and decimal minute format utilizing a Differential Global Position System (DGPS) unit. The mailing address for the Corps is in Special Condition 1 above and for FWC it is as follows: Florida Fish and Wildlife Conservation Commission, Division of Marine Fisheries, 620 South Meridian Street, Box MFM, Tallahassee, FL 32399-3000.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	All placement of the material in the reef will be accomplished during daylight hours between sunrise and sunset, Monday through Friday only, unless the Corps and Coast Guard grant prior approval.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall ensure that no reef material is deployed that would trap marine life, and must be configured, cut or shaped, so as to not function as a fish trap. All materials/structures must be configured and constructed to be stable, durable, and provide habitat. Also, at a minimum, no piece shall weight less than 150 pounds.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall ensure that all reef material is deployed in the location that is depicted on the permit drawings. Latitude and longitude coordinates shall be verified using two independent Differential Global Positioning (DGPS) units. The permittee needs to ensure that the DGPS units are accurate to a meter and that at a minimum, 7 satellites were in use.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall maintain and ensure that there is the vertical clearance equal to one-half the preconstruction depth above the highest point of the reef at Mean Lower Low Water (MLLW). The minimum clearance for the site will be 50 feet MLLW.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	If the material is deployed beyond the permit limits authorized by the permit or the height of the material is above the vertical clearance referenced in special condition 9 the permittee must notify the U.S. Coast Guard immediately by phone. In addition, a letter must be sent that day via overnight courier to the Corps, NOAA and Coast Guard to the addresses listed above. The letter, at a minimum, shall explain why the deployment material missed the authorized limits of the reef. Also, it must include the location of the unauthorized material in latitude and longitudes coordinates (degree decimal minute format) and provide the clearance in MLLW.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee agrees to submit a monitoring report annually for 2 years after each placement. The monitoring would consist of photographic documentation (north, south, east, and west views) from permanently established photo stations or a video that would provide representative coverage of the structure. The photographs shall be taken at the same location for each monitoring event. The report shall be submitted within 30 days of the monitoring to the Corps. The report shall contain information on the durability and stability of the placed material, a general assessment on the diversity and quantity of fish, and associated biota. The report and pictures or video shall be sent to the Corps and FWC at the addresses listed above.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	The permittee shall submit a copy of the attached Complete Certification Form to certify that all the deployed materials are within the limits of the permitted reef site. The certification shall be submitted to the Corps and NOAA at the addresses listed in special condition 1 within 30 days after the permit expires
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	Any vessel proposed for deployment shall be cleaned in accordance with the EPA Guidelines.
USACE	2007-4721	Boynton Artificial Reef	Artificial Reef	26° 31' 56.15", - 80° 1' 49.87"	Palm Beach	Construction and deployment of material shall cease if wave heights exceed 2-4 feet.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0165332-001-JC	Phipps Reach 7 Mitigation	Artificial Reef	26 28' 29. 05", -80 02'14.18"	Palm Beach	The permittee shall construct a minimum of 3.1 acres of artificial reef as mitigation for impacts to 3.1 acres of natural nearshore hardbottom. The following procedures shall be adhered to for the construction of the artificial reef mitigation work: The artificial reef shall not be Placed on or adjacent to seagrasses beds or hardbottom habitats Including areas Supporting the growth of coral, macro alga, Sponges sea fans, soft corals, other sessile macroinvertebrates generally associated with rock outcrops or rock outcrops covered with thin laver of sand. The artificial reef shall have an underlying layer of rock that is covered with a layer of sand that is between one (1) and four (4) feet thick. k. The permittees hall not Place boulders within the shore-Parallel formations of the artificial reef that exceed the nominal dimensions specified on the approved drawings for that row. The permittee shall conduct a pre-deployment bottom survey of the placement area approximately fifteen (15) days before placement of the limestone boulders. The survey shall document the absence of seagrass and hardbottom communities within or adjacent to the site. The survey shall also document the thickness of the upper sand laver and the depth of the underlying rock within the proposed reef footprint. The results of this survey shall be provided to the BBCS prior to commencement of reef construction. Prior to the construction of the artificial reef divers shall inspect he area for exposed cultural resources such as sunken vessels ballast historic refuse piles or Careenage areas. If cultural resources a re encountered during the visual surveyor at any time within the project site the permittee shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries and contact the Florida Department of State Division of Historical Resources at 850-487-2333 or 1-800-847-2778. Project activities should not resume without written authorization from the Division of Historical Resources
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	No impacts to environmental resources are authorized by this permit.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	All watercraft associated with the deployment of the artificial reef shall only operate in waters of sufficient depth so as to preclude bottom scouring, prop dredging, or damage to adjacent submerged resources
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	Thirty days prior to the commencement of artificial reef deployment activities, the permittee shall submit the following information to the Department of Environmental Protection, Southeast District, Submerged Lands & Environmental Resources Program, Compliance Enforcement Section, Attention: Richard Stalker, 400 N. Congress Ave., Suite 200, West Palm Beach, Florida 33401 for review and approval: (1) cargo manifest and pre-deployment notification; (2) inspections from the USCG and EPA to ensure maritime vessels are clean; (3) environmental resource survey depicting the exact location of the artificial reef site, 250·footl500·foot buffers, and location of observed resources; (4) Global Position System Coordinates (GPS); (5) stability analysis; and (6) sonar scan to determine sand overburden.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	The environmental resource survey shall consist of an assessment of the bottom conditions conducted via diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area shall be done no less than thirty days prior but no more than one year prior to deployment. The permittee shall maintain a deployment buffer area of at least 500 feet for maritime vessels and 250 feet for all other construction materials from any submerged beds of seagrasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	The artificial reef material shall be placed in barren sandy bottom locations void of all environmental resources including but not limited to hard bottom, corals, attached biota, or marine plant communities. Stability analysis and sand sonar scans shall be conducted prior to material deployment and shall be submitted to the Department showing that all materials shall remain stable on the bottom post deployment. Prior to deployment, the exact location shall be determined by a precision GPS and clearly marked with perimeter buoys to ensure that no material is deposited outside of the project boundaries. For maritime vessels, at least two separate anchors, of suitable size for each vessel deployed, shall be used to ensure that the vessels do not drift during deployment and that they shall remain in place once settled on the bottom.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable USCG, EPA, FFWCC regulations or policies, and any other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis' has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceanslhabitatlartificialreefs/index.htlnl. The permittee shall maintain a record of all inspections, clearances or waivers and shall be provided to the Department upon request.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	The Permittee shall only deploy the following authorized reef materials: (a) Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. (b) Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. (c) Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. (d) Heavy gauge steel components or structures, ¼" or more in thickness.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	All vessel movement, construction, and reef deployment activities shall take place during daylight hours only with the exception of movement of shallow-draft transport vessels. For the purposes of this permit, daylight shall be defined as occurring from 30 minutes before sunrise to 30 minutes after sunset. All transport vessels shall travel at slow speed.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	No fish attraction devices may be constructed or attached to the permitted artificial reefs or within the site boundaries once the material is deployed.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures shall be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	The permittee shall deploy all reef materials within the site boundaries as defined on the enclosed drawings. The material shall be placed so that the top of the reef does not exceed 1/2 the distance from the bottom to the surface of the water unless a greater distance from the surface is required for safe navigation. At no time shall the distance between the top of the reef and the surface of the water be less than 6 feet. There shall be no reefs constructed in bays, lagoons, or estuaries that are less than 12 feet deep
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	The permittee shall notify the National Ocean Service, National Oceanographic and Atmospheric Association, U.S. Department of Commerce, Rockville, Maryland, and the Department of Environmental Protection, Division of Marine Resources, Office of Fisheries Management and Assistance Services of the precise location of the reef within 30 days of placement of the reef material.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	Neither reef structure nor material or the method of design or deployment should pose more than minimum risk of entrapping fish, marine turtles, or marine mammals. The permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the DEP.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	In the event reef material is deployed in a location or manner that is contrary to the submitted plans, the permittee shall immediately notify the Department and provide information as stated in the Permittee's submitted contingency plan. The permittee shall notify the Department in writing within 14 days of the occurrence. At a minimum, the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place), a resource survey of the new locations in accordance with specific condition (12) above, and the water depth above the material from Mean Low Water. After an assessment of the new reef deployment areas, the Department's Compliance and Enforcement Staff will instruct the applicant to remove or relocate the misplaced reef material.
FDEP	50-0231153-002	Palm Beach County Artificial Reefs	Artificial Reef	N/A	Palm Beach	Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall submit to the Department a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the artificial reef locations in the past 12 months. For each deployment, the spreadsheet shall include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet shall document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at the time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) shall be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef sites. The report shall describe how the permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal shall be submitted to the Department: This compilation shall document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	Deployment activities shall not commence until the permittee has obtained a written "Notice to Proceed" from the U.S. Army Corps of Engineers (Corps). In order to obtain a "Notice to Proceed, the permittee shall provide a written notification to Corps within at least 30 days prior to the commencement of the deployment activities. The written notification shall include the following information. a. Description of the site conditions as evidence by marine survey or inspection performed by a qualified party b. Plan view drawing depicting the size of and location of the cell relative to the entire artificial reef area. The drawing shall include GPS coordinates of the area; c. Water depths and clearance measured in meters from the mean sea level. d. List of objects as well as a detailed description of the condition of each object to be deployed. e. Estimated volume of artificial reef material to be deployed and its source f. Photographic documentation of the reef material g. Transportation methodology and anchoring methods to be used. h. Written statement from the U.S. Environmental Protection Agency (EPA) certifying that the material is clean, pollutant free, and consistent with Section 402 of the Federal Water Pollution Control Act. The certification should be specific to the material to be deployed i. Notification letters to the U.S. Coast Guard and the Department of Planning and Natural Resources j. Approximate commencement and completion dates.
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	This permit would not authorize the use of certain materials not suitable for the creation of artificial sites, including fiberglass, wooden vessels, fiberglass boats and boat molds, vehicle tires, construction debris, and other material not consistent with the Guidelines for Artificial Reef Materials (Gulf States Marine Fisheries Commission, Number 38).
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	The permittee shall implement a five-year monitoring to fully document the placement of materials, habitat alterations of the reef site, material stability, and success of the project. Monitoring activities along the two artificial reef sites shall be conducted on a yearly basis. The first report shall be submitted within one year of the first deployment and yearly thereafter. The monitoring activities shall be conducted for a subset of 8 objects at each site. All object shall been monitored by the end of the five-year period. The permittee shall provide monitoring reports to the Corps, as well as to each of the resource agencies (NMFS and USFWS). The monitoring report for the two sites shall include, as a minimum, the following information: a. A description of the reef sites and a discussion of how fisheries are being enhanced. b. The condition of object and water depth for each object. c. Coordinates at the time of the deployment and the ones recorded during inspection activities d. Deployment dates e. Documentation of sessile invertebrates and fish species observed near and in the proximity of the object f. Description of the general conditions of buoy and mooring equipment, if applicable g. Reposition of materials already moved, if applicable h. Fisherman and diver use i. Information regarding the suitability of materials for colonization by corals and sponges, and any other information regarding the persistence and stability of the materials used for the construction of the artificial reefs j. Photographic documentation
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	. In order to ensure protection of adjacent habitats, monitoring of the material stability shall be performed within 30 days after significant storm/hurricane events. If movement is discovered, the permittee shall remove or stabilize the material to prevent damage to adjacent habitats. The storm/hurricane monitoring report shall be submitted in accordance with the specifications provided in Special Condition 5(a-i).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	The permittee shall prepare and present to Federal or Territorial officials, upon request and keep on board the vessel used to transport reef material, and original manifest that contains an itemized list of all the material on board that are to be used as reef material
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	Any vessel used as artificial reef material shall have all floatation materials removed from the vessels and must receive and pass an inspection from the Marine Safety Office of the U.S. Coast Guard prior to deployment as an artificial reef. The vessel shall have "REEF MATERIAL" painted or marked in a visible and appropriate location of the vessel
USACE	2001-1055	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	No authorization is granted by this permit for the construction of artificial reefs or fish attractors in known established shrimp, fish and shellfish trawling areas, unless in the opinion of the Corps, such construction would not constitute a hazard to those trawling activities
USACE	Standard	USVI Artificial Reef	Artificial Reef	18º 17.195', -64º 54.72.5'	VI	Protection of Existing Resources: The Permittee shall not deploy artificial reef materials until an assessment of the bottom conditions have been accomplished by diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or side-scan sonar. The inspection of the deployment area may occur at the time of deployment but no more than one year prior to deployment. The Permittee shall maintain a deployment buffer of at least 200 feet from any submerged beds of sea grasses, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. If, during the inspection, evidence is observed of cultural/archaeological resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas the Corps will be notified by the Permittee and the above referenced deployment buffer will be implemented. The Permittee shall maintain a record of the information gained during the inspection such that it can be provided upon request to the Corps.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	Fill material placed on the beach shall be sand that is similar to that already existing at the beach site in both coloration and grain size. All such fill material shall be free of construction debris, rocks, or other foreign matter and shall not contain, on average t greater than 10 percent fines (i.e., silt and clay) passing a Number 200 sieve and shall not contain, on average, greater than 5 percent coarse gravel or cobbles t exclusive of shell material retained by a Number 4 sieve.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	Prior areas will to any construction activity, a map be provided to the contractor. The edge of the hardbottom map will designate the reef protection zones, pipeline corridors, and vessel ingress/egress corridor. The contractor will verify, via diver investigation, that any area to be used for anchorage lS sandy bottom.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	A 200-foot buffer zone around the hardbottom areas located near the borrow site, in which dredging is prohibited, will be marked with buoys. The buoys will be placed prior to and maintained during any construction activity.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	Prior to and until completion of the construction activity, floating buoys will be established around the borrow area to clearly delineate the limits of the area to be dredged.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	During construction activity, state-of-the-art navigational and positioning equipment will be used which will sound an alarm notifying the dredge operator that the dredge is approaching a hardbottom location
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	No dredging is authorized within areas where there are existing seagrass beds or hardbottom.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	Biological Monitoring: Biological monitoring of the hardbottom communities will be conducted prior to commencement of construction, every two weeks during construction, within 60 days following completion of construction, and annually for three years post-construction. During each survey, sea turtle abundance will be assessed at each of the six permanent nearshore hardbottom monitoring transects and the two nearshore mitigation reefs (north and south reef) following the protocol in a-e below. Additional information to be collected during surveys of the mitigation reefs includes recruitment indices for sub-adult fish, predation rates, and the population structure of fish and selected invertebrates. a. While the boat is anchored at each nearshore hardbottom monitoring site, an observer, positioned at the highest point on the vessel, will search a 360 degree area around the boat. Each individual count will last for 15 minutes, and the observer will alternate 15-minute counts between the starboard side and the port side. The observer will count all surfacing by sea turtles in the vicinity of the boat and identify the species and life history stage. b. During each monitoring event, the vessel will anchor in the center of each mitigation reef (north reef and south reef), and for a period of 30 minutes, two observers, positioned at the highest point of the vessel, shall search the 360 degree area around the boat and count all surfacings by sea turtles in the vicinity and identify the species and life history stage. c. Fixed biological monitoring stations will be established at six locations along the natural nearshore reef located immediately seaward of the edge of the projected equilibrium toe of fill and marked with stainless steel markers for location purposes. Two stations will be located along the artificial mitigation reef constructed under the previously authorized Corps permit and another two will be located in the area downstream from the project area. At least two additional control stations will be located outside the area of any possible influence from the project, while in depths and at hardbottom habitat that is comparable to the four biological monitoring stations mentioned above. Each station will be composed of a 1 square meter quadrant. Monitoring of each stations ill include color photographs, and quantitative data regarding benthic species composition and density of flora and fauna within each quadrant. d. A qualified biologist using SCUBA will visually inspect the hardbottom areas. The biologist will note the general level of sediment and look for indications of sediment impact, such as identification of conditions or observations that indicate benthic organisms are being, or have been stressed by factors other than natural evens. Thus, indications of possible impacts will be based on comparative observations between each monitoring location and the control sites, as well as the preconstruction conditions at the corresponding monitoring sites. The biologist will also collect data regarding recruitment indices for sub-adult fish, predation rates, and the population structure of fish and selected invertebrates. e. A detailed monitoring plan, including the location of the monitoring transects and fixed monitoring stations will be submitted to the Corps for approval prior to construction.

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USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	Avoidance of Hardbottom: In order to avoid impacts to offshore hardbottom resources from dredging operations, the Permittee shall require the dredging contractor to push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. These vessel routes shall be recorded and made available to the Corps upon request. During all dredging operations, the Permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation, in accordance with the approved Sediment QA/QC Plan (Attachment G). The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final project report, the Permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported. A minimum 400 foot anchor and pipeline buffer zone shall be maintained around the hardbottom areas in the vicinity of the borrow site and the pipeline corridor.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	If at any time during construction the dredge operates beyond the borrow area boundaries or exceeds the authorized dredge depth, then the Permittee shall notify the Corps within 24 hours. If this occurs on a weekend or holiday, the Department shall be notified on the next business day. If any damage is found, the Corps may conduct a site inspection or require a field survey by qualified biologists to assess the potential for physical damage to adjacent hardbottom. Within seven days of discovery of any damage, the Permittee shall submit a detailed description of the damage to the Department, including an estimate of the size of the area damaged photographs, a plan to prevent further damage, and a plan to repair the damage, if action has not already been taken. If significant, irreparable damage remains, the Permittee shall execute a Contingency Mitigation Plan. Nothing herein shall preclude the Corps from taking enforcement action as a result of the damage.
USACE	1997-2355	Hillsboro Beach	Beach Renourishment	26 15' 0 ", -80 05'0"	Broward	In addition to the diver transects conducted as part of the biological monitoring condition (condition #7 above), the Permittee will conduct post construction aerial surveys to ensure that no additional hardbottom impacts occur as a result of the project. Post construction aerial surveys will be conducted and submitted immediately at completion of construction and again at 3 months, 6 months and annually for three years post-construction. The Permittee will also submit the preconstruction aerials prior to construction. Post construction aerials will be compared to preconstruction aerials to ensure that no additional impacts to hardbottom have occurred as a result of the equilibrium toe of fill or from downstream transport of sediments. If the Corps determines that additional impacts have occurred as a result of the project the Permittee will submit a mitigation plan to offset these impacts within 30 days. The Permittee will implement the mitigation plan within 60 days of the Corps approval of the plan.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall conduct a pre-construction meeting at a minimum of 30 days prior to commencement of construction. The permittee shall provide a minimum of a 30-day advance written notification of the pre-construction meeting, to the Corps and other federal regulatory agency staff so that the agencies can participate. The permittee shall develop training modules relating to coral resource sensitivity, identifying and mapping of coral communities, and resource protection measures. The permittee shall submit the training modules to the Corps for review and approval for use during the pre-construction meeting. The permittee will be required to implement these training modules to all staff that relates to any aspect of this construction project.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall prevent scouring and/or dredging of benthic resources by any construction activities associated with this project.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will implement the transplanting of approximately 1000 to 2000 scleractinian corals from the nearshore hardbottom to be impacted by the beach fill and will transplant them to a designated 2.92-acre mitigation reef area #VII, in Segment III, between DEP monuments R-101 and R-102, in accordance with the attached Broward County Segment III Coral Transplantation Work Plan
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall implement a QA/QC plan to ensure and oversea that coral transplantation efforts are successful. The permittee shall ensure that all participants conducting project activities be held to the standards and methods set forth in the Broward County Segment III Coral Transplantation Work Plan.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	. The permittee or his contractor shall notify the attached list of permitted/approved scientific experts or aquaculture organizations for the rescue, removal and collection of all corals that are not proposed to be transplanted and are a diameter of < 15 cm of living tissue and any benthic organisms projected to be impacted by the equilibrium toe of fill (ETOF) as specified by the project designs. These resources will be used to further scientific research on resource management or to support future reef restoration projects in South Florida. Email notification of the list of members must include a minimum of 3 months advance notice (prior to collection start date) for planning and logistics purposes (including permitting), and no less than a period of a month for collections to commence and be completed. The permittee agrees to implement methods that will ensure and assist that these scientific experts are collecting within the project design.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	At a minimum, the relocated corals shall maintain an 80% survival rate after 6 months from the initial relocation date. Thereafter, the relocated corals shall maintain that 80% survival throughout the life of the monitoring program. Should the Corps determine that the relocated corals are not achieving this survival criteria, additional mitigation will be required as deemed appropriate by the Corps through a modification. The permittee agrees to prepare a report that hypothesizes in detail possible reasons for not reaching an 80% survival rate. The permittee agrees to monitor the mitigation reef and corals at 6 months from the initiation of coral transplantation, 1 year, 2 years, 5 years, and 7 years post transplantation. The permittee agrees to submit a mitigation reef monitoring report within 30 days after each monitoring event to document the status of the relocated corals.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees to conduct at a minimum, sidescan sonar surveys of the proposed deep-water rock/rubble artificial reef site to identify the presence of biological and/or sensitive resources, and sand bottom areas. A map shall be provided to the Corps indicating the entire proposed artificial reef site. From the surveys conducted, sand bottom areas (i.e., area/s devoid of hardbottom or natural coral resources) shall be selected as suitable areas of rock placement, which are large enough to accept rock/rubble deposits without impacting natural resources in the vicinity. A second map shall be provided indicating areas of sand bottom selected as potential safe artificial reef placement areas. GPS/State Plane coordinates of the selected sandy artificial reef placement areas shall be recorded to mark the perimeter boundaries and shall be indicated as polygons on a map. The surveys shall be conducted, at a minimum, 90 days prior to commencement of construction. The maps shall be provided to the Corps at a minimum of 60 days prior to construction for review and evaluation.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall provide the dredge contractor a map identifying the plotted perimeter boundaries of the selected artificial reef placement sites as a polygon target. The map shall be in electronic GPS form, and shall be adequate enough to allow for electronic positioning, and to be used in conjunction with the continuous tracking system required in special conditions 15 and 16. The site within the polygon must be confirmed for accuracy of material placement and to ensure no natural resources will be taken.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall use an electronic positioning system to navigate to and from the deep artificial reef placement sites. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the deep artificial reef placement sites. a. The permittee shall certify the accuracy of the electronic positioning system proposed for use during all construction operations. The certification shall be accomplished by direct comparison of the electronic positioning system's accuracy with a known fixed point. b. If the electronic positioning system fails or navigation problems are detected, all artificial reef placement operations shall cease until the failure or navigation problems are corrected. If the permittee is using the same vessel to dredge borrow areas, place sand on the beach, and transport rock/rubble for artificial reef placement; and the electronic positioning system fails or navigation problems are detected, all operations shall cease until the failure or navigation problems are corrected.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees to implement GPS tracking/mapping technology and an automated disposal verification system on the proposed dredge vessel. This technology is to be used for tracking of the dredge vessel routes while traveling out to the rock/rubble artificial reef site for material placement. a. The vessel positioning technology shall continuously track the vessel transit paths from the borrow areas out to the approved offshore placement sites at a minimum of 1 minute intervals. b. The permittee shall demonstrate accurate rock placement in the approved areas by submitting to the Corps, the mapped vessel tracks and material deposit logs, once a week during construction activities. The permittee shall identify if any "short-dumps" and/or missed targets have occurred. c. If any impacts have occurred, the permittee shall immediately; within a maximum of 24-hours; notify by telephone, the Corps and all other action agencies. The permittee shall immediately, within a maximum of 24-hours, ground-truth the deviated paths and document any impacts. The Corps will determine appropriate recovery actions and mitigation efforts, which will include time lag and risk assessments. The Corps will determine final mitigation upon the applicants' submittal of a mitigation plan within 60 days of the impact incidence.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	. The permittee agrees that if a contractor is selected, who will use vessels other than the hopper dredge to transport and place rock/rubble material at the deep artificial reef site, precautions must be taken to ensure that damage does not occur to the reefs as a result of cable drag. The permittee shall prevent scouring of benthic resources during all deep artificial reef placement operations. a. Any tow vessels used for placement of artificial reef material, such as barges, scows and the like, will be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line b. All cables must be floated in all water depths to avoid impact to submerged resources. c. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The rock/rubble artificial reef placement area shall be monitored 90 days after construction is complete. The permittee shall develop a rock/rubble artificial reef monitoring plan prior to construction. The monitoring plan shall identify scope of work, methods, documenting if coral and fish recruitment are occurring, algal abundance and recruitment, monitor the boulder slopes and shoulders, and analysis of data. Monitoring shall be conducted using, sides can sonar or the same survey methodology used for the baseline survey, for comparative purposes. The offshore artificial reef placement area shall be monitored on an annual basis for three (3) consecutive years. Each subsequent Annual Report shall compare results of analysis with the previous annual reports and with archival reports or assessment data of similar offshore reef sites as available or where appropriate, and the final contract report shall discuss success/failures of recruitment of natural resources to the rock/rubble deposited at the site.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall prevent scouring and/or dredging of benthic resources by any hopper dredge activities associated with this project
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Prior to construction, the permittee shall provide to the Corps and the dredge contractor, a map identifying approved vessel transit corridors plotted as polygon targets to be used during transit from the borrow areas to the sand pump out facility locations. A hard copy of the map shall be submitted to the Corps and an electronic map in electronic GPS form shall be submitted to the contractor. The electronic GPS form shall be adequate enough to allow for electronic positioning, and to be incorporated with the continuous tracking system on the hopper dredge vessel. The permittee shall ensure that the selected vessel transit corridors are sand bottom or corridors of low habitat cover. The approved vessel transit corridors shall be ground-truthed to confirm accuracy of vessel paths, to ensure that adequate vessel operating depths will be achieved, and to ensure no natural resources will be taken.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall ensure that the contractor daily inspects the hopper dredge for any leaks or failures. The permittee will ensure that the contractor must use signal devices or alarm devices on all vessels associated with this project to ensure that leaks from the split hull mechanism do not occur. The permittee must ensure that the contractor is operating the hopper dredge in a manner that the split hull mechanism is closed completely at all times before leaving the borrow sites. There shall be no random deposits of dredge material over natural resources.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees to implement GPS tracking/mapping technology on the proposed dredge vessel. This technology is to be used for tracking the dredge vessel routes through out the project a. The vessel positioning technology shall continuously track the vessel transit paths at a minimum of 1-minute intervals and shall ensure that the contractor does not deviate outside of the approved vessel transit corridors. b. The permittee shall require that the vessel corridors are identified in electronic GPS form and shall be incorporated into the electronic positioning system. c. The permittee shall demonstrate that the vessel was accurately steered through the approved vessel transit corridors, by submitting to the Corps, the mapped vessel tracks, once a week during construction activities. The permittee shall identify if any vessel transit paths have deviated outside of the approved corridors. d. If vessel transit deviation has occurred, the permittee shall immediately; within a maximum of 24-hours; notify by telephone, the Corps and all other action agencies. The permittee shall immediately, within a maximum of 24-hours, ground-truth the deviated paths and document any impacts. The Corps will determine appropriate recovery actions and mitigation efforts, which will include time lag and risk assessments. The Corps will determine final mitigation upon the applicants' submittal of a mitigation plan within 60 days of the impact incidence.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	All operations including the arm of the hopper dredge, etc., shall be conducted in a manner to eliminate the possibility of equipment dragging on the bottom and damaging natural resources. Before the dredge leaves any/all borrow areas, the drag-arm (hopper arm) must be completely raised out of the water at all times during transit. The permittee must provide, within 30 days prior to construction, a plan that will address what methods or preventions will be taken to avoid any operational failures. If operational failures of the drag-arm occur, work shall immediately cease until the cause of failure has been corrected
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall ensure that the dredge contractor will prevent runoff into the marine environment and comply with Florida Department of Environmental Protection water quality requirements. The permittee agrees and understands that additional safeguards may be required and any impact to resources from dredge disposal management areas will require in-kind restoration
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	During construction activities, and in an effort to avoid and minimize impacts to aquatic resources, the permittee will maintain an absolute minimum buffer distances no less than 400' between inshore or offshore reef communities and the borrow area boundaries (boundaries on the west side of the borrow areas may be moved to the west, as provided in project plans, should Segment II be authorized for fill). At the eastern boundary of the borrow areas, the average buffer distance will meet or exceed the 500' requirement, with the average buffer width no less than 512' (at Borrow Area 4). Specifically, the average buffer areas are provided in the table, below:
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Borrow Area Number 1-6 =400' buffer
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall provide the dredge contractor with an electronic map, in electronic GPS form, identifying the borrow areas plotted as polygon targets to be used during dredging of the borrow areas. The map in electronic GPS form shall be adequate enough to allow for electronic positioning, and to be incorporated with the continuous tracking system on the dredge vessel as required in special condition #'s 22, 23, 24.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees that any tow vessels used for the sand pump out facility, shall be either lashed directly to the sand pump out facility, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the sand pump out facility by floating line. All cables must be floated in all water depths to avoid impact to submerged resources. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall develop an anchoring plan including and identifying anchor methods to be used for securing the sand pump out facility. The permittee shall also identify what methods will be used to secure the hopper dredge to the sand pump out facility for sand unloading. The permittee shall submit the plan, for required approval, by the **Corps, NOAA, FWS, and EPA Region 4,** 30 days prior to the start of work.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The sand pump out facility (where the hopper dredge will connect to deposit sand for the beach) shall be installed using diver-assisted anchor placement to prevent impacts from conventional "anchor-drag". The permittee shall record, via GPS coordinates, the location of each anchor placement, and provide the data to the Corps once the sand pump out facility is secured. At any/all times during the project, the sand pump out facility shall be adequately secured using, appropriate measures, to ensure that any movement of the sand pump out facility or the pipeline, by natural conditions, does not scour or destroy submerged aquatic habitat. A mid-line buoy system shall be implemented to ensure that anchor line drag, sweeping, or scouring does not occur. To ensure avoidance of impacts to all submerged aquatic habitat, the sand pump out facility shall be diver inspected once a week per location, after any event of greater than 4-6 foot seas conditions, or any tropical storms and hurricanes.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees that in the event of relocating the sand pump out facility, activities will be carried out so as to avoid impacts to all submerged aquatic habitat. All cables, lines, buoys, etc., shall be adequately secured on the sand pump out facility to avoid drag, scouring, or inadvertent impacts to all submerged aquatic habitat
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall immediately notify Corps, NOAA, FWS, and EPA, by telephone call, within a maximum of 24-hours, and submit a preliminary written report. The permittee shall document any impacts or accidents that have occurred to seagrass, coral/hardbottom resources. The permittee shall initiate within 24 hours of any incident, the immediate triage, recovery, stabilization, and restoration of any injury to natural resources in the event of unforeseen accidents from any construction activities, such as anchor damage, anchor cable scouring, material transfer, pipeline failure, artificial reef material, vessel grounding, etc. A preliminary injury assessment shall be submitted within one week of the incident. The Corps will determine appropriate recovery actions. A total injury assessment shall be submitted within the post-construction report of Segment III, which shall be submitted 90 days post-construction.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall avoid injury to all submerged aquatic habitats by any and all construction activities. Unavoidable impacts shall require in-kind restoration and mitigation. Mitigation ratios shall be determined based on a Habitat Equivalency Analysis. The Corps, NOAA, FWS, and EPA, will determine the appropriate mitigation, which will include compensatory mitigation that will account for time lag and risk assessments.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee agrees that Broward County staff will assist with identification of the exact routing of the sand pump out pipeline below mean high water, and within the natural reef corridors, to minimize the impacts of the pipeline in a manner that causes the least amount of impacts to submerged aquatic habitats.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall use appropriate type anchoring methods to avoid impacts to natural resources. The length of the pipeline will be visually inspected daily, during continued use, in order to check for potential leaks, which may emanate from the pipeline couplings or other failures. All dredge and fill activities will cease at the time, which all substantial (if State water quality standards are violated) leaks are found. Resource recovery shall be initiated immediately pursuant to special condition #33 above. Operations may resume upon appropriate repair of affected couplings or other equipment, or upon completion of resource recovery activities. After pipeline removal, a detailed survey will be conducted in order to document any impacts that may have occurred as a result of the pipe
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will implement a compliance construction-monitoring program. Monitoring of turbidity will occur during all dredging operations at the borrow sites. Turbidity samples shall be collected according to sampling protocols at all times during construction. Background turbidity samples shall be collected daily, 180-meters up current of construction. Turbidity samples shall be collected 150 meters down current, or at the nearest edge of resource, from the operating dredge, every 6 hours, at mid-depth in the densest part of the turbidity plume. Dredging at the borrow sites will cease if measured turbidity exceeds 29 Nephelometric Turbidity Units (NTUs) above background. The permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated May 12, 2003; number 0163435-001-JC. In the event FDEP water quality standards are exceeded work shall stop immediately until the cause is corrected. a. The County agrees to monitor sites BA3SM1 and BA3SM2, one additional time per week (in addition to the required weekly monitoring, resulting in twice a week), using County resources (compliance monitoring above will be done by Nova Southeastern University, NSU). These two sites are located northwest and north, respectively, of Borrow Area #III. The additional monitoring events would encompass the same protocols as those employed by NSU for the regular weekly visits. b. The permittee agrees to implement Best Management Practices to avoid exceedance of turbidity standards by dredging material from the borrow areas on a rotating basis, so that any borrow area is visited on as infrequent a basis as possible, reducing impacts to adjacent marine resources
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will utilize parallel-berm construction along the beach in order to facilitate proper dispersion of fine particles contained within the fill material. The permittee shall ensure that the parallel-berm shall be constructed in a manner that does not leak or cave.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will establish nearshore monitoring stations/cross-shore permanent transects, extending 300' seaward of the equilibrium toe of fill (ETOF), to monitor and identify potential effects from sediment and turbidity movement, and stress indicators, on scleractinian (stony) and soft coral species, on adjacent, deeper, and stable nearshore hardbottom communities. The permittee will conduct surveys of nearshore hard-bottom resources, fish populations and epibenthos monitoring sites, and depth of sediment, immediately prior to construction (this will be compared to baseline data to get information on natural variability), and annually for the first three (3) years after construction, and again at the end of the fifth year, in accordance with the FDEP permit special conditions, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will complete two (2) hardbottom edge surveys of the areas just offshore of the equilibrium toe of fill (ETOF), using divers assisted with DGPS antennae, at a minimum of 14-days prior to construction, at 1.5 years post-construction, and at the end of three (3) years post construction

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall monitor the offshore hardbottom habitat, located adjacent to the borrow sites, for sedimentation, generated by the hopper dredging operations. Amount and duration of sedimentation will be monitored, as well as stress indicators of stony and soft corals affected by the dredge operations, at designated monitoring stations located adjacent to each borrow area. The stations shall be monitored once per week, eight (8) weeks prior to construction, during construction, and eight (8) weeks following construction, with the exception of borrow area VI, which will be monitored daily for the first 30 days of construction. Construction activities shall cease if sediment exceeds defined standards (more than 1.5 mm per day). Furthermore, if coral stress indicators exceed defined values, then histological tissue analysis of affected corals will be conducted. Prior to construction, stress indicators and coral stress index values must be established to monitor the viability of the coral habitat during construction. To avoid damage of submerged aquatic habitat, coral stress thresholds shall be developed. Sedimentation and stress monitoring at these stations shall continue six (6) months and (1) one year, following construction in accordance with the FDEP permit special conditions respectively, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee will meet with the Corps South Permits Branch and Federal resource agencies, within 7-days of completion of the 30-day daily monitoring work at borrow area IV, to review daily sedimentation and biological response trends. The permittee and the Corps agree to make changes to the ongoing weekly monitoring, if the results of the daily monitoring indicate a need for such adaptive management. The South Permits Branch will consider comments by other Federal agencies, but only the Corps and the County would be involved in the final decision to change the monitoring.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	The permittee shall monitor colonization of the mitigation reefs by epibenthos, semi-annually for two (2) years following construction, and annually for the third and fourth year following construction. The permittee will establish 30 meter monitoring transects at designated monitoring locations, which will be used to record density of epifauna and percent bottom cover. Fish counts shall be performed along transects at both the mitigation reefs and nearby natural hardbottom for comparison of species diversity and recruitment. A direct comparison of epibenthos and fish communities shall be made between the mitigation reefs and nearby hardbottom. Mitigation reef colonization shall be implemented in accordance with the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	In the event that additional mitigation and/or monitoring is required, the applicant will provide a draft supplemental mitigation and monitoring plan to the Corps, National Marine Fisheries Service, and U.S. Environmental Protection Agency. This supplemental mitigation and monitoring plan shall be submitted for review within 30-days of such request, and the Corps will determine the appropriate mitigation, which will include compensatory mitigation that will account for time lag and risk assessments

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall conduct a pre-construction meeting a minimum of 30 days prior to commencement of construction. The permittee shall provide a minimum of a 3~-day advance written notification of the pre-construction meeting, to the Corps (South Permits Branch) and other federal agency staff so that the agencies can participate. The permittee shall develop training modules relating to coral resource sensitivity, nature, configuration and mapping of coral communities, value, and resource protection measures. The permittee shall submit the training modules to the Corps (South Permits Branch), within 30- days prior to the pre-construction meeting, for review and approval for use during the pre-construction meeting. The Corps (South Permits Branch), will review and comment on the draft training modules within 15~days of submittal. The permittee will be required to utilize these training modules to instruct all staff involved with this construction project
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall prevent scouring and/or dredging of benthic resources, corals, and other hardbottom resources, by any construction activities associated with this project
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will implement the transplanting of approximately 1000 to 2000 scleractinian corals from the nearshore hardbottom to be impacted by the beach fill and will transplant them to designated 2.92-acre mitigation reef area #VII, in Segment III, between DEP monuments R-101 and R-102, in accordance with the attached Broward County Segment III Coral Transplantation Work Plan. Within 60-days after transplantation is complete, the permittee will assess the total number of corals transplanted. If transplantation achieves less than 1,000 corals, the permittee and the Corps (South Permits Branch), will re-assess the mitigation accordingly if needed.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall implement a QA/QC plan to ensure and oversea that coral transplantation efforts are successful. The permittee shall ensure that all participants conducting project activities are held to the standards and methods set forth in the Broward County Segment III Coral Transplantation Work Plan.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee or his contractor shall notify the attached list of permitted/approved scientific experts or aquaculture organizations for the rescue, removal and collection (not for commercial sale) of all corals that are not proposed to be transplanted and are a diameter of < 15 cm of living tissue and any benthic organisms projected to be impacted by the equilibrium toe of fill (ETOF) as specified by the project designs. These resources will be used to further scientific research on resource management or to support future reef restoration projects in South Florida. Email notification of the list of members must include a minimum of 45-days advance notice (prior to beach fill start date) for planning and logistics purposes (including permitting-). The permittee shall allow a 3~-day collection window to commence and complete additional collections. The permittee agrees to provide electronic maps that will ensure and assist that these scientific experts are collecting within the project design.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	At a minimum, the relocated corals shall maintain an 80% survival rate after 6 months from the initial relocation date. Thereafter, the relocated corals shall maintain that 80% survival throughout the life of the monitoring program. Should the Corps (South Permits Branch), determine that the relocated corals are not achieving this survival criteria, additional mitigation may be required as deemed appropriate by the Corps (South Permits Branch), through a modification. The permittee agrees to prepare a report that clearly describes in detail, possible reasons for not reaching an 80% survival rate. The permittee agrees to monitor the mitigation reef and corals at 6 months from the initiation of coral transplantation, 1 year, 2 years, 5 years, and 7 years post transplantation. The permittee agrees to submit a mitigation reef monitoring report within 90 days after each monitoring event to document the status of the relocated corals. Broward County will not be held to any failures caused by natural events that may hinder coral transplantation success rates.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees to conduct at a minimum, towed video surveys, of the proposed deep-water rock/rubble artificial reef site to identify the presence of biological and/or sensitive resources, and sand bottom areas. A map shall be provided to the Corps (South Permits Branch), from the previous surveys that were conducted in October 2001, indicating the entire proposed artificial reef site. From the surveys conducted, sand bottom areas (i.e., areas devoid of hardbottom or natural coral resources) shall be selected as suitable areas for rock placement, which are large enough to accept rock/rubble deposits without impacting natural resources in the vicinity. A second map shall be provided indicating areas of sand bottom selected as potentially safe artificial reef placement areas. GPS/State Plane coordinates for each selected sandy artificial reef placement area shall be recorded to mark the perimeter boundaries and shall be indicated as polygons on a map. The contractor shall consider current speed and direction and other physical parameters to ensure that the material is placed within the polygon. The surveys shall be conducted, at a minimum, 90 days prior to commencement of construction. The maps shall be provided to the Corps (South Permits Branch), at a minimum of 60 days prior to construction for review and evaluation and approval--:- from Corps (South Permits Brarich), will coordinate this plan with NOAA, FWS and EPA, and will submit comments to the permittee within 3~-days of the permittees' submittal.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall provide the dredge contractor a map identifying the plotted perimeter boundaries of the selected artificial reef placement sites as a polygon target. The map shall be in electronic GPS form or e-map form, and shall be adequate enough (within 1 meter or less accuracy) to allow for electronic positioning, and to be used in conjunction with the continuous tracking system required in special conditions 15 and 16. The site within the polygon must be confirmed for accuracy of material placement and shall ensure that no natural resources will be taken.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall use an electronic positioning system to navigate to and from the deep artificial reef placement sites. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of sight system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the deep artificial reef placement sites. a. The permittee shall certify the accuracy of the electronic positioning system proposed for use during all construction operations. The certification shall be accomplished by direct comparison of the electronic positioning system's accuracy with a known fixed point. b. If the electronic positioning system fails or navigation problems are detected, all artificial reef placement operations shall cease until the failure or navigation problems are corrected. If the permittee is using the same vessel to dredge borrow areas, place sand on the beach, and transport rock/rubble for artificial reef placement; and the electronic positioning system fails or navigation problems are detected, all operations shall cease until the failure or navigation problems are corrected.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees to implement GPS tracking/mapping technology and an automated placement verification system on the proposed dredge vessel. This technology is to be used for tracking of the dredge vessel routes while traveling out to the rock/rubble artificial reef site for material placement. a. The vessel positioning technology shall Track the vessel transit from the borrow areas out to the approved offshore placement sites at a minimum of 1-minute intervals. At all times while the hopper dredge is outside of Port Everglades, offshore of Broward County, in the Atlantic Ocean, the location of the vessel shall be tracked according to the requirements above. b. The permittee shall demonstrate accurate rock placement in the approved areas by submitting to the Corps (South Permits Branch), the mapped vessel tracks and material deposit logs, once a week during construction activities. The permittee shall identify if any "short dumps" and/or missed targets have occurred. c. If any impacts ("short-dumps" and/or missed targets) have occurred, the permittee shall immediately; within a maximum of 24-hours; notify by telephone, the Corps (South Permits Branch at 561/472-3519), and all other action agencies including FDEP, NOAA, FWS, and EPA. The permittee shall immediately, within a maximum of 24- hours, ground-truth the deviated paths (provided that they are within safe diving limits and weather permitting) and document any impacts. The Corps (South Permits Branch) will determine appropriate recovery actions and mitigation efforts, which will include time lag and risk assessments (see condition #33). The Corps (South Permits Branch) will determine final mitigation upon the applicants' submittal of a mitigation plan within 60 days of the impact incidence. The Corps
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	(South Permits Branch), will coordinate this plan with NOAA, FWS, and EPA, and will submit comments to the permittee within 30-days from submittal.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The required digitally recorded data mentioned above in special condition 16 shall include: date, time, vessel name, artificial reef placement number, location at points of initiation and completion of artificial reef placement, description of material disposed (rock rubble, sand, clay or silt), and volume of load, to ensure that no natural resources will be taken. This information shall be provided to the Corps (South Permits Branch), in conjunction with the mapped vessel tracks once a week during construction activities.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees that if a contractor is selected, who will use vessels other than the hopper dredge to transport and place rock/rubble material at the deep artificial reef site, precautions must be taken to ensure that damage does not occur to the existing reefs as a result of cable drag, scour wash or other construction activities. The permittee shall prevent scouring of benthic resources during all deep artificial reef placement operations. a. Any towed vessels used for placement of artificial reef material, such as barges, scows and the like, will be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line. b. All cables must be floated in all water depths to avoid impact to submerged resources. c. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The rock/rubble artificial reef placement area shall be monitored 90 days after construction is complete. The permittee shall develop a rock/rubble artificial reef monitoring plan prior to construction. The monitoring plan shall identify scope of work, monitoring methods to be used, document if coral, fish, or algae recruitment is occurring, and analysis of data. Monitoring shall be conducted using towed video survey (the same survey methodology used for the baseline survey), for comparative purposes. The offshore artificial reef placement area shall be monitored at years 1 and 3 and after any hurricane storm event designated at a Category IV or higher. The monitoring report at years 1 and 3 shall compare results of the baseline surveys and with archival reports or assessment data of similar offshore reef sites as available or where appropriate, and the final contract report shall discuss success/failures of recruitment of natural resources to the rock/rubble deposited at the site.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall prevent scouring and/or dredging of benthic resources, corals, and other hardbottom resources, by any hopper dredge activities associated with this project.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	Prior to construction, the permittee shall provide to the Corps (South Permits Branch), and the dredge contractor; a map identifying approved vessel transit corridors plotted as polygon targets to be used during transit from the borrow areas to the sand pump out facility locations. A hard copy of the map shall be submitted to the Corps (South Permits Branch), and an electronic map in electronic GPS form shall be submitted to the contractor. The electronic GPS form shall have 1-meter accuracy or less to allow for electronic positioning, and shall be incorporated into the continuous tracking system on the hopper dredge vessel. The permittee shall ensure that the selected vessel transit corridors avoid and minimize transit over hardbottom as much as possible. The permittee shall ensure that adequate vessel operating depths will be achieved, and to ensure no natural resources will be taken.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall use an electronic positioning system to navigate during all aspects of the construction project. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for this construction project. If the electronic positioning system fails or navigation problems are detected, all operations shall cease until the failure or navigation problems are corrected.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees to implement GPS tracking/mapping technology on the proposed dredge vessel. This technology is to be used for tracking the dredge vessel routes throughout the project. a. The vessel positioning technology shall track the vessel transit paths at a minimum of l-minute intervals and shall ensure that the contractor does not deviate outside of the approved vessel transit corridors. At all times while the hopper dredge is outside of Port Everglades, offshore of Broward County, in the Atlantic Ocean, the location of the vessel shall be tracked according to the requirements above. b. The permittee shall require that the vessel corridors are identified in electronic GPS form, and shall be incorporated into the electronic positioning system with automatic alarms if the vessel deviates into the 400' buffer zone or other restricted areas. c. The permittee shall demonstrate that the vessel was accurately navigated through the approved vessel transit corridors, by submitting to the Corp South FL Permits Branch), the mapped vessel tracks, once a week during construction activities. The permittee shall identify if any vessel transit paths have deviated outside of the approved corridors. d. If vessel transit deviation has occurred, the permittee shall immediately; within a maximum of 24-hours; notify by telephone, the Corps (South Permits Branch), and all other action agencies. The permittee shall immediately identify the extent of deviation, depth, draft, drag-arm position, and reef character, within a maximum of 24- hours. After consultation with the Corps (South Permits Branch) the permittee shall ground-truth significant vessel deviation paths and document any impacts (see condition #33). The Corps (South Permits Branch) will determine appropriate recovery actions and mitigation efforts, which will include time lag and risk assessments. The Corps (South Permits Branch) will determine final mitigation upon the applicants' submittal of a mitigation plan within 60 days of the impact incidence.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall ensure that the contractor inspects the hopper dredge daily for any leaks or failures. The permittee will ensure that the contractor uses signal devices or alarm devices on all vessels associated with this project to ensure that leaks from the split hull mechanism, or other sediment handling systems, do not occur. The permittee must ensure that the contractor is operating the hopper dredge in a manner such that the split hull mechanism is closed completely at all times before leaving the borrow sites. There shall be no random deposits of dredge material over natural resources and outside of the authorized areas.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	All operations including the arm of the hopper dredge, etc., shall be conducted in a manner to eliminate the possibility of equipment dragging on the bottom and damaging natural resources. Before the dredge leaves any/all borrow areas, to transfer material to the transfer station, or exiting the boundaries of the site to travel to the rock disposal site, the drag-arms (hopper arm) must be completely raised out of the water at all times during transit. The permittee agrees that during turns, while working in borrow areas III, IV, and VI; the drag-arms shall be raised to a maximum of 20' below the surface of the water. The permittee agrees that during turns, while working in borrow areas I and II, the drag-arms shall be raised to a maximum of 10' below the surface of the water. After the hopper has made each turn the permittee may proceed to lower the drag-arms upon approaching the borrow site to maximize full use of the borrow material at the edges of the borrow areas however, the permittee shall minimize the amount of the time that the drag-arms are deeper that the "drag-arm depths" described above for the specific borrow areas. The permittee must provide, within 30 days prior to construction, a plan that will address what methods or precautions will be taken to avoid operational failures. If operational failures of the drag-arm occur, work shall immediately cease until the cause of failure has been corrected.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall ensure that the dredge contractor will prevent unnecessary runoff into the marine environment and that the contractor complies with Florida Department of Environmental Protection water quality requirements. The permittee agrees and understands that additional safeguards may be required and any impacts to resources from dredge disposal management areas will require recovery or mitigation actions.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	During construction activities and in an effort to avoid and minimize impacts to aquatic resources, the permittee will maintain absolute minimum buffer distances of no less than 400- feet between all inshore or offshore reef communities and the borrow area boundaries (boundaries on the west side of the borrow areas may be moved to the west, as provided in project plans, should Segment II be' authorized for fill).
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall provide the dredge contractor with an electronic map, in electronic GPS form, identifying the borrow areas plotted as polygon targets to be used during dredging of the borrow areas. The map in electronic GPS form shall have 1- meter accuracy or less to allow for electronic positioning and shall be incorporated into the continuous tracking system on the dredge vessel, as required in special-condition#' s 22, 23, 24. If vessel deviation occurs resulting in coral and/or hardbottom impacts then conditions #33 and 34 will apply. Prior to commencement of construction, the permittee shall submit updated drawings of the borrow area indicating the above mentioned buffer distances.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees that any tow vessels used for the sand pump out facility shall be either lashed directly to the sand pump out facility with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the sand pump out facility by floating line. All cables must be floated in all water depths to avoid impact to submerged resources. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The sand pump out facility (where the hopper dredge will connect to deposit sand for the beach) shall be installed using diver-assisted placement to prevent impacts from the spuds of the jack-up structure or spud barge. The permittee shall record, via GPS coordinates, all of the locations of the jack-up structure or spud barge, and provide the data to the Corps (South Permits Branch), once the sand pump out facility is secured. At all times during project construction, the sand pump out facility shall be adequately secured using appropriate measures, to ensure that any movement of the sand pump out facility or the pipeline, by natural conditions, does not scour or destroy submerged aquatic habitat
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees that in the event that the sand pump out facility is relocated, activities will be carried out so as to avoid impacts to all submerged aquatic habitat. All cables, lines, buoys, etc., shall be adequately secured on the sand pump out facility to avoid dragging, scouring, or inadvertent impacts to any submerged aquatic habitat.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall immediately notify the Corps (South Permits Branch at 561/472-3519), NOAA, FWS, and EPA, by -telephone, within a maximum of 211'":hours and submit a preliminary written report, within one week of investigation of the incident, in the event of damage to natural resources. The permittee shall document any impacts or accidents that have occurred to seagrass, coral and/or hardbottom resources. The permittee shall initiate within 24 hours of any incident (weathering permitting), the immediate triage, recovery, stabilization, and restoration of any injury to natural resources in the event of unforeseen accidents from any construction activities, such as anchor damage, anchor cable scouring, material transfer, pipeline failure, hopper diagrams, artificial reef material, vessel grounding, etc. A preliminary injury assessment shall be submitted to the Corps (South Permits Branch), within one week of the incident. The Corps (South Permits Branch) will determine appropriate recovery actions. A total injury assessment shall be submitted within the post-construction report of Segment III, which shall be submitted 90 days post-construction.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall avoid injury to all submerged aquatic habitats by any and all construction activities. Unavoidable impacts shall require in-kind restoration and mitigation. Mitigation ratios shall be determined based on a Habitat Equivalency Analysis. In the case of inadvertent or unauthorized impacts, the permittee shall submit a mitigation plan to the Corps (south Permits Branch), which will include compensatory mitigation that will account for time lag and risk assessments. The Corps (South Permits Branch), will coordinate this plan with NOAA, FWS, and EPA, and will submit comments to the permittee within 30-days from submittal by the permittee.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee agrees that Broward County staff will assist with identification of the exact routing of the sand pump out pipeline below mean high water, and within the natural reef corridors, to minimize the impacts of the pipeline in a manner that causes the least amount of impacts to submerged aquatic habitats.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall use appropriate type anchoring methods including methods to avoid impacts to natural resources (e.g., pipe collars). The entire length of the pipeline will be visually inspected twice a week, during continued use, in order to check for potential leaks, which may emanate from the pipeline couplings or other failures. All dredge and fill activities will cease at any time, that any substantial (violation of State water quality standards) leaks are found. Resource recovery shall be initiated immediately pursuant to special condition #33 above. Operations shall resume upon the appropriate repair of affected couplings or other equipment, or upon completion of resource recovery activities. After pipeline removal, a detailed survey will be conducted in order to document any impacts that may have occurred as a result of the pipeline placement.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will implement a compliance construction monitoring program. Monitoring of turbidity will occur during all dredging operations at the borrow sites. Turbidity samples shall be collected according to sampling protocols at all times during construction. Background turbidity samples shall be collected daily, lBO-meters up current of construction. Turbidity samples shall be collected 150 meters down current, or at the nearest edge of resource, from the operating dredge, every 4 hours, at mid-depth in the densest part of the turbidity plume. Dredging at the borrow sites will cease if measured turbidity exceeds 29 Nephelometric Turbidity Units (NTUs) above background. The permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated May 12, 2003; number 0163435-00l-JC. In the event FDEP water quality standards are exceeded work shall stop immediately until the cause is corrected.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will establish nearshore monitoring stations/cross-shore permanent transects, extending 300' seaward of the projected equilibrium toe of fill (ETOF), to monitor and identify potential effects from sediment and turbidity movement, and stress indicators, on scleractinian (stony) and soft coral species, on adjacent, deeper, and stable nearshore hardbottom communities. The permittee will conduct surveys of nearshore hard-bottom resources, fish populations and epibenthos monitoring sites, and depth of sediment, immediately prior to construction (this will be compared to baseline data to get information on natural variability), within 90 days of completion of construction, and annually for the first three (3) years after construction, and again at the end of the fifth year, in accordance with the FDEP permit special conditions, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks. The County agrees to monitor sites BA3SMI and BA3SM2, for biological and sedimentation monitoring, one additional time per week (in addition to the required weekly monitoring, resulting in twice a week) for the first 28 days of construction, using County resources (compliance monitoring above will be done by Nova Southeastern University, NSU). These two sites are located northwest and north, respectively, of Borrow Area #111. The additional monitoring events would encompass the same protocols as those employed by NSU for the regular weekly visits. The permittee agrees to implement Best Management Practices to avoid exceedance of turbidity standards by dredging material from the borrow areas on a rotating basis, so that any borrow area is visited on as infrequent a basis as possible, reducing impacts to adjacent marine resources.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will complete three (3) hardbottom edge surveys of the areas just offshore of the projected equilibrium toe of fill (ETOF), using divers assisted with DGPS antennae, at a minimum of l4-days prior to construction, at 1.5 years post construction, and at the end of three (3) years post construction.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall monitor the offshore hardbottom habitat, located adjacent to the borrow sites for sedimentation generated by the hopper dredging operations. Amount and duration of sedimentation will be monitored, as well as stress indicators of stony corals affected by the dredge operations, at designated monitoring stations located adjacent to each borrow area. The stations shall be monitored once per week, eight (8) weeks prior to construction, during construction, and eight (8) weeks following construction, with the exception of borrow area VI, which will be monitored daily for the first 28 days of construction. Construction activities shall cease if sediment exceeds defined standards (more than an average of 1.5 mm per day). Furthermore, if insitu coral stress indicators exceed defined values and show 2 out of 3 observable stress indicators and the sediment monitoring sites for any borrow area has accumulated daily average sediment values below 1.5 mm, then histological tissue analysis of affected corals will be conducted. Prior to construction, laboratory calibration experiments testing sedimentation rates on corals in aquaria shall determine threshold values of stress indicators, called index values. The coral stress index values shall be established to represent the health of the coral. A scale of 0 (zero) to 3 (three) shall be used where, 0 represents no observed bleaching, to mucus production, to polyp extension, to a value of 3 representing the maximum observed changes in the coral species. Prior to construction the permittee shall submit the laboratory developed index values to the Corps (South Permits Branch) to be used as guidance for assessing coral health after the construction is complete. It is understood that the laboratory results will require ongoing calibration in the field during construction. Sedimentation and stress monitoring at the stations defined in the Nearshore Biological Monitoring Plan for the Broward County Beach Nourishment Project shall continue six (6) months and (1) one year, following construction in accordance with the FDEP permit special conditions respectively, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will meet with the Corps (South Permits Branch), and. Federal resource agencies, within 7 -days of completion-of the 28~day daily monitoring work at borrow area IV, to review daily sedimentation and biological response trends. The permittee and the Corps (South Permits Branch), agree to make changes to the ongoing weekly monitoring, if the results of the daily monitoring indicate a need for such adaptive management. The Corps (South Permits Branch), will coordinate this plan with NOAA, FWS, and EPA, and will immediately submit comments to the permittee.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall monitor colonization of the mitigation reefs by epibenthos, semi-annually (twice per year) for two (2) years following construction, and annually for the third and fourth year following construction. The permittee will establish 30 meter monitoring transects at designated monitoring locations, which will be used to record density of epifauna and percent bottom cover. Fish counts shall be performed along transects at both the mitigation reefs and nearby natural hardbottom for comparison of species diversity and recruitment. A direct comparison of epibenthos and fish communities shall be made between the mitigation reefs and nearby hardbottom. Mitigation reef colonization shall be implemented in accordance with the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	In the event that inadvertent or unanticipated impacts occur, additional mitigation and/or monitoring may be required. The applicant will provide a draft supplemental mitigation and monitoring plan to the Corps (South Permits Branch). The Corps (South Permits Branch) will coordinate the plan with the NMFS, FWS, and EPA. This supplemental mitigation and monitoring plan shall be submitted for review within 30-days of such request (hard-copy or electronic version), and the Corps (South Permits Branch), will determine the appropriate mitigation, which will include compensatory mitigation that will account for time lag and risk assessments.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee shall develop an operational storm contingency plan that describes their response in the event of storms (e.g. hurricanes, high-seas conditions) and operational failures (e.g. breaks in the dredge pipes, movement of sand pump out facility/dredge pipes) .a. A description of severe weather hazards that may potentially occur and steps that will be taken to guard against the hazards. b. The time frame of implementing the plan (using as a reference the number of hours remaining for the storm to reach the work site if it continues at the predicted speed and direction), including the estimated time to move the construction vessels and equipment to safe harbor. c. This plan shall be submitted to the Corps (South Permits Branch), for coordination with NOAA, FWS, and EPA, and approved by the Corps within I-week after submittal.
USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	The permittee will adhere to all conditions of the nearshore artificial reef permit, DA permit #SAJ-2002-2344(IP-SLN), concerning the mitigation of proposed impacts to nearshore hardbottom resources associated with the beach nourishment activities. a. The permittee shall abide by the special conditions of the attached FDEP permit #0163435-001-JCi issued May 12, 2003. b. The permittee will not proceed with Segment II of the proposed project until such time that the Corps (South Permits Branch), and FDEP issue final permits for that segment.

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USACE	1999-5545	Broward Beach Segment III	Beach Renourishment	26°5'32.76", -80 0 6'28.l9"	Broward	Segment II will be evaluated for authorization by the Corps (South Permits Branch), in coordination with the federal resource agencies, based on review of a report consisting of 15 months of monitoring data that will be derived from the construction and post nourishment of Segment III. Specifically, comments and recommendations from NOAA, U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency will be considered in the evaluation process that precedes the permit decision for Segment II. The monitoring shall be conducted in accordance with the Construction/Post-Construction Nearshore Biological Monitoring Plan and conditions of this permit. The data collected for this report will be expected to determine that specific conditions in this permit will be suitable for the nourishment of Segment II and that no additional adverse impacts to reefs offshore of the estimated toe of fill and/or adjacent to borrow areas, will not occur as a result of sedimentation, turbidity, and/or mechanical damage. The Corps (South Permits Branch), will consider reducing the buffer zones around the borrow areas for Segment II provided that the data from Segment III construction demonstrates that no impacts to adjacent hardbottom communities from sedimentation, vessel damages, etc have occurred. The monitoring data will be expected to demonstrate that the equilibrium toe of fill proposed by the original modeling for Segment III, behaved in a manner that did not substantially deviate from the original proposal, including model predictions. Analysis of the 18 months of monitoring data must also demonstrate that unanticipated impacts to the nearshore/offshore reefs would not likely occur. The Corps (South Permits Branch), will review the 18 months of monitoring data in concert with the aforementioned federal resource agencies and determine whether or not to issue authorization for Segment II and if so, identify any additional permit limitations that may be necessary for avoidance, minimization, and mitigation of living marine resources, however, the Corps (South Permits Branch), working with the County, will make the final permit decision regarding the nourishment of Segment II. The Corps (South Permits Branch), and the FDEP will decide if the Segment II project may proceed as proposed, may proceed with revisions, shall be postponed pending the results of further monitoring, or may not proceed.
USACE	1997-2355	Hillsboro Beach Renourishment	Beach Renourishment	26 15' 0", -80 05' 0 "	Broward	Prior areas will to any construction activity, a map be provided to the contractor. The of the hardbottom map will designate the reef protection zones, pipeline corridors, and vessel ingress/egress corridor. The contractor will verify, via diver investigation, that any area to be used for anchorage lS sandy bottom.
USACE	1997-2355	Hillsboro Beach Renourishment	Beach Renourishment	26 15' 0", -80 05' 0 "	Broward	A 200-foot buffer zone around the hardbottom areas located near the borrow site, in which dredging is prohibited, will be marked with buoys. The buoys will be placed prior to and maintained during any construction activity.
USACE	1997-2355	Hillsboro Beach Renourishment	Beach Renourishment	26 15' 0", -80 05' 0 "	Broward	During construction activity, state-of-the-art navigational and positioning equipment will be used which will sound an alarm notifying the dredge operator that the dredge is approaching a hardbottom location.
USACE	1993-1995	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	Sea oats or other appropriate dune vegetation should be planted on nourished beaches to enhance dune restoration. The Florida DEP, Division of Beaches and Shores, can provide technical assistance on the specification for the design and implementation.
USACE	1993-1995	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	Within 6 months of completion of construction of the channel improvement project, the Permittee shall construct a 1.6- acre artificial reef using limestone boulders with a minimum dimension of 2.5-feet and minimum weight of 1,500 pounds. The boulders will be placed in an area 700 feet long and 100 feet wide landward of the existing hardbottom habitat as depicted in the permit drawings. The Permittee will maintain a minimum 50- foot buffer between the placed boulders and the existing hardbottom. The Permittee will determine the depth of sand in the area of proposed mitigation to ensure the limestone boulders would not sink.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1993-1995	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	The Permittee shall monitor the artificial reef for 1 year. In the event some of the mitigation sinks or becomes covered with sand, the Permittee will need to provide alternative mitigation, upon approval of the Corps. Three monitor reports shall be submitted and be accompanied by video documentation: a time zero report to be submitted 30 days after the placement of the boulders, one 6 months after the placement of the boulders, and one 1 year after the mitigation was completed. Reports should be submitted to the Jacksonville District Office, Enforcement Branch, Attention: Ms. Ivette McGraw, Post Office Box 4970, Jacksonville, Florida 32232-0019. Please include the permit number clearly visible on each report.
USACE	1993-1995	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	Sea oats or other appropriate dune vegetation should be planted on nourished beaches to enhance dune restoration. The Florida DEP, Division of Beaches and Shores, can provide technical assistance on the specification for the design and implementation.
FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	No work shall be conducted under this permit until the permittee has received a written Notice to Proceed from the Department. At least sixty (60) 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: a. A detailed Mitigation Plan that addresses the timing of artificial hardbottom construction in relation to the beach fill construction, acreage of proposed artificial hardbottom (as required in Specific Condition No. 11), proposed construction methods, the size and type of hard bottom substrate, depth of sand (above underlying rock), and other pertinent updates to the draft mitigation plan; b. A Sediment Quality Control / Quality Assurance Plan, as required by Rule 62B 41.008(1)(k)4.b., F.A.C. and Specific Condition No. 8; c. A detailed Physical Monitoring Plan, as described in Specific Condition No. 14 (Physical Monitoring section), indicating the project's predicted design life; d. A detailed Biological Monitoring Plan, as described in Specific Condition No. 15 (Biological Monitoring section); e. Two hard copies and an electronic copy of detailed final construction plans and specifications for all authorized activities, including a vessel operations plan. These documents shall be signed and sealed by the design engineer, who must be registered in the State of Florida, and shall bear the certifications specified in Rule 62B-41.007(4), F.A.C. The plans and specifications shall include a description of the beach construction methods to be utilized and drawings and surveys which show all biological resources and work spaces (e.g. anchoring area, pipeline corridors, staging areas, boat access corridors, etc.) to be used for this project. The Department may request additional information that may be necessary to understand and evaluate the proposal; f. 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. Accordingly, 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; g. Biological monitoring qualifications. The names and qualifications of those individuals performing the biological monitoring shall be submitted for Department approval. All biological monitoring required by this permit shall be conducted by individuals having a good working knowledge of marine fish, marine turtles, algae, coral, and sponge taxonomy.

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FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Mitigation. The unavoidable burial of 7.6 acres of nearshore hardbottom that will result from the direct placement of fill and from the equilibration of the toe of fill (TOF) shall be mitigated by creating a minimum of 8.9 acres of artificial hard bottom substrate. All mitigation shall be completed no later than six (6) months after the commencement of the Segment III beach project construction. If artificial reef construction is not completed within the specified time, a time lag coefficient shall be applied to increase the mitigation ratio. The artificial reefs shall consist of limestone boulders placed on the sandy ocean bottom. These sites shall be located landward of the first offshore reef and seaward of the estimated equilibrium toe of fill, in mean water depths of 15 to 20 feet. Boulders shall be 4 feet or greater in diameter, with a specific gravity of at least 2.1, in order to prevent sliding or tipping/rolling during storm events. The distance between individual boulders shall not exceed five feet. In order to minimize subsidence, the selected placement areas shall contain a layer of sand no more than two feet thick over the hardbottom. A 50-foot wide buffer from all significant natural hardbottoms shall be maintained during boulder placement. These design specifications are consistent with Department guidelines and general practices used in the construction of artificial reefs along the Atlantic Coast of Florida. A portion of the artificial reef site between R-101 and R-104 will serve as the scleractinian coral transplantation receiver site. Deployment of the artificial reefs will begin at Mitigation Area VIII, from R-101 to R-104 (see Attachment 1, The Mitigation Plan)
FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Transplantation of corals. Transplantation of scleractinian corals from the areas of direct and secondary impact to the mitigation reef is required for saving important and declining reef-building fauna of the nearshore area and for initiation of coral succession. All scleractinian coral colonies measuring 15 cm or more shall be removed from the area located between the estimated Equilibrium Toe of Fill and the shoreline in Segment III and transplanted into a portion of the artificial reef between R-101 and R-104 designated as the coral transplantation receiver site. There, the corals shall be cemented on the artificial reefs. The transplantation must be done in the pattern that will a) create a percent bottom cover by corals of about 3%; and b) concentrate particular species to stimulate local recruitment and enhance succession. This created coral community shall be the subject of a long-term monitoring program to document survival and growth of the transplanted corals.

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FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the borrow areas and the beach nourishment sites shall be monitored during construction. Turbidity will be measured at background and compliance stations. A. Borrow Sites: Frequency: Every six hours during dredging. Location: Background: Mid-depth, at least 300 meters upcurrent from the dredge site, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume. B. Beach Nourishment and Groin Construction Sites: Frequency: Every six hours during pumping operations or other in-water work. Location: Background: Mid-depth, at a point approximately 150 meters offshore and 300 meters upcurrent from the discharge point, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, at a point approximately 150 meters offshore and no more than 150 meters downcurrent from the discharge point, within the densest portion of any visible turbidity plume. Weekly summaries of all monitoring data shall be submitted to the Bureau of Beaches and Wetland Resources and to the Southeast District Office within one week of collection, with documents containing the following information: (1) “Permit Number 0163435-001-JC”; (2) “Broward County Beach Nourishment Project (Segment III)”; (3) dates and times of sampling and analysis; (4) a statement describing the methods used in collection, handling, storage and analysis of the samples; (5) a map indicating the sampling locations, current direction, plume configuration and the location of the dredge and discharge point(s); and (6) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection 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) DGPS position. 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 are greater than 29 NTU's above the associated background turbidity levels, construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.

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FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	Biological Monitoring As required in Specific Condition Number 9.d., the permittee shall submit a detailed Biological Monitoring Plan subject to review and approval by the Department. The biological monitoring program consists of 1) sedimentation surveys of the reef edges adjacent to the borrow areas during and after the construction phase; 2) pre-construction and post-construction surveys of the pipeline corridors to document impacts to hardbottom communities along the routes, and weekly inspections of the pipelines during construction to check for leaks; 3) a long-term, County-wide reef community health assessment; 4) construction phase and long-term post-construction surveys of the nearshore hardbottom to monitor for secondary impacts; 5) a long-term mitigation monitoring program, which includes monitoring of epibenthos, including transplanted corals and coral recruitment, fish, and algal recruitment; and 6) a construction phase and long-term post-construction sea turtle monitoring program. The goals of biological monitoring program are to identify project-related impacts upon protected species and significant biological resources, document succession on the artificial reefs to determine the replacement habitat value of the artificial reefs compared to natural nearshore hardbottom, and to provide a quantitative approach to mitigation for unavoidable and unexpected project-related impacts. a. Nearshore hardbottom habitats. Biological and sedimentation monitoring of the nearshore hardbottom habitats adjacent to the beach fill sites shall be conducted during the pre-construction phase; construction phase, immediately after construction, and post-construction. During construction, weekly observations of sedimentation/siltation impacts shall be performed in the nearshore zone via a series of cross-shore transects that extend 300 feet seaward of the equilibrium toe of fill. Stress indicators on scleractinian (stony) and soft coral species must be used in conjunction with standing sediment levels to trigger implementation of corrective actions that may include extension of shore-parallel dykes on the beach, cessation of sand pumping until the discharge plume dissipates, and/or shifting the dredge to an alternate sand source within the approved borrow sites containing a lower percent of fine-grained material. A network of nearshore monitoring stations/cross shore permanent transects shall be maintained to specifically identify and address potential effects from sediment and turbidity movement to the adjacent, deeper and more stable nearshore hardbottom communities. Annual surveys shall be conducted during the first three (3) years post-construction (Years 1, 2 and 3), and conducted again at the end of the fifth year post-construction. Fish populations shall be also be assessed annually (years 1, 2 and 3) at 30 of the epibenthos monitoring sites within the impact areas during the summer months for comparison to the pre-construction survey. Two hardbottom edge surveys will also be conducted by divers, propelled via scooter, with attached DGPS antennae: one immediate prior to construction and one three (3) years after construction. The final impact of fill equilibration is expected to occur at the end of Year 3 (post-construction). b. Offshore hardbottom habitats. Impacts to offshore hardbottoms located adjacent to the borrow sites from the sedimentation generated by hopper dredging operations shall be monitored throughout construction. The monitoring program shall measure the amount and duration of sedimentation on the reefs and shall include observations for indicators of biological stress to certain species of stony (scleractinian) corals and soft corals (octocorals). Thresholds for stress to corals shall be identified experimentally and included in the Monitoring Plan. There shall be multiple sediment monitoring stations adjacent to each borrow area and six control stations shall be located at six of the County's permanent reef monitoring stations. The sites shall be monitored once every week starting 8 weeks prior to construction, once every week during construction, and once every week for 8 weeks after construction. In addition to this monitoring schedule, Borrow Area VI shall be used as a test site during the first twenty-eight (28) days of dredging operations and shall be monitored on a daily basis or each second day, depending on whether construction will be done with one or two dredges. The results of the daily/bi-daily monitoring shall be compared after twenty-eight (28) days to the results of weekly monitoring to determine if the increased frequency of visits yields different average daily sedimentation rates. Provided no significant difference is revealed, sedimentation monitoring shall be continued weekly during the construction period.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0163435-001-JC	Broward Beach Seg III	Beach Renourishment	26º5'32.76", -80º6'28.19"	Broward	CONTINUED: Use of a borrow area shall be suspended if the average daily measure of sediment exceeds defined standards. Histological tissue analyses of the corals shall be conducted if stress indicator index values exceed defined levels. All sites shall be revisited, photographed, and examined for cumulative sediment impact six (6) months post-construction and one year post-construction. The long-term, annual reef community monitoring is a continuation and expansion of Broward County's current countywide reef monitoring program. c. Monitoring of Mitigation Reef. The colonization of the mitigation reefs by epibenthos shall be monitored semi-annually during the first two post construction years (Years 1 and 2), and annually during the third and fourth post-construction years (Years 3 and 4). The density of epifauna and percent bottom cover shall be assessed along a series of twenty-five 30-meter-long, cross-shore transects. Fish counts shall be performed along 50 transects (25 on mitigation reefs and 25 on nearby natural hardbottom) for correlation between fish populations and epibenthic communities. A direct comparison of the epibenthic communities and fish assemblages on the mitigation reefs to adjacent (nearby) natural hardbottom shall be made to determine the replacement habitat value of the mitigation reefs. Long-term monitoring of the mitigation reefs will be performed to determine the replacement habitat value compared to natural nearshore hardbottom. An assessment of algal recruitment, with an emphasis upon replacement of preferred algal food species for sea turtles, will be conducted as a part of the monitoring program of the mitigation area. For the assessment of algal recruitment, two control stations shall be established over a 0.5 acre area of the artificial reef located between FDEP control monuments R-101 and R-104. The 30 meter long transects shall be established following the rugosity of the boulders so that algal recruitment on both horizontal surfaces and boulder slopes shall be assessed. The same survey methodology shall be used in two control stations on natural hardbottom. The 30 meter long transects shall be documented using digital video sampling (Sony TRV-900) in progressive scan mode. Macroalgae abundance shall be assessed by percent cover using frame grabbing and PointCount'99 software. Species identification within the stations shall be performed in situ by a second, qualified diver/biologist (M.S. degree or higher). The biologist shall swim two 1-meter wide corridors within the station and record a comprehensive taxonomic list of species present in the entire 60 square meter box. The algal surveys shall be conducted on a semi-annual basis (spring/summer and fall/winter) for a post-construction period of four (4) years.
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	All excavated rock shall be placed in the approved Deerfield Beach artificial reef site, as shown on the attached permit drawings
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	To verify long-term stability and performance of the mitigation artificial reef, prior to reissuance of this permit and prior to each subsequent renewal (i.e. in the year 2012 and approximately every ten years thereafter), the permittee shall provide verification that the artificial reef has maintained the original design area of 0.8 acres, and the original design elevation and specifications. If there has been any subsidence, burial, or other change in acreage, elevation or location of the artificial reef, the permittee shall restore the artificial reef to the original design specification prior to commencement of construction of each maintenance dredge event.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	The permittee shall construct a minimum of 0.8 acres of artificial reef as mitigation for impacts to 0.4 acres of natural nearshore hardbottom. The permittee shall adhere to following procedures for the construction of the artificial reef mitigation work: a. Construction of the artificial reef shall be completed no later than 6 months after completion of construction of the channel improvement project. Completion dates of the channel improvement component of the project and the artificial reef component of the project shall be reported in the Notice of Completion required by General Condition No. 11 (above). b. Prior to beginning construction of the artificial reef, the permittee shall submit a plan view drawing identifying the surveyed coordinates of the artificial reef construction sites and all work spaces (staging areas, boat access corridors, etc.) to be used to construct the artificial reefs. The drawing shall include all hardbottom areas within 1,000 ft. of the artificial reef construction sites. The work conducted adjacent to existing hardbottom areas shall be performed in a manner that avoids impacts to existing hardbottom. All artificial reef construction equipment shall be confined to the identified, buoyed work spaces.
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	d. Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. If this work is to be conducted at night, the buoys shall be lighted; e. The reef building materials shall be transported to the mitigation site by barge. Materials shall be lifted over the side of the barge and placed into the proper location by a pre-approved method of placement; f. The artificial reef materials shall consist of clean limestone boulders. Reef construction materials shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges. The reef construction materials shall be free of any rebar, steel, or other similar protruding materials; g. The permittee shall ensure that the artificial reef is constructed to mimic the natural hardbottom in the project area. The vertical relief of the artificial reef shall be between 1 and 4 feet. Greater relief is authorized only if the permittee provides the Department with documentation of the need to meet stability criteria or, on a temporary basis, to compensate for immediate subsidence. The artificial reef materials shall be placed in such a way as to optimize overhanging ledges and crevices. The reef materials shall be placed in shore parallel formations with the total artificial reef surface area coverage of at least 0.8 acres. h. Following the completion of the placement of reef construction materials, the permittee shall use remote sensing techniques to survey the artificial reef sites to verify that the required reef acreage has been created and provides the appropriate average relief as indicated in the permit. If the remote sensing techniques indicate the artificial reef does not meet or exceed the approved mitigation plan, the permittee shall alter the artificial reef as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the three year monitoring survey indicates a reduction in the extent of the artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	Water Quality Monitoring Artificial Reef Construction Site: Background: At least 500 meters upcurrent from the discharge point, outside of any visible turbidity plume. Samples shall be collected from the surface and 1 meter above the bottom. Compliance: No more than 150 meters downcurrent from the discharge point, in the densest portion of any visible turbidity plume. Samples shall be collected from the surface and 1 meter above the bottom. Weekly summaries of all monitoring data shall be submitted to the Bureau of Beaches & Wetland Resources (Bureau) and to the Southeast District Office within one week of analysis with documents containing the following information: (1) permit number; (2) dates and times 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; and (5) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection and accuracy of the data.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0177081-001-JC	Hillsboro Inlet	Beach Renourishment	26° 15'20", -80° 04' 48"	Broward	Mitigation Reef Biological Monitoring. Underwater surveys of the mitigation artificial reef, with video documentation, shall be taken immediately prior to construction, immediately after construction, and annually thereafter for a period of three years, unless otherwise determined by the Department following the third annual survey. The permittee shall submit a biological report within 90 days of completion of the mitigation reef post-construction survey and each annual survey. The report shall include standard monitoring of physical stability and taxonomic lists of species, a summary of the results of the biological surveys, and include ecological comparisons to adjacent hard bottom reefs. If the three year monitoring survey indicates a reduction in the extent or relief of the artificial reef, or if the mitigation reef habitat is not comparable to adjacent hard bottom reefs, the permittee shall submit a plan to make up the difference, improve the reef design, and implement the plan once approved by the Department.
USACE	2008-1648	Miami Beach Truck Haul	Beach Renourishment	25.897083, -80.123506	Miami-Dade	Pre-, During, and Post-Construction Monitoring Report: Prior to initiating construction, at least once per month during construction, and within 60 days from completion of the authorized work, the Permittee shall submit a pre-, during, and post-construction monitoring report outlining the impacts to submerged aquatic resources., if any, during the construction phase of the project. A copy of all reports will be submitted to the National Marine Fisheries Service's West Palm Beach office to the attention of Ms. Jocelyn Karazsia, at 400 North Congress Avenue, Suite 120, West Palm Beach, FL, 33401. a. The report will include at least one paragraph depicting baseline conditions of the construction site(s) prior to initiation of the work based on the report submitted by Miami-Dade County, Department of Environmental Resources Management, entitled "Hardbottom Survey Report," dated July 2008. The report will specifically incorporate an amended preconstruction survey to include the Bal Harbor segment's king piles to document their distance from the existing shoreline in that area. b. Include a brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources impacted, a detailed plan view drawing of all the submerged areas negatively impacted (if applicable), and mitigation proposed and type of aquatic resources authorized to compensate for the aquatic impacts. If no impacts to resources have occurred, then no mitigation will be required. c. Written description of the location, any identifiable landmarks of the proposed compensatory mitigation project including information to locate the site perimeter(s), and coordinates of the mitigation site (expressed as latitude, longitudes, UTMs, state plane coordinate system, etc.). If the Corps determines that the proposed mitigation is inappropriate, within 60 days of notification by the Corps, the Permittee shall submit to the Corps an alternate compensatory mitigation proposal sufficient to create the functional lift required from the work authorized under this permit. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of resource functions associated with the project. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Permittee will complete the alternate compensatory mitigation proposal.
USACE	1989-506	Jupiter Inlet Sand Trap/Beach Renourishment	Beach Renourishment	26° 56’ 39", -80° 4’ 28”	Palm Beach	No impacts to seagrass or hardbottom areas are authorized by the placement of any pipes

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1989-506	Jupiter Inlet Sand Trap/Beach Renourishment	Beach Renourishment	26° 56' 39", -80° 4' 28"	Palm Beach	Mitigation for this project was encompassed by the larger mitigation requirements in DA permit SAJ-1990-902(IP-TA) issued 4 September 2001; 17% of which was to be paid by Jupiter Inlet District. A portion, but not all of the mitigation has been completed, with the final portion of the mitigation under review at this time through the Florida Department of Environmental Protection. The permittee shall submit a status report for the mitigation within 90 days of the issuance date of this permit identifying the amount of the mitigation that has been completed to date, a plan to complete the mitigation as required with a proposed schedule, and additional mitigation to offset any necessary temporal loss caused by the delay in construction. All plans submitted shall include time frames for completion of any outstanding mitigation and these plans including the time frames shall be subject to approval by the Corps.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	No-Anchoring Zone: The Permittee shall prevent any physical damage to benthic resources by establishing ingress / egress corridors and no-anchoring zones adjacent to and over mid-water and offshore marine habitats, except those near the established and approved pipeline corridors. The Permittee shall preclude anchoring within the No-anchoring zone identified on the project drawings. All operations shall be conducted in a manner so as to eliminate the possibility of equipment dragging on the bottom and damaging natural resources.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Avoidance of Hardbottom: In order to avoid inadvertent impacts to offshore hardbottom resources from dredging operations, the permittee shall require the dredging contractor to push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. These vessel routes shall be recorded and made available to the Corps upon request. During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation, in accordance with the approved Sediment QA/QC Plan (Attachment G). The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final project report, the Permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	If at any time during construction the dredge operates beyond the borrow area boundaries or exceeds the authorized dredge depth, then the Permittee shall notify the Corps within 24 hours. If this occurs on a weekend or holiday, the Department shall be notified on the next business day. If any damage is found, the Corps may conduct a site inspection or require a field survey by qualified biologists to assess the potential for physical damage to adjacent hardbottom. Within seven days of discovery of any damage, the Permittee shall submit a detailed description of the damage to the Department, including an estimate of the size of the area damaged photographs, a plan to prevent further damage, and a plan to repair the damage, if action has not already been taken. If significant, irreparable damage remains, the Permittee shall execute a Contingency Mitigation Plan pursuant to Specific Condition 25. Nothing herein shall preclude the Corps from taking enforcement action as a result of the damage.

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USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Required Compensatory Mitigation: The unavoidable burial of approximately 6.95 acres of nearshore hardbottom that is anticipated from the direct placement of beach fill (3.20 acres) and the indirect (spreading) impacts (3.75 acres) of the placed fill shall be mitigated by creating a minimum of 8.0 acres of hardbottom substrate. If the construction of the artificial hardbottom will be completed prior to or concurrent with the construction of beach fill, the mitigation area will be 8.0 acres. If the construction of the artificial hardbottom will be completed after the construction of the beach fill, the mitigation area will be increased to accommodate for any temporal lag. In no case shall the construction of the mitigation reef be delayed more than 12 months after the beginning of the beach nourishment.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Mitigation Reef Location: The compensatory mitigation reef may be placed in either of the proposed mitigation areas as shown in drawings 27 and 28 of 31 and identified by the following coordinates: Primary mitigation location:
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Mitigation Reef Depths: The mitigation reef shall be located in approximately 2.4 to 3.6 meters (8 to 12 feet) of water and placed on sandy bottom that has a sediment thickness over rock substrate of less than 1 meter (3 feet) but generally at least 15 cm, and does not contain any signs of hardbottom benthic community growing through the sand cover. Once the boulders subside onto this stable platform, the vertical relief of the artificial reef shall generally be between 1 and 3 feet above the sand substrate. It is recognized that portions of the constructed mitigation reef, much like the natural hardbottom being impacted within the project area, may at times be completely covered by sand.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Mitigation Reef Buffers: The Permittee shall maintain a 50-foot buffer around any natural hardbottom in order to provide adequate protection during boulder placement. Each boulder shall be placed with its greatest dimension parallel to the bottom, and boulders shall be individually placed on the sandy ocean bottom using a controlled method of placement.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Boulders shall be placed side-by-side without stacking. Adjacent boulders should touch each other for optimal spacing, but shall not exceed a maximum spacing of 2 feet (0.6m) between boulders.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Artificial reef boulders shall be inspected and washed prior to placement to ensure that the boulders are within the specified limits of size and free of cracks, soft seams and other structural defects. Debris and sources of pollution shall be removed from the material prior to its placement. Reinforcing steel bar, steel or other protruding materials shall not be included in the reef construction materials.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Neither reef structure nor material or the method of design or deployment should pose more than minimal risk of entrapping fish, marine turtles, or marine mammals. The Permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the Corps, NMFS, and FWS

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USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Deployment Monitoring: The Permittee shall have a third party representative on site during every deployment to verify compliance with the permit and its conditions. The representative shall not be the person who physically or contractually is responsible for deployment of the transported reef materials. The representative shall verify latitude and longitude coordinates using a Differential Global Positioning System (DGPS) unit accurate to within 3 meters horizontal distance. Depth shall be verified utilizing fathometer, depth sounder, or similar device accurate to within 1 meter. The Permittee shall maintain a record of the deployment compliance information on the "Florida Artificial Reef Materials Placement Report And Post-Deployment Notification" form, provided in Attachment I of this permit, with the name of the representative and provide to the Corps upon request
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Mitigation success criteria: a. After the artificial reef boulders have subsided to their terminal elevation (i.e., are resting on the underlying rock substrate), each portion of the artificial reef (i.e., a total of 8 acres, unless additional mitigation is required as indicated in Specific Condition 16 above) is periodically exposed during natural seasonal fluctuations. The average area of the mitigation reef exposed during the three post-construction monitoring events shall be at least 50 percent. If the three monitoring events reveal a trend toward permanent coverage, additional monitoring may be required to ensure that permanent coverage has not occurred prior to determining that this criterion is met. Seventy-five percent (75 percent) of all species or genera of macroalgae and attached invertebrates that were recorded on the natural hardbottom are present in the artificial reef. Evidence is provided that the artificial reef is providing the same functions that were lost when the natural nearshore hardbottom was buried. This shall include documentation that juvenile green sea turtles are observed utilizing, or that the success of the colonization on the mitigation reef boulders enables the species to utilize the artificial reef as feeding habitat and shelter, and post-larval fish are using the artificial reef as shelter. The monitoring requirements in Specific Conditions 29 and 30, and in the Imitative Artificial Reef and Biological Monitoring Plan (incorporated by reference), shall be used to determine the success of this mitigation.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Remediation: If the compensatory mitigation fails to meet the performance standards years after completion of the compensatory mitigation objectives, the compensatory mitigation will be deemed unsuccessful. Within 60 days of notification by the Corps that the compensatory mitigation is unsuccessful, the Permittee shall submit to the Corps an alternate compensatory mitigation proposal to fully offset the functional loss that occurred as a result of the project. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of aquatic function associated with the unsuccessful compensatory mitigation activities. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Permittee will complete the alternate compensatory mitigation proposal.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Within 60 days of the determination that additional hardbottom impacts have occurred pursuant to Specific Condition No. 30 below, or that the original mitigation has not achieved success as defined above, the Permittee shall submit a detailed Contingency Mitigation Plan (based on the Attachment J - Contingency Mitigation Plan). Following Corps approval of the plan, the permittee shall implement the Contingency Mitigation Plan within 12 months and the Corps will modify the permit to incorporate the changes. Prior to any subsequent nourishment events, the physical success of the mitigation shall be evaluated using the same survey methodology as specified in the Mitigative Artificial Reef and Biological Monitoring Plan (incorporated by reference). If the mitigation is not determined to be fully intact and ephemerally exposed as defined by success criterion 23.a., additional mitigation shall be required

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	As required in special condition #24 for deployment monitoring, the Permittee shall have a third party representative (someone not physically or contractually responsible for the project modeling or development) perform one of the following: a. actually carry out the required biological, physical or turbidity monitoring requirements of the permit including the development of monitoring reports; or b. be present on-site during all of the mitigation activities and monitoring inspections. In the event that the third party representative is not carrying out the monitoring, the third party representative shall provide the Corps with an analysis stating whether, in their best professional judgment, the mitigation activities, monitoring inspections, and reports developed as requirements of this permit were performed according to permit requirements and following industry practices for these activities.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Monitoring The Permittee agrees to perform all monitoring activities contained within the Mitigative Artificial Reef and Biological Monitoring Plan which is incorporated by reference herein. Proposed changes to this plan shall be coordinated with and approved by the Corps prior to becoming effective. After they are approved, the updated Mitigative Artificial Reef and Biological Monitoring Plan will be considered to have been updated and shall be incorporated by reference into this permit. Monitoring reports shall be required within the timeframes required and data shall be submitted as described in special condition #1.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Biological monitoring of the mitigation artificial reef shall be conducted immediately after construction of the mitigation artificial reef and annually thereafter during the summer months for a period of at least three years, using the same methodology that is specified for the natural hardbottom communities identified in Specific Condition 30, and shall coincide with the monitoring of the natural nearshore hardbottom. This monitoring shall include the following: a. Degree of boulder subsidence, until equilibrium is achieved. b. Measurements of areal extent, location and depth of burial or sedimentation on the artificial reef, which shall be compared to the results of the other monitoring events to determine duration of burial. c. Annual quantitative assessments of percent cover by algal species or genera, algal height and biomass of different algal species or genera (using lowest taxonomic level possible). d. A qualitative assessment of post larval and juvenile fish utilization. The results of the monitoring shall be included in the monitoring reports required in Specific Condition 30 below.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The nearshore hardbottom located between monuments R-134 to R-138, inclusive, as defined by the Mitigative Artificial Reef and Biological Monitoring Plan shall be monitored to detect adverse impacts from this project from burial or sedimentation. This monitoring shall quantify the degree and extent of any adverse impacts and compare these changes over time. The monitoring (see attached Mitigative Artificial Reef and Biological Monitoring Plan for greater details) shall include the following: a. Biological monitoring of intertidal-subtidal nearshore hardbottom communities shall be conducted using permanent, cross-shore transects covering the entire width of exposed hardbottom. At least ten permanent compliance transects shall be established in the area directly south of the project in intertidal-upper subtidal hardbottom between monuments R-134 and R-138. At least five permanent control stations shall be established between R-139 and R-142. At least five permanent compliance transects shall be established in deeper subtidal hardbottom areas east of the nearshore sandbar between monuments R-133+300' and R-135+200'. At least three permanent control transects shall be established between R-139 and R-142 along the same depth contours as the compliance transects. Each transect shall be run from the shoreward edge to the seaward edge of the hardbottom. The permittee shall conduct these monitoring events pre-construction, immediate post-construction in the summer following project construction, and again for three subsequent years (June through September), for a total of five monitoring events. Appropriate control transects shall be established outside of the area of potential project influence and shall be concurrently monitored. The Corps may require additional surveys beyond the three-year post-construction monitoring event if impacts attributable to the project are evident prior to or at the conclusion of the three-year monitoring. b. The hardbottom monitoring shall include macroalgal surveys in addition to surveys for other functional groups including hard coral, soft coral, and sponges. These surveys shall include annual quantitative assessments of percent cover by species or genera, assessment of algal height per quadrant and per species or genera, and amount of sediment within the quadrant. The biomass of different algal taxa present should also be assessed. Long-term monitoring shall be done in replicate quadrants, as specified in the Mitigative Artificial Reef and Biological Monitoring Plan. Algal biomass shall also be measured (and the taxa shall be identified) in additional plots measuring ~ 10 cm X 10 cm. This sample should then be sorted to the lowest taxonomic level possible and dried to constant weight. c. Summertime utilization of the nearshore hardbottom impact sites and post construction mitigation sites by post larval and juvenile fish shall be qualitatively assessed and compared to determine whether the lost functions have been offset. d. Summertime utilization of the nearshore hardbottom impact sites and post construction mitigation sites by juvenile marine turtles shall be quantified and compared to determine whether the lost functions have been offset. e. Aerial photography (as required in Specific Condition 37c) shall be used to obtain additional and comparative information on hardbottom distribution and beach/dune fill development. Beach and nearshore areas shall be surveyed between monuments T-125 to R-137 immediately prior to construction, immediately following construction and annually during the summer months (June through September) for the three-year period following construction (five mapping events). f. Annual reports shall be provided within 120 days of the completion of the hardbottom-related survey, but no later than December 1st of each year. The final report of the biological monitoring program shall be submitted to the Corps within 120 days after completion of the last survey. Reports shall include all quantitative data in tabulated form, descriptive data as text, appropriate statistical analysis of data, interpretation and discussion of results, and conclusions. g. From the time that each annual survey commences to the time that the associated report is submitted, the Permittee or its designated Consultant shall submit monthly progress reports via email to the Corps. The monthly progress reports shall consist of a brief narrative describing the progress of work during the month and predicted schedule for the following month. If adverse weather conditions are encountered that do not allow for field operations, the Permittee or Consultant shall maintain a log of all attempts to conduct the survey and weather/visibility conditions that prevented collection of the required data. The raw survey data shall be provided to the Department in electronic format within 30 days of completion of the survey.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	At the time of the Commencement Notification, the Permittee shall submit a detailed Physical Monitoring Plan subject to review and approval by the Corps. The Physical Monitoring Plan shall indicate the projects predicted design life. The monitoring plan shall specifically consolidate data collection, analysis and reporting of the physical monitoring requirements of the Reach 7 – Phipps Ocean Park Beach Restoration Project authorized by permit number SAJ-2000-380, and the physical monitoring requirements contained in this permit for the Reach 8 project. The engineering report shall present both separate and combined analysis of the projects, and include any specific findings on the effects of the projects on each other. The plan may include a post-construction survey of only the Reach 8 shoreline, if the annual survey for the Reach 7 – Phipps Ocean Park project does not coincide; however, all subsequent annual monitoring surveys shall be coincident for both projects. Approval of this plan shall supersede the physical monitoring requirements set forth in the Reach 7 – Phipps Ocean Park Beach Restoration Project. The approved Physical Monitoring Plan can be revised at any later time by written request of the Permittee and with the written approval of the Corps. If subsequent to approval of the Monitoring Plan there is a request for modification of the permit, the Corps may require revised or additional monitoring requirements as a condition of approval of the permit modification.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	As guidance for obtaining Corps approval, the Physical Monitoring Plan shall generally contain the following items: 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 expiration of the project design life. 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 (5,000 feet south of R-134 and 5,000 feet north of T-125). 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 this subarea. All work activities and deliverables shall be conducted in accordance with the latest update of the Bureau of Beaches and Coastal Systems (BBCS) Monitoring Standards for Beach Erosion Control Projects, Sections 01000 and 01100. Due to the potential for impacts to nearshore hardbottom located south of the beach fill placement area, additional physical monitoring data shall be required to complement the biological monitoring of the downdrift hardbottom regarding the potential effects of spreading of fill material onto nearshore hardbottom communities. Surveys shall be conducted along intermediate profiles spaced 250 feet apart in the southern part of the project, commencing at R-132 and continuing south to R-137. Beach and offshore profile surveys shall be conducted along each reference monument profile and intermediate profiles approximately mid-point between reference monuments. The offshore survey shall continue seaward, extending to a minimum of 3,000 feet offshore (from the most landward data point) or to -30 feet (NAVD88), whichever is reached first. Additional (intermediate) beach profiles, in between each of the profiles stated above, shall be conducted only to the wading depth. All beach profile surveys shall be conducted to a minimum wading depth of -4.0 feet NAVD. The physical monitoring report shall include a post construction validation of toe fill modeling based on survey observations.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	CONTINUED b. Bathymetric surveys of the borrow area(s) shall be conducted within 90 days prior to commencement of construction, and within 60 days following completion of construction of the project concurrently with the beach and offshore surveys 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 500 feet apart, and shall extend a minimum of 500 feet beyond the boundaries of the borrow site. 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 Permittee shall submit an engineering report and the monitoring data to the Corps within 90 days following completion of the post-construction survey and each annual or biennial monitoring survey. 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. 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. e. Monitoring reports and data shall be submitted to the Corps at the address listed in Special Condition #1. When submitting any monitoring information to the Corps, 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 Specific Condition No. [XX] of the approved Physical Monitoring Plan for Permit No. SAJ-2005-7908(IP-LAO) and Permit No. SAJ-2000-380(IP-PC) for the monitoring period [XX].
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The Permittee shall comply with and implement the attached Borrow Area Sediment Quality Assurance/Quality Control Plan. The approved Sediment QA/QC Plan may be revised at any later date by written request of the Permittee and with the written approval of the Corps. If there is a request for modification of the permit subsequent to approval of the QA/QC Plan, the Corps may require revised or additional monitoring requirements as a condition of approval of the permit modification.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The Permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated xxxxxxxxxx, number xxxxxxx. In the event that State Water Quality Standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected. Turbidity sampling and analysis shall be performed between 3 and 6 times a day, four hours apart, during all dredging or filling operations. Offshore turbidity samples shall be collected no more than 150 meters down-current from the operating dredge or at the nearest edge of the hardbottom resource, which ever is closer, at surface, at mid-point, and two (2) meters above the bottom, in the densest part of the turbidity plume. If the current direction is not determinable at the time of construction, then the water quality compliance samples shall be recorded from the densest portion of the plume, within 150 meters of the dredge location. Background turbidity samples shall be collected at least 150 meters up current of the operating dredge, at each monitoring event. Beach site turbidity samples shall be collected no more than 300 meters offshore and 1,000 meters down current from the point where return water from the dredge operation renters the Atlantic Ocean and within the densest portion of any visible plume. Background turbidity samples shall be collected at least 500 meters up current of the beach return water site, at each monitoring event and outside any visible plume associated with the project. a. Overall Turbidity Monitoring Requirements: If turbidity exceeds 29 NTU's above background at any time during the dredging operations, work will stop immediately and corrective action taken to address exceedance of water quality standards before dredging may again commence. b. Turbidity Monitoring within 150 meters of offshore hardbottom resources (only required when there is hard bottom within 400 feet waterward of any filling or dredging activities): If turbidity exceeds 15 NTU's at the nearest hardbottom, but is less than 29 NTU's above background, a retest will be conducted every 15 minutes, for four (4) consecutive re-tests, at the same location where the compliance sample was recorded. 1) If at the end of the forth re-test and turbidity readings remain stable (Plus or minus 2 NTU's) or if turbidity reading are declining (but still above 15 NTU's above background), monitoring will continue every 15 minutes. 2) If turbidity monitoring drops to less than 15 NTU'S above background at the 4th re-test, monitoring will resume every two (2) hours 3) If turbidity has not returned to below 15 NTU's above background at the end of the 3 hour monitoring period, work will cease until the cause is identified, corrected, and turbidity returns to below 15 NTU's above background 4) If during monitoring, turbidity increases at a rate greater than 2 NTU's per reading, for three (3) successive re-tests, work will cease until the cause is identified, corrected, and turbidity returns to below 15 NTU's above background c. Turbidity Monitoring at Beach Site. The samples shall be collected at the surface, mid-depth, and, for waters greater than 6 meters deep, 2 meters from the bottom, in the densest portion of any visible turbidity plume generated by this project.
USACE	2005-7908	Town of Palm Beach Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	Construction at the project site shall be monitored closely to ensure that turbidity levels do not exceed the compliance standards established in this permit. This monitoring shall be conducted by a qualified consultant selected by the Permittee and not associated with the dredging contractor to provide assurance that turbidity levels do not exceed the compliance standards established in this permit. Also, an individual familiar with beach construction techniques and turbidity monitoring shall be present at all times when fill material is discharged onto 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 prior to issuance of the Notice to Proceed.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1990-902	Juno Beach	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	Within 18 months of the date of this permit, the permittee shall create and/or enhance 1.16 acres of artificial reef as shown on the attached drawing. This permit acknowledges that the enhancement reef will be funded by the Jupiter Inlet District under the requirements of Department of the Army permit number 198900506. The reef construction shall be completed adjacent to but well outside the toe of fill, in approximately 10-foot to 12- foot water depths. The reef shall be constructed in an area of sandy bottom atop rock to prevent sinking. This permit acknowledges that the 1.16 acres of artificial reef is mitigation for the cumulative impacts to 33 percent of the approximately 3.48 acres of nearshore hard bottom located within the toe of fill from DNR monuments R-13 through R-19 as mapped by Palm Beach County from November 1983 to August 1994.
USACE	1990-902	Juno Beach 2	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	The permittee agrees that all deployed artificial reef material will maintain at least a 15-foot buffer from any exposed hardbottom.
USACE	1994-1196	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	The Permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit #0182699-001-JC dated 26 October 2001. In the event that State Water Quality Standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected. Turbidity sampling and analysis shall be performed every six hours, during all dredging or filling operations. Offshore turbidity samples shall be collected no more than 150 meters down-current from the operating dredge or at the nearest edge of the hardbottom resource, which ever is closer, at surface, at mid-point, and two (2) meters above the bottom, in the densest part of the turbidity plume. If the current direction is not determinable at the time of construction, then the water quality compliance samples shall be recorded from the densest portion of the plume, within 150 meters of the dredge location. Background turbidity samples shall be collected at least 150 meters up current of the operating dredge, at each monitoring event. Beach site turbidity samples shall be collected no more than 150 meters offshore and 150 meters down current from the point where return water from the dredge operation renters the Atlantic Ocean and within the densest portion of any visible plume. Background turbidity samples shall be collected at least 500 meters up current of the beach return water site, at each monitoring event and outside any visible plume associated with the project.
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -8.0°03'00"	Palm Beach	The permittee shall construct 4.47 acres of artificial reef as mitigation for impacts to nearshore hardrock bottom. Specifically, the permittee agrees to construct 3.77 acres of artificial reef, and enhance 0.7 acres of artificial reef at the adjacent Jupiter/Carlin Park mitigation reef site. Of the total 4.47 acres total, 1.0 acres will be constructed as an ephemeral reef, in water depths of -9 to -12 feet NGVD (or shallower, if feasible). This ephemeral reef shall be constructed of concrete slab, or limestone cap rock. The remaining 3.47 acres of reef construction shall be completed in water depths of -12 to -25 feet NGVD, and shall be constructed on filter cloth using stacked and unstacked boulders. All artificial reefs will be constructed between Florida Department of Environmental Protection monuments R-23 and T-25, in the vicinity of the previously constructed Jupiter/Carlin mitigation reef, and approximately 1,000 to 2,000 feet north of the Juno Beach nourishment area. The specific location and design of these reefs are described in the attached Mitigation Reef Plan and project drawing sheet 25 of this permit.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -8.0°03'00"	Palm Beach	The permittee agrees to conduct monitoring of this 4.47-acre artificial reef in accordance with the attached Juno Beach Mitigation Reef Monitoring plan. The monitoring of the artificial reef will include, as a minimum, the establishment of baseline conditions, and annual reporting of: the reef's physical stability; and the biodiversity of fish, algae, and invertebrates (including species identification and abundance). Maps will be prepared, showing the location, composition, configuration, depth, extent, scour and ephemeral nature of the reef structures. Data will be recorded and an annual report generated, reporting these findings to the Corps and the federal resource agencies. Copies of the baseline and annual report for the Juno Beach Mitigation Reef Monitoring plan will also be provided to the U.S. Army Corps of Engineers, Enforcement Branch (CESAJ-RD-E), Post Office Box 4970, Jacksonville" Florida 32232-0019, and the federal resource agencies for a period of 5 years. A copy of the annual report for Palm Beach County's Comprehensive Coastal Monitoring Plan, once it is approved, will be provided to the U. S. Army Corps of Engineers, South Permits Branch office, 400 North Congress Avenue, Suite 130, West Palm Beach, Florida 33401.
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -8.0°03'00"	Palm Beach	By March 15, 2000, the applicant agrees to provide a draft supplemental monitoring plan to the U. S. Army Corps of Engineers and the federal resource agencies, for review. The final supplemental monitoring plan will be provided to the Corps no later than June 1, 2000. This supplemental monitoring plan will provide, at a minimum, comparative data relative to the prevalence of juvenile fishes and predatory fish species on natural and man-made hard bottom habitats. This plan will record baseline and periodic survey data, using replicate stations on natural hardbottom habitat (0 to -12 feet NGVD) , natural reef habitat (-12 to -25 feet NGVD) , artificial slab rock/ephemeral reef (-9 to -12 feet NGVD) , and stacked boulder reef habitat (-12 to -25 feet NGVD). This monitoring plan will record, map and analyze larval, post-larval and juvenile fish species (to include grunt and snapper species) for their abundance, species composition and size class. This monitoring plan will also include recording of the abundance and types of predatory fish at each habitat. This monitoring plan will be initiated 14 days after completion of the artificial reef construction, and will be conducted for 5 years, with copies of the annual reports provided to the Corps' Enforcement Branch, Post Office Box 4970, Jacksonville, Florida 32232-0019 and the federal resource agencies. The permittee shall be responsible for the completion of this supplemental monitoring work.
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	The permittee shall construct 4.47 acres of artificial reef as mitigation for impacts to nearshore hardrock bottom. Specifically, the permittee agrees to construct 3.77 acres of artificial reef, and enhance 0.7 acres of artificial reef at the adjacent Jupiter/Carlin Park mitigation reef site. Of the total 4.47 acres total, 1.0 acres will be constructed as an ephemeral reef, in water depths of -9 to -12 feet NGVD (or shallower, if feasible). This ephemeral reef shall be constructed of concrete slab, or limestone cap rock. The remaining 3.47 acres of reef construction shall be completed in water depths of -12 to -25 ft NGVD, and shall be constructed on filter cloth using stacked and unstacked boulders. All artificial reefs will be constructed between Florida Department of Environmental Protection monuments R-23 and T-25, in the vicinity of the previously constructed Jupiter/Carlin mitigation reef, and approximately 1,000 to 2,000 feet north of the Juno Beach nourishment area. The specific location and design of these reefs are described in the attached Mitigation Reef Plan, and project drawing sheet 25 of this permit.
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	The permittee_9grees to construct and complete the reef mitigation project no later than 18 months after beach re nourishment begins.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	The permittee agrees to conduct monitoring of this 4.47-acre artificial reef in accordance with the attached Juno Beach Mitigation Reef Monitoring plan. The monitoring of the artificial reef will include, as a minimum, the establishment of baseline conditions, and annual reporting of: the reef's physical stability; and the biodiversity of fish, algae, and invertebrates (including species identification and abundance). Maps will be prepared, showing the location, composition, configuration, depth, scour, extent, ephemeral nature of the reef structures. Data will be recorded and an annual report generated, reporting these findings to the Corps and the federal resource agencies. Copies of the baseline and annual report for the Juno Beach Mitigation Reef Monitoring plan will also be provided to the U.S. Army Corps of Engineers, Enforcement Branch (CESAJ-RD-E), Post Office Box 4970, Jacksonville" Florida 32232-0019, and the federal resource agencies for a period of 5 years. A copy of the annual report for Palm Beach County's Comprehensive Coastal Monitoring Plan, once it is approved, will be provided to the U. S. Army Corps of Engineers, South Permits Branch office, 400 North Congress Avenue, Suite 130, West Palm Beach, Florida 33401.
USACE	1997-6559	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	By March 15, 2000, the applicant agrees to provide a draft supplemental monitoring plan to the U. S. Army Corps of Engineers and the federal resource agencies, for review. The final supplemental monitoring plan will be provided to the Corps no later than June 1, 2000. This supplemental monitoring plan will provide, at a minimum, comparative data relative to the prevalence of juvenile fishes and predatory fish species on natural and man-made hard bottom habitats. This plan will record baseline and periodic survey data, using replicate stations on natural hardbottom habitat (0 to -12 feet NGVD), natural reef habitat (-12 to -25 feet NGVD), artificial slab rock/ephemeral reef (-9 to -12 feet NGVD), and stacked boulder reef habitat (-12 to -25 feet NGVD). This monitoring plan will record, map and analyze larval, post-larval and juvenile fish species (to include grunt and snapper species) for their abundance, species composition and size class. This monitoring plan will also include recording of the abundance and types of predatory fish at each habitat. This monitoring plan will be initiated 14 days after completion of the artificial reef construction, and will be conducted for 5 years, with copies of the annual reports provided to the Corps' Enforcement Branch, Post Office Box 4970, Jacksonville, Florida 32232-0019 and the federal resource agencies. The permittee shall be responsible for the completion of this supplemental monitoring work.
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	This project will maintain a minimum 400 ft wide buffer zone, between the borrow areas and the nearest hard-bottom resources.
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	The applicant will implement a turbidity-monitoring plan. Three samples will be taken daily, one each, at the surface, mid-depth, and 1 meter above the bottom, every six hours, during the dredge operation. The dredge and fill activities shall cease, when any compliance sample is collected and found to have turbidity in excess of 29 Nephelometric Turbidity Units (NTUs).
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	The applicant will provide underwater monitoring and video documentation of adjacent hard-bottom resources, along the pipeline corridor, immediately prior to, and following, pipeline placement, and within 30 days of pipeline removal, in order to verify avoidance of impacts to any adjacent hard-bottom resources. The monitoring should record the following information: (a) general silt and sediment levels on the reefs, (b) notes on any adverse effects, which may result from sedimentation, or effects from other than natural causes, (i.e., mucous formation on corals and sponges, bleaching and mottling, and morbidity).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43'40" , -80 02'01"	Palm Beach	The applicant will provide underwater surveys, using fixed station monitoring transects, at four stations located near the natural nearshore reef, and two stations located along the Breaker's Rock Pile. These stations should be located on nearshore hard-bottom reefs throughout the length of the project. In particular, fixed and random stations should be established and monitored at DEP monuments R-92, R-94, and R-97. Each station will include two 1-meter quadrants. These surveys will be done prior to, and immediately after construction, semi-annually for the first three years, and then annually for the next two years (five years total). These surveys should record videographic and quantitative data for the following: (a) benthic species composition, including macro-invertebrate and macro-algal communities, (b) floral and faunal density (c) general silt and sediment levels on the reef, (d) notes on any adverse effects, which may result from sedimentation, or effects from other than natural causes, (i.e., mucous formation on corals and sponges, bleaching and mottling,, and morbidity).
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43'40" , -80 02'01"	Palm Beach	Within 60 days of the issuance of this permit, the applicant will submit a plan to perform monitoring, at select transect points, along the length of the Breaker's Rock Pile. Monitoring shall commence prior to, immediately following, and then semi-annually for two years following construction activities. This monitoring will require information to be collected for the following: (a) species identity, coverage, and condition of encrusting organisms, (b) indicators of disease and/or stress (c) analysis of sedimentation and/or siltation, and (d) adult and juvenile fish species composition, abundance, and size class information.
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43'40" , -80 02'01"	Palm Beach	The applicant will perform monitoring for general silt and sediment levels, using permanently installed, vertically-oriented, and calibrated stainless steel rods, which will be equally spaced and located at a minimum of five select transect points, along the length of the northern side of the Breaker's Rock Pile. Monitoring shall commence prior to, immediately following, and then semi-annually for two years following, construction activities.
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43'40" , -80 02'01"	Palm Beach	If, following results of post-construction surveys, any impacts to hard-bottom resources are observed, the applicant agrees to provide mitigation at a ratio of 3:1, using 3' to 4' nominal-width, limestone boulders.
USACE	1995-3779	Mid Town Beach Renourishment	Beach Renourishment	26 43'40" , -80 02'01"	Palm Beach	In the event that mitigation is required, the applicant will provide a draft supplemental mitigation and monitoring plan to the Corps, National Marine Fisheries Service, and U.S. Environmental Protection Agency for review. This supplemental monitoring plan will provide, at a minimum, comparative data relative to the prevalence of juvenile fishes and predatory fishes on natural and manmade hard-bottom habitats. This plan will record baseline and periodic survey data using replicate stations on natural hard-bottom habitat, artificial slab/rock ephemeral reef, and stacked boulder reef habitat. This monitoring plan will record, map, and analyze the following information:(a) larval, post larval, and juvenile fish species (to include grunt and snapper), (b) species composition, abundance, and size class, at each habitat, (c) the abundance and types of predatory fish at each habitat. This report will be conducted initially (upon approval of the plan) and semi-annually, from that point forward, for a period no less than three years
USACE	1994-1196	South Boca Mod	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	permission to build a new artificial reef site; proposed by Mr. Dan Bates of the Palm Beach County Department of Environmental Resources Management, located immediately seaward of the existing hardbottom track as depicted on the attached revised project drawing, Sheet 1 of 2. As permitted, approximately 2.39 acres of artificial reef will be constructed in the orientation as depicted on sheet 2 of 2 of the attached revised drawings

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1994-1196	South Boca Mod	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	Additionally, you had requested in a letter dated November 29, 2005, to modify the 2004 Biological Monitoring Plan for the Central Boca Raton Beach Nourishment Project and on December 8, 2005 to modify the 2004 South Boca Raton Biological Monitoring Plan for the Southern Boca Raton Beach Nourishment Project, to incorporate the BEAMR methodology in lieu of Point Count 99 for Coral Reefs. The incorporation of the alternative monitoring methodology is hereby authorized for future monitoring events required for activities authorized by SAJ-2002-200(IP-PLC) and SAJ-1994-1196 (IP-PLC)
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	The Permittee shall prevent any physical damage to benthic resources by establishing ingress/egress corridors and no-anchoring zones adjacent to and over midwater and offshore marine habitats, except those near the established and approved pipeline corridors. The Permittee shall preclude anchoring within the No-anchoring zone identified on the project drawings. All operations shall be conducted in a manner so as to eliminate the possibility of equipment dragging on the bottom and damaging natural resources.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	In order to avoid inadvertent impacts to offshore hardbottom resources from dredging operations, the permittee shall require the dredging contractor to record their vessel routes which shall be made available to the Corps and National Marine Fisheries Service upon request. During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation, in accordance with the approved Borrow Area Sediment Quality Assurance and Quality Control Plan (Attachment F). The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final project report, the Permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	If at any time during construction the dredge operates beyond the borrow area boundaries or exceeds the authorized dredge depth, then the Permittee shall notify the Corps within 24 hours. If this occurs on a weekend or holiday, the Department shall be notified on the next business day. If any damage is found, the Corps may conduct a site inspection or require a field survey by qualified biologists to assess the potential for physical damage to adjacent hardbottom. Within seven days of discovery of any damage, the Permittee shall submit a detailed description of the damage to the Department, including an estimate of the size of the area damaged photographs, a plan to prevent further damage, and a plan to repair the damage, if action has not already been taken. If significant, irreparable damage remains, the Permittee shall execute a Contingency Mitigation Plan. Nothing herein shall preclude the Corps from taking enforcement action as a result of the damage.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Biological monitoring shall be conducted when the buffer between the borrow area and the adjacent hardbottom is less than 1,000 feet in accordance with the attached hardbottom Monitoring Plan (Attachment G). Permittee shall immediately cease operations should monitoring show impacts to hardbottom as a result of dredging operations and the USACE shall be immediately notified. Operations may resume once the Corps is satisfied that reasonable precautions or adjustments shall have been made by the permittee.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	The Permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated November 24, 2008, number 0276415-001-JC. In the event that State water Quality Standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected. Turbidity sampling and analysis shall be performed between 3 and 6 times a day, four hours apart, during all dredging or filling operations. Offshore turbidity samples shall be collected at 150 meters down-current from the operating dredge at mid-depth, in the densest part of the, turbidity plume. When the dredge is operating within 1,000 feet of the reef compliance stations, or whenever the turbidity plume Is observed over the reef, samples shall be collected at the surface and 2 meters above bottom. If the current direction is not determinable at the time of construction, then the water quality compliance samples shall be recorded from the densest Portion of the plume, at 150 meters from the dredge location. Background turbidity samples shall be collected at least 150 meters up current of the operating dredge, at each monitoring event. Beach site turbidity samples shall be collected no more than 300 meters offshore and 1,000 meters down current from the point where return water from the dredge operation renters the Atlantic Ocean and within the densest portion of any visible plume. Background turbidity samples shall be collected at least 500 meters up current of the beach return water site, at each monitoring event and outside any visible plume associated, with the project. a. Overall Turbidity Monitoring Requirements: If turbidity exceeds 29 NTU's above background at any time during the dredging operations, work will stop immediately and corrective action taken to address exceedance of water quality standards before dredging may again commence. b. Turbidity Monitoring within 150 meters of offshore hardbottom resources (only required when there is hard bottom within 400 feet waterward of any filling or dredging activities): If turbidity exceeds 15 NTU's at the nearest hardbottom, but is less than 29 NTU's above background, a retest will be conducted every 15 minutes, for four (4) consecutive re-tests, at the same location where the compliance sample was recorded. 1) If at the end of the forth re-test and turbidity readings remain stable (Plus or minus 2 NTU's) or if turbidity readings are declining (but still above 15 NTU's above background), monitoring will continue every 15 minutes. 2) If turbidity monitoring drops to less than 15 NTU's above background at the 4th re-test, monitoring will resume every two (2) hours. 3) If turbidity has not returned to below 15 NTU's above background at the end of the 3 hour monitoring period, work will cease until the cause is identified, corrected, and turbidity returns to below 15 NTU's above background. 4) If during monitoring, turbidity increases at a rate greater than 2 NTU's per reading, for three (3) successive re-tests, work will cease until the cause is Identified, corrected, and turbidity returns to below 15 NTU's above background. c. Turbidity Monitoring at Beach Site. The samples shall be collected at mid-depth in the densest portion of any visible turbidity plume generated by this project.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Compensatory Mitigation: Within 6 months from the date of initiating the authorized work or 12 months from the effective date of this permit, whichever first occurs, the Permittee shall construct 0.75 acres of actual artificial reef. Reef shall encompass a total area of 2.6 acres to consist of stacked riprap and prefabricated modules separated by areas of sandy bottom. The reef shall be constructed in an area of sandy bottom atop rock to prevent sinking. No artificial reef material shall be placed within 50 feet of exposed natural hardbottom. The compensatory mitigation reef shall be placed offshore of Riviera Beach, at reference monuments R-70, in water depths ranging from -6 feet to -12 feet NGVD (-5.4 feet to -14.4 feet MLW)
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. Construction of the artificial reef shall be conducted during daylight hours only.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	In addition to the other conditions of the permit, all construction activities shall be conducted in accordance with the Palm Beach County Artificial Reef & Breakwater Project Technical Specifications, which are hereby incorporated by reference into this permit. If there are any inconsistencies between the technical specifications, the conditions of the permit or the approved permit drawings, then the permit conditions shall prevail, followed by the approved permit drawings.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Authorized Reef Materials: No reef materials or module will weigh less than 500 pounds. Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures will be selected, designed, constructed and deployed to create, stable and durable marine habitat. The Permittee shall deploy only the following authorized reef materials: a) Prefabricated artificial reef modules composed of ferrous and/or aluminum-alloy metals, concrete, rock or a combination of these materials. b) Natural rock boulders and other pre-cast concrete material, such as, culverts, stormwater junction boxes, power poles, railroad ties, jersey barriers, or other similar concrete material.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Reef Parameters: The Permittee shall deploy all reef materials within the site boundaries as defined on the attached permit drawings of this permit.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Violation of Reef Parameters: In the event reef material is deployed or discovered (i.e., after a storm event) in a location or manner that is contrary to the Reef Parameters Special Condition, the Permittee shall immediately notify the USCG Station and provide information as requested by the station. The Permittee shall notify NOAA, USCG Corps, and FWC in writing within 24 hours of the occurrence. At a minimum the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place) and the water depth above the material from Mean Lower Low Water. The document will list the information provided by telephone to the USCG as noted above and include the time of the call and the name of the USCG personnel receiving the information.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Protection of Existing Resources: The Permittee shall not deploy artificial reef materials until an assessment of the bottom conditions has been accomplished by diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or side-scan sonar. The inspection of the deployment area may occur at the time of deployment but no more than one year prior to deployment. The Permittee shall maintain a deployment buffer of at least 50 feet from any submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. If during the inspection evidence is observed of cultural/archaeological resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas the Corps will be notified by the Permittee and the above referenced deployment buffer will be implemented. The Permittee shall maintain a record of the information gained during the inspection such that it can be provided upon request to the Corps.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Pre-Deployment Notification: No less than 14 days prior to deployment of material on an artificial reef, the Permittee shall transmit by electronic mail ("email") a complete and signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification" form, provided in Attachment L of this permit, to the Corps and FWC to allow inspection of the proposed reef materials as deemed necessary by the agencies. Inspection is allowable at the staging area. By signing the Pre-Deployment Notification the Permittee certifies that all materials are free from asphalt, petroleum, other hydrocarbons and toxic residues. The Permittee shall take digital photos of representative components/pieces of reef material and transmit with the above form as PDF attachments to the email addresses listed in special condition 26. The Permittee shall utilize read receipt email verification to ensure the electronic documents are received by the Corps and FWC. The form and photos should not exceed 4 megabytes. The Permittee shall not deploy material if notified by the Corps or FWC that the material is questionable or unacceptable until the material has been evaluated and released for deployment. Any material that is deemed unacceptable for reef material will be disposed in an approved upland disposal site. Deployment of the material shall not occur until the end of the 14 day inspection period. The Permittee shall ensure both a copy of the Corps permit and the signed "Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification form" are maintained aboard the deployment vessel at all times during loading, transit, and deployment.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Deployment Monitoring: The Permittee or the permittee's representative shall be on site during every deployment to verify compliance with the permit and its conditions. The authorized representative shall not be the person who physically or contractually is responsible for deployment of the transported reef materials. The permittee or representative shall verify latitude and longitude coordinates using a Differential Global Positioning System (DGPS) or Wide Area Augmentation System (WAAS) enabled unit accurate to within 5 meters horizontal distance. Depth shall be verified utilizing fathometer,· depth sounder, or similar device accurate to within 1 meter.
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Deployment Summary/Monitoring Report: Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall electronically submit to the Corps and FWC a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the reef in the past 12 months. For each deployment, the spreadsheet will include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet will document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) will be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef site. Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal will be submitted to the Corps, NOAA and FWC. This compilation will document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6559	Juno Beach	Beach Renourishment	26.89674, -80.05759	Palm Beach	Biological Monitoring: Biological monitoring of the mitigation artificial reef shall be conducted immediately after construction of the mitigation artificial reef and annually thereafter during the summer months for a period of at least three years. This monitoring shall include the following: a. Degree of boulder subsidence, until equilibrium is achieved. b. Measurements of areal extent, location and depth of burial or sedimentation on the artificial reef, which shall be compared to the results of the other monitoring events to determine duration of burial. c. Annual quantitative assessments of percent cover by algal species or genera, algal height and biomass of different algal species or genera (using lowest taxonomic level possible). d. A qualitative assessment of post larval and juvenile fish utilization. The results of the monitoring shall be included in the monitoring reports required in Specific Condition 34.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall submit an Emergency Spill Response Plan for all vessels operating in association with the project authorized herein a minimum of thirty (30) days prior to the commencement of construction. Corps· approval of the emergency Spill Response Plan will be required prior to commencement of construction.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall submit an Operational Storm Contingency Plan that describes the actions to be taken in response to storm events (i.e. hurricanes, high-sea conditions 1 and/or operational failures (i.e. breaks in the dredge pipelines) a minimum of thirty (30) days prior to the commencement of const ruction. Corps approval of the Operational Storm Contingency Plan will be required prior to commencement of construction.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Prior to commencement of the project authorized herein and a minimum of ninety (90) days prior to commencement of construction, the Permittee shall submit drawings containing the proposed pipeline corridors with hardbottom resources identified on the drawings. The Permittee shall record DGPS coordinates for the perimeter boundaries of the pipeline corridor. The Permittee shall select pipeline corridors located in complete sand bottom or within areas that contain minimal submerged habitat. Said corridors shall eliminate or minimize potential impacts to hardbottom resources. Exact routing of the pipe line below mean high water shall be specified within the corridors to minimize the impacts of the pipeline to hardbottom and marine resources.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Prior to commencement of the project authorized herein and a minimum of ninety (90) days prior to commencement of construction, the Permittee shall submit plans for a 0.8 acre offshore artificial reef located in water depths ranging from eighteen (18) to twenty-five (25) feet, to compensate for the balance of impacts to a total of 1.26 acres of hardbottom resources within and immediately north of the authorized project area. The reef shall be designed to meet the ratio of 31% sand to 69% reef within a footprint of approximately 0.8 acre to offset the balance of impacts to approximately 1.26 acres of hardbottom, authorized within this permit. Construction of the 0.8 acre mitigative artificial reef shall be completed within 12 months of completion of beach fill placement within the approved template.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Prior to commencement of the project authorized herein and a minimum of ninety (90) days prior to commencement of construction, the Permittee shall submit a Supplemental Geotechnical Analysis Investigation 'Report for Borrow Area IV, to determine where the sand resources most similar to the native beach are, within the identified borrow area. The analysis shall be done by weight not volume and shall include rock and cobble material in the calculations. This analysis shall include new dredge cut profiles specifically identifying, from the existing cores, provided the new design cut depths do not exceed the depths of the existing cores, the best material available within Borrow Area IV. The dredge cut profiles shall delineate the sand sources to be used for the remainder of fill material in excess of that contained within Borrow Area III and shall provide for 400 foot buffer zones from all hardbottom resources, for both dredging and anchoring in Borrow Area III and Borrow Area IV. If the dredge cut profiles exceed the depths of the existing cores, new cores must be obtained, which extend to the depth of the dredge cut profiles.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall submit an Anchor Plan showing DGPS recorded locations for anchor placement a minimum of thirty (30) days prior to the commencement of construction. The Corps shall review the plan within fourteen (14) days of receipt of a complete plan. The plan shall include reporting guidelines to be included in the baseline and final surveys, which will be used by the Corps to document whether any impacts occurred as a result of anchor drag during construction. The plan should detail the number and the type of anchors proposed (i.e. conventional, Danforth, Duck bill, etc.). The plan shall also detail whether chain or polypropylene line will be used to secure the anchors and must provide a minimum of a 400 foot wide buffer zone between the anchors and the nearest hard-bottom resources. Corps approval of the Anchor Plan will be required prior to commencement of construction.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Each time anchors .Jill be placed on the ocean bottom, divers shall assist in anchor placement, to ensure and verify that no hardbottom exists in the vicinity of the proposed anchor placement areas. Immediately after the placement of anchors at each site, the Permittee shall record, via DGPS, the location of each anchor placement. The data shall be provided to the Corps within seven days of anchor placement, to be used as a baseline. Once anchors are removed from anyone location, the Permittee shall record DGPS coordinates and within 48 hours (weather and ocean conditions permitting) of removal, divers shall investigate the vicinity of the anchor location if the anchor retrieval location is greater than 50 feet from the baseline location. Diver investigations shall be used to determine if impacts to natural resources occurred from anchor drag or the like. A weekly report of all anchor movement and diver investigations shall be provided to the Corps (South Permits Branch). At all times during the project, the dredge vessel shall be adequately secured using appropriate measures to ensure that any movement by natural conditions does not scour or destroy hardbottom habitat. A mid-line buoy system shall be implemented to ensure that anchor line drag, sweeping, or physical damage does not occur. To ensure avoidance of impacts to all hardbottom, the anchor buoy position shall be documented at a minimum of once per day using DGPS. Divers shall investigate the vicinity of the anchor location if the anchor buoy location is greater than 50 feet from the baseline location considering anchor line scope, current, and wave conditions. A final report, which addresses anchor monitoring, shall be submitted to the Corps upon project completion and contractor demobilization from the project site.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The 3.1 acre artificial reef authorized by Department of the Army permit number SAJ-2003-2049(IP-PLC) is hereby utilized in. its entirety as partial mitigation, required by the Corps, to offset impacts to 1.26 acres of hardbottom exposed on average during the summertime, within and immediately north of the footprint of the project authorized herein.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Prior to commencement of the project authorized herein and a minimum of ninety (90) days prior to commencement of construction, the Permittee shall submit a Comprehensive Phipps Ocean Park Mitigation and Monitoring Program (Mitigation and Monitoring Program). The Corps shall within fourteen (14) days of receipt of a complete Mitigation and Monitoring Program, either approves the Mitigation and Monitoring Program as proposed, or will provide an approval with modifications. Monitoring reports and data shall be submitted within the timeframes as described in the Mitigation and Monitoring Program, to the U.S. Army Corps of Engineers, South Permits Branch, 4400 PGA Boulevard, Suite 500, Palm Beach Gardens, Florida 33410. The monitoring protocol within the Mitigation and Monitoring Program shall also be applied to the monitoring of the additional artificial reef required by Special Condition number 5 above.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Within thirty (30) days of demobilization of all construction related equipment, the Permittee shall submit a report for Corps approval sufficient to demonstrate. Whether any unanticipated impacts occurred as a result of construction activities. Said plan shall include diver surveys of hardbottom resources adjacent to the borrow sites, pipeline corridors, and vessel access corridors. The plan shall include video and photographic documentation of the hardbottom resource areas and shall include corresponding GIS maps to correlate the surveys. In the event that additional mitigation, remediation, and/or monitoring is required, as a result of unanticipated impacts identified during monitoring or post construction surveys, the Permittee will within thirty (30) days of Corps request, provide a draft supplemental mitigation and monitoring plan to the Corps for review. Mitigation activities shall be completed within one (1) year of Corps approval of said plan. Unanticipated impacts to offshore habitats are defined as physical damage to hardbottom resources adjacent to the borrow sites, pipeline corridors l or vessel access corridors resulting from anchor drags or project related construction equipment impacts to these resources. Upon demobilization of all construction related equipment from the project site and Corps concurrence that no impacts occurred to offshore habitats, the Permittee shall be released from all further mitigation, remediation, and/or monitoring requirements as stipulated in Special Condition 21.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Unanticipated impacts to nearshore hardbottom habitats are defined as burial of greater than 25% by area of the time averaged nearshore hardbottom located north of the project fill site, generally between R-116 and the north project limit, less an area of 0.13 acres, located immediately adjacent to the north boundary of the fill template, expected to be impacted by equilibration of the fill and for which mitigation has already been required in Special Condition 5 above. Quantification is based on the time-averaged acreage of nearshore hardbottom documented to have been exposed through analysis of summer aerials obtained in 1991, 1992, 1993, 1997, 1998, 2001, and 2004 as defined in the Monitoring and Mitigation Program, specified in Condition 20. Aerials flown in 2000 and 2003 were excluded from the analysis as anomalies to the normal extent of rock exposure. The nearshore hardbottom has a time-averaged summer survey exposure of 1.87 acres, of which 0.13 acres has been compensated for as per Special Condition 5, resulting in a net time-average nearshore hardbottom of 1.75 acres (1.87 acres less 0.13 acre). Cartographic aerial photography will be used to map the nearshore hardbottom twice annually in a May-June and an August-September timeframe over a two year period following beach nourishment construction (four mapping events) as defined herein. The time averaged exposure of the nearshore hardbottom within four (4) pre-assigned 600 feet long assessment 'cells' located north of the fill equilibration site, Attachment D, shall be compared through time-averaged analysis over the two-year post construction period to determine the extent, if any, of the effect the project has had on hardbottom exposure based on the time-averaged analysis of the four aerial mapping events. In the event that the percent change in hardbottom coverage indicates a change of 25% or more within the cell closest to the project area, then the adjacent cells will need examination. It the difference between the percent change in the adjacent cell to the north and the percent change in the cell adjacent to the project area is less than 25%, then the next cell shall be examined. If there is no difference between cells indicating a change difference of 25% or more, then the difference may be attributable to natural variability and no mitigation would be required (example 1) .

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	If any or all of the four cells has a percent change which demonstrates a loss of hardbottom of 25% or more, then the cells shall be compared to each adjacent cell to determine if the fill is migrating from the north, from the south, or simply background phenomena. If the cell adjacent to the project area has a percent change demonstrating 25% more hardbottom loss than the next cell north of it, then it is determined that the fill was a result of project impacts (example 2) . If the cell adjacent to the project area has a lower percent change of hardbottom loss than the next adjacent cell to the north, and the hardbottom coverage increases for the adjacent cells to the north, then it is determined that there is fill moving south through littoral drift and the impacts are not project related (example 3). If the cell adjacent to the project area has a percent change indicating a loss of more than 25% hardbottom and the difference between the cell adjacent to the project area and the next one north is less than 25%, but the difference between the next two adjacent cells moving north is 25% or more and indicates a greater loss of hardbottom in the cell further south, than each cell demonstrating a percent change of greater than 25% hardbottom loss will require mitigation for the loss of hardbottom above the background variability (example 8) . In the event that greater than 25% of the time averaged preconstruction nearshore hardbottom in the compliance cell immediately adjacent to the fill area and any cell adjacent to another cell which was also determined to have been impacted by the project, is impacted by unexpected project fill equilibration and the impact is clearly attributable to fill movement from the Phipps project, then additional mitigation will be required at a ratio of 1.9 to one for the impacted acreage above background levels. Background will be determined as the two-year time averaged percent coverage in the unimpacted cell immediately north of the northernmost impacted cell. The following table demonstrates examples to clarify the above possible situations. Mitigation will consist of the construction of an artificial reef in water depths of 18 to 25 feet NGVD. Mitigation, if required, will be constructed by the permittee within one year of determination of need. If after two years of post-construction monitoring, and mitigation construction, if required, the Permittee shall be released from all further requirements for mitigation and monitoring of the nearshore hardbottom located north of the approved project fill template for this and all future projects constructed within the exact approved template and project length identified in this permit.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall prevent any physical damage to benthic resources by establishing ingress I egress corridors and vessel exclusion zones adjacent to and over nearshore, mid-water, and offshore marine habitats, except those near the established and approved pipeline corridors. The project plans and specifications shall clearly delineate the operation and exclusion zones, and the Permittee shall provide a copy to the Corps within thirty 130) days of contractor selection. All operations shall be conducted in a manner so as to eliminate the possibility of equipment dragging on the bottom and damaging natural resources.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall provide underwater biological monitoring to include photographic and video documentation of offshore hard-bottom resources along monitoring transects, as specified in the Mitigation and Monitoring Program, in order to verify avoidance and minimization of impacts to any offshore hard-bottom resources adjacent to the borrow sites. Sediment background and compliance levels of offshore hardbottom sedimentation and biological condition of live organisms (coral stress) shall be monitored at the approved transects during each construction phase monitoring event, as specified herein, to provide sedimentation levels and existing biological conditions. The monitoring shall record the fo11owing information: a. Sediment contained in sediment traps at all approved control stations and all approved compliance stations adjacent to the permitted borrow sites, as collected on a weekly basis during project construction. Station locations and the number of sediment traps will be specified in the Mitigation and Monitoring Program required in Condition 20. b. Scleractinian coral stress indicators (not required for nearshore hardbottom transects north of project footprint adjacent to beach), which may result from causes unrelated to project construction, or project related causes such as excessive sedimentation or excessive turbidity, include but shall not be limited to the following: 1. polyp expansion or retraction, which exceeds that of the control and/or background stations (taking into account the normal expansion and retraction behavior of each species); 2. Visual appearance of oral disk (mainly M. cavernosa) ; 3. Changes in normal coloration (intensification/reduction, appearance of spots and/or bleaching) ; 4. Increased mucus production, active sediment removal; 5. Unusual polyp swelling and tissue protuberance; 6. Appearance of lesions, necrosis, and/or bare skeleton; or 7. Extrusion of mesenterial filaments, algal (micro and/or macro-algae) overgrowth.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Applicant shall monitor the transects as described herein: a. The Applicant shall monitor a minimum of the following offshore hardbottom transects, as specified in the Mitigation and Monitoring Program required pursuant to Special Condition 20, every two meters along the entire transect length. Offshore Hardbottom Compliance Transects: 1. One 20 meter long offshore hardbottom transect located east of Borrow Area III centrally located between the north and south limits; 2. One 20 meter long offshore hardbottom transect located east of Borrow Area IV centrally located between the north and south limits; and 3. One 20 meter long offshore hardbottom transect located on the southwest side of Casino Reef. Offshore Hardbottom Control Transects: 4. One 20 meter long offshore hardbottom transect located on the Southwest side of Horseshoe Reef; S. One 20 meter long offshore hardbottom transect: located greater than 2,000 feet north of the Horseshoe Reef control site; and 6. One 20 meter offshore hardbottom transect located greater than 2,000 feet south of the southern boundary of Borrow Area IV. b. Both sedimentation sampling and coral stress observations shall be conducted once per week for the first month during construction, weather permitting. If sediment monitoring indicates that no more than 1.5 cm of sedimentation above background, as determined at the approved control sites, has accumulated on average per day during the weekly monitoring, then these approved transects shall be monitored for sedimentation and coral stress once every two weeks for the remainder of dredging operations. Within thirty (30) days of project completion and demobilization of all contractor equipment from the project area, a final post-construction monitoring event shall be conducted at all monitoring transect locations. c. Drawings depicting the project area, borrow areas, and hardbottom limits with an overlay of the transect locations delineated in the Mitigation and Monitoring Program required in Condition 20 shall be submitted to the Corps a minimum of thirty (30) days prior to commencement of pre-construction monitoring. Corps approval of the transect locations is required prior to commencement of transect establishment and pre-construction monitoring.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall place a minimum of one (1) sediment trap at each of the approved transect locations as described in the Monitoring and Mitigation Program required pursuant to Condition 20. a. In the event that dredge operations are ceased due to adverse weather, the sediment traps will be collected and replaced within 48 hours of resumption of dredging operations. b. If weekly sediment trap results indicate that sedimentation is occurring at the compliance stations at a rate greater than 1.5 cm per day above background as measured at the control stations, and the findings are further supported by coral stress evaluations demonstrating that greater than 25% of the coral colonies at the compliance stations are exhibiting stress levels above those observed at the control site, then dredging operations shall cease until the project-related cause of sediment dispersion over the hardbottom areas is identified and corrected. If 75% of the control station coral colonies exhibit stress, then sedimentation and turbidity thresholds as specified below shall dictate construction shutdown criteria. If 75% of the control station coral colonies exhibit stress, then both sedimentation and turbidity must exceed limits set forth below before construction activities shall cease. Once either sedimentation or turbidity measurements return to ambient levels, construction activities shall be allowed to resume.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	One monitoring report shall be submitted forty-five (45) days after commencement of construction, detailing the results of the first month of weekly construction phase monitoring of the transects for coral stress, standing sediment depths and percent cover, and the results of the analysis of the sediment traps. Subsequent reports shall be submitted every sixty (60) days during construction. One cumulative report detailing during construction, and immediate post-construction coral stress observations and environmental monitoring results shall be submitted within ninety (90) days of completion of the immediate post-construction field monitoring activities. A final two (2) year post-construction nearshore hardbottom mapping report shall be submitted ninety (90) days after completion of the final two (2) year post-construction mapping event.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee agrees to conduct the Mitigation and Monitoring Program prescribed by Special Condition 20. Monitoring reports and data shall be submitted within the timeframes as described in the mitigation and Monitoring Program, to the U.S. Army Corps of Engineers, South Permits Branch, 4400 PGA Boulevard, -Suite 500, Palm Beach Gardens,- Florida 33410.
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The Permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated March 14, 2001, number 0165332-001-JC. - In the event that FDEP water quality standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected. The Permittee will conduct turbidity sampling every six (6) hours during dredging operations, 24 hours per day, for the duration of the project. Borrow site turbidity compliance (29 NTU limit above background) and background samples shall be collected at the DEP specified water quality background and compliance sites. An additional hardbottom resource monitoring sample (15 NTU limit above background) will be collected at the nearest edge of hardbottom resource immediately east of the dredge, at mid-depth. The background sample for this additional resource based water sample shall be collected over the hardbottom edge at a point 150 meters up current from the cutterhead, or outside any plume found over the hardbottom resource area if current direction can not be determined. If the current direction is not determinable at the time of construction, then the water quality (29 NTU above background) compliance samples shall be recorded from the densest portion of the plume, within 150 meters of the dredge location. Background turbidity samples shall be collected at least 150 meters up current of the operating dredge, at each monitoring event.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-380	Phipps Reach 7 Beach Renourishment	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	a. If turbidity exceeds 29 NTU's above background at any time during the dredging operations, work shall cease immediately and corrective action shall be taken to address the water quality standard exceedance before dredging may again commence. b. If turbidity exceeds 10 NTU's at the nearest hardbottom edge located east of the borrow site, but is less than 29 NTU's above background, and the next six (6) hour test exceeds 15 NTU's, a retest will be conducted once every four (4) hours for three (3) consecutive re-tests, at the same location where the compliance sample as recorded. If turbidity has not returned to below 15 NTU's above background at the end of the 12 hour retest monitoring period, then a coral stress survey shall be conducted within 24 hours at all control and compliance stations to determine if the corals have been exhibiting stress indicators. If coral stress monitoring indicates that greater than 25% of the monitored coral colonies at the compliance sites are demonstrating stress levels above those documented at the control sites then work will cease until the projected cause of higher turbidity is identified and corrected and until turbidity returns to below 15 NTU's above background at the nearest hardbottom edge compliance site.
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	Within 6 months following completion of the beach nourishment project, the permittee shall construct 2.39 acres of artificial reef, as mitigation for impacts to 2.39 acres of ephemeral nearshore hardbottom. Specifically, the permittee must use 4' nominal-width clean limestone boulders, in the area designated for mitigation.
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	Prior to placement of the reef building material, the permittee must mark the limits of the reef creation area with buoys, which should be lighted, if transported at night.
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	The artificial reef materials must be placed in shore parallel formations, which mimic the natural hardbottom found in the project area.
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	The artificial reef shall be monitored to determine that the structure's original design area, elevation, and specifications have been maintained.
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	The permittee must monitor the reef creation area for success as an artificially created reef structure. The monitoring must establish a baseline conditions, and annual reporting of the following: (a) the reef's physical stability (b) the biodiversity of fishes, algae, and invertebrates (including species identification and abundance).
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	The permittee must supply the Corps with drawings and/or maps, which shows the location, composition, configuration, depth, extent, scour, and ephemeral nature of the reef structures. The permittee will also provide coordinates for the created reef location.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	Within 15 days following completion of the artificial reef creation area, the permittee will provide a draft supplemental monitoring plan to the Corps, and the federal agencies for review. This supplemental monitoring plan will provide, at a minimum, comparative data relative to the prevalence of juvenile fishes and predatory fishes on natural and manmade hardbottom habitats. This plan will record baseline and periodic survey data using replicate stations on natural hardbottom habitat (-12' to –25' NGVD), artificial slab/rock ephemeral reef (-9' to –12' NGVD), and stacked boulder reef habitat (-12 to –25' NGVD). This monitoring plan will record, map, and analyze larval, post larval, and juvenile fish species (to include grunt and snapper), for species composition, abundance, and size class, at each habitat. The report will also include the abundance and types of predatory fish at each habitat. This report will be conducted initially, upon approval of the plan, and annually, from that point forward, for a period of five years. A copy of the monitoring reports shall be mailed to the following addresses:
USACE	1994-1196	South Boca 1	Beach Renourishment	26º20'6.9", - 80º4'21.9"	Palm Beach	Essential Fisheries Habitat Requirements:(a) Provide a protection plan for hard bottom reefs, to include with a 400' wide buffer zone, (b) Provide a plan for avoidance, and minimization of damage caused by mechanical operations, (c) Provide a plan for full compensation of unavoidable adverse impacts to hard bottom, coral, and other sensitive near-shore habitats, (d) Provide a post-construction survey of the equilibrium toe of fill and adjacent hard bottom reefs (to be conducted immediately following, and six months after completion of the project), (e) Provide a monitoring plan to determine the effectiveness of the mitigation reef, and (f) Prepare a Programmatic Environmental Impact Statement (PEIS) for the east coast of Florida.
USACE	1989-506	Jupiter Inlet 1	Beach Renourishment	26°56'42.2", -80°04'34.1"	Palm Beach	This permit acknowledges that 1.16 acres of artificial reef will be created by Palm Beach County as mitigation for the cumulative impacts to 33% of the approximately 3.48 acres of nearshore hardbottom from DNR monuments R-13 through R-19 as mapped by Palm Beach County from November 1983 to August 1994. Within 180 days of the date of this permit, the permittee will contribute funding to Palm Beach County for the 1.16 acres of mitigation reef. Proof of the contribution shall be submitted to the U.S. Army Corps of Engineers, Stuart Regulatory Office, 218 Atlanta Avenue, Stuart, Florida 34994 within the 180-day time frame.
FDEP	0127642-001-JC	Juno Beach Mod	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	Limestone blocks must be 90 -120 cm (3-4 feet) in diameter, not less than 90 cm (3 feet) in the smallest dimension; Thickness of the sand in the deployment area must be 30 -90 cm (1-3 feet); The distance between individual blocks must not exceed 4 feet; and The distance from nearest hardbottom edge (including areas where the community is growing through the veneer of sand) must be at a minimum of7.5 m (25 feet).
FDEP	0127642-001-JC	Juno Beach Mod	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	Immediately prior to the placement of the material of the artificial reef, the permittee shall measure the thickness of the sand layer and the distance from the nearest hardbottom edge. These measurements must meet the specifications identified above.
FDEP	0127642-001-JC	Juno Beach Mod	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	The artificial reef materials shall consist of clean limestone blocks. Reef construction material shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges; blocks must be washed prior to transportation in order to avoid excessive turbidity.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0127642-001-JC	Juno Beach Mod	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	Following the completion of the placement of reef construction materials, the permittee shall survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the monitoring plan. If the artificial reef does not meet the specifications identified above and the requirements described in the approved monitoring plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the monitoring surveys indicate a deficit in the extent of required artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.
FDEP	0127642-004-JN	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	The following procedures shall be adhered to for the construction of the artificial reef mitigation work: At least 10 days prior to beginning construction of the artificial reefs, the permittee shall submit to the Office of Beaches and Coastal Systems, with a copy to the Southeast District Office, a plan view drawing identifying the surveyed coordinates of the artificial reef construction sites and all work spaces (staging areas, boat access corridors, etc.) to be used to construct the artificial reefs. The drawing shall include all hardbottom areas within 1,000 ft. of the artificial reef construction sites. The work conducted adjacent to existing hardbottom areas shall be performed in a manner that will avoid impacts to existing hardbottom. All artificial reef construction equipment shall be confined to the identified, buoyed work spaces. Artificial reef construction shall not begin until the Department approves the work spaces. A transmittal sheet labeled "This information submitted in accordance with the requirements of Specific Condition No. 13a of Permit No. 0127642-001-JC, for the Juno Beach Restoration Project" shall be attached to the above-referenced information when submitted to the Department; b. Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. Construction of the artificial reef shall be conducted during daylight hours only. The artificial reef shall be constructed of limestone boulders and clean concrete. Reef construction materials shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges. Rebar, steel, or other similar protruding materials shall not be included in the reef construction materials; The permittee shall ensure that the artificial reef is constructed to mimic the natural hardbottom in the project area. The initial mitigation reef shall be constructed of concrete and limestone boulders at depths ranging from –8 to –18 feet NGVD approximately 2000 feet north of the proposed beach fill area. A second reef comprised of limestone boulders shall be placed within the Department-approved area offshore of Riviera Beach, at reference monuments R-70 and R-71, in water depths ranging from -4.5 feet to -13.5 feet NGVD (-5.4 feet to -14.4 feet MLW). d. Artificial reef material shall be placed at least 50 feet from exposed natural hardbottom. e. The stability analysis for the mitigation site was based on a depth comparable to the western boundary of the Primary Juno Mitigation Placement Area. Therefore, regardless of the location of the -6.0 ft MLW contour at the time of construction, the artificial hardbottom structures shall not be placed landward of the western boundary of the Primary Juno Placement Area, even if this is contained within the boundaries of the proposed project area as depicted on the approved permit drawings.
FDEP	0127642-004-JN	Jupiter Beach	Beach Renourishment	26°53'00", -80°03'00"	Palm Beach	A sediment depth survey shall be conducted immediately pre-construction to ensure that the artificial reefs are placed in areas with underlying rock (for stability) and a persistent cover of sand.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0164713-001-JC	Mid Town	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	The permittee shall require the dredging contractor to have positioning equipment which continuously measures the vertical and horizontal location of the cutterhead, diagrams, dustpan or clamshell at all times during dredging operations. The horizontal positioning equipment shall monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. Horizontal accuracy for dredge positioning shall be 3.0 feet. Vertical accuracy for the dredge depth monitoring shall be 1.0 foot. This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NGVD. As a part of the final report, and upon request at any time during construction, the permittee shall provide a daily record of the position of the dredge equipment which includes the borrow area limits and hardbottom buffer zones referenced to state plane coordinates and NGVD.
FDEP	0164713-001-JC	Mid Town	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	A 600 foot dredge buffer zone in which dredging is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). The permittee shall ensure that the no dredging buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).
FDEP	0164713-001-JC	Mid Town	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	A 400 foot anchor buffer zone in which anchoring is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 400-foot buffer zone. No equipment or structures will be placed within the anchor buffer zone. The permittee shall ensure that the "no anchoring" buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).
FDEP	0164713-001-JC	Mid Town	Beach Renourishment	26 43’40” , -80 02’01”	Palm Beach	The projected toe of fill is not anticipated to directly cover the nearshore hardbottom communities and no direct burial of hardbottoms is authorized herein. However, post construction physical and biological monitoring shall be required to verify that the hardbottom communities are not buried or degraded by the movement of this sand. If it is determined upon review of the monitoring and survey data that nearshore habitat is buried or degraded, then mitigation for impacts shall be required at a ratio of at least 3:1. If such burial occurs, or if impacts are identified as a result of pipeline corridor placement and removal, borrow area excavation, or any other construction related activity, the permittee shall submit mitigation and monitoring plan to the Office of Beaches and Coastal Systems within 30 days following the determination. Following approval by the Department, the permittee shall implement the plan within the specified time frame.
FDEP	0165332-001-JC	Phipps Reach 7	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The permittee shall require the dredging contractor to have electronic positioning equipment which continuously measures the vertical and horizontal location of the cutterhead, diagrams, dustpan or clamshell at all times during dredging operations. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth monitoring device. Horizontal accuracy for dredge positioning shall be 3.0 feet or better. Vertical accuracy for the dredge depth monitoring shall be 1.0 foot or better. This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NGVD. As a part of the final report, and upon request at any time during construction, the permittee shall provide a daily record of the position of the dredge equipment which includes the borrow area limits and hardbottom buffer zones referenced to state plane coordinates and NGVD.
FDEP	0165332-001-JC	Phipps Reach 7	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	A 400 foot dredge buffer zone, in which dredging is prohibited, shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). The permittee shall ensure that the no dredging buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0165332-001-JC	Phipps Reach 7	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	A 200 foot anchor buffer zone, in which anchoring is prohibited, shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 200-foot buffer zone. No anchor placement will be allowed during nighttime, and anchor placement shall be diver assisted during daylight. No equipment or structures will be placed within the anchor buffer zone. The permittee shall ensure that no anchoring buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).
FDEP	0165332-001-JC	Phipps Reach 7	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	The permittee shall construct a minimum of 3.1 acres of artificial reef as mitigation for impacts to 3.1 acres of natural nearshore hardbottom. The following procedures shall be adhered to for the construction of the artificial reef mitigation work: a. Construction of the artificial reef shall be completed at least 6 months prior to the commencement of construction of the beach nourishment project. b. Prior to beginning construction of the artificial reef, the permittee shall submit a plan view drawing identifying the surveyed coordinates of the artificial reef construction sites and all work spaces (staging areas, boat access corridors, etc.) to be used to construct the artificial reefs. The drawing shall include all hardbottom areas within 1,000 ft. of the artificial reef construction sites. This information shall be provided in both paper and electronic format, as in Condition (5) above. The work conducted adjacent to existing hardbottom areas shall be performed in a manner that avoids impacts to existing hardbottom. All artificial reef construction equipment shall be confined to the identified, buoyed work spaces. Artificial reef construction shall not begin until the Department approves the work spaces. d. Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. If this work is to be conducted at night, the buoys shall be lighted; e. The reef building materials shall be transported to the mitigation site by barge. Materials shall be lifted over the side of the barge and placed into the proper location by a pre-approved method of placement; f. The artificial reef materials shall consist of clean limestone boulders. Reef construction materials shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges. Rebar, steel, or other similar protruding materials shall not be included in the reef construction materials; g. The permittee shall ensure that the artificial reef is constructed to mimic the natural hardbottom in the project area. The artificial reef will contain between 1 to 4 feet vertical relief (greater relief is authorized only if the permittee provides the Department with documentation of the need to meet stability criteria or, on a temporary basis, to compensate for immediate subsidence), overhanging ledges, and crevices. The reef materials shall be placed in shore parallel formations with the total artificial reef surface area coverage of 3.1 acres. The method used to calculate this acreage shall be the same method that was used to measure the acreage of hardbottom impact, with respect to the inclusion of sand pockets within the reef tracts. Methods of rock surface area calculation shall be provided to the Department with each monitoring report. h. Following the completion of the placement of reef construction materials, the permittee shall use remote sensing techniques to survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the permit. If the remote sensing techniques indicate the artificial reef does not meet or exceed the approved mitigation plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the three year monitoring survey indicates a reduction in the extent of the artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0165332-001-JC	Phipps Reach 7	Beach Renourishment	26 28' 29. 05", -80 02'14.18"	Palm Beach	Biological Monitoring. The permittee shall submit a biological report within 90 days of completion of the post-construction survey and each annual survey. The report shall summarize the results of the biological surveys and the monitoring of the mitigation areas and identify any adverse impacts that would be attributable to the project. Each report shall compare the current conditions to a) the pre-construction baseline survey, b) the first post construction survey, and c) any previous annual survey(s) (where applicable). Each report shall contain an analysis and discussion of the video documentation in regards to any burial, subsidence, sedimentation, or trauma that has affected the marine algae, coral, sponges, or other related biological communities. In addition to the standard monitoring of physical stability and taxonomic lists of species, the plan should include ecological comparisons to adjacent hard bottom reefs that examine variables such as indices of recruitment for larval/juveniles, predation rates and prey vulnerability, and size structure of fish and selected invertebrates. a. Natural nearshore hardbottom: To verify that the project will not have an adverse affect on the natural nearshore reef located approximately 1,000 ft. to the north of the project, underwater surveys, with video documentation, of the nearshore hardbottom located north of the project area shall be taken immediately prior to construction, immediately after construction, and annually thereafter for a period of three years, unless otherwise determined by the Department following the third annual survey. DGPS navigational coordinates of the dives shall be referenced on the video transects and overlaid on recent aerial photography. Mitigation Artificial Reef. Underwater surveys of the mitigation artificial reef, with video documentation, shall be taken immediately prior to construction, immediately after construction, and annually thereafter for a period of three years, unless otherwise determined by the Department following the third annual survey. DGPS navigational coordinates of the dives shall be referenced on the video transects and overlaid on recent aerial photography. If the three year monitoring survey indicates a reduction in the extent of the artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department. c. Hardbottom reef adjacent to the borrow areas, during construction phase surveys. Visual assessment of the condition and status of the benthic hardbottom community adjacent to the borrow area will be conducted at least once a week during periods of active dredging. During the survey, a qualified biologist using scuba will visually inspect the hard ground areas that are adjacent to the borrow area. The biologist will note the general level of sediment and watch for indications of impact from sedimentation. Possible or imminent sediment impacts refer to identification of conditions or observations that indicate benthic organisms are being, or have been stressed by factors other than natural events. Thus, indications of possible impact will be based on comparative observations between borrow area locations and the “control” or comparison sites. In the event that an indication(s) of pending or imminent impact to benthic community components are documented during the construction surveys, the Department will be notified immediately of the possibility of increased sedimentation levels on the reefs. Notification will be by phone, radio or fax, and followed by a written report to be submitted within 24 hours, or on the next work day if the indicators are noted on a weekend or holiday. Indicators of possible of imminent impact include but are not limited to: (a) Standing sediment on hard corals, soft corals, sponge or other organisms that is not removed by normal currents or wave action; (b) Excessive mucus on hard corals, without indications of bleaching; (c) Excessively extruded polyps (e.g., sediment removal process); and (d) Mottling of color of benthic organisms (soft corals, algae, sponges, etc).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0178582-001-JC	Delray Beach Renourishment	Beach Renourishment	N/A	Palm Beach	In order to reduce the potential for impacts to the reef habitat, and to verify that impacts will be avoided, a minimum of ~ 600 foot buffer zone, in which anchoring is prohibited, shall be maintained around the reef areas located near the borrow site. Mobilization/demobilization into the project area from deep water will occur through a natural gap in the barrier reef south of the City of Delray Beach outfall pipeline location. No floating equipment will be allowed over the barrier reef system. The contractor will be required to directly push the dredge when within 1.5 miles of the shoreline. The contractor will also be required to directly push or tow with polypropylene (floating) lines all other equipment that is not self-propelled when within 1.5 miles of the shoreline. SCUBA surveys of the reefs adjacent to the borrow area shall be conducted once a week to monitor for any mechanical or sedimentation damage to the hardbottom reef areas. A specific condition of the permit shall require the applicant to submit a detailed biological assessment of the adjacent reef tracts and an operations and monitoring plan for the project prior to construction.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0192068-00 I-JC	Central Boca	Beach Renourishment	N/A	Palm Beach	To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. As a Notice to Proceed item, the permittees hall submit the names and Qualifications of the individuals familiar with beach construction techniques and turbidity monitoring who shall be present at the sand disposal sites at all times when fill material is discharged onto the beaches. These individuals shall serve as site supervisor and shall have authority to alter construction techniques or shut down the dredging or beach construction operations if turbidity exceeds2 9 NTUs above natural background levels outside of the designated mixing zone. Any individual who performs this function shall be approved by the Department before beginning to serve in this capacity. b. Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage caused by the construction activities (from machinery, ancillary equipment, spill, etc.). The areas to be surveyed are all existing hardbottom areas within 750 meters of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of coral and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. If any damage is found, the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day. Within 3 weeks of discovering the damage, the permittee shall submit to the Department a detailed description of the damage including an estimate of the area damaged, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. c. The contractor shall push his equipment in to the project area verses towing when within 1.5 miles of the shoreline to avoid potential cable drags. d. A 400- foot buffer zone in which dredging is prohibited shall be maintained and marked with buoys (fluorescent buoys if construction will occur at night) around the hardbottom areas located near the borrow sites. The buoys shall be placed no more than 500 feet apart to clearly identify the limits of the hardbottom areas. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs at the borrow area. e. During all dredging operations the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal Location of the cutterhead at all times during construction operation. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipments hall provide a permanent record of the position referenced to State Plane Coordinates and NGVD. As part of the final report, the permittee shall provide a daily record of the position of the dredge equipment which includes the dredge area limits with actual and maximum authorized dredge depth referenced to state plane coordinates and NGVD. Vertical and horizontal accuracy of the positioning equipment shall also be reported.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0192068-00 I-JC	Central Boca	Beach Renourishment	N/A	Palm Beach	The complexity of bottom biotopes and natural communities subject to turbidity and sedimentation impacts during beach restoration doesn't allow for precise prediction of the consequences of beach fill. Monitoring is the best way to evaluate changes in order to implement appropriate measures to correct any adverse effects during construction or assess adequate mitigative measures if impacts exceed the predicted levels. As a Notice to Proceed item, the permittee shall submit a detailed Biological Monitoring Plan subject to review and approval by the Department. The monitoring plan shall include collection of pre-construction, construction, and post construction data on the patch reef communities located within 750 feet of the western boundaries of the borrow areas and north and south of the pipeline corridors. The plan shall incorporate valid and independent controls, and appropriate statistical analysis to assess the potential short-term and long-term effects of turbidity and sedimentation upon the epibenthos. Towed underwater video combined with diver observations shall be conducted over the entire south borrow area and pipeline corridors prior to dredging to verify that no areas of hard bottom or potential sea grass areas are present. If any such areas are found they shall be mapped and appropriate buffer zones and monitoring stations shall be established. Exposed supratidal/intertidal rock platforms occur between R-219 and R-220. This emergent hardbottom formation shall not be covered directly by the beach fill. .A monitoring program shall be undertaken to determine the possible effects of the project on the distribution and abundance of sessile flora and fauna of the supratidal and subtidal hardbottom habitat within the vicinity ofR-219 and R-220. Monitoring shall be conducted in the summer following project construction and for two subsequent years, for a total of three years of post-construction monitoring.
FDEP	0276415-001-JC	Juno Beach	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation, in accordance with the approved Sediment QA/QC Plan. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final project report, the Permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0276415-001-JC	Juno Beach	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	Borrow Area Monitoring. Biological monitoring shall be conducted where the buffer between the borrow area and the adjacent hardbottom is less than 1,000 feet. This monitoring shall, at a minimum, consist of the following: a. Three monitoring stations shall be established based on a pre-construction reconnaissance level survey of the reef. Compliance stations shall be located along the hardbottom protrusions, approximately 893 feet and 924 feet from the primary borrow area boundary and a reference station shall be located approximately 3,000 feet southeast of the southeastern corner of the borrow area on a comparable low-relief reef edge. b. Each monitoring station shall consist of three, cross-shore transects spaced one meter apart. The transects, marked by permanent stakes, shall commence at the west edge of the hardbottom and extend east for 20 meters over hardbottom. Video sampling of three, 0.4 meter wide transects, running the length of the station (20 meters) , shall be performed to provide estimates of coverage of the major taxonomic groups and evaluation of sediment cover. c. Five 0.25 m2 quadrants shall be sampled along each of the 20 meter transects. Visual estimates of percent cover and genus/species identification shall be performed in situ for the following functional groups: macroalgae, microalgae/cyanobacteria, encrusting calcareous algae, sponges, tunicates, zooanthids, hydroids, octocorals, and scleractinian corals. Individual counts shall be conducted for octocorals, scleractinian corals, sponges, solitary tunicates, and urchins. Scleractinian corals and octocorals will also be assessed for the following size class distribution: (1) <5 cm; (2) 5 to 15 cm; (3) 15 to 25 cm; and (4) >25 cm. d. The reef edge at each of the three stations shall be visually assessed for a total distance of 200 feet during each monitoring event. A digital video of the edge shall be obtained at the end of the pre-construction monitoring period, at the end of the construction monitoring period, and at the end of the post-construction monitoring period. e. Standing sediment depth measurements shall be performed within each of the three stations with repeated direct measurements at regular intervals along the transects. f. The above-stipulated monitoring shall be performed prior to construction to establish a baseline and establish exact locations for the stations. Monitoring shall be performed once during the 8-week period prior to construction, bi-weekly during construction, and once during the 8-week period immediately following construction. Additional monitoring may be required during construction if the turbidity monitoring reveals high levels of turbidity over reef communities. g. Reporting: All raw video data deliverables shall be provided within 30 days after completion of each survey period. A letter report, which provides results of the turbidity data and standing sediment depth measurements for the pre-construction period, shall be submitted to the Department within 15 days of the completion of the final pre-construction survey. During construction, bi-weekly reports shall be submitted by email summarizing the turbidity and standing sediment depth data. A letter report, which provides the results of the turbidity data and sediment depth data measurements for the construction phase, shall be submitted within 30 days of completion of the final construction-phase survey. A final monitoring report shall be submitted within 90 days of completion of the final, post-construction phase survey.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0276415-001-JC	Juno Beach	Beach Renourishment	26 56'03", -80 04'17"	Palm Beach	If, based on annual aerial photographs and profile data, the Department determines that biological monitoring will be necessary to assess impacts to hardbottom between R-43 and R-45, the County shall submit for approval a detailed Biological Monitoring Plan. Following approval by the Department, the County shall implement the approved Plan. This Plan shall include, at a minimum: a. Biological monitoring of intertidal-subtidal nearshore communities shall be conducted using at least 5 permanent, cross-shore compliance transects covering the entire width of exposed hardbottom between R-43 and R-45. A minimum of 2 control transects shall be located at a sufficient distance to avoid any influence from the beach fill spreading. b. A representative number of quadrants shall be observed on each permanent transect to provide a complete census of abiotic and biotic functional groups, including macroalgal distribution and abundance. This should include an assessment of vertical relief, sediment depth and percent cover of all sessile benthic groups of organisms including dominant species of macroalgae, height measurements of dominant macroalgal species, and identification and size measurements for all stony corals present. c. Underwater video shall be taken along each transect at a height and speed appropriate for the area. d. Standing sediment depth shall be measured at approximately one meter intervals along each transect line

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage (including burial or sedimentation) caused by the construction activities (from machinery, ancillary equipment, spills, etc.). The areas to be surveyed are all existing hardbottom areas within 750 feet of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of scleractinian coral, octocoral, and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. i. If any damage or excessive stress on marine organisms is found, all dredging activities shall cease immediately within 600 feet of the area of Joint Coastal Permit North Boca Raton Beach Nourishment Permit No. 0261499-001-JC damage and the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day. Notification shall include a description of the damage and preliminary quantitative estimates of the damage. ii. As soon as possible from the time damage occurred (weather permitting) the permittee shall submit to the Department for review and approval a detailed description of the damage including a rapid assessment survey quantifying the extent and degree of damage, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. The plan shall be implemented within 7 days of discovering the damage unless a time extension is granted by the Department. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. b. The contractor shall push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. c. Dredging for borrow material is prohibited within 400 feet of hardbottom communities. The hardbottom located within 600 feet of the southwest corner of the borrow area shall be closely monitored to avoid potential impacts (see the Department-approved Biological Monitoring Plan and SC 34 below). The permittee shall establish and maintain (during construction) a 400 foot buffer zone separating the authorized borrow area from the nearest hardbottom communities surrounding the borrow area. The buffer area shall be marked by placing buoys 400 feet from the nearest hardbottom communities in the direction of the borrow area. If construction will occur at night, these buoys shall be either lighted or covered in both fluorescent and phosphorescent coatings. The buoys shall be placed no more than 500 feet apart to clearly identify the limits of the buffer zone. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs at the borrow area. The permittee shall inform the dredging contractor of this requirement and show the buffer zone on the contract drawings. d. During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final report, the permittee shall provide a daily record of the position of the dredge equipment which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depth referenced to state plane coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported. If at any time the dredging encroaches into the buffer zone or exceeds the authorized dredged depth, the Department shall be notified within 24 hours.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	Water Quality - Turbidity - Nephelometric Turbidity Units (NTUs) Frequency: Turbidity sampling and analysis shall be performed at least 3 times a day, four hours apart, during all dredging or filling operations. Tidal Influence: Compliance samples shall be compared to background samples that are comparably affected by in-coming or out-going tides, such that turbidity levels at the background sites are indicative of what turbidity levels should be at the compliance sites in the absence of the project. Therefore sampling times and locations shall be established accordingly. Background: The samples shall be collected at the surface, mid-depth and 2 meters from the bottom, outside the influence of any artificially generated turbidity plume. Dredge Site: approximately 500 meters in the opposite direction of the prevailing current flow. Beach Site: approximately 1,000 meters upcurrent from the beach discharge site, and at least 300 meters away from any turbid plume associated with the project, at the same offshore distance as the corresponding compliance location, below. Compliance: The samples shall be collected at the surface, mid-depth and 2 meters from the bottom, in the densest portion of any visible turbidity plume generated by this project. Dredge Site: Samples shall be taken at three locations: 150 meters downcurrent from the dredge site and within the densest portion of any visible turbidity plume, and 100 meters west and east of that point. When the dredge is located in the southwest corner of the borrow area within 600 feet of hardbottom, an additional sample shall be taken from just above the edge of the hardbottom. Beach Site: For the initial nourishment event (conducted under this permit), compliance samples shall be collected in the densest portion of the turbidity plume, 2,000 meters downcurrent from the point where runoff from the dredged slurry renters the ocean. If no turbidity plume is visible, samples shall be taken 2,000 meters downcurrent and 300 meters offshore from the point where runoff from the dredged slurry renters the ocean. Interval samples: Beach Site: In order to monitor the attenuation of the turbidity plume and provide data to justify the appropriate size of the mixing zone, additional turbidity sampling and analysis shall be required during the initial nourishment event (conducted under this permit). These intermediate samples shall be collected at 150 meters, 500 meters, 1,000 meters and 1,500 meters downcurrent from the point where runoff from the dredged slurry renters the ocean. The samples shall be collected in the center of the turbidity plume, but if a plume is not visible, the samples shall be collected 300 meters offshore from the beach. Within 90 days following the completion of the initial nourishment event (conducted under this permit), the permittee shall submit a report to the JCP Compliance Officer describing the attenuation of the turbidity plume within the 2,000-meter mixing zone at the beach nourishment site. In addition to the tabulated monitoring data, the report shall include a graph comparing the approximate point where the turbidity standard (29 NTUs above background) is achieved over time. The report shall also include an analysis of the data; explanations for any anomalies (indicated by spikes in the graph), such as increases associated with weather or quality of the sand; and a recommendation for the size of the mixing zone for subsequent nourishment events that would be conducted under this permit. 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 are greater than 29 NTUs above the associated 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 occurrences shall also be reported to DEP BBCS in Tallahassee at (850) 414-7716 (attn: JCP Compliance Officer) and the DEP Southeast District Office at (561) 681-6600 within 24 hours of the time the violation is first detected. All monitoring data shall be submitted within two weeks of analysis with documents containing the following information: (1) “Permit Number 0261499-001-JC”; (2) “North Boca Raton Beach Nourishment”; (3) date of sampling and analysis; (4) a statement describing the methods used in collection, handling, storage, and analysis of the samples; (5) a map indicating the sampling locations; and (6) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, and accuracy of the data.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	CONTINUED: Monitoring reports shall also include the following information for each sample that is taken: 1. water temperature 2. time of day sample taken 3. depth of water body 4. depth of sample 5. antecedent weather conditions 6. tidal stage and direction of flow 7. wind direction and velocity Monitoring reports shall be submitted to the BBCS, JCP Compliance Officer, in Tallahassee and to the DEP Southeast District Office, Submerged Lands & Environmental Resources, in West Palm Beach. Failure to submit reports in a timely manner constitutes grounds for revocation of the permit. When submitting this information to the DEP, 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. 0261499-001-JC for the North Boca Raton Beach Nourishment Project."

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	Biological Monitoring All biological monitoring shall be performed in accordance with the Department-approved Biological Monitoring Plan (July 24, 2008). In the event of any discrepancies between the permit conditions and the approved Biological Monitoring Plan, the permit conditions shall prevail. a. Borrow Area Sedimentation Monitoring Sedimentation will be measured pre-construction, bi-weekly during construction, and immediately post-construction at two compliance stations and two control stations. Additionally, daily compliance sampling will be conducted when dredging occurs in the southwest corner of the borrow area between 400 and 600 feet of the hardbottom. In the event that this monitoring reveals: 1) an increase in sedimentation; 2) an increase in a sediment layer over the hardbottom that is greater than the sediment layer at control sites; and/or 3) stress on benthic organisms (as determined using BEAMR or comparable methodology, see attached Biological Monitoring Plan), then dredging shall cease, the Department shall be notified immediately, and the dredge shall be relocated until conditions change such that sedimentation is no longer occurring. b. Fill Area Patch Reef Monitoring Nearshore patch reefs shall be monitored at three compliance sites and two control sites immediately prior to construction, bi-weekly during construction, immediately following construction, and annually for three years after construction. Data to be collected includes Benthic Ecological Assessment for Marginal Reefs (BEAMR) assessments, or comparable methodology, underwater video, and sediment depth measurements. If the monitoring of the nearshore patch reefs shows coverage of hardbottom from project-related sedimentation or the equilibration of the placed fill beyond the previously authorized impact sites (i.e. any hardbottom that is located outside of the previously authorized project's fill template), additional mitigation shall be required. c. Yamato Rock Monitoring A single one square meter monitoring station shall be established at Yamato Rock. Monitoring events shall take place pre-construction, one year post-construction, and two years post-construction and shall include an assessment using the BEAMR or comparable methodology and underwater photography. Additionally, four pins shall be installed on Yamato Rock and the length and width of the exposed area shall be measured during each monitoring event. d. Red Rock Reef Monitoring Sediment accumulation at each of the six (6) modules shall be monitored by four vertical measurements taken at the same location at each module prior to sand placement and twice yearly for three years following each sand placement event. Digital still images shall be taken to accompany the sediment depth measurements. Additionally, yearly aerials of the reef shall be taken and analyzed for changes in exposure of the modules. If at any time, one or more of the modules is completely covered by sand, the frequency of the sediment depth monitoring shall increase to once per month. Any module that remains completely buried by sand for three subsequent months shall be mitigated for prior to any nourishment activities under the next permit. e. Pipeline Corridor Monitoring Pipeline corridors shall be sited to avoid exposed hardbottom where possible. Corridors shall be visually inspected by divers prior to construction, bi-weekly during construction, and immediately post-construction to avoid damage caused by movement of the pipeline or by discharge of slurry along the length of the pipeline. In the event that damage is observed, dredging shall cease immediately and a remedial action plan shall be proposed. The Department shall be notified within 24 hours of any violation. f. Reporting Requirements During construction, a weekly observation report shall be submitted to the Department. Notifications of commencement and completion, as well as weekly post-construction survey updates shall also be submitted. A biological monitoring report shall be submitted within 90 days following completion of each post-construction biological monitoring survey. g. Contingency Mitigation If the need for mitigation is triggered (see band d above), the permittee shall propose a mitigation plan that meets the Uniform Mitigation Assessment Method (UMAM) in Rule 62-345, F.A.C. within 6 months. Following approval of the mitigation plan by the Department, the permittee shall implement the plan prior to the issuance of any future Joint Coastal Permit at this site.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	01 82699-002-JC	South Boca Mod	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	The permittee shall construct a minimum of2.39 acres of artificial reef as mitigation for impacts to no greater than 2.39 acres of the natural nearshore hardbottom located within the projected equilibrium toe of fill. The permittee shall adhere to the following procedures for construction of the artificial reef mitigation work: a. Construction of the artificial reef shall be completed within (15months after completion of the first beach nourishment project under this permit. If artificial reef construction is not completed b Jul 13 2003 a time lag coefficient shall be applied to increase the mitigation ratio dependent upon the extent of hard bottom burial landward of the equilibrium toe of fill at the time of artificial reef placement. b. Prior to beginning construction of the artificial reef, the permittee shall submit a plan view drawing identifying the surveyed coordinates of the artificial reef construction sites and all work spaces (staging areas, boat access corridors, etc.) to be used to construct the artificial reefs. The drawing shall include all hardbottom areas within 1,000 ft. of the artificial reef construction sites. This information shall be provided in both paper and electronic format, as required by the Notice to Proceed condition above. The work conducted adjacent to existing hardbottom areas shall be performed in a manner to avoid impacts to existing hardbottom. All artificial reef construction equipment shall be confined to the identified, buoyed work spaces. Artificial reef construction shall not begin until the Department approves the work spaces. Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. The buoys shall delineate only areas that are within construction areas approved by the Department (as shown in the approved permit drawings) and found to be acceptable pursuant to the requirement in Specific Conditions 11.i and 11.j. If this work is to be conducted at night, the buoys shall be lighted; e. The reef building materials shall be transported to the mitigation site by barge. Materials shall be lifted over the side of the barge and placed into the proper location by a pre-approved method of placement; f. The artificial reef materials shall consist of clean limestone boulders. Reef construction materials shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges; g. The permittee shall ensure that the artificial reef is constructed to mimic the natural hardbottom in the project area. The hardbottom will contain between I to 4 feet vertical relief, overhanging ledges, and crevices. The reef materials shall be placed in shore parallel formations with rock surface area coverage of 2.39 acres, calculated using the same methods as used to calculate the impact rock acreage. h. Following the completion of the placement of reef construction materials, the permittee shall survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the permit. If the artificial reef does not meet or exceed the approved monitoring plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the three year monitoring survey indicates a reduction in the extent of the artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department. i. The thickness of the sand in the placement areas shall be not less than 15 cm and not more than 90 cm; blocks of artificial reef shall not be placed on hardbottom communities even if the community is growing through the veneer of sand. i. Artificial reef material shall be placed at least 4.5 meters away from existing exposed hardbottom communities including areas where the community is growing through a veneer of sand. This buffer area shall remain free of reef building material during construction. k. The permittee shall utilize the originally permitted artificial reef site to the maximum extent allowed by specific Conditions II.i and 11.j before the new mitigation sites are used.

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FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	A minimum 400 foot anchor and pipeline buffer zone, in which anchoring is prohibited, shall be maintained around the hardbottom areas in the vicinity of the borrow site and pipeline corridor. No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 400-foot buffer zones. No equipment or structures will be placed within the no-anchor buffer zones. The permittee shall ensure that the no anchoring buffer zones are maintained continuously for as long as dredging occurs at the borrow site.
FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	The permittee shall construct a minimum of 2.39 acres of artificial reef as mitigation for impacts to no greater than 2.39 acres of the natural nearshore hardbottom located within the projected equilibrium toe of fill. The permittee shall adhere to the following procedures for construction of the artificial reef mitigation work: a. Construction of the artificial reef shall be completed with 6 months after completion of the first beach nourishment project under this permit. b. Prior to beginning construction of the artificial reef, the permittee shall submit a plan view drawing identifying the surveyed coordinates of the artificial reef construction sites and all work spaces (staging areas, boat access corridors, etc.) to be used to construct the artificial reefs. The drawing shall include all hardbottom areas within 1,000 ft. of the artificial reef construction sites. This information shall be provided in both paper and electronic format, as required by the Notice to Proceed condition above. The work conducted adjacent to existing hardbottom areas shall be performed in a manner to avoid impacts to existing hardbottom. All artificial reef construction equipment shall be confined to the identified, buoyed work spaces. Artificial reef construction shall not begin until the Department approves the work spaces. c. The information in item (b) above shall be submitted to the following agencies: d. Prior to the placement of any reef building material in the water at the mitigation site, the limits of the reef construction area shall be marked with buoys. If this work is to be conducted at night, the buoys shall be lighted; e. The reef building materials shall be transported to the mitigation site by barge. Materials shall be lifted over the side of the barge and placed into the proper location by pre-approved method of placement; f. The artificial reef materials shall consist of clean limestone boulders. Reef construction materials shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges; g. The permittee shall ensure that the artificial reef is constructed to mimic the natural hardbottom in the project area. The hardbottom will contain between 1 to 4 feet vertical relief, overhanging ledges, and crevices. The reef materials shall be placed in shore parallel formations with rock surface area coverage of 2.39 acres, calculated using the same methods as used to calculate the impact rock acreage. h. Following the completion of the placement of reef construction materials, the permittee shall survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the permit. If the artificial reef does not meet or exceed the approved monitoring plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the three year monitoring survey indicates a reduction in the extent of the artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.
FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	To verify long-term stability and performance of the mitigation artificial reef, at least 90 days prior to each nourishment event, the permittee shall provide verification that the artificial reef has maintained the original design area of 2.39 acres, and the original design elevation and specifications. If there has been any subsidence, burial, or other change in acreage, elevation or location of the artificial reef, the permittee shall restore the artificial reef to the original design specification prior to commencement of construction of each nourishment event.

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FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	Post-construction physical and biological monitoring shall be required to verify the movement of nourished sand over nearshore hardbottom. If it is determined upon review of the monitoring and survey data that nearshore habitat is buried beyond the projected equilibrium toe of fill, then mitigation for impacts shall be required at a ratio of at least 3:1. If such burial occurs, or if impacts are identified as a result of pipeline corridor placement and removal, borrow area excavation, or any other construction related activity, the permittee shall submit a mitigation and monitoring plan to the Office of Beaches and Coastal Systems within 30 days following the determination. Following approval by the Department, the permittee shall implement the plan within the specified time frame and before the commencement of subsequent nourishment events
FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	Biological Hardbottom Monitoring. For each nourishment event the permittee shall prepare reports detailing the results of the hardbottom surveys outlined in the Specific Conditions above and subsequent subsections below. These reports shall be submitted within 90 days of completion of each post-construction survey and each annual survey thereafter. The report shall summarize the results of the biological surveys and mitigation area monitoring and identify any adverse impacts which would be attributable to the project. Each report shall compare the current conditions to a) the pre-construction baseline survey, b) the first post-construction survey, and c) any previous annual survey(s) (where applicable). Each report shall contain an analysis and discussion of the fixed station monitoring and video documentation in regards to any burial, subsidence, sedimentation, or trauma that has affected the marine algae, coral, sponges, or other related biological communities. In addition to the standard monitoring of physical stability and taxonomic lists of species, the report should include ecological comparisons to adjacent hard bottom reefs that examine variables such as indices of recruitment for larval/juveniles, predation rates and prey vulnerability, and size structure of fish and selected invertebrates. a. Nourishment area hardbottom - in situ scuba surveys: For each nourishment event, to verify that the project will not have an adverse affect on the natural nearshore reef beyond the projected equilibrium toe of fill, underwater surveys with color photographs and video documentation of the nearshore hardbottom located immediately seaward of the projected equilibrium toe of fill shall be taken immediately prior to construction, immediately after construction, and annually thereafter for a period of three years, unless otherwise determined by the Department following the year-three annual survey. Fixed biological monitoring stations will be established at four locations along the natural nearshore reef located immediately seaward of the edge of the projected equilibrium toe of fill and marked with stainless steel markers for location purposes. At least two control stations will be located outside the area of any possible influence from the project, while in depths and at hardbottom habitat that is comparable to the four biological monitoring stations mentioned above. Each station will be composed of a 1 square meter quadrant. Monitoring of each station will include color photographs, and quantitative data regarding benthic species composition and density of flora and fauna within each quadrant. In addition, controlled underwater video footage that accurately represents the condition of the area will be taken within approximately 10 meters of each of the four fixed monitoring stations. DGPS navigational coordinates of the dives shall be referenced on the video documentation and dive tracks shall be overlaid on recent aerial photography. During the in situ surveys, a qualified biologist using scuba will visually inspect the hard ground areas. The biologist will note the general level of sediment and look for indications of sediment impact, such as identification of conditions or observations that indicate benthic organisms are being, or have been stressed by factors other than natural events. Thus, indications of possible impact will be based on comparative observations between each monitoring location and the "control" sites, as well as the preconstruction conditions at the corresponding monitoring sites.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	Ol82699-00l-JC	South Boca	Beach Renourishment	26º20'3.7", -80º4'21.6"	Palm Beach	CONTINUED: Indicators of possible of imminent impact include but are not limited to: (a) Standing sediment on hard corals, soft corals, sponge or other organisms that is not removed by normal currents or wave action; (b) Excessive mucus on hard corals, without indications of bleaching; (c) Excessively extruded polyps (e.g., sediment removal process); and (d) Mottling of color of benthic organisms (soft corals, algae, sponges, etc). b. Nourishment area hardbottom - aerial photography. Controlled flight-dated color aerial photography shall be taken of the beach fill area. The aerials shall be in color and of a scale and clarity sufficient to delineate nearshore hardbottom. Light reflections from water areas shall be kept to the minimum possible, consistent with wave action, use of filters, and time of photography and without extensive ground shadow. The image shall contain at least 1/3 uplands, and extend at least 2,000 ft. offshore and be taken according to the Department's standards for aerial photography (contact the Office staff for additional information on specific requirements). For each nourishment event, aerial photogragraphy shall be taken and submitted to the Department prior to construction, at one-year following placement of fill, and annually thereafter for a period of three years, unless otherwise determined by the Department following the third annual survey. The permittee may use existing aerial photography being conducted by the permittee, County or State if it meets the criteria listed above. c. Mitigation Artificial Reef - in situ surveys. Underwater surveys of the mitigation artificial reef site, with video documentation, shall be taken immediately prior to construction, immediately after construction, and annually thereafter for a period of three years, unless otherwise determined by the Department following the year-three surveys. Monitoring stations will be permanently established on the artificial reef immediately after reef placement and marked with stainless steel markers for location purposes. Each station will be composed of a 1 square meter quadrant. Monitoring of each station will include color photographs, and quantitative data regarding benthic species composition and density of flora and fauna within each quadrant. Quantitative assessments of the fish community will be performed during each monitoring event using the visual census technique (Bohnsack and Talbot, 1980). One shore normal transect will be established along the length of the structure in conjunction with the fixed monitoring stations. During each monitoring visit, a controlled video recording will be made along the transect. All fish and live benthic organisms observed will be identified to the lowest taxon practicable. DGPS navigational controlled video recording will be made along the transect. All fish and live benthic organisms observed will be identified to the lowest taxon practicable. DGPS navigational coordinates of the dives shall be referenced on the video transects and overlaid on recent aerial photography. An acreage calculation of the extent of the artificial reef and representative vertical relief measurements shall be determined and provided with each monitoring report. d. Mitigation artificial reef -aerial photography. The controlled flight-dated color aerial photography required above shall also be in color and of a scale and clarity sufficient to delineate the acreage of the mitigation artificial reef. The acreage of the mitigation artificial reef shall be reported with each monitoring report. e. Marine turtle foraging habitat monitoring. The above monitoring reports shall also include an assessment of juvenile green turtle foraging habitat. In the event that green turtle foraging habitat is lost during profile adjustment, or in the event the mitigation artificial reef does not adequately provide juvenile green foraging habitat, the applicant shall confer with DEP and FWC to determine if action can be taken to minimize such spreading and improve the mitigation reef. If such a determination is made, the permittee shall prepare a detailed plan of action, submit it to the Department for approval, and implement the plan within the specified time frame.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	North Boca	Beach Renourishment	N/A	Palm Beach	To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage (including burial or sedimentation) caused by the construction activities (from machinery, ancillary equipment, spills, etc.). The areas to be surveyed are all existing hardbottom areas within 750 feet of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of scleractinian coral, octocoral, and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. i. If any damage or excessive stress on marine organisms is found, all dredging activities shall cease immediately within 600 feet of the area of damage and the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day. Notification shall include a description of the damage and preliminary quantitative estimates of the damage. ii. As soon as possible from the time damage occurred (weather permitting) the permittee shall submit to the Department for review and approval a detailed description of the damage including a rapid assessment survey quantifying the extent and degree of damage, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. The plan shall be implemented within 7 days of discovering the damage unless a time extension is granted by the Department. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. b. The contractor shall push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. c. Dredging for borrow material is prohibited within 400 feet of hardbottom communities. The hardbottom located within 600 feet of the southwest corner of the borrow area shall be closely monitored to avoid potential impacts (see the Department-approved Biological Monitoring Plan and SC 34 below). The permittee shall establish and maintain (during construction) a 400 foot buffer zone separating the authorized borrow area from the nearest hardbottom communities surrounding the borrow area. The buffer area shall be marked by placing buoys 400 feet from the nearest hardbottom communities in the direction of the borrow area. If construction will occur at night, these buoys shall be either lighted or covered in both fluorescent and phosphorescent coatings. The buoys shall be placed no more than 500 feet apart to clearly identify the limits of the buffer zone. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs at the borrow area. The permittee shall inform the dredging contractor of this requirement and show the buffer zone on the contract drawings. d. During all dredging operations, the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final report, the permittee shall provide a daily record of the position of the dredge equipment which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depth referenced to state plane coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported. If at any time the dredging encroaches into the buffer zone or exceeds the authorized dredged depth, the Department shall be notified within 24 hours.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	North Boca	Beach Renourishment	N/A	Palm Beach	Biological Monitoring All biological monitoring shall be performed in accordance with the Department-approved Biological Monitoring Plan (July 24, 2008). In the event of any discrepancies between the permit conditions and the approved Biological Monitoring Plan, the permit conditions shall prevail. a. Borrow Area Sedimentation Monitoring Sedimentation will be measured pre-construction, bi-weekly during construction, and immediately post-construction at two compliance stations and two control stations. Additionally, daily compliance sampling will be conducted when dredging occurs in the southwest corner of the borrow area between 400 and 600 feet of the hardbottom. In the event that this monitoring reveals: 1) an increase in sedimentation; 2) an increase in a sediment layer over the hardbottom that is greater than the sediment layer at control sites; and/or 3) stress on benthic organisms (as determined using BEAMR or comparable methodology, see attached Biological Monitoring Plan), then dredging shall cease, the Department shall be notified immediately, and the dredge shall be relocated until conditions change such that sedimentation is no longer occurring. b. Fill Area Patch Reef Monitoring Nearshore patch reefs shall be monitored at three compliance sites and two control sites immediately prior to construction, bi-weekly during construction, immediately following construction, and annually for three years after construction. Data to be collected includes Benthic Ecological Assessment for Marginal Reefs (BEAMR) assessments, or comparable methodology, underwater video, and sediment depth measurements. If the monitoring of the nearshore patch reefs shows coverage of hardbottom from project-related sedimentation or the equilibration of the placed fill beyond the previously authorized impact sites (i.e. any hardbottom that is located outside of the previously authorized project's fill template), additional mitigation shall be required. c. Yamato Rock Monitoring A single one square meter monitoring station shall be established at Yamato Rock. Monitoring events shall take place pre-construction, one year post-construction, and two years post-construction and shall include an assessment using the BEAMR or comparable methodology and underwater photography. Additionally, four pins shall be installed on Yamato Rock and the length and width of the exposed area shall be measured during each monitoring event. d. Red Rock Reef Monitoring Sediment accumulation at each of the six (6) modules shall be monitored by four vertical measurements taken at the same location at each module prior to sand placement and twice yearly for three years following each sand placement event. Digital still images shall be taken to accompany the sediment depth measurements. Additionally, yearly aerials of the reef shall be taken and analyzed for changes in exposure of the modules. If at any time, one or more of the modules is completely covered by sand, the frequency of the sediment depth monitoring shall increase to once per month. Any module that remains completely buried by sand for three subsequent months shall be mitigated for prior to any nourishment activities under the next permit. e. Pipeline Corridor Monitoring Pipeline corridors shall be sited to avoid exposed hardbottom where possible. Corridors shall be visually inspected by divers prior to construction, bi-weekly during construction, and immediately post-construction to avoid damage caused by movement of the pipeline or by discharge of slurry along the length of the pipeline. In the event that damage is observed, dredging shall cease immediately and a remedial action plan shall be proposed. The Department shall be notified within 24 hours of any violation f. Reporting Requirements During construction, a weekly observation report shall be submitted to the Department. Notifications of commencement and completion, as well as weekly post-construction survey updates shall also be submitted. A biological monitoring report shall be submitted within 90 days following completion of each post-construction biological monitoring survey. g. Contingency Mitigation If the need for mitigation is triggered (see band d above), the permittee shall propose a mitigation plan that meets the Uniform Mitigation Assessment Method (UMAM) in Rule 62-345, F.A.C. within 6 months. Following approval of the mitigation plan by the Department, the permittee shall implement the plan prior to the issuance of any future Joint Coastal Permit at this site.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-001-JC	North Boca	Beach Renourishment	N/A	Palm Beach	Biological Monitoring All biological monitoring shall be performed in accordance with the attached Department-approved Biological Monitoring Plan (January 7, 2009). In the event of any discrepancies between the permit conditions and the approved Biological Monitoring Plan, the permit conditions shall prevail. a. Borrow Area Sedimentation Monitoring Sedimentation will be measured pre-construction, bi-weekly during construction, and immediately post-construction at two offshore reef compliance stations, two offshore reef control stations, three patch reef compliance stations and one patch reef control station. Additionally, daily compliance sampling will be conducted at four patch reef stations when dredging occurs in the southwest corner of the borrow area between 122 m and 183 m (400 and 600 feet) of the hardbottom. In the event that this monitoring reveals: 1) average daily sediment accumulation levels of more than 1.5 mm at the three patch reef compliance stations that exceed both the average daily sediment accumulation at the patch reef control station and the preconstruction (background) average of each respective transect, as determined by standing sediment methodology defined in the attached Biological Monitoring Plan; 2) stress on benthic organisms (as determined using BEAMR qualitative visual observation of sediment accumulation on the surrounding benthic community or comparable methodology, see attached Biological Monitoring Plan), then dredging shall cease, the Department shall be notified immediately, and the dredge shall be relocated at least 183m (600 feet) away from the affected area until conditions change such that sedimentation is no longer occurring. e. Pipeline Corridor Monitoring Pipeline corridors shall be sited to avoid exposed hardbottom where possible. The pipeline corridor shall be surveyed by divers prior to placement to verify that hardbottom resources are not present within the corridor. In the event that the submerged pipeline crosses areas of exposed hardbottom, c Corridors shall be visually inspected by divers bi-weekly during construction, and immediately post-construction to evaluate potential avoid damage caused by movement of the pipeline and/or by discharge of slurry along the length of the pipeline. In the event that damage is observed, dredging shall cease immediately and a remedial action plan shall be proposed. All dredge and fill activities will cease if substantial leaks (i.e., leaks resulting in turbidity that exceeds state water quality standards) are found. Note that there is no mixing zone for the pipeline corridor, so turbidity would be measured at the leak. Operations may resume upon appropriate repair of affected couplings or other equipment. The Department shall be notified within 24 hours of any violation. After thorough review of your application, staff finds that the proposed modification is not expected to adversely affect water quality. Staff has also determined that the proposed alteration does not increase the potential for adverse impact on the coastal system, public beach access seaward of the mean high water line or nesting sea turtles and hatchlings and their habitat, and that the proposed alteration does not reduce the design adequacy of the project. Since the proposed modification is not expected to result in any adverse environmental impact or water quality degradation, the permit is hereby modified as stated above. By copy of this letter and the attached Department-approved Biological Monitoring Plan revision (January 7, 2009), we are notifying all necessary parties of the modification. This letter of approval does not alter the September 9, 2018, expiration date, other Specific or General Conditions, or monitoring requirements of the permit. This letter must be attached to the original permit. The Permittee is reminded that the pre-construction survey shall be done in the summer of 2009 if the project is going to be constructed in the fall 2009-winter 2010, as noted in the Monitoring Plan. This permit is hereby modified unless a sufficient petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, Florida Statutes, as provided below. The procedures for petitioning for a hearing are set forth below. Mediation under Section 120.573, F.S., is not available for this proceeding.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0261499-003-JN	North Boca	Beach Renourishment	N/A	Palm Beach	To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. Ingress/Egress: Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage (including burial or sedimentation) caused by the construction activities (from machinery, ancillary equipment, spills, etc.). The areas to be surveyed are all existing hardbottom areas within 242 m (750 feet) of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of scleractinian coral, octocoral, and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. i. If any damage or excessive stress on marine organisms is found, all dredging activities shall cease immediately within 183 m (600 feet) of the area of damage and the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day. Notification shall include a description of the damage and preliminary quantitative estimates of the damage. ii. As soon as possible from the time damage occurred (weather permitting) the permittee shall submit to the Department for review and approval a detailed description of the damage including a rapid assessment survey quantifying the extent and degree of damage, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. The plan shall be implemented within 7 days of discovering the damage unless a time extension is granted by the Department. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. c. Dredging for borrow material is prohibited within 122 m (400 feet) of hardbottom communities. The hardbottom located within 183 m (600 feet) of the southwest corner of the borrow area shall be closely monitored to avoid potential impacts (see the Department-approved Biological Monitoring Plan and SC 34 below). The permittee shall establish and maintain (during construction) a 122 m (400 foot) buffer zone separating the authorized borrow area from the nearest hardbottom communities surrounding the borrow area. If dredging occurs in the southwest corner of the borrow area, within 183 m (600 feet) of exposed hardbottom, the buffer distance shall be marked by placing three (3) buoys 122 m (400 feet) from the hardbottom formations located at biological monitoring stations 7, 8 , and 9 (see the attached Department-approved Biological Monitoring Plan) in the direction of the borrow area. If construction will occur at night, these buoys shall be either lighted or covered in both fluorescent and phosphorescent coatings. The buoys shall be placed to clearly identify the limits of the buffer zone. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs in the southwest corner of the borrow area within 183 m (600 feet) of hardbottom formations. The permittee shall inform the dredging contractor of this requirement and show the buffer zone on the contract drawings.
NMFS BO	1997-6559	Juno Beach	Beach Renourishment	26.9073º, 80.0615º	Palm Beach	The COE shall condition the permit to require monitoring measures that will provide data on the effects of the action on green sea turtles and nearshore hardbottom in the project area.
NMFS BO	1997-6559	Juno Beach	Beach Renourishment	26.9073º, 80.0615º	Palm Beach	The COE shall provide a copy of the results of the pre-, during, and post-construction monitoring of sea turtle abundance in the project area to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office, within 30 days of completion of each monitoring event, with a final cumulative report within 60 days of the final monitoring event (263 13th Avenue South, St. Petersburg, Florida 33701-5505). The general design of the monitoring program is included in an e mail from the applicant's consultant attached to the end of this opinion. The final details of the monitoring program once designed must be submitted for NMFS approval prior to enactment (RPM 1).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
NMFS BO	1997-6559	Juno Beach	Beach Renourishment	26.9073º, 80.0615º	Palm Beach	The COE shall require a quantitative assessment of exposed hardbottom, pre- and post-construction, to determine how much hardbottom was actually impacted by the project. The monitoring area shall include all nearshore hardbottom that is currently exposed in the project area and adjacent areas that may be impacted by sediment migration. The City of Boca Raton has committed to using aerial photography of the project site, showing the exposed hardbottom, prior to nourishment activities. This will be digitized and then the observed project toe-of-fill at equilibrium will be overlaid onto the digitized photo to determine the actual acreage of hardbottom habitat impacted. The results of this assessment must be submitted to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office (263 t1h3 Avenue South, St. Petersburg, Florida 33701-5505), within 30 days after the project fill has reached its equilibrium (RPM 1).
NMFS BO	2005-7908	Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The COE shall condition the permit to require monitoring measures that will provide data on the effects of the action on green sea turtles and nearshore hardbottom in the project area.
NMFS BO	2005-7908	Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The COE shall provide a copy of the results of the pre-, during, and post-construction monitoring of sea turtle abundance in the project area to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office, within 30 days of completion of each monitoring event, with a final cumulative report within 60 days of the final monitoring event (263 13th Avenue South, St. Petersburg, Florida 33701-5505). The general design of the monitoring program is included in an e mail from the applicant's consultant attached to the end of this opinion. The final details of the monitoring program once designed must be submitted for NMFS approval prior to enactment (RPM 1).
NMFS BO	2005-7908	Reach 8	Beach Renourishment	27°00'11.98" , -80°27'21.15"	Palm Beach	The COE shall require a quantitative assessment of exposed hardbottom, pre- and post-construction, to determine how much hardbottom was actually impacted by the project. The monitoring area shall include all nearshore hardbottom that is currently exposed in the project area and adjacent areas that may be impacted by sediment migration. The City of Boca Raton has committed to using aerial photography of the project site, showing the exposed hardbottom, prior to nourishment activities. This will be digitized and then the observed project toe-of-fill at equilibrium will be overlaid onto the digitized photo to determine the actual acreage of hardbottom habitat impacted. The results of this assessment must be submitted to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office (263 t1h3 Avenue South, St. Petersburg, Florida 33701-5505), within 30 days after the project fill has reached its equilibrium (RPM 1).
NMFS BO	1994-1196	South Boca	Beach Renourishment	26.3236°, -80.0748°	Palm Beach	The COE shall condition the permit to require monitoring measures that will provide data on the effects of the action on green sea turtles and nearshore hardbottom in the project area.
NMFS BO	1994-1196	South Boca	Beach Renourishment	26.3236°, -80.0748°	Palm Beach	The COE shall provide a copy of the results of the pre-, during, and post-construction monitoring of sea turtle abundance in the project area to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office, within 30 days of completion of each monitoring event, with a final cumulative report within 60 days of the final monitoring event (263 13th Avenue South, St. Petersburg, Florida 33701-5505). The general design of the monitoring program is included in an e mail from the applicant's consultant attached to the end of this opinion. The final details of the monitoring program once designed must be submitted for NMFS approval prior to enactment (RPM 1).

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
NMFS BO	1994-1196	South Boca	Beach Renourishment	26.3236°, -80.0748°	Palm Beach	The COE shall require a quantitative assessment of exposed hardbottom, pre- and post-construction, to determine how much hardbottom was actually impacted by the project. The monitoring area shall include all nearshore hardbottom that is currently exposed in the project area and adjacent areas that may be impacted by sediment migration. The City of Boca Raton has committed to using aerial photography of the project site, showing the exposed hardbottom, prior to nourishment activities. This will be digitized and then the observed project toe-of-fill at equilibrium will be overlaid onto the digitized photo to determine the actual acreage of hardbottom habitat impacted. The results of this assessment must be submitted to the Assistant Regional Administrator for NMFS Protected Resources Division, Southeast Regional Office (263 t1h3 Avenue South, St. Petersburg, Florida 33701-5505), within 30 days after the project fill has reached its equilibrium (RPM 1).
USACE	2006-8031	Normandy Shores	Commercial Dock	25.857939 ° , -80.129193°	Miami-Dade	The permittee shall conduct a pre-construction survey to document the size and position of all coral colonies within the construction footprint. Within 30 days of completion of the construction, a post-construction survey shall be conducted to determine if there have been any direct or indirect impacts to corals. Both surveys will be conducted by diver and a written report, including pictures and/or video will be submitted to the Corps at the above address. A copy will also be submitted directly to NOAA Fisheries HCD, 400 N Congress Avenue, Suite 120 West Palm Beach, FL 33401.
USACE	2006-8031	Normandy Shores	Commercial Dock	25.857939 °, -80.129193°	Miami-Dade	The permittee shall conduct a pre-construction survey to document the size and position of all coral colonies within the construction footprint. Within 30 days of completion of the construction, a post-construction survey shall be conducted to determine if there have been any direct or indirect impacts to corals. Both surveys will be conducted by diver and a written report, including pictures and/or video will be submitted to the Corps at the above address. A copy will also be submitted directly to NOAA Fisheries HCD, 400 N Congress Avenue, Suite 120 West Palm Beach, FL 33401.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall immediately alert the Corps Staff (South Permits Branch) of any impacts or accidents that occur by fax to 561-626-6971 with a hard copy mailed to the addresses specified in Special Condition 4 within 24 hours of the incident. The Permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to aquatic resources not authorized for impact in the event of unforeseen accidents.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	This permit does not authorize blasting as a means to break up any hardbottom in the project footprint
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall submit to the Corps South Permits Branch an Operational Storm Contingency Plan that describes the actions to be taken in response to storm events (i.e. hurricanes, high sea conditions) and/or operational failures, a minimum of thirty (30) days prior to the commencement of transport and disposal activities. Corps (South Permits Branch) approval of the Operational Storm Contingency Plan will be required prior to commencement of the activities authorized herein...
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	As mitigation to benthic communities, to include the resources on the turning basin wall, the sponge dominated community on debris, the bulkhead community, the macroalgae community, and the unvegetated bottom, the Permittee shall perform mitigation as detailed in the attached Benthic Community Mitigation Plan, dated 16 July 2004. This mitigation includes both on-site and off-site mitigation projects, as well as the transplantation of as many resources as practicable from the project site prior to commencement of construction activities.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall ensure that at least 30 sponges, 14 hard corals, and 10 soft corals are transplanted. Sponge community organisms shall be relocated to the specified site north of the MacArthur Causeway Bridge. Bulkhead and turning basin wall organisms shall be relocated to the site west and slightly north of the project site along the northern turning basin wall, outside of the mixing zone. The Permittee shall complete the relocation at least 24 hours prior to work obviously impacting coral resources, all activities necessary to permanently relocate these resources to minimize impacts to the maximum extent practicable.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	Relocated organisms shall be monitored for a minimum five years in accordance with the schedule detailed in the Benthic Community Mitigation Plan, dated 16 July 2004. No success criteria are proposed due to the small number of organisms to be salvaged. Monitoring for the placement of riprap at the Brickell artificial reef site is not required, since Miami-Dade County routinely monitors this site and it has proved successful during prior riprap placements. Monitoring for the on-site placement of riprap is not required, as this area is expected to revegetate with similar communities as existed prior to construction activities.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	As mitigation for the impacts to resources on the turning basin wall, 1.12 acres of habitat shall be created offsite at the Brickell Artificial Reef site and 0.56 acre of habitat shall be created on-site in water depths similar to those where the impacts will occur, as detailed in the Benthic Community Mitigation Plan, dated 16 July 2004.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The impacts to the bulkhead community shall be mitigated through the creation of 0.19 acre of artificial reef at the Brickell Artificial Reef site through the placement of limestone boulders, as detailed in the Benthic Community Mitigation Plan, dated 16 July 2004.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The impacts to the Macroalgae community shall be mitigated through the creation of 12,763 cubic yards of artificial reef material at the Brickell Artificial Reef site, as detailed in the Benthic Community Mitigation Plan, dated 16 July 2004.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The unvegetated bottom impacts shall be mitigated through the placement of 3,018 cubic yards of riprap at the Brickell Artificial Reef site, as detailed in the Benthic Community Mitigation Plan, dated 16 July 2004.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	All placement of fill and artificial reef material shall be accomplished during daylight hours, Monday through Friday only, unless the Corps grants prior approval.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall ensure that federal authorization has been granted for all artificial reef sites prior to the placement of reef material. The Permittee shall adhere to all conditions of the federal authorizations for the artificial reef material placed as mitigation for the work authorized herein.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall perform pre-project surveys to include diver reconnaissance within two weeks prior to or at the time of deployment of material in the dredge holes and at the artificial reef locations to ensure that no resources have recruited to the mitigation areas prior to commencement of mitigation activities. If survey results indicate that resources may be present, the Permittee shall submit a revised mitigation proposal to the Corps, South Permits Branch for approval. No authorization is granted by this permit for the construction of artificial reefs on submerged beds of seagrasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, other sessile macro-invertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall ensure that no reef material is deployed in a manner that would trap marine life, and must be configured, cut or shaped, so as to not function as a fish trap. All materials/structures must .be configured and constructed to be stable, durable, and provide habitat. Also, at a minimum, no boulder shall have a dimension less than one foot.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall not violate turbidity requirements imposed by the South Florida Water Management District Permit Number 13-02353-P. In the event that SFWMD water quality standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall conduct turbidity sampling every four (4) hours during dredging operations, for the duration of the project. Turbidity compliance (29 NTU limit above background) and background samples shall be collected at the SFWMD specified water quality background and compliance sites. If turbidity exceeds 29 NTU's above background at any time during the disposal operations, spoil transport and disposal shall cease immediately and corrective action shall be taken to address the water quality standard exceedance before dredging may again commence.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall ensure that precautions are taken to prevent damage from occurring to the existing aquatic resources as a result of cable drag, equipment drag, scour wash, or other construction activities. The Permittee shall prevent scouring of submerged aquatic resources during all operations. a. Any towed vessels such as barges, scows and the like, shall be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line. b. All cables must be floated in all water depths to avoid impact to submerged aquatic resources. c. All operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	The Permittee shall prevent any physical damage to ecologically valuable benthic aquatic resources, including, but not limited to, hard or soft corals, other hard bottom resources, sponge/algal/soft coral assemblages, and seagrass through the use of the established ingress/egress corridor indicated on sheet 7 of the Submerged Aquatic Vegetation Mitigation Plan, revised 14 July 2004. All operations shall be conducted in a manner so as to eliminate the possibility of equipment dragging on the bottom, equipment hitting bottom, any material being discharged outside the authorized disposal site, and any other damage to natural resources. The Permittee shall be held liable for any seagrass impacts caused by vessel or barge operation outside of the deep water route during construction and mitigation operations.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	No impacts to seagrass, hard corals, or soft corals shall occur as a result of construction operations, such as, but not limited to, propeller scouring; and vessel or barge anchoring, grounding or spudding, other than those impacts authorized by this permit. For any impacts caused by the construction activities, restoration and mitigation will be required.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	Within thirty (30) days of demobilization of all construction related equipment, the Permittee shall submit a report for Corps, South Permits Branch approval, sufficient to demonstrate whether any unanticipated impacts occurred as a result of construction activities. Said report shall include diver surveys of benthic resources adjacent to the dredge holes and vessel access corridors. The report shall include video and photographic documentation of any unauthorized impacts to submerged aquatic resource areas and shall include corresponding GIS maps to correlate the surveys. These surveys shall include qualitative and quantitative assessments of the resources present and shall be sufficient to document whether any damage to resources occurred as a result of project activities.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	In the event that the Corps determines that additional mitigation, remediation, and/or monitoring is required, as a result of unanticipated direct or indirect impacts identified during monitoring or post construction surveys, the Permittee shall within thirty (30) days of Corps request, provide a draft mitigation and monitoring plan to the Corps for review. Mitigation activities shall be completed within one (1) year of Corps approval of said plan.
USACE	2003-6823	Island Gardens Marina	Commercial Dock	25°47'9.3" -80°10'40.32"	Palm Beach	Revised condition: All placement of fill and artificial reef material shall be accomplished during daylight hours only. Work is authorized on weekdays, weekends, and holidays.
USACE	1991-50075	Pescaderia Rosas	Commercial Dock	18º05'12", -67º11'14"	PR	The permittee shall install navigational aids and mooring buoys in the locations depicted in the enclosed drawings to avoid and minimize impacts to seagrass beds and coral reefs from propellers and to prevent anchor damage in to fishery habitats. The installation of such buoys shall be completed within 120 days from commencement of the construction activities
USACE	2002-5344	Sussman	Commercial Dock	N/A	PR	Prior to commencement of dock construction activities, all anchorage location areas and spud barge locations shall be surveyed as to ensure that there would be no impacts to coral communities or seagrass beds.
USACE	2002-5344	Sussman	Commercial Dock	N/A	PR	Navigation route to access the project site, anchorage areas, and pilings location shall be clearly marked with buoys and shall be restricted to areas devoid of corals and seagrasses. A plan view drawing depicting the location of corals and seagrasses with respect to these areas shall be submitted to this office for our approval prior to the commencement of the construction activities.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1998-6059	Virgin Islands Port Authority	Commercial Dock	N/A	VI	All corals within the impact footprint of the pilings shall be relocated to the recipient areas immediately to the north and south of the existing pier. The transplantation shall be completed prior to commencement of the proposed project. The coral transplantation shall be initiated as follows: a. Divers shall move those corals and sessile invertebrates small enough to be carried by hand to the mitigation area. The organisms shall be placed in underwater bins during transport. B. After removing those organisms not attached to a substrate, the applicant shall transplant those organisms attached to hard substrate. The organisms shall be removed with chisels. C. Holes shall be drilled into the base of the corals and pins inserted in order to attach them to the recipient sit substrate at predrilled locations. D. All corals and hard substrate removed from the piling impact footprint shall be fixed in place at the recipient site with Portland Cement/plaster mixture. Sponges shall be attached with wires, strings, or cable ties.
USACE	1998-6059	Virgin Islands Port Authority	Commercial Dock	N/A	VI	The applicant shall conduct a 5 year monitoring program of the coral transplantation plan. The monitoring plan shall be performed as follows: a. Ten modified meter square quadrants will be established at the recipient site. The meter square quadrants will be sampled and photographed on a weekly basis for the first two months after transplanting. After the first two months, the pins will be sampled monthly for the next 10 months. After the first year of sampling, the pins will be sampled bi-monthly for the following two years and bi-annually thereafter until the 5 yr monitoring program is complete. B. The first submitted report after the transplantation is completed shall detail the number of individual organisms and/or colonies transplanted in order to monitor the success ration during the monitoring period. The first report shall be submitted to the USACE Antilles Office within 30 days after the coral transplantation is completed. C. The applicant shall guarantee an 80% success rate to be measured by the number of surviving colonies that were originally transplanted.
USACE	1993-6325	Water Island Ferry Dock	Commercial Dock	18 19' 24". -65 57' 44"	VI	In order to minimize impacts to the coral colonies located within, and in the vicinity of, the proposed ferry dock and boat ramp locations, the applicant shall implement a Benthic Habitat Mitigation Plan. The mitigation plan shall include relocation of the coral colonies and all other sessile organisms found within the project's area of potential impacts, prior to commencement of any construction activities. The benthic organisms would be relocated to similar habitats found within a minimum of 50' outside of the construction footprint. The relocated organisms shall be monitored during construction of the ferry dock and boat ramp, and annually for a two year period.
USACE	2000-2970	Crown Bay Dock	Commercial Dock	N/A	VI	All corals and sponges located within the construction impact footprint shall be relocated within suitable areas along the western shore of Water Island prior to the commencement of the construction activities. The permittee shall notify this office the date of completion of coral transplantation works. This notification shall be made at least thirty (30) days prior to the beginning of the construction activities approved by this permit.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-2970	Crown Bay Dock	Commercial Dock	N/A	VI	A 5-year monitoring program shall be undertaken. The monitoring proposal shall be conducted in the following manner: (a) For the first two months after the transplantation is completed, the recipient areas shall be inspected every two weeks. After the first two months, inspections shall occur monthly until the end of the first year of monitoring. After the first year of monitoring, the inspections shall be conducted semi-annually until the end of the 5-year monitoring period. (b) Monitoring reports shall be submitted to the USACE every 3-months during the first two years of monitoring and annually thereafter until the 5-year monitoring program has concluded. The first report is due within 60 days after the coral transplantation is completed. (c) Corrective measures such as reattaching coral, shall be conducted at the time of the inspections, and duly noted in the monitoring reports. (d) The permittee shall achieve an 80 percent survival rate of transplanted corals by the end of the 5-year monitoring period. All reports must include an accurate estimate of the percentage of surviving corals from the total number transplanted, and explain how the estimate was derived.
USACE	2000-2970	Crown Bay Expansion	Commercial Dock	N/A	VI	All corals and sponges located within the construction impact footprint shall be relocated within suitable areas along the western shore of Water Island prior to the commencement of the construction activities. The permittee shall notify this office the date of completion of coral transplantation works. This notification shall be made at least thirty (30) days prior to the beginning of the construction activities approved by this permit.
USACE	2000-2970	Crown Bay Expansion	Commercial Dock	N/A	VI	A 5-year monitoring program shall be undertaken. The monitoring proposal shall be conducted in the following manner:(a) For the first two months after the transplantation is completed, the recipient areas shall be inspected every two weeks. After the first two months, inspections shall occur monthly until the end of the first year of monitoring. After the first year of monitoring, the inspections shall be conducted semi-annually until the end of the 5-year monitoring period. (b) Monitoring reports shall be submitted to the USACE every 3-months during the first two years of monitoring and annually thereafter until the 5-year monitoring program has concluded. The first report is due within 60 days after the coral transplantation is completed. (c) Corrective measures such as reattaching coral, shall be conducted at the time of the inspections, and duly noted in the monitoring reports. (d) The permittee shall achieve an 80 percent survival rate of transplanted corals by the end of the 5-year monitoring period. All reports must include an accurate estimate of the percentage of surviving corals from the total number transplanted, and explain how the estimate was derived.
USACE	1997-6308	Joseph Markus Trust	Commercial Dock	N/A	VI	. In order to prevent further damage to the corals due to vessel traffic, the permittee shall clearly mark and buoy the exact location of the navigation routes, including approaches to the dock and the barge landing facility. The navigation routes shall be marked prior to the commencement of the construction activities authorized by this permit. The Corps shall be notified at least 7 days prior to the commencement of the installation activities
USACE	1997-6308	Joseph Markus Trust	Commercial Dock	N/A	VI	The dock extension authorized under this permit is strictly with the purpose of preventing further damage to coral reef areas. Docking shall be restricted to boats of shallow draft and less than 40 feet in length. Boats shall be moored at the distal end of the pier to be extended. Larger vessels shall be strictly moored offshore, along the anchorage areas identified in this permit.
USACE	1997-6308	Joseph Markus Trust	Commercial Dock	N/A	VI	This permit does not authorize the use of propellers to allow the movement of barges into the landing area. Therefore, the permittee shall provide any winching mechanism, at both landward and seaward ends of the catwalks, to minimize potential impacts of propeller wash on corals. The winches shall be installed before the landing facility becomes operational

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1997-6308	Joseph Markus Trust	Commercial Dock	N/A	VI	To mitigate for the impacts, the permittee shall conduct coral remediation measures, as described in the enclosed Coral Remediation Plan, Lovango Cay. The remediation actions consist of the re-establishment of 15 Acropora cervicornis thickets in the area that have been already disturbed. The remediation shall be accomplished by means of the installation of 15 attachment bases, in which the broken and damaged corals shall be attached to. The Acropora thickets shall create approximately 30 square feet of new coral habitat. In addition, the permittee shall establish 5 additional artificial reef structures by cementing together large pieces of coral rubble into blocks large enough to withstand storms. Once the corals have been properly attached, these shall be mapped and surveyed every two weeks for a period of two months. Additional corrective actions shall be implemented as necessary. A report shall be submitted at the end of the two-month period. After the two months, the area shall be monitored on a monthly basis for the next two months and bimonthly for the remainder of the first year. At the end of the first year, the coral area shall be monitored annually for the next four years. The permittee is responsible to provide copies of the monitoring reports directly to the resource agencies (NMFS and USFWS).
USACE	1997-6308	Joseph Markus Trust	Commercial Dock	N/A	VI	Best management practices for erosion control shall be implemented and maintained at all times during construction of the facilities to prevent siltation and turbid discharges. Therefore, prior to commencement of the activity authorized by this permit, turbidity and erosion control devices shall be installed. All control devices shall be left and maintained in place until all construction activities are completed
FDEP	0229394-001-JC	Hillsboro Inlet	Dredge	26° 15'20", -80° 04' 48"	Broward	No impacts to hardbottom communities are authorized under this permit. A minimum buffer distance of 50 feet shall be maintained between dredging operations within the exterior dredge area and adjacent hardbottom communities. Unauthorized impacts to hardbottom communities shall require remediation and may be subject to further compensatory mitigation requirements. Refer to Specific Condition 13 for the hardbottom monitoring, reporting requirements.
FDEP	0229394-001-JC	Hillsboro Inlet	Dredge	26° 15'20", -80° 04' 48"	Broward	Nearshore Hardbottom Edge Monitoring. The Permittee shall survey the hardbottom edge adjacent to the exterior dredge area in association with each dredging event that entails excavation between -12 ft. and -20 ft. NGVD. The immediate pre-construction survey shall be performed within 14 days prior to construction, and the immediate post construction survey shall be performed within 7 days following completion of dredging activities. The term “hardbottom” shall include not only exposed limestone, but also benthic communities emergent from sand-covered limestone or attached to unconsolidated rubble. A diver with an attached, DGPS antenna and a digital video camera shall map and document the condition of the benthic communities along the hardbottom edge along both sides of the exterior dredge area. The divers shall visually assess the hardbottom communities for signs of physical damage due to dredging activities within the exterior dredge area. The results of these annual surveys shall be overlapped onto recent aerial photography and compared to the August 2007 baseline survey and previous annual surveys. The report, plan-view aerial maps, and digital video record of the hardbottom edges (CD or DVD format) shall be submitted to the Department within 30 days of the completion of each survey. If any impacts to hardbottom communities are discovered during these surveys, the impacts shall be reported within 48 hours of discovery to the JCP Compliance Officer, DEP Bureau of Beaches and Coastal Systems, 3900 Commonwealth Blvd, Mail Station 300, Tallahassee, FL 32399-3000 (e-mail address: JCP Compliance@dep.state.fl.us).
USACE	2005-1613	Federeksted Pier	Dredge	17 42' 08", -64 53'03"	VI	Prior to the commencement of dredging activities, colonized rubble within the dredging footprint shall be relocated to one of the two existing transplant sites for the pier’s mitigation at Buttler’s Bay reef site, and north and south of the pier, and that monitoring of the transplant sites shall continue to determine success.

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USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee shall be responsible for ensuring that all of the employees hired for the construction of the AES Ocean Express Pipeline attend a minimum four (4) hour environmental training course provided by the permittee. The training for the offshore construction activities shall include, but not be limited to, an overview of sensitive marine resources in the project area, appropriate measures to be taken to ensure the protection of sea turtles and marine mammals during construction, turbidity monitoring requirements and procedures, and measures to be taken in the event of anticipated and unanticipated actions that could result in harm to marine resources. The training shall occur prior to any employee commencing work on the project and shall include a signed statement of completion for each employee. In addition, prior to construction, all Environmental Inspectors shall be trained in accordance with the ECMVP Appendix J: 'Environmental Training Syllabi'. The permittee shall provide the Corps documentation that each employee hired for the construction of the AES Ocean Express Pipeline has received the environmental training. Any 3rd party inspector(s) who is selected by FERC and FDEP to work on this project shall take part in the training provided for the Environmental Inspectors.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The project activities shall be conducted in strict accordance with the permit's specific conditions; project drawings; permit Attachment A: 'Florida Nearshore Installation Methods'; permit Attachment B: 'Onshore Installation Methods'; and permit Attachment C: 'Environmental Construction and Monitoring Verification Plan (ECMVP)' and associated appendices. The ECMVP appendices include: Appendix G: Marine Turbidity, Sedimentation and Reef Monitoring Plan (September 2004 – 25 pages; Appendix I: Offshore Mitigation and Restoration Plan (October 2004 – 41 pages);Appendix J: Environmental Training Syllabi (5 pages); Appendix L: Florida Nearshore Maneuvering and Anchoring Guidelines (October 2004 – 18 pages);Appendix N: Coral Relocation Plan (January 2004 – 3 pages);
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee shall agree to grant access to any member of the regulatory agencies with proper safety equipment and training including: U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (USEPA), Florida FDEP of Environmental Protection (FDEP) and their compliance agents; Florida Fish & Wildlife Conservation Commission (FFWCC), and the Broward County Environmental Protection Department (BCEPD), for purposes of monitoring and compliance inspections with a minimum 1 hour notice to the AES Project Manager or his/her designee. The permittee shall make safety training available to any member as necessary to come on site during construction. Should it be necessary, the permittee shall provide transportation to and from the project sites for each the following: A post-relocation/pre-construction compliance inspection of any coral removal areas, if needed
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that prior to the start of this project; Ocean Express will perform aquatic toxicity tests for any and all proposed chemical additives that may be used during construction operations. The permittee shall prepare a report with the results of the toxicity tests, the MSDS sheets for each proposed additive, and the proposed concentrations of the additives that will be used. The permittee shall submit the information to the "agencies" at a minimum of 90 days prior to the start date of construction for the agencies to review and approve the additives to be used.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	Ocean Express shall not use corrosion inhibitors, biocides, oxygen scavengers, or other additives that exhibit toxicity to aquatic organisms in hydrostatic test waters unless and until the testing and reporting requirements of Specific Condition # 26 above has been followed and adhered to for any hydrostatic test water additives.

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USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that prior to the start of hydrostatic testing; Ocean Express will perform aquatic toxicity tests for any and all proposed chemical additives that may be used during the hydrostatic testing of the pipeline after it has been installed into the tunnel. The permittee shall use marine organisms for toxicity tests for additives in Marine waters, not freshwater organisms. For additives to be used in freshwater environments, freshwater organisms shall be used for toxicity tests. The permittee shall prepare a report with the results of the toxicity tests, the MSDS sheets for each proposed additive, and the proposed concentrations of the additives that will be used. The permittee shall submit the information to the "agencies" a minimum of 90 days prior to the start date of hydrostatic testing for the agencies to review and approve the additives to be used.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that there shall be no discharge of any materials from the tunnel construction into waters of the United States, such as construction water (except as authorized by a NPDES permit), drilling muds, drilling fluids, drill cuttings, or soil conditioners.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees to adhere to the Spill Prevention, Control and Countermeasures (SPCC) Plan in the event of inadvertent releases of oil or hazardous substances. The SPCC is Appendix A to the Environmental Construction and Monitoring Verification Plan (ECMVP), October 2004. The permittee agrees to have available at all construction spreads adequate spill response equipment including personal protective equipment to immediately respond to and to contain any oil or hazardous material leaks or spills
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that all vessels that will be used in the construction of this project will be equipped with standard navigation aids, safety lighting and communication equipment. A Vessel Monitoring System shall be implemented to continuously monitor all construction vessel (not including monitoring vessels or service vessels operating in water depths greater than 200 feet) movements and provide electronic representation of real time position relative to reef limits, workspace, transit and vessel holding areas onboard each vessel. This system shall be GPS based and designed to confirm that vessels remain within the designated work area, transit areas or holding areas.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	a. The vessel monitoring system shall track the vessels' location using a minimum of 30-second intervals. The vessel monitoring system shall confirm that the vessels remain within the appropriate and designated work areas, transit areas, and holding areas (including the temporary construction area, the boundary of which is depicted by Drawing 1 of Appendix L of the ECMVP. Any vessel deviation from these areas shall be documented and immediately addressed. The permittee agrees that if an incident were to occur inside the Temporary Work Areas or outside of these areas, such as accidental anchor deployment, equipment falling overboard, or other activities that may damage coral reefs; the permittee shall record and document GPS coordinates at the location of the incidental occurrence.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	b. The permittee agrees to generate maps showing all of the vessel tracks on a weekly basis. A log-book containing this data shall be kept on file in the construction office at the construction site, at all times. The maps shall demonstrate that the vessels maneuvered successfully within the approved areas and should also show any vessel tracks indicating any maneuvering that may have occurred outside of the authorized areas. The permittee shall submit weekly reports describing all vessel activities and shall submit maps to the Corps depicting any vessel movements that occurred outside of the designated work area, transit areas or holding areas.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	c. The vessel track data in the log-book, mentioned above, shall be evaluated by the environmental inspector on a weekly basis. If a vessel excursion outside of the approved areas is detected, the permittee shall immediately, by telephone, notify the agencies of the event. The "agencies" shall decide upon the severity of the incident if divers shall immediately be deployed. If determined necessary by the Agencies, the permittee agrees to deploy divers, or in the event of an incident in waters beyond diving limits the permittee shall record video survey of the area where the vessel(s) maneuvered outside of the approved areas as soon as possible but in no event no later than one week after the excursion. Photo documentation shall be obtained to evaluate the coral reef habitat for any inadvertent impacts.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	d. If any unauthorized impacts have occurred, the permittee shall immediately; within a maximum of 24-hours of detection; notify by telephone, the Corps (South Permits Branch at 561/472-3519), and all "agencies". The permittee shall immediately, within a maximum of 24-hours of detection, ground-truth the deviated paths (provided that they are within safe diving limits and weather permitting) and document any impacts. The Corps (South Permits Branch) will determine appropriate recovery actions, which will include time-lag and risk assessments and mitigation efforts according to the Regulatory Mitigation Protocol for South Florida. The Corps (South Permits Branch) will determine final mitigation upon the applicants' submittal of a mitigation plan within 60 days of the impact incidence. The compensatory mitigation may be in the form of tire removal; however, the Corps reserves the right to accept the most appropriate form of mitigation for the type of unauthorized impact that may have occurred, so that the damaged resources will be fully compensated. The Corps (South Permits Branch), will coordinate this plan with "agencies", and will submit comments to the permittee within 30-days from submittal.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees to position Beacon transponders on the anchors deployed within 100 feet of any existing telecommunications cables to record for any anchor movement or drag. Upon detection of any anchor movement, tension on the anchor line to that anchor will be reduced as necessary to stop the anchor movement. In addition, upon detection of anchor movement, Ocean Express shall dispatch divers and/or ROV to investigate whether any impacts to resources has occurred, and determine what actions are necessary to avoid additional anchor movement (including possible resetting or replacement of the anchor). If impacts from anchor movement (or communication cable movement caused by anchor movement) are discovered, appropriate reports shall be made to the regulatory agencies as required by the ECMVP. Also refer to specific conditions 66 and 67.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	This permit does not authorize anchor placement in coral reefs or on hardbottom areas off of Broward County. All anchors shall be placed in complete sand bottom and shall completely avoid coral and hardbottom habitat. Anchor placements are to occur in designated Temporary Work Areas, which have been identified in the application as sandy areas.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that at all times while anchoring off of Broward County all anchoring lines shall have mid-line buoys and positively floating buoyant anchoring lines. This permit does not authorize impacts to the coral reefs as a result of anchoring. The permittee shall ensure that there are no impacts to the coral reef system as a result of anchoring. Anchor sweep is prohibited which may cause impacts directly to the coral reef system or indirectly as a result of turbidity or sedimentation.
USACE	2001-6555	AES Ocean Express Pipeline	Energy and Utility	26° 01' 29.06", -80o 05' 04.57"	Broward	The permittee agrees that there shall be no impacts to the two areas designated as Exclusion Zones for any reason. There shall be no anchoring, no anchor sweep, no turbidity or sedimentation impacts, (note that the easternmost exclusion zone is within the sedimentation/Turbidity impact polygon. Impacts are not anticipated in this area. However, they will be included in the impact table in Appendix I, Offshore Mitigation and Restoration Plan, to the ECMVP with a note that it is included because Ocean Express did not re-run their Turbidity/sedimentation modeling for the Micro-tunnel exit since no plume is expected.), no pipeline installation impacts etc., to these resources classified as high to medium density biota. If in the event that unanticipated inadvertent impacts occur to these resources, appropriate mitigation shall be assessed by the Corps. Also see specific condition #66 and 67.
USACE	2007-5383	FL Keys Hydro Power	Energy and Utility	24.654072, -81.288772	Monroe	The Permittee shall hand-locate the 9-inch diameter pylon and two U-bolt moorings in an area devoid of seagrass, hard bottom, or coral resources.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2007-5383	FL Keys Hydro Power	Energy and Utility	24.654072, -81.288772	Monroe	The Permittee agrees to obtain a NOAA permit from the Florida Keys National Marine Sanctuary, pursuant to 15 CFR §922.49, prior to construction. The Permittee agrees and understands that noncompliance with a FKNMS permit constitutes con-compliance with a Corps permit. The Permittee is required to provide the NOAA permit to the Corps prior to project commencement.
USACE	2007-5383	FL Keys Hydro Power	Energy and Utility	24.654072, -81.288772	Monroe	There shall be no impacts to the existing corals or hardbottom as a result of this project. No impacts shall occur as a result of construction operations, such as, but not limited to, propeller scouring, cable placement, cable drag and vessel or barge anchoring, grounding or spudding. The Permittee agrees and understands that the Permittee is responsible for any unauthorized impacts. For any impacts caused by the construction operation, the Corps may require restoration and mitigation.
USACE	2003-3499	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	The permittee will provide pre-and post-lay construction surveys of the cable corridor to the three nautical mile limit· in video and report formats to the Corps. Within 30 days of permit issuance, the Permittee will provide the Corps with a copy of the pre-construction video and report and after initial assessment and remediation; the Permittee will provide the Corps with a copy of the post-construction video. and report. The information should be submitted to the addresses identified in special condition number 1 above.
USACE	2003-3499	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Inspection of the of the CFX-l cable is required over nearshore hardbottom reef systems to determine whether any scleractinian colonies have been dislodged or damaged due to the cable installation and should be included in the reports mentioned above. Inspection should be conducted within 30 days of completion and in a manner as to not impede upon any further coral damage. Those corals that have become dislodged or are in need or serious repair should be identified and relocated as close to their original location as possible while maintaining a distance of no less than 5 feet from the either side of the cable.
USACE	2003-3499	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Monitoring intervals should begin six months after the repair and relocation of corals and continue on an annual basis for not less than five years. Monitoring will be performed six months after the detailed assessment survey (baseline survey) and one, two, and five years after that initial assessment and repair. Monitoring will terminate after the five-year monitoring period, if the applicant can demonstrate that the success rate of the coral re-attachment program is consistent and predicable and that such additional monitoring is unnecessary as additional confirmation. The initial assessment and remediation report, along with the subsequent monitoring reports shall be submitted to the addresses in special condition number I above. Remediation and relocation plans must first be reviewed by the Corps and NMFS prior to initiation of any remediation activities. Should significant movement of the cable occur, the permittee shall take corrective measures, such as anchoring the cable in place.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-3499	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Within 90 days of completion of .the cable lay project, the permittee shall file with the Corps, NMFS, and South Atlantic Fishery Management Council (SAFMC), 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405, a post-installation video survey and report for corals occurring along the cable route between 3 nautical miles and the Exclusive Economic Zone (approximately 30 nautical miles from shore at this location) This survey route is shown in 2 sheets labeled as Attachment A. The report shall use the survey methodology of Messing, C .·G. , Walker, B.K., Dodge R.E., and Reed, J. 2006. Calypso U.S. Pipeline LLC, Mile Post (MP) 31 - MP 0 Deepwater Marine Benthic Video Survey - Final Report Submitted to Calypso U.S. Pipeline, LLC, dated August 1, 2006, which is incorporated herein by reference. The video survey report shall. include but not be limited to mapping all locations. along the cable centerline that have a high probability of being hardbottom habitat. Survey methodology and results shall be reviewed by a recognized expert on deepwater coral habitats. Results of the survey shall be submitted for approval to the Corps, NMFS, and SAFMC along with recommendations for minimizing the cumulative impacts of cables and pipelines that currently or have the potential to cross the area SAFMC proposes as a Habitat Area of Particular Concern for deepwater corals. The expert on deepwater coral chosen to guide the work shall be selected in consultation with NMFS.
USACE	2003-3499	CFX Cable Mod 1	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	The proposed modification is to extend the time in which the Permittee shall file a post-installation video survey and report for corals occurring along the cable route between 3 nautical miles and the Exclusive Economic Zone. The modification must be completed in accordance with the one corrected special condition, which is incorporated in, and made a part of the permit. Within 160 days of completion of the cable lay project, the permittee shall file with the Corps, NMFS, and South Atlantic Fishery Management Council (SAFMC), 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405, a post-installation video survey and report for corals occurring along the cable route between 3 nautical miles and the Exclusive Economic Zone (approximately 30 nautical miles from shore at this location). This survey route is .shown in 2 sheets labeled as Attachment A.
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	All watercraft vessels shall operate in sufficient water depths to preclude bottom scouring, prop dredging, and destruction of seagrasses. The permittee agrees that the drilling platform, work barges, and other associated vessels shall only be moved or re-located during daylight hours.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	SPUD PLACEMENT PROCEDURES (a.) The permittee agrees to lower each of the three (3) feet (spuds) of the "lift" vessel to the seafloor and to only position them in areas of sand bottom. Depending upon weather conditions, the precision of spud placement may vary in any direction from the proposed GPS recorded location therefore; the permittee is responsible for any impacts to high ecological value resources that may occur from mis-guiding the spuds of the jackup vessel. (b.) Each time the "lift" vessel is assembled and the spuds are lowered to the seafloor or to the bottom of the lift an underwater camera and/or a scuba diver, that is trained in the identification of all corals and marine communities, shall be used to ensure that the placement of each spud will avoid contact with corals and/or live/hardbottom and shall only be positioned in sand bottom. (c.) After placement of the spuds of the "lift" vessel, they shall be photo-documented with the date, depth, geographic location, and time of day super-imposed on the photograph. After drilling is complete, the spuds will be raised and the permittee agrees to deploy a diver to inspect the area (post-construction survey) under the "lift" vessel. The diver shall photo-document the area under the "lift" vessel, with the date, depth, geographic location, and time of day super-imposed on the photograph, to verify that no impacts to corals and/or live/hardbottom and marine communities had occurred. No impacts to sensitive resources are authorized by this permit activity, for the above-mentioned boreholes. (d.) If impacts to corals and/or live/hardbottom and marine communities do occur from the spuds, a diver will be deployed immediately after inspection to perform triage measures and to reattach coral communities. The damaged areas shall be flagged, GPS identified, the depth and time shall be recorded, and photos of the triage procedures shall be documented. A qualified diver with a minimum of a Master's Degree and prior experience in coral triage shall be used. (e.) The permittee agrees to adhere to the following conditions for bore holes and the 1 core boring location that are located in water depths beyond safe diver limits: 1.) Each time the "lift" vessel is assembled and the spuds are lowered, an underwater camera shall be used to record and document activities while the spuds are being lowered to the seafloor to capture pre-construction conditions. After placement of the spuds the permittee shall demonstrate that there are no impacts to high ecological value resources by photo or video documenting the spuds in their position on the seafloor. 2.) Once the spuds are removed from a specific bore hole or core boring site, to demonstrate that impacts to coral/live bottom/hardbottom did not occur by spud placement, photo or video documentation shall be recorded with the date, depth, geographic location, and time of day super-imposed on the photograph or video. The photos shall match pre-construction conditions recorded prior to spud placement. 3.) If impacts to corals and/or live/hardbottom and marine communities occur from the spuds, The impact areas must be flagged, GPS identified, the depth and time shall be recorded, and photos of the triage procedures shall be documented. The extent of the impact area must be measured to document these inadvertent impacts. Triage measures shall be performed to reattach coral communities. If impacts still occur after the above-mentioned measures, the permittee agrees to develop a mitigation plan and submit it to the Corps for review and approval. All pre, during, and post drilling documentation must be submitted in the form of video and report and shall be submitted to the Department of the Army within 30 days after completion of the project. The report shall include two stages; preconstruction conditions/initial set-up, and post-construction conditions (maximum of 7 days after the spuds are removed from each bore site). Photos of each bore location and 1 core boring\ location, and detailed quantitative and qualitative data at the two stages shall be submitted for each bore site. The report shall be submitted to the U.S. Army Corps of Engineers, South Permits Branch, 4400 PGA Boulevard, Suite 500, Palm Beach Gardens, 'Florida 33410, and a copy of the report shall be submitted to the U.S. Army Corps of Engineers, Regulatory Division, Enforcement Branch, Attention: Lisa Abernathy, Post Office Box 4970, Jacksonville, Florida 32232-0019, fax 904-232- 1684, telephone 904-232-3526.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	CORAL RELOCATION The permittee agrees that if corals are found at the proposed bore hole sites during construction, all construction activities will be ceased, or the permittee shall immediately relocate the proposed bore location to an area devoid of all resources (e.g. barren sand bottom). If the permittee cannot relocate the borehole then the permittee shall immediately contact the Corps to discuss relocation of the corals. The permittee agrees to adhere to the following procedures: a. The permittee agrees to minimize impacts to marine resources (corals, rock rubble, corals attached to hard substrate) by relocating corals and/or rock rubble that supports living hard coral colonies and corals that may be attached to solid substrate which are 15 cm2 or greater at 5 borehole locations as follows: DB2, DB3, DB13, DB14, and DBIS. The permittee shall immediately develop and submit a coral relocation plan to the Corps for review and approval within 10-days of submittal. The permittee shall submit maps superimposed on Lidar Airborne Depth Survey data maps depicting the proposed coral relocation areas. Once the Corps has approved the coral relocation plan (if needed) work may recommence. b. If coral relocation is necessary then corals and/or rock rubble shall be relocated outside of the geotechnical boring impact area. To avoid the need to move organisms twice, transplantation shall be conducted such that organisms are moved outside of the anticipated pipeline construction impact areas and outside of any anticipated impact areas that may be proposed within Palm Beach County. c. The permittee shall develop and submit a monitoring plan for the relocated corals. At each monitoring event a representative number of treatment (minimum of 10% of those relocated colonies) and control colonies (at least 25% of the number of treatment corals observed) shall be observed for coral relocation success. All colonies monitored shall be tagged. All tags used shall consist of non-corrosive materials and shall be maintained for the extent of the monitoring period. The treatment colonies monitored shall be chosen at random (consistent with the above requirements) at each monitoring event. A subset of corals shall be selected, the same colonies shall not be used repeatedly over the course of the monitoring, although they may be monitored more than once if random sampling results in such a situation. The colonies shall include a representative of all of the species transplanted in an approximate proportion that represents the relative abundance of the transplanted population. The population of control colonies shall be randomly selected initially and have the same relative composition as the treatment colonies. In addition, a second select group of colonies shall be used through out the extent of the monitoring period (same selected corals) to track coral relocation success. This subset shall be selected, and monitored continually throughout the Schedule of Monitoring Events to document growth rates of the relocated corals for comparison to controls. The number of colonies in this subset shall be proposed by the permittee after the total number of relocated corals is known. The number shall be approved by the Corps before monitoring begins. All tags used for coral tagging shall consist of non-corrosive materials. Some specific information from both types of monitoring of the coral colonies shall be documented, but not limited" to the following: % colony mortality occurrence of disease occurrence/extent of bleaching (% of colony bleached) infestation by boring sponges macro-algal overgrowth of colony maximum plan view dimension and dimension perpendicular to that maximum dimension Plan view photos of each colony with a scale bar included in the photo Reports should be submitted digitally on CD with scale references on all images in addition to hardcopy reports. All reports shall be submitted to U.S. Army Corps of Engineers, South Permits Branch, 4400 PGA Boulevard, Suite 500, Palm Beach Gardens, Florida 33410, and a copy of the report shall be submitted to the U.S. Army Corps of Engineers, Regulatory Division, Enforcement Branch, Attention: Lisa Abernathy, Post Office Box 4970, Jacksonville, Florida 32232-0019, fax 904-232-1684, telephone 904-232-3526.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	RELOCATED CORAL SUCCESS If coral relocation is needed during the project activities, the permittee shall agree to coral relocation success criteria. At a minimum, the relocated corals shall maintain an 80% survival rate after 6 months from the initial relocation date. There after, the relocated corals shall maintain that 80% survival throughout the life of the monitoring program. Should the Corps determine that the relocated corals are not achieving this criteria, additional mitigation and/or coral relocation will be required as deemed appropriate through a modification. The permittee agrees to prepare a report that hypothesizes in detail possible reasons for not reaching an 80% survival rate. The permittee agrees to submit a report within 30 days after each monitoring event to document the status of the relocated corals
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	NOTIFICATION OF INJURY TO NATURAL RESOURCES The permittee shall immediately notify the Corps (South Permits Branch at 561/472-3519), by telephone, within a maximum of 24-hours of an unanticipated impact and submit a preliminary written report, within one week of investigation of the incident, in the event of damage to natural resources. The permittee shall document any impacts or accidents that have occurred to wetlands, seagrass, coral and/or hardbottom resources. The permittee shall initiate within 24 hours of any incident (weather permitting), the immediate triage, recovery, stabilization, and restoration of any injury to natural resources in the event of unforeseen accidents from any construction activities, such as material transfer, vessel groundings, spud mis-placement, etc. A preliminary injury assessment shall be submitted to the Corps (South Permits Branch), within one week of the incident. The Corps (South Permits Branch) will determine appropriate recovery actions. A total project injury assessment shall be submitted within the post-construction report, which shall be submitted 90 days post-construction.
USACE	2002-4918	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	MITIGATION OF INADVERTENT IMPACTS During any and all construction activities, the permittee shall avoid injury to all mangrove wetland habitat, freshwater wetland habitat, and submerged aquatic habitats within the project footprint and vicinity of the project. Unavoidable impacts shall require restoration and mitigation. Mitigation ratios shall be determined based on UMAM analysis. In the case of inadvertent or unauthorized impacts, the permittee shall submit a mitigation plan to the Corps (South Permits Branch), which will include compensatory mitigation that will account for time lag and risk assessments. The Corps (South Permits Branch), will coordinate this plan with NMFS, FWS, and EPA, and will submit comments to the permittee within 30-days from submittal by the permittee.
FDEP	50-0164707-006	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Prior to the commencement of the project, the permittee shall conduct a pre-lay diver survey marking the sensitive portions of the proposed corridor and hardbottom areas within 100 ft. of the proposed corridor. Prior to the cable installation, the least impactive route through the "North Gap" shall be confirmed and marked with a series of surface buoys to clearly identify the proposed cable route to the cable laying vessel and to avoid impacts to adjacent reef communities.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	50-0164707-006	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	The permittee shall implement the following Best Management Practices (BMPs) to minimize the potential for adverse environmental impacts during the cable installation: A. Cable shall be laid during sea and wind conditions that permit the cable-laying vessels to maximize position and speed control. B. All watercraft associated with the cable installation shall only operate within waters of sufficient depth so as to preclude bottom scouring, prop dredging, or damage to coral reef and live bottom communities. C. After the ship has laid the cable through the reef, divers will swim the cable route with video from the end of the conduit, through the reef gap, to ensure that the cable is laying on the bottom and no suspensions exist. Any minor suspensions will be removed by hand. If the divers discover more severe suspensions, the cable ship will evaluate recovering the cable, clear the suspension, and re-lay the cable. The video shall be submitted with the baseline survey described in Specific Condition 16. D. The permittee shall ensure that vessels associated with the cable project are not anchored on hard bottom and that divers will visually inspect the bottom before anchoring. Immediately prior to cable installation, the north and south boundaries of the North Gap will be marked with a series of surface buoys along the reef edge (from west to east) to clearly identify the proposed cable route to the cable laying vessels and avoid impacts to adjacent reef communities.
FDEP	50-0164707-006	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Within 24 hours of completion of the cable lay, divers trained in the identification of corals and coral communities, will conduct a post-lay inspection. This inspection can be conducted in conjunction with the inspection in Specific Condition (I I C), or can be conducted separately. A post-lay survey video of the cable through the "North Gap" will be performed in conjunction with this inspection to video graphically document any impacts that occurred from the installation of the cable. If damage to coral communities does occur from the cable lay or associated vessels, divers will immediately flag, take GPS coordinates, and log the depth and date of the impacts. The permittee shall contact the FDEP immediately after the post-lay inspection at 561/681-6643 to report the initial findings (i.e. if the cable was laid properly, were there any impacts.) Damage to coral/coralline algal communities includes but is not limited to communities being toppled, soft corals being pinned under the cable, coral/coralline algal communities displaced by the installation, and/or any impacts from the cable laying vessel itself
FDEP	50-0164707-006	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	Divers trained in the reattachment/remediation of coral communities will be deployed to reattach the toppled communities with Portland cement Or epoxy, free soft corals/coralline algae pinned under the cable, and/or adjust the cable, if possible, from any stony coral/coralline algal colonies that are directly impacted or displaced. Repairs to live bottom communities may include, but are not limited to, turning upright large boulders that have been knocked over, replacing small boulder communities to their original location if they were moved, cementing pieces of coral reef that were severed back to their original location, cementing soft corals, sponges, and coralline algae back into place provided they still maintain their structure, contain a holdfast and it is determined by the diver trained in reattachment that there is a likelihood of survival if it is reattached. Repaired communities shall be tagged and photo documented for future monitoring. All repairs shall be completed within one (1) week of the post-lay inspection and initial video.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	50-0164707-006	CFX Cable	Energy and Utility	26°23.0904, -80°03.5567	Palm Beach	The permittee shall perform all monitoring and restoration activities in accordance with the attached plans (Remediation and Monitoring Plan). Within 30 days after installation of the cable over hard bottom, the permittee shall provide the Department with the post-lay report (baseline survey) with photographs and an "as laid" video of the cable on the ocean floor over the inshore patch reef to assess if any damage was caused to the hardbottom and reef areas where the cable is laid upon the bottom. This information shall include but is not limited to the aerial extent and depths of the impacts; community types and species damaged; aerial extent, community type and species of repaired communities with GPS coordinates; and aerial extent, community type and species not able to be repaired. The following parameters will be used during this video assessment: 1. The video camera will be on wide-angle mode, and the distance from the seafloor cable to the video camera will be 40 to 50 cm. 2. The camera will be .at perpendicular (straight down), relative to the seafloor-cable. 3. The video will be taken at a swim speed that allows for clear images (approximately 12-ft. to 15-ft. per minute). 4. If specific impacts are encountered, the camera operator will halt the survey and take panoramic as well as close up views of the injuries.
FDEP	50-0l38662-004	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	The permittee shall maintain a 600-foot buffer from any submerged natural resources, including but not limited to hard bottom habitat, soft coral habitat, and worm-rock reef habitat during the use of sand displacement techniques including but not limited to: a) on board vessel prop deflectors and b) handheld prop wash devices (i.e. underwater scooters and similar underwater propulsion devices). The permittee shall notify the Department in writing should potential excavation sites be located in or near reef or live bottom communities. No impacts to any submerged natural resources are authorized by this permit.
FDEP	50-0l38662-004	Seafarer Pipeline	Energy and Utility	26° 45 ' 56.30", -80° 02' 58.76"	Palm Beach	All watercraft associated with the proposed activities shall only operate in waters of sufficient depth so as to preclude bottom scouring, prop dredging, or damage to adjacent submerged resources.
USACE	2000-2344	Telecommunications Ultramarinas de Puerto Rico	Energy and Utility	18°26'61", - 66°01'28"	PR	This permit does not authorize the removal to any corals fixed to the bottom substrate. If coral damage does occur, the permittee shall immediately implement the remediation and mitigation measures as detailed in the enclosed document entitled "Arcos-1 Marine Fiber Optic Cable Installation, Isla Verde, North Coast of Puerto Rico, Telecommunications Ultramarinas de Puerto Rico, Inc: Mitigation Measures".
USACE	2000-2344	Telecommunications Ultramarinas de Puerto Rico	Energy and Utility	18°26'61", - 66°01'28"	PR	This permit does not authorize plowing into the sea-floor nor authorizes jet-burying in areas where corals, seagrasses, sponges, or other important fish habitats may be found. Jet-burying methodology shall be restricted to barren sand areas, near the shoreline, and downstream of Punta El Medio reef. This permit does not authorize the discharge of fill material or the construction of temporary structures.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	Jet burial of the cable shall not be used at any time during deployment activities.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The cable-laying vessel shall stay away from sensitive areas.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	Cable deployment shall not take place during high swells or unfavorable weather conditions, including highest peak of hurricane season (mid September to mid October), during severe currents, when increased damage to corals would be expected to occur. The installation activities shall immediately cease should inclement weather or unexpected severe currents arise during deployment.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	. Large cable laying vessels shall remain offshore during the deployment of the cable. Only small boats shall be used for nearshore maneuvers during cable deployment
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	Anchoring of work vessels, if necessary, shall be permitted only in areas where such anchoring is deemed unlikely to damage resources and only through one of the following methods: (1) placing an anchor in sandy bottom; (2) attaching a U-bolt to hard bottom in a way that avoids impact to coralline communities to avoid the necessity to drop an anchor there; or (3) using a diver, a lift bag with a floating line to carefully place (not drop) an anchor in a hard bottom hole or ledge and to remove that anchor, where that can be accomplished without impacting coral communities and without breaking, upending or otherwise damaging those hard bottom structures.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	To the maximum extent practicable, the cable route shall not contain segments of suspended cable so that swinging of the cable during storm and heavy wave and current conditions, which cause cutting and abrasion of corals, sponges, and other benthic organisms, will be minimized.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The permittee shall provide a Biological Monitoring Team (BMT) in order to guide cable deployment away from the sensitive areas. The cable route shall be designed to avoid and minimize coral and other benthic organisms to the maximum extent practicable. In that regard, prior to the installation activities, the BMT shall assess and mark a corridor located from water depths of approximately 20 ft to water depths approximately 60 ft. Said corridor contains algal plains and scattered coral and other large benthic sessile epifauna such as sponges. Along the above-described corridor, the BMT shall mark the approved route on the seabed by divers, by means of the installation of small anchors and buoys prior to any cable laying operations. A weighted/leaded line or a string secured with masonry nails shall be driven to the substrate to mark the proposed route to avoid or minimize adverse impact to corals and other large benthic epifauna to the greatest extent practicable. The cable shall be floated over the proposed nearshore route and held into position by cable stoppers. When deployed to the seafloor, the BMT shall ensure that the cable is installed as close as to the major extent practicable to the pre-marked route. The BMT will photograph the route marking procedure and the cable in reference to the mark after deployment and include the documentation as part of the initial post-deployment monitoring report. The mark line shall be removed immediately after the area has been well documented and installation activities have been concluded.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	Further, prior to the installation activities, the BMT shall assess the area in order to assure that the cable location is devoid of coral colonies of Acropora palmata and Acropora cervicornis. If during such assessment, the BMT discovers the presence of such species, divers shall ensure that the cable avoids such Acropora colonies. Cable segments in proximity to A. palmata or A. cervicornis colonies shall maintain sufficient separation from the colonies and shall be securely affixed to the marine bottom to avoid and prevent that unexpected cable movement could cause any potential damage to said federally threatened species
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The anchorage areas shall be monitored immediately following the completion of the installation activities

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The permittee shall perform a characterization of the seabed in waters depths less than 60ft, along the previously identified corridor. The cable shall be moved off corals and sponges and any fragmented or dislodged corals shall be reattached to the substrate. Organisms that cannot be avoided by the cable alignment shall be relocated to areas adjoining the project corridor to the extent feasible, unless the BMT determines that such relocation is likely to cause increased damage to resources. Organisms to be relocated must be photographed prior and after relocation, and said photographs shall be submitted to the Corps as part of the corresponding monitoring reports. The biological monitor shall have the necessary coral reattachment material and equipment on hand (rebars, drills, steel brush, marine epoxy, hydro cement, etc.) to fix any corals which may become detached from the bottom during repair activities.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	A three-year monitoring program shall be implemented to assess the impacts of the cable on benthic organisms. As part of this program, four monitoring surveys shall be conducted as follows: immediately after cable installation and yearly thereafter. Monitoring reports shall be submitted to the Corps, within 30 days from the date of each monitoring event.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The cable shall be securely anchored to substrate along the corridor described in Condition 8. Any corals fragmented or dislodged by the repair process shall be reattached to the substrate. Should the above-requested monitoring reports reveal that the selected cable anchoring is not preventing lateral movement and/or damages to corals, an alternative anchor system shall be employed.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The enclosed mitigation and restoration plan shall be executed (with prior approval from the Corps) should damage to benthic communities resulting from cable installation be observed or where monitoring reveals that natural recovery of the communities is not occurring.
USACE	2000-159	TI Wholesale	Energy and Utility	18° 26' 36", -66° 01' 17"	PR	The permittee shall be responsible for compensating any impacts within other existing submarine cable corridors, which could potentially result from the cable installation activities and any other movement related to any future cable damage incident associated with this specific cable.
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	Jet burial of the cable shall not be used at any time during deployment activities
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	The cable-laying vessel shall stay away from sensitive areas
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	The cable shall be floated with buoys until ashore avoiding plowing into the seafloor. Once the cable has reached its connection point, buoys shall be sequentially cut-off
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	The permittee shall provide a biological team in order to guide cable deployment away from the sensitive areas. The route shall be chosen as to avoid impacts to any sensitive marine ecosystem. The biological team will free any pinched gorgonian found under the cable by releasing the soft coral back into the water column. As a contingency mitigation, the biological team will restore any hard coral or soft coral to the maximum extent possible. Any stranded, dislodged, fractured or split coral would be replanted, transplanted, repaired and fixed back to the bottom.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	In order to assess potential direct and permanent impacts over sensitive marine ecosystems that would result from the placement of the submarine fiber optic cable, the permittee shall implement a one-year monitoring program immediately after the cable is being laid. The surrounding sensitive marine ecosystems shall be monitored on a quarterly basis. Monitoring reports shall be submitted to this office by the end of each quarter. If at the end of the monitoring program the Corps finds the presence of severe impacts over sensitive areas, a mitigation plan shall be developed by the permittee and submitted to the Corps for its approval. In such case, the permittee would be required to implement a 5-year monitoring program, as stipulated in the enclosed mitigation plan (Attachment 4).
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	The permittee shall be responsible for compensating any impacts within the existing ARCOS cable corridor that could potentially result from unanticipated cable movement.
USACE	2003-12401	Sint Marteen Cable	Energy and Utility	N/A	PR	Installation activities are not authorized during high swells or unfavorable weather conditions
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	Large cable laying vessels shall remain offshore during the deployment of the cable. Only small boats shall be used for nearshore maneuvers during cable deployment.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	Anchoring of work-vessels for the installation of the cable shall be conducted only on sandy bottom areas, avoiding coral communities or hard bottom areas.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	Installation of the cable shall not take place during high swells or unfavorable weather conditions, including severe currents, when increased damage to corals would be expected to occur. Cable deployment activities shall cease should inclement weather or unexpected severe currents arise during deployment.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	Cable deployment shall be conducted with the assistance of divers, including a biological monitoring team, whom would assist in the lowering and final positioning of the cable in shallow sensitive areas to avoid and minimize impacts to sessile organisms. Cable laying activities shall be recorded using a video camera by the monitoring team.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	The cable shall be moved off corals and sponges and any fragmented or dislodged corals shall be reattached to the substrate. Organisms that cannot be avoided by the cable alignment shall be relocated to areas adjoining the project corridor. Organisms to be relocated must be photographed prior and after relocation, and said photographs shall be submitted to the Corps as part of the corresponding monitoring reports.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	This permit does not authorize impacts to coral colonies of Acropora palmata and Acropora cervicornis. During the laying of the cable, the monitoring team of divers shall ensure that the cable avoids any colonies of Acropora palmata and Acropora cervicornis. Cable segments in proximity to Acropora palmata or Acropora cervicornis colonies shall maintain sufficient separation from the colonies and shall be securely affixed to the marine bottom to avoid and prevent that unexpected cable movement could cause any potential damage to said federally threatened species.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	A five year monitoring program shall be implemented to assess the impacts of the cable on benthic organisms. As part of this program, eight monitoring surveys shall be conducted as follows: immediately after cable deployment; every six months during the first and second year from cable deployment; and at the end of the third, fourth and fifth year from cable deployment. Monitoring reports shall be submitted to the Corps, within 30 days from the date of each monitoring event.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	The monitoring surveys shall be conducted along the cable route from the cable duct entry point near the shore to a depth of 100 ft. The surveys shall also include monitoring of at least fifty 10m x 2m randomly established transects along a five kilometer section of the cable route, which crosses the spur and groove coral reef system located east of Culebra. The surveys shall be conducted either by Remote Operated Vehicle (ROV) or divers.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	In nearshore areas with colonized hardbottom, reefs, or corals, articulated pipe and/or U-bolt anchors shall be used to affix the cable to the marine floor, to reduce the potential of lateral movement and prevent impacts to benthic organisms. Should the above monitoring reveal that the cable anchoring is not preventing damage to corals, an alternative anchor system shall be employed.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	In nearshore areas with colonized hardbottom, reefs, or corals, articulated pipe and/or U-bolt anchors shall be used to affix the cable to the marine floor, to reduce the potential of lateral movement and prevent impacts to benthic organisms. Should the above monitoring reveal that the cable anchoring is not preventing damage to corals, an alternative anchor system shall be employed.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	A detailed mitigation and restoration plan shall be developed by the permittee in coordination with the Corps and the National Marine Fisheries Service, and implemented by the permittee after Corps' approval, should damage to benthic communities resulting from cable installation be observed or where monitoring reveals that natural recovery of damaged areas is not occurring.
USACE	2005-5856	Global Caribbean Network	Energy and Utility	18°28'41", -66°00'41"	PR and VI	The permittee shall be responsible for compensating any impacts within other existing submarine cable corridors, which could potentially result from the installation or unanticipated movement of the cable
USACE	2005-5856	Global Caribbean Network Non-Compliance	Energy and Utility	18°28'41", -66°00'41"	PR and VI	see attached letter for violations of special conditions
USACE	2002-5874	USVI Power	Energy and Utility	18o 19' 68" , -64o 50' 83"	VI	Prior to the installation of the cable, the permittee shall provide a biological team in order to delineate and buoy sensitive areas and to ensure that the installation of the cable will not have significant impacts over those areas. The team shall mark the cable route and guide the cable installation away from the coral reefs. The route shall be chosen as to avoid impacts to any sensitive marine ecosystem.
USACE	2002-5874	USVI Power	Energy and Utility	18o 19' 68" , -64o 50' 83"	VI	In order to avoid impacts to the near shore marine environment, the construction barge shall remain 600 feet offshore the Redhook landing site and the cable shall be floated to the shoreline terminus. At the Little St. James end, the barge shall remain at a depth of greater than 60 feet and the cable would be pulled towards the landing the site
USACE	2002-5874	USVI Power	Energy and Utility	18o 19' 68" , -64o 50' 83"	VI	This action would not authorize the removal to any corals fixed to the bottom substrate. If coral damage does occur, the permittee shall immediately implement remediation and mitigation measures described in the Environmental Assessment Report
USACE	2002-5874	USVI Power	Energy and Utility	18o 19' 68" , -64o 50' 83"	VI	Installation activities are not authorized during high swells or unfavorable weather conditions that would not allow a diver to guide the cable installation as required in Condition a.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2002-5874	USVI Power	Energy and Utility	18o 19’ 68” , -64o 50’ 83”	VI	In order to assess potential direct and permanent impacts over sensitive marine ecosystems that would result from the placement of the submarine electric cable, the permittee shall implement a one-year monitoring program immediately after the cable is being laid. The surrounding sensitive marine ecosystems shall be monitored on a monthly basis. Monitoring reports shall be submitted to this office by the end of each quarter. If at the end of the monitoring program the Corps finds the presence of permanent impacts over sensitive areas, a mitigation plan shall be developed by the permittee and submitted to the Corps for its approval
USACE	1999-169	Mid Atlantic Crossing	Energy and Utility	N/A	VI	All corals within the construction impact footprint within 25 feet seaward from the shoreline shall be relocated to adjacent areas of the bay before the cable laying commences.
USACE	1999-169	Mid Atlantic Crossing	Energy and Utility	N/A	VI	The permit does not authorize the removal or impacting of fixed corals beyond the first 25-feet seaward from the shoreline.
USACE	1999-169	Mid Atlantic Crossing	Energy and Utility	N/A	VI	Photographs of the corals before transplanting and after transplantation shall be provided to the U.S. Army Corps of Engineers (USACE), Antilles Regulatory Section, within 60 days from the date the cable landing is completed
USACE	2006-1616	Miami-Dade Co seawall	Hard Stabilization	N/A	Miami-Dade	The permittee shall avoid impacts to the 10 ivory bush coral colonies in the project area by transplanting the corals to a nearby DERM approved site within Biscayne Bay. The corals shall be transplanted to either (1) existing rock piles located in the fishing insets of the Phase I seawall at Bicentennial Park or (2) the Corps approved DERM artificial reef site at Bayfront Park. Said corals shall be transplanted in accordance with the attached coral transplantation plan and associated Phase I Coral Relocation Baseline Report to the maximum extent practicable. Monitoring reports shall be submitted to the Corps Regulatory Office, Enforcement Branch, at Post Office Box 4970, Jacksonville, Florida 32232-0019 pursuant to the transplantation plan at 2 months, 6 months, and 12 months.
USACE	2004-4515	FL DOT Project	Hard Stabilization	N/A	Monroe	The permittee agrees to relocate the corals in accordance with the Florida Keys National Marine Sanctuary Coral Rescue and Relocation Protocols dated May 28, 2008
USACE	1999-5625	Peanut Island Breakwaters	Hard Stabilization	26° 46' 24.35", -80° 2' 35;95"	Palm Beach	The permittee shall have the placement area inspected by divers within two weeks prior to or at the time of deployment. No authorization is granted by this permit for the placement of limestone boulders on submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where' there are unique or unusual concentrations of bottom dwelling marine organisms.
USACE	1999-5625	Peanut Island Breakwaters	Hard Stabilization	26° 46' 24.35", -80° 2' 35;95"	Palm Beach	The permittee shall ensure that no limestone boulders are deployed that would trap marine life, and must be configured, cut or shaped, so as to not function as a fish trap. All materials must be configured and constructed to be stable, durable, and provide habitat. Also, at a minimum, no piece shall weight less than 150 pounds.
USACE	2006-6055	Miami-Dade DERM Mooring Buoys	Other	25.952222, -80.280278	Miami-Dade	The permittee shall ensure that there are no impacts to hard corals as a result of this project, mooring anchors will be placed in area devoid of live corals and sponges, where possible moorings will be placed on sandy substrate.
USACE	2007-6185	Tulco Resources	Other	26°51.621', -80°02.708'	Palm Beach	The permittee agrees that no harm, adverse or detrimental impact is authorized to any of the marine resources within the Atlantic Ocean, including but not limited to algae meadows, reefs, manatees, seagrass areas, and sea turtles or their nesting areas.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2007-6185	Tulco Resources	Other	26°51.621', -80°02.708'	Palm Beach	The permittee agrees that the treasure exploration/salvage project shall not have an adverse affect on the resources in the Atlantic Ocean. The permittee agrees to a) stop working within any subject area{s); b) assess impacts to resources; notify the DA. immediately; propose a restoration and mitigation plan to offset any impacts to resources.
USACE	2007-6185	Tulco Resources	Other	26°51.621', -80°02.708'	Palm Beach	No exploration, excavation, artifact recovery or disturbance shall occur within 600 feet of worm rock reefs, coral reefs, colonized hard bottom habitats area or any other marine resource as shown on drawings 6 and 7. of 11.
USACE	2007-6185	Tulco Resources	Other	26°51.621', -80°02.708'	Palm Beach	The applicant shall be required to report quarterly for the duration of the permit to NMFS and to the Jacksonville District the latitude/longitude locations of the exploration pits that are dug and the distance of each pit to the nearest worm-rock reef, coral reef, and hard bottom habitat. The Permittee shall reference this number, SA.J-2005-6105 (IP-TSD), on all submittals. Reports will be sent to the following addresses: a. NOAA-Habitat Conservation Division, 400 North Congress Ave., Suite 120, West Palm Beach, FL 33401 b. U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232. The Permittee shall reference this permit number, SAJ-2005-6105 (IP-TSD), on all submittals. c. Palm Beach County, Environmental Resources c/o Janet Phipps, 2300 North Road, 4th Floor, West Palm Beach, FL 33411
FDEP	0226688-001-JC	Port Everglades	Port	N/A	Broward	Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the dredge area shall be monitored during construction. Turbidity will be measured at background and compliance stations. Dredge Site Frequency: Immediately following the completion of each dredge cycle (i.e. one or more consecutive dredging passes through inlet shoal), plus once every six (6) hours if the dredge cycle exceeds six (6) hours. Location: Background: Mid-depth, at least 300 meters up current from the dredge site, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume. Weekly summaries of all turbidity monitoring data shall be submitted to the Bureau of Beaches and Coastal Systems JCP Compliance Officer and to the Southeast District Office within one week of collection, with documents containing the following information: (1) Permit Number 0226688-001 JC; (2) Port Everglades Entrance Channel Shoal Removal; (3) dates and times of sampling and analysis; (4) a statement describing the methods used in collection, handling, storage and analysis of the samples; (5) a map indicating the sampling locations, current direction, plume configuration and the location of the dredge and discharge point(s); and (6) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection 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; t) wind direction and velocity; and g) DGPS position. The compliance locations given above shall be considered the limits of the temporary Joint Coastal Permit mixing zone for turbidity allowed during construction. If monitoring reveals turbidity levels at the compliance sites are greater than 29 NTUs above the associated background turbidity levels, construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	This permit does not authorize any impacts to ecologically valuable aquatic resources, including, but not limited to, hard or soft corals, other hard bottom resources, sponge/algal/soft coral assemblages, and seagrass. Any unauthorized impacts to such aquatic resources will require restoration and mitigation. Mitigation will be quantified through the use of a functional assessment tool.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The Permittee shall submit an Emergency Spill Response Plan for all vessels operating in association with the project authorized herein, a minimum of thirty (30) days prior to the commencement of transport and disposal activities. Corps (South Permits Branch) approval of the Emergency Spill Response Plan will be required prior to commencement of any work authorized herein.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The Permittee shall submit an Operational Storm Contingency Plan that describes the actions to be taken in response to storm events (i.e. hurricanes, high-sea conditions) and/or operational failures, a minimum of thirty (30) days prior to the commencement of transport and disposal activities. Corps (South Permits Branch) approval of the Operational Storm Contingency Plan will be required prior to commencement of the activities authorized herein.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The Permittee shall prevent any physical damage to ecologically valuable benthic aquatic resources, including, but not limited to, hard or soft corals, other hard bottom resources, sponge/algal/soft coral assemblages, and seagrass by establishing ingress/egress corridors and vessel exclusion zones adjacent to and over nearshore, mid-water, and offshore marine habitats. The ingress/egress routes shall include the requirement to pass the Miami Harbor Sea Buoy (the most waterward extent of the channel offshore) within the channel, prior to traveling to the ODMDS site. The project plans and specifications shall clearly delineate the operation and exclusion zones, and the Permittee shall provide a copy to the Corps a minimum of thirty (30) days prior to commencement of transport or disposal of spoil material. All operations shall be conducted in a manner so as to eliminate the possibility of equipment dragging on the bottom, equipment hitting bottom, any material being discharged outside the authorized disposal site, and any other damage to natural resources.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The Permittee shall perform pre-project surveys which may include multi-beam bathymetry, side scan sonar, diver reconnaissance, remotely operated vehicle investigations, and photographic and video documentation, of all hardbottom areas adjacent to the ingress/egress corridors and the ODMDS site to confirm the presence or absence of deepwater aquatic resources. The assessments shall include quantitative and qualitative descriptions of benthic resources throughout the disposal route and adjacent to the disposal site. These surveys will be used by the Corps to identify whether any direct or indirect impacts of the transport and disposal project occurred. The submittal shall be referenced to corresponding GIS maps to correlate the surveys. The pre-project surveys shall be submitted to the Corps thirty (30) days prior to project commencement. The surveys shall include north south transects a minimum of every 200 feet between the sea buoy and the NW corner of the ODMDS. The surveys shall provide representative documentation at least every 200 feet along this corridor. If survey results indicate that resources may be present, more detailed investigations shall be conducted.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The Permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, number 0173770 and all applicable modifications. In the event that FDEP water quality standards are exceeded, work shall stop until the cause of the turbidity standard exceedance is corrected. The Permittee shall conduct turbidity sampling every six (6) hours during transport and disposal operations, 24 hours per day, for the duration of the project. Turbidity compliance (29 NTU limit above background) and background samples shall be collected at the DEP specified water quality background and compliance sites. If turbidity exceeds 29 NTU's above background at any time during the dredging, disposal operations, spoil transport and disposal shall cease immediately and corrective action shall be taken to address the water quality standard exceedance before dredging may again commence.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	The permittee shall ensure that precautions are taken to prevent damage from occurring to the existing reefs as a result of cable drag, equipment drag, scour wash, or other construction activities. The permittee shall prevent scouring of benthic resources during all operations. a. Any towed vessels such as barges, scows and the like, shall be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line. b. All cables must be floated in all water depths to avoid impact to submerged aquatic resources. c. All operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.
USACE	1993-1155	Port of Miami	Port	25º46'30", -80º10'	Miami-Dade	In the event that the Corps determines that additional mitigation, remediation, and/or monitoring is required, as a result of unanticipated impacts identified during monitoring or post construction surveys, the Permittee shall within thirty (30) days of Corps request, provide a draft mitigation and monitoring plan to the Corps for review. Mitigation activities shall be completed within one (1) year of Corps approval of said plan.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall conduct pre- and post construction assessments to document primary and secondary impacts of the dredging project. The assessment shall include: (a) quantitative descriptions of benthic communities in and adjacent to the dredge footprint, throughout the disposal pipeline route, and within the dredge material disposal sites; (b) descriptions of turbidity levels and sediment characteristics in the dredge footprint, disposal pipeline corridor, areas within the downstream turbidity plume, and in the area adjacent to the dredge material disposal sites; (c) quantify in an estimate (in acres or square feet), (prior to construction), potential direct and indirect impacts to Essential Fish Habitat by habitat type. This shall be done within and adjacent to the main ship channel, dredge disposal pipeline route and disposal site, and areas adjacent to the disposal site; (d) the mitigation plan shall include success criteria for evaluating the effectiveness of the proposed mitigation; (e) the monitoring plan will include both biological and physical monitoring, and specifically address coral impacts. The mitigation plan will include actions to offset the effects of sedimentation turbidity and specifically detail how the response to events will be conducted including responsibilities. Sedimentation is considered a great hazard to resources. Sedimentation monitoring will include not less than weekly monitoring of sedimentation traps at prearranged stations. More frequent monitoring may be required and thresholds to protect fragile resources will be established. All plans shall be submitted to and approved by the NOAA prior to the commencement of work.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	Prior to construction the permittee shall provide the environmental baseline condition through quantitative descriptions of benthic communities in and immediately adjacent to the dredge footprint and along the route of the pipeline prior to construction to the FKNMS. This includes the upper ledges of the channel, Cut B, Cut C and the turning basins. The permittee shall provide this characterization based on a review of videos and information gathered using diver tows. A benthic characterization of habitat within the off-shore disposal area shall be provided to NOAA prior to the start of work
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The spoil pipelines will be laid to minimize impacts. A plan shall be provided to the FKNMS detailing the placement of the pipe. Placement may include floating, supporting or bottom placement. This plan shall be submitted to and approved by the FKNMS prior to the commencement of work.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	Pre-project monitoring shall establish background baselines of turbidity levels and sedimentation in and adjacent to the dredging footprint and at the monitoring stations. The permittee shall establish a protocol to monitor the pipeline as part of a turbidity monitoring plan. The areas to be monitored include Cut C, Cut B, and the way points designated by the FKNMS.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated June 17, 2003, number 0207625-00l-EI. In the event FDEP water quality standards are exceeded work shall stop until the cause is corrected. Turbidity sampling will be conducted by the permittee every two hours during dredge excavation operation 24 hours per day for the life of the project. This sampling may be done by a government entity or an entity independent of the dredging contractor. Sampling will be done at the edge of the mixing zone, and at a background location. Where no critical resources are found down-current from the dredge within 1,500 meters, the mixing zone will be 1500 meters down-current. The mixing zone will be reduced to the distance to the edge of any identified critical resource area down-current that is contacted by any part of the turbidity plume. In areas where the mixing zone is 1,500 meters, or at the edge of the nearest identified resource area, whichever is the nearest distance, turbidity will be monitored every two hours, 24 hours each day, when the dredge is operating. If turbidity readings of 1 or more NTU above up-current background, but less than 15 NTU above up-current background are measured, then samples will be collected every 15 minutes to determine a pattern/cause. Should the three follow-on measurements be between 1 - 15 NTU above background, operations at that dredging location will cease until the turbidity measurements return to background levels down-current of the dredge operation. If any turbidity measurement, at the edge of a resource area, or 1,500 meters, whichever is closer to the dredge, is 15 NTU or more over background, operations cease immediately at that dredging location, until turbidity levels return to background..
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee will provide for pre-dredging, during dredging and post-dredging water quality monitoring focused on turbidity and sedimentation from Key West Harbor and approaches from the outer coral reef tract.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall develop an operational contingency plan that describes their response in the event of storms (e.g., hurricanes, spring storms) and operational failures (e.g., breaks in the dredge pipes, movement of dredge pipes). This plan shall be submitted to and approved by the FKNMS prior to construction.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall place the dredge material disposal pipeline in a corridor jointly agreed upon by the FKNMS and the permittee or their designee.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall, to the greatest extent practicable, place or position the dredge material disposal and upland disposal pipelines on the bottom in the ship channel, Key West Harbor and Fleming Cut in a manner that causes the least amount of benthic impact to seagrass, coral and hardbottom communities. The dredge disposal pipeline shall be placed along the West side of the dredged channel, in the footprint of the dredged channel and no less than 30 feet away from the base of the cut ledge walls where coral resources have been identified. In the event it is deemed not practicable to float or raise the pipeline in areas of seagrass beds, the permittee will consult with FKNMS to determine the alternative means to minimize impact to the seagrass communities within Man 0 War Harbor and/or Fleming Cut. In all project areas, the permittee will consult with FKNMS to determine alternative means to minimize impact to marine resources.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall conduct a stability analysis for the dredged material pipeline for its entire length. The permittee shall anchor or otherwise stabilize the dredge material pipeline consistent with this analysis and in such a manner as to ensure that the pipeline will remain stable in a 50-year storm event. A copy of the analysis shall be provided to the FKNMS. Particular attention will be given to avoid impact by tanker traffic. The permittee will keep the pipe west of the marked channel (west of channel markers)and once north of 0-3 pier, with the pipe north of the north face of pier 0-3. Close coordination with the NAS Key West Engineering Department and Harbor pilots will be conducted to insure proper placement to avoid collisions.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall use the appropriate type of anchoring methods on the dredge material pipeline to avoid impacts to sensitive resources during storm events. The permittee or their designee must consult with FKNMS regarding the anchoring methods prior to the pipeline being installed.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee or their designee shall advise others involved in the project that FKNMS is available to assist in the placement of anchors to avoid or minimize damage and injury to FKNMS resources.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall ensure that the dredge disposal management areas on Fleming Key, shall prevent runoff into the marine environment and comply with Florida Department of Environmental Protection requirements. The permittee agrees and understands that additional safeguards may be required and any impact to resources from dredge disposal management areas will require in-kind restoration.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee's turbidity controls at the Fleming Key disposal site shall include but are not limited to: an earthen berm to reduce sediment impact on adjacent marine communities (e.g. sponges, macro-algae, seagrass and hardbottom communities)
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall submit drawings to demonstrate the location and size of turbidity control devices and any other construction projects proposed at the dredge material disposal site to the FKNMS prior to their installation. The FKNMS must review and approve these drawings prior to initiation of activities at the disposal site to minimize construction operations from impacting seagrass and mangrove communities.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall notify the FKNMS a minimum of two weeks prior to the start date of disposal site fill activities.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall comply with the no impact avoidance areas (no anchor zones). identified during preconstruction assessments and identified in the attachments to the permit on pages 2 thru 5 of 12. The permittee understands and agrees that an anchoring plan is required to be submitted to and approved by the FKNMS prior to the start of work. The FKNMS may add to the list of no anchoring/avoidance areas prior to the commencement of construction.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall notify others involved in the project that the FKNMS is available to provide information regarding alternative anchoring practices, such as use of tug power or mooring pins and, how to avoid anchoring impacts. The permittee shall record, via 8-digit GPS coordinate, the location of each anchor placement and provide this data to the FKNMS for their inspection. If FKNMS staff are not available to ground-truth proposed anchor placements outside the dredged footprint; when practicable the permittee shall provide divers to place anchors prior to their installation.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall prevent scouring of benthic resources. Any tow vessels, such as barges, scows and the like, will be either lashed directly to the tow vessel, with no cable in the water, or connected to the tow vessel by floating line. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources. All dredge operations will occur in the channel, except for placement of any anchors as described in conditions 17 and 18 above.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall avoid damage to benthic resources located in the Key West Harbor and Turning Basin as delineated by the FKNMS and as found in the mitigation for this permit. The North and Northwest portions of the Key West Harbor Turning Basin shall be avoided during dredging operations. A 30-foot buffer area shall remain unimpacted to protect corals and benthic resources identified along the ledges of the original dredge footprint in this area. The permittee or their designee shall make others aware that the FKNMS is available to assist in the placement of a 30-foot buffer demarcation along these ledges.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee agrees and understands that in the area of the South and Southeast walls of Truman Harbor, where living coral and seagrass communities are found, the permittee shall avoid this area during dredging operations.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall immediately alert the FKNMS staff of any impacts or accidents that may occur. The permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to living coral in the event of unforeseen accidents, such as anchor damage, anchor cable scouring, or disposal pipeline failure. The FKNMS may participate and assist in this effort.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	In coordination with the FKNMS, the permittee shall complete at least 24 hours prior to work obviously impacting coral resources, all activities necessary to temporarily or permanently relocate these resources so that dredging activities may proceed.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall avoid injury to all federally protected species and marine communities such as corals, patch reefs, sea grasses and hard bottom habitat. Unavoidable impact shall require in-kind restoration and mitigation. Mitigation ratios shall be determined based on a Habitat Equivalency Analysis.
USACE	2003-203	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee agrees and understands that all vessels or equipment associated with dredging activities shall operate in a manner consistent with the FKNMS regulations. Additionally, the permittee shall obtain and provide to vessels masters, (and other responsible personnel), a current copy of 15 CFR §922 subpart "P". The permittee shall conduct training for all vessel operators on the provisions regarding, 15 CFR Section 922.163 including the safe Operation of Vessels and 922.164 (a) Areas To Be Avoided, prior to the start of any work. This training shall include the requirement to identify and avoid the especially shallow areas in or adjacent to Hawk Channel, Fleming Key and the main ship channel. Vessel drafts, which may impact submerged resources in shallow areas, during any phase of dredging related activities in all FKNMS waters, shall not be employed.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	No work shall be conducted under this permit for the initial or subsequent dredging events until the permittee has received a written Notice to Proceed from the Department. At least forty-five (45) days prior to issuance of the notice to proceed, the permittee shall submit the following items to be approved by the Department prior to commencement of construction: a) A biological monitoring plan developed to document direct and secondary impacts of the maintenance dredging project. The monitoring plan shall include pre-, during- and post construction assessments that contain the following elements: Quantitative and qualitative descriptions of the benthic communities in and adjacent to the dredge footprint of the channel, turning basin and the pipeline corridor. ii. Quantitative and qualitative descriptions of the benthic communities in the western Rockland Key pit disposal site and the adjacent open waters that may be subject to direct or secondary impacts of this project. lll. Quantitative and qualitative descriptions of the wetlands at and adjacent to the proposed upland containment site. This shall also include information about the wetland hydroperiod and flow patterns. iv. Transplantation and relocation protocols for any corals located within the dredge footprint greater than or equal to 25 cm in dimension. v. Background sedimentation characteristics in the dredged footprint and pipeline corridor. vi. Monitoring for sedimentation on nearby seagrass and coral communities. vii. Monitoring stations and location map. viii. Pre-, during-, and 'post construction monitoring reports. ix. Annual reporting for a period of two years after project completion. b) A restoration plan developed to address the direct and secondary impacts to the benthic communities in the Rockland Key pit This plan shall include: i) A planting plan (species, densities, and methods) to expedite seagrass recruitment. ii) Source of plant material. iii) Success criteria and success monitoring c) A mitigation plan developed to address the direct and secondary impacts to the wetlands at and adjacent to the proposed upland containment site. The mitigation shall offset the impacts at a restoration or creation ratio of between 2:1 and 5:1, depending on the functions provided by the impact site, the lift provided by the mitigation, and the length of time required to off set the impacts. This. plan shall include: i) A planting plan (species, densities, and methods). ii) Site construction plan including soils, hydroperiod and flow patterns. iii) Success criteria and success monitoring. d) An operational contingency plan that describes the contractor's response in the event of storms and operational failures (e.g. breaks in dredge pipes, movement of dredge pipes). e) Two complete sets of construction plans and specification for the proposed activity. The plans shall include the following: i) Plan views of the proposed activity depicting the mean high-water line any easement boundary, or the erosion control line, within the area of influence of the proposed activity. Identify the boundaries of significant geographical features (e.g., channels, shoals) and natural communities (e.g., submerged grass beds, hardbottom, or mangroves) within the area of influence of the activity. ii) A sufficient number of elevation views of the proposed activity depicting the mean high water line, any easement boundary, and the erosion control line, within the area of influence of the proposed activity. Identify the boundaries of significant geographical features and natural communities in the area of influence of the proposed activity. iii) Details of construction, including materials and general construction procedures and equipment to be used (e.g., construction access, dredging method, dredged material containment, pipeline location). iv) The Project Plans and Specifications will include applicable conditions contained in Attachment 1. Added f) Plans for dredging and stockpiling sand dredged from the south end of the channel separately from the rest of the dredged material. g) Design details, locations, and drawings of the structures proposed to contain turbidity within the western Rockland Key pit.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall conduct pre- and post-construction assessments to document primary and secondary impacts of the dredging project. The assessment shall include: (1) quantitative descriptions of benthic communities in and adjacent to the dredge footprint, throughout the disposal pipeline route, and within the dredge material disposal sites; (2) descriptions of turbidity levels and sediment characteristics in the dredge footprint, disposal pipeline corridor, areas within the downstream turbidity plume, and in the backcountry area adjacent to the dredge material disposal sites; .(3) quantify in an estimate (in acres or square feet), (prior to construction), potential direct and indirect impacts to Essential Fish Habitat by habitat type. This shall be done within and adjacent to the main ship channel, dredge disposal pipeline route and disposal site, and areas adjacent to the disposal site; (4) the mitigation plan shall include success criteria for evaluating the effectiveness of the proposed mitigation; (5) a monitoring plan, (6) specifically address coral impacts; and (7) actions to offset the effects of sedimentation and turbidity. All plans shall be submitted to and approved by the FKNMS and FDEP prior to the commencement of work.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	Prior to construction the permittee shall provide quantitative descriptions of benthic communities in and immediately adjacent to the dredge footprint and along the route of the pipeline prior to construction to the FKNMS and DEP This includes the upper ledges of the channel, Cut B, Cut C and the turning basin. The permittee shall provide this characterization based on a review of videos and information gathered using diver tows
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The spoil pipe will be laid to minimize impacts. A plan shall be provided to the FKNMS and FOEP detailing the placement of the pipe. Placement may include floating, supporting or bottom placement. This plan shall be submitted to and approved by the FKNMS prior to the commencement of .work..
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	Pre-project monitoring shall establish background turbidity levels and sediment characteristics in the dredging footprint. The permittee shall establish a protocol to monitor the pipeline as part of a turbidity monitoring plan. The areas to be monitored include Cut C, Cut B, and the way points designated by the FKNMS.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall not violate turbidity requirements imposed by the FDEP in its permit. for the dredging project. In the event water quality standards are exceeded work shall stop until the cause is corrected.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee will contract for pre-dredging, during dredging and post-dredging water quality monitoring focused on turbidity and sedimentation from Key West Harbor and approaches from the outer coral reef tract.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall develop an operational contingency plan that describes their response in the event of storms (e.g., hurricanes, spring storms) and operational failures (e.g., breaks in the dredge pipes, movement of dredge pipes). This plan shall be submitted to and approved by the FKNMS and FDEP prior to construction.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall place the dredge material disposal pipeline in the corridor jointly agreed upon by the FKNMS and the permittee or their designee. The permittee shall utilize field side scan survey results, which identify a route in Hawks Channel south of Key West for the placement of the disposal pipeline; except for the corridor south of Stock Island.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall, to the greatest extent practicable, place the pipeline on the bottom in Hawk Channel and in Boca Chica Channel in a manner that causes the least amount of benthic impact to seagrass, coral, hardbottom communities and in the vicinity of the Muir wreck. The permittee shall position the pipeline in a manner that causes the least benthic impact. In the event it is deemed not practicable to float or raise the pipeline in Hawk Channel, the permittee will consult with FKNMS to determine alternative means to minimize impacts to the seagrass community south of Stock Island. In all project areas, the permittee shall consult with FKNMS to determine alternative means to minimize impacts to sensitive marine communities.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall conduct a stability analysis for the dredged material pipeline for its entire length. The permittee shall anchor or otherwise stabilize the dredge material pipeline consistent with this analysis and in such a manner as to ensure that the pipeline will remain stable in a 50-year storm event. A copy of the analysis shall be provided to the FKNMS and FDEP.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall use the appropriate type of anchoring methods on the dredge material pipeline to avoid impacts to sensitive resources during storm events. The permittee or their designee must consult with FKNMS regarding the anchoring methods prior to the pipeline being installed.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee or their designee shall advise contractors and others involved in the project that FKNMS is available to assist in the placement of anchors for the dredge material disposal pipeline in order to avoid or minimize damage and injury to Sanctuary resources.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall ensure that the dredge disposal management areas on East Rockland Key, (upland and rock pit disposal sites, etc.), shall prevent runoff into the marine environment and comply with FDEP requirements. The permittee agrees and understands that additional safeguards may be required and any impact to resources from dredge disposal management areas will require restoration.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee's turbidity controls at the East Rockland Key disposal site shall include but are not limited to: a berm at the mouth of the pit and double turbidity screening to reduce sediment impact on adjacent marine communities (e.g. sponges, macro-algae, seagrass and hardbottom communities) .
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall submit drawings to demonstrate the location and size of turbidity control devices and any other construction projects proposed at the dredge material disposal site to the FKNMS and FDEP prior to their installation. The FKNMS must review and approve these drawings prior to initiation of activities at the disposal site to minimize construction operations from impacting seagrass and mangrove communities bordering the quarry disposal site.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee agrees and understands that the FKNMS or their designated representatives shall be given the opportunity to remove benthic marine resources found in the East Rockland Key disposal site(s) prior to dredge material placement. The permittee shall notify the FKNMS a minimum of two weeks prior to the start date of disposal site fill activities.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall comply with the no impact avoidance areas (no anchor zones) identified during pre-construction assessments and identified by FKNMS staff. The permittee understands and agrees that an anchoring plan is required to be submitted to and approved by the FKNMS and FDEP prior to the start of work. The FKNMS may add to the list of no anchoring/avoidance areas prior to the commencement of construction.

Permitting Agency	Project Number	Project Name	Project Type	Project Location (Lat/Long)	County	Condition
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall notify its contractors and others involved in the project that the FKNMS is available to provide information regarding alternative anchoring practices, such as use of tug power or mooring pins, and how to avoid anchoring impacts. The permittee shall record, via 8-digit GPS coordinate, the location of each anchor placement and provide this data to the FKNMS and FDEP for their inspection. If FKNMS staff are not available to ground-truth proposed anchor placements outside the dredged footprint; when practicable the permittee shall provide divers to place anchors prior to their installation.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall prevent cables from scouring benthic resources.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall avoid damage to benthic resources located in the Key West Harbor and Turning Basin. The North and Northwest portions of the Key West Harbor Turning Basin shall be avoided during dredging operations. A 30-foot buffer area shall remain unimpacted to protect corals and benthic resources identified along the ledges of the original dredge footprint in this area. The permittee or their designee shall make others aware that the FKNMS is available to assist in the placement of a 30-foot buffer demarcation along these ledges.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee agrees and understands that in the area of the South and Southeast walls of Truman Harbor, where living coral and seagrass communities are found, the permittee shall avoid this area during dredging operations.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall alert the FKNMS and FDEP staff of any impacts or accidents that may occur. The permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to living coral in the event of unforeseen accidents, such as anchor damage, anchor cable scouring, or disposal pipeline failure. The FKNMS may participate and assist in this effort.
FDEP	0207625-001-EI	Key West Harbor Dredge	Port	24°33'36.52", -81°48'33.65"	Monroe	The permittee shall complete at least 24 hours prior to work obviously impacting coral resources, all activities necessary to temporarily or permanently relocate these resources so that dredging activities may proceed.
USACE	Standard		Section 10			Turbidity Barriers: Prior to the initiation of any of the work authorized by this permit the Permittee shall install floating turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized.
USACE	Standard		Section 10			. Hopper Dredging: The Permittee shall comply with the following hopper dredge conditions: a. "Standard Hopper Dredge Conditions Jacksonville District Regulatory Division" provided in Attachment of this permit. b. All hopper dredges shall be equipped with the Silent Inspector (SI) system for hopper dredge monitoring. The SI system must have been certified by the Engineer Research and Development Center (ERDC) within the last year. Questions regarding certification should be addressed to the SI support team at 601-634-2923. Additional information about SI can be found at http://si.wes.army.mi/lndex.html. The data collected by the SI system shall, upon request, be made available to the Regulatory Division of the U.S. Army Corps of Engineers, Jacksonville District. c. In addition to any other notification requirements of this DA permit, the Permittee shall provide electronic notification of all sea turtle takes (both live and dead) by a hopper dredge in a pdf format to NMFS at the following e-mail address: takereport.nmfsser@noaa.gov within six (6) hours of the sea turtle/hopper dredge interaction.

Appendix B: USACE Permit Special Conditions with Scores

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Turbidity Barriers: Prior to the initiation of any of the work authorized by this permit the Permittee shall install floating turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized.	2	Condition is related to water quality which is not under USACE purview and can not be enforced. If this were the only permit violation the USACE would not pursue any action, if it were in addition to other violations that could be addressed USACE may add it to their case.	This is a state issue and although the condition should still be included in USACE permits, the USACE is unlikely to pursue any enforcement action for violating this condition.	When writing conditions need to think about when something needs to be completed by and enter a date certain in the permit condition as well as how the USACE would find out if the condition is being violated and include reporting requirements wherever possible...put the onus on the applicant. Suggestion: come up with a template document "self-cert" that the applicant submits stating they have complied with all the permit conditions and allows them to attach relevant reports all at once to avoid paperwork overload. Also, conditions are only enforceable to the extent that the USACE receives information regarding any violation or non-compliance from outside agencies or monitoring reports from consultant/permittee (because USACE can not go into the water to check) and to the extent that the USACE can initiate an enforcement action under Section 10 Authority which is very limited.

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall not violate turbidity requirements imposed by the Florida Department of Environmental Protection in its permit, dated June 17, 2003, number 0207625-00l-EI. In the event FDEP water quality standards are exceeded work shall stop until the cause is corrected. Turbidity sampling will be conducted by the permittee every two hours during dredge excavation operation 24 hours per day for the life of the project. This sampling may be done by a government entity or an entity independent of the dredging contractor. Sampling will be done at the edge of the mixing zone, and at a background location. Where no critical resources are found down-current from the dredge within 1,500 meters, the mixing zone will be 1500 meters down-current. The mixing zone will be reduced to the distance to the edge of any identified critical resource area down-current that is contacted by any part of the turbidity plume. In areas where the mixing zone is 1,500 meters, or at the edge of the nearest identified resource area, whichever is the nearest distance, turbidity will be monitored every two hours, 24 hours each day, when the dredge is operating. If turbidity readings of 1 or more NTU above up-current background, but less than 15 NTU above up-current background are measured, then samples will be collected every 15 minutes to determine a pattern/cause. Should the three follow-on measurements be between 1 - 15 NTU above background, operations at that dredging location will cease until the turbidity measurements return to background levels down-current of the dredge operation. If any turbidity measurement, at the edge of a resource area, or 1,500 meters, whichever is closer to the dredge, is 15 NTU or more over background, operations cease immediately at that dredging location, until turbidity levels return to background..	1	Condition not clear, too long and detailed to follow, also a state issue, water quality	This is a state issue and although the condition should still be included in USACE permits, the USACE is unlikely to pursue any enforcement action for violating this condition.	
All structures shall be constructed to be stable in a 20-year storm event verified by stability analysis.	4	20 yr storm event is not defined and is subject to individual interpretation.	Rewrite condition as follows: All structures will be constructed in accordance with the previously approved engineering report which provides reasonable assurance that the structure will be stable through a 20 yr storm event. A sediment depth survey shall be conducted immediately pre-construction to ensure that the artificial reefs are placed in areas with underlying rock (for stability) and a persistent cover of sand. Also, do not issue permit until permittee provides engineering report to document stability.	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Authorized Reef Materials: The Permittee shall deploy only the following authorized reef materials: a) Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. d) Heavy gauge steel components or structures, ½" or more in thickness. Properly prepared, clean steel vessels. Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures will be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.	5			
Reef Parameters: The Permittee shall deploy all reef materials within the site boundaries as defined on the enclosed permit drawings. A minimum clearance of twice the height of the structure from the top of the deployed material relative to Mean Lower Low Water (MLLW) shall be maintained at all times. Clearance shall never be less than 6-feet.	5			
Violation of Reef Parameters: In the event reef material is deployed in a location or manner that is contrary to the Reef Parameters Special Condition, the Permittee shall immediately notify the USCG Station and provide information as requested by the station. The Permittee shall notify NOAA, USCG and Corps in writing within 24 hours of the occurrence. At a minimum the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place) and the water depth above the material from Mean Lower Low Water. The document will list the information provided by telephone to the USCG as noted above and include the time of the call and the name of the USCG personnel receiving the information.	4	Local USCG office may not be prepared to respond to such notice. Part of the condition is unclear and redundant.	Need to direct them to USCG District 7 not local office, also need to delete "the deployment location in nautical miles at compass bearing from obvious landmarks" it's unclear and redundant if they are already providing Lat/Long	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Protection of Existing Resources: The Permittee shall not deploy artificial reef materials until an assessment of the bottom conditions has been accomplished by diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area may occur at the time of deployment but no more than one year prior to deployment. The Permittee shall maintain a deployment buffer of at least 100 feet from any submerged beds of sea grasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms. If during the inspection evidence is observed of cultural/archaeological resources, such as sunken vessels, ballast, historic refuse piles, or careenage areas the Corps will be notified by the Permittee and the above referenced deployment buffer will be implemented. The Permittee shall maintain a record of the information gained during the inspection such that it can be provided upon request to the Corps.	4	Too long, also no date certain	The permittee shall conduct a pre-deployment survey by diver, submersible video camera, fathometer, depth/bottom sounder, or vessel mounted side-scan sonar no sooner than 30 days prior to deployment. A report of findings shall be submitted to USACE no sooner than 15 days prior to deployment. Permittee shall maintain a buffer of 100-feet from any submerged aquatic resources, including but not limited to, seagrass, macroalgae, coral reefs, live bottom, etc. documented on the pre-deployment survey	
Deployment of Steel Hull Vessels: Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable U. S. Coast Guard, U.S. Environmental Protection Agency, Florida Fish and Wildlife Conservation Commission, or other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceans/habitat/artificialreefs/index.html The Permittee shall maintain a record of all inspections, clearances or waivers and provide to the USACE upon request.	4	No mechanism for reporting	Provide to USACE a statement showing that all required agencies have signed off on the project within 15 days prior to deployment.	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Deployment Summary/Monitoring Report: Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall electronically submit to the Corps and FWC a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the reef in the past 12 months. For each deployment, the spreadsheet will include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet will document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) will be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef site. The report will describe how the Permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal will be submitted to the Corps, NOAA and FWC. This compilation will document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.	4	too long	Need to simplify and make shorter	
Marine Life Entrapment: Neither reef structure nor material or the method of design or deployment should pose more than minimal risk of entrapping fish, marine turtles, or marine mammals. The Permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the USACE and FWC.	3	Minimal risk is not defined, it's too subjective as written. Also no way to monitor this.	Clearly define "minimal risk" and put something measurable and mechanism for reporting. Ex, no holes larger or smaller than X diameter, no rebar etc.	
Within 18 months of the date of this permit, the permittee shall create and/or enhance 1.16 acres of artificial reef as shown on the attached drawing. This permit acknowledges that the enhancement reef will be funded by the Jupiter Inlet District under the requirements of Department of the Army permit number 198900506. The reef construction shall be completed adjacent to but well outside the toe of fill, in approximately 10-foot to 12- foot water depths. The reef shall be constructed in an area of sandy bottom atop rock to prevent sinking. This permit acknowledges that the 1.16 acres of artificial reef is mitigation for the cumulative impacts to 33 percent of the approximately 3.48 acres of nearshore hard bottom located within the toe of fill from DNR monuments R-13 through R-19 as mapped by Palm Beach County from November 1983 to August 1994.	3	This condition is very project specific. No way to measure the effectiveness	Use this condition to create a template. Within X number of months the permittee shall create X number of acres of artificial reef in X number of feet of water depths at specified location to achieve X amount of lift (replacement of functions and values)	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee agrees that all deployed artificial reef material will maintain at least a 15-foot buffer from any exposed hardbottom.	5			
Within 6 months of completion of construction of the channel improvement project, the Permittee shall construct a 1.6- acre artificial reef using limestone boulders with a minimum dimension of 2.5-feet and minimum weight of 1,500 pounds. The boulders will be placed in an area 700 feet long and 100 feet wide landward of the existing hardbottom habitat as depicted in the permit drawings. The Permittee will maintain a minimum 50-foot buffer between the placed boulders and the existing hardbottom. The Permittee will determine the depth of sand in the area of proposed mitigation to ensure the limestone boulders would not sink.	5			
Within 6 months following completion of the beach nourishment project, the permittee shall construct 2.39 acres of artificial reef, as mitigation for impacts to 2.39 acres of ephemeral nearshore hardbottom. Specifically, the permittee must use 4' nominal-width clean limestone boulders, in the area designated for mitigation.	4	No way to measure effectiveness	Need to add functional performance criteria, project must be achieving X amount of lift to be successful	
The artificial reef materials must be placed in shore parallel formations, which mimic the natural hardbottom found in the project area.	5			
The permittee must monitor the reef creation area for success as an artificially created reef structure. The monitoring must establish a baseline conditions, and annual reporting of the following: (a) the reef's physical stability (b) the biodiversity of fishes, algae, and invertebrates (including species identification and abundance).	4	no date certain or reporting mechanism	Need to add dates for how often monitoring is required and reports due to USACE	
The permittee agrees to conduct monitoring of this 4.47-acre artificial reef in accordance with the attached Juno Beach Mitigation Reef Monitoring plan. The monitoring of the artificial reef will include, as a minimum, the establishment of baseline conditions, and annual reporting of: the reef's physical stability; and the biodiversity of fish, algae, and invertebrates (including species identification and abundance). Maps will be prepared, showing the location, composition, configuration, depth, scour, extent, ephemeral nature of the reef structures. Data will be recorded and an annual report generated, reporting these findings to the Corps and the federal resource agencies. Copies of the baseline and annual report for the Juno Beach Mitigation Reef Monitoring plan will also be provided to the U.S. Army Corps of Engineers, Enforcement Branch (CESAJ-RD-E), Post Office Box 4970, Jacksonville" Florida 32232-0019, and the federal resource agencies for a period of 5 years. A copy of the annual report for Palm Beach County's Comprehensive Coastal Monitoring Plan, once it is approved, will be provided to the U. S. Army Corps of Engineers, South Permits Branch office, 400 North Congress Avenue, Suite 130, West Palm Beach, Florida 33401.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Placement of the material at the site will be accomplished during daylight hours, Monday through Friday only, unless the USACE grants prior approval.	5			
The permittee shall conduct a survey of the reef site 15 days prior to deployment. No authorization is granted by this permit to place material on seagrasses or macroalgae, coral reefs, live bottom, (area supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops), oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.	5			
No authorization is granted by this permit for the construction of artificial reefs or fish attractors in known established shrimp, fish and shellfish trawling areas, unless in the opinion of the USACE, such construction would not constitute a hazard to those trawling activities	3	What if the known areas change? Not really within USACE purview	Likely should not include this condition at all.	
A sediment depth survey shall be conducted immediately pre-construction to ensure that the artificial reefs are placed in areas with underlying rock (for stability) and a persistent cover of sand.	4	Could be combined with other conditions	Combine to make one condition relating to stability	
Prior to any construction activity, a map be provided to the contractor of any hardbottom areas. The map will designate the reef protection zones, pipeline corridors, and vessel ingress/egress corridor. The contractor will verify, via diver investigation, that any area to be used for anchorage lS sandy bottom.	3	How would we know the map was provided or that it's being used?	Should not include this condition, should utilize condition requiring programmable navigation system to input exclusion zones and generate report to USACE if violation occurs.	
A 200-foot buffer zone around the hardbottom areas located near the borrow site, in which dredging is prohibited, will be marked with buoys. The buoys will be placed prior to and maintained during any construction activity.	4	No reporting mechanism or timeframe	Add time, 15 days prior to construction with survey report due to USACE at same time as notification to begin construction is due.	
Prior to and until completion of the construction activity, floating buoys will be established around the borrow area to clearly delineate the limits of the area to be dredged.	3	no reporting mechanism	Include a survey to be sent to USACE with notification of beginning construction.	
During construction activity, state-of-the-art navigational and positioning equipment will be used which will sound an alarm notifying the dredge operator that the dredge is approaching a hardbottom location.	4	how to identify "state of the art", may be subjective, also is there a report generated that will alert the USACE to violations?	Need to check up on how this equipment works and work on better defining the equipment to be used	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall conduct a pre-construction meeting at a minimum of 30 days prior to commencement of construction. The permittee shall provide a minimum of a 30-day advance written notification of the pre-construction meeting, to the USACE and other federal regulatory agency staff so that the agencies can participate. The permittee shall develop training modules relating to coral resource sensitivity, identifying and mapping of coral communities, and resource protection measures. The permittee shall submit the training modules to the USACE for review and approval for use during the pre-construction meeting. The permittee will be required to implement these training modules to all staff that relates to any aspect of this construction project.	5			
The permittee shall prevent scouring and/or dredging of benthic resources by any hopper dredge activities associated with this project	3	how is this verified?	Need to have post construction survey with report delivered to USACE within X number of days to verify	
The permittee will establish nearshore monitoring stations/cross-shore permanent transects, extending 300' seaward of the equilibrium toe of fill (ETOF), to monitor and identify potential effects from sediment and turbidity movement, and stress indicators, on scleractinian (stony) and soft coral species, on adjacent, deeper, and stable nearshore hardbottom communities. The permittee will conduct surveys of nearshore hard-bottom resources, fish populations and epibenthos monitoring sites, and depth of sediment, immediately prior to construction (this will be compared to baseline data to get information on natural variability), and annually for the first three (3) years after construction, and again at the end of the fifth year, in accordance with the FDEP permit special conditions, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.	4	timeframe	need to add a date	
The permittee shall monitor the offshore hardbottom habitat, located adjacent to the borrow sites, for sedimentation, generated by the hopper dredging operations. Amount and duration of sedimentation will be monitored, as well as stress indicators of stony and soft corals affected by the dredge operations, at designated monitoring stations located adjacent to each borrow area. The stations shall be monitored once per week, eight (8) weeks prior to construction, during construction, and eight (8) weeks following construction, with the exception of borrow area VI, which will be monitored daily for the first 30 days of construction. Construction activities shall cease if sediment exceeds defined standards (more than 1.5 mm per day). Furthermore, if coral stress indicators exceed defined values, then histological tissue analysis of affected corals will be conducted. Prior to construction, stress indicators and coral stress index values must be established to monitor the viability of the coral habitat during construction. To avoid damage of submerged aquatic habitat, coral stress thresholds shall be developed. Sedimentation and stress monitoring at these stations shall continue six (6) months and (1) one year, following construction in accordance with the FDEP permit special conditions respectively, and the attached Proposal for Construction/Post-Construction Nearshore Biological Monitoring Tasks.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The applicant will provide underwater monitoring and video documentation of adjacent hard-bottom resources, along the pipeline corridor, immediately prior to, and following, pipeline placement, and within 30 days of pipeline removal, in order to verify avoidance of impacts to any adjacent hard-bottom resources. The monitoring should record the following information: (a) general silt and sediment levels on the reefs, (b) notes on any adverse effects, which may result from sedimentation, or effects from other than natural causes, (i.e., mucous formation on corals and sponges, bleaching and mottling, and morbidity).	5			
Prior to construction, the permittee shall provide to the USACE and the dredge contractor, a map identifying approved vessel transit corridors plotted as polygon targets to be used during transit from the borrow areas to the sand pump out facility locations. A hard copy of the map shall be submitted to the USACE and an electronic map in electronic GPS form shall be submitted to the contractor. The electronic GPS form shall be adequate enough to allow for electronic positioning, and to be incorporated with the continuous tracking system on the hopper dredge vessel. The permittee shall ensure that the selected vessel transit corridors are sand bottom or corridors of low habitat cover. The approved vessel transit corridors shall be ground-truthed to confirm accuracy of vessel paths, to ensure that adequate vessel operating depths will be achieved, and to ensure no natural resources will be taken.	5			
The permittee shall ensure that the contractor daily inspects the hopper dredge for any leaks or failures. The permittee will ensure that the contractor must use signal devices or alarm devices on all vessels associated with this project to ensure that leaks from the split hull mechanism do not occur. The permittee must ensure that the contractor is operating the hopper dredge in a manner that the split hull mechanism is closed completely at all times before leaving the borrow sites. There shall be no random deposits of dredge material over natural resources.	5			
All operations including the arm of the hopper dredge, etc., shall be conducted in a manner to eliminate the possibility of equipment dragging on the bottom and damaging natural resources. Before the dredge leaves any/all borrow areas, the drag-arm (hopper arm) must be completely raised out of the water at all times during transit. The permittee must provide, within 30 days prior to construction, a plan that will address what methods or preventions will be taken to avoid any operational failures. If operational failures of the drag-arm occur, work shall immediately cease until the cause of failure has been corrected	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee agrees that any tow vessels used for the sand pump out facility, shall be either lashed directly to the sand pump out facility, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the sand pump out facility by floating line. All cables must be floated in all water depths to avoid impact to submerged resources. All other operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources	5			
Avoidance of Hardbottom: In order to avoid impacts to offshore hardbottom resources from dredging operations, the Permittee shall require the dredging contractor to push his equipment into the project area versus towing when within 1.5 miles of the shoreline to avoid potential cable drags. These vessel routes shall be recorded and made available to the Corps upon request. During all dredging operations, the Permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead at all times during construction operation, in accordance with the approved Sediment QA/QC Plan (Attachment G). The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipment shall provide a permanent record of the position referenced to State Plane Coordinates and NAVD 88. As part of the final project report, the Permittee shall provide a daily record of the position of the dredge equipment, which includes the dredge area limits and the buffer zone with actual and maximum authorized dredge depths referenced to State Plane Coordinates and NAVD 88. Vertical and horizontal accuracy of the positioning equipment shall also be reported. A minimum 400 foot anchor and pipeline buffer zone shall be maintained around the hardbottom areas in the vicinity of the borrow site and the pipeline corridor.	5			
This project will maintain a minimum 400 ft wide buffer zone, between the borrow areas and the nearest hard-bottom resources.	5			
The Permittee shall submit an Emergency Spill Response Plan for all vessels operating in association with the project authorized herein a minimum of thirty (30) days prior to the commencement of construction. USACE· approval of the emergency Spill Response Plan will be required prior to commencement of construction.	5			
The Permittee shall submit an Operational Storm Contingency Plan that describes the actions to be taken in response to storm events (i.e. hurricanes, high-sea conditions 1 and/or operational failures (i.e. breaks in the dredge pipelines) a minimum of thirty (30) days prior to the commencement of const ruction. USACE approval of the Operational Storm Contingency Plan will be required prior to commencement of construction.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall ensure that precautions are taken to prevent damage from occurring to the existing reefs as a result of cable drag, equipment drag, scour wash, or other construction activities. The permittee shall prevent scouring of benthic resources during all operations. a. Any towed vessels such as barges, scows and the like, shall be either lashed directly to the dredge or the tow vessel, with no cable in the water (e.g., by a "bridle" tow or "on the hip" of a tug), or connected to the tow vessel by floating line. b. All cables must be floated in all water depths to avoid impact to submerged aquatic resources. c. All operations will be conducted in a manner that eliminates the possibility of dragging cable or other equipment along the bottom and damaging aquatic resources.	5			
The permittee shall conduct a pre-construction survey to document the size and position of all coral colonies within the construction footprint. Within 30 days of completion of the construction, a post-construction survey shall be conducted to determine if there have been any direct or indirect impacts to corals. Both surveys will be conducted by diver and a written report, including pictures and/or video will be submitted to the USACE at the above address. A copy will also be submitted directly to NOAA Fisheries HCD, 400 N Congress Avenue, Suite 120 West Palm Beach, FL 33401.	5			
No impacts to seagrass, hard corals, or soft corals shall occur as a result of construction operations, such as, but not limited to, propeller scouring; and vessel or barge anchoring, grounding or spudding, other than those impacts authorized by this permit. For any impacts caused by the construction activities, restoration and mitigation will be required.	5			
Prior to commencement of dock construction activities, all anchorage location areas and spud barge locations shall be surveyed as to ensure that there would be no impacts to coral communities or seagrass beds.	5			
Cable deployment shall not take place during high swells or unfavorable weather conditions, including highest peak of hurricane season (mid September to mid October), during severe currents, when increased damage to corals would be expected to occur. The installation activities shall immediately cease should inclement weather or unexpected severe currents arise during deployment.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall be responsible for ensuring that all of the employees hired for the construction of the AES Ocean Express Pipeline attend a minimum four (4) hour environmental training course provided by the permittee. The training for the offshore construction activities shall include, but not be limited to, an overview of sensitive marine resources in the project area, appropriate measures to be taken to ensure the protection of sea turtles and marine mammals during construction, turbidity monitoring requirements and procedures, and measures to be taken in the event of anticipated and unanticipated actions that could result in harm to marine resources. The training shall occur prior to any employee commencing work on the project and shall include a signed statement of completion for each employee. In addition, prior to construction, all Environmental Inspectors, shall be trained in accordance with the ECMVP Appendix J: 'Environmental Training Syllabi'. The permittee shall provide the Corps documentation that each employee hired for the construction of the AES Ocean Express Pipeline has received the environmental training. Any 3rd party inspector(s) who is selected by FERC and FDEP to work on this project shall take part in the training provided for the Environmental Inspectors.	4	mechanism for reporting	need to provide cert. to USACE within X number of days before construction	
The permittee agrees that prior to the start of this project, Ocean Express will perform aquatic toxicity tests for any and all proposed chemical additives that may be used during construction operations. The permittee shall prepare a report with the results of the toxicity tests, the MSDS sheets for each proposed additive, and the proposed concentrations of the additives that will be used. The permittee shall submit the information to the "agencies" at a minimum of 90 days prior to the start date of construction for the agencies to review and approve the additives to be used.	4	consequences, what happens if the levels are exceeded?	Need to provide details for what they are required to do if the levels are exceeded	
The permittee agrees to position Beacon transponders on the anchors deployed within 100 feet of any existing telecommunications cables to record for any anchor movement or drag. Upon detection of any anchor movement, tension on the anchor line to that anchor will be reduced as necessary to stop the anchor movement. In addition, upon detection of anchor movement, Ocean Express shall dispatch divers and/or ROV to investigate whether any impacts to resources has occurred, and determine what actions are necessary to avoid additional anchor movement (including possible resetting or replacement of the anchor). If impacts from anchor movement (or communication cable movement caused by anchor movement) are discovered, appropriate reports shall be made to the regulatory agencies as required by the ECMVP. Also refer to specific conditions 66 and 67.	5			
This permit does not authorize anchor placement in coral reefs or on hardbottom areas off of Broward County. All anchors shall be placed in complete sand bottom and shall completely avoid coral and hardbottom habitat. Anchor placements are to occur in designated Temporary Work Areas, which have been identified in the application as sandy areas.	5			
All watercraft vessels shall operate in sufficient water depths to preclude bottom scouring, prop dredging, and destruction of seagrasses. The permittee agrees that the drilling platform, work barges, and other associated vessels shall only be moved or re-located during daylight hours.	4	subjective	Condition should state that the permittee retain x number feet clearance between bottom of any vessel and top of resources verified by bath and resource survey provided to USACE	

Appendix C: FDEP SED Permit Special Conditions with Scores

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the borrow areas and the beach nourishment sites shall be monitored during construction. Turbidity will be measured at background and compliance stations. A. Borrow Sites: Frequency: Every six hours during dredging. Location: Background: Mid-depth, at least 300 meters upcurrent from the dredge site, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume. B. Beach Nourishment and Groin Construction Sites: Frequency: Every six hours during pumping operations or other in-water work. Location: Background: Mid-depth, at a point approximately 150 meters offshore and 300 meters upcurrent from the discharge point, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, at a point approximately 150 meters offshore and no more than 150 meters downcurrent from the discharge point, within the densest portion of any visible turbidity plume. Weekly summaries of all monitoring data shall be submitted to the Bureau of Beaches and Wetland Resources and to the Southeast District Office within one week of collection, with documents containing the following information: (1) “Permit Number 0163435-001-JC”; (2) “Broward County Beach Nourishment Project (Segment III)”; (3) dates and times of sampling and analysis; (4) a statement describing the methods used in collection, handling, storage and analysis of the samples; (5) a map indicating the sampling locations, current direction, plume configuration and the location of the dredge and discharge point(s); and (6) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection 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) DGPS position. 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 are greater than 29 NTU's above the associated background turbidity levels, construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.	4	too long, not uniform with other agencies	Need to make this condition uniform across all agencies with same sampling protocol and time frames. Need to simplify the language and bullet point the condition to shorten it	General notes: Adding a checklist at the beginning or end of the permit conditions with everything that is to be submitted, timeline when it's to be submitted, and to whom would help organize it all into one place for contractors to be aware of the things they need to keep track of. Grouping all the conditions under headings like "mitigation" and put all mitigation related conditions, "monitoring" and put all monitoring conditions, would help to better organize things and make conditions easier to find and follow. Add date certain and reporting requirements to everything where possible so that there is a report due and a date due to make it easier to track compliance. Use bullet points to make conditions simpler and easier to read. Make conditions as uniform as possible across all agencies.
Equipment shall not be placed or stored on top of the natural reefs.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall construct a minimum of 3.1 acres of artificial reef as mitigation for impacts to 3.1 acres of natural nearshore hardbottom. The following procedures shall be adhered to for the construction of the artificial reef mitigation work: The artificial reef shall not be Placed on or adjacent to seagrasses beds or hardbottom habitats Including areas Supporting the growth of coral, macro alga, Sponges sea fans, soft corals, other sessile macroinvertebrates generally associated with rock outcrops or rock outcrops covered with thin laver of sand. The artificial reef shall have an underlying layer of rock that is covered with a layer of sand that is between one (1) and four (4) feet thick. k. The permittees hall not Place boulders within the shore-Parallel formations of the artificial reef that exceed the nominal dimensions specified on the approved drawings for that row. The permittee shall conduct a pre-deployment bottom survey of the placement area approximately fifteen (15) days before placement of the limestone boulders. The survey shall document the absence of seagrass and hardbottom communities within or adjacent to the site. The survey shall also document the thickness of the upper sand laver and the depth of the underlying rock within the proposed reef footprint. The results of this survey shall be provided to the BBCS prior to commencement of reef construction. Prior to the construction of the artificial reef divers shall inspect he area for exposed cultural resources such as sunken vessels ballast historic refuse piles or Careenage areas. If cultural resources re encountered during the visual surveyor at any time within the project site the permittee shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries and contact the Florida Department of State Division of Historical Resources at 850-487-2333 or 1-800-847-2778. Project activities should not resume without written authorization from the Division of Historical Resources.	4	needs to be more condensed if possible	initial survey should include cultural resources as well as biological, also need a number of days for prior to construction (ex within 15 days prior to construction…)	
Mitigation. The unavoidable burial of 7.6 acres of nearshore hardbottom that will result from the direct placement of fill and from the equilibration of the toe of fill (TOF) shall be mitigated by creating a minimum of 8.9 acres of artificial hard bottom substrate. All mitigation shall be completed no later than six (6) months after the commencement of the Segment III beach project construction. If artificial reef construction is not completed within the specified time, a time lag coefficient shall be applied to increase the mitigation ratio. The artificial reefs shall consist of limestone boulders placed on the sandy ocean bottom. These sites shall be located landward of the first offshore reef and seaward of the estimated equilibrium toe of fill, in mean water depths of 15 to 20 feet. Boulders shall be 4 feet or greater in diameter, with a specific gravity of at least 2.1, in order to prevent sliding or tipping/rolling during storm events. The distance between individual boulders shall not exceed five feet. In order to minimize subsidence, the selected placement areas shall contain a layer of sand no more than two feet thick over the hardbottom. A 50-foot wide buffer from all significant natural hardbottoms shall be maintained during boulder placement. These design specifications are consistent with Department guidelines and general practices used in the construction of artificial reefs along the Atlantic Coast of Florida. A portion of the artificial reef site between R-101 and R-104 will serve as the scleractinian coral transplantation receiver site. Deployment of the artificial reefs will begin at Mitigation Area VIII, from R-101 to R-104 (see Attachment 1, The Mitigation Plan)	4	needs a definition for significant and needs to include seagrasses, etc	define significant and include seagrass, algae, etc as natural resources	the part about if artificial reef construction is not completed within the specified time a time lag coefficient shall be applied is GREAT and should be included in all mitigation conditions!

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Transplantation of corals. Transplantation of scleractinian corals from the areas of direct and secondary impact to the mitigation reef is required for saving important and declining reef-building fauna of the nearshore area and for initiation of coral succession. All scleractinian coral colonies measuring 15 cm or more shall be removed from the area located between the estimated Equilibrium Toe of Fill and the shoreline in Segment III and transplanted into a portion of the artificial reef between R-101 and R-104 designated as the coral transplantation receiver site. There, the corals shall be cemented on the artificial reefs. The transplantation must be done in the pattern that will a) create a percent bottom cover by corals of about 3%; and b) concentrate particular species to stimulate local recruitment and enhance succession. This created coral community shall be the subject of a long-term monitoring program to document survival and growth of the transplanted corals.	4	confusing, what is the pattern, what are the species, monitoring plan…needs more details	define the pattern and species referred to. Take out the word "about", define how long the monitoring should be and when (annual, biannual) and how it's to be reported etc	
The artificial reef materials shall consist of clean limestone blocks. Reef construction material shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges; blocks must be washed prior to transportation in order to avoid excessive turbidity.	3	too general, need more specifics and definitions	replace with condition below that has the defined list of specific approved reef materials	
Following the completion of the placement of reef construction materials, the permittee shall survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the monitoring plan. If the artificial reef does not meet the specifications identified above and the requirements described in the approved monitoring plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the monitoring surveys indicate a deficit in the extent of required artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.	3	confusing, what are the reef requirements, appropriate relief, etc	Need to rewrite with bullet points of the requirements to be met or say requirements referenced in condition "x" above or something that directs to specifics	
To verify long-term stability and performance of the mitigation artificial reef, at least 90 days prior to each nourishment event, the permittee shall provide verification that the artificial reef has maintained the original design area of 2.39 acres, and the original design elevation and specifications. If there has been any subsidence, burial, or other change in acreage, elevation or location of the artificial reef, the permittee shall restore the artificial reef to the original design specification prior to commencement of construction of each nourishment event.	4	no reporting mechanism	include a reporting mechanism	
Thirty days prior to the commencement of artificial reef deployment activities, the permittee shall submit the following information to the Department of Environmental Protection, Southeast District, Submerged Lands & Environmental Resources Program, Compliance Enforcement Section, Attention: Richard Stalker, 400 N. Congress Ave., Suite 200, West Palm Beach, Florida 33401 for review and approval: (1) cargo manifest and pre-deployment notification; (2) inspections from the USCG and EPA to ensure maritime vessels are clean; (3) environmental resource survey depicting the exact location of the artificial reef site, 250·footl500·foot buffers, and location of observed resources; (4) Global Position System Coordinates (GPS); (5) stability analysis; and (6) sonar scan to determine sand overburden.	4	needs definitions for sand overburden, stability analysis, need to attach re-deployment notification form	indicate that cargo manifest and pre-deployment notification form are attached, clearly define sand overburden and stability analysis	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The environmental resource survey shall consist of n assessment of the bottom conditions conducted via diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area shall be done no less than thirty days prior but no more than one year prior to deployment. The permittee shall maintain a deployment buffer area of at least 500 feet for maritime vessels and 250 feet for all other construction materials from any submerged beds of seagrasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.	5			
The artificial reef material shall be placed in barren sandy bottom locations void of all environmental resources including but not limited to hard bottom, corals, attached biota, or marine plant communities. Stability analysis and sand sonar scans shall be conducted prior to material deployment and shall be submitted to the Department showing that all materials shall remain stable on the bottom post deployment. Prior to deployment, the exact location shall be determined by a precision GPS and clearly marked with perimeter buoys to ensure that no material is deposited outside of the project boundaries. For maritime vessels, at least two separate anchors, of suitable size for each vessel deployed, shall be used to ensure that the vessels do not drift during deployment and that they shall remain in place once settled on the bottom.	4	need definitions of suitable size. Too long, could separate into two conditions	make the first sentence it's own condition and add algae as a resource or say natural resources as defined in condition "x" above and list them all there so as not to repeat the list over and over throughout conditions. Clearly define suitable size for anchors	
Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable USCG, EPA, FFWCC regulations or policies, and any other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis' has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at: http://www.epa.gov/owow/oceanslhabitatlartificialreefs/index.html. The permittee shall maintain a record of all inspections, clearances or waivers and shall be provided to the Department upon request.	5			
The Permittee shall only deploy the following authorized reef materials: (a) Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. (b) Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. (c) Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. (d) Heavy gauge steel components or structures, ¼" or more in thickness.	4	need to clarify power pole materials and define clean	define clean and clarify power pole (wood, concrete, etc)	
All vessel movement, construction, and reef deployment activities shall take place during daylight hours only with the exception of movement of shallow-draft transport vessels. For the purposes of this permit, daylight shall be defined as occurring from 30 minutes before sunrise to 30 minutes after sunset. All transport vessels shall travel at slow speed.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
No fish attraction devices may be constructed or attached to the permitted artificial reefs or within the site boundaries once the material is deployed.	5			
Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures shall be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.	5			
The permittee shall deploy all reef materials within the site boundaries as defined on the enclosed drawings. The material shall be placed so that the top of the reef does not exceed 1/2 the distance from the bottom to the surface of the water unless a greater distance from the surface is required for safe navigation. At no time shall the distance between the top of the reef and the surface of the water be less than 6 feet. There shall be no reefs constructed in bays, lagoons, or estuaries that are less than 12 feet deep	3	not clearly structured	the material shall be placed so that the height of the structure does not exceed 1/2 the water depth at MLW unless a greater clearance is necessary for safe navigation and will never be less than 6 feet.	
The permittee shall notify the National Ocean Service, National Oceanographic and Atmospheric Association, U.S. Department of Commerce, Rockville, Maryland, and the Department of Environmental Protection, Division of Marine Resources, Office of Fisheries Management and Assistance Services of the precise location of the reef within 30 days of placement of the reef material.	5			
Neither reef structure nor material or the method of design or deployment should pose more than minimum risk of entrapping fish, marine turtles, or marine mammals. The permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the DEP.	4	need to define minimal risk, too subjective	use a different term or clearly define minimal risk to make it less subjective	
In the event reef material is deployed in a location or manner that is contrary to the submitted plans, the permittee shall immediately notify the Department and provide information as stated in the Permittee's submitted contingency plan. The permittee shall notify the Department in writing within 14 days of the occurrence. At a minimum, the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place), a resource survey of the new locations in accordance with specific condition (12) above, and the water depth above the material from Mean Low Water. After an assessment of the new reef deployment areas, the Department's Compliance and Enforcement Staff will instruct the applicant to remove or relocate the misplaced reef material.	5			would add to last sentence the DEP will either approve or reject the new location, if rejected material must be manually removed & relocated to approved area

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall submit to the Department a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the artificial reef locations in the past 12 months. For each deployment, the spreadsheet shall include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet shall document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at the time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) shall be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef sites. The report shall describe how the permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal shall be submitted to the Department: This compilation shall document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
No work shall be conducted under this permit until the permittee has received a written Notice to Proceed from the Department. At least sixty (60) 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: a. A detailed Mitigation Plan that addresses the timing of artificial hardbottom construction in relation to the beach fill construction, acreage of proposed artificial hardbottom (as required in Specific Condition No. 11), proposed construction methods, the size and type of hard bottom substrate, depth of sand (above underlying rock), and other pertinent updates to the draft mitigation plan; b. A Sediment Quality Control / Quality Assurance Plan, as required by Rule 62B 41.008(1)(k)4.b., F.A.C. and Specific Condition No. 8; c. A detailed Physical Monitoring Plan, as described in Specific Condition No. 14 (Physical Monitoring section), indicating the project's predicted design life; d. A detailed Biological Monitoring Plan, as described in Specific Condition No. 15 (Biological Monitoring section); e. Two hard copies and an electronic copy of detailed final construction plans and specifications for all authorized activities, including a vessel operations plan. These documents shall be signed and sealed by the design engineer, who must be registered in the State of Florida, and shall bear the certifications specified in Rule 62B-41.007(4), F.A.C. The plans and specifications shall include a description of the beach construction methods to be utilized and drawings and surveys which show all biological resources and work spaces (e.g. anchoring area, pipeline corridors, staging areas, boat access corridors, etc.) to be used for this project. The Department may request additional information that may be necessary to understand and evaluate the proposal; f. 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. Accordingly, 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; g. Biological monitoring qualifications. The names and qualifications of those individuals performing the biological monitoring shall be submitted for Department approval. All biological monitoring required by this permit shall be conducted by individuals having a good working knowledge of marine fish, marine turtles, algae, coral, and sponge taxonomy.	4	too long, a lot of this should have been done during permitting process prior to issuance	break up into bullet points or separate conditions	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The projected toe of fill is not anticipated to directly cover the nearshore hardbottom communities and no direct burial of hardbottoms is authorized herein. However, post construction physical and biological monitoring shall be required to verify that the hardbottom communities are not buried or degraded by the movement of this sand. If it is determined upon review of the monitoring and survey data that nearshore habitat is buried or degraded, then mitigation for impacts shall be required at a ratio of at least 3:1. If such burial occurs, or if impacts are identified as a result of pipeline corridor placement and removal, borrow area excavation, or any other construction related activity, the permittee shall submit a mitigation and monitoring plan to the Office of Beaches and Coastal Systems within 30 days following the determination. Following approval by the Department, the permittee shall implement the plan within the specified time frame.	3	not clear, needs reworded, first sentence should not be in there, put in a number instead of "specified time frame"	reword to clarify and take out the first sentence all together. Give a time limit (ex 30 days) for completing the mitigation	
The permittee shall require the dredging contractor to have positioning equipment which continuously measures the vertical and horizontal location of the cutterhead, diagrams, dustpan or clamshell at all times during dredging operations. The horizontal positioning equipment shall monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. Horizontal accuracy for dredge positioning shall be 3.0 feet. Vertical accuracy for the dredge depth monitoring shall be 1.0 foot. This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NGVD. As a part of the final report, and upon request at any time during construction, the permittee shall provide a daily record of the position of the dredge equipment which includes the borrow area limits and hardbottom buffer zones referenced to state plane coordinates and NGVD.	5			
A 600 foot dredge buffer zone in which dredging is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). The permittee shall ensure that the no dredging buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).	4	how to track this?	need to add a survey and report requirement or visual buoy or something so dept will know if they are in compliance or not	
A 400 foot anchor buffer zone in which anchoring is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 400-foot buffer zone. No equipment or structures will be placed within the anchor buffer zone. The permittee shall ensure that the "no anchoring" buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).	4	how to track this?	need to add a survey and report requirement or visual buoy or something so dept will know if they are in compliance or not	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
In order to reduce the potential for impacts to the reef habitat, and to verify that impacts will be avoided, a minimum of ~ 600 foot buffer zone, in which anchoring is prohibited, shall be maintained around the reef areas located near the borrow site. Mobilization/demobilization into the project area from deep water will occur through a natural gap in the barrier reef south of the City of Delray Beach outfall pipeline location. No floating equipment will be allowed over the barrier reef system. The contractor will be required to directly push the dredge when within 1.5 miles of the shoreline. The contractor will also be required to directly push or tow with polypropylene (floating) lines all other equipment that is not self-propelled when within 1.5 miles of the shoreline. SCUBA surveys of the reefs adjacent to the borrow area shall be conducted once a week to monitor for any mechanical or sedimentation damage to the hardbottom reef areas. A specific condition of the permit shall require the applicant to submit a detailed biological assessment of the adjacent reef tracts and an operations and monitoring plan for the project prior to construction.	5			add reporting requirement
To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. As a Notice to Proceed item, the permittees hall submit the names and Qualifications of the individuals familiar with beach construction techniques and turbidity monitoring who shall be present at the sand disposal sites at all times when fill material is discharged onto the beaches. These individuals shall serve as site supervisor and shall have authority to alter construction techniques or shut down the dredging or beach construction operations if turbidity exceeds2 9 NTUs above natural background levels outside of the designated mixing zone. Any individual who performs this function shall be approved by the Department before beginning to serve in this capacity. b. Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage caused by the construction activities (from machinery, ancillary equipment, spill, etc.). The areas to be surveyed are all existing hardbottom areas within 750 meters of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of coral and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. If any damage is found, the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day.	3	too long, requirements for survey are not clear and reporting requirements are not clear	need to revise to clarify and shorten, maybe use bullet points instead or separate into more than one condition. Also need to clarify the requirements of the survey and reporting timeframes.	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
CONTINUED: Within 3 weeks of discovering the damage, the permittee shall submit to the Department a detailed description of the damage including an estimate of the area damaged, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. c. The contractor shall push his equipment in to the project area verses towing when within 1.5 miles of the shoreline to avoid potential cable drags. d. A 400- foot buffer zone in which dredging is prohibited shall be maintained and marked with buoys (fluorescent buoys if construction will occur at night) around the hardbottom areas located near the borrow sites. The buoys shall be placed no more than 500 feet apart to clearly identify the limits of the hardbottom areas. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs at the borrow area. e. During all dredging operations the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal Location of the cutterhead at all times during construction operation. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipments hall provide a permanent record of the position referenced to State Plane Coordinates and NGVD. As part of the final report, the permittee shall provide a daily record of the position of the dredge equipment which includes the dredge area limits with actual and maximum authorized dredge depth referenced to state plane coordinates and NGVD. Vertical and horizontal accuracy of the positioning equipment shall also be reported.				

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The complexity of bottom biotopes and natural communities subject to turbidity and sedimentation impacts during beach restoration doesn't allow for precise prediction of the consequences of beach fill. Monitoring is the best way to evaluate changes in order to implement appropriate measures to correct any adverse effects during construction or assess adequate mitigative measures if impacts exceed the predicted levels. As a Notice to Proceed item, the permittee shall submit a detailed Biological Monitoring Plan subject to review and approval by the Department. The monitoring plan shall include collection of pre-construction, construction, and post construction data on the patch reef communities located within 750 feet of the western boundaries of the borrow areas and north and south of the pipeline corridors. The plan shall incorporate valid and independent controls, and appropriate statistical analysis to assess the potential short-term and long-term effects of turbidity and sedimentation upon the epibenthos. Towed underwater video combined with diver observations shall be conducted over the entire south borrow area and pipeline corridors prior to dredging to verify that no areas of hard bottom or potential sea grass areas are present. If any such areas are found they shall be mapped and appropriate buffer zones and monitoring stations shall be established. Exposed supratidal/intertidal rock platforms occur between R-219 and R-220. This emergent hardbottom formation shall not be covered directly by the beach fill. .A monitoring program shall be undertaken to determine the possible effects of the project on the distribution and abundance of sessile flora and fauna of the supratidal and subtidal hardbottom habitat within the vicinity ofR-219 and R-220. Monitoring shall be conducted in the summer following project construction and for two subsequent years, for a total of three years of post-construction monitoring.	2	not clear, just overall would not use this condition.	if it were used it needs to make clear that the DEP needs to be notified of the results of the survey and that DEP will determine amounts of mitigation necessary as well as the appropriate buffer zones and were monitoring stations should be located, also need to define "vicinity"	
Nearshore Hardbottom Edge Monitoring. The Permittee shall survey the hardbottom edge adjacent to the exterior dredge area in association with each dredging event that entails excavation between -12 ft. and -20 ft. NGVD. The immediate pre-construction survey shall be performed within 14 days prior to construction, and the immediate post construction survey shall be performed within 7 days following completion of dredging activities. The term “hardbottom” shall include not only exposed limestone, but also benthic communities emergent from sand-covered limestone or attached to unconsolidated rubble. A diver with an attached, DGPS antenna and a digital video camera shall map and document the condition of the benthic communities along the hardbottom edge along both sides of the exterior dredge area. The divers shall visually assess the hardbottom communities for signs of physical damage due to dredging activities within the exterior dredge area. The results of these annual surveys shall be overlapped onto recent aerial photography and compared to the August 2007 baseline survey and previous annual surveys. The report, plan-view aerial maps, and digital video record of the hardbottom edges (CD or DVD format) shall be submitted to the Department within 30 days of the completion of each survey. If any impacts to hardbottom communities are discovered during these surveys, the impacts shall be reported within 48 hours of discovery to the JCP Compliance Officer, DEP Bureau of Beaches and Coastal Systems, 3900 Commonwealth Blvd, Mail Station 300, Tallahassee, FL 32399-3000 (e-mail address: JCP Compliance@dep.state.fl.us).	4	buffer zone?	establish a clear buffer zone and require layout the surveys into a table format	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The spoil pipe will be laid to minimize impacts. A plan shall be provided to the FKNMS and FOEP detailing the placement of the pipe. Placement may include floating, supporting or bottom placement. This plan shall be submitted to and approved by the FKNMS prior to the commencement of work.	4	timeline	need to add a date due	
Pre-project monitoring shall establish background turbidity levels and sediment characteristics in the dredging footprint. The permittee shall establish a protocol to monitor the pipeline as part of a turbidity monitoring plan. The areas to be monitored include Cut C, Cut B, and the way points designated by the FKNMS.	3	add something for DEP approval	the "protocol" needs to submitted for approval to DEP within x number of days prior to construction & must be approved prior to beginning project	
The permittee shall develop an operational contingency plan that describes their response in the event of storms (e.g., hurricanes, spring storms) and operational failures (e.g., breaks in the dredge pipes, movement of dredge pipes). This plan shall be submitted to and approved by the FKNMS and FDEP prior to construction.	4	timeline	need to add a date due	
The permittee shall conduct a stability analysis for the dredged material pipeline for its entire length. The permittee shall anchor or otherwise stabilize the dredge material pipeline consistent with this analysis and in such a manner as to ensure that the pipeline will remain stable in a 50-year storm event. A copy of the analysis shall be provided to the FKNMS and FDEP.	3	timelines	add time for when to conduct the analysis and when it should be submitted and it needs to be approved by DEP and FKNMS	
The permittee shall use the appropriate type of anchoring methods on the dredge material pipeline to avoid impacts to sensitive resources during storm events. The permittee or their designee must consult with FKNMS regarding the anchoring methods prior to the pipeline being installed.	4	approval and timeframe	need to add time frame and get approval from FKNMS prior to construction for the anchoring methods, submit approval to DEP	
The permittee's turbidity controls at the East Rockland Key disposal site shall include but are not limited to: a berm at the mouth of the pit and double turbidity screening to reduce sediment impact on adjacent marine communities (e.g. sponges, macro-algae, seagrass and hardbottom communities).	5			
The permittee shall prevent cables from scouring benthic resources.	4	what happens if they don't?	need to add a survey and reporting requirement and lay out the possible enforcement actions that would occur if they don't comply	
The permittee shall alert the FKNMS and FDEP staff of any impacts or accidents that may occur. The permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to living coral in the event of unforeseen accidents, such as anchor damage, anchor cable scouring, or disposal pipeline failure. The FKNMS may participate and assist in this effort.	5			
Prior to the commencement of the project, the permittee shall conduct a pre-lay diver survey marking the sensitive portions of the proposed corridor and hardbottom areas within 100 ft. of the proposed corridor. Prior to the cable installation, the least impactive route through the "North Gap" shall be confirmed and marked with a series of surface buoys to clearly identify the proposed cable route to the cable laying vessel and to avoid impacts to adjacent reef communities.	3	need to define "sensitive portions", need a time line, need approval	define sensitive portions, need to say within 100 ft on either side of the corridor, need to define who will confirm the cable route	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall maintain a 600-foot buffer from any submerged natural resources, including but not limited to hard bottom habitat, soft coral habitat, and worm-rock reef habitat during the use of sand displacement techniques including but not limited to: a) on board vessel prop deflectors and b) handheld prop wash devices (i.e. underwater scooters and similar underwater propulsion devices). The permittee shall notify the Department in writing should potential excavation sites be located in or near reef or live bottom communities. No impacts to any submerged natural resources are authorized by this permit.	4	need to define "near the reef"	give a number of feet or yards to define "near the reef"	
The permittee shall implement the following Best Management Practices (BMPs) to minimize the potential for adverse environmental impacts during the cable installation: A. Cable shall be laid during sea and wind conditions that permit the cable-laying vessels to maximize position and speed control. B. All watercraft associated with the cable installation shall only operate within waters of sufficient depth so as to preclude bottom scouring, prop dredging, or damage to coral reef and live bottom communities. C. After the ship has laid the cable through the reef, divers will swim the cable route with video from the end of the conduit, through the reef gap, to ensure that the cable is laying on the bottom and no suspensions exist. Any minor suspensions will be removed by hand. If the divers discover more severe suspensions, the cable ship will evaluate recovering the cable, clear the suspension, and re-lay the cable. The video shall be submitted with the baseline survey described in Specific Condition 16. D. The permittee shall ensure that vessels associated with the cable project are not anchored on hard bottom and that divers will visually inspect the bottom before anchoring. Immediately prior to cable installation, the north and south boundaries of the North Gap will be marked with a series of surface buoys along the reef edge (from west to east) to clearly identify the proposed cable route to the cable laying vessels and avoid impacts to adjacent reef communities.	4	timeline and approval	need to define when and to whom the video is to be submitted	
Within 24 hours of completion of the cable lay, divers trained in the identification of corals and coral communities, will conduct a post-lay inspection. This inspection can be conducted in conjunction with the inspection in Specific Condition (I I C), or can be conducted separately. A post-lay survey video of the cable through the "North Gap" will be performed in conjunction with this inspection to video graphically document any impacts that occurred from the installation of the cable. If damage to coral communities does occur from the cable lay or associated vessels, divers will immediately flag, take GPS coordinates, and log the depth and date of the impacts. The permittee shall contact the FDEP immediately after the post-lay inspection at 561/681-6643 to report the initial findings (i.e. if the cable was laid properly, were there any impacts.) Damage to coral/coralline algal communities includes but is not limited to communities being toppled, soft corals being pinned under the cable, coral/coralline algal communities displaced by the installation, and/or any impacts from the cable laying vessel itself	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Divers trained in the reattachment/remediation of coral communities will be deployed to reattach the toppled communities with Portland cement Or epoxy, free soft corals/coralline algae pinned under the cable, and/or adjust the cable, if possible, from any stony coral/coralline algal colonies that are directly impacted or displaced. Repairs to live bottom communities may include, but are not limited to, turning upright large boulders that have been knocked over, replacing small boulder communities to their original location if they were moved, cementing pieces of coral reef that were severed back to their original location, cementing soft corals, sponges, and coralline algae back into place provided they still maintain their structure, contain a holdfast and it is determined by the diver trained in reattachment that there is a likelihood of survival if it is reattached. Repaired communities shall be tagged and photo documented for future monitoring. All repairs shall be completed within one (1) week of the post-lay inspection and initial video.	5			
The permittee shall perform all monitoring and restoration activities in accordance with the attached plans (Remediation and Monitoring Plan). Within 30 days after installation of the cable over hard bottom, the permittee shall provide the Department with the post-lay report (baseline survey) with photographs and an "as laid" video of the cable on the ocean floor over the inshore patch reef to assess if any damage was caused to the hardbottom and reef areas where the cable is laid upon the bottom. This information shall include but is not limited to the aerial extent and depths of the impacts; community types and species damaged; aerial extent, community type and species of repaired communities with GPS coordinates; and aerial extent, community type and species not able to be repaired. The following parameters will be used during this video assessment: 1. The video camera will be on wide-angle mode, and the distance from the seafloor cable to the video camera will be 40 to 50 cm. 2. The camera will be .at perpendicular (straight down), relative to the seafloor-cable. 3. The video will be taken at a swim speed that allows for clear images (approximately 12-ft. to 15-ft. per minute). 4. If specific impacts are encountered, the camera operator will halt the survey and take panoramic as well as close up views of the injuries.	5			

Appendix D: FDEP BBCS JCP Permit Special Conditions with Scores

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Water Quality Monitoring (Turbidity) Turbidity monitoring in the vicinity of the borrow areas and the beach nourishment sites shall be monitored during construction. Turbidity will be measured at background and compliance stations. A. Borrow Sites: Frequency: Every six hours during dredging. Location: Background: Mid-depth, at least 300 meters upcurrent from the dredge site, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, no more than 150 meters downcurrent from the dredge site, within the densest portion of any visible turbidity plume. B. Beach Nourishment and Groin Construction Sites: Frequency: Every six hours during pumping operations or other in-water work. Location: Background: Mid-depth, at a point approximately 150 meters offshore and 300 meters upcurrent from the discharge point, clearly outside of any turbidity generated by the project. Compliance: Mid-depth, at a point approximately 150 meters offshore and no more than 150 meters downcurrent from the discharge point, within the densest portion of any visible turbidity plume. Weekly summaries of all monitoring data shall be submitted to the Bureau of Beaches and Wetland Resources and to the Southeast District Office within one week of collection, with documents containing the following information: (1) “Permit Number 0163435-001-JC”; (2) “Broward County Beach Nourishment Project (Segment III)”; (3) dates and times of sampling and analysis; (4) a statement describing the methods used in collection, handling, storage and analysis of the samples; (5) a map indicating the sampling locations, current direction, plume configuration and the location of the dredge and discharge point(s); and (6) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection 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) DGPS position. 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 are greater than 29 NTU's above the associated background turbidity levels, construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.	3	Needs changes to be more specific in protocol, also this condition does not require use of best available technology.	Sampling should be conducted at Surface, mid-depth and approximately 1 m above bottom. Should require the use of high resolution reliable sensors that can be deployed to give accurate and complete readings throughout the project.	
Equipment shall not be placed or stored on top of the natural reefs.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall construct a minimum of 3.1 acres of artificial reef as mitigation for impacts to 3.1 acres of natural nearshore hardbottom. The following procedures shall be adhered to for the construction of the artificial reef mitigation work: The artificial reef shall not be Placed on or adjacent to seagrasses beds or hardbottom habitats Including areas Supporting the growth of coral, macro alga, Sponges sea fans, soft corals, other sessile macroinvertebrates generally associated with rock outcrops or rock outcrops covered with thin laver of sand. The artificial reef shall have an underlying layer of rock that is covered with a layer of sand that is between one (1) and four (4) feet thick. k. The permittees hall not Place boulders within the shore-Parallel formations of the artificial reef that exceed the nominal dimensions specified on the approved drawings for that row. The permittee shall conduct a pre-deployment bottom survey of the placement area approximately fifteen (15) days before placement of the limestone boulders. The survey shall document the absence of seagrass and hardbottom communities within or adjacent to the site. The survey shall also document the thickness of the upper sand laver and the depth of the underlying rock within the proposed reef footprint. The results of this survey shall be provided to the BBCS prior to commencement of reef construction. Prior to the construction of the artificial reef divers shall inspect he area for exposed cultural resources such as sunken vessels ballast historic refuse piles or Careenage areas. If cultural resources re encountered during the visual surveyor at any time within the project site the permittee shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries and contact the Florida Department of State Division of Historical Resources at 850-487-2333 or 1-800-847-2778. Project activities should not resume without written authorization from the Division of Historical Resources.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Mitigation. The unavoidable burial of 7.6 acres of nearshore hardbottom that will result from the direct placement of fill and from the equilibration of the toe of fill (TOF) shall be mitigated by creating a minimum of 8.9 acres of artificial hard bottom substrate. All mitigation shall be completed no later than six (6) months after the commencement of the Segment III beach project construction. If artificial reef construction is not completed within the specified time, a time lag coefficient shall be applied to increase the mitigation ratio. The artificial reefs shall consist of limestone boulders placed on the sandy ocean bottom. These sites shall be located landward of the first offshore reef and seaward of the estimated equilibrium toe of fill, in mean water depths of 15 to 20 feet. Boulders shall be 4 feet or greater in diameter, with a specific gravity of at least 2.1, in order to prevent sliding or tipping/rolling during storm events. The distance between individual boulders shall not exceed five feet. In order to minimize subsidence, the selected placement areas shall contain a layer of sand no more than two feet thick over the hardbottom. A 50-foot wide buffer from all significant natural hardbottoms shall be maintained during boulder placement. These design specifications are consistent with Department guidelines and general practices used in the construction of artificial reefs along the Atlantic Coast of Florida. A portion of the artificial reef site between R-101 and R-104 will serve as the scleractinian coral transplantation receiver site. Deployment of the artificial reefs will begin at Mitigation Area VIII, from R-101 to R-104 (see Attachment 1, The Mitigation Plan)	3	size and depth should be as close as possible to the reef that was destroyed, also boulders should be touching	require the boulders to touch and require them to be same size and depth as the reef that was destroyed, also make sure to include upper and lower size limit for boulders	Mitigation should be constructed prior to project impacts. In some cases this would allow for some animals to move to the new habitat rather than being destroyed during the construction.
Transplantation of corals. Transplantation of scleractinian corals from the areas of direct and secondary impact to the mitigation reef is required for saving important and declining reef-building fauna of the nearshore area and for initiation of coral succession. All scleractinian coral colonies measuring 15 cm or more shall be removed from the area located between the estimated Equilibrium Toe of Fill and the shoreline in Segment III and transplanted into a portion of the artificial reef between R-101 and R-104 designated as the coral transplantation receiver site. There, the corals shall be cemented on the artificial reefs. The transplantation must be done in the pattern that will a) create a percent bottom cover by corals of about 3%; and b) concentrate particular species to stimulate local recruitment and enhance succession. This created coral community shall be the subject of a long-term monitoring program to document survival and growth of the transplanted corals.	4	15 cm is not the standard, could require transplantation of 10 cm or less	require transplant of any coral 10 cm or less	
The artificial reef materials shall consist of clean limestone blocks. Reef construction material shall be inspected by the permittee or their designee prior to loading onto work barges. Debris and sources of pollution shall be removed from the material prior to its placement onto the work barges; blocks must be washed prior to transportation in order to avoid excessive turbidity.	4	needs to be more clear and provide more specific details for how to clean or what constitutes clean	define clean and provide specifics on methods used	There have been recent problems with turbidity from boulders used for reefs

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Following the completion of the placement of reef construction materials, the permittee shall survey the artificial reef sites to verify that the required reef area has been created and provides the appropriate average relief as indicated in the monitoring plan. If the artificial reef does not meet the specifications identified above and the requirements described in the approved monitoring plan, the permittee shall alter the reefs as needed and conduct additional surveys to verify that the permit requirements for artificial reef construction have been satisfactorily completed. If the monitoring surveys indicate a deficit in the extent of required artificial reef, the permittee shall submit a plan to make up the difference and implement the plan once approved by the Department.	4	need to include notification of FWC artificial reef coordinator	Include reporting mechanism to notify FWC artificial reef coordinator of the sites and monitoring reports	
To verify long-term stability and performance of the mitigation artificial reef, at least 90 days prior to each nourishment event, the permittee shall provide verification that the artificial reef has maintained the original design area of 2.39 acres, and the original design elevation and specifications. If there has been any subsidence, burial, or other change in acreage, elevation or location of the artificial reef, the permittee shall restore the artificial reef to the original design specification prior to commencement of construction of each nourishment event.	4	need to extend the monitoring period	extend the monitoring period for up to 3 years from the additional impact and new mitigation	
Thirty days prior to the commencement of artificial reef deployment activities, the permittee shall submit the following information to the Department of Environmental Protection, Southeast District, Submerged Lands & Environmental Resources Program, Compliance Enforcement Section, Attention: Richard Stalker, 400 N. Congress Ave., Suite 200, West Palm Beach, Florida 33401 for review and approval: (1) cargo manifest and pre-deployment notification; (2) inspections from the USCG and EPA to ensure maritime vessels are clean; (3) environmental resource survey depicting the exact location of the artificial reef site, 250·footl500·foot buffers, and location of observed resources; (4) Global Position System Coordinates (GPS); (5) stability analysis; and (6) sonar scan to determine sand overburden.	5			
The environmental resource survey shall consist of n assessment of the bottom conditions conducted via diver, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or vessel mounted side-scan sonar. The inspection of the deployment area shall be done no less than thirty days prior but no more than one year prior to deployment. The permittee shall maintain a deployment buffer area of at least 500 feet for maritime vessels and 250 feet for all other construction materials from any submerged beds of seagrasses or macroalgae, coral reefs, live bottom, areas supporting growth of sponges, sea fans, soft corals, and other sessile macroinvertebrates generally associated with rock outcrops, oyster reefs, scallop beds, clam beds, or areas where there are unique or unusual concentrations of bottom dwelling marine organisms.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The artificial reef material shall be placed in barren sandy bottom locations void of all environmental resources including but not limited to hard bottom, corals, attached biota, or marine plant communities. Stability analysis and sand sonar scans shall be conducted prior to material deployment and shall be submitted to the Department showing that all materials shall remain stable on the bottom post deployment. Prior to deployment, the exact location shall be determined by a precision GPS and clearly marked with perimeter buoys to ensure that no material is deposited outside of the project boundaries. For maritime vessels, at least two separate anchors, of suitable size for each vessel deployed, shall be used to ensure that the vessels do not drift during deployment and that they shall remain in place once settled on the bottom.	5			
Any steel hull vessel which will be utilized as reef material shall be prepared and deployed in accordance with all applicable USCG, EPA, FFWCC regulations or policies, and any other applicable state or federal agency regulations or policies. The vessel shall not be deployed until all necessary inspections and clearances have been obtained or waived and a stability analysis' has been completed based on vessel and deployment site characteristics. National guidance regarding preparation of vessels for deployment as artificial reefs may be viewed at:http://www.epa.gov/owow/oceanslhabitatlartificialreefs/index.htlnl. The permittee shall maintain a record of all inspections, clearances or waivers and shall be provided to the Department upon request.	5			
The Permittee shall only deploy the following authorized reef materials: (a) Prefabricated artificial reef modules composed of steel, concrete, rock or a combination of these materials. (b) Natural rock boulders and other pre-cast material, such as, culverts (inside diameter no less than 36 inches), stormwater junction boxes, power poles. (c) Clean steel and concrete bridge demolition materials such as slabs or pilings with all steel reinforcement rods severed as close to the concrete surface as possible but not to extend more than 6 inches to ensure the rod will not create a fishing tackle or diver ensnaring hazard. (d) Heavy gauge steel components or structures, ¼" or more in thickness.	5			
All vessel movement, construction, and reef deployment activities shall take place during daylight hours only with the exception of movement of shallow-draft transport vessels. For the purposes of this permit, daylight shall be defined as occurring from 30 minutes before sunrise to 30 minutes after sunset. All transport vessels shall travel at slow speed.	5			
No fish attraction devices may be constructed or attached to the permitted artificial reefs or within the site boundaries once the material is deployed.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Reef materials shall be clean and free from asphalt, petroleum, other hydrocarbons and toxic residues, loose free floating material or other deleterious substances. All artificial reef materials and/or structures shall be selected, designed, constructed and deployed to create effective, stable and durable reef fish habitat.	5			
The permittee shall deploy all reef materials within the site boundaries as defined on the enclosed drawings. The material shall be placed so that the top of the reef does not exceed 1/2 the distance from the bottom to the surface of the water unless a greater distance from the surface is required for safe navigation. At no time shall the distance between the top of the reef and the surface of the water be less than 6 feet. There shall be no reefs constructed in bays, lagoons, or estuaries that are less than 12 feet deep	5			
The permittee shall notify the National Ocean Service, National Oceanographic and Atmospheric Association, U.S. Department of Commerce, Rockville, Maryland, and the Department of Environmental Protection, Division of Marine Resources, Office of Fisheries Management and Assistance Services of the precise location of the reef within 30 days of placement of the reef material.	5			
Neither reef structure nor material or the method of design or deployment should pose more than minimum risk of entrapping fish, marine turtles, or marine mammals. The permittee shall take all necessary action to minimize this risk. Any observation of entrapped marine turtles or marine mammals on this artificial reef site should be reported immediately to the DEP.	5			
In the event reef material is deployed in a location or manner that is contrary to the submitted plans, the permittee shall immediately notify the Department and provide information as stated in the Permittee's submitted contingency plan. The permittee shall notify the Department in writing within 14 days of the occurrence. At a minimum, the written notification shall explain how the deployed material exceeds the authorized reef parameters, a description of the material, a description of the vessel traffic in the area, the deployment location in nautical miles at compass bearing from obvious landmarks, the location of the unauthorized material in latitude and longitudes coordinates (degree, minute, decimal minute format to the third decimal place), a resource survey of the new locations in accordance with specific condition (12) above, and the water depth above the material from Mean Low Water. After an assessment of the new reef deployment areas, the Department's Compliance and Enforcement Staff will instruct the applicant to remove or relocate the misplaced reef material.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Within 12 months from the effective date of this permit and annually thereafter until expiration of the deployment authorization, the Permittee shall submit to the Department a spreadsheet listing the deployments that occurred within the previous 12 months and a written report which summarizes, analyzes, and draws conclusions regarding the activities or issues associated with the artificial reef locations in the past 12 months. For each deployment, the spreadsheet shall include the local tracking number, date deployed, latitude and longitude, description and quantity of the material deployed, depth of water above material, approximate area of seafloor covered. The spreadsheet shall document any known changes in material condition (stability, durability, and location) as compared to those same characteristics at the time of deployment. The report may include but is not limited to use trends, site management constraints and resolutions, management techniques, modifications of operational plans, lessons learned, etc. Results of any performance monitoring (description of fish and other biota observed) shall be included in the report. The report shall be limited to 5 pages of written text and include a permit drawing(s) or similar visual depiction of the location of each deployment in relation to the boundary of the reef sites. The report shall describe how the permittee managed the site in support of the 6 provisions listed in the Corps regulations at 33 CFR 322.5 (b). Immediately upon expiration of the deployment authorization or request for permit extension, a summary of reports submitted since the last permit issuance/renewal shall be submitted to the Department: This compilation shall document any known changes in material stability, durability, or location as compared to that most recently reported for a site as well as a summary/analysis of the qualitative data (trends, lessons learned, etc.) in the yearly reports.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
No work shall be conducted under this permit until the permittee has received a written Notice to Proceed from the Department. At least sixty (60) 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: a. A detailed Mitigation Plan that addresses the timing of artificial hardbottom construction in relation to the beach fill construction, acreage of proposed artificial hardbottom (as required in Specific Condition No. 11), proposed construction methods, the size and type of hard bottom substrate, depth of sand (above underlying rock), and other pertinent updates to the draft mitigation plan; b. A Sediment Quality Control / Quality Assurance Plan, as required by Rule 62B 41.008(1)(k)4.b., F.A.C. and Specific Condition No. 8; c. A detailed Physical Monitoring Plan, as described in Specific Condition No. 14 (Physical Monitoring section), indicating the project's predicted design life; d. A detailed Biological Monitoring Plan, as described in Specific Condition No. 15 (Biological Monitoring section); e. Two hard copies and an electronic copy of detailed final construction plans and specifications for all authorized activities, including a vessel operations plan. These documents shall be signed and sealed by the design engineer, who must be registered in the State of Florida, and shall bear the certifications specified in Rule 62B-41.007(4), F.A.C. The plans and specifications shall include a description of the beach construction methods to be utilized and drawings and surveys which show all biological resources and work spaces (e.g. anchoring area, pipeline corridors, staging areas, boat access corridors, etc.) to be used for this project. The Department may request additional information that may be necessary to understand and evaluate the proposal; f. 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. Accordingly, 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; g. Biological monitoring qualifications. The names and qualifications of those individuals performing the biological monitoring shall be submitted for Department approval. All biological monitoring required by this permit shall be conducted by individuals having a good working knowledge of marine fish, marine turtles, algae, coral, and sponge taxonomy.	3	sections a-d should be completed prior to permit issuance and should not be included as a special condition requirement of the permit, this will also make the condition shorter and more simplified	require a-d be completed as part of the permitting process prior to issuance	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The projected toe of fill is not anticipated to directly cover the nearshore hardbottom communities and no direct burial of hardbottoms is authorized herein. However, post construction physical and biological monitoring shall be required to verify that the hardbottom communities are not buried or degraded by the movement of this sand. If it is determined upon review of the monitoring and survey data that nearshore habitat is buried or degraded, then mitigation for impacts shall be required at a ratio of at least 3:1. If such burial occurs, or if impacts are identified as a result of pipeline corridor placement and removal, borrow area excavation, or any other construction related activity, the permittee shall submit a mitigation and monitoring plan to the Office of Beaches and Coastal Systems within 30 days following the determination. Following approval by the Department, the permittee shall implement the plan within the specified time frame.	3	not clear, need to provide details on methodology for determining sedimentation impacts	reword to clarify, add detailed methodology for determining sedimentation impacts	
The permittee shall require the dredging contractor to have positioning equipment which continuously measures the vertical and horizontal location of the cutterhead, diagrams, dustpan or clamshell at all times during dredging operations. The horizontal positioning equipment shall monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. Horizontal accuracy for dredge positioning shall be 3.0 feet. Vertical accuracy for the dredge depth monitoring shall be 1.0 foot. This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NGVD. As a part of the final report, and upon request at any time during construction, the permittee shall provide a daily record of the position of the dredge equipment which includes the borrow area limits and hardbottom buffer zones referenced to state plane coordinates and NGVD.	5			
A 600 foot dredge buffer zone in which dredging is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). The permittee shall ensure that the no dredging buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).	4	buffer should be 1000 feet	require 1000 ft buffer	
A 400 foot anchor buffer zone in which anchoring is prohibited shall be maintained around the adjacent hardbottom areas in the vicinity of the borrow site(s). No anchoring, including the dredge, support vessels and swing wires, shall be allowed within the delineated 400-foot buffer zone. No equipment or structures will be placed within the anchor buffer zone. The permittee shall ensure that the "no anchoring" buffer zones are maintained continuously for as long as dredging occurs at the borrow site(s).	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
In order to reduce the potential for impacts to the reef habitat, and to verify that impacts will be avoided, a minimum of ~ 600 foot buffer zone, in which anchoring is prohibited, shall be maintained around the reef areas located near the borrow site. Mobilization/demobilization into the project area from deep water will occur through a natural gap in the barrier reef south of the City of Delray Beach outfall pipeline location. No floating equipment will be allowed over the barrier reef system. The contractor will be required to directly push the dredge when within 1.5 miles of the shoreline. The contractor will also be required to directly push or tow with polypropylene (floating) lines all other equipment that is not self-propelled when within 1.5 miles of the shoreline. SCUBA surveys of the reefs adjacent to the borrow area shall be conducted once a week to monitor for any mechanical or sedimentation damage to the hardbottom reef areas. A specific condition of the permit shall require the applicant to submit a detailed biological assessment of the adjacent reef tracts and an operations and monitoring plan for the project prior to construction.	4	buffer should be 1000 feet	require 1000 ft buffer	
To protect hardbottom areas adjacent to the borrow areas and beach restoration site, the permittee and their contractors shall adhere to the following procedures: a. As a Notice to Proceed item, the permittees hall submit the names and Qualifications of the individuals familiar with beach construction techniques and turbidity monitoring who shall be present at the sand disposal sites at all times when fill material is discharged onto the beaches. These individuals shall serve as site supervisor and shall have authority to alter construction techniques or shut down the dredging or beach construction operations if turbidity exceeds2 9 NTUs above natural background levels outside of the designated mixing zone. Any individual who performs this function shall be approved by the Department before beginning to serve in this capacity. b. Before any construction equipment enters the project area, once every two weeks during construction, and immediately after the construction equipment has left the project area, a qualified marine biologist shall survey the hardbottoms to assess physical damage caused by the construction activities (from machinery, ancillary equipment, spill, etc.). The areas to be surveyed are all existing hardbottom areas within 750 meters of all work spaces used that week. A record of these surveys shall be kept and submitted to the Department within 14 days of completing each survey. The person or persons performing these surveys shall have a good working knowledge of coral and sponge taxonomy, and the qualifications of the person or persons shall be submitted to the Department for approval at least 30 days before the construction equipment enters the project area. f any damage is found, the Department shall be notified within 24 hours of the survey. If the damage is detected on a weekend or holiday, the Department shall be notified on the next business day.	4	Don't use NGVD, need to include monitoring if damage is found	Use NAVD instead of NGVD, extend monitoring and remediation if damage is found, right now this condition only requires reporting the damage not fixing it	

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
CONTINUED: Within 3 weeks of discovering the damage, the permittee shall submit to the Department a detailed description of the damage including an estimate of the area damaged, photographs, a plan to prevent further damage and a plan to repair the damage, if action has not already been taken. Nothing herein shall preclude the Department from taking enforcement action as a result of the damage. c. The contractor shall push his equipment in to the project area verses towing when within 1.5 miles of the shoreline to avoid potential cable drags. d. A 400- foot buffer zone in which dredging is prohibited shall be maintained and marked with buoys (fluorescent buoys if construction will occur at night) around the hardbottom areas located near the borrow sites. The buoys shall be placed no more than 500 feet apart to clearly identify the limits of the hardbottom areas. The permittee shall ensure that these buoys are maintained continuously for as long as dredging occurs at the borrow area. e. During all dredging operations the permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal Location of the cutterhead at all times during construction operation. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth-monitoring device. This equipments hall provide a permanent record of the position referenced to State Plane Coordinates and NGVD. As part of the final report, the permittee shall provide a daily record of the position of the dredge equipment which includes the dredge area limits with actual and maximum authorized dredge depth referenced to state plane coordinates and NGVD. Vertical and horizontal accuracy of the positioning equipment shall also be reported.				

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The complexity of bottom biotopes and natural communities subject to turbidity and sedimentation impacts during beach restoration doesn't allow for precise prediction of the consequences of beach fill. Monitoring is the best way to evaluate changes in order to implement appropriate measures to correct any adverse effects during construction or assess adequate mitigative measures if impacts exceed the predicted levels. As a Notice to Proceed item, the permittee shall submit a detailed Biological Monitoring Plan subject to review and approval by the Department. The monitoring plan shall include collection of pre-construction, construction, and post construction data on the patch reef communities located within 750 feet of the western boundaries of the borrow areas and north and south of the pipeline corridors. The plan shall incorporate valid and independent controls, and appropriate statistical analysis to assess the potential short-term and long-term effects of turbidity and sedimentation upon the epibenthos. Towed underwater video combined with diver observations shall be conducted over the entire south borrow area and pipeline corridors prior to dredging to verify that no areas of hard bottom or potential sea grass areas are present. If any such areas are found they shall be mapped and appropriate buffer zones and monitoring stations shall be established. Exposed supratidal/intertidal rock platforms occur between R-219 and R-220. This emergent hardbottom formation shall not be covered directly by the beach fill. .A monitoring program shall be undertaken to determine the possible effects of the project on the distribution and abundance of sessile flora and fauna of the supratidal and subtidal hardbottom habitat within the vicinity ofR-219 and R-220. Monitoring shall be conducted in the summer following project construction and for two subsequent years, for a total of three years of post-construction monitoring.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Nearshore Hardbottom Edge Monitoring. The Permittee shall survey the hardbottom edge adjacent to the exterior dredge area in association with each dredging event that entails excavation between -12 ft. and -20 ft. NGVD. The immediate pre-construction survey shall be performed within 14 days prior to construction, and the immediate post construction survey shall be performed within 7 days following completion of dredging activities. The term "hardbottom" shall include not only exposed limestone, but also benthic communities emergent from sand-covered limestone or attached to unconsolidated rubble. A diver with an attached, DGPS antenna and a digital video camera shall map and document the condition of the benthic communities along the hardbottom edge along both sides of the exterior dredge area. The divers shall visually assess the hardbottom communities for signs of physical damage due to dredging activities within the exterior dredge area. The results of these annual surveys shall be overlapped onto recent aerial photography and compared to the August 2007 baseline survey and previous annual surveys. The report, plan-view aerial maps, and digital video record of the hardbottom edges (CD or DVD format) shall be submitted to the Department within 30 days of the completion of each survey. If any impacts to hardbottom communities are discovered during these surveys, the impacts shall be reported within 48 hours of discovery to the JCP Compliance Officer, DEP Bureau of Beaches and Coastal Systems, 3900 Commonwealth Blvd, Mail Station 300, Tallahassee, FL 32399-3000 (e-mail address: JCP Compliance@dep.state.fl.us).	4	Don't use NGVD, need to include monitoring if damage is found	Use NAVD instead of NGVD, extend monitoring and remediation if damage is found, right now this condition only requires reporting the damage not fixing it	
The spoil pipe will be laid to minimize impacts. A plan shall be provided to the FKNMS and FOEP detailing the placement of the pipe. Placement may include floating, supporting or bottom placement. This plan shall be submitted to and approved by the FKNMS prior to the commencement of work.	5			
Pre-project monitoring shall establish background turbidity levels and sediment characteristics in the dredging footprint. The permittee shall establish a protocol to monitor the pipeline as part of a turbidity monitoring plan. The areas to be monitored include Cut C, Cut B, and the way points designated by the FKNMS.	5			
The permittee shall develop an operational contingency plan that describes their response in the event of storms (e.g., hurricanes, spring storms) and operational failures (e.g., breaks in the dredge pipes, movement of dredge pipes). This plan shall be submitted to and approved by the FKNMS and FDEP prior to construction.	5			
The permittee shall conduct a stability analysis for the dredged material pipeline for its entire length. The permittee shall anchor or otherwise stabilize the dredge material pipeline consistent with this analysis and in such a manner as to ensure that the pipeline will remain stable in a 50-year storm event. A copy of the analysis shall be provided to the FKNMS and FDEP.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall use the appropriate type of anchoring methods on the dredge material pipeline to avoid impacts to sensitive resources during storm events. The permittee or their designee must consult with FKNMS regarding the anchoring methods prior to the pipeline being installed.	5			
The permittee's turbidity controls at the East Rockland Key disposal site shall include but are not limited to: a berm at the mouth of the pit and double turbidity screening to reduce sediment impact on adjacent marine communities (e.g. sponges, macro-algae, seagrass and hardbottom communities).	5			
The permittee shall prevent cables from scouring benthic resources.	5			
The permittee shall alert the FKNMS and FDEP staff of any impacts or accidents that may occur. The permittee shall initiate within 24 hours of any incident, the recovery and restoration of any damage to living coral in the event of unforeseen accidents, such as anchor damage, anchor cable scouring, or disposal pipeline failure. The FKNMS may participate and assist in this effort.	5			
Prior to the commencement of the project, the permittee shall conduct a pre-lay diver survey marking the sensitive portions of the proposed corridor and hardbottom areas within 100 ft. of the proposed corridor. Prior to the cable installation, the least impactive route through the "North Gap" shall be confirmed and marked with a series of surface buoys to clearly identify the proposed cable route to the cable laying vessel and to avoid impacts to adjacent reef communities.	5			
The permittee shall maintain a 600-foot buffer from any submerged natural resources, including but not limited to hard bottom habitat, soft coral habitat, and worm-rock reef habitat during the use of sand displacement techniques including but not limited to: a) on board vessel prop deflectors and b) handheld prop wash devices (i.e. underwater scooters and similar underwater propulsion devices). The permittee shall notify the Department in writing should potential excavation sites be located in or near reef or live bottom communities. No impacts to any submerged natural resources are authorized by this permit.	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
The permittee shall implement the following Best Management Practices (BMPs) to minimize the potential for adverse environmental impacts during the cable installation: A. Cable shall be laid during sea and wind conditions that permit the cable-laying vessels to maximize position and speed control. B. All watercraft associated with the cable installation shall only operate within waters of sufficient depth so as to preclude bottom scouring, prop dredging, or damage to coral reef and live bottom communities. C. After the ship has laid the cable through the reef, divers will swim the cable route with video from the end of the conduit, through the reef gap, to ensure that the cable is laying on the bottom and no suspensions exist. Any minor suspensions will be removed by hand. If the divers discover more severe suspensions, the cable ship will evaluate recovering the cable, clear the suspension, and re-lay the cable. The video shall be submitted with the baseline survey described in Specific Condition 16. D. The permittee shall ensure that vessels associated with the cable project are not anchored on hard bottom and that divers will visually inspect the bottom before anchoring. Immediately prior to cable installation, the north and south boundaries of the North Gap will be marked with a series of surface buoys along the reef edge (from west to east) to clearly identify the proposed cable route to the cable laying vessels and avoid impacts to adjacent reef communities.	5			
Within 24 hours of completion of the cable lay, divers trained in the identification of corals and coral communities, will conduct a post-lay inspection. This inspection can be conducted in conjunction with the inspection in Specific Condition (I I C), or can be conducted separately. A post-lay survey video of the cable through the "North Gap" will be performed in conjunction with this inspection to video graphically document any impacts that occurred from the installation of the cable. If damage to coral communities does occur from the cable lay or associated vessels, divers will immediately flag, take GPS coordinates, and log the depth and date of the impacts. The permittee shall contact the FDEP immediately after the post-lay inspection at 561/681-6643 to report the initial findings (i.e. if the cable was laid properly, were there any impacts.) Damage to coral/coralline algal communities includes but is not limited to communities being toppled, soft corals being pinned under the cable, coral/coralline algal communities displaced by the installation, and/or any impacts from the cable laying vessel itself	5			

Condition	Score	Reason-if not a 5	Suggested Improvements	Notes
Divers trained in the reattachment/remediation of coral communities will be deployed to reattach the toppled communities with Portland cement Or epoxy, free soft corals/coralline algae pinned under the cable, and/or adjust the cable, if possible, from any stony coral/coralline algal colonies that are directly impacted or displaced. Repairs to live bottom communities may include, but are not limited to, turning upright large boulders that have been knocked over, replacing small boulder communities to their original location if they were moved, cementing pieces of coral reef that were severed back to their original location, cementing soft corals, sponges, and coralline algae back into place provided they still maintain their structure, contain a holdfast and it is determined by the diver trained in reattachment that there is a likelihood of survival if it is reattached. Repaired communities shall be tagged and photo documented for future monitoring. All repairs shall be completed within one (1) week of the post-lay inspection and initial video.	5			
The permittee shall perform all monitoring and restoration activities in accordance with the attached plans (Remediation and Monitoring Plan). Within 30 days after installation of the cable over hard bottom, the permittee shall provide the Department with the post-lay report (baseline survey) with photographs and an "as laid" video of the cable on the ocean floor over the inshore patch reef to assess if any damage was caused to the hardbottom and reef areas where the cable is laid upon the bottom. This information shall include but is not limited to the aerial extent and depths of the impacts; community types and species damaged; aerial extent, community type and species of repaired communities with GPS coordinates; and aerial extent, community type and species not able to be repaired. The following parameters will be used during this video assessment: 1. The video camera will be on wide-angle mode, and the distance from the seafloor cable to the video camera will be 40 to 50 cm. 2. The camera will be .at perpendicular (straight down), relative to the seafloor-cable. 3. The video will be taken at a swim speed that allows for clear images (approximately 12-ft. to 15-ft. per minute). 4. If specific impacts are encountered, the camera operator will halt the survey and take panoramic as well as close up views of the injuries.	5			