Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual

For

FLAGLER BEACH
COASTAL STORM RISK MANAGEMENT PROJECT

FLAGLER COUNTY, FLORIDA

October 2024

US Army Corps of Engineers ®
Jacksonville District

Engineering Division

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1 INTRODUCTION

1.1 Purpose

This Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) Manual is prepared in response to section 912(b) (1) of the Water Resources Development Act of 1986 (PL 99-662) which amended section 221 of PL 91-611 to include the following:

"The Secretary may require compliance with any requirement pertaining to cooperation by non-Federal interest in carrying out any water resources Project authorized before, on, or after the date of enactment of this Act."

The purpose of this manual is to assist the non-federal Project Sponsor, Flagler County, with information and advice as to the operation and maintenance of the Coastal Storm Risk Management (CSRM) Project.

1.2 Policy

Under the provisions of the Water Resources Development Act of 1986 (WRDA 86) and the resulting policies, beach fill projects are formulated to provide protection for oceanfront infrastructure, roads, and utilities and to reduce the amount of damage caused by coastal erosion from storm events. The non-Federal sponsor must operate, maintain, repair, replace and rehabilitate the completed project. Federal beach fill projects include the provision for continued Federal participation through periodic nourishment including design and construction. For funding and cost sharing purposes, periodic nourishment is considered to be “construction”. Periodic nourishment is undertaken when necessary to replace storm induced losses of the beach, berm, or dune to prevent erosion of the beach design section.

The following definitions apply for OMRR&R for beach fills which are recommended for authorization with continued Federal construction participation in periodic nourishment. It is recognized that the non-Federal responsibilities at existing projects may vary from these definitions.

1.2.1 Operations

Operations are the non-Federal sponsor's continuing oversight activities that ensure the beach design section provides coastal storm risk management and promotes and encourages safe and healthful public enjoyment of the recreational opportunities provided by the beach fill. Operation activities include protection of dunes, prevention of encroachments, and monitoring of beach design section conditions. Operations are a non-Federal sponsor responsibility and there is no Federal financial participation in operations activities.

1.2.2 Maintenance, Repair, Replacement and Rehabilitation

For a beach fill there is generally no meaningful distinction between maintenance, repair, replacement, and rehabilitation. A beach fill project is designed to provide a certain level of erosion and storm surge protection to landward facilities through the sacrifice of project fill material. The protection provided depends on the berm and dune crest elevation and the amount and characteristics of sacrificial sand

maintained within the project design section. The project function depends on maintenance of the horizontal and vertical dimensions of the project design section. Preservation of this design section can be achieved through a combination of the following activities which generally describe the non-Federal sponsor's responsibility for maintenance, repair, replacement, and rehabilitation. These activities must be completed in accordance with the State of Florida's environmental laws and conditions:

- Grading and reshaping the beach and dune using sand within the project design section.
- Maintenance of dune vegetation, sand fencing, post and rope, dune information signs, dune crossovers, and other pedestrian access ways.

1.3 Project Authorization

Authorization for construction of the Flagler County Project was provided in Section 1401 (3)(2) of the Water Resources Development Act of 2016, Public Law 114-322. Although, initially authorized as a Hurricane and Storm Damage Reduction (HSDR) Project, per Office of Counsel the project will here forward be known as a Coastal Storm Risk Management Project (CSRM).

The final Integrated Feasibility Study and Environmental Assessment were completed in September 2014, and revised in October 2014, and revised again in April 2015. The Chief of Engineer's Report was signed on December 23rd, 2014, recommending beach and dune nourishment within a portion of Flagler Beach. These reports and related appendices can be found at:

https://www.saj.usace.army.mil/Missions/Civil-Works/Shore-Protection/Flagler-County/

1.4 Project Partnership Agreement

The Project Partnership Agreement (PPA) between the Department of the Army and the Project Sponsor, Flagler County, was executed on July 23, 2019, and is included in Appendix A. The executed PPA defines the overall responsibilities of the Federal government and the Project Sponsor regarding financial needs, real estate requirements, etc. This manual will serve to further define all OMRR&R responsibilities of the Project Sponsor.

1.5 Project Location

The Project is located on Flagler Beach in Flagler County which is located on the northeast coast of Florida approximately midway between the Florida-Georgia state line and Cape Canaveral (Figure 1). The county is bounded to the north by St. Johns County and to the south by Volusia County. The project covers approximately 2.5 miles of shoreline between FDEP Range monuments R-80 and R-94.

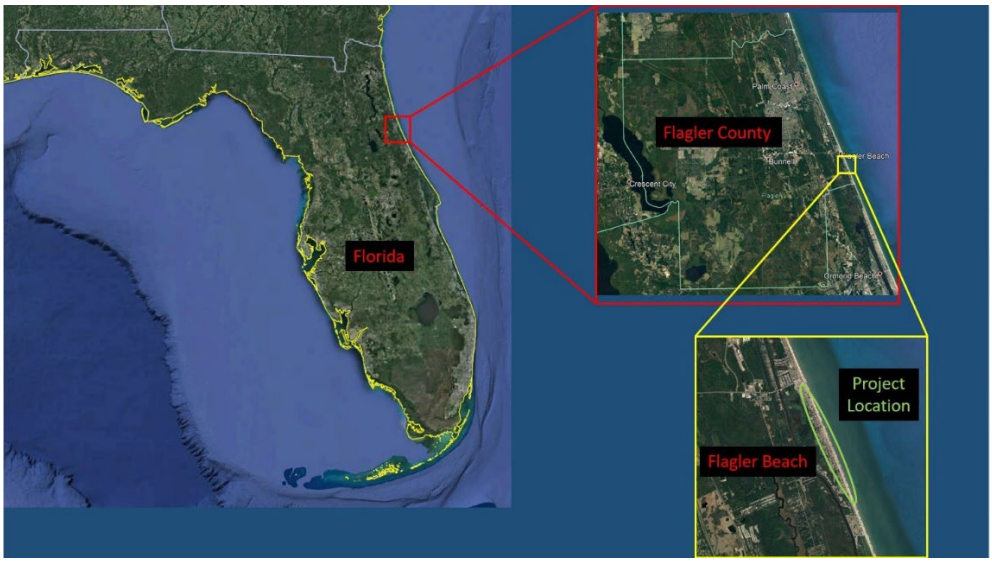


Figure 1: Project Location

1.6 Project Purpose

The purpose of this Project is to protect oceanfront infrastructure, including State Road (SR) A1A, from shoreline erosion and storm events. SR A1A is an integral part of the County's infrastructure as it is the only north-south hurricane evacuation route for communities in this area. Therefore, it is important to maintain the road and shoreline to ensure public safety during evacuation events.

1.7 Initial Construction

Initial construction of the Flagler CSRM Project was performed under Florida Department of Environmental Protection (FDEP) Permit No. 0378136-001-JC (Appendix B), which was issued by the FDEP on February 11, 2020, and modification 0378136-002-JM, which was issued August 15, 2023.

The 2024 Flagler Beach CSRM Project was constructed from 5 July 2024 to 5 September 2024, placing 1,427,439 cubic yards of material within the Federal portion of the project between R-80 to R-94. Construction was performed by Great Lakes Dredge and Docks Inc. (Great Lakes) using the hopper dredges R.B. Weeks and Magdalen. The project involved the hydraulic excavation of sand from offshore borrow area 3A, located in federal waters approximately 10.25 nautical miles from the project shoreline. Additional areas of shoreline between R-77 to R-80 and R-94 to R-96 were restored at 100% non-federal cost. Great Lakes placed 241,339 cubic yards between R-77 and R-80 and 113,432 cubic yards between R-94 and R-96.

The constructed fill template consisted of a dune and beach berm. As-built plans of the Project, as well as the Post-fill Sand Sampling Report are provided in Appendix C.

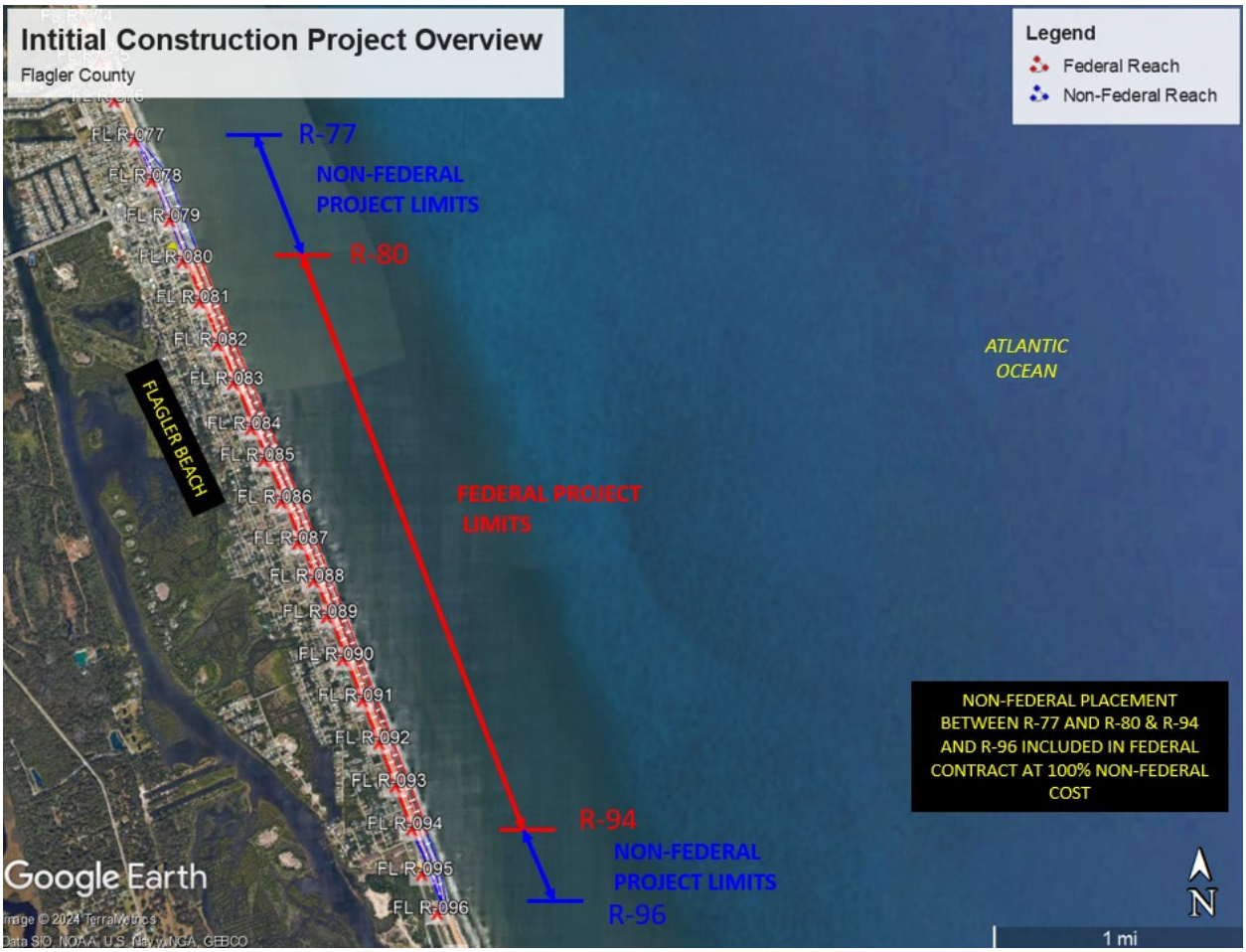


Figure 2: Initial Construction – Project Overview

1.7.1 Additional Non-Federal Work during Initial Construction

At the request of the Project Sponsor, Flagler County, two adjacent areas of beach were added to the construction contract at 100% non-Federal cost. has an adjacent beach renourishment project, in which portions of that project were included in this initial construction of the Federal project. The County-permitted project template was constructed to the north and south of the Federal CSRM between R-77 to R-80 and R-94 to R-96. These extensions will improve the performance of the Federal project by allowing for a more gradual alongshore diffusion of the placed material.

2 GENERAL PROCEDURES FOR OMRR&R

2.1 General Regulations

This manual is to assist in the maintenance and operation requirements of the Project in accordance with approved regulations, and as prescribed in ER 1110-2-2902 (see Appendix D). The following general regulations are prescribed to govern the maintenance of the Coastal Storm Risk Management Project for Flagler County:

1. The Project Sponsor will be responsible for the efficient operation and maintenance of the Project and for inspection and maintenance of the Project works, all without cost to the Federal government (excluding periodic nourishment when defined as construction).

2. No encroachment or trespassing, which will adversely affect the efficient operation of maintenance of the project works, will be permitted upon the project footprint without prior coordination with the U.S. Army Corps of Engineers (USACE). Such encroachments may include, but are not limited to, recreation, construction, development, landscaping, or other public or private uses of the project dune that may disturb or hinder the growth of dune vegetation, except as approved by FDEP in coordination with USACE.

3. Any improvements passed over, under, or through the berm, dune, or excavation, any construction permitted within the limits of the project footprint, or any other changes are subject to review by the District Engineer or their authorized representative and may be subject to Section 408 Review by USACE.

4. It will be the duty of the Project Sponsor to submit an annual report to the District Engineer covering the inspection and maintenance of the project. The report should cover such items as the number of inspections made, the condition of the berm, the condition of the vegetative cover, maintenance work needed, maintenance work completed, and costs since the last report. The report should also cover the condition of and changes to public access facilities (e.g., parking lots, walkways, and walkovers). This report is separate from the annual physical monitoring required by the FDEP. Instructions and sample forms for submission of periodic inspection and maintenance reports for the project are enclosed (Appendix E).

3 SPECIFIC OPERATIONS AND MAINTENANCE REQUIREMENTS

3.1 Operations

3.1.1 General

33 U.S. Code § 426e (Federal aid in protection of shores) states, “When in the opinion of the Chief of Engineers the most suitable and economical remedial measures would be provided by periodic beach nourishment, the term “construction” may be construed for the purposes of sections 426e to 426h–1 of this title to include the deposit of sand fill at suitable intervals of time to furnish sand supply to Project shores for a length of time specified by the Chief of Engineers.” By this provision, periodic nourishment is

considered construction and not maintenance, and therefore is cost shared. The Recommended Plan involves initial construction and periodic nourishment and is technically "beach nourishment." Physical (topographic and bathymetric) and environmental surveys supporting beach nourishment are cost-shared activities included in the total Project cost for initial and periodic nourishment. The operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) anticipated for this Project includes any necessary long-term topographic and bathymetric surveys (different from those supporting beach nourishment activities) of the placement area and adjacent areas, and a monitoring report on an annual basis for 3 years following construction and then biennially until the next construction event. Other OMRR&R items may include revegetating the dune as needed between nourishment activities (per Policy Guidance Letter No. 27 (11/17/92)), scarp repair, and beach tilling. The operations and maintenance will also include the items of local cooperation. These items entail publicizing floodplain information, ensuring continued conditions of public ownership and use of the shore, performing surveillance of the beach, and any specific directions prescribed by the government.

3.1.2 Monitoring Program

The monitoring program requires acquisition of Project-specific data to include topographic and bathymetric surveys of the beach, offshore, and borrow site areas and engineering analysis and reporting. The monitoring program is necessary for the US Army Corps of Engineers, the Project Sponsor, and the regulatory agencies to regularly observe and assess the performance of the Project and adjacent shorelines with quantitative measurements. The general objectives of this monitoring program are to:

- Evaluate the post-construction performance of the Project area and adjacent shorelines.
- Provide design guidance of the need for any adjustments or modifications for future beach maintenance activities.
- Identify the need and timeline for renourishment.

The monitoring program is intended to parallel the FDEP permit conditions, as described in FDEP Permit No. 0378136-001-JC and any subsequent modifications. The primary components of the Physical Monitoring Plan are:

- Beach profile surveys
- Borrow area surveys
- Engineering analysis and reporting

These activities will be carried out in the project area and along the adjacent shorelines as described in the Permit Physical Monitoring Plan for each component. This monitoring plan may be revised later by written request of the permittee and with written approval of the FDEP. Table 1 summarizes the schedule for physical monitoring with respect to initial nourishment. This schedule continues biennially until the next beach nourishment event or the expiration of the project design life, whichever comes first. Renourishment of the project will require the physical monitoring schedule to begin again. A summary of the estimated costs and cost share to perform the following physical monitoring activities through three

years post-construction is included in Appendix F. The USACE will cost share physical monitoring activities with the Project Sponsor through the three-year post-construction monitoring report, after which point all physical monitoring activities will be the responsibility of the Project Sponsor. It is further recommended by USACE that the Project Sponsor conduct beach profile surveys in the years between permit-required biennial monitoring in order to document beach conditions ahead of hurricane season as may be needed for documentation of damages under the Flood Control and Coastal Emergencies Act.

Table 1: Monitoring Schedule Per FDEP Permit Conditions

Monitoring Event*	Beach Profile Surveys	Borrow Area Survey	Report
Pre-Construction	X	X	
Post-Construction	X	X	X
Year 1	X		X
Year 2	X	X	X
Year 3	X		X
Year 4			
Year 5	X		X

** This schedule continues biennially until the next beach nourishment event or the expiration of the Project design life, whichever comes first. The biennial monitoring elements match those identified for Year 5.*

3.1.3 Inspections

Inspect the condition of the project concurrently with the annual beach surveys, as well as beach surveys conducted after major storm events. Provide the survey information and an engineering evaluation to the District Engineer. The principal purpose of the inspection is to investigate whether:

- Any obvious settlement, sloughing or material loss has taken place,
- Any movement of beach material is significantly affecting other infrastructure along the project shore,
- any suspected encroachments into project rights of way have occurred, and
- Walkways or other public access features on public lands or project rights-of-way are in good condition (i.e., not derelict or a safety hazard) and are not causing excessive wind or wave erosion.

Following the inspection, advise the District Engineer of any situation that may affect functioning of the project (e.g., excessive disturbance of sand or dune vegetation) and correct any project deficiencies that fall within the scope of maintenance. Include the identification of any walkways, walkovers, or structures that are in a condition visibly inconsistent with FDEP general guidelines (e.g., excessive footprint, inappropriate siting or design, unsuitable materials or construction methods). Appendix E includes sample forms to be used during inspections.

3.1.4 Reporting

Submit an engineering monitoring report and monitoring data to the District Engineer following each survey. The report will summarize and discuss the survey data and the performance of the project and identify erosion and accretion patterns within the monitoring area. The report will include plots of beach

profile surveys as well as tables and graphic illustrations of volumetric and shoreline position changes. Results will be analyzed for patterns, trends, and changes between monitoring surveys and cumulatively since project construction. At a minimum, the report must include:

- The most recent mean high-water shoreline position in comparison with the previous year condition, the pre-construction condition, and the design construction template at each R-monument location in the project area.
- The measured volume change experienced over the previous year, since the most recent beach nourishment, and the pre-construction condition above the mean high-water line and above the depth of closure at each R-monument location in the project area.
- The current volume required to fill the project design construction template at each R-monument location in the project area.

The report must also include other beach conditions or trend analyses the Project Sponsor deems useful in assessing the performance of the project both quantitatively and qualitatively.

In monitoring periods during which the borrow area is surveyed, include in the report the volume remaining and distribution of infilling of the borrow area. Geotechnical data and analysis of beach sand sampling (when conducted), including a comparison to the native sand characteristics, must be included in the post-construction report or as a separate report. Aerial photographs (when collected) must be included in the report as an appendix.

3.2 Maintenance

3.2.1 General

The Project Sponsor will provide such maintenance (excluding periodic nourishment when defined as construction) as is required to ensure serviceability of the beach berm, dune, and foreshore for erosion control during storms and for recreation during non-storm periods. The Project Sponsor will ensure that:

1. Devices and/or vegetation used to capture sand are preserved and replaced when needed, subject to the requirements of the State of Florida's environmental laws and conditions and in accordance with Policy Guidance Letter No. 27 (dated 11/17/92; Appendix G) in order to maintain dune integrity.

2. Hazardous conditions are eliminated where possible, and the beach is kept free of trash and hazardous debris during periods of recreational use. Hazardous conditions which cannot be eliminated are clearly marked and isolated from public access to the extent practicable.

3. All dune signs, information signs, and post and rope stanchions are maintained and/or removed in accordance with the State of Florida environmental laws and regulations. These activities are not the responsibility of the Federal Government.

4. All public access facilities and other recreational amenities, such as public parking, restrooms, dune walkovers, and other pedestrian accesses, are maintained in serviceable condition to allow for safe and unimpeded access by the public to the recreational beach area.

3.2.2 Section 408 Administration

Under Section 408 of Title 33 of the U. S. Code, USACE maintains the sole authority to grant permission for temporary or permanent alterations to USACE Civil Works projects via administration of the "Section 408" Program. The Project Sponsor is responsible for ensuring that all development on or near the project that may modify or alter the project or affect the performance of the project be routed for approval through the Jacksonville District's Section 408 Program. Inquiries, permit application, and 408 requests can be directed to the Jacksonville District Regulatory Division or the Jacksonville District Section 408 Coordinator.

https://www.usace.army.mil/Missions/Civil-Works/Section408/
https://www.saj.usace.army.mil/408/
https://www.saj.usace.army.mil/Missions/Regulatory/

3.2.3 Perpetual Beach Storm Damage Reduction Easements

Perpetual Beach Storm Damage Reduction Easements (PBSDRE) have been acquired by the Project Sponsor over all private property within the project's footprint in order to ensure that the project can be maintained by USACE in perpetuity and that the lands upon which Federal dollars are expended for sand placement remain freely accessible to the public. The Project Sponsor will ensure that:

1. PBSDREs for the full project footprint established prior to initial construction are maintained in good standing without alteration unless coordinated with and approved by the Jacksonville District Real Estate Division.

2. No development is allowed that would encroach into these easements, violate their conditions, or otherwise impede the ability of USACE to perform the project in the future.

3. No entity, public or private, will restrict the ability of the public to access any area of the project footprint except as required by law to protect the integrity of the dune and vegetation thereon.

4 PERIODIC NOURISHMENT INTERVAL

Planning for periodic events will be based on the physical condition of the berm width and the volume required to restore the construction template. If USACE engineers determine that an altered or updated template is necessary to achieve the intended project function, then use the altered or updated template to determine the required fill volume. A survey of the project area, such as an annual physical monitoring survey or post-storm survey, will be analyzed to determine if the project is performing as expected. The timing of renourishment events will be based on the condition and erosional trends of the beach as well as more practical concerns such as budget cycles and available funding. During each physical monitoring effort, the time of renourishment will be estimated. Ultimately, monitoring surveys and engineering judgment will be used to make the final determination of if or when renourishment is needed.

5 PUBLIC LAW 84-99 DISASTER RELIEF

5.1 Policy

Public Law 84-99 Funds may be used for the restoration of beach fill projects. During storm events, beach fill projects are designed to sacrifice beach berms and protective dunes to dissipate wave energy and prevent erosion from reaching developed property behind the protective beach and dune system. Replacement of sand on the beach berm and dune is anticipated as part of the continuing functioning of the project. Under the provisions of the Flood and Coastal Storm Emergencies Act (Public Law 84-99, as amended) the USACE is authorized to repair and restore, at 100 percent Federal cost, Federally authorized hurricane or shore protective structures damaged or destroyed by wind, wave, or water action of other than an ordinary nature when, in the discretion of the USACE, such repair and restoration is warranted for the adequate functioning of the structure.

5.2 Eligibility

To be eligible for Public Law 84-99 funds, a beach fill project must be a completed project or must be a completed functional element of a larger project. A beach fill project or functional element is considered to be complete when it has been formally transferred to the non-Federal sponsor for OMRR&R. Public Law 84-99 funds will not be used for uncompleted projects that are eroded by storm events before they are transferred to the non-Federal sponsor. Uncompleted projects that are eroded by storm events before they are formally transferred to the non-Federal sponsor will be restored to their design dimensions. Costs will be shared by the non-Federal sponsor as project construction costs under the terms of the PPA.

5.3 Extraordinary Storm

To be eligible for use of Public Law 84-99 funds, a beach fill project must be substantially eroded by wind, wave, or water action of other than an ordinary nature. It is difficult to precisely define an “extraordinary” storm. Therefore, the determination of whether a storm qualifies as extraordinary will be made by the Director of Civil Works in consultation with the Assistant Secretary of the Army for Civil Works (ASA-CW). The severity of the storm will be discussed in a Project Information Report (PIR) which accompanies the Project Approval/Funding Request to the Director of Civil Works. The report provided by the District will include a description of the damaging storm(s) in relation to established parameters for coastal storms including shoreline recession, storm surge elevation and duration, wave height, and wave interval. The report and subsequent funding for emergency renourishment is subject to approval by USACE HQ.

5.4 Combined Public Law 84-99 and Periodic Nourishment

In some cases, Project Sponsor may wish to fully restore a beach fill project where only a partial restoration is justified under the provisions of Public Law 84-99. In these cases, a cost allocation recommendation for the complete restoration project will be made between emergency response under Public Law 84-99 (100 percent Federal cost) and periodic nourishment under the terms of the PPA. This recommended cost allocation and its rationale will be presented in the PIR.

6 STORM PREPARDNESS AND RESPONSE

1. When the National Hurricane Center issues a hurricane "watch" for an area in the vicinity of the Project, a storm preparedness plan should be put into effect by the local government to address the area without regard to any protection that may be afforded by the Project.

2. In advance of a significant coastal storm, such as a hurricane, preparation should be made to inspect the Project area, including identifying any object(s) that are considered potential hazards to life and property which can reasonably be removed and stored, if warranted. The pre-storm condition of the Project area should be documented by taking photographs at fixed locations that can be duplicated after the passing of the storm. Photographs are typically taken at public beach accesses, with adjacent locations no more than 1 mile apart. Photographs should be documented with the date, time, and location they were taken (GPS coordinates from phone or better). Beach profile surveys collected as part of annual physical monitoring may also be utilized as pre-storm documentation. Annual beach profile surveys should be collected in late spring or early summer, typically between May and July, to capture conditions prior to the typical coastal storm season. During years that beach profile surveys are not required by the FDEP permit, as previously outlined paragraph 3.1.2, surveys should still be collected for purposes of pre-storm documentation. All costs associated with initial damage surveys will be the responsibility of the Project Sponsor.

3. Within one week of a significant coastal storm, as safe conditions dictate, a preliminary damage inspection of the Project area should take place. Photographs should be taken at the same fixed locations that were taken prior to the storm. Photographs should be documented with the date, time, and location they were taken. Visual assessments should be made regarding dune and berm conditions (i.e. recession, deflation, scarping, etc.), as well as any beachfront structures relevant to the Project (i.e. beach accesses, parking lots, etc.). Visual assessments should be documented with the date, time, and location they were taken.

4. Within two weeks of a significant coastal storm, a preliminary damage assessment report should be developed, including the pre- and post-storm photographs described above and a summary of the visual assessments made as part of the post-storm inspection. The report should be sent to the USACE Project Manager via electronic mail.

5. If the damage from a coastal storm is deemed to be significant, beach profile surveys to document the post-storm condition should be collected within two months of the passing of the storm. Beach profile surveys should be collected at each FDEP range monument within the Project area and include the entire dune and berm, and extend offshore a distance of no less than 3,000 feet or a depth of -30 feet NAVD88, whichever comes first. All costs associated with post storm damage assessments/initial damage surveys will be the responsibility of the Project Sponsor.

7 POST CONSTRUCTION ENVIRONMENTAL MONITORING REQUIREMENTS

The environmental monitoring program is intended to ensure the protection of threatened and endangered species that may be found within or around the project area. Post-construction environmental monitoring and any subsequent modifications must be conducted in accordance with the FDEP Permit. The components of the environmental monitoring program are 1.) tilling, compaction, and escarpment remediation, 2.) post-construction lighting surveys, and 3.) post-construction monitoring and reporting of marine turtle protection conditions. Tilling, compaction, and escarpment remediation includes the following activities:

1. Compacting sampling
2. Tilling
3. Escarpment surveys
4. Shorebird protection

All elements of the environmental monitoring program are the responsibility of the Project Sponsor. Complete details of these requirements and conditions can be found in the FDEP permit (Appendix B).

Appendix A – Executed Project Partnership Agreement

Appendix B – Florida Department of Environmental Protection Joint Coastal Permit

Appendix C – As-Built Documents

Appendix D – Engineer Regulation 1110-2-2902

Appendix E – Inspection Report Forms and Survey Sheets

Inspector's Name:		**Date:**	

Background Information

Project Name:		**Auth. Berm Height (ft):**	
Segment:		**Auth. Berm Width (ft):**	
Authorized Project Length:		**Auth. Dune Height (ft):**	
Constructed Project Length:		**Auth. Dune Width (ft):**	
Beach POC1:		**Depth of Closure:**	
Beach POC2:			

Inspection Site Conditions

Current Location:		**Time:**		**# of Pictures:**	
Est. Wind Speed:		**Weather:**			
Est. Tide Level:		**Wave Dir (deg from Perp. To shore):**			
Est. Wave HT (ft):		**Est. Wave Period (s):**			

Notable Features/ Notes:

Pre-Storm Berm Height (ft):		**Post-Storm Berm Height. (ft):**		**Diff:**	
Pre-Storm Berm Width (ft):		**Post-Storm Berm Width (ft):**		**Diff:**	
Pre-Storm Dune Height (ft):		**Post-Storm Dune Height (ft):**		**Diff:**	
Pre-Storm Dune Width (ft):		**Post-Storm Dune Width (ft):**		**Diff:**	

Sketch of Post Storm Beach Profile (see example conditions on Page D-3, courtesy of FDEP):

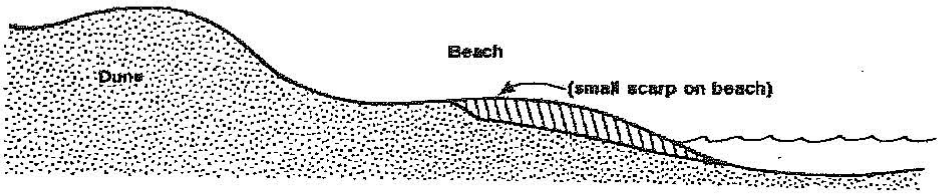
Recommendations:

(1) Note changes such as deflation of the berm, scarping, and loss of berm or dune
(2) Take a minimum of 4 pictures at each site inspected (1 in each direction - offshore, onshore, up the coast, and down the coast)

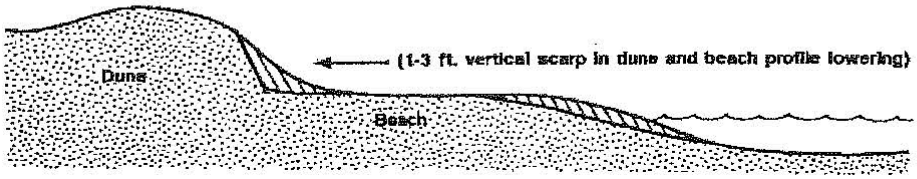
Beach and Dune Erosion Conditions

(provides a qualitative means to describe erosion after a storm event)

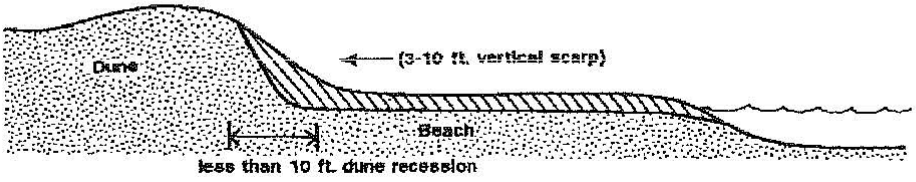
CONDITION I: MINOR BEACH EROSION



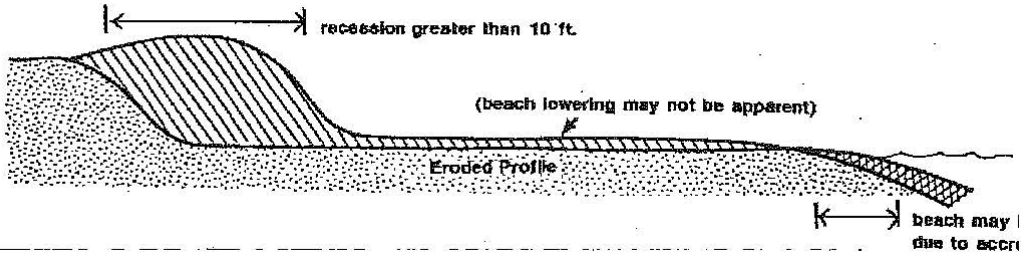
CONDITION II: MINOR DUNE AND BEACH EROSION



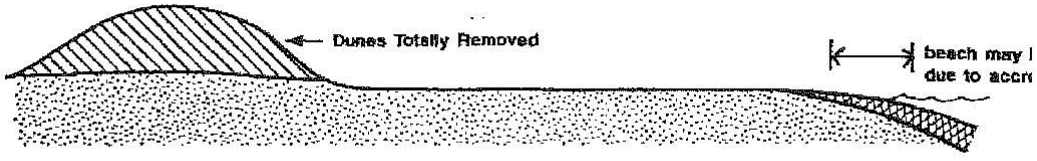
CONDITION III: MODERATE DUNE EROSION AND BEACH PROFILE LOWERING



CONDITION IV: MAJOR DUNE EROSION



OR:



R. R. CLARK

Appendix F – Estimated Budget for Physical Monitoring Requirements

Appendix G – Policy Guidance Letter No. 27