Environmental Assessment

St. Johns County Emergency Beach Berms
St. Johns County, Florida

FEMA-DR-4283-FL
FEMA-DR-4337-FL

September 2019

FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region IV Atlanta, Georgia

TABLE OF CONTENTS

APPENDICES

LIST OF ACRONYMS

BO	Biological Opinion
CBIA	Coastal Barrier Improvement Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
CY	Cubic Yards
CZMA	Coastal Zone Management Act
DHS	Department of Homeland Security
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
IPaC	Information for Planning and Consultation
JCP	Joint Coastal Permit
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PA	Public Assistance
PL	Public Law
SHPO	State Historic Preservation Office
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
US SR A1A	United States State Road A1A
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WSS	Web Soil Survey

1.0 INTRODUCTION

Hurricane Matthew impacted Florida between October 3, 2016 and October 19, 2016, bringing strong winds, storm surge, and flooding. President Obama signed a disaster declaration (FEMA-4283-DR-FL) on October 8, 2016 authorizing the Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) to provide federal assistance to the designated areas of Florida. Subsequently, Hurricane Irma impacted the State of Florida between September 4, 2017 and October 18, 2017, also bringing strong winds, storm surge, and flooding. President Trump signed a disaster declaration (FEMA-4337-DR-FL) on September 10, 2017 authorizing federal assistance in Florida. This is assistance is provided pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), and Public Law (PL) 93-288, as amended. Section 403 of the Stafford Act authorizes FEMA's Public Assistance (PA) Program to provide assistance essential to meeting immediate threats to life and property resulting from a major disaster.

St. Johns County, Florida was designated in both disasters to received federal assistance. St. Johns County has applied through the PA Program to receive funding to install emergency beach berms along a total of nine (9) beach reaches, encompassing approximately 30.6 miles within a 41.5 miles stretch of coastline, situated east of United States State Road A1A (US SR A1A), between Florida Department of Environmental Protection (FDEP) reference monuments R-1 on the north end and R-209 on the south end. The berms within the project area were all existing prior to both Hurricane Matthew and Hurricane Irma. Most of the beach reaches are natural beaches with no previous sand placement activities; the two exceptions are the beach reach between R-100 and R-117 (South Ponte Vedra Beach III), and the beach reach between R-197 and R-209 (Summer Haven Beach). A single sand placement event occurred within the South Ponte Vedra Beach III reach in May 2017, prior to Hurricane Irma, and approximately eleven (11) sand placement events have occurred within the Summer Haven Beach reach between 1992 and 2017.

The subrecipient will be coordinating with USACE and FDEP to obtain any necessary permits and will comply with applicable conditions.

This draft Environmental Assessment (EA) has been conducted in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508) and regulations adopted pursuant to Department of Homeland Security Directive 023-01, Rev 01, and FEMA Directive 108-1.

2.0 PURPOSE AND NEED

The purpose of this project is to address erosion damage from Hurricane Matthew and Hurricane Irma to the existing eroded dune system, or beach berms, along the coastline in St. Johns County. The need for this project is to address concerns regarding the protection of existing developed

property, including public roads and residential homes, in the vicinity of the project area. Prior to the erosion of the coastline, the beach berms served as inland flood protection barriers and minimized the loss of human life and property. Therefore, the need for repairing the dune system erosion will temporarily improve the capacity of the shoreline to withstand future storm events, reducing the risks to human life and improved property, as well as reducing further erosion of the coastal dune system.

3.0 PROJECT LOCATION AND BACKGROUND

The project is located in St. Johns County, Florida along the Atlantic Coast, encompassing approximately 30.6 miles within a 41.5 miles stretch of coastline east of Ponte Vedra Boulevard, also known as US SR A1A, between FDEP St. Johns County reference monuments R-1 and R-46 (Ponte Vedra Beach I and II), R-67 and R-122 (South Ponte Vedra Beach I, II, and III, and Vilano Beach), R-151 and R-194 (Butler Beach and Crescent Beach), and R-197 and R-209 excluding R-198.4 to R-202 (Summer Haven Beach). US SR A1A extends along the coast in a north-south direction and, in most areas, is roughly 200 to 600 feet inland from the dune system. Residential homes are generally located about 100 to 400 feet inland. The coast of St. Johns County was damaged via storm surge and erosion incurred during Hurricane Matthew in October 2016 and Hurricane Irma in September 2017.

4.0 ALTERNATIVES

The alternatives considered in addressing the purpose and need stated are the No Action Alternative and the Preferred Action Alternative, which is the replacement of sand along the coast between FDEP St. Johns County reference monuments R-1 and R-209.

4.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the coastal dune (beach berm) restoration project would not be constructed. Consequently, the area and improved property in the vicinity of the shoreline would not be protected from future storm events. Additionally, ongoing erosion would continue along the shoreline, the available habitat for listed threatened and endangered species would continue to degrade, and the recreational value created by the beaches would continue to decrease. Therefore, the No Action Alternative has the potential to negatively affect improved property, the environmental habitat, and tourism and economy in the vicinity of the coastline.

4.2 Alternative 2: Sand Placement to Restore the Beach Berms (Proposed Action)

Under the Proposed Action Alternative, the temporary beach berm project would proceed along portions of the approximately 41.5 mile stretch of St. Johns County coastline using commercial upland sources of beach compatible sand. The proposed project will temporarily increase the level of storm protection to the existing shoreline, available habitat, and existing improved property to

withstand a 5-year flooding event. The proposed project will maintain a viable beach and dune system for nesting habitat for threatened and endangered species, such as sea turtle and beach mice species, as well as protect and maintain nesting habitat for shorebird species, including the piping plover. The proposed project will also restore the recreational value of the publicly-accessible shoreline along the beaches within St. Johns County.

St. Johns County has submitted applications to FEMA for funding under the PA program to repair damages as a result of Hurricane Matthew (FEMA-4283-DR-FL) and Hurricane Irma (FEMA-4337-DR-FL). The proposed projects will replace sand lost along approximately 41.5 miles of beaches in St. Johns County associated with nine (9) different beach reaches. St. Johns County is proposing to replace approximately 585,396 cubic yards (CY) of lost sand attributable to Hurricane Matthew and approximately 471,036 CY of lost sand attributable to Hurricane Irma, for a collective total of approximately 1,056,432 CY of sand. St. Johns County will obtain beach compatible sand from commercial upland sources. The project is located between FDEP St. Johns County reference monuments R-1 (30.252931, -81.380869) and R-46 (30.127754, -81.347772), R-67 (30.068446, -81.333530) and R-122 (29.914020, -81.289171), R-151 (29.832208, -81.264581) and R-194 (29.717161, -81.230789), and R-197 (29.704106, -81.227547) and R-209 (29.672008, -81.214031) excluding R-198.4 to R-202.

4.3 Impact Evaluation

The Council on Environmental Quality (CEQ) notes: “Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial” (40 CFR 1508.8).

When possible, quantitative information is provided to establish potential impacts; otherwise, the potential qualitative impacts are evaluated based on the criteria listed in Table 4.0.1:

Table 4.0.1: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected and there would be no impact, OR changes or benefits would either be non-detectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes to the resource would be readily measurable and would have substantial consequences/benefits on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

The Scoping Checklist (Appendix A) evaluates the potential environmental direct and indirect impacts to Physical, Water, Coastal, Biological, Cultural, and Socioeconomic Resources for the No Action and Proposed Action alternative. If the potential impact to the resource was determined to be “None/Negligible” or “Minor”, the impacts to those resources are only included within the Scoping Checklist. The impacts anticipated to be “Moderate” are further discussed below. No resources are anticipated to have “Major” impacts. A summary of the potential impacts of the No Action and Proposed Action alternatives on Biological Resources is discussed in the table below:

Table 4.0.1: Summary of Affected Environment and Potential Impacts from Section 5 of this EA for the No Action Alternative and the Preferred Action Alternative

Area of Evaluation	Alternative 1: No Action	Alternative 2: Proposed Action
Physical Resources	**None/Negligible**: No impacts to the existing geology and soils, air quality, aesthetics, and climate change; the existing eroded coastal dunes would remain, with the potential of further erosion from future storm events.	**Minor**: The existing geology and soils are anticipated to be restored to pre-disaster conditions, however, the sand would be sourced from commercial upland sources. Minor short-term impacts to air quality may occur due to exhaust emissions from construction equipment.
Water Resources	**None/Negligible**: No impact to the water quality, floodplain, or wetlands, however, the risk of continued flooding exists to improved property near the project areas.	**Minor:** The restoration of the coastal dune system would occur within the floodplain and reduce the flood risk to improved property. Short-term impacts to wetlands may occur as the placement of sand could increase the turbidity of the water, causing short-term impacts to commercial and recreational fisheries. The long-term impact to the marine wetlands would be beneficial for preserving habitat and the recreational value of the shoreline, as well as reducing the rate of sand loss and erosion of the coastal dune system from future storms.
Coastal Resources	**None/Negligible:** No impacts to the coastal zones would occur as no work would be conducted, and the erosion of the coastline may continue.	**Minor:** The activity and construction would occur in the coastal zones, and the project would restore the eroded areas of the shoreline by replacing beach compatible sand to a designed beach profile meant to mimic the natural dune system.

Area of Evaluation	Alternative 1: No Action	Alternative 2: Proposed Action
Biological Resources	**None/Negligible:** No impacts to biological resources would be anticipated, as no work would be conducted. The continuing erosion could lead to ongoing dune vegetation loss due to escarpment, and suitable habitat, nesting habitat, and foraging habitat would continue to be reduced. The possibility of a "take" would not occur since there would be no destruction or adverse modification of the surrounding habitat.	**Moderate:** The restoration of the coastal dune system would likely cause short-term impacts to species along the shoreline. These actions may adversely affect nesting sea turtles and their hatchlings, and potentially cause a disruption in the foraging habitat for species during construction. However, once the project is complete, the coastal dune system will provide long-term positive effects by providing a restored habitat and foraging area.
Cultural Resources	**None/Negligible:** No impacts to cultural resources would be anticipated, as no work would be conducted.	**Minor:** The restoration of the coastal dune system project received concurrence from the SHPO with the determination of no adverse effects to historic properties.
Socioeconomic Resources	**None/Negligible:** No disproportionate impacts on minority or low-income populations would be anticipated.	**None/Negligible:** No disproportionate or adverse impacts to minority or low-income populations would be anticipated. The coastal dune system would be restored with no changes to the pre-existing design and footprint. The project would benefit all population members.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

5.1 BIOLOGICAL RESOURCES

5.1.1 Wildlife and Fish

5.1.1.1 Existing Conditions

Ponte Vedra Beach I and II, South Point Vedra Beach I and II, Vilano Beach, Butler Beach, and Crescent beach are natural beaches; portions of South Ponte Vedra III, Vilano Beach, and Summer Haven Beach have previously been re-nourished. The beaches and coastal dune system along the shoreline in St. Johns County are extensively eroded from storm surge and wave action as a result of Hurricane Matthew and Hurricane Irma. The natural sandy beaches serve as foraging and nesting habitats for species, such as crabs, insects, and birds. Sea oats and other beach plants can be found along undisturbed areas of the beach and coastal dune system.

5.1.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no work would occur. There would be no impacts to infaunal populations or foraging and nesting habitat for shorebirds and seabirds.

Alternative 2: Proposed Alternative

Under the Proposed Action Alternative, environmental impacts to species along the shoreline and coastal dune system are anticipated due to the sand placement activities. The intertidal areas of sandy beaches are generally populated by small, short-lived organisms with high reproductive potential. The sand placement activities will bury the majority of the existing benthic infauna within the project areas, resulting in nearly complete mortality of infaunal communities. Changes in the infaunal community structure following the sand placement are anticipated based upon differences in generation time and reproductive strategies of infaunal organisms. Additionally, crab and clam species may experience short-term adverse impacts. However, the affected areas are expected to recover over time, so the long-term impacts are expected to be minor.

The foraging habitat for shorebirds would also be affected, as the majority of the impacts to the infauna populations will be in the shallow waters of the surf zone. The decline in the infaunal prey density may contribute to the short-term decline in shorebird and seabird presence and usage of the project areas. Also, the construction activities may occur during nesting season, which increases the potential for short-term adverse impacts to bird species. The restored coastal dune system may also increase the recreational usage of the beaches, which may adversely affect nesting shorebirds by the increased human disturbance on the beach.

5.1.2 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing ESA are the USFWS and the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "take" of any listed species of endangered fish or wildlife.

5.1.2.1 Existing Conditions

Potential threatened and endangered species that may be present in the project area were identified by accessing the USFWS Information for Planning and Consultation (IPaC) database on March 19, 2019. The endangered species likely to occur in the project area are the Anastasia Island beach mouse (*Peromyscus polionotus phasma*), Red-cockaded woodpecker (*Picoides borealis*), Hawksbill sea turtle (*Eretmochelys imbricate*), and Leatherback sea turtle (*Dermochelys coriacea*). The threatened species likely to occur in the project area are the West Indian manatee (*Trichechus manatus*), Piping plover (*Charadrius melodus*), Red knot (*Calidris canutus rufa*), Wood stork (*Mycteria Americana*), Eastern indigo snake (*Drymarchon corais couperi*), Green sea turtle (*Chelonia mydas*), Loggerhead sea turtle (*Caretta caretta*), and Frosted flatwoods salamander (*Ambystoma cingulatum*). While there is no designated critical habitat within the boundaries of the project areas, there is designated critical habitat for the Loggerhead sea turtle located immediately north of FDEP reference monument R-1 (beginning at the county line between Duval County and St. Johns County), and immediately south of FDEP reference monument R-194 at the Matanzas Inlet. The shoreline and associated coastal dune system associated with the project area is suitable habitat for the Anastasia Island beach mouse, suitable nesting habitat for the listed sea turtles, as well as foraging habitat for the piping plover and red knot.

5.1.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no work would occur. Therefore, there would be no potential for effects and no further responsibility under the ESA. Suitable beach mouse habitat, sea turtle nesting habitat, and foraging habitat for shore birds would continue to be reduced in the project area due to coastal erosion.

Alternative 2: Sand Placement to Restore the Beach Berms (Proposed Action)

Under the Proposed Action Alternative, environmental impacts to species along the shoreline and coastal dune system are anticipated due to the sand placement activities. Therefore, the project will be required to meet the terms and conditions of the USFWS Biological Opinion (BO) for FEMA Emergency Berm Repair for the Florida Coast (dated April 3, 2008). If the sand placement activities occur during sea turtle nesting season, these actions may adversely affect nesting sea turtles and their hatchlings. The terms and conditions require the following: installation of beach compatible sand; monitoring, surveying, and potential relocation of nests; escarpment monitoring; nighttime storage of equipment off the beach during nesting season; and the compaction of sand. These conditions will minimize impacts to species during the construction of the emergency berm as well as the potential impacts the altered beach conditions may have on nesting sea turtles and their hatchlings, including long-term impacts related to nesting capabilities of the beach. Additionally, the terms and conditions of the USFWS BO specify existing beach access points to be utilized to facilitate reduced impacts to beach mice and their associated habitat.

Short-term adverse impacts may also be expected to the piping plover and other shorebird species due to the disruption in the foraging habitat during construction activities. The terms and conditions of the USFWS BO requires surveys for piping plovers, their habitat, and the removal of exotic vegetation to assist in minimizing the potential affects to piping plovers and other shorebirds.

5.1.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. The lead Federal agency for implementing the MBTA is the USFWS. The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of designated critical habitat of such species. The law makes it illegal for anyone to "take," possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities."

5.1.3.1 Existing Conditions

The entire state of Florida is considered a flyway zone for migratory birds. Approximately fifty (50) migratory bird species were identified as being potentially within the project areas by accessing the USFWS IPaC database on March 19, 2019. The listed migratory bird species have a varying range for probability of presence within the project vicinity throughout the year, and approximately half of the species have a designated breeding season which could occur within the

project vicinity. The shoreline and coastal dune system associated with the project area is suitable foraging habitat for the species known to occur along the coast and near aquatic habitats.

5.1.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no work would occur. Therefore, there would be no potential for effects and a "take" would not occur since there would be no destruction or adverse modification of the surrounding habitat. Suitable foraging habitat for shore birds would continue to be reduced in the project area due to coastal erosion.

Alternative 2: Sand Placement to Restore the Beach Berms (Proposed Action)

Under the Proposed Action Alternative, impacts to species which may be found along the shoreline and coastal dune system could occur due to the sand placement activities. If the sand placement activities occur during breeding season, these actions may adversely affect nesting shore birds and their young, and the disruption in the foraging habitat during construction activities could cause short-term impacts for migratory bird species near the project area. However, once the project is complete, the coastal dune system will begin to provide long-term positive affects by providing a restored habitat and foraging area for these species.

The project will be required to meet the terms and conditions of the USFWS Biological Opinion for FEMA Emergency Berm Repair for the Florida Coast (dated April 3, 2008), and applicable FDEP permit if required, for the project, which will include shorebird conditions and requirements that will mitigate impacts to migratory bird species.

6.0 CUMULATIVE IMPACTS

Per the Council on Environmental Quality (CEQ) regulations, cumulative impacts are the impacts on the environment which, "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). In accordance with NEPA, this EA considered the combined effect of the preferred alternative and other actions occurring or proposed in the vicinity of the proposed project site.

The shoreline of the project area is currently largely developed with residential housing. The proposed project will temporarily increase the level of storm protection to the existing shoreline, available habitat, and existing improved property to withstand a 5-year flooding event. The overall impacts on the functionality of the floodplain is anticipated to be minor, as the project will facilitate temporary restoration of the shoreline damaged by Hurricane Matthew and Hurricane Irma. The

proposed project is not anticipated to result in significant adverse impacts on floodplains, as the continued occupancy of the floodplain by existing residences should not result in long-term alteration of the natural beach dynamics and floodplain hydrology within the project areas. Federal and state permits, as applicable, will be obtained which will outline any possible compensatory mitigation for impacts to surface waters and wetlands incurred by the proposed projects.

The St. Johns County shoreline and associated coastal dune system has regularly sustained damages from tropical storms and hurricanes. The natural fluctuation in the topography of the existing beaches is compounded by previous and current ongoing attempts to restore the areas through dredging and placing sand along the shoreline. Future construction of engineered beaches is planned in conjunction with the USACE for Vilano Beach and Summer Haven Beach. These beaches will become engineered and maintained facilities, likely requiring future re-nourishments due to storm and background erosion as part of the ongoing shoreline stabilization efforts in St. Johns County. Specifically, in 2019, the USACE plans to dredge from the Atlantic Intercoastal Waterway and place the dredge material along Summer Haven Beach southward from near R-204, which includes a former breach area caused by Hurricane Matthew. Additionally, the St. Augustine Port, Water, and Beach District plans to dredge the Summer Haven River and place the dredged material along Summer Haven Beach north of R-204 in 2019.

The proposed action to reconstruct beach berms is not expected to have significant adverse cumulative impacts on any resource based on the review conducted when added to past, present, and reasonably foreseeable future actions within the proposed project area.

7.0 PERMITS AND PROJECT CONDITIONS

1) FDEP Joint Coastal Permit (JCP) or Coastal Construction Control Line (CCCL) Permit, as applicable, and associated applicable conditions;

2) USACE Individual Permit, if required, and associated applicable conditions;

3) USFWS Biological Opinion for FEMA Emergency Berm Repair for the Florida Coast (dated April 3, 2008), and applicable conditions, including modifications to sand specifications and sand inspection requirements as approved by USFWS under FWS Log No. 2019-I-0974 (dated September 17, 2019):

    a) For berm material obtained from an upland source:
        i) Sand Specifications
            (1) The fill material shall be beach compatible and meet the specifications required by Florida Administrative Codes 62B-41.007 (2)(j) and 62B-33.002 (8). In addition, the fill shall meet the following requirements:
            (2) The fill material to be placed at the work area shall be clean sand from a permitted upland source, free of construction debris, asphalt, gravel, rocks, clay balls, branches, leaves and other organics, components prone to cause cementation, oil, pollutants and any other non-beach compatible materials. The sand shall be similar to the existing beach sediments in color and texture.
            (3) Beach compatible fill that maintains the general character and functionality of the material occurring on the beach and in the adjacent dune and coastal system, similar to the characteristics of native beach sediment, predominately comprised of carbonate, quartz or similar material with a particle size distribution ranging between 0.062mm and 4.76mm (classified as sand by either the Unified Soils or the Wentworth classification), and shall be similar in color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the native beach sediment or to the material in the existing coastal system at the disposal site and shall not contain:
                (a) Greater than 5 percent, by weight, silt, clay or colloids passing the #230 sieve,
                (b) Greater than 5 percent, by weight, fine gravel retained on the #4 sieve,
                (c) Coarse gravel, cobbles or material retained on the ¾-inch sieve in a percentage or size greater than found on the native beach,
                (d) Construction debris, toxic material or other foreign matter; and,
                (e) Not result in cementation of the beach.
            (4) If sand from multiple sources is used, the materials should be mixed at the beach access sites before it is transferred to the beach so that sand will be consistent throughout the placement areas. On site mixing should not be done to achieve beach

quality material, rather mixing would be done to make the fill aesthetically consistent due to the fact that the multiple sources are beach quality material.

ii) Post Placement Sampling

(1) After material is placed on the beach and graded to template, sand sample will be collected along the constructed dune at a rate of one sample per 1,000 cubic yards of placed material. The location of the sampling sites will be recorded with GPS. These samples will be quantitatively assessed for grain size analysis using the No. 230, 200, 170, 140, 80, 60, 45, 35, 25, 18, 14, 10, 7, 5, 4 and 3/4" sieves. Samples will also be assessed for color and carbonate content. The results from the quantitative analysis will be submitted to DEP within 90 days after completing construction.

iii) Compliance and Remediation

(1) Continuous inspection of material upon arrival to the beach access site will minimize the likelihood of non-compliant material being placed. If initial post placement sampling indicates non-compliant material may have been placed, more extensive sampling and quantitative assessment will be conducted for the area in question to determine the extent of non-compliance, if any. In the event it is concluded that material has been placed that does not meet the specifications required by Florida Administrative Codes 62B-4 l .007 (j) and 62B-33.002 (8) the applicant will consult with the Service and FDEP to determine the most appropriate solution, including removal and replacement of the material if necessary; subject to constraints imposed by marine turtle nesting activity.

(2) For emergency berm construction and repair projects in St. Johns County, Florida, emergency berm construction and repair activities may occur during the nesting season except on publicly owned conservation lands such as state parks and areas where such work is prohibited under local land use codes.

(a) Prior to any sand placement, all disaster related debris including derelict coastal armoring shall be removed from the beach to the maximum extent practicable. Debris removal activities shall be conducted during daylight hours and during the dates of April 15 to November 30 and shall not commence until completion of the sea turtle survey each day.

(b) The emergency berm shall have a slope of l.5:1 followed by a gradual slope of 4:1 for approximately 20 feet seaward.

(3) The FEMA grant applicant shall ensure that the contractors conducting the work provide predator proof trash receptacles for the construction workers. All contractors and their employees shall be briefed on the importance of not littering and keeping the project area trash and debris free. Predator proof trash receptacles shall be installed and maintained at all access points, eating areas, and rest-room areas.

(4) Educational signs shall be placed where appropriate at beach access points explaining the importance of species such as sea turtles, beach mice, and piping plovers that are dependent on coastal habitats and ways to minimize human impacts. The Service can provide design ideas (Share the Shore Signs). These signs shall also include existing ordinances such as Animal Control Ordinances, informing beach users about the County/Municipality's ordinance that will minimize the harassment of sea turtles, beach mice and piping plovers. These signs shall be maintained for the life of the project, or five (5) years, whichever is lesser.

(5) The FEMA grant applicant shall arrange a meeting between representatives of the contractor, the Service, the FWC, and the permitted sea turtle surveyor at least 10 days prior to the commencement of work on this project. At least 5 days advance notice shall be provided prior to conducting this meeting. This will provide an opportunity for explanation and clarification of the species protection measures as well as additional guidelines when construction occurs such as storing equipment, minimizing driving, and follow up meetings during construction.

iv) Protection of Sea Turtles

(1) For emergency berm construction and repair projects in St. Johns County, Florida:

(a) Daily early morning surveys for sea turtle nests will be required if any portion of the berm construction occurs as follows:

(b) For St. Johns County, nesting surveys shall be initiated 65 days prior to berm placement or by April 15 whichever is later. Nesting surveys shall continue through the end of the project or through November 30 whichever is earlier. If nests are constructed in areas where they may be affected by construction activities, eggs shall be relocated per the requirements listed below;

(c) Nesting surveys and egg relocations will only be conducted by personnel with prior experience and training in nesting survey and egg relocation procedures. All nesting surveys, nest relocations screening or caging activities etc. shall be conducted only by persons with prior experience and training in these activities and who is duly authorized to conduct such activities through a valid permit issued by FWC, pursuant to FAC 68E-l. Nesting surveys shall be conducted daily between sunrise and 9 a.m. (this is for all time zones). The contractor shall not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys shall be performed in such a manner so as to ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.

(i) Only those nests that may be affected by construction activities will be relocated. Nests requiring relocation shall be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Relocated nests shall not be placed in organized groupings; relocated nests

shall be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, or subject to artificial lighting. Nest relocations in association with construction activities shall cease when construction activities no longer threaten nests.

(ii) Nests deposited within areas where construction activities have ceased or will not occur for 65 days shall be marked and left *in situ* unless other factors threaten the success of the nest. The turtle permit holder shall install an on-beach marker at the nest site and a secondary marker at a point landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string shall be installed to establish a 10-foot radius around the nest. No activity will occur within this area nor will any activities occur which could result in impacts to the nest. Nest sites shall be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the restoration activity.

(d) Immediately after completion of the project and prior to April 15 for 3 subsequent years, sand compaction shall be monitored in the area of restoration in accordance with a protocol agreed to by the Service, the FWC, and the Applicant or local sponsor. At a minimum, the protocol provided below shall be followed. If tilling is required, the area shall be tilled to a depth of 36 inches. All tilling activity shall be completed prior to those dates listed above.

(e) Each pass of the tilling equipment shall be overlapped to allow more thorough and even tilling. If the project is completed during the nesting season, tilling will not be performed in areas where nests have been left in place or relocated. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Additionally, out-year compaction monitoring and remediation are not required if placed material no longer remains on the dry beach.) A report on the results of the compaction monitoring shall be submitted to the Service's North Florida Ecological Service Office, 6620 Southpoint Drive South, Suite #310, Jacksonville, Florida 32216, prior to any tilling actions being taken.

(i) Compaction sampling stations shall be located at 500-foot intervals along the project area One station shall be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station shall be midway between the dune line and the high water line (normal wrack line).

(ii) At each station, the cone penetrometer shall be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of

sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates shall be located as close to each other as possible, without interacting with the previous hole and disturbed sediments. The three replicate compaction values for each depth shall be averaged to produce final values for each depth at each station. Reports will include all 18 values for each transect line, and the final 6 averaged compaction values.

(iii) If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area shall be tilled immediately prior to the following dates listed above.

(iv) If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.

(v) Tilling shall occur landward of the wrack line and avoid all vegetated areas three square feet or greater with a 3 square foot buffer around the vegetated areas.

Visual surveys for escarpments along the project area shall be made immediately after completion of the project and prior to April 15 for 3 subsequent years. Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet shall be leveled and the beach profile shall be reconfigured to minimize scarp formation.

If the project is completed during the sea turtle nesting and hatching season, escarpments may be required to be leveled immediately, while protecting nests that have been relocated or left in place. Surveys for escarpments shall be conducted weekly. Results of the surveys shall be submitted within one month to the Service's appropriate Field Office prior to any action being taken during the nesting season. The Service shall be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs during the nesting and hatching season to determine the appropriate action to be taken. If it is determined that escarpment leveling is required during the nesting or hatching season, the Service will provide a brief written authorization that describes methods to be used to reduce the likelihood of impacting existing nests. An annual summary of escarpment surveys and actions taken shall be submitted to the Service. (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the beach).

Staging areas for construction equipment shall be located off the beach to the maximum extent practicable from April 15 to November 30.

Nighttime storage of construction equipment not in use shall be off the beach to minimize disturbance to sea turtle nesting and hatching activities. In addition, all construction pipes that are placed on the beach shall be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Temporary storage of pipes shall be off the beach to the maximum extent possible. Temporary storage of pipes on the beach shall be in such a manner so as to impact the least amount of nesting habitat and shall not compromise the integrity of the dune systems. Pipes placed parallel to the dune shall be five to ten feet away from the toe of the dune (placement of pipes perpendicular to the shoreline is recommended as the method of storage).

v) Protection of Beach Mice

(1) Existing beach access points shall be used for vehicle and equipment beach access to the maximum extent practicable. Existing access may be expanded to accommodate project work equipment and vehicles. These accesses shall be delineated by fence or other suitable material to ensure vehicles and equipment transport stay within the access corridor. The accesses shall be fully restored to pre-project work configuration following project completion. Equipment and material staging/storage areas for the project shall be located outside of vegetated dune habitat and public lands. No storage of equipment or materials shall occur on the beach or dunes at any time of year. Parking areas for construction crews shall be located as close as possible to the work sites, but outside of vegetated dunes to minimize impacts to existing habitat and the need to transport workers along the beachfront. The number of beach access sites for vehicles and equipment shall be minimal, clearly marked. All access and staging areas shall be restored upon completion of emergency berm construction and repair.

(2) The creation of new or expansion of existing beach accesses within beach mouse habitat for vehicles and equipment authorized no more than every 4 miles. The accesses shall be delineated by fence or other suitable material to ensure vehicles and equipment transport stay within the access corridor. These accesses shall be fully restored following project completion.

vi) Protection of Piping Plovers

(1) The FEMA or their grant applicant shall consult individually for the following emergency berm construction and repair projects located in:

(a) Designated piping plover critical habitat units;

(b) Florida State Parks and other non-federal public lands except to protect “existing structures” such as offices or restroom facilities. Berm placement to protect coastal roads, parking lots, boardwalks, picnic tables, gazebos, light

poles, and benches require separate consultations and are not covered under "existing structures". Federal lands are exempt for FEMA berm funds.

(2) FEMA or their grant applicant shall conduct either the following Term and Condition or "Protection of Piping Plovers prior, during, and after the project (b)(i)-(ix):"

(a) FEMA or their grant applicant shall contribute at least $3,100 for each mile or $0.60 per linear foot of berm constructed. The Service will take the lead and work with FEMA or the grant applicant to develop a mechanism for receiving and allocating these monies. The funds will be used towards the management and monitoring of piping plovers and their habitat on public or private lands which have a demonstrated use or potential use by piping plovers. Management may include but not be limited to posting and roping important use areas, enforcement of pet ordinances, and protection of closed off areas. Monitoring may assist in summarizing the status of plovers and their habitat. Trends in areas used by piping plovers may also be assessed in portions of Florida depending on data collected as funding allows." An oversight committee will be formed and they will determine funding allocation. Funds (federal, state or private) from outside sources may contribute to this "Shorebird Conservation Funding Program." These funds are to be used to minimize potential impacts to areas that may be used by piping plover that may be displaced permanently or temporarily by the project.

OR

(b) Protection of piping plover prior, during, and after the project:

(i) Prior to construction, survey and map onto aerial photography, throughout the project area, optimal non-breeding piping plover habitat (low lying areas, washover passes, inlets, ephemeral ponds, lagoons, and mud and sand flats).

(ii) Avoid berm placement in optimal piping plover habitat whether existing or newly created by storm events. If these areas cannot be avoided, the FEMA grant applicant shall arrange a meeting between representatives of the contractor, the Service, and the FWC, at least 10 days prior to the commencement of work on this project to discuss avoidance and minimization of impacts to the habitat.

(iii) Avoid berm placement within 300 feet of inlets (dune lakes, bay inlets, island inlets, etc.) and any open body of water except GOM or Atlantic Ocean. If this requirement is not feasible, the FEMA grant applicant shall arrange a meeting between representatives of the contractor and the Service at least 10 days prior to the commencement of work on this project to discuss avoidance and minimization of impacts to the habitat.

(iv) If piping plovers are reported in the project area, poles or pier pilings occurring within 300 feet of optimal piping plover habitat shall be reported to the Service. The FEMA grant applicant shall coordinate a meeting with the Service to discuss retro-fitting these poles to reduce avian predation.

(v) Conduct surveys for non-breeding piping plover in the project area daily starting two weeks prior to project initiation for the duration of the berm construction period between July 15 and May 15 (10 months of the year), if optimal non-breeding piping plover habitat is documented in the project area. Submit daily piping plover survey results to the Service with maps documenting the locations of piping plovers (with GPS coordinates or latitude and longitude coordinates) if seen during this survey period.

(vi) Conduct bi-monthly surveys for piping plovers in the project areas from July 15 through May 15 of each year (10 months of the year) beginning two weeks post construction and continuing for the duration of the berm. Maintain information in a database (e.g. Access or Excel). Report negative and positive survey data and the amount and type of recreational use documented. Record piping plover locations with a Global Positioning System (GPS), habitat type used (intertidal area, mid-beach, etc.), and observed behavior (foraging, roosting, etc.). Incorporate all information collected into the database. Guidelines for conducting surveys are included in Appendix C. Submit yearly piping plover survey results (datasheets and database) to the Service (Table 20) with maps documenting the locations of piping plovers (with GPS coordinates or latitude and longitude coordinates) when seen.

Conduct at least one of the bi-monthly shorebird surveys April through October on a weekend to document the amount of recreational pressure potentially occurring along the shoreline.

(vii) The FEMA or their grant applicant shall meet with the Service and FWC to discuss areas within the project area where natural organic material (wrack) can remain along the shoreline year-round. Wrack provides important foraging and roosting habitat by piping plovers on winter and migration grounds as well as an abundance of other shorebirds. Protection of wrack will help to offset the impacts of shorebird habitat directly or indirectly impacted by berm placement and ensuing human disturbance.

(viii) When piping plovers or optimal habitat are documented in the project area, "Disturbance Free Zones" shall be posted and roped off at least 300 feet away from the berm construction areas where potential bird resting and feeding are occurring. These areas shall remain roped off for the duration of the project.

(ix) Excluding the Florida Panhandle Counties (Escambia to Jefferson County), surveys for and removal of exotic vegetation shall be conducted annually on the berm and within ten (10) feet on either side of the berm for the duration of the project or five (5) years, whichever is lesser to minimize the chances of an exotic seed source contained in the berm material becomes established on the beach.

Surveys should focus on the removal of all exotics, including the following which are known to impact coastal areas in Florida: Australian pine (*Casuarina equisetifolia*), melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), beach naupaka (*Scaevola taccada*), latherleaf (*Colubrina asiatica*), carrotwood (*Cupaniopsis anacardioides*), lantana (*Lantana camara*), sisal (*Agave sisalana*), beach vitex (*Vitex rotundifolia*) and bowstring hemp (*Sansevieria hyacinthoides*).

b) Stabilization of Berms with Vegetation

i) Berms constructed within Perdido Key beach mouse habitat shall be stabilized by planting of native dune vegetation per the requirements provided below. The need to stabilize berms with vegetation in Choctawhatchee, St. Andrew, Anastasia Island, and Southeastern beach mouse habitat shall be coordinated with the North Florida Ecological Service Office, 6620 Southpoint Drive, South Suite # 310, Jacksonville, Florida 32216.

ii) Planting of vegetation on the berms may occur year-round with the following conditions implemented:

(1) Daily early morning sea turtle nesting surveys shall be conducted during the period from May 1 through October 31. Nest surveys shall only be conducted by personnel with prior experience and training in nest surveys. Surveyors shall have a valid FWC permit. Nest surveys shall be conducted daily between sunrise and 9 am. (all times). No dune planting activity shall occur until after the daily turtle survey and nest conservation and protection efforts have been completed.

(2) Nesting surveys shall be initiated 65 days prior to dune planting activities or by May 1, whichever is later. Nesting surveys shall continue through the end of the project or through September 1, whichever is earlier. Hatching and emerging success monitoring will involve checking nests beyond the completion date of the daily early morning nesting surveys.

(3) Any nests deposited in the dune planting area not requiring relocation for conservation purposes shall be left in situ. The turtle permit holder shall install an on-beach marker at the nest site and a secondary marker at a point as far landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string shall be installed to establish an area of 3-foot radius surrounding the nest. No planting or other activity shall occur within this area or will any activities occur

which could result in impacts to the nest. Nest sites shall be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the planting activity.

(4) If a nest is disturbed or uncovered during planting activity, the Applicant or their contractors shall cease all work and immediately contact the responsible turtle permit holder. If a nest(s) cannot be safely avoided during planting, all activity within the affected project site shall be delayed until hatching and emerging success monitoring of the nest is completed.

(5) All berm planting activities shall be conducted by hand and only during daylight hours.

(6) All dune vegetation shall consist of coastal dune species native to the local area; (i.e., native to coastal dunes in the respective county and grown from plant stock from that region of Florida). Seedlings shall be at least 1 inch by 1 inch with a 2.5-inch pot. Planting shall be on 18-inch centers throughout the created dune; however, 24-inch centers may be acceptable depending on the area to be planted. Vegetation shall be planted with an appropriate amount of fertilizer and anti-desiccant material, as appropriate, for the plant size.

(7) No use of heavy equipment (trucks) shall occur on the dunes or seaward for planting purposes. A lightweight (ATV-type) vehicle, with tire pressures of 10 psi or less, may be operated on the beach.

(8) All irrigation equipment shall be installed as authorized under a FDEP permit.

iii) Reporting

(1) A report describing the projects conducted during the year and actions taken to implement the reasonable and prudent measures and terms and conditions of this incidental take statement shall be submitted to the Service by March 1 of the following year of completing the proposed work for each year when the activity has occurred. This report will include the project location (include FDEP R-Monuments), project description, dates of actual construction activities, sand source and beach compatibility analysis, names and qualifications of personnel involved in sea turtle nest surveys and relocation activities, descriptions and locations of self-release beach sites, sea turtle nest survey and relocation results and the information outlined in Table 1, acreage of new or widened access areas affected in beach mouse habitat, vegetation completed for new or widened access areas, success rate of vegetation of vegetation, names and qualifications of personnel involved in piping plover surveys, results of the daily piping plover surveys shall be submitted, with maps documenting the locations of piping plover (with GPS points or latitude and longitude coordinates), if observed during the survey period, post-construction maps.

(2) In the event a sea turtle nest is excavated during construction activities, the permitted person responsible for egg relocation for the project shall be notified so the eggs can be moved to a suitable relocation site.

(3) Upon locating a sea turtle adult, hatchling, or egg, beach mouse, or piping plover, that have been harmed, destroyed, killed or injured as a direct or indirect result of the project, notification shall be immediately made to the FWC at 1-888-404-3922 and the North Florida Ecological Service Office at 904-232-2580.

Care shall be taken in handling injured turtles or eggs, beach mice or piping plovers to ensure effective treatment or disposition and in handling dead specimens to preserve biological materials in the best possible state for later analysis.

Table 1. Sea Turtle Monitoring for Emergency Berm Construction and Repair Projects.

CHARACTERISTIC	PARAMETER	MEASUREMENT	VARIABLE
Nesting Success	False crawls – number	Visual assessment of all false crawls	Number and location of false crawls in nourished area and non-nourished areas: any interaction of the turtle with obstructions, such as groins, seawalls, or scarps, should be noted.
Nesting Success	False crawl – type	Categorization of the stage at which nesting was abandoned	Number in each of the following categories: emergence-no digging, preliminary body pit, abandoned egg chamber.

CHARACTERISTIC	PARAMETER	MEASUREMENT	VARIABLE
Nesting Success	Nests	Number	The number of sea turtle nests in nourished and non-nourished areas should be noted. If possible, the location of all sea turtle nests shall be marked on map of project, and approximate distance to sea walls or scarps measured using a meter tape. Any abnormal cavity morphologies should be reported as well as whether turtle touched groins, seawalls, or scarps during nest excavation
Nesting Success	Nests	Lost Nests	The number of nests lost to inundation, erosion or the number with lost markers that could not be found.
Nesting Success	Lighting Impacts	Disoriented sea turtles	The number of disoriented hatchlings and adults shall be documented and reported in accordance with existing FWC protocol for disorientation events.
Reproductive Success	Emergence & hatching success	Standard survey protocol	Numbers of the following: unhatched eggs, depredated nests and eggs, live pipped eggs, dead pipped eggs, live hatchlings in nest, dead hatchlings in nest, hatchlings emerged, disoriented hatchlings, depredated hatchlings

4) State Historic Preservation Office (SHPO)/ National Historic Preservation Act (NHPA) Conditions:
   a) If human remains or intact archaeological deposits are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The applicant will assure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The applicant's contractor will provide immediate notice of such discoveries to the applicant. The applicant will contact the Florida Division of Historical Resources, St. Johns County Cultural Resource Coordinator (904-209-0623), and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with the State Historic Preservation Office, County, tribes, and other consulting parties as necessary. If unmarked human remains are encountered during permitted activities, all work will stop immediately, and the proper authorities will be notified in accordance with Florida Statutes, Section 872.05.
   b) Construction vehicles and equipment will be stored onsite during the project or at existing access points within the applicant's right-of-way.
   c) Prior to conducting repairs, applicant must identify the source and location of fill material and provide this information to FDEM and FEMA. If the borrow pit is privately owned, or is located on previously undisturbed land, or if the fill is obtained by the horizontal expansion of a pre-existing borrow pit, FEMA consultation with the State Historic Preservation Officer will be required. Failure to comply with this condition may jeopardize FEMA funding; verification of compliance will be required at project closeout.
   d) Any changes to the approved scope of work will require submission to, evaluation, and approval by the State of Florida, County, and FEMA prior to initiation of any work, for compliance with Section 106 of the NHPA.

8.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

The following agencies and organizations were contacted during the preparation of this EA:

- U.S. Fish and Wildlife Service (North Florida Ecological Services Field Office)
- Florida Division of Historical Resources (SHPO)

FEMA issued a disaster-wide initial public notice for Hurricane Matthew on November 21, 2016, and for Hurricane Irma on October 6, 2017 to notify the public of projects under the Public Assistance program that may be occurring within floodplains.

9.0 LIST OF PREPARERS

Name	Organization	Title
Stephanie Madson	FEMA	Regional Environmental Officer
Larissa Hyatt	FEMA	Environmental and Historic Preservation Advisor
Amanda Calhoun	FEMA	Environmental Specialist
Steven Wirtz	FEMA	Historic Preservation Specialist