

PROJECT INFORMATION REPORT

FOR THE

**REHABILITATION EFFORT FOR THE
ST. JOHNS COUNTY, FLORIDA SHORE PROTECTION PROJECT**

ST. JOHNS COUNTY, FLORIDA

29 December 2021

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REHABILITATION EFFORT FOR THE ST. JOHNS COUNTY, FLORIDA SHORE PROTECTION PROJECT ST. JOHNS COUNTY, FLORIDA

Part I. Executive Summary.

This Project Information Report (PIR) was prepared at the request of the project sponsor in a letter dated November 17, 2021. Funding for this report was provided by Public Law (PL) 116-20. This report finds that there is sufficient justification for Flood Control and Coastal Emergency (FCCE) rehabilitation of the St. Johns County, Florida Shore Protection Project under PL 84-99.

Preparation of this report has followed the guidance provided in

- 1) Engineer Regulation (ER) 500-1-1, Emergency Employment of Army and Other Resources - Civil Emergency Management Program, September 30, 2001.
- 2) Engineer Pamphlet (EP) 500-1-1, Emergency Employment of Army and Other Resources - Civil Emergency Management Program - Procedures, September 30, 2001.
- 3) CECW-HS, MEMORANDUM FOR SEE DISTRIBUTION, SUBJECT: Implementation Guidance for Section 3029(a)(2) of the Water Resources Reform and Development Act (WRRDA) of 2014, Emergency Response to Natural Disasters; Repair or Restoration of Coastal Storm Risk Management Projects to Design Level of Protection, May 30, 2017.
- 4) CECW-HS, MEMORANDUM FOR COMMANDERS, MAJOR SUBORDINATE COMMANDS AND DISTRICTS, SUBJECT: Interim Guidance for Civil Works Review of Public Law (PL) 84-99 Activities, May 18, 2017.
- 5) CECW-P, MEMORANDUM FOR SEE DISTRIBUTION, SUBJECT: Revised Implementation Guidance for Section 1160 of the Water Resources Development Act (WRDA) of 2018, Emergency Response to Natural Disasters, April 17, 2019.
- 6) Public Law (PL) 116-20, Title IV, Corps of Engineers – Civil Department of the Army, Flood Control and Coastal Emergencies, June 6, 2019.
- 7) CECW-HS, MEMORANDUM FOR SEE DISTRIBUTION, SUBJECT: Procedural Clarification Regarding Environmental Documentation for Project Information Reports, October 26, 2020.

This report finds that, per ER 500-1-1, an extraordinary storm event has impacted the project area, significant damage has occurred to the project, and there is an immediate threat to the property, structures, and infrastructure that this project is designed to protect.

The proposed emergency work to fully restore the project's construction template at full federal expense, in accordance with PL 116-20, is economically justified as the project will have a remaining benefit to remaining cost ratio of 2.06 for the remaining period of Federal Participation. This PIR will be supplemented with additional environmental information and documentation for the use of a new offshore sand source for the proposed emergency work prior to the funds transmittal of construction phase activities in accordance with the guidance memorandum from CECW-HS dated October 26, 2020.

Part II. Basic Report.

1. NAME AND LOCATION.

St. John's County, Florida Shore Protection Project (SPP), St. Johns County, Florida. The project area is comprised of 2.5 miles of Atlantic Ocean shoreline beginning approximately 2.7 miles south of the St. Augustine Inlet and extending south. The project area includes the southern portion of Anastasia State Park and the northern portion of the City of St. Augustine Beach (Figure 1).

2. PUBLIC SPONSOR.

St. John's County Board of County Commissioners, 4020 Lewis Speedway, St. Augustine, Florida 32095.

3. POC FOR PUBLIC SPONSOR.

Damon Douglas, Coastal Manager, St. Johns County Disaster Recovery, 500 San Sebastian View, St. Augustine, Florida 32084.

4. PROJECT AUTHORIZATION.

The St. Johns County, Florida, Beach Erosion Control Project* was authorized by Section 501(a) of the Water Resources Development Act (WRDA) of 1986 (PL 99-662) as modified by Section 316 of WRDA 1999 (PL 106-53).

The 1999 authorization includes cost sharing information, wherein 50% of the total project costs will be considered mitigation for the impacts to the shoreline from the navigational improvements at St. Augustine Inlet. The remaining 50% of total project costs are cost-shared according to shoreline ownership and access. The change in the cost sharing is documented in the Post Authorization Change Report, General Reevaluation Report (GRR) March 1998, which updated the cost share to 80.5% Federal cost and 19.5% non-Federal cost.

* This project was initially identified as a "Beach Erosion Control Project" in 1986, and later identified as a "Shore Protection Project" in the 1998 General Reevaluation Report

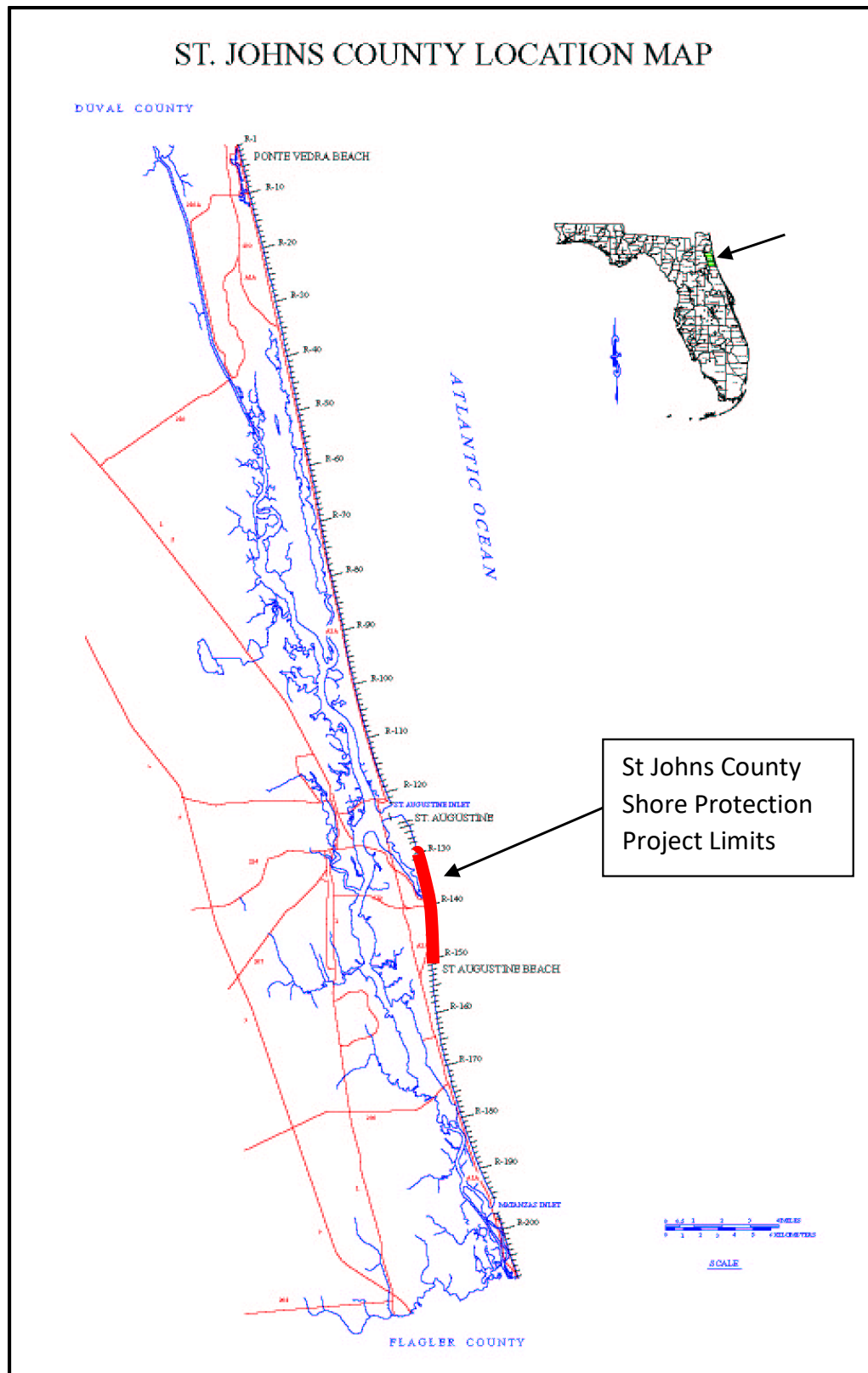


Figure 1: St. Johns County Shore Protection Project Map

5. PROJECT CLASSIFICATION.

This project was designed and constructed for beach erosion control and mitigation of damages attributable to the St. Augustine Inlet navigation project for a 50-year period of Federal participation. The authorized berm elevation of 12 feet above mean low water (MLW) (approximately 9 feet NAVD88*) may be exceeded during times of high water, wave runup, and/or a 10-year return period surge event. The berm width was optimized against predicted shoreline recession and damages associated with that recession. Model simulations indicated that the 60-foot project berm width protects against \$3.9 million of average annual storm damages to upland development, based on 1998 price levels. The total annual benefits were estimated at \$4.8 million from storm damage reduction, prevention of land loss, and recreation.

6. DESIGN DATA OF PROJECT.

The project consists of initial construction and periodic renourishment of the shoreline beginning approximately 2.7 miles south of the St. Augustine Inlet and extending south approximately 2.5 miles. Construction includes a 60-foot-wide berm at an elevation of 12 feet above MLW (approximately 9 feet NAVD88). The recommended renourishment interval is every five years with placement of approximately 1,625,000 cubic yards (cy) of material.

7. MAINTENANCE.

The non-Federal project sponsor is responsible for lands, easements, rights-of-way, relocations, and borrow and disposal areas required for the project. The sponsor operates and maintains the project in accordance with the Florida Department of Environmental Protection (FDEP) Permit. The Sponsor performs required hydrographic and environmental monitoring and compliance activities. The project is in an active status in the Rehabilitation and Inspection Program (RIP). The non-Federal sponsor is responsible for providing and maintaining necessary access to roads, parking areas, sanitation facilities and other public use facilities. The sponsor shall safeguard the continuing public use of the project beach and control water pollution for the health of bathers. The non-Federal sponsor shall prescribe and enforce regulations to prevent obstruction of or encroachment on the project.

8. PERIODIC NOURISHMENT.

The project was initially constructed between 2001 and 2003 with approximately 3.8 million cubic yards (mcy) of sand dredged from the St. Augustine Inlet ebb shoal. At the same time, an additional 400,000 cy of sand were dredged from the ebb shoal at the request of FDEP for placement in Anastasia State Park. The project has an authorized renourishment volume of 1,625,000 cy every 5 years. However, emergency renourishment was required in 2005 due to the severe 2004 hurricane season. The first periodic nourishment event in 2005 included both FCCE work along with cost shared work to construct a full project nourishment. The second periodic nourishment was completed in 2012. The third, and most recent, periodic nourishment was completed in January 2018.

* North American Vertical Datum of 1988

9. PREVIOUS PL 84-99 ASSISTANCE.

PL 84-99 assistance was provided in 2005 following the 2004 hurricane season when four hurricanes impacted the project area. Storm damages resulted in a loss of 839,100 cy of material from the project (51.6% of the historic renourishment volume). The 2005 PIR analyses and evaluation concluded the project was eligible for rehabilitation from the impacts in 2004 and the emergency restoration work was completed in conjunction with a full periodic nourishment in 2005. A PL 84-99 report was written in 2006 following the 2005 hurricane season, but FCCE restoration was not recommended as criteria #1 (significant storm) was not met. A PL 84-99 report was written in 2016 following Hurricane Matthew, but FCCE restoration was not recommended because criteria #2 (significant damage) was not met.

10. DISASTER INCIDENT.

A strong and long-lasting nor'easter impacted northeast Florida between November 5, 2021 and November 9, 2021. The bulk of the weather, including tropical storm force winds and several inches of rainfall occurred from November 5-6, 2021, although elevated water levels and high waves persisted for days thereafter. Wind gusts and atmospheric pressure reached tropical storm status. High astronomical water levels associated with the New Moon (commonly referred to as King Tides) coincided with elevated water levels and large waves compounded intense erosion throughout northeast Florida.

Based on the observed water level, wave, and wind data, the U.S. Army Corps of Engineers (USACE) Jacksonville District concluded the November 2021 nor'easter was an extraordinary storm event per ER 500-1-1, 5-20.f for the beaches of St. Johns County, Florida. This conclusion is founded on analyses based on storm duration, cumulative energy, and sediment transport potential. This conclusion is also supported by post-storm beach observations which showed significant dune and berm erosion. The early winter season timing of this event will not be conducive to post-storm recovery, which may not occur until after the winter months given northeast Florida's seasonal wave conditions. Additional details on the disaster incident are documented in Appendix H.

11. DAMAGE DESCRIPTION

The storm caused significant berm erosion within the longshore extents of the St. Johns County, Florida Shore Protection Project. In addition, to the north of the pier (R-137A to R-139) there was moderate sand loss and scarping of the frontal dune. However, losses in this area were all landward of the project construction template. A post-storm project inspection, conducted by the Project Engineer on November 16, 2021, found damage to the tieback seawall on the north side of Embassy Suites (see Figure 2). Damage to the seawall in this area had occurred prior to the storm, but the storm did cause erosion of the upland protected by the wall and may have exacerbated the existing damage. However, the Project Engineer did not observe any significant damage to upland infrastructure or other accessory structures (walkovers and seawalls) in the project area. The beach berm (represented by the +5.0-foot NAVD88 contour) retreated by an average of about 50 feet, with significant variability alongshore ranging from 10 to 100 feet of recession. Typical conditions of the post-storm project area beach are shown in Figure 3,

Figure 4, and Figure 5. These storm-induced losses, quantified in greater detail below, have lessened the Project's ability to provide the designed coastal storm risk management.









Damages are assessed volumetrically in terms of how the project changed due to the storm and how the current (post-storm) condition of the project compares to the federally authorized design template and construction template. These damages are characterized by comparison of the pre-storm (September 2021) and post-storm (November 2021) surveys, as well as the design template and construction template (see Figure 6). The pre-storm survey was a beach profile survey conducted in support of monitoring requirements for the project. The post-storm survey was a lidar survey collected within a month after the storm. Due to the limited ability of lidar to capture bathymetric data in the swash and breaking wave zones, the post-storm survey does not extend seaward of (deeper than) an elevation of approximately 0 feet NAVD88. As such, the following volume calculations do not account for volume change (erosion or accretion) that may have occurred seaward of this depth. It is likely that additional losses occurred in the nearshore (above about -5 ft NAVD88) and that some losses from the berm and nearshore have been deposited offshore (between about -5 ft and -25 ft NAVD88). A portion of the sand deposited offshore may recover somewhat to the nearshore or the dry sand beach. However, the degree of that recovery and the timeframe over which it may happen are unknown. It is likely that only partial recovery will be realized over the next

several years until the next scheduled renourishment (assuming no other significant storm event during this time). During this recovery timeframe, absent rehabilitation, it is unlikely that the project will provide the designed level of protection called for by the project authorization.

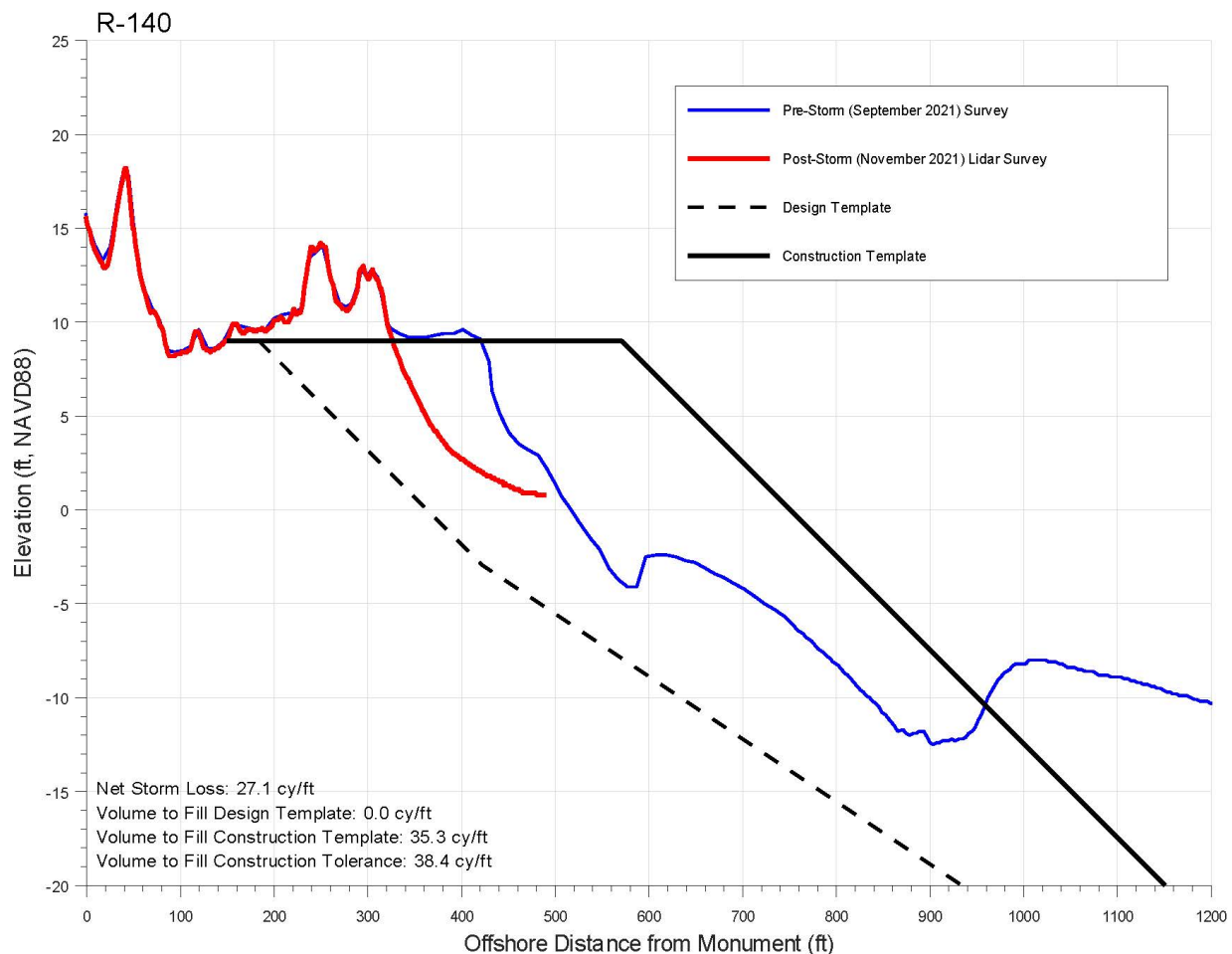


Figure 6: Typical beach profile showing berm erosion.

The net measured storm-induced sand loss from the project area is 170,000 cy (see Table 1). Volume losses over this time were significant along the entire project footprint, averaging 11.1 cy/ft, with moderate variability from transect to transect.

Due to the limited coverage of the post-storm survey, the volumes required to fill the design template and construction template were estimated by the summation of the following volumes:

1. The volume required to fill the design and construction template at the time of the pre-storm (September 2021) survey. This survey had full coverage of the cross-shore beach at each transect.

2. The volume loss measured based on the pre- and post-storm surveys. This volume was only factored in at transects where the losses occurred within the template in question (design or construction template). For instance, at R-140 shown above, volume was lost from the construction template, but the design template was not breached. At this transect, the pre- to post-storm volume loss was added to the fill need for the construction template but not the design template.

Filling the design template is estimated to require approximately 174,000 cy (11.4 cy/ft) of sand (see Table 2). Filling the project construction template would require about 1,958,000 cy (128.0 cy/ft) of sand (see Table 3). The total volumes shown in the following tables are rounded to the nearest thousand.

Sand losses sustained during this nor'easter event, coupled with the highly eroded condition of the pre-storm beach relative to the construction template, have left upland infrastructure along the St. Johns County SPP more vulnerable to future erosional events and coastal storm damage.

*Table 1: Summary of pre-storm (September 2021) to post-storm (November 2021) volume losses along the St. Johns County Shore Protection Project shoreline**

Monument	Distance Between	Net Volume Loss	
	ft	cy/ft	cy
Northern Limit		0.0	
	600.0		3,400
R-137A		11.4	
	1111.7		13,100
R-138		12.2	
	929.2		13,500
R-139		16.8	
	888.5		19,500
R-140		27.1	
	932.9		17,900
R-141		11.3	
	1091.1		8,600
R-142		4.4	
	1106.4		10,200
R-143T		14.0	
	756.1		8,600
R-143A		8.7	
	267.0		1,800
R-144		4.7	
	1027.6		9,200
R-145		13.1	
	997.8		11,100
R-146		9.2	
	1049.7		10,300
R-147		10.5	
	984.2		7,300
R-148		4.3	
	1007.9		5,500
R-149		6.7	
	989.4		9,700
R-150		13.0	
	1005.1		15,400
R-151		17.7	
	600.0		5,300
Southern Limit		0.0	
Total	15,300		170,000

* Totals shown in Table 1 are rounded to the nearest hundred for distance and thousand for volume

Table 2: Summary of volume needed to fill the Design Template of the St. Johns County SPP shoreline*

Monument	Distance Between	Pre-Storm Volume Required to Fill Design Template		Volume Lost from Design Template Pre- to Post-Storm		Post-Storm Volume Required to Fill Design Template	
	ft	cy/ft	cy	cy/ft	cy	cy/ft	cy
Northern Limit		0.0		0.0		0.0	
	600.0		0		0		0
R-137A		0.0		0.0		0.0	
	1111.7		0		0		0
R-138		0.0		0.0		0.0	
	929.2		0		0		0
R-139		0.0		0.0		0.0	
	888.5		0		0		0
R-140		0.0		0.0		0.0	
	932.9		14,700		5,300		20,000
R-141		31.5		11.3		42.8	
	1091.1		70,900		8,600		79,500
R-142		98.6		4.4		102.9	
	1106.4		56,800		10,200		66,900
R-143T		4.1		14.0		18.1	
	756.1		1,500		5,300		6,800
R-143A		0.0		0.0		0.0	
	267.0		0		0		0
R-144		0.1		0.0		0.1	
	1027.6		100		0		100
R-145		0.2		0.0		0.2	
	997.8		500		0		500
R-146		0.9		0.0		0.9	
	1049.7		500		0		500
R-147		0.0		0.0		0.0	
	984.2		0		0		0
R-148		0.0		0.0		0.0	
	1007.9		0		0		0
R-149		0.0		0.0		0.0	
	989.4		0		0		0
R-150		0.0		0.0		0.0	
	1005.1		0		0		0
R-151		0.0		0.0		0.0	
	600.0		0		0		0
Southern Limit		0.0		0.0		0.0	
Total	15,300		145,000		29,000		174,000

* Totals shown in Table 2 are rounded to the nearest hundred for distance and thousand for volume

Table 3: Summary of volume needed to fill the Tolerance Construction Template of the St. Johns County SPP shoreline*

Monument	Distance Between	Pre-Storm Volume Required to Fill Construction Tolerance		Volume Lost from Construction Template Pre- to Post-Storm		Post-Storm Volume Required to Fill Construction Tolerance	
	ft	cy/ft	cy	cy/ft	cy	cy/ft	cy
Northern Limit		0.0		0.0		0.0	
	600.0		0		0		0
R-137A		0.0		0.0		0.0	
	1111.7		0		0		0
R-138		0.0		0.0		0.0	
	929.2		100		0		100
R-139		0.3		0.0		0.3	
	888.5		64,400		12,100		76,400
R-140		144.6		27.1		171.7	
	932.9		278,100		17,900		296,000
R-141		451.6		11.3		462.9	
	1091.1		478,300		8,600		486,800
R-142		425.2		4.4		429.5	
	1106.4		404,000		10,200		414,200
R-143T		305.2		14.0		319.2	
	756.1		215,000		8,600		223,500
R-143A		263.4		8.7		272.1	
	267.0		68,800		1,800		70,600
R-144		252.0		4.7		256.7	
	1027.6		223,000		9,200		232,200
R-145		182.1		13.1		195.2	
	997.8		93,500		11,100		104,600
R-146		5.3		9.2		14.6	
	1049.7		7,200		4,800		12,000
R-147		8.3		0.0		8.3	
	984.2		7,500		0		7,500
R-148		6.9		0.0		6.9	
	1007.9		5,000		0		5,000
R-149		2.9		0.0		2.9	
	989.4		8,200		6,400		14,600
R-150		13.6		13.0		26.7	
	1005.1		7,700		6,500		14,200
R-151		1.6		0.0		1.6	
	600.0		500		0		500
Southern Limit		0.0		0.0		0.0	
Total	15,300		1,861,000		97,000		1,958,000

* Totals shown in Table 3 are rounded to the nearest hundred for distance and thousand for volume

12. NEED FOR PL 84-99 REHABILITATION.

The nor'easter that impacted the project area was an extraordinary storm event per ER 500-1-1, 5-20.f as described in Section 10.

The storm event eroded an estimated 170,000 cy from the project area. Following the storm an estimated 174,000 cy would be needed to rebuild the projects minimum design template and an estimated 1,958,000 cy would be needed to rebuild the full construction template.

One of the applicable criteria described in ER 500-1-1, 5-20.e.(2) for determining if significant damage has occurred has been met.

- (a) The cost of the construction effort to effect repair of the project (based on the volume to restore the design template) exclusive of dredge mob/demob costs (\$4,035,400) exceeds \$1 million and is greater than 2 percent of the original project construction costs expressed in current day dollars (\$15,600,000).

The remaining two criteria for determining if significant damage has occurred have not been met.

- (b) The cost of the construction effort to effect repair of the project (based on the volume to restore the design template) exclusive of dredge mob/demob costs (\$4,035,400) does not exceed \$6 million
- (c) Less than one-third of the planned or historically placed sand for renourishment was lost. The planned nourishment volume for future nourishments is 1,200,000 cy. Approximately 170,000 cy was lost from pre to post storm which is 14% of the planned periodic nourishment volume.

This situation passed the "Risk Test" described in ER 500-1-1, 5-20.d. There is an immediate threat to the property, structures, and infrastructure that this project is designed to protect between R-140 and R-147 where erosion has breached the authorized design template. It is necessary to undertake the proposed rehabilitation effort under the authority of PL 84-99 as soon as possible to minimize damages to the structures and infrastructure in the project area. The next hurricane season begins on June 1, 2022, however, nor'easters could occur throughout the year and are most frequent in the fall and winter.

13. PROPOSED WORK.

Public Law 116-20 states that, "funding utilized for authorized shore protection projects shall restore such projects to the **full project profile** at full Federal expense". (Emphasis added) In accordance with PL 116-20 the proposed work will include nourishment of the full construction template.

The proposed work will likely require the use of a new additional sand source located approximately 6 miles offshore of the project area. Prior to the storm event an Engineering Documentation Report (EDR) and Environmental Assessment (EA) were in the process of being prepared so that this new offshore sand source could be used for future nourishments or emergency events (like this one) would require its use. Upon conclusion

of environmental compliance, the proposed work would use this new offshore sand source. This PIR will be supplemented with the appropriate environmental documentation for the use of the new offshore sand source prior to the funds transmittal of construction phase activities in accordance with the guidance memorandum from CECW-HS dated October 26, 2020. Completion of the EDR and EA for the new offshore source is scheduled for completion in April 2022 (includes 30-day public review and 60-day Coastal Zone Management Act (CZMA) Federal Consistency Determination (FCD) review).

14. COST ESTIMATE.

The amount of sand needed to rebuild the project to the design level of protection (rebuild design template), per the CECW-HS memo dated May 30, 2017, is estimated at 174,000 cy. The total estimated cost to rehabilitate the Project to the design template is \$7,845,900. This estimate includes mobilization, demobilization, and preparatory costs; template construction and incidental costs (i.e., monitoring, beach tilling, surveys, etc.); contingency; planning, engineering, and design; and supervision and administration (S&A) in accordance with EP 500-1-1.

The total cost, including mobilization and other associated costs, to rebuild the full construction template with approximately 1,958,000 cy is estimated at \$37,173,900. The estimated costs presented in this report (Table 4) are at the Fiscal Year 2022 (FY22) price level (October 1, 2021 - September 30, 2022). These costs were generated from the volumetric quantities required for each of the options mentioned above.

Public Law 116-20 states that, “funding utilized for authorized shore protection projects shall restore such projects to the **full project profile** at full Federal expense”. (Emphasis added).

Table 4: Cost Allocation for Alternatives 1 and 2^(1,2,3)

St. Johns County SPP PIR			
WBS Code	Project Feature	Alt 1 – Restore Post Storm to Design Template	Alt 2 - Restore to Full Construction Template
17	Mobilization and Demobilization	\$3,810,500	\$3,810,500
17	Beach Replenishment	\$2,537,700	\$28,370,500
17	Associated General Items	\$630,100	\$983,100
01	Lands and Damages	\$30,000	\$30,000
30	Engineering and Design	\$418,800	\$1,989,900
31	Construction Management	\$418,800	\$1,989,900
Total Cost		\$7,845,900	\$37,173,900

1. All cost estimates are at FY22 Price Levels.
2. Code 17 costs above contain contingencies per EP 500-1-1: "FCCE-funded portions of dredge mobilization/demobilization costs and sand renourishment (dredging) costs are limited to" 15%.
3. Code 31 costs above are S&A costs included in accordance with EP 500-1-1. Currently using rate based on last certified cost, which is being calculated as 7.5% of construction costs (including contingencies).

15. ECONOMICS.

Economic justification has been determined by analyzing the remaining costs and benefits for the remaining period of Federal participation with the inclusion of the proposed emergency work. The proposed emergency work would begin in FY22, and the planned periodic nourishment interval is assumed to reset and continue for the remaining period of Federal participation. Benefits from the last approved report (1998 GRR, March 1997 Price Levels) have been used. Costs have been deflated back to the approved benefit price levels by applying the Civil Works Construction Cost Index System (CWCCIS) quarterly cost index published September 30, 2020. Recreation benefits are not used for justification of the emergency work.

With the proposed emergency work, the project would have remaining average annual benefits of \$4,585,000 (not including incidental recreation benefits) and remaining average annual costs of \$2,228,000 using the current discount rate 2.25%. The proposed emergency work is economically justified with the project having a remaining benefit to remaining cost ratio of 2.06 and remaining average annual net benefits of \$2,357,000 using the current discount rate of 2.25%. Additional details on the economic justification analysis can be found in Appendix L.

16. ENVIRONMENTAL CONSIDERATIONS.

Environmental coordination is complete for the beach fill area and inlet sand source. Additional environmental coordination for the new offshore sand source is ongoing. While no significant environmental issues exist, the following environmental concerns will be addressed through additional environmental coordination on the new sand source: endangered species, cultural resources, essential fish habitat, coastal barrier resources, and water quality. Environmental compliance review will be completed prior to receiving funding for construction phase activities. Once complete, information will be supplemented to the project information report. Additional details are provided in the below paragraphs and in Appendix M.

a. Impacts, Beach Nourishment.

(1) The purpose of renourishing the previously nourished beach is to restore and maintain the hurricane protection and storm damage reduction benefits of the Project. Shore Protection Projects are typically designed to provide a minimum level of protection plus additional nourishment to optimize the renourishment interval (typically enough sand to achieve a renourishment interval of 5 years). The renourished beach will undergo a period of reworking by waves and currents. An “equilibrium profile” is achieved in about a year following the renourishment event. Direct burial and suppression of re-colonization of the infaunal community of shoreline bottom (benthic) habitat would occur within this “equilibrium profile” temporarily affecting essential fish habitat for a variety of fishery management species. During the first year following the renourishment event, there would be a high potential for greater than normal erosion of the dry beach along with possible loss of sea turtle nests and shoreline habitat.

(2) Some elevation in turbidity for the nearshore waters might also be expected during the renourishment event and during the first year following the event as the beach profile equilibrates but this has not been shown to happen. To reduce impacts, the sand used for renourishment is required to be similar to the “natural” or “existing” beach, beach compatible fill is described in 62B-41.007 Florida Administrative Code (F.A.C), scarps are removed just prior to sea turtle nesting season, and renourishment occurs outside the sea turtle nesting window or sea turtle nests are relocated to a “safe hatchery”. Monitoring for escarpments and compaction is typically performed on an annual basis just prior to sea turtle nesting season for three years following construction.

(3) Additionally, the sand dunes along the shoreline play a critical role in enhancing the storm protection and environmental function of the beach system. Sand dunes serve as the ultimate line of defense against storm surge and flooding by serving as a natural buffer to protect inland infrastructure. Sand dunes also provide important habitat for many plants and animals – even along St. Johns County’s relatively urbanized shoreline. In addition to providing a levee-like barrier against storm surge and coastal flooding, dunes are also an important resource in limiting beach erosion. During storms when the beach is being actively eroded, sand removed from the dunes is deposited onto the beach profile and serves as a natural, albeit limited, sand source to the beach. Over time the dunes are replenished by windblown sand from the berm.

b. Impacts, Borrow Site.

Borrow sites are selected for quality and quantity of sand, proximity to the beach, and potential for minimizing impact to valuable underwater resources (reef, hard ground, potential historic/cultural resources). A buffer zone between the borrow site boundary and such resources is typically required to minimize or avoid impacts. Buffer zones are specified in the South Atlantic Regional Biological Opinions from the National Marine Fisheries Service (NMFS) as well as the State permit. If required to deliver sand to the beach, pipeline corridors are selected to minimize impact to benthic resources. The same pipeline corridor is used for subsequent renourishment events to limit impacts to one specific location. The pipeline corridors have not yet been established for hopper dredge offloading from sand mined at S-1. Temporary impacts consisting of increased turbidity and mortality of benthic macroinvertebrates would be expected at the borrow site. The S-1 offshore borrow area will be used exclusively for the proposed work for St. Johns County SPP.

The proposed new additional borrow area for St. Johns County SPP (St. Augustine Beach) is located on the Outer Continental Shelf (OCS) in the Atlantic Ocean. Site S-1 lies east of the St. Augustine Beach within federal waters approximately 6 miles offshore and 9 miles southeast of St. Augustine Inlet (Figure 7). Approximately 14 mcy of beach compatible sand has been identified in this area. The S-1 is approximately 2,700-acres in size in water depths between 50 feet-60 feet mean lower low water (MLLW) (NAVD 88).

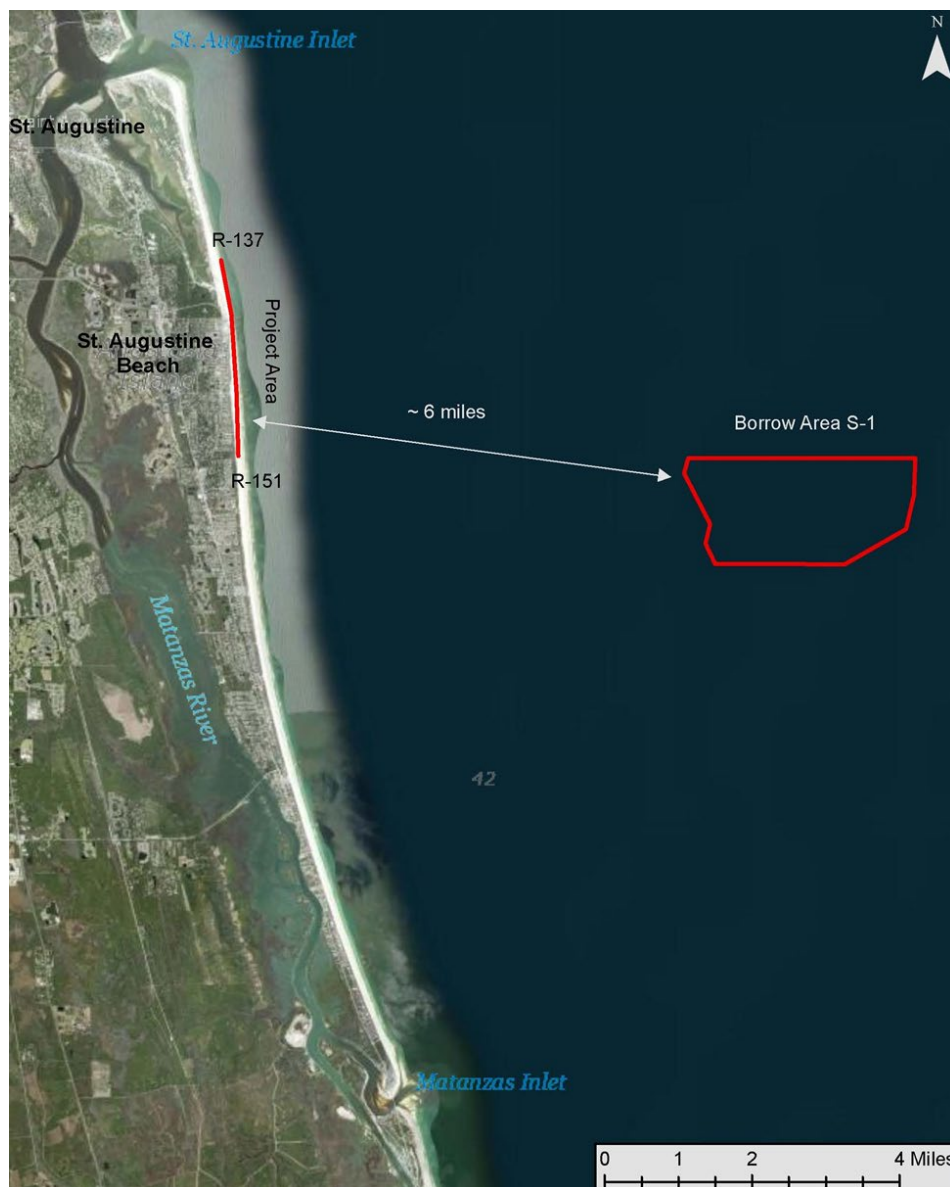


Figure 7: Location of St. Johns County SPP and the newly proposed offshore sand borrow area S-1.

c. Environmental Coordination.

Environmental compliance requirements will be satisfied prior to the funds transmittal of the construction phase of this project. Once complete, information will be supplemented to the project information report, requirements will be satisfied prior to the funds transmittal of construction phase activities (and supplemented to this PIR). The proposed action would be conducted in accordance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), the Endangered Species Act (ESA). A General Reevaluation Report (GRR) with Final Environmental Assessment (EA) and Findings of No Significant Impact (FONSI) were completed in 1998 for the proposed beach renourishment Project (USACE 1998) and covers placement of sand on the beach template. A supplemental NEPA document is currently being drafted to authorize the use of a new offshore sand borrow area (S-1) for this St. Johns County SPP project.

d. National Environmental Policy Act (NEPA).

The mining of offshore sand and placement onto the beach requires consideration under NEPA and an Environmental Assessment is currently underway to assess the use of S-1 as a new offshore borrow area for beach quality sand. These requirements will be satisfied prior to the funds transmittal of construction phase activities. A Supplemental Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) were completed in 1998 for the proposed beach renourishment Project and cover placement of sand on the beach. The proposed additional sand borrow area is located in Federal waters (>3 nautical miles offshore) on the OCS and the Bureau of Ocean Energy Management (BOEM) will be acting as a cooperating agency on the National Environmental Policy Act (NEPA) document under preparation. A more detailed description of St. Johns County SPP and potential effects can be found in the 1998 GRR Report EA.

e. Threatened and Endangered (T&E) Species.

(1) Borrow Site. The use of the offshore borrow areas is currently being coordinated with the U.S. Fish and Wildlife Service (USFWS) and NMFS. These requirements will be satisfied prior to receipt of construction funds. The USACE determined that the use of a dredge to obtain borrow material offshore has the potential to affect the following species:: (1) may affect: swimming sea turtles (green sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, Kemp's ridley's sea turtle); (2) may affect but is not likely to adversely affect: Florida manatee, North Atlantic right whale, sei whale, humpback whale, sperm whale, fin whale, blue whale, Atlantic sturgeon, smalltooth sawfish, giant manta ray, oceanic whitetip shark, and scalloped hammerhead shark.

For potential effects to federally listed T&E species under the NMFS jurisdiction, the project meets the eligibility criteria to be covered by the NMFS' 2020 South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States, as amended (SARBO). The SARBO covers dredging (e.g., maintenance, advance maintenance, minor channel modifications, borrow area dredging, and muck dredging), transportation of dredged material, dredged material placement, geotechnical and geophysical (G&G) surveys, and species handling in the southeast U.S., specifically from North Carolina/Virginia border through and including Key West, Florida and the islands of Puerto Rico and the U.S. Virgin Islands. The following types of dredges and dredging methods are covered by the SARBO: mechanical (e.g., clamshell and backhoe), hydraulic (e.g., cutterhead suction/pipeline dredging and hopper), side-cast/split hull, and agitation (e.g., bed leveling, water injection dredging) as well as dredging pipelines and support vessels. The SARBO also covers relocation trawling, ESA-listed species handling, and aerial surveys. The use of equipment and/or methods not covered by the SARBO may require additional coordination and/or consultation with NMFS.

The project will adhere to applicable SARBO Project Design Criteria (PDC). PDCs are the specific criteria, including the technical and engineering specifications, indicating how

an individual project must be sited, constructed, or otherwise carried out to avoid or minimize adverse effects to ESA-listed species or designated critical habitat (DCH). In designing the PDCs, conditions are established that avoid adverse effects on listed species or DCH or, where the adverse effect cannot be avoided, to limit effects to predictable levels that will not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat either at the individual project level or in aggregate. Additionally, NMFS' sea turtle and smalltooth sawfish construction conditions will be implemented. With implementation of the applicable PDCs and construction conditions, the proposed work would not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify any designated critical habitat.

(2) Beach Placement. The placement of beach quality sand for the authorized project has been evaluated through previous NEPA document described in the 1998 St. Johns County GRR Environmental Assessment. (USACE 1998). The USACE determined that the proposed work may affect nesting sea turtles, and may affect, but is not likely to adversely affect the West Indian manatee, Anastasia Island beach mouse, rufa red knot, and piping plover. USACE determined that the sand placement activities associated with this project fall within the scope of the USFWS' 2015 Statewide Programmatic Biological Opinion, as amended (SPBO) and the 2013 Programmatic Piping Plover Biological Opinion (P3BO) (2013). ESA Section 7 informal consultation on the placement area was completed with USFWS in a letter dated December 22, 2016 for rufa red knot, Anastasia Island beach mouse, piping plover, East Indian manatee, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and Kemp Ridley's sea turtle. This letter can be found in Appendix G of the 2017 St. Johns County CRSM study report (USACE 2017). Applicable Terms and Conditions (T&Cs) of the SPBO and P3BO as well as standard protection measures for the East Indian manatee, sea turtles, rufa red know, piping plover, and Anastasia Island beach mouse shall be implemented.

For potential effects to federally listed T&E species under the NMFS jurisdiction, the USACE determined that the project met the criteria to be covered by the 1991 South Atlantic Regional Biological Opinion (SARBO; as amended in 1995 and 1997) for federally-listed marine species. USACE reinitiated consultation with NMFS under the SARBO; however, NMFS provided guidance that projects found to be consistent with the SARBO as reinitiated for loggerhead critical habitat should not consult separately while consultation is ongoing for the programmatic opinion (R. Sweeney, email correspondence dated November 18, 2015). Therefore, no additional coordination was required with NMFS. The project meets the eligibility criteria to be covered by the NMFS' 2020 SARBO, as amended. Changes between the old SARBO and the new SARBO do not trigger the need for supplemental NEPA in this context. The project will adhere to all applicable SARBO PDCs and construction conditions for beach placement.

f. Archeological and Cultural Resources.

As part of NEPA, the effect of the project on cultural resources has been analyzed as described below. The coordination and consultation regarding historic properties (resources eligible for listing in the National Register of Historic Places) under the National

Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800) are also described below. Prior coordination and consultation for the Ebb Shoal Borrow Area has concluded, while additional coordination is ongoing for the S-1 area, as well as additional pipeline corridors that will be necessary for beach placement.

(1) Ebb Shoal Borrow Area. Prior consultation for the use of the St. Augustine Inlet Ebb Shoal Borrow Area, placement of sediment on the beach, and individual pipeline corridors has taken place, and is addressed in the 2017 *St. Johns County Coastal Storm Risk Management Project Integrated Feasibility Report and Environmental Assessment* (USACE). This document addresses archaeological and cultural resources concerns with the St. Augustine Inlet Complex Borrow Site Ebb Shoal Borrow Area and references several archaeological sites potentially eligible for listing in the National Register of Historic Places located within the borrow area complex, around which avoidance buffers must be maintained in order to satisfy the conditions of a determination of no affect to historic properties per consultation with the Florida State Historic Preservation Office (SHPO) (DHR Project File No.: 2015-1661) (Appendix M, Tabs M-5 and M-6).

Additionally, the 2017 document references ongoing consultation with Florida SHPO for previously un-surveyed portions of the shoal complex. That consultation has since been completed, and Florida SHPO concurred with a determination of no affect to historic properties, contingent upon the maintenance of avoidance buffers in addition to those referenced in the 2017 *St. Johns County Coastal Storm Risk Management Project Integrated Feasibility Report and Environmental Assessment* (DHR Project File No.: 2016-3127) (Appendix M, Tabs M-5 and M-6).

(2) Offshore Borrow Sites. Consultation under the NHPA and NEPA review are ongoing for the proposed new borrow area S-1. Requirements will be satisfied prior to the funds transmittal of construction phase activities (and supplemented to this PIR).

(3) Beach Placement. While cultural resources concerns involving the areas of beach placement are addressed in the St. Johns County GRR Environmental Assessment (USACE 1998), new locations for the pipelines through which sand will be pumped to the placement areas are being proposed. The exact locations of those pipeline corridors are as yet unknown, hence NHPA consultation and NEPA review are ongoing for these proposed new pipeline corridors. Requirements will be satisfied prior to the funds transmittal of construction phase activities (and supplemented to this PIR).

(4) Emergency Procedures. The implementing regulations of the NHPA include provisions during emergency procedures (36 CFR 800.12). These regulations apply when the President, a tribal government, or the Governor of a State declares a disaster or emergency, or if an immediate threat to life or property is identified. This only applies within the first 30 days after the formal declaration of the appropriate authority and may require additional consultation. While no formal declaration has been made regarding a disaster or emergency, there is an immediate threat to property, as discussed in Section 12 above; however, the storm event in question occurred greater than 30 days prior the

date of this PIR, therefore provisions for emergency procedures under 36 CFR 800.12 do not apply.

(5) Inadvertent Discoveries. All project specifications include a clause for unanticipated discoveries, consistent with 36 CFR 800.13.

g. Clean Water Act.

A Clean Water Act Section 404(b) analysis for beach placement has been previously completed and coordinated with the State and appropriate stake holders during completion of the March 1998 General Reevaluation Report (GRR) with Final Environmental Assessment (EA) and Findings of No Significant Impact (FONSI). Dredging at the borrow area is not expected to trigger a 404(b) analysis.

The USACE has water quality certification under Section 401 of the Clean Water Act for beach placement. This water quality certification expires on September 26, 2026. The Corps will be seeking water quality certification for the new borrow area.

h. Coastal Zone Consistency.

The State of Florida has determined that the beach placement is consistent with the State's Coastal Zone Management Program. This determination was made with issuance of the State permit for this Project that expires September 26, 2026. The Corps anticipates concurrence with its determination that the proposed work using the new borrow area is consistent with the state's Coastal Zone Management Program to the maximum extent practicable.

i. Coastal Barrier Resources Act (CBRA).

The Coastal Barrier Resources Act (CBRA) of 1982 (16 U.S.C. §3501 et. seq.) and the Coastal Barrier Improvement Act (CBIA) of 1990 (PL 101-591) limit Federally-subsidized development within the CBRA Units to limit the loss of human life by discouraging development in high-risk areas, to reduce wasteful expenditures of Federal resources, and to protect the natural resources associated with coastal barriers. CBIA provides development goals for undeveloped coastal property held in public ownership, including wildlife refuges, parks, and other lands set aside for conservation ("otherwise protected areas," or OPAs). These public lands are excluded from most of the CBRA restrictions, although they are prohibited from receiving federal flood insurance for new structures.

The official USFWS Coastal Barrier Resources System (CBRS) maps were reviewed (<https://www.fws.gov/CBRA/Maps/Mapper.html>). Four CBRA Units classified as OPAs are located adjacent to the project area (Figure 8):

- FL-03P (Guana River) is located immediately north of Vilano Beach (St. Johns County CSRM).
- P-04A (Usina Beach) is intersecting the southern portion of St. Johns County CSRM.
- P-05 (Conch Island) is located at the area around St. Augustine Inlet including Porpoise Point on the north side and the northern portion of Anastasia State Park.

- P-05P (Conch Island) is the remaining portion of Anastasia State Park.

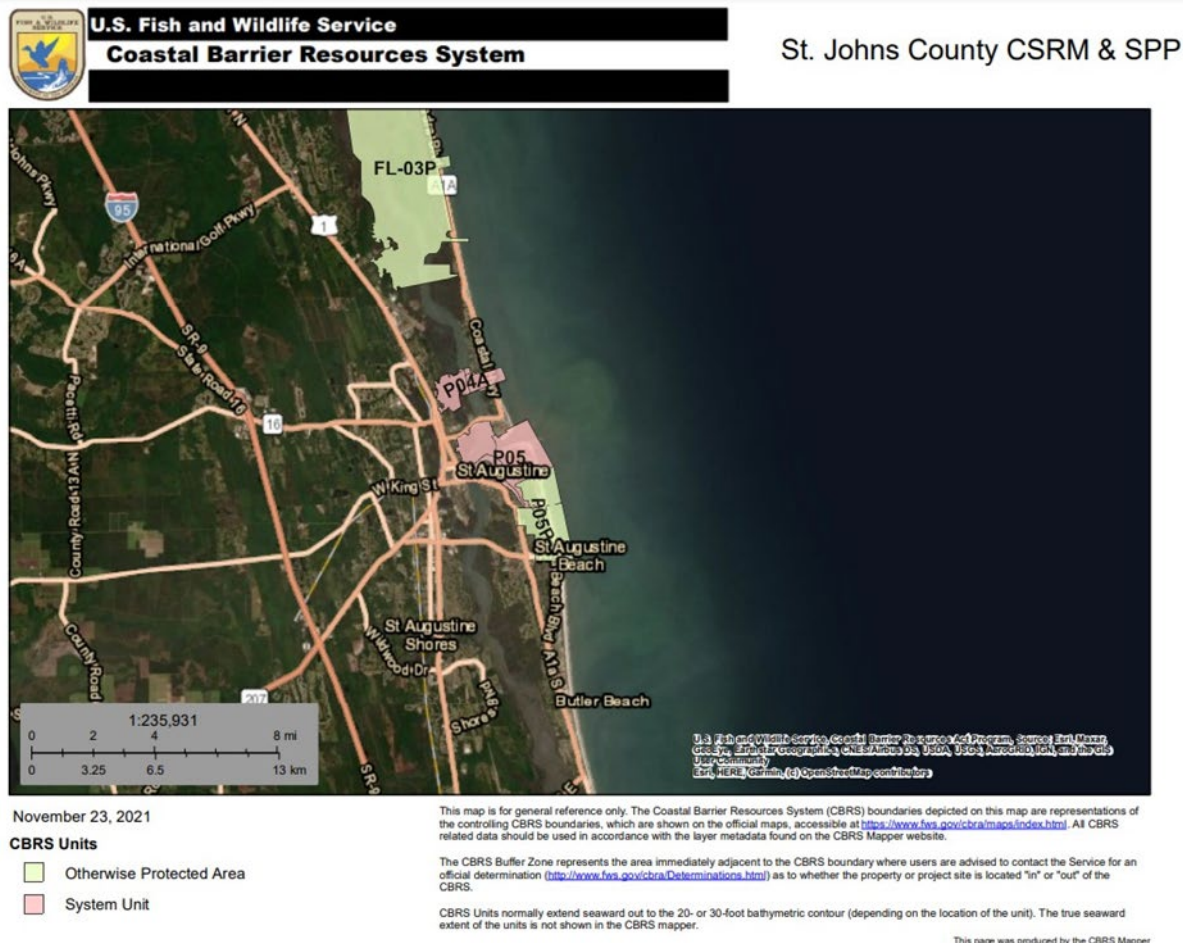


Figure 8: Location of CBRS Units OPA-Guana River Unit FL-03P, Usina Beach Unit P04A, Conch Island Unit P05, and OPA Conch Island Unit P05P in the vicinity of St. Johns County CSRM (Vilano Beach) and St. Johns County SPP (St. Augustine Beach).

Dredging of S-1 sand borrow site would not occur in designated CRBA zones; however, placement will restore and stabilize the beaches in the designated CBRS units. The PIR does not include the construction of structures that would require Federal flood insurance; therefore, Federal expenditures for the proposed project are not restricted. Consultation for the placement of sand from the St. Johns County projects within CBRS units was completed with USFWS via letter dated October 25, 2016. USACE will confirm the 2016 consultation prior to construction and is currently coordinating with USFWS as part of the NEPA process. These requirements will be satisfied prior to the funds transmittal of construction phase activities.

j. Essential Fish Habitat.

The Magnuson-Stevens Fishery Conservation and Management Act requires the Federal Agency to prepare an Essential Fish Habitat (EFH) Assessment for the NMFS. EFH consultation will be updated for the new borrow areas with the draft (January 21, 2022)

NEPA notice of availability following the October 1, 2019, “finding” from NMFS. An EFH assessment and affect determination is currently being prepared and coordinated with NMFS during public review for an EA. These requirements will be satisfied prior to the funds transmittal of construction phase activities.

k. References

U.S. Army Corps of Engineers (USACE). 1998. General Reevaluation Report (GRR) with Final Environmental Assessment (EA) and Findings of No Significant Impact (FONSI), St. Johns County, Florida, Shore Protection Project.

U.S. Army Corps of Engineers (USACE). 2017. St. Johns County Coastal Storm Risk Management Project, Final Integrated Feasibility Study and Environmental Assessment. South Ponte Vedra Beach, Vilano Beach, and Summer Haven Reaches St. Johns County, Florida.

17. PERMITS.

The St. Johns County Beach Nourishment, No. 0295429-001-JC Joint Coastal Permit which expires September 26, 2026 constitutes water quality certification pursuant to Section 401 of the Clean Water Act. Water quality certification from FDEP will be required to add the additional offshore borrow area S-1. These requirements will be satisfied prior to the funds transmittal of construction phase activities.

18. IMPLEMENTATION SCHEDULE.

The anticipated schedule for activities needed to complete the proposed emergency work is as follows.

- The EDR and EA to use the new offshore borrow area would be completed April 2022.
- Pre-construction Engineering and Design activities, including a permit modification to use the new offshore sand source, would begin in February 2022 (or as soon as PED funds are provided)- and be completed by June 2022.
- A contract would be awarded, and construction would begin in June 2022.
- Construction would be completed by January 2023.

19. RECOMMENDATIONS.

Based on study findings, the nor'easter that impacted the project area from November 5-9, 2021 meets criteria in ER 500-1-1 for extraordinary storm event, significant amounts of damage, and the risk test for immediate threats to property, structures, and infrastructure. The proposed emergency work to restore the full construction template, in accordance with PL 116-20, is economically justified with the project having a remaining benefit to remaining cost ratio of 2.06. This PIR will be supplemented with additional environmental information and documentation for the use of a new sand source for the proposed emergency work prior to the funds transmittal of construction phase activities in accordance with the guidance memorandum from CECW-HS dated October 26, 2020. I recommend that emergency rehabilitation of the St. Johns County Shore Protection Project (St. Augustine Beach), as described herein, be performed under the authority of PL 84-99.

JAMES L. BOOTH
Colonel, EN
Commanding

List of Acronyms

ASA(CW) - Assistant Secretary of the Army for Civil Works
ASWE - Accumulated Storm Wave Energy
BCOE – Biddability, Constructability, Environmental review
BCR - Benefit-to-Cost Ratio
CA – Cooperation Agreement
CBRA – Coastal Barrier Resource Act
CG - Construction General
COSI - Coastal Storm Impulse Parameter
CWCCIS - Civil Works Construction Cost Index System
CY – cubic yards
EA - Environmental Assessment
EFH - Essential Fish Habitat
EIS - Environmental Impact Statement
EM - Engineering Manual
ER – Engineer Regulation
ESA - Endangered Species Act
FCCE - Flood Control and Coastal Emergency
FDEP - Florida Department of Environmental Protection
FEMA - Federal Emergency Management Agency
FY – Fiscal year
GRBO - Gulf of Mexico Regional Biological Opinion
H.R. – House Resolution
HSDR - Hurricane and Storm Damage Reduction
HSPP – Hurricane/Shore Protection Project
MCACES - Micro-Computer Aided Cost Estimating System
MCY – Million Cubic Yards
MHHW - Mean Higher High Water
MLW - Mean Low Water
MLLW - Mean Lower Low Water
MSL - Mean Sea Level
NAVD88 - North American Vertical Datum of 1988
NEPA - National Environmental Policy Act
NDBC - National Data Buoy Center
NGVD - National Geodetic Vertical Datum
NMFS- National Marine Fisheries Service
NOAA - National Oceanic and Atmospheric Administration
NOS - National Ocean Service
PCA - Project Cooperation Agreement
PED – Preconstruction, Engineering and Design
PL 84-99 - Public Law 84-99
RBO - Regional Biological Opinion
RBRCR - Remaining benefit to remaining cost ratio
RIP - Rehabilitation and Inspection Program
S&A - Supervision and administration

SEI - Storm Erosion Index

SHPO - State Historic Preservation Office

SPBO - Statewide Programmatic Biological Opinion

SPP - Shore Protection Project

TS - Tropical Storm

USACE - U.S. Army Corps of Engineers

USF – University of South Florida

USFWS - U.S. Fish and Wildlife Service

UTC - Coordinated Universal Time

WIS - Wave Information Study

WQC - Water Quality Certification

WRDA - Water Resources Development Act

Part III. Appendices

Appendix A. Public sponsor's request for assistance



St. Johns County Board of County Commissioners

Office of the County Administrator

November 17, 2021

U.S. Army Corps of Engineers
Jacksonville District
Attn: Commander and District Engineer Colonel James L. Booth (CESAJ-DE)
701 San Marco Blvd.
Jacksonville, Florida 32207

Dear Colonel Booth:

The St. Johns County Shore Protection Project (St. Augustine Beach) suffered extraordinary damage from the nor'easter that impacted the project from November 5 through November 9. We respectfully request that the U.S. Army Corps of Engineers evaluate and repair the damage to the project using federal funds.

Public Access is threatened at the Ocean Pier and Courts Park and the seawall protecting the Embassy Suites Hotel has had a partial failure.

Your staff has visited the project area in preparation for drafting a Project Information Report and we have supplied pictures representative of the damage. LiDAR data was collected in the project area immediately after the storm, and we will submit additional data in the coming weeks as it becomes available.

St. Johns County is grateful for the long-standing partnership with the USACE and the historic efforts expended in maintaining the ongoing beach projects and feasibility studies. We look forward to continued collaborative effort with the Corps. If you have any questions, please contact me at (904) 209-0530, or Damon Douglas at (904) 209-0794.

Respectfully,


Brad Bradley
Deputy County Administrator

Appendix B. Project map(s)

See Figure 1 in Section 1 of the main report.

Appendix C. Project Overview

See Section 1-8 in the main report.

Appendix D. Project Design Data

See Section 6 in the main report.

Appendix E. Project Maintenance Data

See Section 7 in the main report.

Appendix F. Project Renourishment Data

See Section 8 of the main report.

Appendix G. Previous PL 84-99 or Other Federal Agency Assistance

See Section 9 in the main report.

Appendix H. Disaster Incident

Extraordinary Storm Analysis – November 2021 Nor'easter

Storm Event

A strong and long-lasting nor'easter impacted northeast Florida between 5 November 2021 and 9 November 2021. The bulk of the weather, including tropical storm force winds and several inches of rainfall occurred from 5 – 6 November, although elevated water levels and high waves persisted for days thereafter. Wind gusts and atmospheric pressure reached tropical storm status while rainfall totals were between about 3.5 to 4.5 inches from Mayport, FL in Duval County to Marineland, FL on the St Johns and Flagler County border. High astronomical water levels associated with the New Moon (commonly referred to as King Tides) coincided with elevated water levels and large waves compounded intense erosion throughout northeast Florida.

“Extraordinary Storm” Determination

ER 500-1-1, “Emergency Employment of Army and Other Resources, CIVIL EMERGENCY MANAGEMENT PROGRAM” dated 30 September 2001 provides guidance to determine whether a storm event is characterized as an “extraordinary storm”. The pertinent sections of the guidance contained in ER 500-1-1 for this analysis are as follows:

*ER 500-1-1 Paragraph 5-20(e). **The Extraordinary Storm.** To be eligible for Rehabilitation Assistance, the HSPP must be substantially eroded/damaged by wind, wave, or water action of an other than ordinary nature. USACE defines this as an "extraordinary storm". An extraordinary storm is a storm that, due to length or severity, creates weather conditions that cause significant amounts of damage to a Hurricane/Shore Protection Project.*

ER 500-1-1 Paragraph 5-20(e)(1). "Length or severity" refers to a Category 3 or higher hurricane as measured on the Saffir-Simpson scale, or a storm that has an exceedance frequency equal to or greater than the design storm of the project.

The US Army Corps of Engineers' (USACE) Jacksonville District (SAJ), Hurricane Storm Damage Reduction (HSDR) and Coastal Storm Risk Management (CSRМ) beach nourishment projects do not specify a standard “design storm” protection threshold. They are designed to provide protection against historical storms experienced in the project area. The berm height is designed using USACE guidance EM 1110-2-3301, which specifies the construction berm elevation should be the same or slightly less than the natural berm crest elevation. The berm width is optimized via economic analyses using predicted shoreline recession rates and storm-induced damages associated with recession (ER 1105-2-100).

*ER 500-1-1 Paragraph 5-20(f). **Extraordinary Storm Justification.** The PIR must include justification that substantiates the occurrence of an extraordinary storm. 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)) if necessary. PIR justification will include relevant data from the National Weather Service. Saffir-Simpson scale Category I and Category II hurricanes (as measured at the HSPP project) are presumed to be ordinary storms in the absence of a preponderance of evidence that indicates a different conclusion.*

The storm characteristics of this nor'easter (i.e., wind, surge, and waves) were evaluated to determine if it was an “extraordinary” event. Wind speed and direction and total water level were recorded at the

National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS) Station 8720218 at Mayport Bar Pilots Dock, FL. Wave data was measured by a ‘Waverider’ buoy that stores data on NOAA’s National Data Buoy Center’s (NDBC) website. The NDBC Station 41117 is also known as the Coastal Data Information Program (CDIP) Station 194 (labeled “St. Augustine Buoy” in **Figure 9**), and it is positioned in a water depth of 23.6 m (77.4 ft) approximately 14.0 miles east of St. Johns County, FL. **Figure 9** shows the locations where storm data was measured, along with available Wave Information Study (WIS) and Coastal Hazards System (CHS) data locations. WIS provides a numerical model hindcast of wave conditions covering the past 40 years, while CHS provides annual exceedance frequencies for water level and wave parameters based on probabilistically derived synthetic storm suite covering the expected parameter space for the region. The locations where storm data has been gathered for this analysis provide an adequate data set for describing general storm conditions in northeast Florida. Although the severity of erosion along the shorelines of the St. Johns County federal projects in the region was variable, the “extraordinary storm” characterization of this nor’easter is applicable to all projects in northeast Florida.

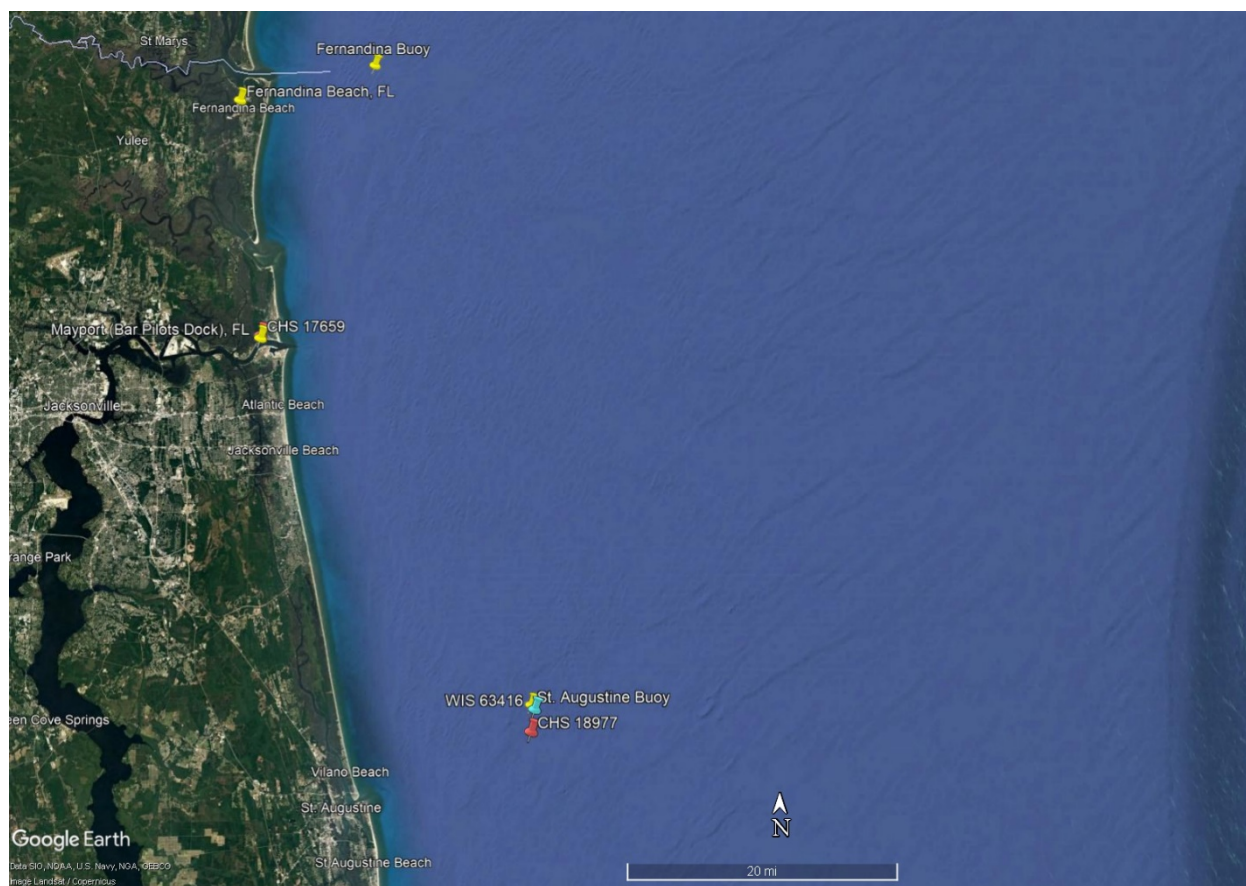


Figure 9. Observations and model output locations (Google Imagery and data from NOAA and USACE)

Storm Winds

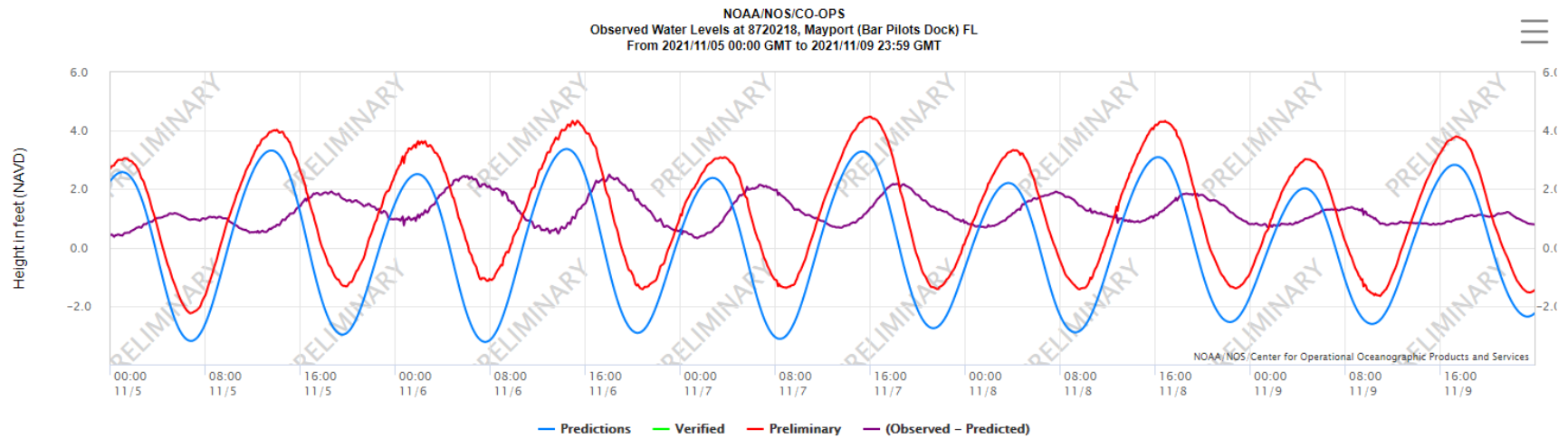
USACE guidance ER 500 1-1 states that Saffir-Simpson Scale Category 1 and Category 2 hurricanes are presumed ordinary storms. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's maximum 1-minute sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered “major” hurricanes because of their potential for significant loss of life and damage to property. HSDR and CSRMB beach nourishment projects are not designed to reduce damages caused by high winds. They are instead designed to reduce the risk of life loss and property damages caused by coastal storms. Wind speed alone (the Saffir-Simpson Scale threshold parameter used to define hurricane categories) does not fully provide an indication of total damage expected from a storm event in any one location, and the National Hurricane Center (NHC) has removed correlation between a storm's wind category designation and the storm's surge or wave impacts. Therefore, in addition to wind speed, other characteristics indicative of overall damage such as surge, waves, duration, etc. should be used to determine if a storm is “extraordinary”.

While the storm described in this report was not a hurricane, this nor'easter produced wind speeds akin to a tropical storm both offshore and along the coast. These wind observations alone, do not lead to an extraordinary designation.

Observed water levels

Peak observed water levels at the mouth of the St. Johns River (Mayport, FL) occurred on the morning of 7 November 2021, where NOAA Station 8720218 recorded a maximum water level of 4.48 feet (ft) NAVD88 (2.52 ft MHHW; **Figure 10**). **Figure 11** shows that the Mayport gauge experienced “Moderate” inundation multiple times throughout this storm's duration, most notably each day from 5 November to 8 November, and minor flooding levels still persisting into Tuesday morning. According to the Coastal Hazards System (CHS) save point 17659 located near the Mayport gauge, the observed water level of 4.48 ft NAVD88 falls between an annual exceedance frequency of 1.0 and 0.5. While the magnitude is not extraordinary, similarly high values were reached on the preceding and following days (Dec 5, 6, and 8 November 2021) showing the prolonged nature of the event. In the 1-minute water level record at this location dating back to 18 March 2014, no single event had a more prolonged duration. This is due largely to the powerful storm system, the timing of the monthly New Moon, and the time of year where steric effects (water expansion due to warmer seasonal water temperatures) yields the highest high tides of the year. This means that super high tides and days of elevated water levels impacted the coastline more drastically than a similar storm in the winter or spring time when average seasonal water levels are generally smaller in magnitude.

St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



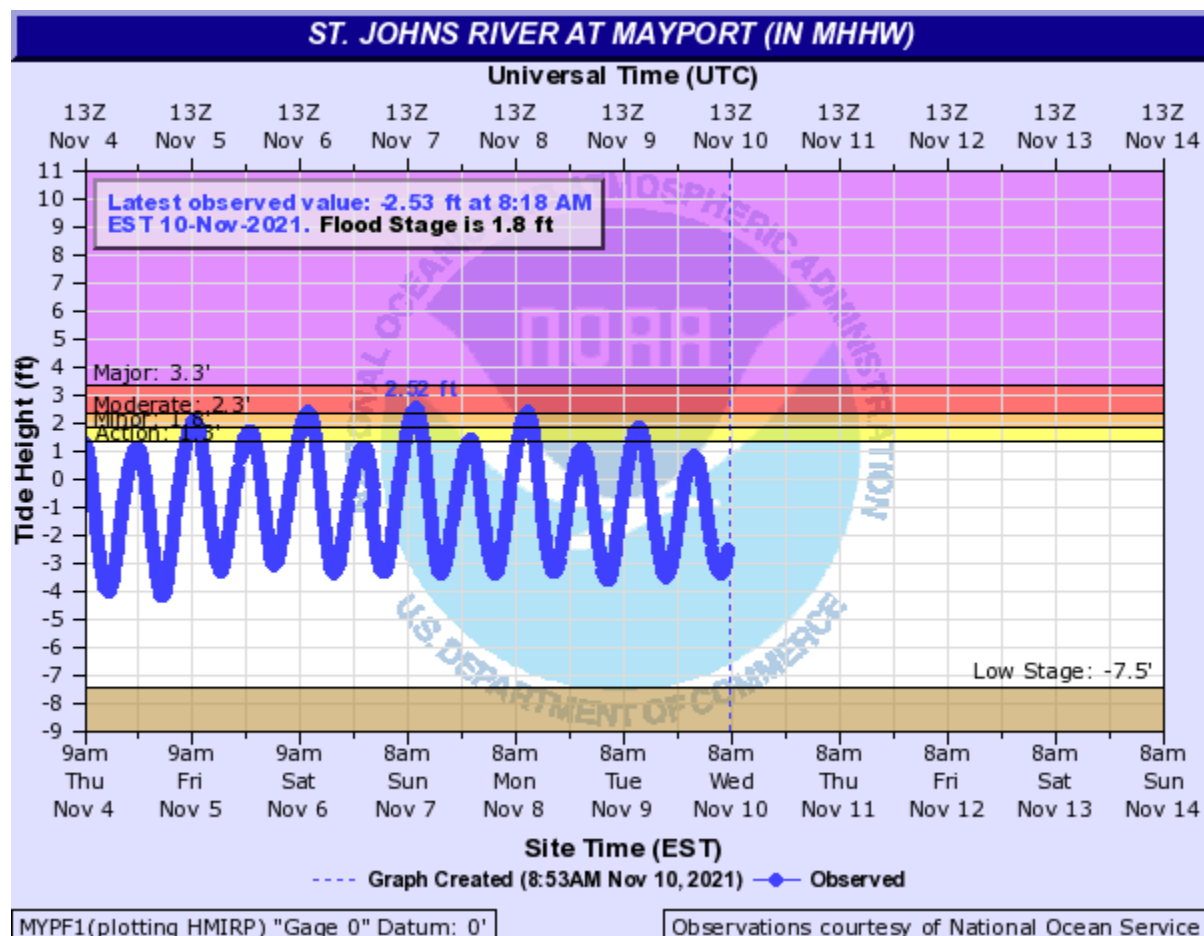


Figure 11: Observed tide height and NOAA flooding thresholds for the Mayport, FL gauge (ft, MHHW)

Wave heights were captured at the St. Augustine CDIP buoy (194), where the peak significant wave height of 4.76 m (15.62 ft) was observed on 6 November (Figure 12) and wave heights exceeded 2 m (6.6 ft) for about 4 consecutive days. This buoy is in a water depth of 23.6 m (77.4 ft) approximately 14.0 miles offshore. The closest CHS save point to the buoy is save-point 18977. According to this save point, the peak wave height during the nor'easter falls between a 0.2 and 0.1 annual exceedance frequency. Although the peak wave height is not extraordinary the prolonged duration of the event is unusual and contributed to the effects realized on the beach.

This buoy has a relatively short history; however, the buoy location corresponds with WIS Station 63416 (Figure 9). WIS provides a model hindcast of wave conditions at this location from 1980 through 2019. Given the unusually long duration of the nor'easter, the 40-year WIS record was analyzed to provide context to the cumulative energy of the event. Rather than focusing on the peak of the storm, the wave energy (taken as wave height squared) was summed throughout the event and compared to other events. To identify events in the historical record, a declustering routine was performed by defining storm events centered around a peak that exceeds the mean wave height of the record, plus two standard deviations. Storm events were also separated by a minimum of five days since a single nor'easter can last this long; this eliminates the risk of including the same event twice in the declustering routine, resulting in a total of 478 declustered events. The squared wave height for each consecutive hour where the event wave

height exceeded the mean wave height plus two standard deviations was then summed to determine the annual exceedance frequency of the cumulative energy using the Stochastic Storm Simulation System's Stochastic Simulation Technique (StormSim SST). A plot of the results is shown in **Figure 13**. The cumulative energy during the November nor'easter was 812.5 m² using CDIP Station 194, which corresponds with an annual exceedance frequency of about 0.2 based on the analysis and the 9th strongest of 478 events based on cumulative energy.

Longshore Transport Potential

To get an estimate of the longshore transport potential, the CERC equation was calculated for the duration of the storm event. The CERC equation is arguably the most widely used model for estimating total longshore sediment transport rate. The model assumes that the total longshore sediment transport rate is proportional to the longshore energy flux. It is given by:

$$I = K E c_{g,br} \sin \theta_{br} \cos \theta_{br}$$

In which I = longshore transport rate; $E = 1/8 \rho g (H_{rms,br})^2$ = wave energy at breaker line; $H_{rms,br}$ = rms wave height at breaker line; $c_{g,br} = n_{br} C_{br}$ = wave group celerity at breaker line; θ_{br} = wave angle at breaker line (between wave crest line and coastline); K = coefficient (=0.77).

Summing the CERC equation throughout the event leads to a cumulative mass transport potential. Consistent assumptions regarding the nearshore hydrodynamics and sediment characteristics were used in the CERC equation when evaluating events in both WIS and CDIP datasets. Following the same procedure for the 478 events in the WIS record shows that the November 2021 nor'easter yields the highest longshore transport of all 478 declustered WIS events using the CERC equation. The cumulative transport potential for the WIS events were normalized to the value from the November 2021 nor'easter, and those events are plotted in **Figure 14** to indicate relative transport magnitude to other historic events. This event is likely the highest due to two factors: the long duration and the consistently intense north-to-south wave direction (roughly 3.9 days of wave heights above the WIS mean wave height plus two standard deviations).

Many traditional events that impact this area such as hurricanes passing offshore feature short durations of high wave heights and a change in wave direction. This event lasted multiple days with consistent calculated transport potential from north to south. Only 12 declustered WIS events were longer in duration with waves exceeding the mean plus two standard deviations of the WIS record (6.46 ft), but these 12 events were not conducive to similarly large net longshore transport (i.e., a variable direction throughout the event). Due to the long duration and directionality of the event, the potential for sediment transport from the nor'easter was greater than any other storms in the WIS record.

"Extraordinary Storm" Conclusion

Based on the observed water level, wave, and wind data, USACE Jacksonville District concluded the November 2021 nor'easter was an extraordinary storm event per ER 500-1-1, 5-20.f for the beaches of St. Johns County, FL. This conclusion is founded in analyses based on storm duration, cumulative energy, and sediment transport potential and is supported by visual observation of the beaches following passage of storm, which showed significant dune and berm erosion. The early winter season timing of this event will not be conducive to post-storm recovery, which may not occur until after the winter months given the seasonality of wave conditions for the beaches of northeast Florida.



Figure 12: Observed wave heights at CDIP 194 (St. Augustine, FL) in m

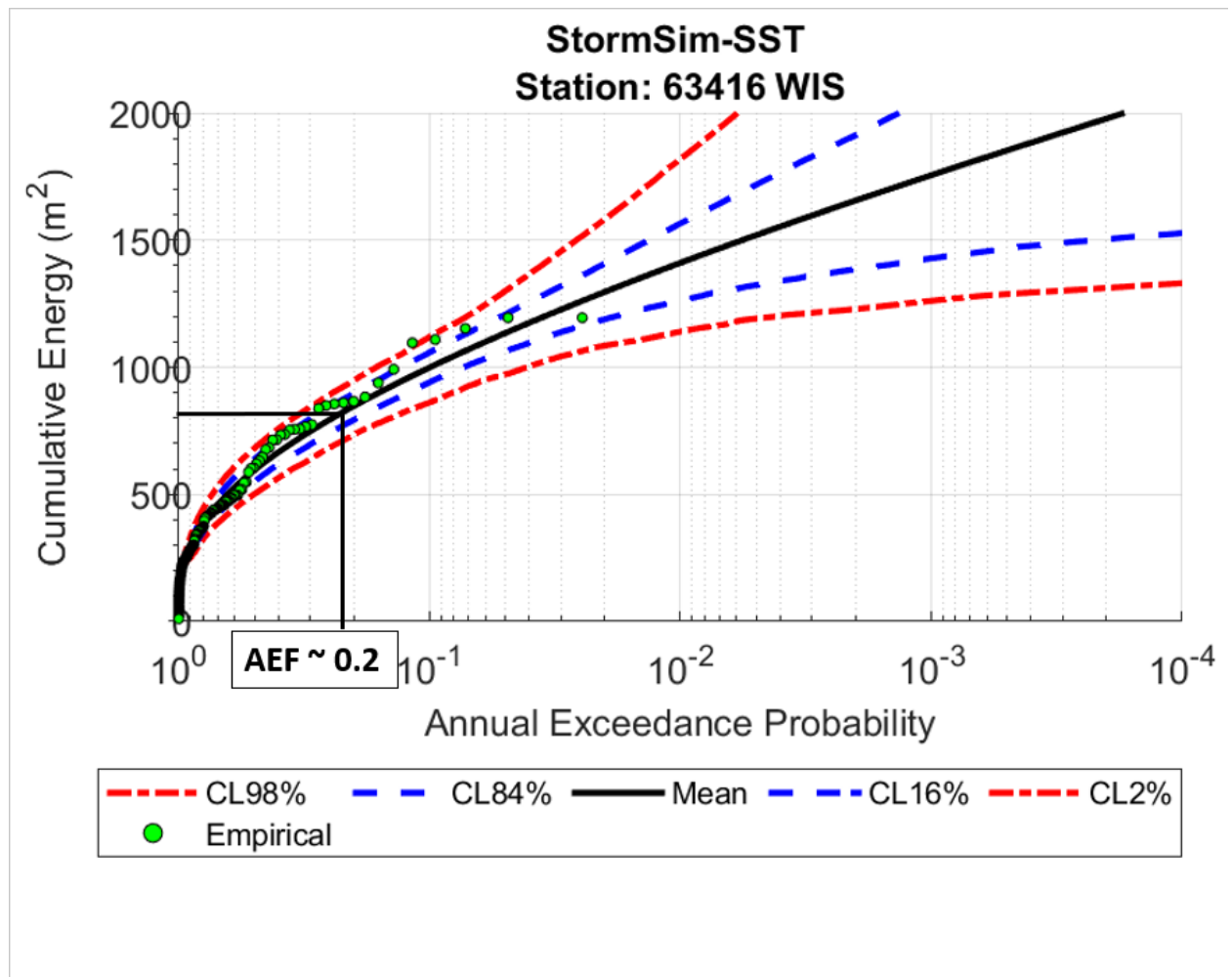


Figure 13: StormSim SST analysis of annual exceedance frequency of cumulative wave energy to WIS save point 63416

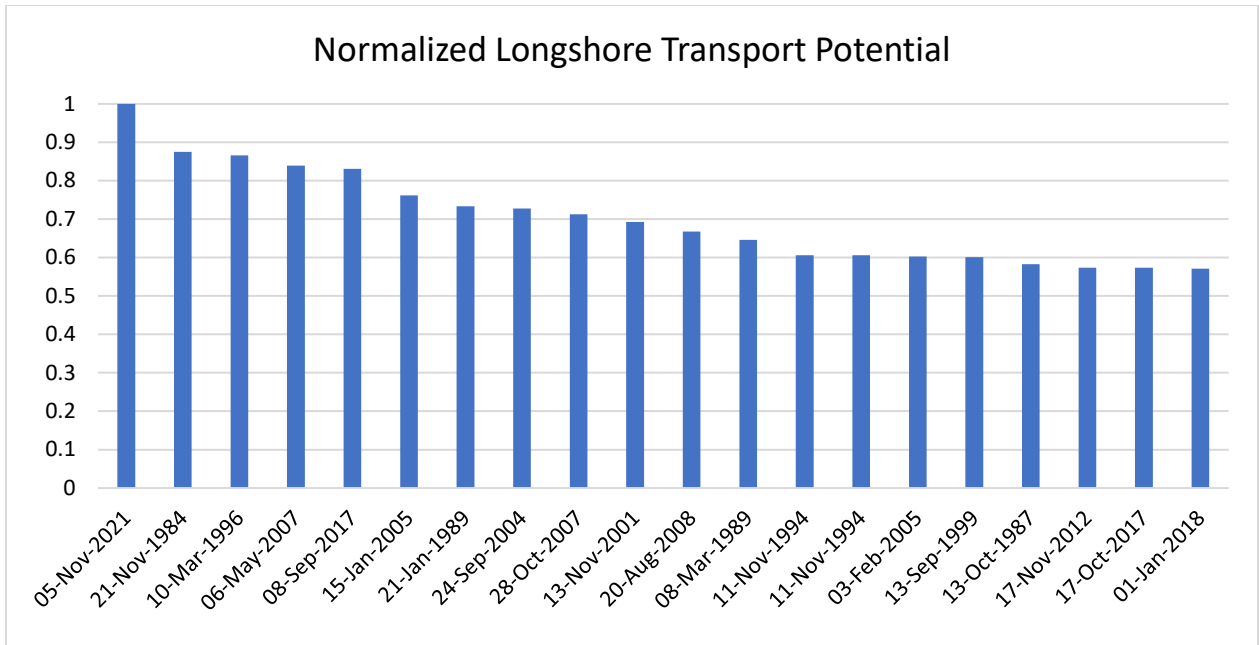
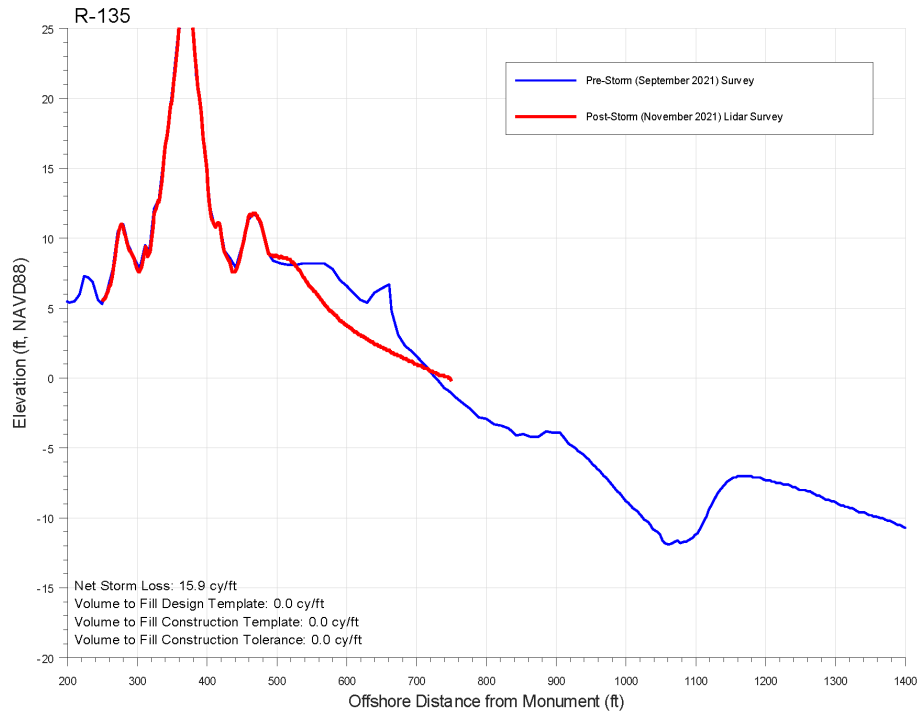
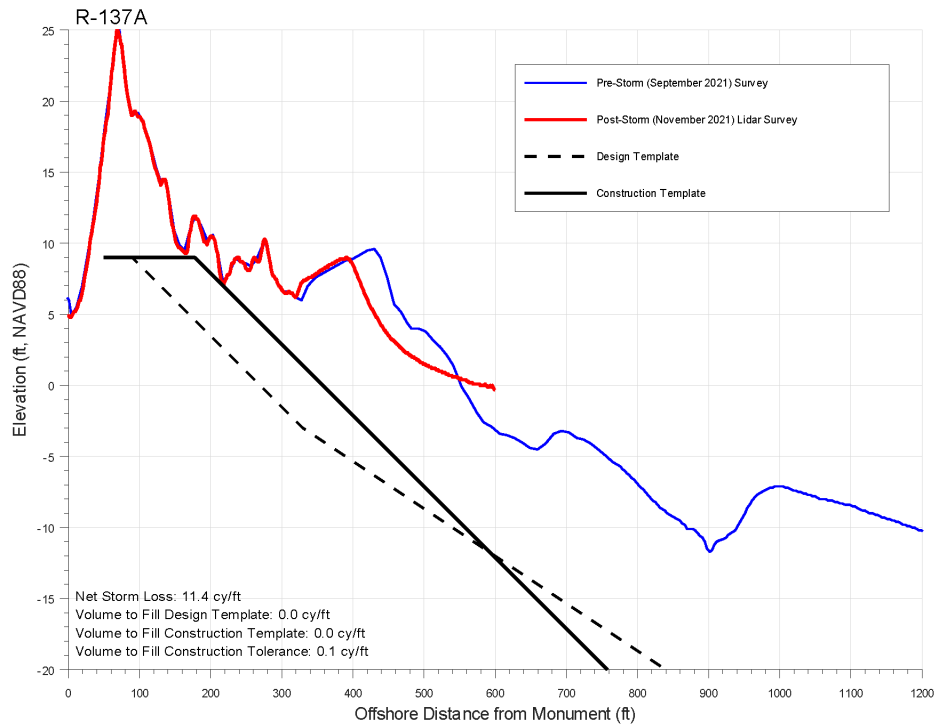
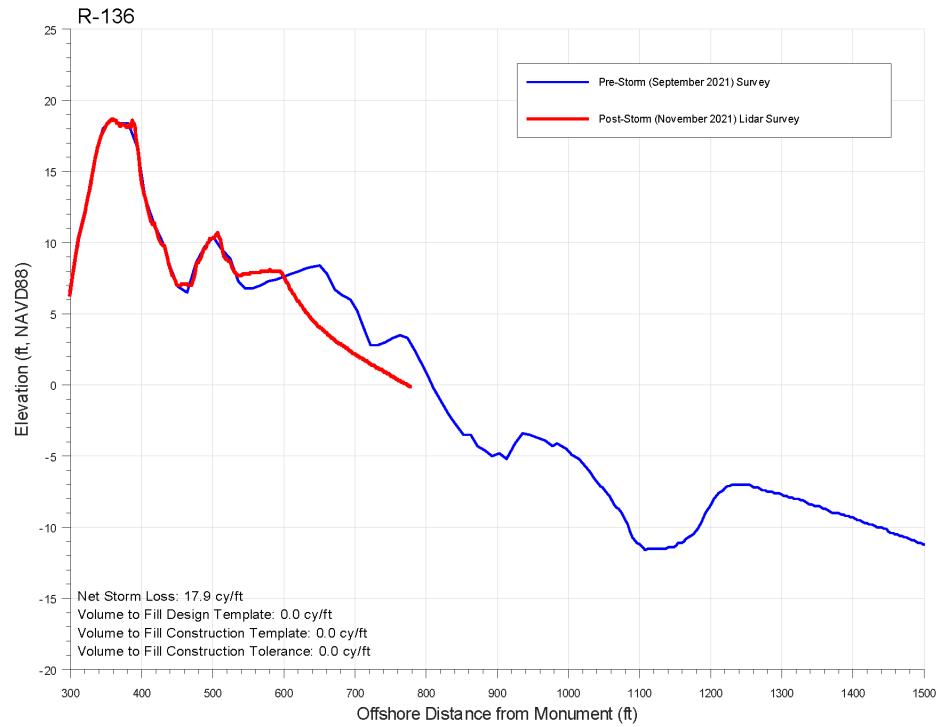


Figure 14: Normalized longshore transport potential from the WIS record normalized to the November 2021 potential as calculated using the CERC equation

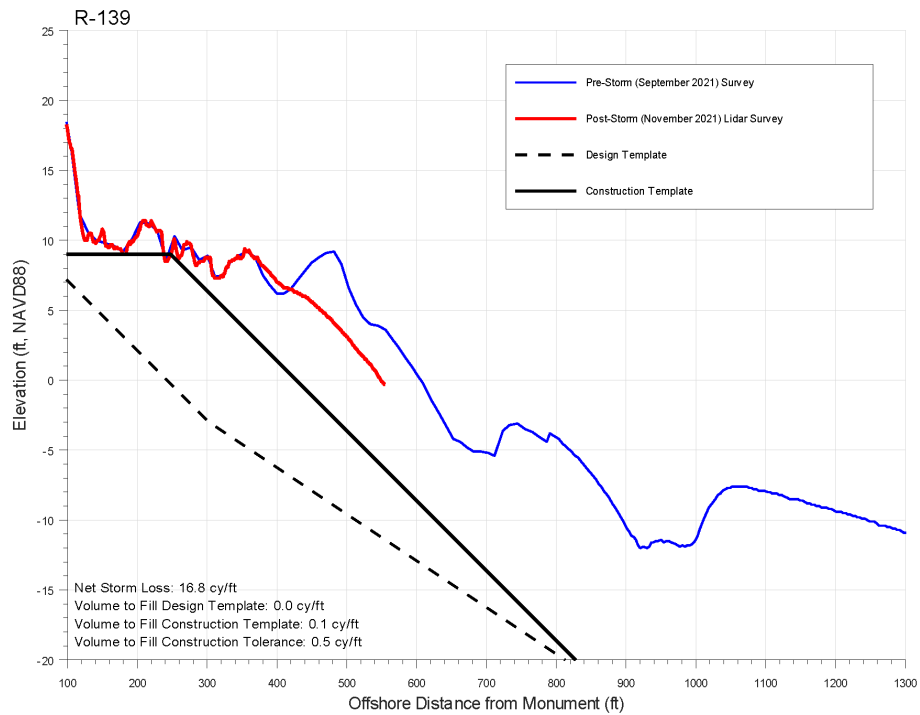
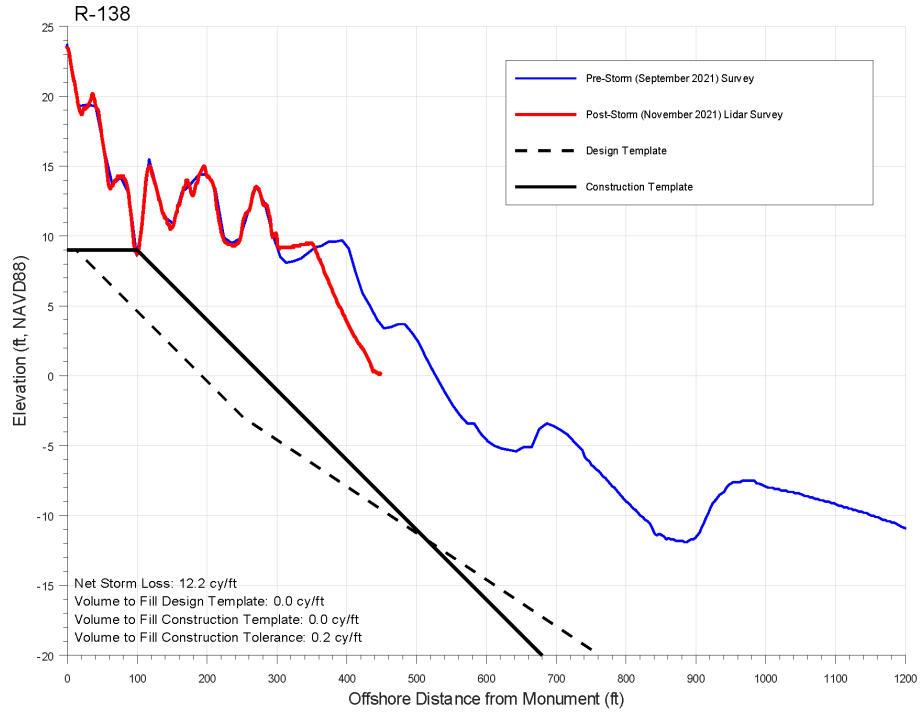
Appendix I. Damage Description



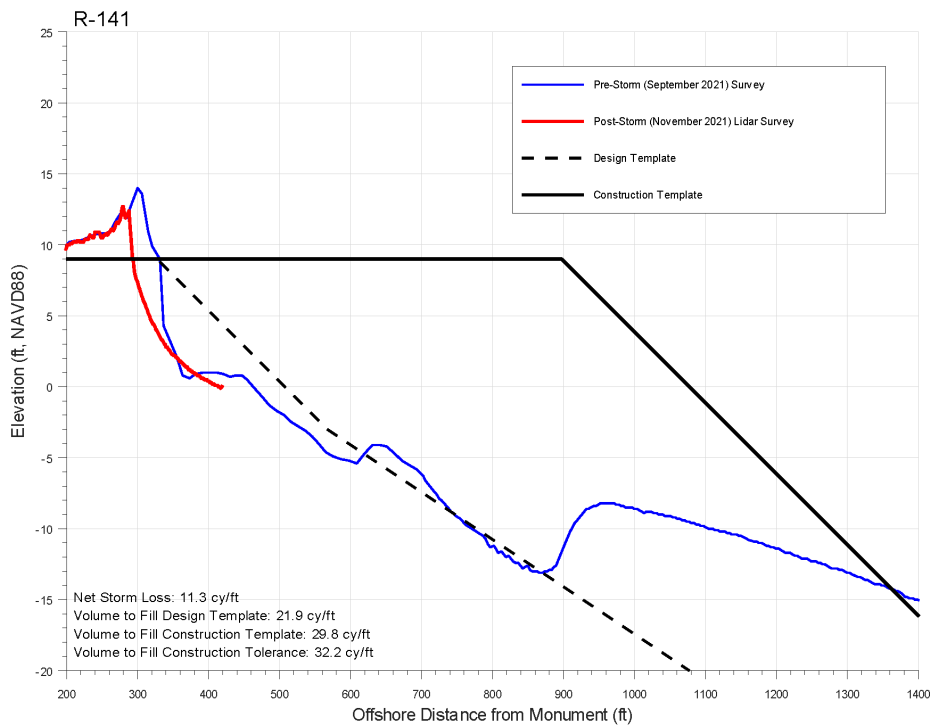
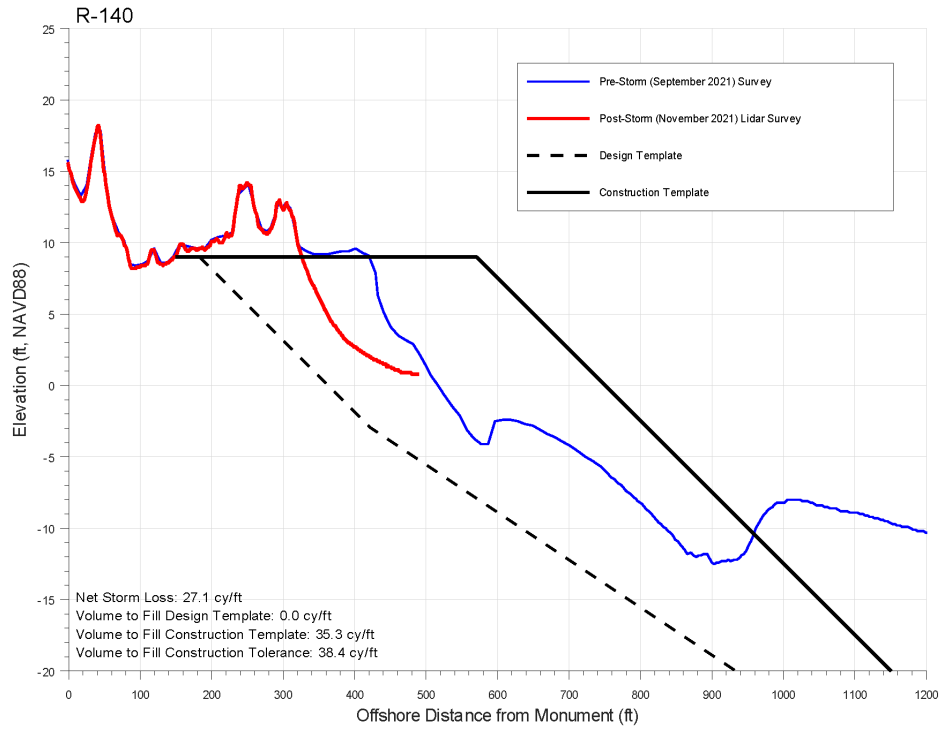
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



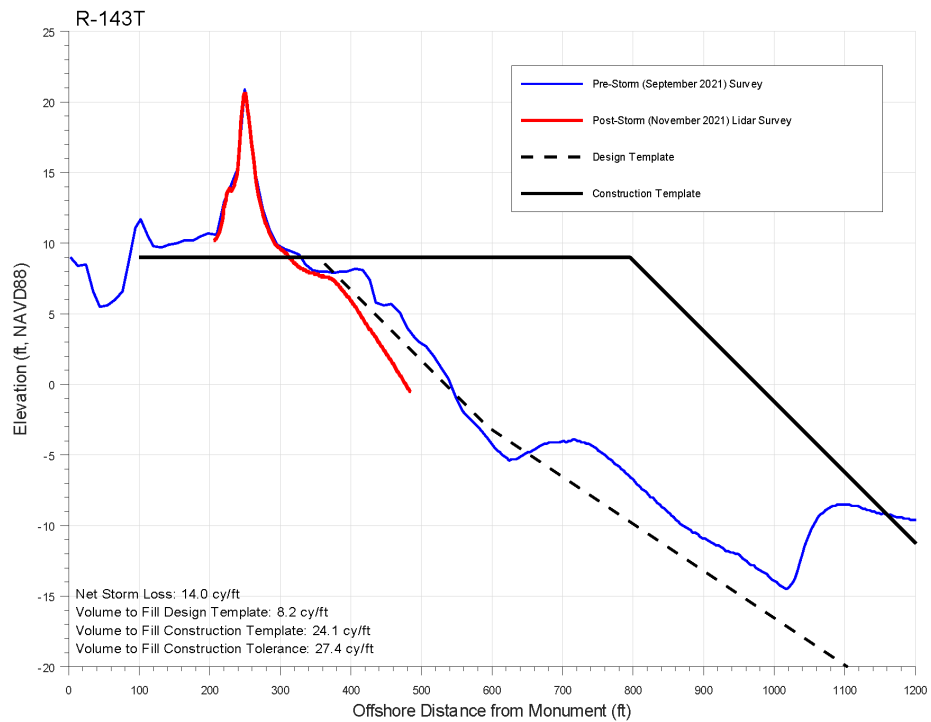
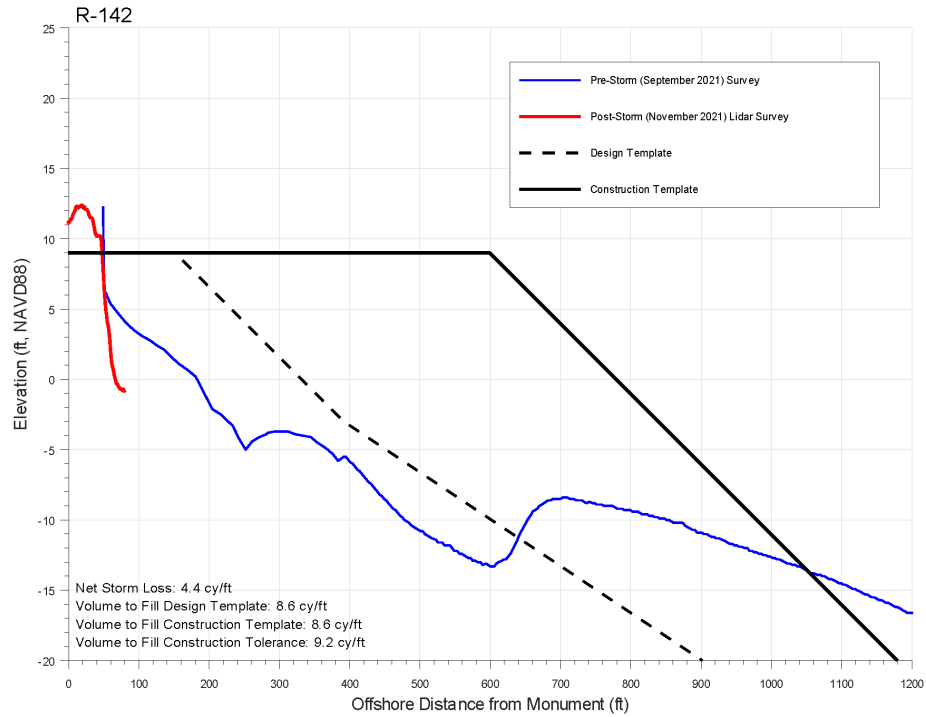
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



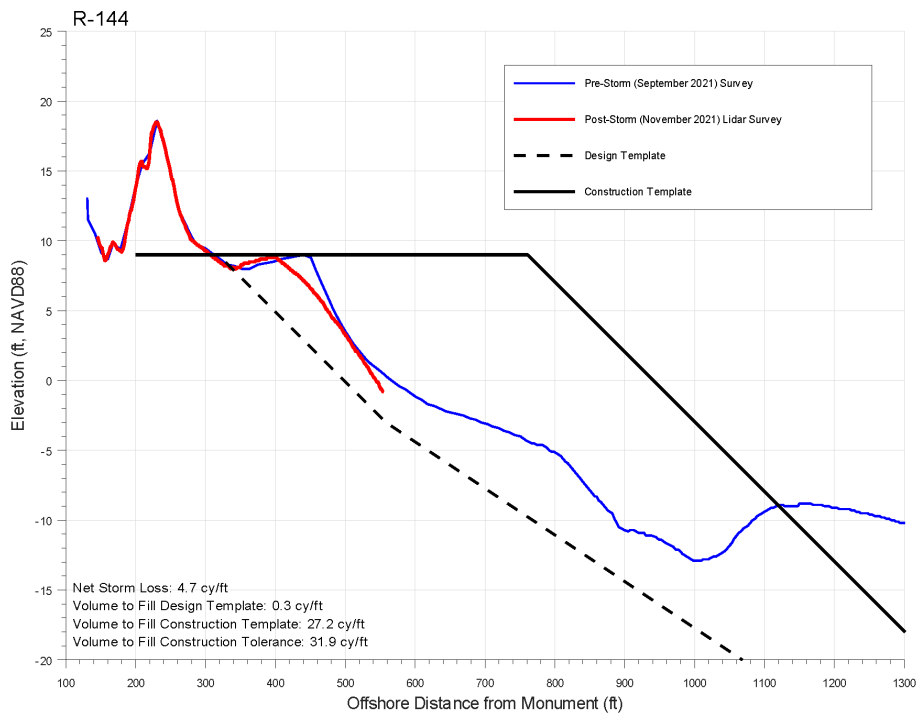
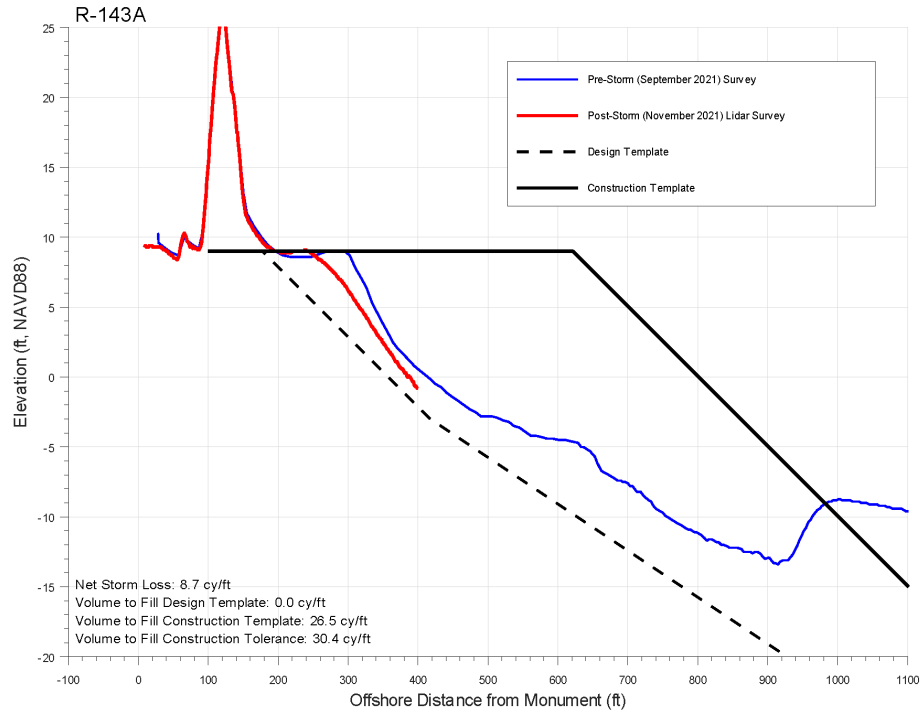
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



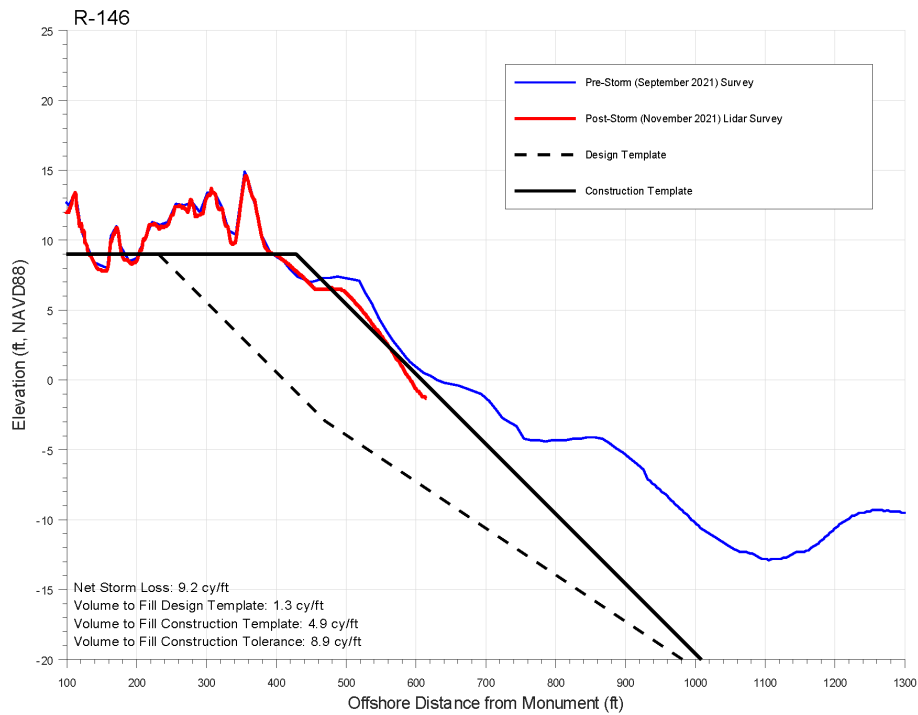
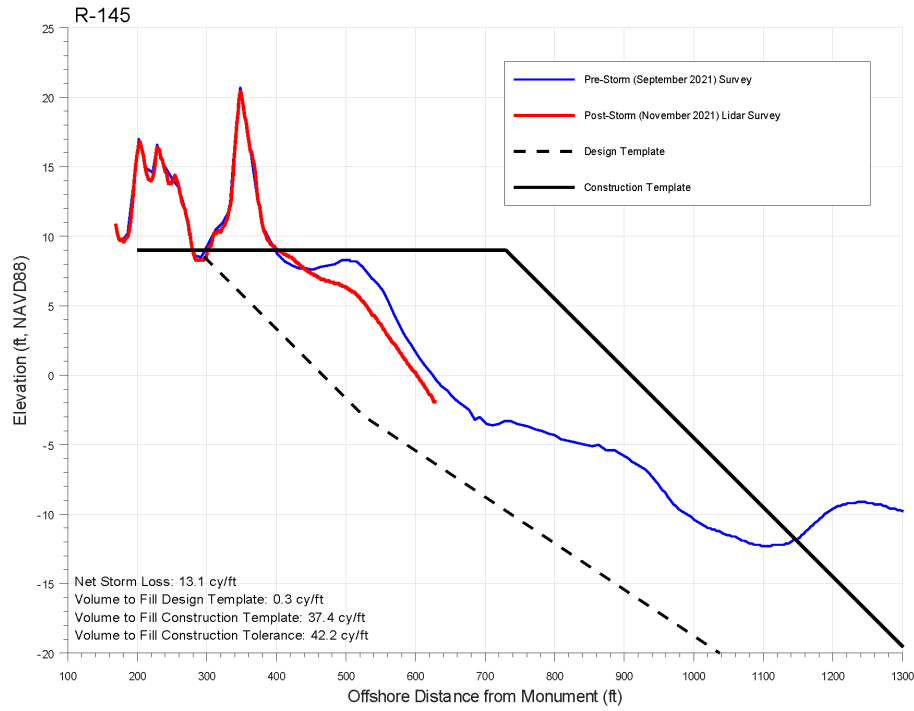
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



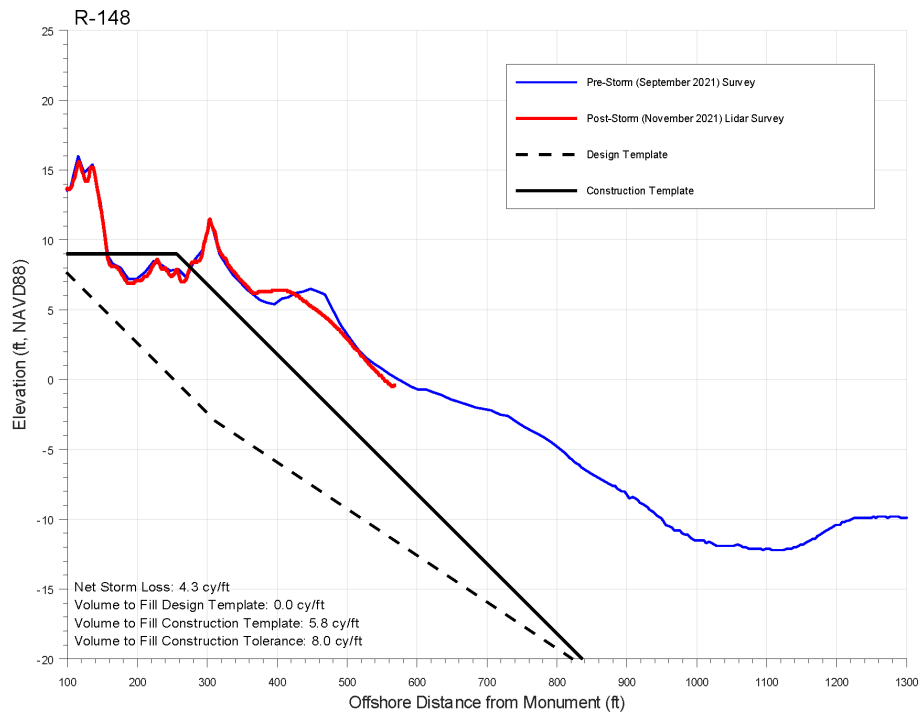
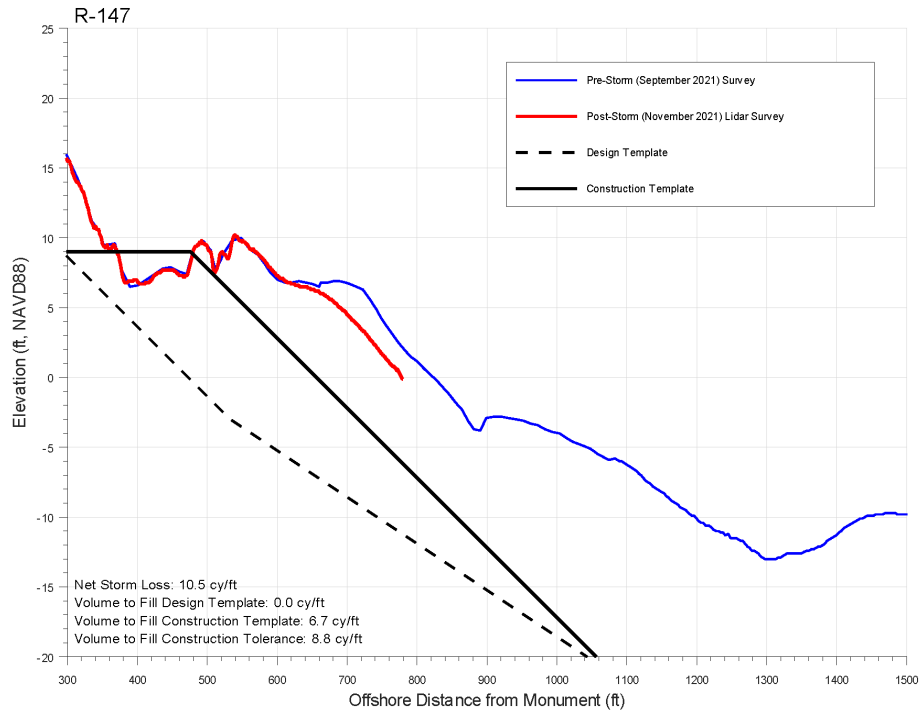
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



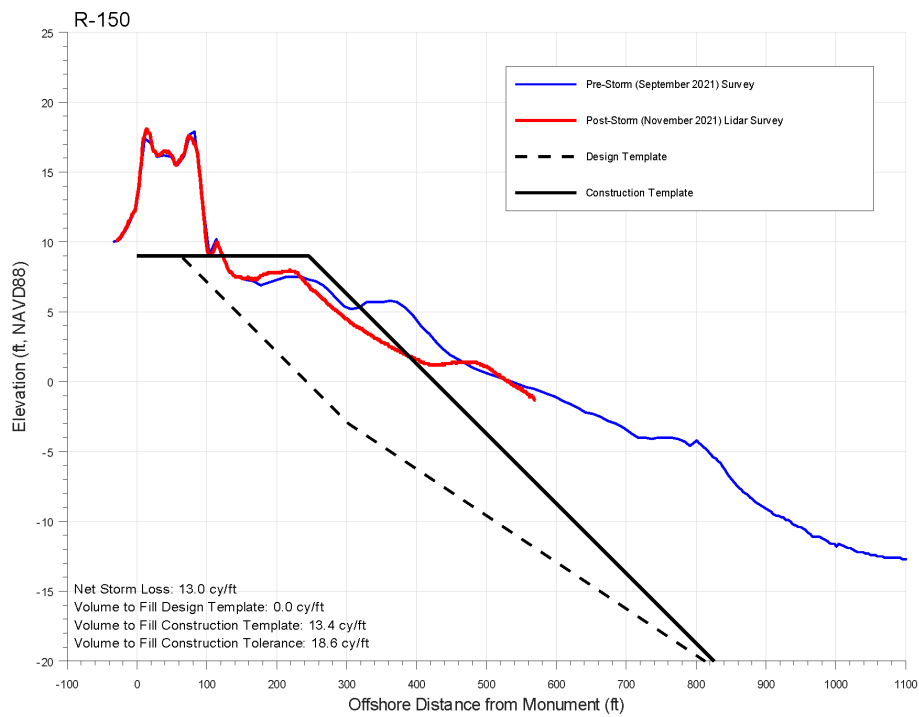
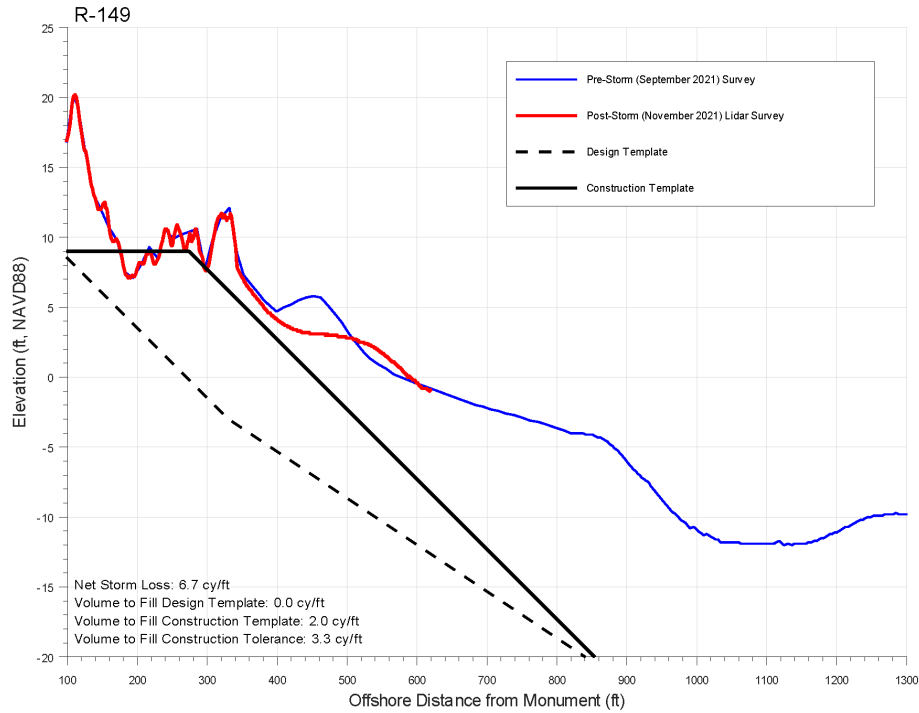
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



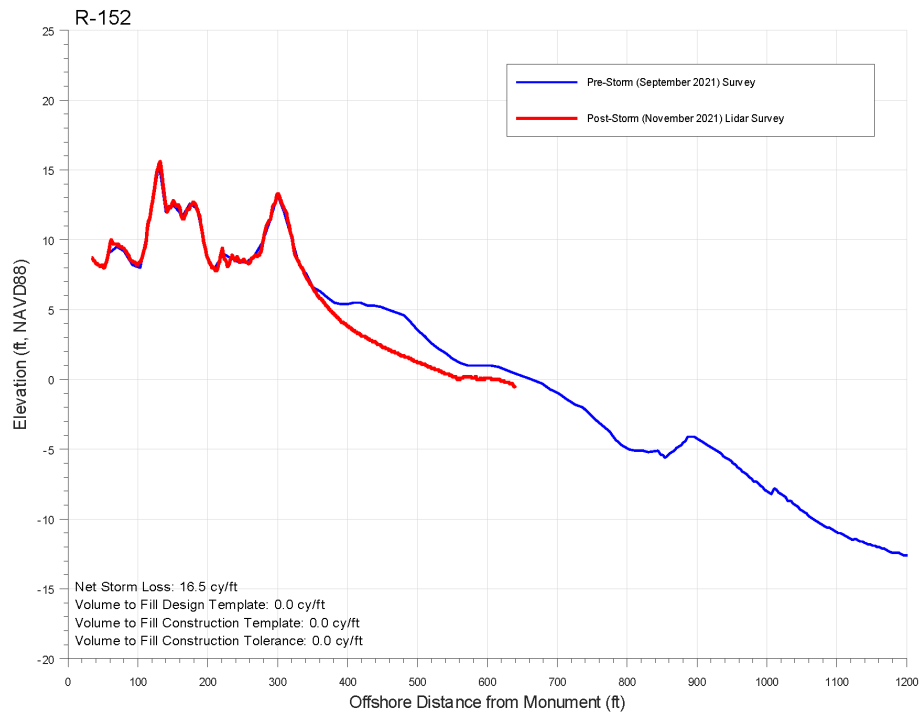
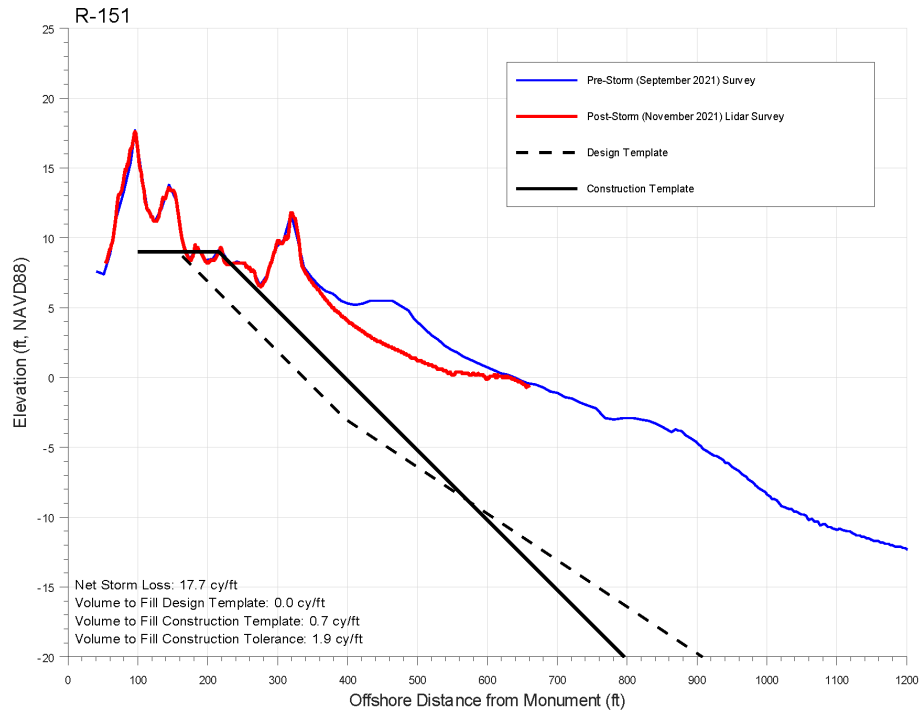
St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



St. Johns County, Florida Shore Protection Project (St. Augustine Beach)



Appendix J. Proposed Work

See Section 13 of the main report.

Appendix K. Cost Estimate Data

K.1 GENERAL INFORMATION

US Army Corps of Engineers' cost estimates for planning purposes are prepared in accordance with the following guidance:

- Engineer Technical Letter (ETL) 1110-2-573, Construction Cost Estimating Guide for Civil Works, 30 September 2008
- Engineer Regulation (ER) 1110-1-1300, Cost Engineering Policy and General Requirements, 26 March 1993
- ER 1110-2-1302, Civil Works Cost Engineering, 30 June 2016
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- Engineer Manual (EM) 1110-2-1304 (Tables Revised 30 September 2021), Civil Works Construction Cost Index System, 31 March 2017
- EP 500-1-1 Emergency Employment of Army and Other Resources, Civil Emergency Management Program – Procedures, 30 September 2001
- Implementation Guidance WRRDA 2014 Section 3029a, 04 April 2016
- Public Law 84-99, Section 5 Flood Control Act of 1941 (PL 84-99)

The cost estimates for the rehabilitation of the shore protection project at the St. Augustine segment of St. Johns County are based on dredging material from an offshore borrow area and placing that material on areas damaged by the recent storm event. This material will be placed as beach fill and then shaped into a protective berm for protection against storm damage.

These estimates have undergone a Discipline Quality Check and Review in accordance with 02611-SAJ, 02612-SAJ, 02613-SAJ, and 02614-SAJ and have been prepared in accordance with ER 1110-2-1302, ER 500-1-1, and EP 500-1-1. These estimates reference the last certified cost. A Cost ATR review was performed by the Cost MCX as part of the study process with a certification for the Budget Submission products received in March 2020.

K.1.1 Rehabilitation Plan

The rehabilitation of a shore protection project within the requirements of PL 84-99 requires the calculation of two separate cost estimates. The first cost estimate for consideration is the cost to restore the project from the post storm condition back to the design template. This estimate includes all labor, equipment, and material to return the protective features to the full design template. The second estimate for consideration is to restore the project from the post storm condition to the Full Construction Template.

The MCACES/MII cost estimates are based on the scopes and are formatted in the CWWBS. These include pricing at the Fiscal Year 2022 price level (1 October 2021 - 30 September 2022).

The construction costs fall under the following feature code:

- 17 Beach Replenishment

The non-construction costs fall under the following feature codes:

- 01 Lands and Damages
- 30 Engineering and Design
- 31 Construction Management

K.1.2 Construction Cost

Construction costs were developed in MCACES/MII and include all major project components categorized under the appropriate CWWBS to the sub- feature level. The construction costs for dredging operations were developed using the Cost Engineering Dredge Estimating Program (CEDEP) and then transferred into the MCACES/MII estimates. Total Project Costs on each plan contain contingencies that were in accordance with the requirements of EP 500-1-1, which set a maximum contingency for dredging projects at 15%.

K.1.3 Non-Construction Cost

Non-construction costs typically include Lands and Damages (Real Estate), Engineering & Design (E&D) and Construction Management Costs (Supervision & Administration, S&A). These costs were previously provided by the Project Manager and appropriate PDT members as a lump sum cost and have been reviewed for this PIR effort. The lump sum amounts for 30 account E&D and 31 account S&A are estimated at the maximum of 6% of the construction contract costs as specified in ER 500-1-1 Section 5. Lands and Damages cover the real estate administration costs necessary for verifying easements prior to award of the construction contract. This allows the contractor to access the beach and use as an equipment laydown area. Engineering and Design (E&D) costs accounts for preparation of contract plans and specifications (P&S). Construction Management (S&A) costs are for the supervision and administration of the contract required to perform the various aspects of construction required for this project and includes Project Management, Construction Quality Assurance and Contract Administration costs.

K.2 PIR COST ESTIMATES

Cost estimates for the alternative plans were generated based on quantities derived from the post-storm surveys taken after the significant storm event and comparing these surveys to pre-storm conditions, the design template, and the full construction template for the protective beach system. These quantities were used to derive cost estimates that reflect, as best as possible, the conditions expected in each of the alternatives of this project.

K.2.1. FCCE Cost Estimate

The following table provides a cost estimate for placing 174,000 CY of sand

along approximately 2.5 miles of shoreline, beginning approximately 2.7 miles south of the St. Augustine Inlet and extending south. Borrow material will be taken from a borrow area approximately 8.2 miles offshore. This is the quantity required to return the project to the design template for the protective berm. The cost includes mobilization/demobilization of the dredge plant and associated equipment, dredging of material, placement on the beach, environmental monitoring, beach tilling, vibration monitoring, surveys, etc. Additionally, non-construction costs include construction management costs. The MII estimate for this alternative is summarized in the following table.

Table K.2.1-1: Cost Allocation for Restoring Post-Storm to Design Template

<u>WBS Code</u>	<u>Project Feature</u>	<u>Post Storm to Design Cost Estimate</u>
17	Mobilization and Demobilization	\$3,810,500
17	Beach Replenishment	\$2,537,700
17	Associated General Items	\$630,100
01	Lands and Damages	\$30,000
30	Engineering and Design	\$418,800
31	Construction Management	\$418,800
Total Cost		<u>\$7,845,900</u>

1. All cost estimates are at FY22 Price Levels.
2. Code 17 costs above contain contingencies per EP 500-1-1: "FCCE-funded portions of dredge mobilization/demobilization costs and sand renourishment (dredging) costs are limited to" 15%.
3. Code 01 cost for lands was a flat rate
4. Code 30 cost above are EDC costs included in accordance with EP 500-1-1. Currently using rate based on last certified cost, which is being calculated as 6.0% of construction costs (including contingencies).
5. Code 31 costs above are S&A costs included in accordance with EP 500-1-1. Currently using rate based on last certified cost, which is being calculated as 6.0% of construction costs (including contingencies).

K.2.2. Full Construction Template Cost Estimate

The following table provides a cost estimate for placing 1,958,000 CY of sand along approximately 2.5 miles of shoreline, beginning approximately 2.7 miles south of the St. Augustine Inlet and extending south. Borrow material will be taken from a borrow area approximately 8.2 miles offshore. This is the quantity required to return the project to the full construction template for the protective berm. The cost includes mobilization/demobilization of the dredge plant and associated equipment, dredging of material, placement on the beach, environmental monitoring, beach tilling, vibration monitoring, surveys, etc. Additionally, non-construction costs include Real Estate, Engineering and Design and

construction management costs. The MII estimate for this alternative is summarized in the following table.

<u>WBS Code</u>	<u>Project Feature</u>	<u>Restore to Full Construction Cost Estimate</u>
17	Mobilization and Demobilization	\$3,810,500
17	Beach Replenishment	\$28,370,500
17	Associated General Items	\$983,100
01	Lands and Damages	\$30,000
30	Engineering and Design	\$1,989,900
31	Construction Management	\$1,989,900
Total Cost		<u>\$37,173,900</u>

1. All cost estimates are at FY22 Price Levels.
2. Code 17 costs above contain contingencies per EP 500-1-1: "FCCE-funded portions of dredge mobilization/demobilization costs and sand renourishment (dredging) costs are limited to" 15%.
3. Code 01 cost for lands was a flat rate
4. Code 30 cost above are EDC costs included in accordance with EP 500-1-1. Currently using rate based on last certified cost, which is being calculated as 6.0% of construction costs (including contingencies).
5. Code 31 costs above are S&A costs included in accordance with EP 500-1-1. Currently using rate based on last certified cost, which is being calculated as 6.0% of construction costs (including contingencies).

Appendix L. BCR Data

Summary of Benefits from the last approved report (1998 GRR)

Summary of Last Approved Report	
CWCCIS Price Level	2Q97
Average Annual Storm Damage Reduction Benefits	\$ 4,585,000
Average Annual Recreation Benefits	\$ 216,000
Other Benefits	
Average Annual Total Project Benefits	\$4,801,000

Remaining period of Federal participation

Initial Construction	2002
Yrs of Federal Participation:	50
Last Year of Fed Participation:	2051
FCCE+Full Construction Completion Year	2022
Remaining Yrs of Fed Participation :	30

St. Johns County, Florida Shore Protection Project (St. Augustine Beach)

Present Value Worksheet

Current Discount Rate:	FY22				
Rate:	2.250%	Adjust Present Worth to:	2022		
Remaining Years:	30	Adjust Price Level to:	2Q97		
CRF:	0.04619934				
Price Level	1Q22				
Price Level FY for Costs	FY	Costs	Current Rate (2.75%) Present Worth Adj. Factor	Price Level Adj. Factor	Price Level & Present Worth Adj.
1Q22	2022	\$ 37,173,900	1.0000	0.4859	\$ 18,062,000
1Q22	2023	\$ -	0.9780	0.4859	\$ -
1Q22	2024	\$ -	0.9565	0.4859	\$ -
1Q22	2025	\$ -	0.9354	0.4859	\$ -
1Q22	2026	\$ -	0.9148	0.4859	\$ -
1Q22	2027	\$ 23,677,000	0.8947	0.4859	\$ 10,293,000
1Q22	2028	\$ -	0.8750	0.4859	\$ -
1Q22	2029	\$ -	0.8558	0.4859	\$ -
1Q22	2030	\$ -	0.8369	0.4859	\$ -
1Q22	2031	\$ -	0.8185	0.4859	\$ -
1Q22	2032	\$ 29,905,000	0.8005	0.4859	\$ 11,631,000
1Q22	2033	\$ -	0.7829	0.4859	\$ -
1Q22	2034	\$ -	0.7657	0.4859	\$ -
1Q22	2035	\$ -	0.7488	0.4859	\$ -
1Q22	2036	\$ -	0.7323	0.4859	\$ -
1Q22	2037	\$ 23,677,000	0.7162	0.4859	\$ 8,239,000
1Q22	2038	\$ -	0.7005	0.4859	\$ -
1Q22	2039	\$ -	0.6851	0.4859	\$ -
1Q22	2040	\$ -	0.6700	0.4859	\$ -
1Q22	2041	\$ -	0.6552	0.4859	\$ -
1Q22	2042	\$ 29,905,000	0.6408	0.4859	\$ 9,311,000
1Q22	2043	\$ -	0.6267	0.4859	\$ -
1Q22	2044	\$ -	0.6129	0.4859	\$ -
1Q22	2045	\$ -	0.5994	0.4859	\$ -
1Q22	2046	\$ -	0.5862	0.4859	\$ -
1Q22	2047	\$ 23,677,000	0.5733	0.4859	\$ 6,596,000
1Q22	2048	\$ -	0.5607	0.4859	\$ -
1Q22	2049	\$ -	0.5484	0.4859	\$ -
1Q22	2050	\$ -	0.5363	0.4859	\$ -
1Q22	2051	\$ -	0.5245	0.4859	\$ -
1Q22					
				TOTAL PV	\$ 48,225,000

Remaining Benefits without recreation

PIR Full Construction Template Justification Summary Without Recreation Benefits	
	Current Rate FY22
Rate:	2.250%
Total Cost Present Value:	\$ 48,225,000
CRF (i=.0225 n=30)	0.0462
AAEQ Cost	\$2,228,000
AAEQ Benefits	\$4,585,000
AAEQ Net-Benefits	\$2,357,000
Total BCR	2.06

Remaining Benefits with Recreation

PIR Full Construction Template Justification Summary With Recreation Benefits	
	Current Rate FY22
Rate:	2.250%
Total Cost Present Value:	\$ 48,225,000
CRF (i=.0225 n=30)	0.0462
AAEQ Cost	\$2,228,000
AAEQ Benefits	\$4,801,000
AAEQ Net-Benefits	\$2,573,000
Total BCR	2.15

Appendix M. Environmental Considerations

Tab M-1. NEPA analysis of the environmental effects of the action or documentation of the applicability of a categorical exclusion or emergency procedures.

See Section 16 in the main report.

Tab M-2. Compliance with the Endangered Species Act, including compliance through alternative procedures in the case of emergency circumstances consistent with 50 CFR 402.05.

See Section 16 in the main report.

Tab M-3. Clean Water Act 404(b)(1) analysis (if applicable), including an explanation of any emergency procedures utilized.

See Section 16 in the main report.

Tab M-4. A statement on the applicability of EO 11988.

To comply with EO 11988, the policy of USACE is to formulate projects that, to the extent possible, avoid or minimize adverse effects associated with the use of the floodplain and avoid inducing development in the floodplain unless there is no practicable alternative. The project is located within the Coastal High Hazard Area (CHHA), as defined by EO 11988 as an “area subject to inundation by one percent-annual chance of flood, extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms.” The project shoreline is significantly developed, and further development is anticipated to be minimal.

Tab M-5. Cultural Resources

- St Augustine Inlet Complex Borrow Sites
 - o See section 16, paragraph f in the main report.
- Offshore Borrow Sites
 - o Consultation with the Florida SHPO, appropriate federally recognized tribes, and other interested parties was initiated on July 29, 2021 and is ongoing. The Corps will employ Stipulation V of its 2021 *Programmatic Agreement among the United States Army Corps of Engineers, the Florida State Historic Preservation Officer, the Bureau of Ocean Energy Management, and the Advisory Council on Historic Preservation Regarding Compliance with Section 106 of the National Historic Preservation Act during Implementation of the United States Army Corps of Engineers, Jacksonville District Operation, Navigation, and Shore Protection Programs* in order to meet its Section 106 compliance requirements.
- Beach Placement
 - o Consultation with the Florida SHPO, appropriate federally recognized tribes, and other interested parties was initiated on July 29, 2021 and is ongoing. The Corps will employ Stipulation V of its 2021 *Programmatic Agreement among the United States Army*

Corps of Engineers, the Florida State Historic Preservation Officer, the Bureau of Ocean Energy Management, and the Advisory Council on Historic Preservation Regarding Compliance with Section 106 of the National Historic Preservation Act during Implementation of the United States Army Corps of Engineers, Jacksonville District Operation, Navigation, and Shore Protection Programs in order to meet its Section 106 compliance requirements.

Tab M-6. National Historic Preservation Act (NHPA)

- St Augustine Inlet Complex Borrow Sites
 - o See section 16, paragraph f in the main report.
- Offshore Borrow Sites
 - o Consultation with the Florida State Historic Preservation Officer (SHPO), appropriate federally recognized tribes, and other interested parties was initiated on July 29, 2021 and is ongoing. The Corps will employ Stipulation V of its 2021 *Programmatic Agreement among the United States Army Corps of Engineers, the Florida State Historic Preservation Officer, the Bureau of Ocean Energy Management, and the Advisory Council on Historic Preservation Regarding Compliance with Section 106 of the National Historic Preservation Act during Implementation of the United States Army Corps of Engineers, Jacksonville District Operation, Navigation, and Shore Protection Programs* in order to meet its Section 106 compliance requirements.
- Beach Placement
 - o Consultation with the Florida State Historic Preservation Officer (SHPO), appropriate federally recognized tribes, and other interested parties was initiated on July 29, 2021 and is ongoing. The Corps will employ Stipulation V of its 2021 *Programmatic Agreement among the United States Army Corps of Engineers, the Florida State Historic Preservation Officer, the Bureau of Ocean Energy Management, and the Advisory Council on Historic Preservation Regarding Compliance with Section 106 of the National Historic Preservation Act during Implementation of the United States Army Corps of Engineers, Jacksonville District Operation, Navigation, and Shore Protection Programs* in order to meet its Section 106 compliance requirements.
-

Appendix N – Y

Not applicable.

Appendix Z. PIR Review Checklist

	YES	NO	N/A	
1.	X			The project is a Federally authorized and constructed coastal storm risk management project (CSRM). [ER, 5-20.a.]
2.	X			The Project is Active in the RIP [ER, 5-2.a.]. Last inspection date: November 16, 2021
3.	X			The Public Sponsor has requested CSRM Rehabilitation Assistance in writing. [EP, 5-18.b.]
4.	X			The FCCE-funded CSRM Rehabilitation Assistance is necessary to restore the project to its design level of protection.
5.	X			There is sufficient evidence in the PIR to support a finding that the CSRM was damaged by an extraordinary storm. [ER, 5-20.e.]
6.	X			There are "significant amounts of damage" to the CSRM. [ER, 5-20.e.(2)] The criterion used to make this determination is: <u>Yes.</u> the cost of the construction effort to effect repair of the CSRM (<i>exclusive of dredge mob/demob costs</i>) (a) exceeds \$1 million and (b) is greater than 2 percent of the original project construction costs (expressed in current day dollars.); or, <u>No.</u> the cost of the construction effort to effect repair of the CSRM (<i>exclusive of dredge mob/demob costs</i>) exceeds \$6 million; or, <u>No.</u> more than one-third of the planned or historically placed sand for renourishment was lost. <u>NA.</u> only hard features are involved.
7.	X			The public sponsor has agreed to sign the Cooperation Agreement which will occur before USACE begins rehabilitation work. [EP, 5-18.1]
8.	X			The rehabilitation Project has a favorable benefit cost ratio of greater than 1.0:1 [ER, 5-20.a.].
9.	X			The public sponsor has access to sufficient funds to meet its required cost contributions. [EP, 5-18.h.]
10.	X			The cost estimate in the PIR itemizes the work and identifies the Public Sponsor's cost responsibility for items such as deferred and deficient maintenance. [ER, 5-2.g.]
11.	X			The cost estimate in the PIR allocates costs between what may be paid for under PL84-99 Rehabilitation Assistance, and what is cost shared between the Corps (using CG funds) and the public sponsor under periodic renourishment terms of the PCA. [EP, 5-18.d.].
12.	X			Dredge mobilization/demobilization costs are borne proportionally among contributing sources of funds for sand renourishment. [ER, 5-20.i.]
13.			X	Contingency funds for the FCCE-funded portion of the Project are limited to 15 percent for dredging-related costs, and 10 percent for all other costs. [ER, 5-2.v.]
14.			X	The repair option selected is the option that is the least cost to the Federal government. [ER, 5-2.h.]

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15.	X		The benefit cost ratio calculation excludes all recreation benefits. [ER, 5-20.a.]
16.		X	Betterments are paid by the Public Sponsor. [ER, 5-20.o.]
17.		X	Cost for betterments are identified separately in the cost estimate. [ER, 5-2.o.]
18.		X	Based on the Projected schedule, Project history, anticipated degree of contention of undertaking the Project, and similar items, the Rehabilitation Assistance will be finished prior to the onset of the next storm season, or within one year of the date of occurrence of the damage, whichever is less. [ER, 5-20.j.]
19.	X		The proposed work will not modify the CSRM to increase the degree of protection or capacity, or provide protection to a larger area. [ER, 5-2.n.]
20.	X		An assessment of environmental requirements was completed. [ER, 5-13.e.]
21.	X		The Endangered Species Act was appropriately considered and applicable requirements have been satisfied or will be satisfied prior to the funds transmittal of construction phase activities (and supplemented to the PIR). When emergency circumstances mandate, ESA Section 7 consultation may be conducted informally through alternative procedures with formal consultation completed after construction consistent with 50 CFR 402.05. Dredging will not be adversely affected. [ER, 5-13.g., and EP, Figure 5-3., paragraph 12.]
22.	X		The Archeological and Historical Preservation Act was appropriately considered. [ER, 5-13.h.]
23.	X		EO 11988 requirements were considered in the process of evaluating the proposed project for rehabilitation or will be considered prior to the funds transmittal of construction phase activities (and supplemented to the PIR). [ER,5-13.f., and EP, Figure 5-2, paragraph 12.]
24.	X		Other permitting and evaluations were appropriately considered and result in no impediment to the Rehabilitation Assistance effort. [ER, 5-13.a.]
25.	X		The cover letter forwarding the PIR to the MSC will contain the Projected schedule for completing the Rehabilitation Assistance. [EP, 5-18.f.(2)]
26.	X		The completed PIR has been reviewed and the PIR checklist has been reviewed and signed by the Emergency Management Office. [EP, 5-18.f.(1)]
27.	X		The completed PIR meets all policy, procedural, content, and formatting requirements of ER 500-1-1 and EP 500-1-1. [ER, 2-3.b.]