

# Construction of a Kemp's Ridley Sea Turtle Research Laboratory and two Cabins at Padre Island National Seashore

## STATEMENT OF FINDINGS FOR FLOODPLAINS

### Proposed Action

Padre Island National Seashore (PAIS), comprising 130,434 acres of coastal prairie habitat, is located along the southern coast of Texas approximately eight miles south of Corpus Christi, and is bordered by the Laguna Madre and the Gulf of Mexico. The park occupies the central 66 miles of the approximately 113-mile long Padre Island (Figure 1). The park was established by Congress on September 28, 1962 "to save and preserve, for the purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of the United States that remains undeveloped." (Public Law 87-712).

Padre Island National Seashore proposes to construct a new Kemp's Ridley Sea Turtle Research Laboratory to adjoin the current laboratory and to construct 2 turtle research cabins down island. The addition to the current lab would occur at the park's headquarters facility and utilize existing roadways to access the construction site (Figure 2) and the construction of the two cabins would utilize the beach of the primary roadway for construction (Figure 3). Park headquarters includes the administrative offices, maintenance facility, automotive shop, carpenter shop, storage garages, present turtle lab, fuel storage and fueling area, greenhouse, metal and plastic shredder, three parking lots, and an access road. The proposed project would occur along the southeast edge of the headquarters area and cabins are to be constructed at the 30 mile marker and the 50 mile marker.

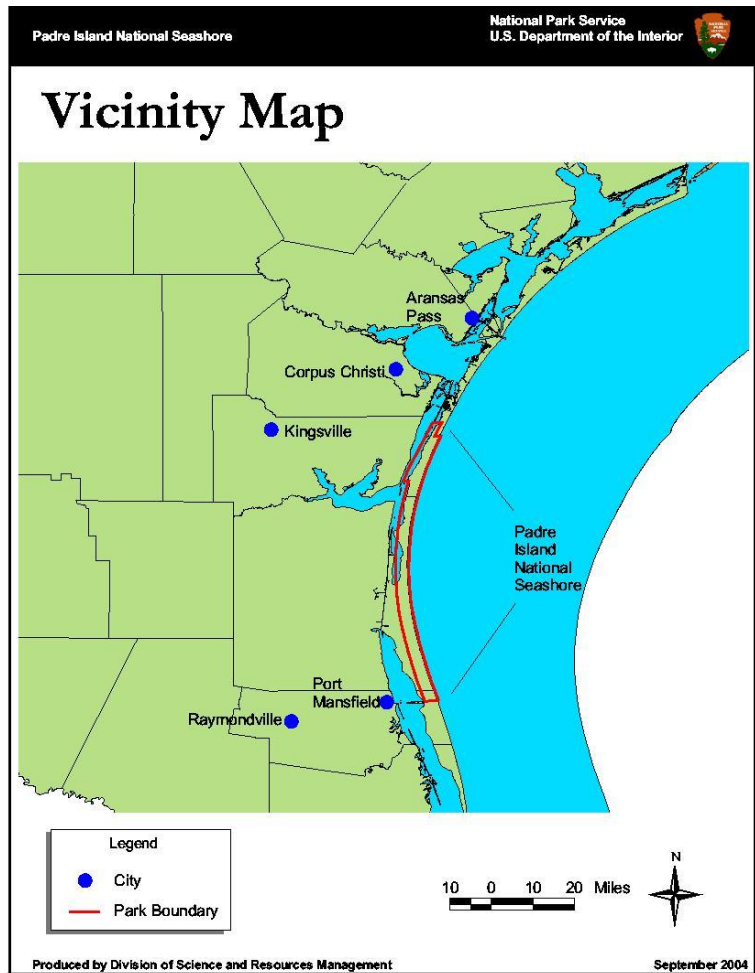


Figure 1. Park Vicinity map.



**Figure 2 - Proposed location of turtle lab expansion**



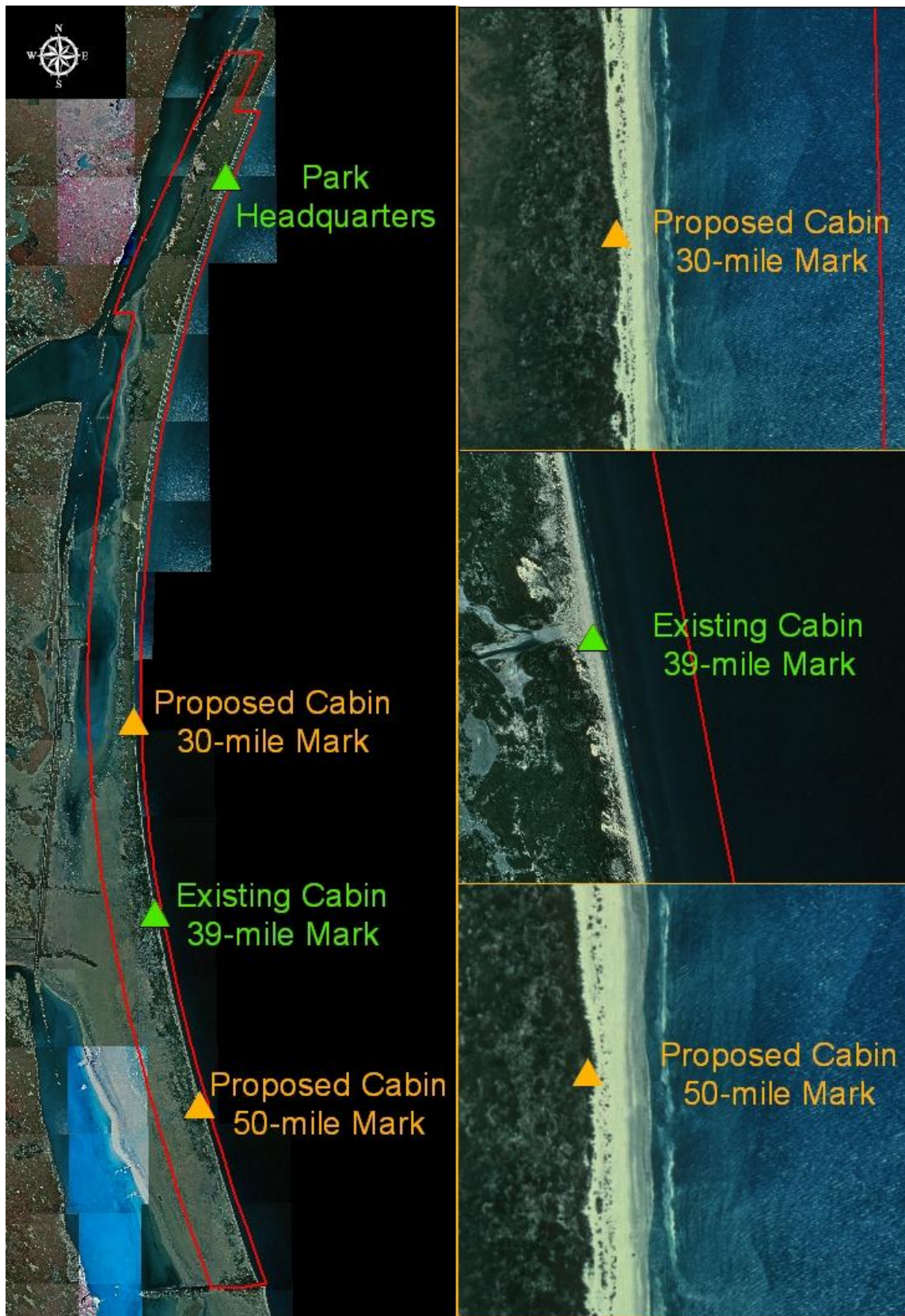


Figure 3 – Existing and proposed locations of cabins

For 33 years, Padre Island National Seashore has incubated most sea turtle eggs found on the Texas coast in an incubation facility at the National Seashore. For the past 5 years, the National Seashore has utilized the current laboratory facility to conserve sea turtles and study various aspects of their biology. For the past 10 years, the National Seashore has utilized a cabin located near the 40 mile marker to facilitate sea turtle conservation and research at the remote southern end of the park. Kemp's ridley nesting is increasing exponentially, and the program has outgrown its current facilities.

The Turtle Laboratory has been used for incubating sea turtle eggs excavated from nests laid both within the park and along the Texas coast. The incubation effort began as part of a binational, multi-agency project between the NPS, U.S. Fish and Wildlife Service, National Marine Fisheries Service, state of Texas, and the Government of Mexico to re-establish nesting form a secondary breeding colony of Kemp's ridley sea turtles at PAIS. Currently the laboratory has reached its capacity to incubate the growing number of sea turtle eggs being located each season and protect them from pests, predators, high tides, root penetration, and beach driving. The lab has also reached its capacity for providing logistical support for the seasonal patrol and staff efforts; there is insufficient space for lockers, other storage space, and office space and computer stations needed by staff running the program. The park has secured funding to construct an addition to the current facility.

The cabin is used to house personnel that search for nesting turtles and nests between the PAIS 17 and 60 mile markers. There is no road behind the dunes and it is impossible to patrol that region without stationing people that camp there and do not spend all of their time traveling into and leaving the area. Some egg incubation also occurs in a screen enclosure called a corral located near the camp. Eggs from some of the nests found early in the nesting season in the remote southern end of the park are incubated in the corral. The addition of a new laboratory space and two new cabins would expand the park's ability to incubate the growing number of sea turtle eggs located along park beaches. In addition, the new laboratory space and cabins would provide adequate space to support seasonal patrol efforts, store field gear associated with the park's sea turtle program, and provide office space for park employees. The new facilities would be environmentally sustainable and constructed using "green" methods wherever applicable. Predator control would be enhanced thereby reducing the risk of predation and pest infestation. The risk to incubating eggs from vehicle vibration associated with vehicles parking and operating adjacent to the current laboratory would be eliminated since construction would occur away from the current parking lot area and other encroachment

#### *Access*

Access to the proposed construction site would be obtained by traveling along Park Road 22 to enter the park and then traveling south to park headquarters. Construction vehicles would enter the headquarters area through the entrance road and reach the construction site by traveling through the vehicle parking area. The construction site would be obtained by traveling along Park Road 22 to enter the park and then traveling south to Malaquite beach then heading south 30 and 50 miles to each site.

### Facility

The new laboratory would include an incubation facility, storage area for logistical support items such as field gear, a dispatch area to facilitate seasonal patrols, two offices for NPS employees, and a short access road (Figure 4).

The footprint of the new laboratory is approximately 1980 square feet in size and the incubation facility is 720 square feet in size. Construction will be taking place within a previously disturbed area and will adjoin the current laboratory. The elevation of the building would be 18 feet above mean sea level. The new cabins will be 2500 square feet in size and will be constructed on stilts landward of the primary frontal dune (Figure 5). The cabins will be built in a zone designated by FEMA as zone "V". Zone V is an area of 100-year coastal flood with velocity (wave action); BAE flood elevations and flood hazard factors not determined. This facility will follow all standards set up by FEMA

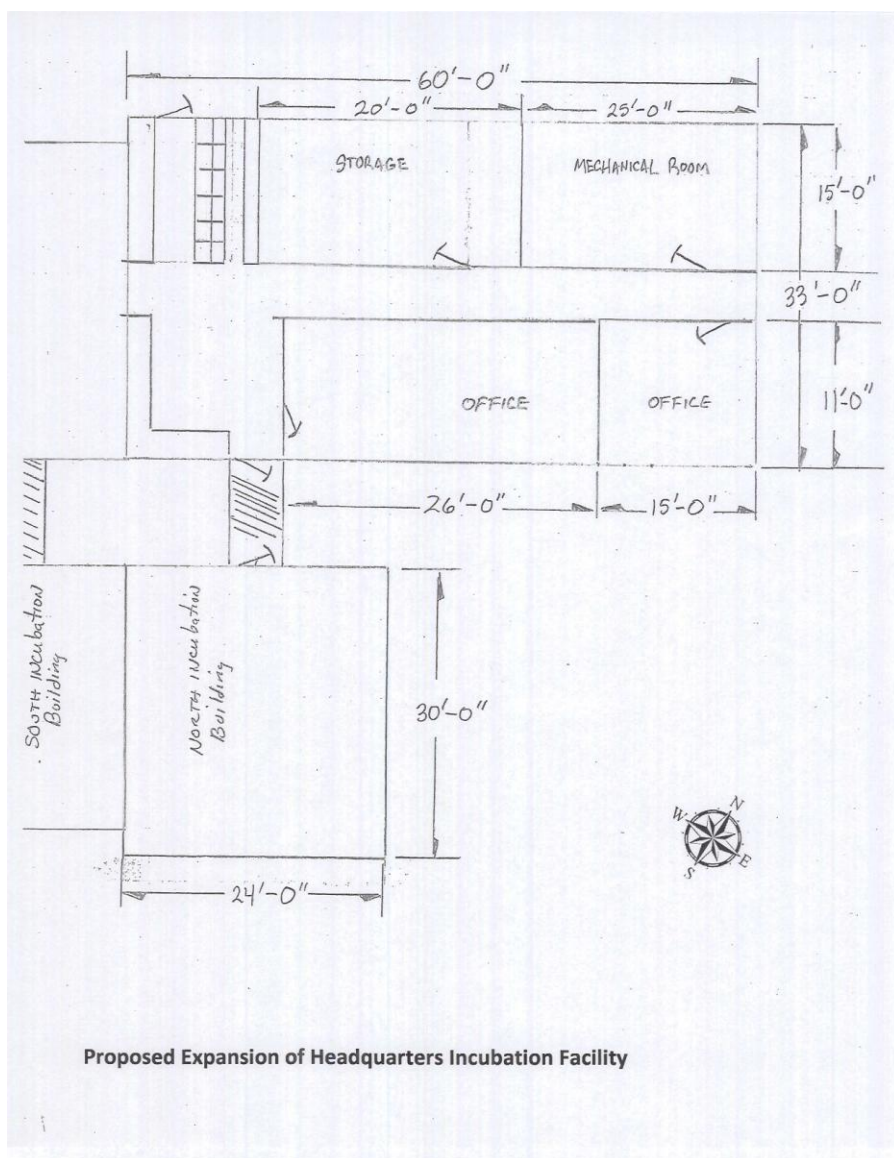
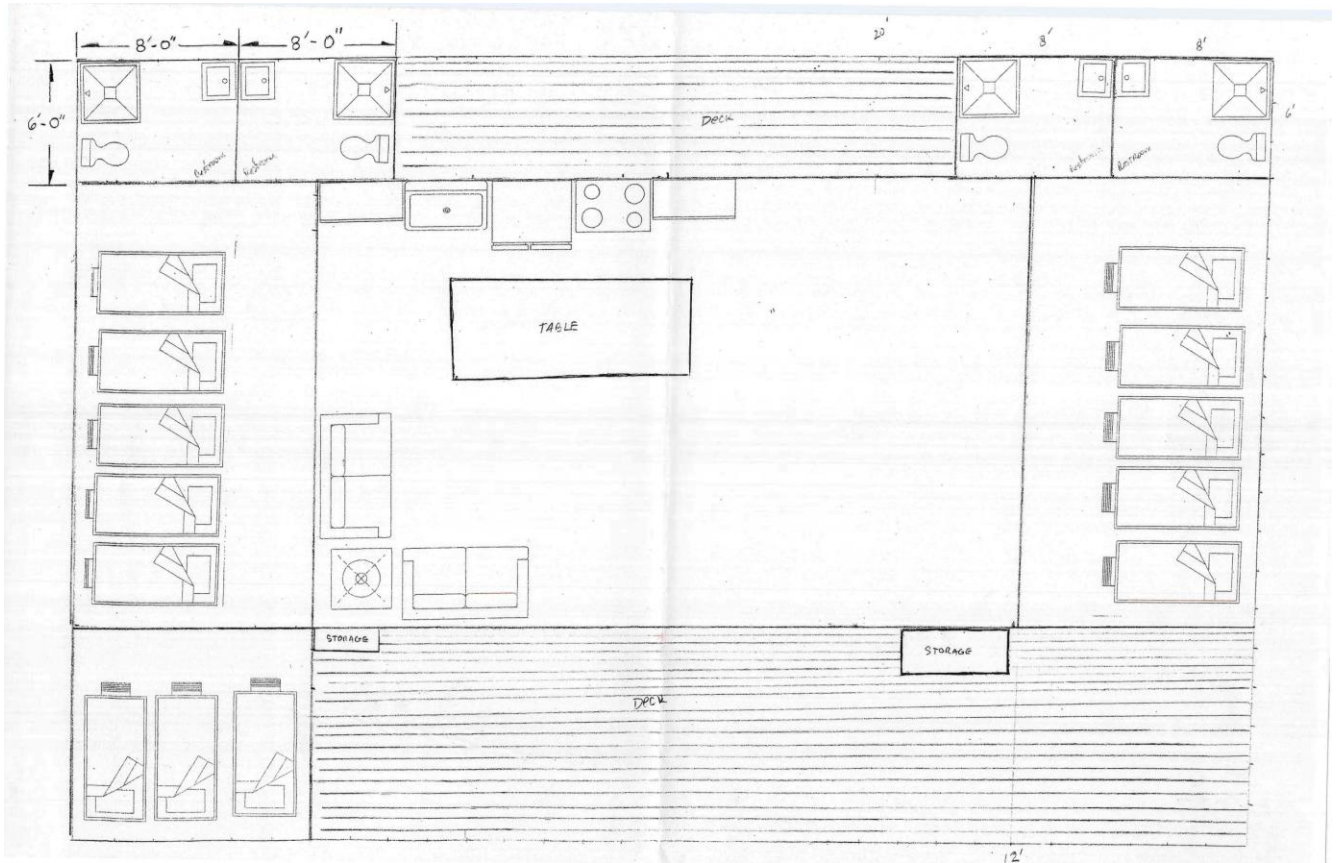


Figure 4 - Proposed lab floor plan





**Figure 5 - Proposed cabin floor plan**

### **Site Description**

Padre Island National Seashore (PAIS) is located on a largely undeveloped barrier island in southern Texas, along the Gulf of Mexico. The barrier island is a dynamic system subject to many geologic forces and climatic events. The barrier island was formed, and is continually being reshaped, by the actions of wind, gulf currents, and waves. The seashore's landscape changes from broad, white, fine-sand beaches on the Gulf side, to ridges of fore-island sand dunes, to grassy interior upland flats dotted with smaller dunes, ephemeral ponds, and freshwater wetlands. The Laguna Madre, back-island dunes, and wind tidal flats that merge with the waters of the Laguna Madre define the western portion of the Seashore. Two natural and 20 man-made spoil islands in the Laguna also lie within the National Seashore. The park is the most significant nesting beach in the United States for the Kemp's ridley sea turtle and is designated as a Globally Important Bird Area by the American Bird Conservancy for over 350 species of birds.

Padre Island National Seashore is consistent with the Oil and Gas management plan by building behind the primary frontal dune line.

### **Nature of Flooding in the Area**

Since Padre Island National Seashore is located on a barrier island, hurricanes, tropical storms, or other storm events bringing high winds or substantial rainfall may result in periodic flooding, due to the park's low elevations.

### **Justification for Use of the Floodplain**

There is no practical alternative to locating the Kemp's Ridley Sea Turtle Research Laboratory and cabins outside the 100-year floodplain because the entire park, with the exception of the fore dunes, is located within floodplains. The formal designation of the floodplain status of Padre Island National Seashore was initially conducted by the Federal Emergency Management Agency's National Flood Insurance Program on August 17, 1971, and revised on March 1, 1984.

Alternative sites located outside of the park were sought in an attempt to construct the new laboratory outside of the 100-year floodplain. No outside park locations were found. Neither the park nor the General Services Administration possessed a location outside of the park that would meet the needs of the park's sea turtle program. In addition, costs necessary to secure an acceptable site were beyond the funds available for the project, would require years to gain approval for acquisition if funds were available, or require continual lease payments for the length of the project if rental property was located.

### **Site-Specific Flood Risk**

The Atlantic Hurricane Season begins June 1 and continues through November 30. Storm surge levels can range between 9 and 12 feet above sea level (Weise and White 1980). The greatest percentage of hurricanes affecting the Gulf coast occurs in the months of August, September, and October. The number of tropical storms occurring each season may vary from 4 to 12. The Gulf of Mexico averages 10 storms annually based on the number of storms that have occurred over the past 40 years. The Corpus Christi area has had significant effects from only a small percentage of hurricanes, averaging one storm event every 15 years. Hurricane Celia was the last major hurricane to affect Corpus Christi and occurred in August of 1971.

Under normal weather patterns, any flooding along the western edge of the island adjacent to the Laguna Madre is of short duration. Water is pushed up by winds associated with a northern frontal passage and generally recedes as the storm front passes. These wind generated tides cause water levels to rise 1-2 inches, which cannot reach the proposed construction site due to its elevation and distance from the Laguna Madre.

Lunar tidal events that affect the Gulf of Mexico beach along the eastern edge of the park generally range from 0 to 2 feet and affect only the beach front. The proposed construction site is located approximately .5 miles from the Gulf beach and would only be affected by storm events.

Padre Island N. S. utilizes a three stage alert system when a tropical storm enters or originates in the Gulf of Mexico.

### *Green Alert*

A Green Alert will be established when the National Weather Service identifies a weather system as a Tropical Storm with winds above 39 miles per hour, within 72 hours or 700 miles of PAIS, and appears to be heading for the coastal bend area. Park staff advises visitors entering or currently recreating in the park that a storm is in the Gulf of Mexico.

### *Yellow Alert*

A Yellow Alert will be established when a tropical storm system is within 60 hours or 500 miles of PAIS, appears to be heading for the northwestern Gulf coastline, and a Hurricane Watch is issued for the coastal bend. Park staff evacuates visitors.

### *Red Alert*

A Red Alert will be established when a tropical storm is expected to reach hurricane force and is within 48 hours or 300 miles of PAIS, the storm track and speed indicate it will strike the coastal bend area within 24 hours somewhere between 25 and 30 degrees N latitude, and a Hurricane Warning is issued for the coastal bend with an expected landfall between 150 miles south of Corpus Christi and 100 miles north of Corpus Christi. The park is closed, gates locked, and employees and visitors are evacuated.

Should a storm suddenly develop in the western Gulf of Mexico or if an approaching storm suddenly increases its forward speed, any or all of the alerts may be bypassed and the park would immediately come under red alert.

The possibility of severe or significant storm events has been taken into consideration during the planning of this project. The proposed facility will be raised through the use of approximately 350 cubic yards of fill to reach an elevation of 18 feet above mean sea level.

### **Project Contingencies**

The contingencies associated with this project include the use of fill or stilts to raise the building's foundation to meet appropriate federal, state, and local building codes and dune mitigation. The final elevation will be 18 feet above mean sea level with a compacted limestone base supporting the foundation. Other appropriate actions required by building codes will include strapping, appropriate windows, etc. that meet all building codes established for an area subjected to hurricanes and other storm events. Procedures for ensuring personal and government property are established in the park's Hurricane Response Plan. Dune mitigation

Placement and construction of new cabins would require access through dunes, which could result in minor, direct, adverse effects. Any impacts or loss of dune features would be reestablished by re-contouring, reassembling, and through natural processes. Placement of the Headquarters incubation facility expansion allows for access across previously modified surfaces and will not alter the surface from its current condition.



**Summary**

The National Park Service concludes that there is no practical alternative for the construction and placement of the Kemp's Ridley Sea Turtle Research Laboratory and cabins outside of designated floodplains. The proposed action would result in localized, short to long-term, negligible adverse impacts on floodplains from occupying a site within a floodplain. The National Park Service, therefore, finds that this project is in compliance with Executive Order 11988: "Floodplain Management."

**Prepared by**

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