



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 15 2018

OFFICE OF
GENERAL COUNSEL

Mr. Jeff Harris
Louisiana Department of Natural Resources
Office of Coastal Management
Consistency Section
617 North Third Street, Suite 1078
Baton Rouge, LA 70802

Dear Mr. Harris:

I am writing on behalf of the federal members of the Louisiana Trustee Implementation Group (LA TIG), which is responsible for restoring the natural resources and services within the Louisiana Restoration Area that were injured by the April 20, 2010 Deepwater Horizon (DWH) oil spill and associated spill response efforts. This letter provides the federal Trustees' determination of consistency to the maximum extent practicable with the enforceable policies of Louisiana's coastal zone management program for four nutrient reduction and nineteen recreational use restoration projects. The LA TIG has proposed the projects for public review and comment in the "Deepwater Horizon Oil Spill Louisiana Trustees Implementation Group Draft Restoration Plan and Environmental Assessment #4: Nutrient Reduction (Nonpoint Source) and Recreational Use" (RP/EA). If subsequently approved by the LA TIG, the projects would be included in a Final RP/EA.

The LA TIG is comprised of a number of Louisiana and federal agencies: the Louisiana Coastal Protection and Restoration Authority (CPRA); Louisiana Department of Natural Resources (LDNR); Louisiana Department of Environmental Quality (LDEQ); Louisiana Oil Spill Coordinators Office (LOSCO); Louisiana Department of Wildlife and Fisheries (LDWF); the National Oceanic and Atmospheric Administration (NOAA), on behalf of the U.S. Department of Commerce (DOC); the United States Department of the Interior (DOI), as represented by the U.S. Fish and Wildlife Service (FWS); the United States Department of Agriculture (USDA); and the United States Environmental Protection Agency (EPA). The federal Trustees (NOAA, DOI, USDA, and EPA) have reviewed the restoration plan and proposed projects for consistency with the Louisiana Coastal Resources Program (LCRP) and have found that, as proposed, these restoration actions are consistent to the maximum extent practicable with the applicable, enforceable policies of the State's federally-approved LCRP. This letter submits that consistency determination for State review on behalf of all federal Trustees.

Background

After the DWH oil spill, the state and federal natural resources Trustees conducted a natural resource damage assessment (NRDA) to assess the adverse impacts to the Gulf's natural resources, and proposed a comprehensive, integrated ecosystem restoration approach to address

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the potential magnitude and breadth of restoration for injuries resulting from the oil spill. In February 2016, the DWH Trustee Council issued a Final Programmatic Damage Assessment and Restoration Plan/Programmatic Environmental Impact Statement (PDARP/PEIS) under the Oil Pollution Act (OPA) and the National Environmental Policy Act (NEPA) to analyze alternative approaches to implementing restoration and to guide restoration decisions consistently across the Gulf of Mexico region. The purpose of restoration is to make the environment and the public whole for injuries resulting from the incident by implementing restoration actions that return injured natural resources and services to baseline conditions and compensate for interim losses, in accordance with OPA and associated NRDA regulations. On April 4, 2016, the U. S. District Court for the Eastern District of Louisiana entered a Consent Decree resolving civil claims by the Trustees against BP Exploration and Production Inc. (BP) arising from the DWH oil spill. This historic settlement resolves the Trustees' claims against BP for natural resources damages under OPA.

Proposed Restoration Projects in the LA TIG Draft RP/EA

The Draft RP/EA prepared by the LA TIG tiers from the PDARP/PEIS and proposes restoration projects to compensate for recreational use services lost as a result of the DWH oil spill. Descriptions of the proposed projects in the Draft RP/EA are provided in the attachments.

LCRP Consistency Review

The federally-approved LCRP is comprised of a network of agencies with authority in the state's coastal zone. The primary authority guiding the LCRP is the Louisiana Department of Natural Resources. The LCRP is built around the following goals, which can be found at Louisiana Revised Statutes Article 49, §214.21, Subpart C:

- (1) To protect, develop, and, where feasible, restore or enhance the resources of the state's coastal zone.
- (2)(a) To assure that, to the maximum extent feasible, constitutional and statutory authorities affecting uses of the coastal zone should be included within the Louisiana Coastal Management Program and that guidelines and regulations adopted pursuant thereto shall not be interpreted to allow expansion of governmental authority beyond those laws.
- (b) To express certain regulatory and non-regulatory policies for the coastal zone management program. Regulatory policies are to form a basis for administrative decisions to approve or disapprove activities only to the extent that such policies are contained in the statutes of this state or regulations duly adopted and promulgated pursuant thereto. They are to be applicable to each governmental body only to the extent each governmental body has jurisdiction and authority to enforce such policies. Other policies are non-regulatory. They are included in the Coastal Zone Management Plan to help set out priorities in administrative decisions and to inform the public and decision makers of a coherent state framework, but such policies are not binding on private parties.
- (3) To support and encourage multiple use of coastal resources consistent with the maintenance and enhancement of renewable resource management and productivity, the need to provide for adequate economic growth and development and the minimization of adverse effects of one resource use upon another, and without imposing any undue restriction on any user.

- (4) To employ procedures and practices that resolve conflicts among competing uses within the coastal zone in accordance with the purpose of this Subpart and simplify administrative procedures.
- (5) To develop and implement a coastal resources management program which is based on consideration of our resources, the environment, the needs of the people of the state, the nation, and of state and local government.
- (6) To enhance opportunities for the use and enjoyment of the recreational values of the coastal zone.
- (7) To develop and implement a reasonable and equitable coastal resources management program with sufficient expertise, technical proficiency, and legal authority to enable Louisiana to determine the future course of development and conservation of the coastal zone and to ensure that state and local governments have the primary authority for managing coastal resources.
- (8) To support sustainable development in the coastal zone that accounts for potential impacts from hurricanes and other natural disasters and avoids environmental degradation resulting from damage to infrastructure caused by natural disasters.

The principle policies of the LCRP that are potentially relevant to restoration actions described in the RP/EA are those promulgated in the Louisiana Administrative Code at Title 43, Part 1, Chapter 7, Subchapter B (“Coastal Use Guidelines”): specifically:

§701. Guidelines Applicable to All Uses

§703. Guidelines for Levees

§705. Guidelines for Linear Facilities

§707. Guidelines for Dredged Spoil Deposition

§709. Guidelines for Shoreline Modification

§711. Guidelines for Surface Alterations

§713. Guidelines for Hydrologic and Sediment Transport Modifications

§715. Guidelines for Disposal of Wastes

§717. Guidelines for Uses that Result in the Alteration of Waters Draining into Coastal Waters.

The projects listed in this letter are consistent with the goals identified in the PDARP/PEIS for the “Nutrient Reduction (Nonpoint Source)” Restoration Type, specifically to:

- Reduce nutrient loadings to Gulf Coast estuaries, habitats, and resources that are threatened by chronic eutrophication, hypoxia, or harmful algal blooms or that suffer habitat losses associated with water quality degradation;
- Where appropriate, co-locate nutrient load reduction projects with other restoration projects to enhance ecological services provided by other restoration approaches;
- Enhance ecosystem services of existing and restored Gulf Coast habitats;

and “Provide and Enhance Recreational Opportunities” Restoration Type, specifically to:

- Increase recreational opportunities such as fishing, beach-going, camping, and boating with a combination of ecological restoration and creation of infrastructure, access, and use opportunities;
- Use education and outreach to promote engagement in restoration and stewardship of natural resources, which could include education programs, social media, and print materials.

The LA TIG federal Trustees have determined that the proposed projects are also consistent with the goals of the LCRP. In particular, the proposed projects would:

- “protect, develop, and, where feasible, restore or enhance the resources of the state's coastal zone” [Article 49, §214.21, Subpart C (1)];
- “support and encourage multiple use of coastal resources consistent with the maintenance and enhancement of renewable resource management and productivity, the need to provide for adequate economic growth and development and the minimization of adverse effects of one resource use upon another, and without imposing any undue restriction on any user” [Article 49, §214.21, Subpart C (3)];
- “enhance opportunities for the use and enjoyment of the recreational values of the coastal zone” [Article 49, §214.21, Subpart C (6)].

Projects Not Located In The Coastal Zone Boundaries

Please note that the Sam Houston Jones State Park Improvements project is outside of the Louisiana coastal zone, and we do not believe it would impact the Louisiana coastal zone. While the Nutrient Reduction on Dairy Farms in St. Helena and Tangipahoa Parishes and Nutrient Reduction on Dairy Farms in Washington Parish are outside the coastal zone, the water quality improvements should have beneficial effects in the coastal zone due to their hydrological connection.

Conclusion

Based on the review of each project, the federal Trustees of the LA TIG have determined that the proposed restoration projects are consistent to the maximum extent practicable with the enforceable policies of the State's approved coastal management program. If selected and implemented, the proposed projects would comply and be implemented in a manner consistent with the LCRP. Because the proposed projects are currently at a preliminary design stage, final design details are to be provided by the implementing entity to LDNR when designs are completed. On behalf of the Deepwater Horizon NRDA Louisiana Trustees, I respectfully submit this determination letter for State review and concurrence of the twenty-three projects that are attached.

Thank you in advance for your assistance.

Sincerely,



James Bove

Attorney Advisor

United States Environmental Protection Agency

Cc: Matt Mumfrey, Principal Representative for Louisiana
Homer Wilkes, Principal Representative for USDA

Kevin Reynolds, Principal Representative for DOI
Chris Doley, Principal Representative for NOAA
Mary Kay Lynch, Alternate to Principal Representative for EPA

Attachments

Nutrient Reduction

1. *Nutrient Reduction on Dairy Farms in St. Helena and Tangipahoa Parishes*
2. *Nutrient Reduction on Dairy Farms in Washington Parish*

Project Overview

The primary goal of these alternatives is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf of Mexico's ecologically and economically important species. While agricultural lands are not the sole contributors of nutrients in the Lake Pontchartrain Basin, discharges from these lands contribute to water quality impairment in the basin (U.S. Geological Survey [USGS] 2002). Nutrients, sediment, and fecal coliform bacteria originating from dairy operations can enter water bodies through runoff. Nutrient management planning and implementation of Best Management Practices/Conservation Practices (BMPs/CPs) on dairy farms can improve water quality for the receiving water body and the downstream water bodies. Currently dairy farms in these watersheds are managing the waste component of their operations through waste treatment systems that were constructed in the early 1990s. The effluent waste application systems of these dairies are obsolete or marginal at best.

Project Details

The proposed Nutrient Reduction on Dairy Farms Alternatives would target efforts for measurable impact by clustering projects on a voluntary basis at the HUC 12 watershed scale that directly impacts coastal wetlands. The identified HUC 12s are located within the multiple parishes and proposed alternatives are identified by the parish in which priority HUCs are located.

Conservation on dairy operations normally begins with a complete operational and natural resource assessment, conducted with the operator's plans and objectives in mind, while striving to address all present and future resource concerns associated with the operation. Ultimately, all conservation concerns and objectives are addressed by developing and implementing a comprehensive waste management system which would include a zero waste discharge system. All enrolled dairy land tracts would be included in development of a comprehensive nutrient management plan (CNMP) which would be used to define all CP design parameters.

Implementing USDA-developed CPs have been successfully implemented to address natural resource concerns related to agricultural lands. CPs are technical methods designed to help conserve soil, water, air, energy, and related plant and animal resources. There are many CPs available for use in these projects, and two are highlighted in this letter to provide examples of the types of effects that may result from the application of different types of CPs. These effects are representative of some of the highest impact CPs; implementation of other CPs is anticipated to have lesser effects.

1. Diversion

A diversion is a channel generally constructed across a slope with a supporting ridge on the lower side. The purpose of a diversion is to break up concentrations of water on long slopes, on undulating land surfaces, and on land that is generally considered too flat or irregular for terracing. Diversions are used to divert water away from farmsteads, agricultural waste systems, or other improvements; collect or direct water for storage; protect terrace systems; intercept surface and

shallow subsurface water flow; reduce runoff damages; divert water away from active gullies or critically eroding areas; and supplement water management on conservation cropping and stripcropping systems. Diversions are stable sloped channels which are vegetated to protect the diversion from erosion. Diversion capacity is dependent on what the water is being diverted away from. If the diversion is to protect agricultural lands, the minimum capacity is for the peak discharge from a 10-year frequency, 24-hour-duration storm, and if the diversion is to protect buildings, roads, and animal waste management systems, the minimum capacity is for the peak discharge from a 25-year frequency, 24-hour-duration storm.

2. Waste Separation Facility

A waste separation facility is a filtration or screening device, settling tank, settling basin, or settling channel used to partition solids and/or nutrients from a waste stream. The purpose of these facilities is to partition solids, liquids, and/or their associated nutrients to improve or protect air quality, water quality, improve manure-handling methods, or serve as a pre- or post-treatment for other processes. Facilities generally include waste collection points, waste transfer pipelines, and waste treatment and storage facilities. Waste separators can be either mechanical or non-mechanical and are selected based on site-specific characteristics to meet specific management objectives. For proper functioning of mechanical separation equipment, environmental conditions may require roofing and or building enclosures. For separation facilities exposed to precipitation events, emergency overflow appurtenances are designed to pass the peak runoff from the drainage area of the facility for a 25-year, 24-hour-duration storm plus the normal waste stream discharge. Design of settling basins is dependent on multiple factors including the amount of storage needed, equipment access needed for cleanout, appropriate ventilation if the facility is enclosed or in a confined area, and if the bottom is concrete or lined with a geosynthetic or geomembrane liner or is just compacted soil.

Operations and Maintenance costs

Costs for corrective actions, operation and maintenance, and short-term management are included in the project budget. Corrective actions may include regrading/removing water control structures, planting/replanting desirable vegetation, and/or removing nuisance vegetation. Corrective actions would likely occur after implementation within the five-year time frame for this project. USDA would identify corrective actions based on site evaluations and performance monitoring data and reports and evaluate costs to address the corrective action to determine feasibility. Maintenance may include addressing minor soil erosion or vegetation establishment issues due to weather-related events.

Monitoring activities

Project monitoring would include establishing water quality sampling stations and collecting samples above and below (at a minimum) the specified watershed. Baseline data collection through instream water quality monitoring would be initiated in the targeted watershed within year 1 of project implementation. Water quality monitoring would be continued after most of the conservation practices are implemented.

The following parameters would be monitored:

- Total Nitrogen and Total Phosphorus;
- Total Suspended Solids and Turbidity; and
- Escherichia coli, enterococci, and fecal coliform.



3. Nutrient Reduction on Cropland and Grazing Lands in Bayou Folsé

Project Overview

Runoff containing fertilizers and livestock waste from agricultural lands is a significant contributor to nitrogen and phosphorus levels within the watersheds in which they are found. The deposition of excessive nutrients stimulates an overgrowth of algae that sinks and decomposes in the water downstream. The resulting low oxygen levels are insufficient to support most aquatic life and habitats in near-bottom waters, posing a serious threat to the Gulf of Mexico's fisheries, and because of the hydrology of coastal Louisiana, these nutrient loads have a direct flow path to the Gulf of Mexico. The annual hypoxic zone that forms in nearshore waters off the Louisiana coast is a chronic problem with significant implications for the health of Gulf of Mexico resources, and the long-term health of those resources requires addressing the problem.

Project Details

This project would implement CPs on cropland and grazing lands that would reduce the levels of nutrients and sediments entering the Gulf of Mexico. The primary goal is to enhance overall ecosystem health and benefit the estuaries that provide habitat, food, shelter, and nursery grounds for many of the Gulf of Mexico's ecologically and economically important species. Nutrient management planning and implementation of BMPs/CPs on cropland and grazing lands can improve water quality for not only the receiving water body, but downstream as well.

Conservation on agricultural lands normally begins with a complete operational and natural resource assessment, conducted with the operator's plans and objectives in mind, while striving to address all present and future resource concerns associated with the operation. Ultimately, all conservation concerns and objectives are addressed by developing a CNMP which would be used to define all conservation practice design parameters. Nutrient Reduction on Cropland and Grazing Lands would target efforts to achieve a measurable impact by clustering projects at the HUC 12 watershed scale that directly impacts coastal wetlands. Activities would be undertaken with the producer on a voluntary basis.

USDA-developed CPs have been successfully implemented to address natural resource concerns related to agricultural lands, and many of these practices can be used to achieve a number of the restoration types. CPs are technical methods designed to help conserve soil, water, air, energy, and related plant and animal resources. There are many CPs available for use in these projects, and two are highlighted in this letter to provide examples of the types of effects that may result from the application of different types of CPs. These effects are representative of some of the highest impact CPs; implementation of other CPs is anticipated to have lesser effects.

1. Residue and Tillage Management, Reduced Till

Residue management is managing the amount, orientation, and distribution of crop and other plant residue on the soil surface throughout the year. It includes all soil disturbing activities like tillage, nutrient applications, and harvesting of residue. Residue management systems can be designated to accomplish multiple purposes including: reduce sheet and rill erosion, maintain or increase soil organic matter, increase moisture available for plant use, reduce energy use, reduce soil particulate emissions and carbon dioxide (CO₂) losses, and provide

food and escape cover for wildlife. Residue tillage regimes manage residue for sustainable agricultural production, which have been proven to improve soil condition over traditional tillage methods. Reduced till systems manage the amount, orientation, and distribution of crop and other residue on the soil surface while limiting the soil disturbing activities used to grow and harvest crops in systems where the field surface is tilled prior to planting.

2. Grassed Waterway

A grassed waterway is a shaped or graded channel that is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. The purpose of a grassed waterway is to convey runoff from terraces, diversions, or other water concentrations without causing erosion or flooding, to reduce gully erosion, and/or to protect and improve water quality. Design features of grassed waterways include capacity, stability, width, side-slope depth, drainage, outlets, and vegetative establishment.

Operations and Maintenance costs

Costs for corrective actions, operation and maintenance, and short-term management are included in the project budget. Corrective actions may include regrading/removing water control structures, planting/replanting desirable vegetation, and/or removing nuisance vegetation. Corrective actions would likely occur after implementation within the five-year time frame for this project. USDA would identify corrective actions based on site evaluations and performance monitoring data and reports and evaluate costs to address the corrective action to determine feasibility. Maintenance may include addressing minor soil erosion or vegetation establishment issues due to weather-related events.

Monitoring activities

Project monitoring would include establishing water quality sampling stations and collecting samples above and below (at a minimum) the specified watershed. Baseline data collection through instream water quality monitoring would be initiated in the targeted watershed within year 1 of project implementation. Water quality monitoring would be continued after most of the conservation practices are implemented.

The following parameters would be monitored:

- Total Nitrogen and Total Phosphorus;
- Total Suspended Solids and Turbidity; and
- *Escherichia coli*, enterococci, and fecal coliform.

4. *Winter Water Holding on Cropland in Vermillion and Cameron Parishes Plus Agricultural Best Management Practices*

Project Overview

Louisiana includes some of the most diverse and intensively used agricultural land in the Gulf South, and the use of winter water holding CPs can assist in improving water quality in the Gulf of Mexico. Winter water holding for nutrient management on agricultural lands can allow the filtering of nutrients and sediment prior to water release into the watersheds. These projects also create a diversity of habitats for waterfowl, wading bird, shorebird, invertebrate, and other species that require shallow water areas during part of their life cycle.

Project Details

Winter water holding requires retention of irrigation water over the fall/winter to improve water quality and create wildlife habitat. Croplands in rice production with levee and irrigation systems in place, as well as fallow fields formerly planted with rice but are being grazed continuously or intermittently that retain the original levee with irrigation systems, would be targeted. Efforts would be made to cluster projects within a HUC 12 watershed.

The retained water allows for sediment deposition, nutrient uptake by emergent aquatic vegetation, use of the previous planting year's crop residue to reduce soil disturbance from wind-induced water movement, and animal feeding activity. De-watering is done in 1- to 2-inch increments to prevent erosive current velocity, prevent nutrient/bacteria loading in receiving water bodies, provide wildlife habitat, and to enhance native vegetation density and diversity. Levels of nutrients and suspended sediments in impounded or retained water would be assessed prior to de-watering, which provides improvements to water quality downstream.

Conservation on agricultural lands normally begins with a complete operational and natural resource assessment, conducted with the operator's plans and objectives in mind, while striving to address all present and future resource concerns associated with the operation. The tracts would be enrolled on a voluntary basis and would be included in development of a CNMP which would be used to define all conservation practice design parameters.

Implementing USDA-developed CPs has been proven to successfully address natural resource concerns related to agricultural lands, and many of these practices can be used to achieve a number of the restoration types identified in the Final PDARP/PEIS. CPs are technical methods designed to help conserve soil, water, air, energy, and related plant and animal resources. There are many CPs available for use in these projects, and two are highlighted in this letter to provide examples of the types of effects that may result from the application of different types of CPs. These effects are representative of some of the highest impact CPs; implementation of other CPs is anticipated to have lesser effects.

1. Pumping Plant

A pumping plant is a facility installed to transfer water for a conservation need, including removing excess surface or groundwater; filling ponds, ditches, or wetlands; or pumping from wells, ponds, streams, and other sources. The purpose of a pumping plant is to provide a dependable water source or disposal facility for water management on wetlands or to provide a water supply for irrigation, recreation, livestock, or wildlife. A pumping plant is useful for

maintaining critical water levels in existing swamps, marshes, or open water and for providing water sources for newly constructed wetlands and ponds. Pumps may be mounted in the open, on pilings, or in a well or pit.

2. Shallow Water Development and Management

Shallow water development and management is the inundation of lands to provide habitat for fish and/or wildlife. The purpose is to provide habitat for wildlife such as shorebirds, waterfowl, wading birds, mammals, fish, reptiles, amphibians, and other species that require shallow water for at least part of their life cycle. Areas considered for shallow water developments require soils with low permeability or a seasonally high water table to inhibit subsurface drainage and allow for maintenance of proper water levels. Sites must be free of hazardous materials. The water supply for flooding during periods of planned inundation must be adequate and a methodology for dewatering is required when water levels must be artificially lowered in order to produce the desired habitat condition. Water levels must be maintained between 1 and 18 inches in depth over most of the area during periods of planned inundation, except for floodplain habitats connected to stream channels where water depths of up to 6 feet provide habitat for native fish species. Points of access must be developed for management activities and existing drainage systems would be used. Lastly, management techniques would be used to control invasive, federally and state listed noxious and nuisance plant species.

Operations and Maintenance costs

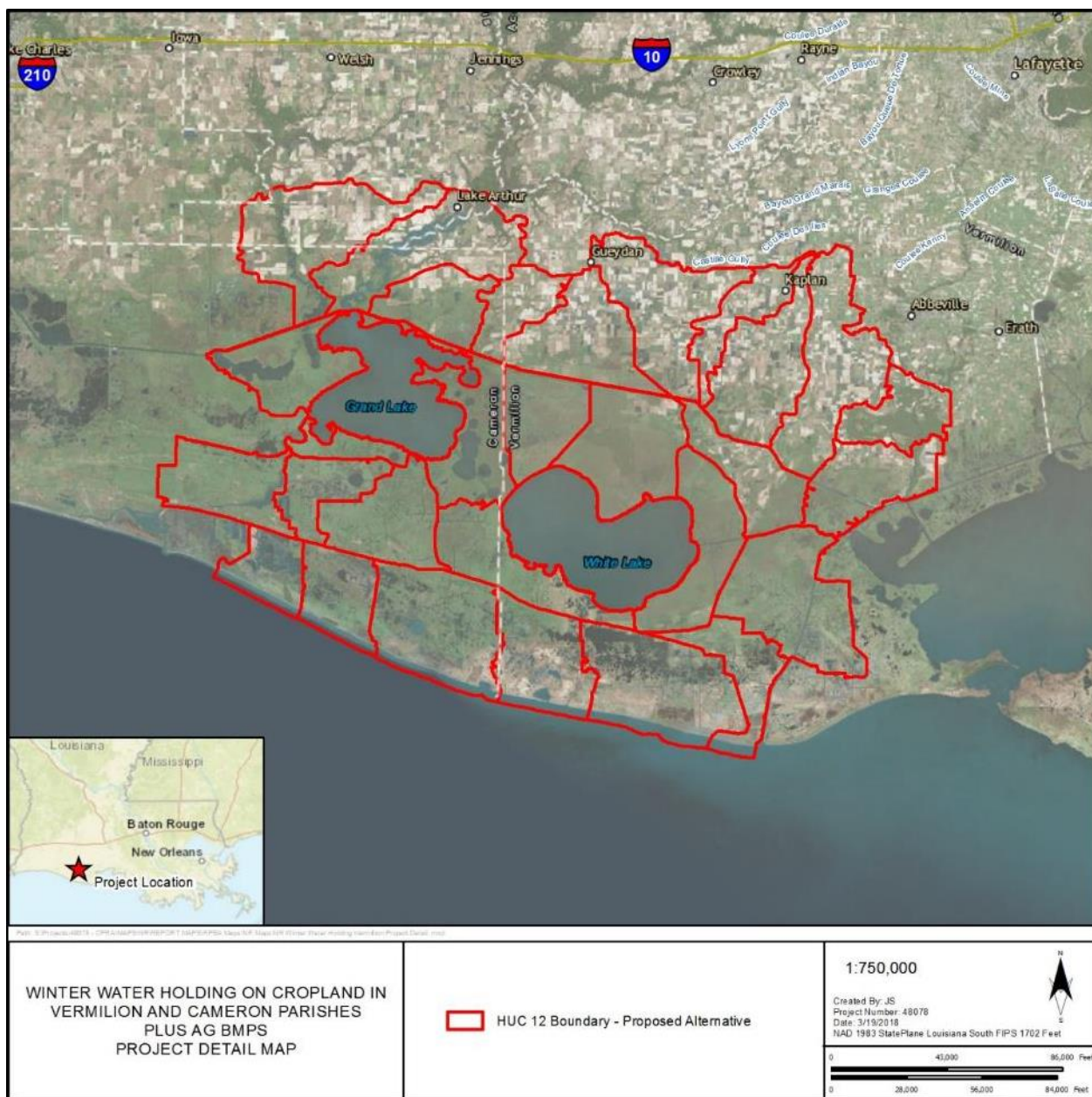
Costs for corrective actions, operation and maintenance, and short-term management are included in the project budget. Corrective actions may include regrading/removing water control structures, planting/replanting desirable vegetation, and/or removing nuisance vegetation. Corrective actions would likely occur after implementation within the five-year time frame for this project. USDA would identify corrective actions based on site evaluations and performance monitoring data and reports and evaluate costs to address the corrective action to determine feasibility. Maintenance may include addressing minor soil erosion or vegetation establishment issues due to weather-related events.

Monitoring activities

Project monitoring would include establishing water quality sampling stations and collecting samples above and below (at a minimum) the specified watershed. Baseline data collection through instream water quality monitoring would be initiated in the targeted watershed within year 1 of project implementation. Water quality monitoring would be continued after most of the conservation practices are implemented.

The following parameters would be monitored:

- Total Nitrogen and Total Phosphorus;
- Total Suspended Solids and Turbidity; and
- Escherichia coli, enterococci, and fecal coliform.



Increased Recreational Use

1. Passe-A-Loutre Wildlife Management Area Campgrounds

Project Overview

LDWF proposes to improve five existing campgrounds throughout the Pass-a-Loutre Wildlife Management Area (WMA), which is located approximately 10 miles south of Venice, Louisiana, in southern Plaquemines Parish near the mouth of the Mississippi River. Public access to this WMA is strictly by boat, which can be accomplished from one of the public boat launches throughout the parish, the nearest of which is located 10 miles north of the WMA in Venice. There are no roads onto or through the WMA. The majority of users are anglers in pursuit of both freshwater and brackish water fish. The WMA is also frequented by waterfowl and deer hunters. Many recreational users stay at one of the five public “tent only” campgrounds on the WMA.

Project Details

These campgrounds are currently unimproved and provide only mowed lawns and small docks for recreational users to pitch tents. Campground improvements would include new picnic tables, fire pit/barbeque areas, and docks at all campgrounds. Additionally, bulkheads would be installed at two campgrounds and shallow areas would be dredged at two other campgrounds. The campground improvements would enhance the experience of campground users visiting the WMA, reduce ongoing erosion, and improve public access. The new facilities would be ADA accessible

It is expected that dock construction and associated pile driving would be completed from the water on a floating vessel, and would include a connected walkway from the dock to the shoreline. Approximately 450 linear feet of dock would be constructed. Dock construction could require in-water vegetation removal if vegetation is present, and minor amounts of upland vegetation removal during the construction of the boat dock access ramps to each campground

Dredging is expected to be conducted to a depth appropriate for recreational boat passage (8 to 10 feet) using standard bucket-style or hydraulic dredge equipment. Dredge materials would likely be placed in water but outside of boating navigation areas. If there is need for backfill behind newly installed bulkheads, and site conditions are suitable, spoil material may be used in these areas.

Typical bulkhead installations include interlocking sheet pile (steel, aluminum, vinyl, or composite material based on site conditions) that are driven directly into the sediment. If wooden pilings are used as bulkheads, they would typically be driven into the sediment, and include sheeting material (e.g., treated lumber) placed behind the pilings. Because the piles or sheet piling would be installed in water, typical installation would likely occur from a boat- or barge-mounted vibratory or impact hammer system.

It is anticipated that pre-constructed picnic tables, made of steel dipped in a rubber coating, would be used and placed at campsites within each campground. Construction of fire pit/barbeque areas would likely require minimal vegetation removal, and could consist of a heavy gauge steel fire ring with a barbeque grate on top.

Operations and Maintenance

LDWF would be responsible for maintenance activities and repair costs over the life of the facilities.

Project Monitoring

Monitoring would occur throughout construction to verify that the Proposed Alternative is constructed as designed and would enhance recreational use. Post-construction performance monitoring would not be included in this cost estimate for the Proposed Alternative, and would be the long-term responsibility of LDWF. Monitoring schedules are anticipated to be adaptive based on long-term performance, e.g., seasonal monitoring may be needed if use is low and repairs are rare, or more frequent monitoring may be needed if use is high and repair needs are common.



2. Passe-A-Loutre Wildlife Management Area Crevasse Access

Project Overview

LDWF is proposing access enhancement in the limited access area (LAA) of the Pass-a-Loutre WMA. Six crevasses (openings) would be constructed between the unrestricted access open water areas and the LAA, and access would be restricted to non-motorized users. These channelization projects would increase accessibility of the LAA, providing improved opportunities for waterfowl hunting and wildlife viewing.

Project Details

The 115,000 acre WMA is regarded as a world-class public recreational destination and hosts approximately 20,000 visitors annually. Although the majority of recreational users are anglers in pursuit of both freshwater and brackish water fish, waterfowl hunting is also very popular in the WMA, and there is an increasing use by hunters of surface drive, air-cooled engine vessels for hunting access. These vessels may increase disturbance to waterfowl and force them to use other areas with less disturbance. To provide areas of lower disturbance, the LDWF created LAAs on most of its coastal wildlife management areas (including the LAA in the Pass-a-Loutre WMA), where it is prohibited to operate vessels powered by internal combustion engines during waterfowl season. Many hunters refer to these LAAs areas as “pirogue-only areas.” Hunters currently access the Pass-a-Loutre LAA by way of unimproved passes, which are difficult for them to navigate. Waterfowl hunter harvest data have indicated that, although harvest rates in LAAs tend to be higher than in non-restricted areas, the numbers of users tend to be lower due to restricted access. After discussions with waterfowl hunters who regularly visit this WMA, LDWF discovered that difficulty in accessing the LAA was a major factor influencing their decision to use the LAA.

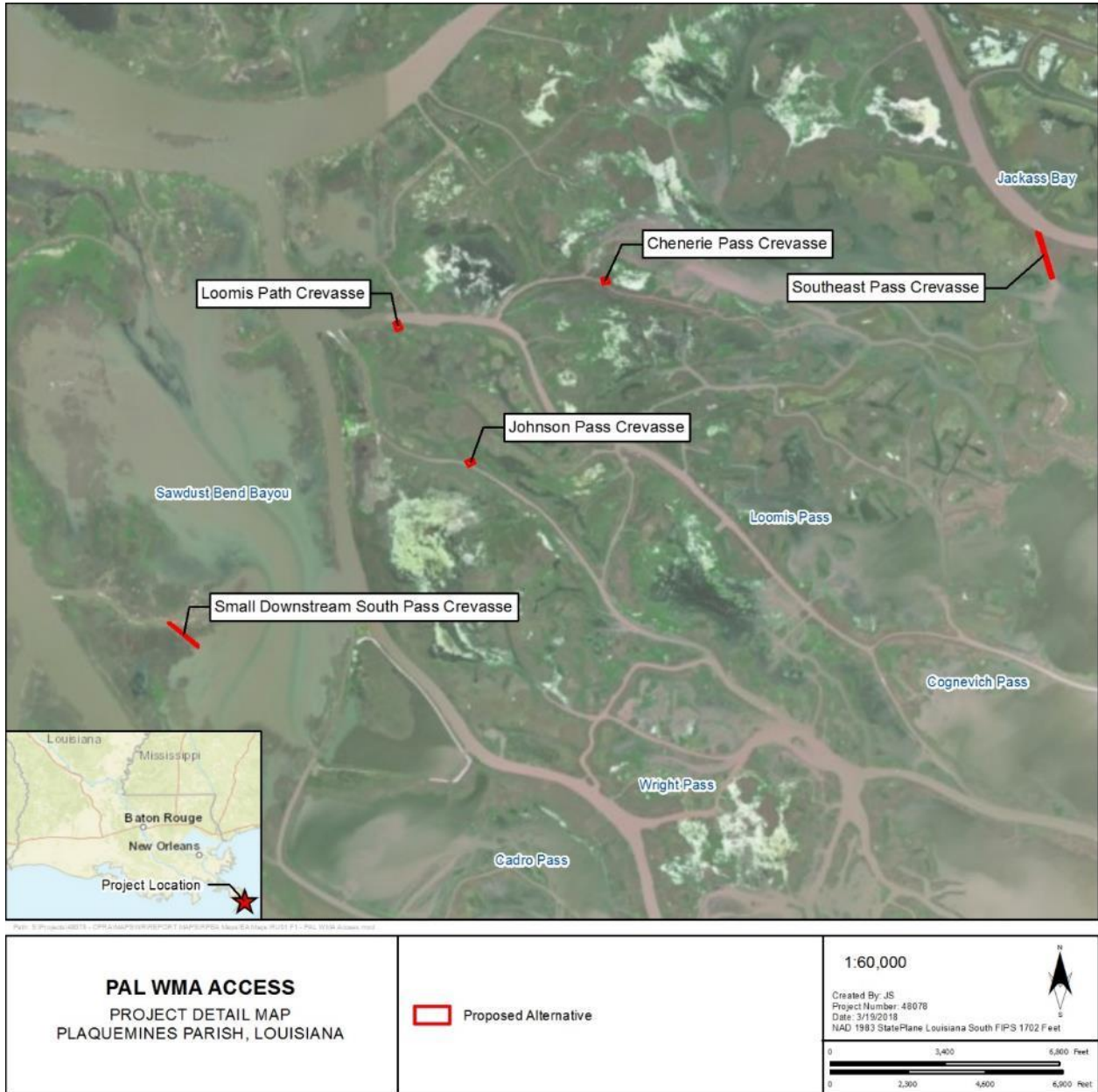
Dredging would be conducted using standard dredging methods, which typically include a bucket-style dredge or hydraulic dredge depending upon site conditions and amount of material to be moved. Dredge locations are not near dry land, so dredges are anticipated to be barge-mounted units. Dredge materials would typically be deposited in water in areas adjacent to the dredging location, or slightly further away, e.g., along a shoreline if boat navigation could be impacted.

Operations and Maintenance

The LDWF would be responsible for maintenance activities and repair costs over the life of the crevasses, and subsequent dredge materials.

Project Monitoring

Monitoring would be conducted during construction to verify that the project is constructed as designed to enhance recreational use, and LDWF would conduct post-construction performance monitoring as. The dredged crevasses are expected to be operational long term, with minimal maintenance required.



3. Grand Isle State Park Improvements

Project Overview

The Louisiana Office of State Parks is proposing the Grand Isle State Park Proposed Alternative. The Proposed Alternative would involve three elements: 1) upgrading an existing pier to improve fishing access; 2) upgrading existing rock jetties at the eastern end of the park known as Grand Isle West, as well as at the Fort Livingston property, to provide protection and habitat for shallow-water, nearshore marine species; and 3) repairing and upgrading existing roads and nature trails damaged by repeated flooding. The would improve fishing and recreational use of the state park and provide protection of coastal, nearshore marine habitats and inland infrastructure which has been affected by factors including sedimentation, storm damage, and obsolescence.

Project Details

The fishing pier would be upgraded to improve fishing access and provide needed amenities, including lighting, ADA-compliant fishing rail sections, benches, shaded structure area(s), and a fish-cleaning station. This element includes the construction of a 400-foot-long × 16-foot-wide pier extension from the northeast corner of the tee portion of the existing pier, likely at a 30-degree angle, with a heading due east. The angle change of the pier would place the extension perpendicular to the beach line, reaching deeper water in the shortest distance possible.

The existing rock jetties and groins at the Grand Isle State Park, the Grand Isle West property, and the Fort Livingston property would be extended to protect and expand the shallow-water and lagoon habitats to the north of the Grand Isle State Park, protect from continued beach erosion along the southern coastline of the Louisiana Office of State Parks–owned Grand Isle West property, and protect the historic pre–Civil War fort on the Louisiana Office of State Parks–owned Fort Livingston property from continued flooding and erosional forces. The rock jetty upgrades to the north end of the Grand Isle State Park would provide ecological benefits to this natural area, which historically provides fish an area for breeding and feeding and provides birds nesting sites and flock resting areas. They would also provide visitors with additional fishing opportunities and a place to learn about natural processes and habitats of the local region.

Repairs would be made to roads and trails within the Grand Isle State Park from damages associated with repeated flooding. The roads and parking lots provide access to the park, campsites, bathhouses, fishing and crabbing piers, and trails. The trails provide access to onshore fishing and offer educational opportunities regarding plant and wildlife habitats. Repairing the park’s road and trail infrastructure is vital for preserving public access to and recreational opportunities from the park’s natural resources.

Operations and Maintenance

The Louisiana Office of State Parks would be responsible for all maintenance activities and costs related to the new or improved structures, including the fishing pier extension, the improved roads and trails, and the extended rock jetties. They would also be responsible repairs over the life of these structures.

Monitoring Activities

Monitoring would ensure all elements are constructed as designed, and that they enhance recreational use. The Louisiana Office of State Parks would be responsible for performance and use monitoring and for obtaining as-built designs from the Proposed Alternative engineer. Monitoring would be designed around the following Proposed Alternative objectives: 1) improve access to fishing by constructing an extension to the existing fishing pier into deeper water; 2) reduce coastal erosion and damage to inland structures by extending three existing rock jetties; and 3) improve access and use of the park by repairing and improving all roads and nature trails damaged by repeated floods and storms. Funding for post-construction monitoring would be provided by the Louisiana Office of State Parks.



4. Chitimacha Boat Launch

Project Overview

The Chitimacha Tribe of Louisiana's (Chitimacha Tribe) Chitimacha Boat Launch project involves replacing the tribe's existing boat launch in St. Mary Parish within Chitimacha Tribal Lands adjacent to Charenton, Louisiana. The existing boat launch is inadequate in size, deteriorated, and unsafe for the public. The new launch would provide a safe facility providing access to numerous water bodies, including Bayou Teche, Lake Fausse Pointe, Lake Dauterive, Grand Avoille Cove, the Atchafalaya River Basin, West Cote Blanche Bay, and the Gulf of Mexico.

Project Details

The existing boat launch was built and opened in 2001, providing Chitimacha community members a safe and close site to launch their watercraft. Immediately, there was a huge demand for access to the launch, and its usage increased in time. Because of land constraints, the existing boat launch was originally designed to accommodate eight vehicles with trailers. The limited size has created safety and congestion issues because of its increased use. The limited size also affects adjacent landowners and poses a risk to accessibility for emergency services in the event of an accident. The existing boat launch is also in need of repairs but cannot be expanded because of land constraints.

Construction of the new boat launch would take place on approximately 5 acres of Chitimacha Tribe land on the south bank of the Bayou Teche. The existing boat launch is on another property on the Bayou Teche 0.35 mile downstream of the proposed new boat launch, and it would be closed after the new facility becomes operational. The new boat launch would safely accommodate parking for approximately 22 launches at a time, as well as provide on-site parking for an additional 20 single cars without trailers. In addition, overflow parking would be accommodated on contoured grassy areas adjacent to the parking lots.

The new launch facility would include construction of the following:

- One 50,880-square-foot paved parking lot with ingress and egress and 22 spaces large enough to accommodate a vehicle with a trailer
- One 160-foot-long × 30-foot-wide paved boat ramp from the paved parking lot to the Bayou Teche
- One 480-square-foot floating dock constructed of treated structural lumber with composite decking
- Two wooden docks totaling 3,360 square feet, constructed of treated wood
-

The alternative is expected to take approximately 12 months from start to finish, subject to approval of permits and environmental review. A conceptual design has already been developed. Preliminary planning and commencement activities are anticipated to take approximately 3 months. E&D are anticipated to take approximately 5 months. Contracting and pre-construction activities are anticipated to take approximately 3 months. Construction is anticipated to take approximately 4 months.

The alternative includes several features that would require vegetation removal, excavation, embankment, and grading. Roadways and parking areas would be compacted aggregate. The 1,370-square-yard concrete double boat ramp and approach apron would be designed in accordance with the permit from the U.S. Army Corps of Engineers (USACE), and the shoreline would have sidewalls to prevent erosion and to provide long-term stability, which would require removal of all riparian vegetation. Both of these features would require in-water work for installation. Docks made of treated structural lumber with composite decking are proposed to flank the boat ramp and continue along the shoreline. The dock section not reserved for boat mooring would be used for other water-oriented recreational enjoyment, which may include bird and wildlife viewing and fishing.

Vegetation would be removed along the shoreline to accommodate the dock. Two wooden docks (3,360 square feet) and one perpendicular dock (480 square feet), pending USACE approval, are also proposed. The wooden dock would also require a vinyl sheet pile bulkhead that would run parallel to the ramp and along the shoreline to prevent erosion and to provide stability. Treated timber piles would be necessary to support the dock and would be driven into the substrate. Timber piling is regularly used to construct piers, docks, buildings, walkways, and decks in aquatic and above-aquatic environments. Pressure-treated wood products are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would be driven using an impact hammer pile (vibratory hammers are not typically used on timber piles) with standard equipment (crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey). The crane and associated equipment can be staged either onshore on a barge or in the waterway.

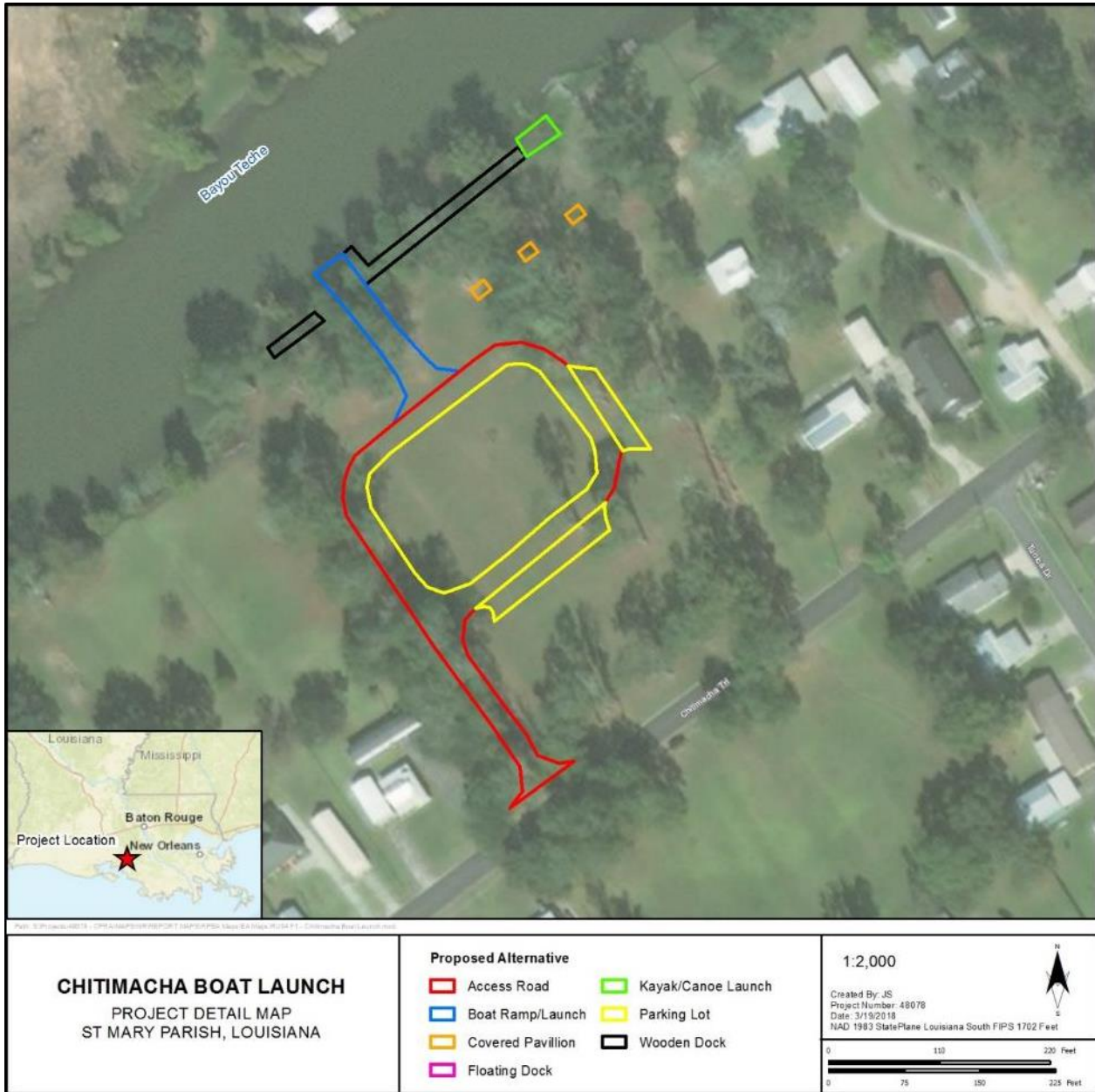
Other materials used for the parking lots, access roads, and footpaths would include stone base course, aggregate surface course, geotextile fabric (laid underneath proposed aggregate and stone-based surfaces), concrete wheel stoppers and pavilion materials (timber, roofing, Portland Cement Concrete Pavement [PCCP] slab, etc.), and electric dusk to dawn lighting.

Operations and Maintenance

The Chitimacha Tribe would be responsible for all maintenance activities and costs related to the new boat launch, including any repairs needed over the life of the facility. After the launch is constructed, the Chitimacha Tribe intends to charge a launch fee to partially fund operation and maintenance of the facility.

Monitoring Activities

Monitoring of the alternative would include ensuring that it is constructed as designed, and that it enhances recreational use compared with pre-alternative conditions. The Chitimacha Tribe would be responsible for performance and use monitoring and for obtaining as-built designs from the alternative engineer. Monitoring would be designed around the alternative objective to enhance and increase recreational boating and fishing opportunities by constructing a new boat launch facility. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be provided by the Chitimacha Tribe.



5. Sam Houston Jones State Park Improvements

Project Overviews

The Louisiana Office of State includes three elements to improve the recreational camping experience and increase visitor retention: 1) replacing 10 trailer cabins with state park standard cabins, 2) renovating the interior and exterior of a day-use restroom, and 3) constructing a new restroom to address an underserved area of the park at a trail head. The camping and day-use facilities would increase recreational use of the Sam Houston Jones State Park and benefit public visitors' recreational experience. The Park is located in Calcasieu Parish about 3.8 miles north of the City of Westlake along the north bank of the Calcasieu West Fork River.

Project Details

The Louisiana Office of State Parks is proposing the alternative to replace and upgrade existing recreational infrastructure and service facilities within the Sam Houston Jones State Park to improve the recreational camping experience and increase visitor use. The alternative would achieve this goal by replacing 10 existing temporary trailer cabins that are deteriorating, remodeling the interior and exterior of an existing outdated restroom, and building a new restroom in an underserved area of the park. Each of these elements would help achieve the alternative goal and would likely increase park visitation and enjoyment of recreational activities such as fishing. The new and remodeled structures would be updated to have a similar architectural style to match the park design and would also improve ADA accessibility.

The new and remodeled Sam Houston Jones State Park cabins and restrooms would include the following construction elements:

- Removal of 10 trailer cabins with an average size of 800 square feet
- Construction of 10 state park standard cabins with an average size of 1,100 to 1,200 square feet, each using existing utility infrastructure, including some landscaping around each of the new cabins
- Repair of existing cabin parking and walkway paving for access to cabins
- Replacement of interior finishes and fixtures and repair of exterior rot and weather proofing at an existing approximately 900-square-foot restroom
- Construction of a new approximately 750-square-foot restroom
- Extension of existing park utilities to serve the new restroom

A conceptual design for the alternative has been developed. The alternative construction schedule would be determined during E&D, but it is estimated that if work is done concurrently, all work would be completed in 20 to 22 months and if the work is done sequentially it would take approximately 46 months to complete the alternative. All work would be subject to approval of permits and environmental review. The construction schedule would include contracting and pre-construction and construction activities. The construction methodology for each of the three alternative elements are described below.

To construct the 10 replacement cabins, the existing temporary trailer cabins would be removed to accommodate the new approximately 1,100 to 1,200-square-foot state park standard cabins. Minimal site preparation and utility work would be needed because the replacement cabins would occupy the same footprint as the existing cabins and would tie into

existing utility lines. The new cabins would be standard stick construction with 2 × 4 stud framing. Special wood alternatives and ground barriers may be required where Formosan termites (*Coptotermes formosanus*) are present. Cabins would be built either on a pier and beam or concrete slab foundation, depending on grade. Interior finishes would be simple and rustic and able to withstand frequent visitor usage. Additionally, some improvements may be required to the surrounding grounds, including improvements to the parking and access walkways and landscaping around the new cabins to restore construction impacts. Any improvement to vehicular paving would match the existing pavement, which is asphalt with a crushed stone base. Walkways would be concrete with a minimum width of 3 feet and would likely include ADA-compliant access. It is anticipated that 8 months would be needed to complete the design phase of the alternative and 12 months for construction.

Renovation of the existing 900-square-foot restroom would include the replacement of all interior finishes and fixtures, as well as repairs to some exterior areas that have wood rot and old weather proofing. Interior finishes would include sinks, toilets, mirrors, toilet partitions, lights, hand dryers, and some tile on the floor and walls. Repairs to the exterior would mostly be limited to exposed roof elements, such as the soffit and large timber accent pieces. It is anticipated that 3 months would be needed to complete the design phase of the alternative and 7 months for construction.

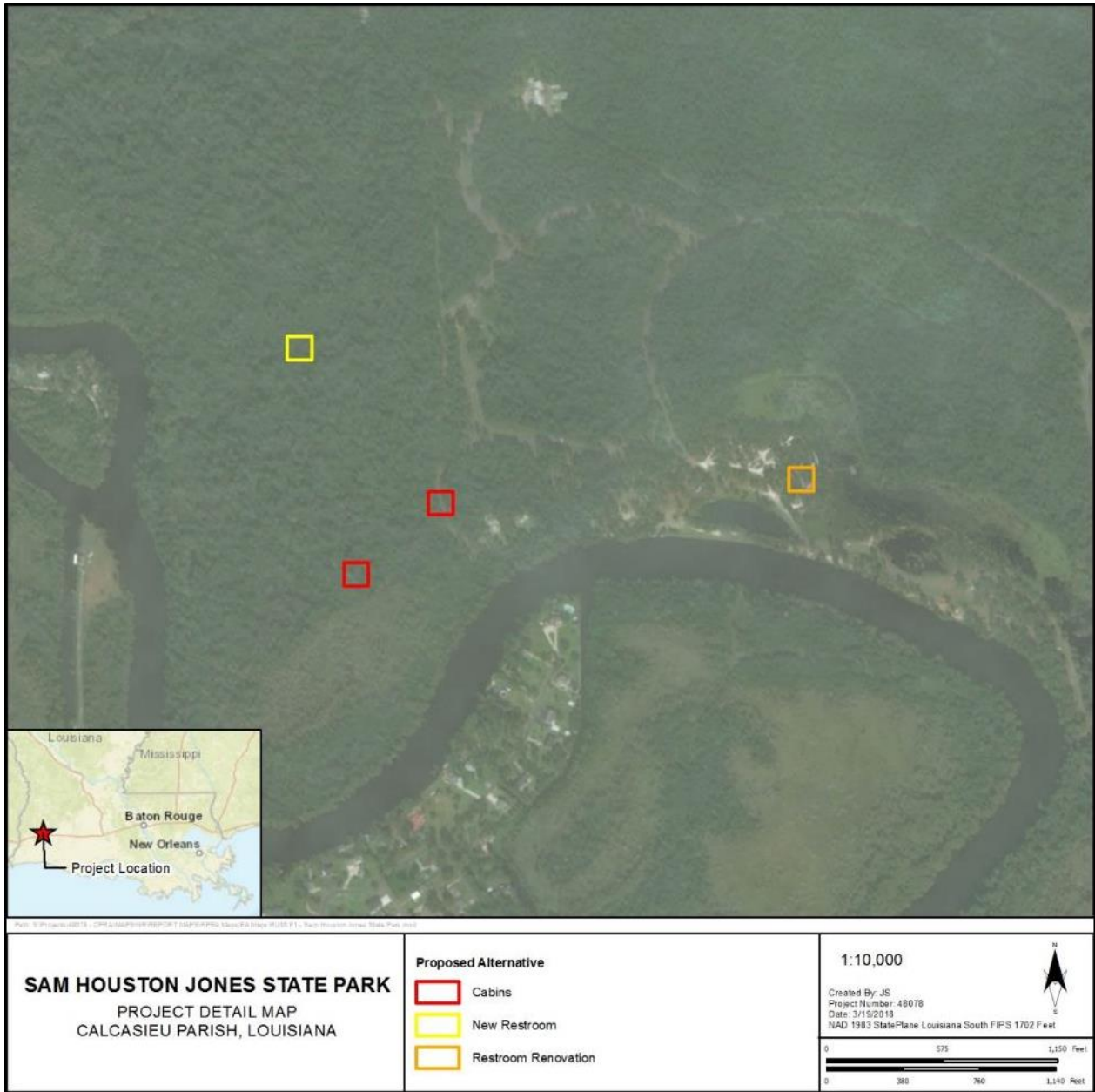
Construction of the new approximately 750-square-foot restroom facility would require at least three toilets and sinks for each of the two sides of the restroom facility to meet the anticipated user needs. Construction methods and architectural style would match existing park restroom and bathhouse facilities. In addition, existing park utilities would be extended to serve the new restroom and would be located in buried lines. Water and electrical lines would be extended by 950 feet and the sewer line would be extended by 1,200 feet. It is anticipated that 6 months would be needed to complete the design phase and 10 months for construction.

Operations and Maintenance

The Louisiana Office of State Parks is currently responsible for park maintenance and would continue to be responsible for all maintenance activities and costs related to the new and improved structures, which would include the new cabins, a remodeled restroom, and new restroom or comfort station facilities, as well as any repairs needed over the life of these structures. After construction of the alternative elements, operators currently servicing the park and fees associated with the park, including camping fees, would not be expected to change from the current system.

Monitoring Activities

Monitoring of the alternative would include ensuring that all alternative elements are constructed as designed, and that the alternative enhances recreational use compared with pre-alternative conditions. The Louisiana Office of State Parks would be responsible for performance and use monitoring and for obtaining as-built designs from the alternative engineer. Monitoring would be designed around improving recreational use of the park through the improvement of cabin and restroom facilities' availability and quality. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be provided by the Louisiana Office of State Parks



6. Pointe-aux-Chenes Wildlife Management Area Recreational Use

Project Overview

LDWF is proposing to develop four discrete recreation enhancements on lands owned and managed by LDWF in an effort to enhance recreational experiences of public users in the Pointe-aux-Chenes WMA. The Pointe-aux-Chenes WMA is located in Terrebonne and Lafourche Parishes, between the towns of Galliano and Montegut and bisected by the town of Pointe-aux-Chenes.

Project Details

The Pointe-aux-Chenes Wildlife Management Area Recreational Use Enhancement alternative would consist of four discrete elements: 1) pirogue pullovers, 2) a pirogue launch, 3) fishing piers at water control structures, and 4) and a boat launch renovation (Figure 3.3-6). These activities are planned to occur within the Montegut, Pointe-aux-Chenes, and Grand Bayou Management Units of the WMA, as well as the designated limited access areas (LAA). The proposed alternative elements are primarily intended to enhance recreational access and provide improved recreational facilities for fishing, hunting, and boating

The Pointe-aux-Chenes WMA is an approximately 35,000-acre marsh area that was purchased by LDWF in 1968 from the Humble Oil Company. Approximately 40% (13,855 acres) of the WMA is under active management by LDWF, and is broken up into multiple water management units (Montegut, Pointe-aux-Chenes, Grand Bayou 1 and Grand Bayou 2 Units). These management units were established to control water and salinity levels to protect sensitive marsh habitat for wildlife and recreational uses.

This WMA is accessible by boat or by paved road (State Route 665 and 55). The WMA headquarters facility is staffed 7 days a week to assist the public and enhance recreational opportunities. The Grand Bayou boat launch provides access to the St. Louis Canal and the Grand Bayou Unit, and a boat launch along the Island Road provides access to the Pointe-aux-Chenes Unit. Both launches are accessible by State Route 665. There is a primitive public campground on the WMA located across State Route 665 near the WMA headquarters, with two nearby wildlife observation towers.

The Pointe-aux-Chenes WMA is a highly popular destination for recreational fishing and waterfowl hunting due to its habitat quality and public accessibility. Other common recreational activities include boating (motorized and non-motorized depending upon restrictions), birdwatching, and photography. The WMA receives roughly 30,000 recreational visitors annually (LDWF 2014).

1. Pirogue Pullovers

Three new pirogue pullover structures would be constructed across the Morganza to the Gulf Hurricane Protection Reach of the J-2 Levee. These pullovers would be located in the Montegut and Point-aux-Chenes Units of the WMA, but also within the designated LAA. These structures would typically consist of an aluminum or other light-weight material framework that could be used to ease the effort of pulling non-motorized boats (pirogues) over the levee. Local fill material would be used on both sides of the levee at both pullover locations. A winch system would be installed on the western-most pullover to aid boaters in hauling their equipment over

the levee, depending on site conditions. Because this levee is still under construction and would need continuous maintenance, these structures would be designed for relatively simple installation and dismantling for levee maintenance events. Preliminary plans are shown in Appendix E, Figure E-4.

2. Pirogue Launch

A new pirogue launch site would be constructed into the Montegut Unit of the WMA, but also within the designated LAA near the south end of the town of Montegut. Primary land access to the site would be through Wilderness Street (public roadway) in Montegut. Preliminary plans are shown in Appendix E, Figure E-5.

The alternative features would include the following:

- A new 20-foot-wide × 270-foot-long graveled access road. This access road would extend eastward from Wilderness Street to a new graveled parking lot. This would require clearing approximately 3,240 square feet of upland area along the new access road.
- A 1.5-acre (200 feet wide × 320 feet long) graveled parking lot within the WMA boundary. This area is vegetated and would be cleared prior to construction.
- A bridge over the Montegut canal and levee into the adjacent marsh. The bridge would be a 20-foot-wide × 290-foot-long bridge and pier system over the existing Montegut Canal that would extend up and over the levee to open water east of the levee. At the east end of the bridge, two new piers would be constructed for hunters and anglers to dock their pirogues. These piers would be 6 feet wide, oriented north-south, extend 100 feet to opposite sides of the main bridge/pier, and then continue 44 feet east. The construction of the bridge would be fiberglass grating over wood piling supports.

3. Fishing Piers at Water Control Structures

New pier-supported docks and articulated concrete block walkways would be constructed at two locations in the LAA of the Montegut Unit. These new features would be collocated with existing water control structures along the J-2 Levee. At both sites, new 96-foot-long × 8-foot-wide docks supported by timber piers would be constructed on each side of the existing water control structure (totaling 4 pier-supported docks at each site) as shown in Appendix E, Figure E-6. New 8-foot-wide articulated concrete block walkways would be extended to the new docks from the existing walkways on top of the J-2 Levee. The new concrete block walkways would range from 80 to 120 feet in length.

Public docks would be constructed adjacent to water control structures at five locations in the WMA. The alternative would construct four new docks at each of the five locations, 20 feet from each water control structure, creating a total of 20 docks built for use by anglers. Preliminary plans are shown in Appendix E, Figure E-7. All of the docks would be 8 feet wide, and range from 50 to 120 feet long. The docks would be constructed using a fiberglass grating as deck material, and elevated on wood pile supports.

4. Island Road Boat Launch Renovation

Repairs would be conducted at the existing Pointe-aux-Chenes Island Road Boat Launch to improve public user access. Boat launch repairs would include:

- New concrete boat launch/ramp

- Repairs or replacement to the bulkhead surrounding the parking lot (approximately 370 linear feet)
- Two new boat docks/piers
- New parking lot lighting
- Dredge out silted-in access canal (approximately 3,000 feet) along the Island Road. Spoils would be beneficially placed in water to construct marsh terraces. Terraces would have 50-foot gaps between them.

The construction schedule has not yet been set, and would be determined during final design. Construction of the alternative elements varies, but similar activities would typically take 12 to 18 months to complete. Construction methods for the discrete elements described above could overlap to varying degrees depending upon the constructed elements. This section describes how similar alternative elements would likely be constructed. Construction of the alternative would include use of standard construction and earth moving equipment such as bulldozers, excavators, trucks, backhoes, cranes, barges, amphibious excavators, generators, and pile drivers.

a. Piers, Docks, and Pilings

Planned piers and docks would be constructed on treated timber. Pilings would typically be capped with plastic. Piers and docks would be supported on a parallel series of timber pilings. Timber pilings are typically set in place by a crane or boom, and driven into place with using a pile hammer (vibratory hammers are typically not used on timber piles). The crane or boom and associated equipment would operate from the landward side where possible, or staged on a barge. Pier and dock framing would likely be pressure-treated, marine-grade dimensional wood. Piers and docks are anticipated to be surfaced with fiberglass decking.

b. Pirogue Pullover Structures

Pullover structures would be constructed from lightweight aluminum (or similar material), and would consist of a cradled track on which to drag the pirogue. If placed on natural soil, e.g., the levee, pullovers would require filling with native material (if suitable) or off-site fill to ease the grade at which the pullover rests. Pullovers situated on the levee would not be deeply anchored, in order to make them removable for levee maintenance.

c. Fill and Backfilling

Alternative elements requiring fill material such as the boat launch, or backfilling such as may be required for bulkheads, would use locally sourced material where appropriate. Standard construction equipment would be used for all excavation, moving, spreading, and compacting of fill material. Fill activities and fill material used at levee locations would be conducted by the Levee District and hauled in from a USACE-approved location.

d. Dredging and Dredge Spoils

Dredging would be conducted using standard dredging methods, which typically include a bucket-style dredge. Dredge locations are not typically along the shoreline, so dredges are anticipated to be barge-mounted units. Dredge spoils would typically be deposited in water in areas adjacent to the dredging location. Dredge spoils could be used as backfill behind bulkheads in some areas depending on site needs and conditions. Dredge spoils may also be piled up above

the existing waterline to create marsh terraces. These earthen marsh terraces are expected to offset any wetland mitigation requirements of the alternative and enhance boating access.

e. Clearing

Upland, shoreline, and aquatic vegetation would be removed only in areas required for construction. Cleared vegetation would be removed from the site and disposed of at an approved location. Debris and/or previously existing man-made material would be removed as needed and disposed of at an approved location.

f. Access Roads and Parking Areas

Access roads and parking areas would be graded and surfaced as appropriate to their use (asphalt, gravel, concrete). All rights-of-way would be obtained prior to construction. Vegetation would be removed from the rights-of-way as needed. These areas would be contoured to allow adequate drainage.

g. Bulkheads

Typical bulkhead installations include interlocking sheet pile (steel, aluminum, vinyl, or composite material based on site conditions) that are driven directly into the sediment. If wood pilings are used as bulkheads they would typically be driven into the sediment, and include sheeting material (e.g., treated lumber) placed behind the pilings. Because the piles or sheet piling would be installed in water, typical installation would likely occur from a boat- or barge-mounted impact or vibratory hammer system. Bulkheads may also include a combination of timber pilings, sheet pile, and backfill. The depth of bulkheads below the substrate, location of bulkheads relative to the shoreline, and amount and type of backfill would be based on site conditions and determined during design.

h. Articulated Concrete Block Walkways

Articulated concrete blocks would be used to create pedestrian walkways at some of the alternative locations. These features would be a matrix of individual concrete blocks placed together to form an erosion-resistant overlay. The flexible, interlocking matrix is formed from concrete blocks of uniform size, shape, and weight. Each block is interconnected with adjacent blocks by a series of cables. These walkways would be designed for pedestrian traffic but prevent erosion and allow vegetation to grow throughout the entire system. The walkways would likely be transported along the levee road to each site, or by barge if no road is available, and set in place by crane or boom. This task would not likely require notable vegetation removal because the articulated walkways are designed to mold to the existing topography. Minor cut/fill may be required to make the walkways pedestrian friendly.

i. Boat Launch

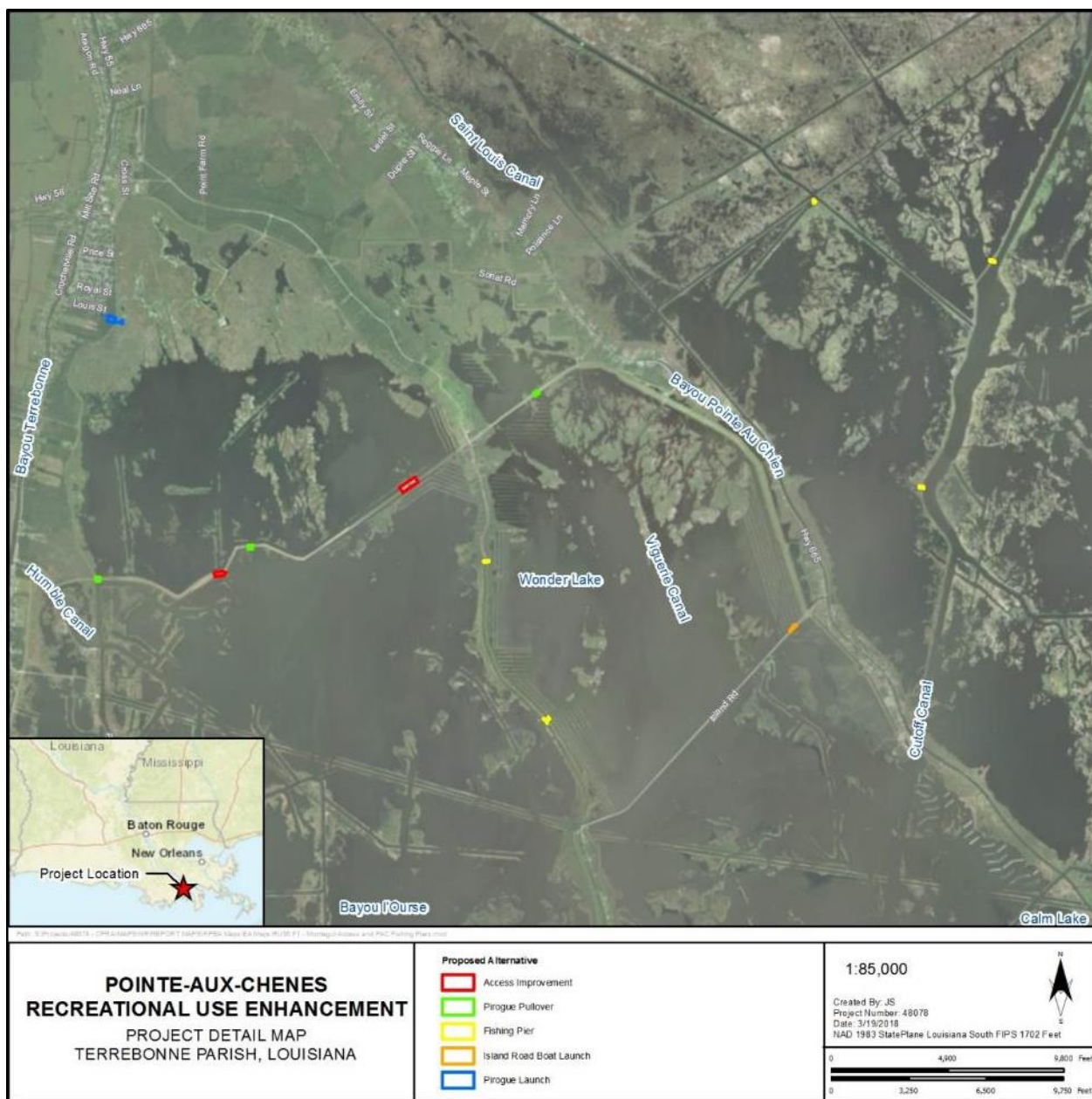
The boat launch would be constructed from prefabricated concrete panels laid in place by crane from the landward side of the boat ramp. Boat ramps would have a concrete apron supported with multiple timber pilings at the upper end to anchor the prefabricated boat ramp panels. Concrete-filled steel bollards would be installed at either side of the boat ramp to prevent driving off the edge.

Operations and Maintenance

As the owners and managers of the Point-aux-Chenes WMA, LDWF would be responsible for maintenance activities and repair costs over the life of the alternative's new facilities.

Monitoring Activities

Monitoring would occur throughout construction to verify that the alternative is constructed as designed and that it would enhance recreational uses. Post-construction performance monitoring is not included in the alternative cost estimate and would be the responsibility of LDWF for 1 year. Monitoring schedules are anticipated to be adaptive based on long-term alternative performance, e.g., seasonal monitoring may be needed if use is low and repairs are rare, or more frequent monitoring if use is high and repair needs are common.



7. *WHARF Phase 1*

Project Description

The LDWF would redevelop the former airport on Westwego, Louisiana to become the Wetlands Harbor Activities Recreational Facility (WHARF). This project is to conduct Phase 1 in which the site would be cleaned and prepared for construction activities and visitor use; access roads would be improved; a boardwalk would be constructed along the existing canals for fishing; fishing piers, parking area, kayak and boat launches, activity center, multi-purpose center, and restroom facilities would be constructed in addition to an on-site sewage treatment plant or connection to an off-site sewage collection system; and lighting poles would be installed. Future phases may include developing additional areas for meeting facilities, RV camping, and cabins. The project would provide access to numerous water bodies from the Dugues Canal, including Bayou Segnette, Lake Cataouche, Lake Salvador, Jean Lafitte National Historical Park and Preserve, and nearby game management areas.

Project Details

The Westwego Airport served the oil field industry for decades. The airport provided services and personnel to the oil industry's myriad facilities located along the nearby coast of Louisiana. The airport was closed in the early 1990s after an abrupt downturn in the oil industry and left the property dormant, suffering vandalism and trash dumping. Nearly all of the site is outside of the West Jefferson Levee District, except for the small portion that fronts Lapalco Boulevard and the portion given to the right-of-way of the levee toe. The site consists of disturbed and undisturbed wetlands. A jurisdictional determination provided by the USACE in 2014 identified the majority of the Proposed Alternative as wetland, subject to CWA Section 404 and Rivers and Harbors Act Section 10 permitting (USACE 2014). All buildings were removed from the site prior to the City of Westwego purchasing the property, including all hangers and mobile homes; however, some concrete foundations from these structures still remain. In addition, oil operations and infrastructure at the south end of Van Ness Drive have remained. Although it is overgrown with vegetation, the public currently use the area for fishing in the enclosed wet runway as well as the adjacent Dugues Canal.

After closure of the Westwego Airport, the site has suffered from vandalism and trash dumping. The City of Westwego purchased the 132-acre land parcel for \$2,500,000 and has made committed efforts to mitigate trash dumping and abuse of the site. All buildings were removed from the site prior to the city purchasing the property, including all hangers and mobile homes; however, some concrete foundations from these structures still remain. In addition, oil operations and infrastructure at the south end of Van Ness Drive remains active. Although it is overgrown with vegetation, the public currently uses the area for fishing in the enclosed wet runway as well as the adjacent Dugues Canal.

The alternative is ideal because of its proximity to surrounding water bodies, because of the length of its shoreline, and because it is already being used by members of the public for shoreline fishing. Just west of the alternative, Bayou Segnette offers the opportunity for a thriving tour boat business that brings visitors to the cypress swamps. The alternative would include the construction of a boardwalk along the existing canals for fishing, fishing piers, restroom facilities, and on-site or off-site sewage treatment plant or sewage connection, as well

as installation of lighting poles. The fishing pier would provide access from the alternative to the waterside for shoreline fishing. The boardwalk would provide pedestrian access from the upland parking and restroom areas as part of the overall water-oriented recreational enjoyment, which may include bird and wildlife viewing and fishing. These alternative elements would create new recreational opportunities for the public within the Bayou Segnette watershed and improve access to fishing opportunities and other water-based recreational activities.

The alternative would include the following elements:

- Construction of an approximately 1,200-foot-long × 6-foot-wide boardwalk
- Construction of four approximately 12 × 20-foot fishing piers
- Installation of approximately 30 20-foot-tall aluminum lighting poles
- Construction of small on-site sewage treatment plant or sewer connection to adjacent off-site sewer collection system
- Construction of restroom facilities

The alternative is expected to take approximately 2 to 3 years from start to finish, subject to approval of permits and environmental review. A conceptual design has already been developed. Preliminary planning and commencement activities are anticipated to take approximately 3 months. E&D are anticipated to take approximately 9 months. Contracting and pre-construction activities, such as permitting, are anticipated to take approximately 6 months. Construction is anticipated to take approximately 18 months.

Excavation would occur along the riparian area for the boardwalk and fishing piers and in the upland terrestrial environment for the restrooms and sewer system. The depth of ground disturbance and excavation would depend on final design. This site preparation would include some tree removal and grubbing of roots in areas requiring vegetation clearing.

The approximately 1,200-foot-long and 6-foot-wide wooden boardwalk and four approximately 12 × 20-foot fishing piers are proposed along the Dugues Canal and would require in-water work for installation. Timber piling supports and composite deck materials would be used to construct piers and boardwalks in and above aquatic environments. Pressure-treated wood products are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would likely be driven using an impact hammer pile (vibratory hammers are not typically used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey). The crane and associated equipment would likely be staged onshore.

Other alternative elements would be constructed in wetland and upland areas where vegetation clearing and site grading occurred. These include the construction of an activity center, multi-purpose center, and restroom facilities, along with the installation of lighting poles. Construction of these elements would include laying concrete foundations, structure framing, exterior and interior finishes, and landscaping, including the construction of pedestrian paths between structures and parking areas. Installation of the lighting poles would likely include the installation of approximately 30 20-foot-tall aluminum poles and extension of underground

utilities. In addition, either a small on-site sewage treatment plant would be installed or sewage would be pumped to an adjacent sewer connection system and treated off-site.

Operational and Maintenance Costs

The City of Westwego would be responsible for all maintenance and repair related to the new recreational facilities. After construction is complete, the City of Westwego would charge entrance and use fees to partially fund operation and maintenance of the facilities.

Monitoring Activities

Monitoring of the alternative would include ensuring that it is constructed as designed and it enhances recreational use. The City of Westwego would be responsible for performance and use monitoring and for obtaining as-built designs from the alternative engineer. Monitoring would be designed around the alternative objective to enhance and increase outdoor enjoyment and recreational fishing opportunities by constructing a new water-based recreation facility. Funding for post-construction monitoring is not included in the alternative cost estimate and would be the responsibility of the City of Westwego.



8. *Bayou Segnette State Park Improvements*

Project Overview

The Louisiana Office of State Parks seeks to improve conditions at Bayou Segnette State Park by undertaking three elements: 1) upgrades to an existing boating area to address soil subsidence issues; 2) upgrades to a playground to improve ADA compliance; and 3) repairs to road and parking areas damaged by repeated flooding from storms and soil subsidence. The alternative would address issues caused by soil subsidence and flooding and compliment ADA compliance efforts made at other locations within the park, which would improve the recreational use of the state park.

Project Details

The Louisiana Office of State Parks is proposing the alternative to repair the existing boating area and re-pave most roads and parking lots throughout the park to address damage caused by repeated flooding and soil subsidence issues within the Bayou Segnette State Park and to improve recreational access and safety in these areas, as well as upgrading the existing playground to improve ADA access. The alternative would achieve these goals by: 1) re-paving approximately 4.52 miles (649,032 square feet) of roads and 445,471 square feet of parking lots to raise the surface elevation by 2 to 6 inches; and 2) replacing the existing non-ADA-compliant playground with ADA-compliant surfacing, play structures, and access. The new playground area would be targeted to 5- to 12-year olds and would have 18 to 22 play features with divided ground and above-ground levels. Each of these alternative elements would help achieve the alternative goals and would likely increase park visitation and enjoyment of multiple recreational activities.

Repairing the existing roads and parking lots within the Bayou Segnette State Park, including the boating area, would include the following:

- Approximately 0.435 mile of existing two-way circulation road, with 12-foot-wide lanes, and 107,682 square feet of parking in the boating area
- Approximately 0.17 mile of existing two-way launch area road, with 12-foot-wide lanes, and 43,976 square feet of overflow parking in the boating area
- Approximately 1.4 miles of existing four-lane divided main entry boulevard
- Approximately 2.51 miles of existing roads throughout the park, consisting of the Day Use Loop road, group camp access road, and main cabin and campground access road
- Approximately 293,813 square feet of existing parking areas (wave pool parking lot, southern campground road and paved camping areas)

Upgrading the existing playground area within the Bayou Segnette State Park would include the following:

- Removal of existing playground structures, fall surfacing, and barriers within the playground area
- Construction of new concrete slab foundation with ADA-compliant fall surfacing in the existing playground area
- Construction of new playground equipment

The alternative would take approximately 18 to 44 months from start to finish, depending on whether the alternative elements would be constructed in unison or sequenced, subject to approval of permits and environmental review. A conceptual design has already been developed. Preliminary planning, commencement activities, and E&D are anticipated to take from 4 to 6 months for each alternative element. Construction, including contracting and pre-construction activities, is anticipated to take from 6 to 12 months for each alternative element. The construction methodology for each of the alternative elements are described below.

The pavement repair would include the circulation road, main parking lot, overflow parking lot, and the boat launch area. The circulation road and main parking lot would consist of approximately 0.435 mile of road and 138,500 square feet of parking lot and reviving an asphalt overlay to provide at least a 2-inch lift in pavement elevation. The boat launch areas and overflow parking lot would consist of an asphalt overlay that would provide at least a 6-inch lift in pavement elevation for 0.17 mile of roadway and 43,976 square feet of parking lot area. Other select areas throughout the park would receive a 2-inch minimum lift asphalt overlay: the approximately 1.4-mile-long four-lane divided main entry boulevard, the approximately 1.54-mile-long two-way Day Use Loop road, approximately 0.3-mile-long two-way group camp access road, approximately 0.67-mile-long main cabin and campground access road, a 139,425-square-foot parking lot at the wave pool, and a 154,388-square-foot road and parking area at the southern campground. There are three wooden bridges along the Day Use Loop road that would likely require placement of asphalt wedges (asphalt laid thicker on one end to create a ramp) on both sides of the bridges and replacement of steel hinged transition plates. These road repairs would include minor repairs to the road base where necessary prior to asphalt overlay. The travel lanes for all roads have a footprint of 12 feet wide (typically 14 feet on turns).

The overall road length to be re-paved would be approximately 4.52 miles with an area of approximately 649,032 square feet. The overall parking area to be re-paved would be approximately 476,289 square feet. The road and parking lot overlay would raise the elevation of these elements to improve drainage off the travel surfaces. This would improve longevity of the roads and increase safe driving conditions. Some additional minor transition work adjacent to roads and parking lots may be necessary and could include pedestrian routes, sidewalks, light poles, curbs, and signs. Painting of travel lanes would be limited to roadways and parking lots. In-water work would be limited to paving in the boat launch areas that lie below high tide, which would be approximately 2,500 square feet of the road area in the boating area. No piling work is expected at the docks associated with the boat launches.

The construction associated with the removal and replacement of the playground equipment and fall surfacing would be limited to the existing playground area located to the north of the day use area. This work would include the removal of existing play structures, fall surfacing with a containment barrier, and construction of a new foundation (likely concrete slab) with ADA-compliant fall surfacing (such as No-Fault), new playground structures, and connection to the existing ADA-accessible walkway. Some terrestrial piling work may be conducted at the playground area associated with these improvements. The existing concrete walkway was recently constructed for ADA compliance and would be protected.

Operation and Maintenance

The Louisiana Office of State Parks would be responsible for all maintenance activities and costs related to the new and improved structures, which would include the improved playground areas, and the existing repaired boating area and road infrastructure, as well as any ongoing maintenance and repairs needed over the life of these features. After construction of the alternative elements were completed, operators currently servicing the park and fees associated with the park, including camping, pool, and rental fees, would not be expected to change from the current system.

Monitoring Activities

Monitoring of the alternative would include ensuring that all alternative elements are constructed as designed, and that the alternative enhances recreational use compared with pre-alternative conditions. The Louisiana Office of State Parks would be responsible for performance and use monitoring and for obtaining as-built designs from the engineer of the alternative. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be provided by the Louisiana Office of State Parks.



9. *Atchafalaya Delta Wildlife Management Area Access*

Project Overview

The LDWF is proposing to dredge two site-specific areas to enhance recreational access for hunters and anglers. The Atchafalaya Delta WMA is a 137,695-acre area located at the mouths of the Atchafalaya River and the Wax Lake Outlet in St. Mary Parish. Breaux Pass and Cul-de-sac Pass are located in the interior of the Atchafalaya Delta WMA. The WMA is located approximately 25 miles south of Calumet, Louisiana, and is accessible only by boat. Most of the area consists of open water in Atchafalaya Bay. The WMA is highly used for recreational hunting and fishing and hosts approximately 25,000 visitors annually (LDWF 2016).

Project Details

LDWF is proposing to dredge Breaux Pass and Cul-de-sac Pass in order to enhance access for hunters, anglers, and wildlife viewers to the interior marsh. A floating bucket dredge would be used to excavate each pass, as follows:

- Dredging in Breaux Pass would include excavation of approximately 25,000 cubic yards of material (2,000 feet long, 80 feet wide, and 10 feet deep). Dredge materials from Breaux Pass would be placed along the south bank of the pass (see Figure 3.3-9). The dredging and placement area footprints for Breaux Pass would not exceed approximately 15 acres of open/in-water areas.
- Dredging in Cul-de-sac Pass would include excavation of approximately 31,000 cubic yards of material (4,000 feet long, 50 feet wide, and 10 feet deep). Dredge spoils from Cul-de-sac Pass would be placed in alternate deposits along both banks of the pass (see Figure 3.3-9). The dredging and dredge spoil footprints for Cul-de-sac Pass would not exceed approximately 8 acres of open/in-water areas.

Dredging at Breaux and Cul-de-sac Passes would result in deeper and wider passes than currently exist, allowing boats deeper draft space, which also would accommodate a greater diversity of boat types and sizes.

In-water work is expected exclusively because the construction for the access improvements would take place within the active channels of Breaux and Cul-de-sac Passes. The dredging and dredge spoil footprints for both passes would not exceed approximately 23 acres of substrate displacement in open/in-water areas.

Construction equipment for the access improvements would include a floating bucket. Staging would take place on a floating barge.

The construction start date and duration would be determined by LDWF during final design.

Operations and Maintenance

The LDWF would be responsible for all maintenance activities and costs related to the improved Breaux and Cul-de-sac Passes, including any repairs needed over the life of the passes.

Monitoring of the Proposed Alternative would include ensuring that it is constructed as designed, and that it enhances recreational use compared with pre-project conditions.

Monitoring Activities

Monitoring of the alternative would include ensuring that it is constructed as designed, and that it enhances recreational use compared with pre-alternative conditions. LDWF would be responsible for performance and use monitoring and for obtaining as-built designs from the engineer of the alternative. Funding for post-construction monitoring is not included in the alternative's cost estimate. Post-construction monitoring would be provided by LDWF.



10. *Atchafalaya Delta Wildlife Management Area Campgrounds*

Project Overview

The LDWF is proposing the Atchafalaya Delta WMA Campgrounds Proposed Alternative. The LDWF is proposing to improve the existing Wax Lake Outlet Campground (Campground) to provide an enhanced recreational setting and opportunities for hunters and anglers. The Proposed Alternative would enhance the recreation setting and opportunity for boaters and hunters to camp by offering a safe, protected campsite that is accessible by boaters. The LDWF proposes to install a steel bulkhead along the Campground shoreline and construct jetties to keep the bank and bulkhead stabilized (Figure 3.3-10). Currently, the approximately 1,200-foot-long shoreline at the Campground has eroded away, making docking/mooring difficult and dangerous. The Proposed Alternative would be located on the Wax Lake Delta of the Atchafalaya River within the Atchafalaya Bay.

Project Details

LDWF is proposing to install two jetties and a bulkhead at the campground (see Figure 3.3-10). Preliminary plans are shown in Appendix E, Figure E-9. The two jetties would be located at the far east end of the campground where water flow is the strongest (southerly flow from Wax Lake toward the Gulf of Mexico). The jetties would function as a breakwater and the material used for the jetties defends the riverbank and the bulkhead by training the active channel away from the campground. One jetty (west) would be 85 feet in length and the other jetty (east) would be 120 feet long. The jetties would be parallel, and approximately 50 feet apart from each other. Materials used for the jetties would be determined during final design by the engineer, but would likely either be rock, soils, and gravel or timbers and vinyl, from approved sources.

The bulkhead would be installed to follow the contour of the shoreline following the entire length of the campground (approximately be 1,200 linear feet). The east end of the bulkhead would be installed approximately 30 feet from the shoreline, and backfilling with local sediment would be needed behind the new bulkhead to restore the footprint of the campground. The bulkhead is designed so that boats may dock or moor to the bulkhead or two new 40-foot docks, offering direct and safe access to the campground. The jetties and bulkhead would provide stronger, safer streambanks at the campground that would be less susceptible to existing and future erosion.

In-water work and upland work are expected because the construction for the jetties and bulkhead would take place both within the water and along the immediate shoreline. A floating bucket dredge would be used to excavate, place, and compact material. Minor upland activity may include hand digging and loading. Typical construction equipment used for this type of project includes a crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey. Some associated equipment can be staged either onshore at the campground or on a barge in the waterway.

Some backfilling with local sediment would be needed behind the new bulkhead. Backfill would use local materials (e.g., sedimentation build-up) and would not create new materials pits or holes. The bulkhead would be installed with a crane and impact hammer pile, but would also require hand crews on the upland (i.e., the campground) portions of the alternative.

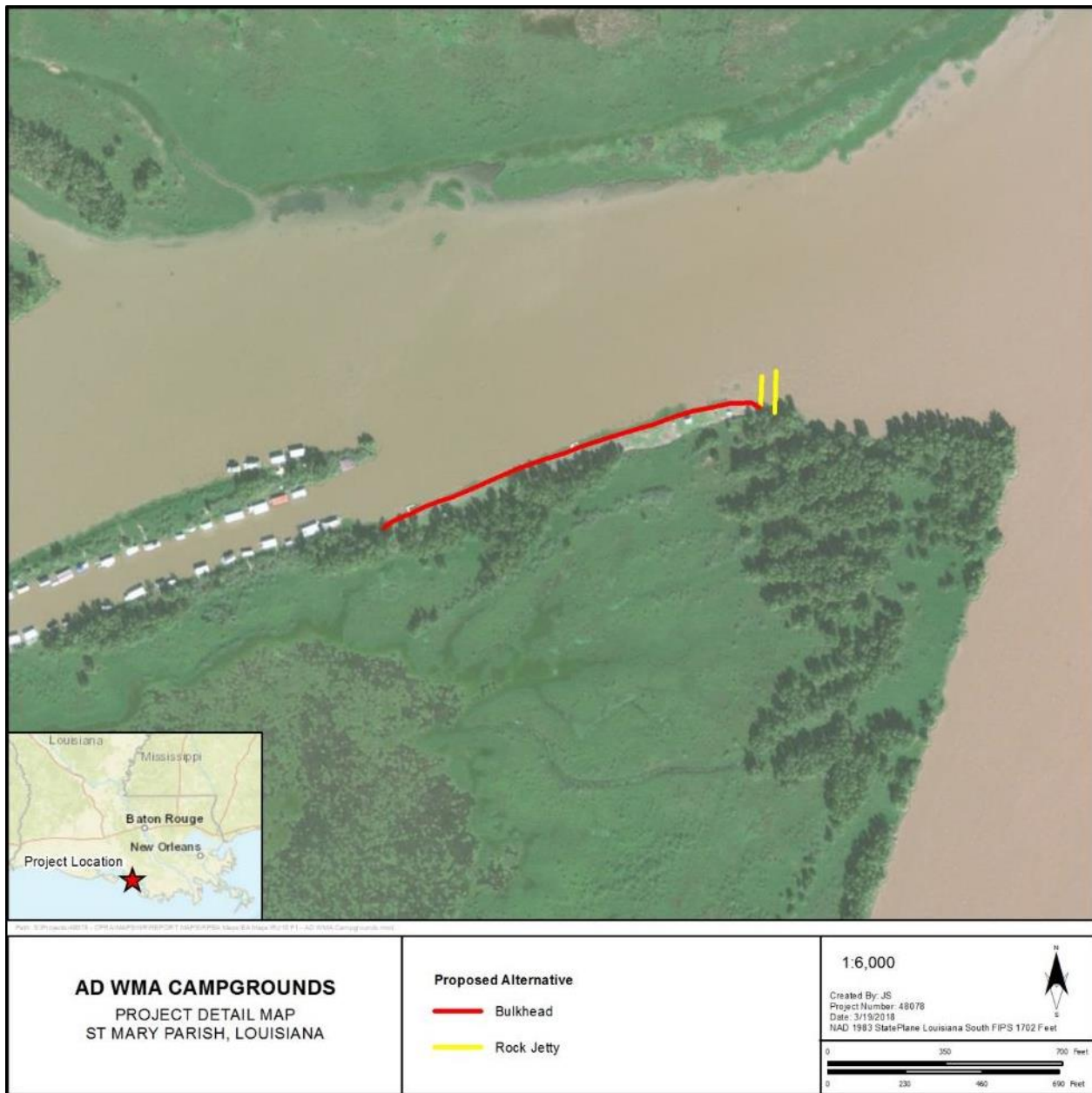
The construction start date and duration would be determined by LDWF during final design, but would not take place between November and January.

Operations and Maintenance

The LDWF would be responsible for all maintenance activities and costs related to the improved Wax Lake Outlet Campground, including any repairs needed over the life of the jetties and bulkhead.

Monitoring Activities

Monitoring of the alternative would include ensuring that it is constructed as designed, and that it enhances recreational use compared with pre-alternative conditions. LDWF would be responsible for performance and use monitoring and for obtaining as-built designs from the alternative engineer. Funding for post-construction monitoring is not included in the alternative cost estimate. Post-construction monitoring would be provided by LDWF up to 1 year.



11. *Rockefeller Piers and Rockefeller Signage*

Project Description

The Rockefeller Piers and Rockefeller Signage alternative was submitted by LDWF. The alternative would include recreation enhancements within the Rockefeller Wildlife Refuge (RWR or Refuge), including new fishing piers and signage. The construction of new observation and fishing piers in Unit 4 within the Refuge would be for the continued benefit for public use and recreation. The proposed signage throughout the Refuge would inform the public of management considerations and use. Collectively referred to as the alternative, the development of the piers and signage would provide the RWR additional opportunity to benefit management and public use of the Refuge's resources.

The RWR is within the southeastern portion of the Chenier Plain Region of southwestern Louisiana in Cameron and Vermilion Parishes. The RWR borders the Gulf of Mexico for 26.5 miles and extends inland toward the Grand Chenier ridge, a stranded beach ridge 6 miles from the Gulf. The alternative is fully located within the RWR (Figure 3.3-11). LDWF manages and operates the RWR.

Project Details

The LDWF would improve visitor use experience and enhance management with the following: three new piers and educational signage. The alternative would include construction of up to 560 feet of new piers at three locations within the Refuge. Past pier enhancements for recreational fishing and observation within the RWR have been successful and well received by the public. Since design and engineering are ongoing, location and details on the piers are limited. New piers would be of similar design to piers recently developed in the RWR.

The alternative also includes development of signage at the entrance of the Price Lake Road, East End Locks Road, Joseph Harbor Boat Launch, and along other roads and canals in the RWR. Proposed signage would provide location information, as well as education to the public on how the RWR works with other partners and parishes in order to reach common goals based around coastal conservation. Because coastal erosion is a particular concern within the RWR, proposed educational signage would also explain the steps being taken to protect the shoreline and create marsh in areas that need to be rehabilitated on the Refuge.

Signage would also provide information on how the public can help in the effort to preserve lands within the Refuge. Likewise, because the RWR's system of canals play such an important role in helping landowners to the north drain water after heavy rains or floods (drainage is an important characteristic of the Mermentau Basin), signage would provide another chance to educate the public on the importance the Refuge serves to many homes and businesses in areas of north Cameron and Vermillion Parish.

Currently, there are few signs on the Refuge marking the names of roadways, canals, or water-control structures. The RWR proposed installation of ultraviolet (UV)-resistant and sealed directional signs and location markers within these area, each branded to coordinate with LDWF guidelines for refuges and wildlife management areas. Areas proposed for signage include the following:

- The Price Lake Road currently brings visitors along a stretch of pristine marsh and provides visitors with the unique opportunity of fishing for shrimp and crabs without the need for a boat. Signage at the entrance of the Price Lake Road requires informational signs about activities allowed on the road, a history of the Refuge, and a map of where facilities are located (e.g., bird observatory, fishing piers, turnarounds, etc.). The placement of three large-panel informational signs, measuring 4 × 8 feet would be placed on an existing wooden frame that currently holds a number of highways signs.
- The East End Locks Road is on the on the eastern side of the Joseph's Harbor Canal and provides visitor access to new parking and fishing from recently replaced bulkheads. The road entrance at this site would have three panel signs on an existing wooden frame that is similar to the size, content, and branding of the signs on the Price Lake Road. Information at this location would pertain to management and information for this area.
- The Joseph Harbor Boat Launch is a free boat launch on the west side of the Joseph's Harbor Canal, with two launch spots lined with concrete bulkheads and large parking lot for trucks and trailers. The entrances at this site would have three panel signs on an existing wooden frame that is similar to the size, content, and branding of the signs on the Price Lake Road and East End Locks Road. Information at this location would pertain to management and information for this area.
- Various signs would be installed on other roadside access points from Louisiana Highway 82 delineating areas that are not publicly accessible or roads that are not public use. Currently these roads do not have signage. Small signs on either new wooden posts or u-channel galvanized posts would be installed within road rights-of-way.
- Various signs would be installed along 60 miles of canals within the RWR to aid boaters as to where they are located on the Refuge. Currently, there are no signs along any of the major canals (i.e., Joseph Harbor Canal, Superior Canal) or the intersection of various canals. Small signs on either new wooden posts or u-channel galvanized posts would be installed along canals.

The proposed improvements are expected to take approximately 12 to 24 months from start to finish, subject to approval of permits and environmental review. Preliminary planning and E&D are anticipated to be completed in the first 6 months of the alternative.

Construction of the fishing piers would require in-water work and involve several phases of construction. Piles, typically made of treated wood, would be needed to support the piers and would be driven into the substrate along the proposed pier placements, with a set of two piles installed approximately every 15 feet. Each of these piles would be driven past the 15-foot engineering-set minimum depth into the substrate. These piles would be at least 40 feet long to allow for penetration, varying water depths, height of water, and rail height.

Construction methods for the pier extensions would be similar to that of the existing piers within the Refuge and include the use of marine-grade pressure-treated large timber members and stainless-steel fasteners. Pressure-treated wood products are manufactured and installed in

a manner that minimizes any potential for adverse impacts to aquatic environments. Typical construction methods used to install, or drive, the piles would involve using an impact hammer pile (vibratory hammers are typically used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey). The crane and associated equipment would be staged on a barge or on the shore. The pier would be approximately 6 feet wide. Barged heavy equipment would likely be needed for this construction.

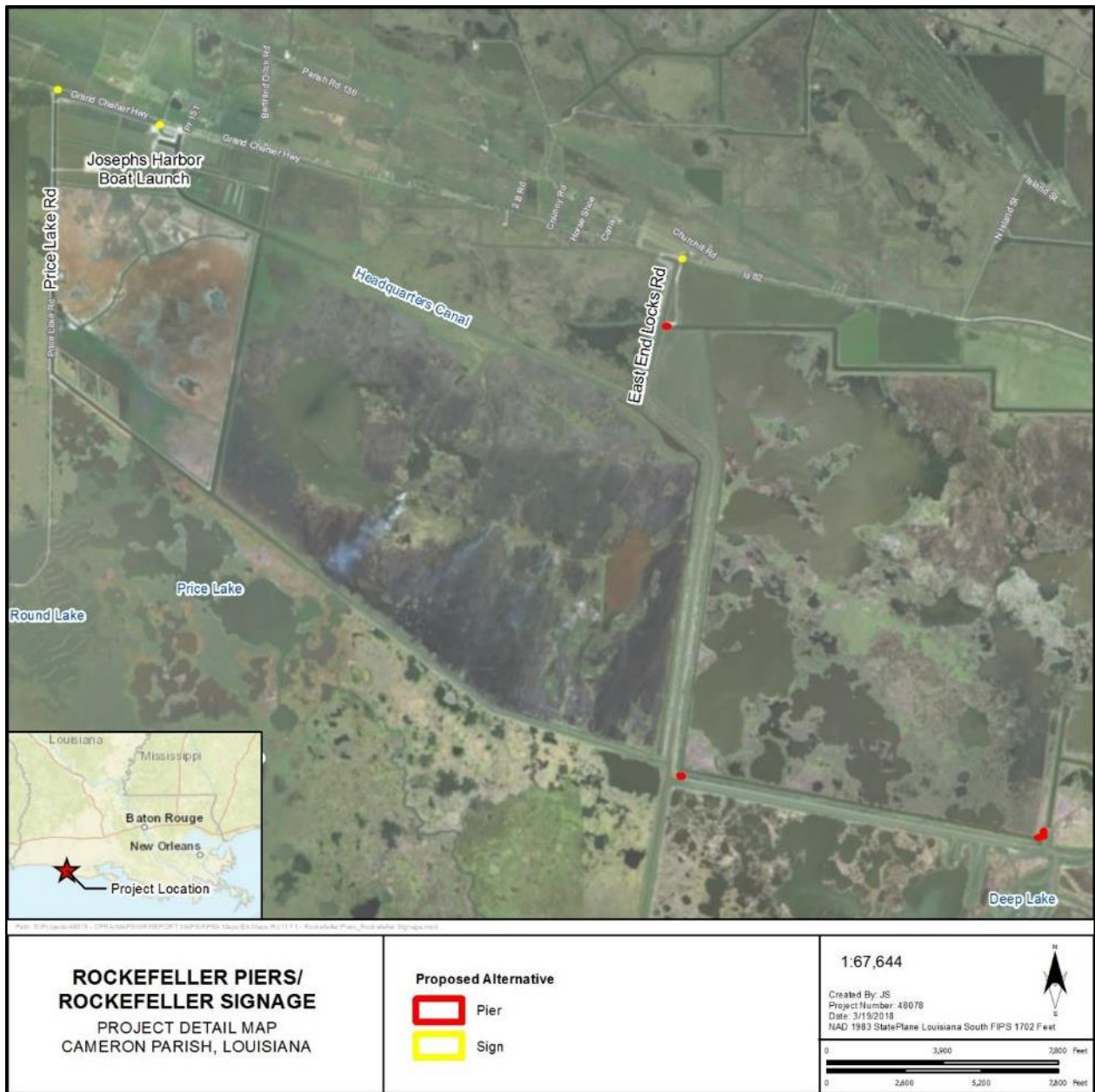
Signage at the Price Lake Road, East End Locks Road, Joseph Harbor Boat Launch locations would be on existing wooden structures and would not require new vegetation removal or excavation. Signage along other roads and canals described would require minimal vegetation removal and excavation (approximately 3-foot-diameter work area) to install the u-channel galvanized or wooden sign posts.

Operations and Maintenance

The LDWF would be responsible for all maintenance activities and related costs of the piers and signage, including any repairs needed over the life of refuge operation.

Monitoring Activities

Monitoring would include ensuring that the proposed improvements are constructed as designed, and that they collectively enhance recreational use compared with current conditions. The RWR would be responsible for performance and use monitoring and for obtaining as-built designs for development of the piers.



12. *St. Bernard State Park Improvements*

Project Overview

The Louisiana Office of State Parks would improve the camping and day-use facilities for visitors and campers at St. Bernard State park through three items in this project: 1) renovate the entrance station to provide a better first impression of the park; 2) upgrade two restrooms and one bathhouse to improve appeal and sanitation; and 3) replace an existing swimming pool with a large pavilion to diversify potential recreational uses. The park is located in St. Bernard Parish approximately 11.5 miles southeast of New Orleans River directly east of the unincorporated community of Caernarvon along the east bank of the Mississippi.

Project Details

The Louisiana Office of State Parks is proposing the alternative, to renovate and replace existing inadequate or deteriorating recreational infrastructure and service facilities within the St. Bernard State Park to improve the recreational camping experience and increase visitation. The alternative would achieve this goal by renovating the entrance station, a restroom, and a bathhouse; replacing one old bathhouse with a new restroom facility; and removing the underused and outdated swimming pool, replacing it with 20,000-square-foot event pavilion.

Each of the alternative elements would help achieve the goals of increased park visitation and improved enjoyment of recreational activities. The replacement restroom and the new pavilion would be expected to accommodate as many as 400 people for an event. The new and remodeled structures would be updated to have a similar architectural style to match the park design and would also improve ADA accessibility in some areas.

The new and renovated St. Bernard State Park entrance station, restroom and bathhouse facilities, and event pavilion would include the following:

- Interior renovations of the entrance facility, including removing and rebuilding interior walls and doors, electrical work, lighting, new exterior windows, and improving ADA compliance
- Renovations of one restroom and one bathhouse including all interior elements and some exterior elements
- Replacement of one existing bathhouse with a new 900- to 1,000-square-foot restroom facility with seven toilets and sinks and five drinking fountains to serve the pavilion
- Removal of pool deck and filling of the existing old swimming pool
- Construction of a 20,000-square-foot metal event pavilion

A conceptual design has already been developed. The alternative construction schedule would be determined during E&D, but construction of a project of this kind would typically occur over 4 to 12 months, subject to approval of permits and environmental review. The construction schedule would include contracting, pre-construction, and construction activities. The construction methodology for each of the elements of the alternative are described below.

Entrance station interior renovations would likely include the following tasks: removing, moving, and rebuilding an interior wall with two doors; relocating data lines and electrical outlets; rearranging lighting and adding additional lights, addressing thresholds, door widths,

counter heights, ADA-compliance improvements; and installation of new exterior windows at least 3 feet × 4 or 5 feet.

Restroom and bathhouse renovations would involve interior and exterior construction that would be limited to existing footprints. All interior finishes and fixtures would be replaced and repairs to exterior areas that have wood rot and old weather proofing would be made. Interior finishes would include sinks, toilets, mirrors, toilet partitions, lights, hand dryers, and some floor and wall tile. Exterior repairs would be made to exposed roof elements (soffits, large timber accent pieces, weather proofing and paint). Any doors not replaced after Hurricane Katrina would need to be replaced and some ADA-compliance upgrades would be made. The new restroom would be approximately 900 to 1,000 square feet and would be constructed on the same site after demolition of the bathhouse. The new restroom would have a minimum seven toilets and sinks for each of the two sides of the restroom facility and five drinking fountains, to meet the anticipated user needs. Construction methods and architectural style would match the proposed event pavilion and relate to this region of the state.

For the site preparation for the construction of the new 20,000-square-foot event pavilion, the existing pool deck would be removed, holes would be drilled in the bottom of the existing swimming pool to allow it to drain, the empty pool would be filled and buried, and soils would be compacted to allow construction of the pavilion at this site. The new metal pavilion would be placed on a concrete slab, have a metal roof, and would require utility connections and upgrades.

Operations and Maintenance

The Louisiana Office of State Parks would be responsible for all maintenance activities and costs related to the new and improved structures, as well as any repairs needed over the life of these structures.

Monitoring Activities

Monitoring would include ensuring that all elements are constructed as designed, and that the project enhances recreational use compared with pre-project. The Louisiana Office of State Parks would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer.



13. *Cypremort Point State Park Improvements*

Project Overview

The Louisiana Office of State Parks would make improvements to Cypremort Point State Park to enhance recreational opportunities and visitor experiences in a project involving five elements: 1) reinforcing the existing rock jetties, mainly along the entry road, to prevent further erosion on the Quintana Canal side; 2) replacing the breakwater system that previously protected the beach from erosion; 3) restoring the degraded beach to previous conditions before it was eroded; 4) installing a new marsh boardwalk to replace previously destroyed fishing piers; and 5) repairing and upgrading existing roads damaged by repeated flooding. The project would restore previously diminished fishing and recreational opportunities, provide new opportunities for recreational and educational use, restore beach habitat for both recreation and wildlife, and provide protection of coastal nearshore marine habitats and recreational infrastructure.

The park is located in both Saint Mary and Iberia Parishes approximately 1.5 miles northeast of Cypremort Point in Vermilion Bay. The area of the alternative starts from Louisiana Highway 319 and extends along Beach Lane and Quintana Canal and includes the entire Cypremort Point State Park site and immediately adjacent offshore area

Project Details

The Louisiana Office of State Parks is proposing the alternative, to restore existing recreational infrastructure and habitats, protect current and future park features, and construct new recreational opportunities in and around the Cypremort Point State Park to improve natural habitats and recreational use of the park. Each of the five alternative elements would address one or more of these goals and are further described below.

Rock Jetties

This element of the alternative would upgrade the existing inadequate rock jetty along the north bank of the Quintana Canal and south side of Beach Lane at the entrance to the Cypremort Point State Park. Upgrades would include extending the existing rock jetty east approximately 1,000 feet to the northern edge of the Cypremort Point boat ramp and reinforcing the remaining approximately 3,300 feet of the existing rock jetty to the northern end of the canal. After improvements, the total rock jetty would be approximately 4,400 feet long × 15 feet wide × 18 inches deep. Rock jetty improvements would provide protection to existing park infrastructure. Improving and expanding the existing erosion protection down most of the length of Beach Lane along Quintana Canal is needed to prevent compromising the entry to the State Park.

Improving the existing rock jetty would include:

- Approximately 1,000-foot-long extension of the existing rock jetty from the cross-canal bridge east to the northern end of the Cypremort Point boat ramp constructed with medium to large rocks
- Approximately 3,300 feet of reinforcement for the existing rock jetty from the cross-canal bridge west to the northern end of the Quintana Canal entrance/exit constructed with medium to large rocks matching the existing material

- Approximately 5,000 to 6,000 tons of rock would be needed for the rock jetty construction and reinforcement

Breakwater System

This element of the alternative would replace the breakwater system with a new system of rock groins approximately 2,100 feet long, 500 feet west of the proposed beach reclamation area.

This element of the alternative would provide protection for the park's shoreline from erosional forces that have greatly reduced the quality and appeal of the park's beach area. The proposed breakwater system would greatly increase the long-term success of the proposed beach reclamation. The new breakwater system would provide ecological benefits by protecting the beach habitat and recreational opportunities by protecting the proposed beach reclamation area that has been damaged by erosion and storms.

Replacing the breakwater system would include:

- Seventeen 75-foot-long rock groins, spaced 50 feet apart, constructed with geotextile fabric bases, 6-inch-thick class II base material, core layers of lightweight concrete aggregate, two layers of stone armoring on the side-slopes, and 5-foot-wide crests made up of at least three armor stone units

Beach Reclamation

The proposed beach reclamation would restore the degraded beach area to its previous condition. The beach length is approximately 2,390 feet long and would be restored to approximately 78 feet wide and would need approximately 8,630 cubic yards of sand to reach a depth of 12 inches. The reclamation would include replacing the sub-soil layer as necessary, backfilling and compacting soil under the pavilions experiencing undercutting, and spreading imported sand across the approximately 186,420-square-foot beach shoreline. This beach is a very popular swimming spot, and continued erosion would further degrade beach habitat and also threatens the nearby recreational structures (i.e., pavilions and a restroom facility). The beach provides recreational access for swimming, sun bathing, paddle boards, and other water-based activities, as well as habitat for some shorebirds. Beach reclamation is needed even absent the proposed breakwater system. However, the breakwater system would provide additional erosion protection to the beach, thereby reducing the likelihood of future reclamation at this location.

Marsh Boardwalk to Replace Fishing Piers

The proposed marsh boardwalk system would provide improved recreational fishing opportunities at the inland marsh area north of Beach Lane and east of the Cypremort Point State Park grounds. The Louisiana Office of State Parks determined that replacing/upgrading the existing fishing pier in-place would be subject to the same damaging forces that destroyed the existing pier, and that protection from destruction was not feasible. An inland wooden boardwalk is proposed in the marsh area to the west and would provide fishing and other shoreline-based recreational opportunities. The proposed boardwalk/trail would have a target length of approximately 3,000 feet and be built of mixed media, with most constructed as an above-water boardwalk and some areas constructed at ground level from crushed stone. The boardwalk/trail is intended to provide access to several marsh microenvironments and different

inshore water bodies and would be connected to the existing park grounds by a bridge across the canal to the west connecting to the southern portion of the State Park. The boardwalk/trail would restore recreational fishing opportunities for all visitors and improve other recreational uses, such as bird and wildlife viewing and educational opportunities.

Construction of the marsh boardwalk would include:

- Approximately 600 piles driven into the sand bottom to support the boardwalk
- An approximately 3,000-foot-long wooden boardwalk with a width of 4 or 5 feet constructed from 7- to 8-inch pile and either 6×6 or 8×8 marine-grade pressure-treated members and stainless-steel fasteners
- Ground-level trails, where possible, with a width of 4 or 5 feet constructed from crushed stone
- Additional toe rails throughout the boardwalk with handrails at ramps, as well as benches and interpretive signs

Roads

The proposed road repairs in Cypremort Point State Park would address damages associated with repeated flooding. The roads and parking lots provide access to the park including the fishing pier, beach access, cabins, pavilions, boat docks, and restrooms. Repairing the park's roads and parking areas is vital for preserving public access and recreational opportunities to the park's natural resources.

Repairing the existing roads and parking areas would include

Four existing 2-way roads, totaling approximately 1.85 miles, with 12-foot-wide travel lanes. Total area of road surface to be repaired is approximately 410,573 square feet. Road improvements would primarily consists of pothole repairs to the road base and a 2-inch asphalt overlay, and includes the following areas:

- Approximately 1.37-mile-long Beach Lane (park entry)
- Approximately 0.11-mile-long southern day-use access road
- Three approximately 0.113-mile-long day-use beach parking access roads
- Approximately 0.034-mile-long cabin access road
- Six paved parking areas, totaling 116,337 square feet, pothole repairs as needed and a 2-inch asphalt overlay in the following areas:
 - Approximately 15,360-square-foot southern day-use parking lot
 - Three approximately 24,443-square-foot central beach loop parking areas
 - Approximately 20,655-square-foot northern day-use beach parking lot
 - Approximately 6,993-square-foot cabin parking area

A conceptual design has already been developed. The alternative construction schedule would be determined during E&D, but it is estimated that if work is done concurrently all work would be complete in 18 to 20 months, or if the work is done in sequence it would take approximately 65 months to complete. The order of construction for various proposed elements would be scheduled in a manner to ensure success (i.e., beach reclamation would occur after the breakwater is replaced). In-water work would total approximately 29 months. All work would

be subject to approval of permits and environmental review. The construction schedule would include contracting, pre-construction, and construction activities. The construction methodology for each of the alternative elements are described below.

Rock Jetties

The reinforcement and extension of the existing rock jetty along the northern bank of the Quintana Canal included in the alternative would require placement of medium to large rock material in navigable waters and would likely require some in-water work. The existing jetty would be extended east from the cross-canal bridge on Beach Lane to the northern edge of the Cypremort Point boat ramp, approximately 1,000 feet. This area does not appear to have any existing rocks, with its only erosion protection derived from existing vegetation.

Approximately 3,311 feet of an existing rock jetty would be reinforced and extended to approximately 4,400 feet long from the cross-canal bridge west to the northern end of the canal entrance/exit. Existing vegetation would be protected as much as possible. Construction of the proposed jetty improvements would be similar to the construction of the existing jetty and would include placing medium to large rocks, averaging between 100 and 200 pounds each and matching existing jetty material, in the proposed areas with a track hoe or barged heavy equipment. Most of the proposed jetty extensions would likely be placed from land, limiting in-water work as much as practicable. It is anticipated that 6 months would be needed to complete the design phase of the alternative and 10 months for construction. The in-water work would take approximately 5 months to complete.

Breakwater System

The replacement of the breakwater system would be located approximately 500 feet west of the park's shoreline and would require in-water work and placement of large rock material in navigable water. The proposed breakwater system would include approximately 17 75-foot-long rock groins with 50-foot gaps between each groin, across an approximately 2,100-foot-long area. Each 75-foot-long rock groin would be built up from the sand bottom using a geotextile fabric base, a 6-inch-thick class II base material (i.e., crushed stone or sand and gravel), a core layer of lightweight concrete aggregate, two layers of stone armoring on the side-slopes, and a 5-foot-wide crest made up of at least three armor stone units. The proposed breakwater system would be constructed using barged heavy equipment. It is anticipated that 1 month would be needed to complete the design phase of this element of the alternative and 10 months for construction. The in-water work would take approximately 10 months to complete.

Beach Reclamation

The reclamation of the degraded beach area would be accomplished by importing sand and spreading it within the designated approximately 186,420-square-foot beach shoreline area. This reclamation work would include replacing the sub-soil layer where necessary, backfilling and compacting under the affected pavilions, and replacing the lost sand with new imported sand. The proposed final sand depth would be about 10 to 12 inches deep, with some depth tapering around the edges of the designated beach area to blend to the existing surrounding conditions. The volume of sand needed to complete this phase is estimated at 8,630 cubic yards. The composition of sand required to complete this work would be determined during the E&D phase of construction. It is anticipated that 3 months would be needed to complete the

design phase of this element of the alternative and 5 months for construction. The in-water work would take approximately 5 months to complete.

Marsh Boardwalk

Construction of the approximately 3,000-foot-long trail and wooden boardwalk would likely require some in-water work and involve several phases of construction. First, piles would be driven into the marsh sediments along the proposed boardwalk placement, with a set of two piles installed at approximately 10-foot intervals. Each of these piles would be driven past the engineering-set minimum depth into the substrate. These piles would be approximately 6 to 8 feet long to allow for adequate penetration into the marsh sediments, varying water depths, height of water, and vegetation. Construction methods for the boardwalk would be similar to that of other boardwalks and include the use of marine-grade and pressure-treated large timber members and stainless-steel fasteners. Additional boardwalk elements would likely include toe rails, handrails on ramps, benches, and interpretive signs. Some portions of the proposed trail system may consist of ground-level trails constructed from crushed stone. The proposed boardwalk and trail would be either 4 or 5 feet wide. Construction would be conducted from upland areas or previously built sections of the boardwalk as construction progresses along the proposed trail, reducing in-water work. It is anticipated that 6 months would be needed to complete the design phase of this element of the alternative and 12 months for construction. The in-water work would take approximately 12 months to complete.

Roads

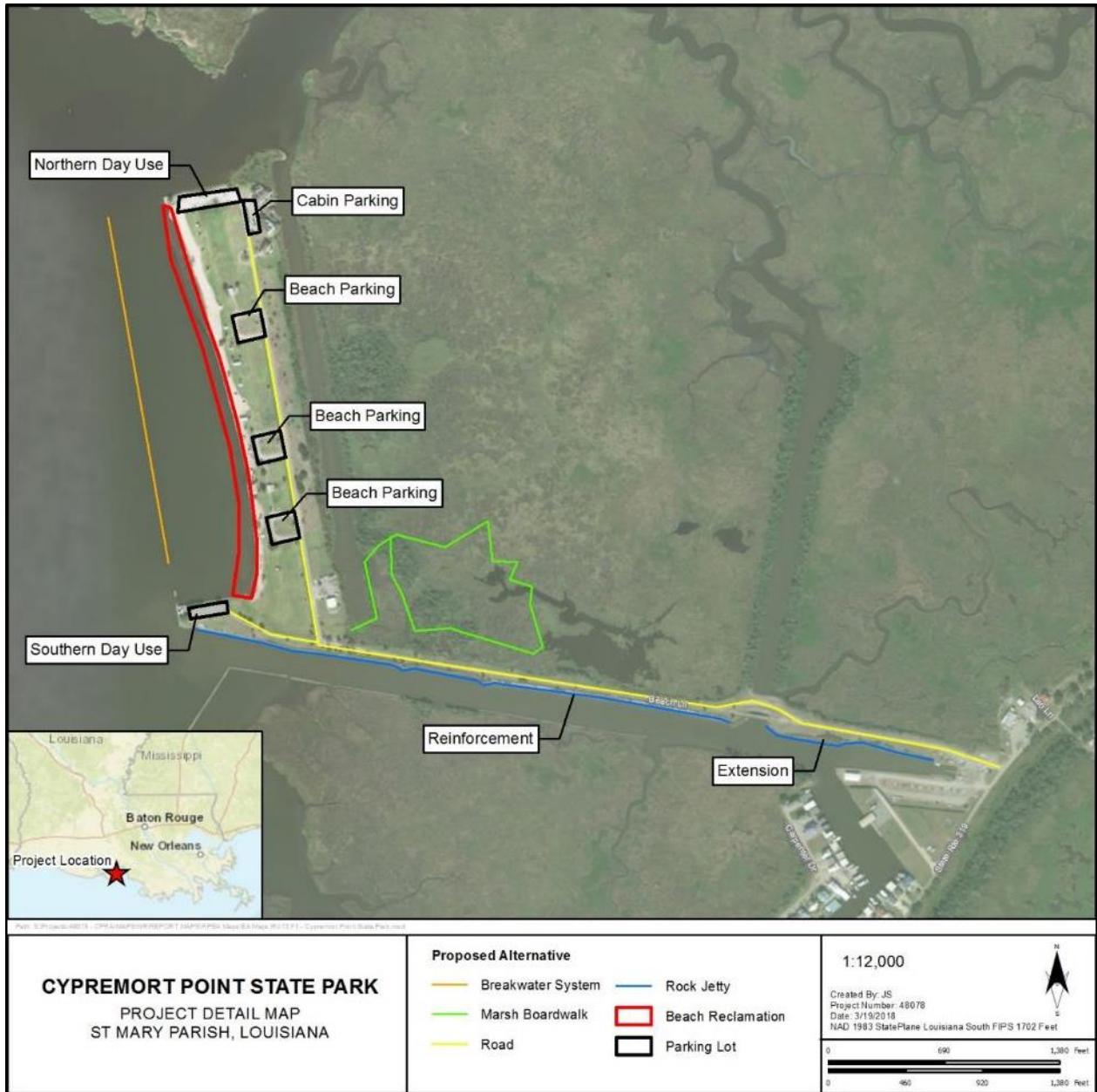
To address the roads and parking areas damaged by repeated flooding within the Cypremort Point State Park, the pavement repair would include the Beach Lane (main road), day-use access road, day-use beach parking access roads, cabin access road, southern large parking lot at day-use pavilion and pier, northern day-use beach parking lot, three central beach loop parking areas, and cabin parking area. The identified roads and parking areas throughout the park would receive a 2-inch minimum lift asphalt overlay. The road and parking area improvements would also include minor repairs to the road base where necessary prior to asphalt overlay. The travel lanes for all roads have a footprint of 12 feet wide (typically 14 feet on turns). The overall road length to be re-paved would be approximately 1.85 miles, with an area of approximately 410,573 square feet. The overall parking area to be re-paved would be approximately 116,337 square feet. Some additional minor transition work adjacent to roads and parking lots may be necessary and could include pedestrian routes, sidewalks, light poles, curbs, and signs. Painting of travel lanes would be limited to roadways and parking lots. It is anticipated that 4 months would be needed to complete the design phase of this element of the alternative and 8 months for construction.

Operations and Maintenance

The Louisiana Office of State Parks would be responsible for all maintenance activities and costs related to the new and improved structures, which would include the new marsh boardwalk and breakwater system, the improved roads and jetties, and restored beach area, as well as any repairs or maintenance needed over the life of these structures. After construction of the alternative elements were completed, operators currently servicing the park and fees associated with the park, including camping fees, would not be expected to change from the current system.

Monitoring Activities

Monitoring of the alternative would include ensuring that all elements are constructed as designed, and that the alternative enhances recreational use compared with pre-construction conditions. The Louisiana Office of State Parks would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be provided by the Louisiana Office of State Parks.



14. *The Wetlands Center*

Project Overview

The Wetlands Center alternative, submitted by the Town of Jean Lafitte, would involve the development of a theater and exhibits inside of the Wetlands Center, as well as a portion of the funding for the Wetlands Center's construction. The alternative would promote and enhance the protection and management of wetland resources and the application of sound science to wetland management efforts through training and educational opportunities. To accomplish this, the alternative proposes construction of the three-level Wetlands Education Center building. This building would serve as an orientation to the wetland ecosystems of Louisiana prior to visitors' exploration of the Nature Study Trail. The building would be designed to house a 4-D theater for educational videos, as well as space for numerous interactive exhibits such as a Mississippi River 3D Projection Map, a model of a Gulf of Mexico oil rig, artifacts of Louisiana's swamp culture in exhibit cases, interactive wetland loss and restoration exhibits, and wildlife interaction exhibits.

Project Details

The alternative would provide funding for a variety of museum-quality exhibits, interactive elements, meeting spaces, and digital media features at the Center, including the following:

- Reception area
- Combination classroom and film viewing theater with seating for approximately 80 students
- Small meeting rooms for private research
- Restoration and preservation of wetlands displays
- Interactive exhibit galleries
- Static exhibit galleries
- Live interactive exhibits
- Large observation windows on all elevations
- Outdoor observation decks
- An observation tower
- Gift shop with snacks and drinks
- First aid station
- Restrooms

The alternative would also provide funding for construction of the three-level Center and entry promenade. The promenade would be approximately 30 feet wide, with approximately 100 linear feet of promenade leading from the existing Multipurpose Resource Facility to the levee at City Park Drive, and approximately 300 linear feet of promenade crossing over the levee and remaining elevated on 8-inch-diameter treated wooden piers, spaced 16 feet across on center, until its connection to the existing trailhead of the elevated Nature Study Trail.

Conceptual designs for the 3,500-square-foot lower level of the Center proposes the building on raised piers. As the alternative proceeds into more detailed design, the exact floor level height would be determined and confirmed in close collaboration with all involved agencies to address flood water levels. Parallel to the northern and eastern sides of the lower level, a clear, polyacrylic wall would be built 20 feet from the building, from just above water level to the

water bottom. This polyacrylic wall would serve as a 3,000-square-foot retainer tank for aquatic wildlife viewing.

The 7,300-square-foot main level of the Center would be supported in part by the 3,500-square-foot lower level. Areas of the main level that are not directly above the lower level would be supported by 18-inch-diameter concrete piles. A 4,000-square-foot deck, supported by 8-inch-diameter treated wooden piles, would connect the entry promenade to the main level of the Center and the existing Nature Study Trail. An additional wooden deck would be added on the northeastern corner of the building. Additional viewing opportunities would be provided by a small third-level “lookout tower” above the main level.

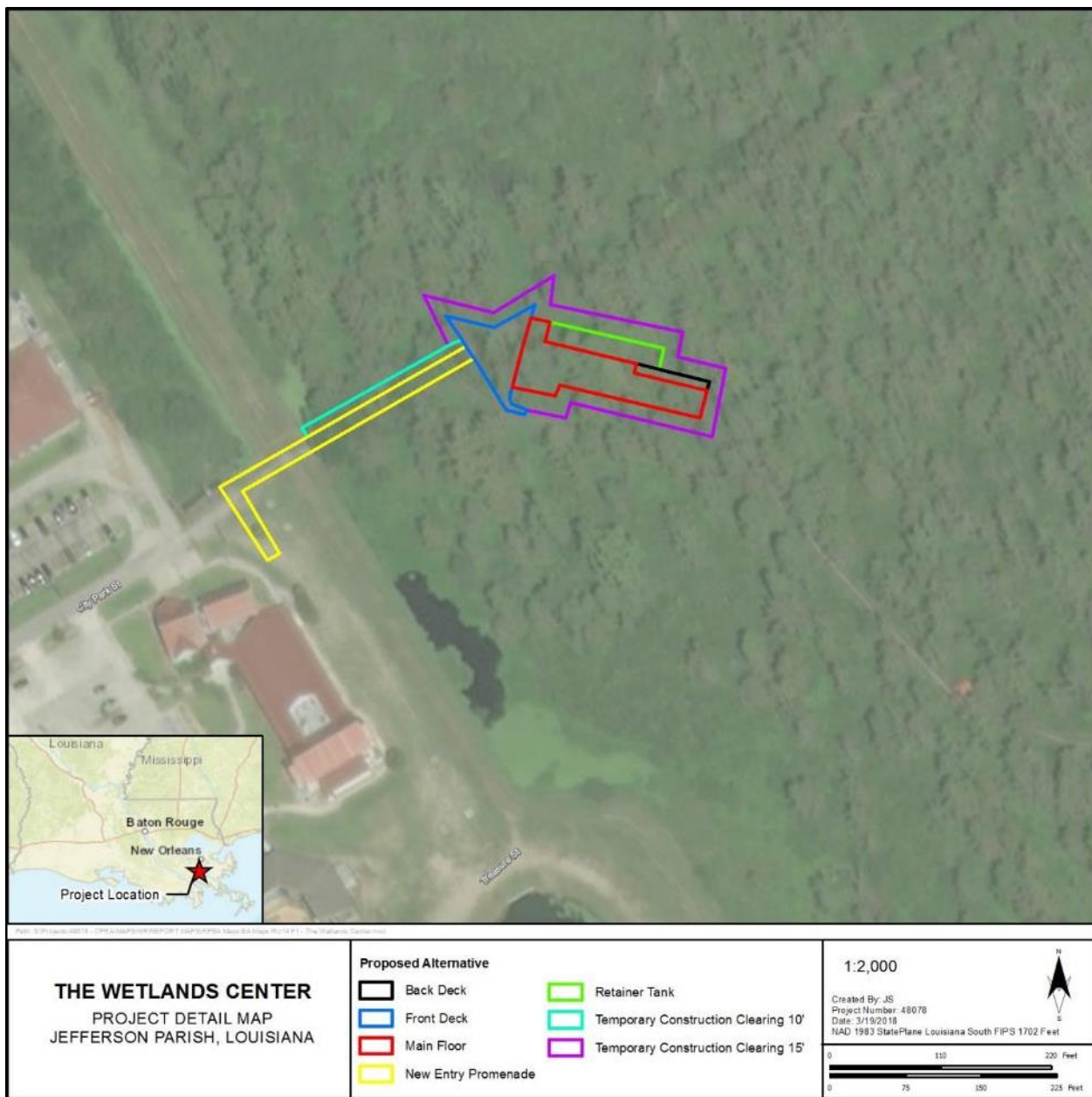
Similar exhibit developments typically take approximately 12 to 24 months from start to finish. If construction of the Wetlands Center is included in NRDA funds, timeframes could be longer, subject to approval of permits and environmental review. An estimated 0.77 acre of vegetation clearing would be required within the footprint of the entry promenade, deck, and Center building, as well as a 10-foot construction buffer adjacent to one side of the promenade footprint and a 15-foot construction buffer around the entirety of the Center building footprint. Roughly 0.5 acre of clearing would be permanent. The remaining 0.27 acre of clearing would be short term and revegetated upon completion of construction. All of the structures would be pier supported, with the exception of the polyacrylic tank. Therefore, an estimated fifty-two 8-inch-diameter piers and sixteen 18-inch piers would be driven into the substrate. Construction methods for the piers would include the use of concrete and marine-grade pressure-treated large timber members and stainless-steel fasteners. The piers would likely be driven using an impact hammer pile (vibratory hammers are typically not used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey).

Operations and Maintenance

The Town of Jean Lafitte would be responsible for all maintenance activities and costs related to the new Center and facility exhibits.

Monitoring Activities

Monitoring of the alternative would include ensuring that the alternative is constructed as designed, and that the alternative enhances recreational use compared with pre-construction conditions. The Town of Jean Lafitte would be responsible for performance and use monitoring. Funding for monitoring is not included in the alternative cost estimate, and would be provided by the Town of Jean Lafitte.



15. *Recreational Use Improvements at Barataria Preserve in Jefferson Parish – Jean Lafitte National Historic Park and Preserve – Barataria Unit*

Project Overview

NPS is proposing several improvements within the Barataria Preserve Unit (Preserve) of Jean Lafitte National Historical Park and Preserve (park). These improvements would include 1) reconstruction of the Visitor Center (VC) Trail for improved public access in the Preserve, 2) procurement of a Wayside Design Plan for approximately 30 to 35 new wayside exhibits for all of the Barataria boardwalk and dirt trails, and 3) fabrication and installation of approximately seven wayside exhibits along the VC Trail to replace old exhibits or provide new points of education to the public on the Preserve's ecology, issues, and management. Collectively referred to as the alternative, these improvements would provide NPS with the ability to offer enhanced recreational opportunities to benefit both management and public use of the Preserve and the park as a whole.

Project Details

To address management needs and increase visitor experience, NPS is proposing multiple improvements (alternative) within the Preserve (Figure 3.3-15) to increase the recreational use experience, including the following:

- Replacing the wooden VC Trail within the Preserve. Improvements to the boardwalk trail would include removing the existing structure and reconstructing it so that it is wider and elevated. The new boardwalk trail would be 5 to 6 feet wide, approximately 1,707 feet long, and approximately 8,535 to 10,242 square feet. Replacing the trail would require removing the current wooden pilings and wooden substructure and decking and replacing them in the same general location with new railings and materials that are more resilient to the ambient conditions. The VC Trail would be ADA compliant, resilient to regular flooding, sustainable, and safer. All VC Trail improvements would be developed within the existing corridor of the VC Trail.
- Procuring a Wayside Design Plan for approximately 30 to 35 new wayside exhibits for all of the Barataria boardwalk and dirt trails.
- Fabricating and installing approximately seven new wayside signs on the improved VC Trail only.

The alternative is reliant on completion of CWA Section 404 permitting for the trail's E&D to produce a more accurate construction approach. Overall, NPS expects implementation would take approximately 3 years to complete, subject to approval of permits and completion of consultations and coordination. The trail work's environmental compliance should be completed in 6 to 12 months. E&D would take 6 to 12 months, and construction is anticipated to take up to 1 year.

The alternative includes several features that would require vegetation removal, excavation, and grading. All construction for trails and wayside exhibits would occur within the existing trail corridors (approximately 5 feet wide). For replacement of existing boardwalks, it is anticipated that treated timber or concrete piles would be installed as needed and driven into the substrate to support the proposed new, treated wooden boardwalk. Timber and/or concrete

piling is typically used to construct piers, docks buildings, walkways, and decks in and above aquatic environments. Pressure-treated wood products and concrete are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would be driven using an impact hammer or rotary equipment. Some in-water work may be required for the pilings for boardwalk replacement.

Wayside exhibits proposed would require minimal vegetation removal and excavation (approximately 4-foot-diameter work area) to install the post base within the boardwalk corridor. Some in-water work may also be required

Operations and Maintenance

The NPS would be responsible for all maintenance activities and costs related to the trail enhancements, and wayside exhibits within the preserve over the life of use (in perpetuity).

Monitoring Activities

Monitoring of the alternative would include ensuring that the proposed improvements are constructed as designed, and that they collectively enhance recreational use compared with current conditions. NPS would be responsible for performance and use monitoring and for obtaining all as-built designs. Monitoring would be designed around the alternative's objective to enhance and increase recreational opportunities within the Preserve.



16. Des Allemands Boat Launch in St. Charles Parish

Project Overview

The Des Allemands Boat Launch alternative, submitted by St. Charles Parish, would involve construction of a new boat launch facility with four 12-foot-wide boat launch ramps and adjacent fishing piers as Phase 1. The alternative would provide a safe boat launch to access numerous water bodies, including Lake Des Allemands, Petit Lake Des Allemands, Bayou Gauche, Lake Salvador, and Lake Cataouatche and other Barataria Basin waterways in southeast Louisiana. Additional recreation enhancements for Phase 2 would include a restroom building, sewage treatment facility, pavilion, and additional parking, depending on available budget.

St. Charles Parish adopted Ordinance No. 12-6-1 in 2012 that approved an agreement to make an irrevocable donation with the landowner for approximately 3 acres of property. This agreement has expired; therefore, the parish is exploring options with the landowner to renew the previous agreement and acquire approximately 15 acres of property for public recreational use.

Project Details

The alternative would include construction of a new boat launch on the east bank of the Bayou Des Allemands. The new boat launch would accommodate parking for up to 60 vehicles hitched to trailers at a time, as well as on-site parking for an additional eight single cars without trailers. In addition, the alternative would include signage, lighting, fishing piers, bulkheads, and an access road from Louisiana Highway 632. For planning purposes, it is assumed that the alternative would permanently impact the entire 15-acre site. Although not all vegetation is anticipated to be removed, the 15-acre site is considered the development envelope .

The new launch facility would include construction of the following:

- One 2,415-foot-long × 22-foot-wide asphalt access road with adjacent drainage improvements for boat ramp traffic from Louisiana Highway 632 to the paved parking lot
- One paved parking lot with up to 60 spaces (34 initial and 26 additional as budget allows) large enough to accommodate a vehicle with a trailer as well as eight single car spaces, two of which would be ADA compliant
- One 242-foot-long × 24-foot-wide paved boat ramp from the paved parking lot to the four launch ramps at Bayou Des Allemands
- Four 70-foot-long × 12-foot-wide concrete boat launch ramps with an adjacent approximately 13,500-square-foot maneuvering area
- Three 70-foot-long × 8-foot-wide (560-square-foot each) wooden docks constructed of treated wood
- One 140-foot-long × 7-foot-wide fishing pier constructed of treated wood
- Approximately 385 linear feet of coated steel bulkhead
- One 375-square-foot covered pavilion, as budget allows

- One 250-square-foot, pre-fabricated restroom facility with associated Delta 500 sewer treatment plant, as budget allows
- One 300-foot-long × 5-foot-wide concrete walkway for foot traffic from the pavilion to the parking area, with one additional 350-foot-long × 5-foot-wide timber walkway over the levee to the fishing pier

Implementation of the alternative is expected to take approximately 12 months, including final E&D, permitting, contracting, and construction, subject to approval of permits. A conceptual design has already been developed, and preliminary planning has been completed. Final E&D, permitting, and mitigation are anticipated to take approximately four months. Contracting and pre-construction activities are anticipated to take approximately 2 months. Construction is anticipated to take approximately 6 months.

The alternative includes several features that would require vegetation removal, excavation, and grading. The 60-foot right-of-way width for the access road would require clearing and grubbing, general excavation and grading, installation of drainage ditches and culverts, and paving with asphalt. The parking area and 242-foot-long boat ramp from the parking area to the maneuvering area would require clearing and grubbing, general excavation, grading, and fill placement, including approximately 0.15 acre of encroachment into the waterway, for leveling and stabilization of the levee crossing prior to paving with concrete. The approximately 17,000-square-foot (0.4-acre) concrete boat ramp and maneuvering area would require removal of all riparian vegetation, dredging to provide a minimum water depth, typically 3 feet at the base of the ramps, and placement of fill to create the landing area.

Concrete sidewalls covered by coated steel sheet pile would be installed along the sides of the boat ramp to prevent erosion and to provide long-term stability to the structure. Three 70-foot-long × 8-foot-wide (560 total square feet) fixed docks and a 7-foot-wide × 140-foot-long (980-square-foot) fishing pier made of pressure-treated wood would provide access to the alternative from the waterside and could be used by small watercraft to tie-up (e.g., kayaks, pirogues, paddle boards). The fishing pier could also provide pedestrian access from the upland parking and pavilion areas as part of the overall water-oriented recreational enjoyment, which may include bird and wildlife viewing and fishing. An approximately 385-linear-foot bulkhead constructed of coated steel sheet pilings would be installed along the perimeter of the maneuvering area, ramps, and fishing pier also to prevent erosion and to provide long-term stability.

The fishing pier would be installed along the waterfront for a distance of approximately 95 feet, and then turn 90 degrees south to extend an additional 45 feet to the northern most dock. All riparian vegetation along the riparian bank would be removed. Coated steel sheet piling and timber decking is regularly used to construct piers, docks, buildings, walkways, and decks in and above aquatic environments. Pressure-treated wood products are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would typically be driven using an impact hammer pile (vibratory hammers are not typically used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile

hammer, helmet, pile gate, and pile monkey). The crane and associated equipment can be staged either onshore or on a barge in the waterway.

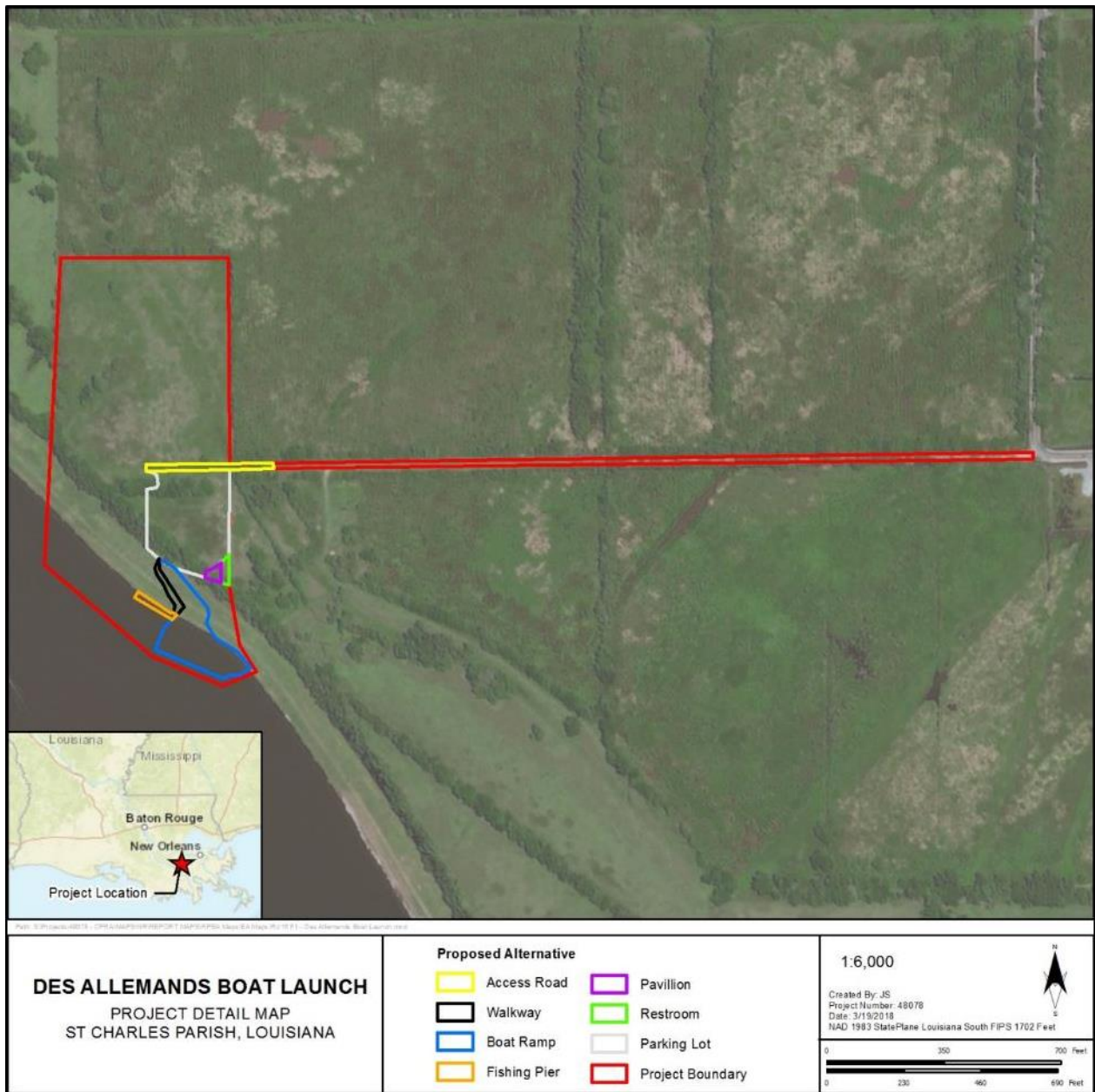
Other materials used for the parking lot, access roads, and footpaths would include stone base course, aggregate surface course, geotextile fabric (laid underneath proposed aggregate and stone-based surfaces), concrete wheel stoppers and pavilion materials (timber, roofing, etc.), and lighting in the parking lot area.

Operations and Maintenance

St. Charles Parish would be responsible for all maintenance activities and costs related to the alternative, including any repairs needed over the life of the facility. After the alternative is constructed, St. Charles Parish may elect to charge a launch fee to partially fund operation and maintenance of the facility.

Monitoring Activities

Monitoring of the alternative would include ensuring that the alternative is constructed as designed, and that the alternative enhances recreational use compared with pre- construction conditions. St. Charles Parish would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be the responsibility of St. Charles Parish.



17. *Middle Pearl*

Project Overview

The Middle Pearl alternative, submitted by LDWF, would involve improvement of an existing boat launch facility with two boat launch ramps and a staging slip. The alternative would provide a safe boat launch to access numerous water bodies, including the Middle Pearl River, tributaries to the Pearl River, Little Lake, Lake Pontchartrain, and Lake Borgne in southeast Louisiana. Additional alternative elements would include three floating mooring piers, lighting, signage, upgraded parking, and a boardwalk/dock along the river, depending on available budget.

Project Details

The alternative would provide public access to the surrounding waterways and the Pearl River WMA for various recreational activities such as fishing, hunting, trapping, frogging, skiing, recreational boating, swimming, and sightseeing.

The alternative would include improvement of the existing boat launch on the west bank of the Middle Pearl River. The alternative would accommodate parking for approximately 20 vehicles hitched to trailers, as well as on-site parking for additional single cars without trailers. In addition, the alternative would include signage, lighting, boardwalks/docks around the perimeter of the parking area, and an access road from Louisiana Highway 90. Potential additional alternative elements include increased parking area, a boardwalk/dock on the river frontage, and dredging of the staging slip as budget allows. For planning purposes, it is assumed that the alternative would permanently impact the entire 1-acre site.

The new launch facility would include construction of the following:

- One approximately 200-foot-long × 20-foot-wide access road for boat ramp traffic from Louisiana Highway 90 to the parking lot
- One crushed limestone parking area with up to 20 spaces large enough to accommodate a vehicle with a trailer as well as additional single car spaces
- One 65-foot-long × 45-foot-wide concrete boat launch ramp with room for two lanes
- Three 60-foot-long × 6-foot-wide (1,080-square-foot total) floating docks constructed of treated wood
- One 150-foot-long × 40-foot-wide staging slip, as budget allows
- One 200-foot-long × 6-foot-wide (1,200-square-foot) boardwalk constructed of treated wood to access the staging slip, as budget allows
- One 100-foot-long × 6-foot-wide boardwalk along the riverfront, as budget allows
- Dredging of staging slip, as budget allows

The alternative is expected to take approximately 12 months from start to finish, subject to approval of permits and environmental review. A conceptual design has already been developed. Preliminary planning and alternative commencement activities are anticipated to take approximately 3 months. E&D are anticipated to take approximately 5 months. Contracting and pre-construction activities are anticipated to take approximately 3 months. Construction is anticipated to take approximately 2 months.

The alternative includes several features that would require vegetation removal, excavation, and grading. Roadways and parking areas would be surfaced with 6 to 8 inches of crushed limestone. Minor grading of the existing shell/limestone access and parking area would be necessary to improve drainage and prepare the site. The 2,925-square-foot concrete boat launch would have concrete sidewalls covered along the sides of the boat ramp to prevent erosion and to provide long-term stability, typically by vinyl sheet pile. In-water work would consist of the removal of broken concrete and riprap, with minor grading to accommodate the new ramp; no riparian vegetation would require removal. Three floating docks made of treated wood are proposed for the boat ramp, one on each side and one in the center. The floating docks would provide access to the alternative from the waterside and could be used by small watercraft to tie-up (e.g., kayaks, pirogues, paddle boards). A 1,200-square-foot boardwalk made of treated wood would be installed around the parking area and along the staging slip. The docks and boardwalk could also provide pedestrian access from the upland parking area as part of the overall water-oriented recreational enjoyment, which may include bird and wildlife viewing and fishing.

To construct the three 6-foot-wide × 60-foot-long floating docks, no riparian vegetation would need to be removed. Floating docks are typically secured to the river bottom using anchoring weights. The 200-foot-long, 6-foot-wide (1,200-square-foot) wooden boardwalk proposed south of the parking area and the 100-foot-long, 6-foot-wide (600-square-foot) wooden boardwalk proposed along the riverfront would also require a vinyl sheet pile bulkhead that would run parallel to the boardwalk along the shoreline to prevent erosion and to provide stability to the boardwalk. Timber piles would be necessary to support the boardwalk and would be driven into the substrate. Timber piling is typically used to construct piers, docks buildings, walkways, and decks in and above-aquatic environments. Pressure-treated wood products are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would be driven using an impact hammer pile (vibratory hammers are not typically used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey). The crane and associated equipment can be staged either onshore or on a barge in the waterway.

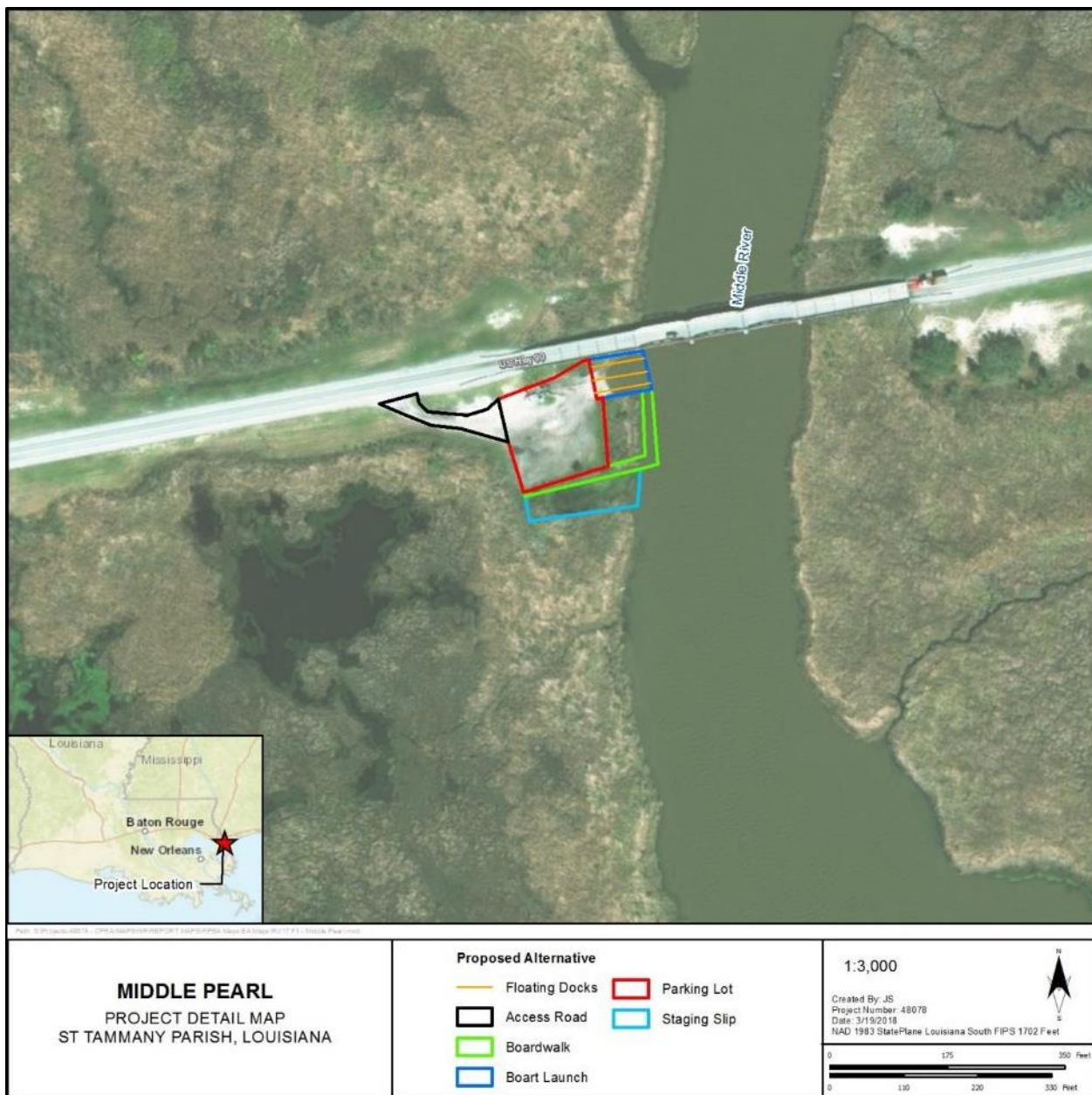
Other materials used for the parking lots and access road would include concrete wheel stoppers and improvements to lighting.

Operations and Maintenance

LDWF would be responsible for all maintenance activities and costs related to the new boat launch, including any repairs needed over the life of the facility.

Monitoring Activities

Monitoring would include ensuring that the project is constructed as designed, and that recreational use is enhanced compared with pre-construction conditions. LDWF would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer.



18. Improvements to Grand Avoille Boat Launch in St. Mary Parish

Project Overview

In this project, St. Mary Parish would replace the existing boat launch, which is deteriorated and unsafe for the public, to provide a safe boat launch facility to access numerous water bodies, including Grand Avoille Cove, the Charenton Drainage and Navigation Canal, Bayou Teche, Lake Fausse Pointe, West Cote Blanche Bay, the Atchafalaya River Basin, and the Gulf of Mexico. St. Mary Parish has obtained a lease for use of the state-owned property from the State of Louisiana. The lease was granted for an initial term of 10 years, commencing on July 22, 2015, with the option for extension.

Project Details

St. Mary Parish has leased Lot 9 for an annual fee of \$453.00. The lease agreement states that the sole purpose of the lease is for a public boat launch and a public parking area on the property. The alternative would include replacement of the existing boat launch on the 0.54-acre lot. The parking area would be improved by adding 8 inches of crushed limestone, and the access road would be resurfaced with 6 to 8 inches of aggregate. Two timber mooring docks would be constructed to provide enhanced public access to the water for recreational use, including fishing, swimming, boat mooring, and wildlife viewing. For planning purposes, it is assumed that the alternative would permanently impact the entire 0.54-acre site. Although the alternative is primarily enhancement of an existing facility and no vegetation is anticipated to be removed, the 0.54-acre site is considered the development envelope.

The new launch facility would include construction of the following:

- One approximately 190 × 90-foot parking lot with enough room to accommodate up to 20 vehicles with trailers. The existing 13,856-square-foot parking lot would be topped with 8 inches of compacted limestone
- One 45-foot-long × 30-foot-wide aggregate-covered access road for boat ramp traffic from the West Atchafalaya Basin Spillway Levee Road to the parking lot
- One 20-foot-long × 31-foot-wide concrete boat ramp from the parking lot to the boat launch ramp
- One 20-foot-long × 25-foot-wide boat launch ramp to the Charenton Drainage and Navigation Canal
- Two 24-foot-long × 8-foot-wide wooden docks constructed of treated wood. Six timber piles would be installed per dock

The alternative would take approximately 12 months for final design and engineer, permitting, contracting, and construction. A conceptual design has already been developed. Preliminary planning and alternative commencement activities are anticipated to take approximately 3 months. E&D are anticipated to take approximately 5 months. Contracting and pre-construction activities are anticipated to take approximately 3 months. Construction is anticipated to take approximately 2 months.

The alternative includes several features that would require excavation and grading. The access road would be surfaced with up to 8 inches of aggregate; the parking area would be surfaced

with 6 to 8 inches of compacted limestone. Minor grading of the existing shell/limestone access and parking area would be necessary to improve drainage and prepare the site. The 1,120-square-foot concrete boat launch and ramp would have concrete sidewalls covered along the sides of the boat ramp to prevent erosion and to provide long-term stability, typically by vinyl sheet pile. In-water work would consist of the removal of broken concrete and riprap, with minor grading to accommodate the new ramp; no riparian vegetation would require removal.

Two timber mooring docks are proposed along each side of the boat ramp. The 8-foot-wide × 24-foot-long docks (192-square-foot area per dock) would be secured to the river bottom using timber piles. Six treated timber piles driven into the substrate would be necessary to support each dock. Timber piling is typically used to construct piers, docks buildings, walkways, and decks in and above-aquatic environments. Pressure-treated wood products are manufactured and installed in a manner that minimizes any potential for adverse impacts to aquatic environments. The piles would be driven using an impact hammer pile (vibratory hammers are not typically used on timber piles) with standard equipment (e.g., crane, boom, set of leads, pile hammer, helmet, pile gate, and pile monkey). The crane and associated equipment can be staged either onshore or on a barge in the waterway.

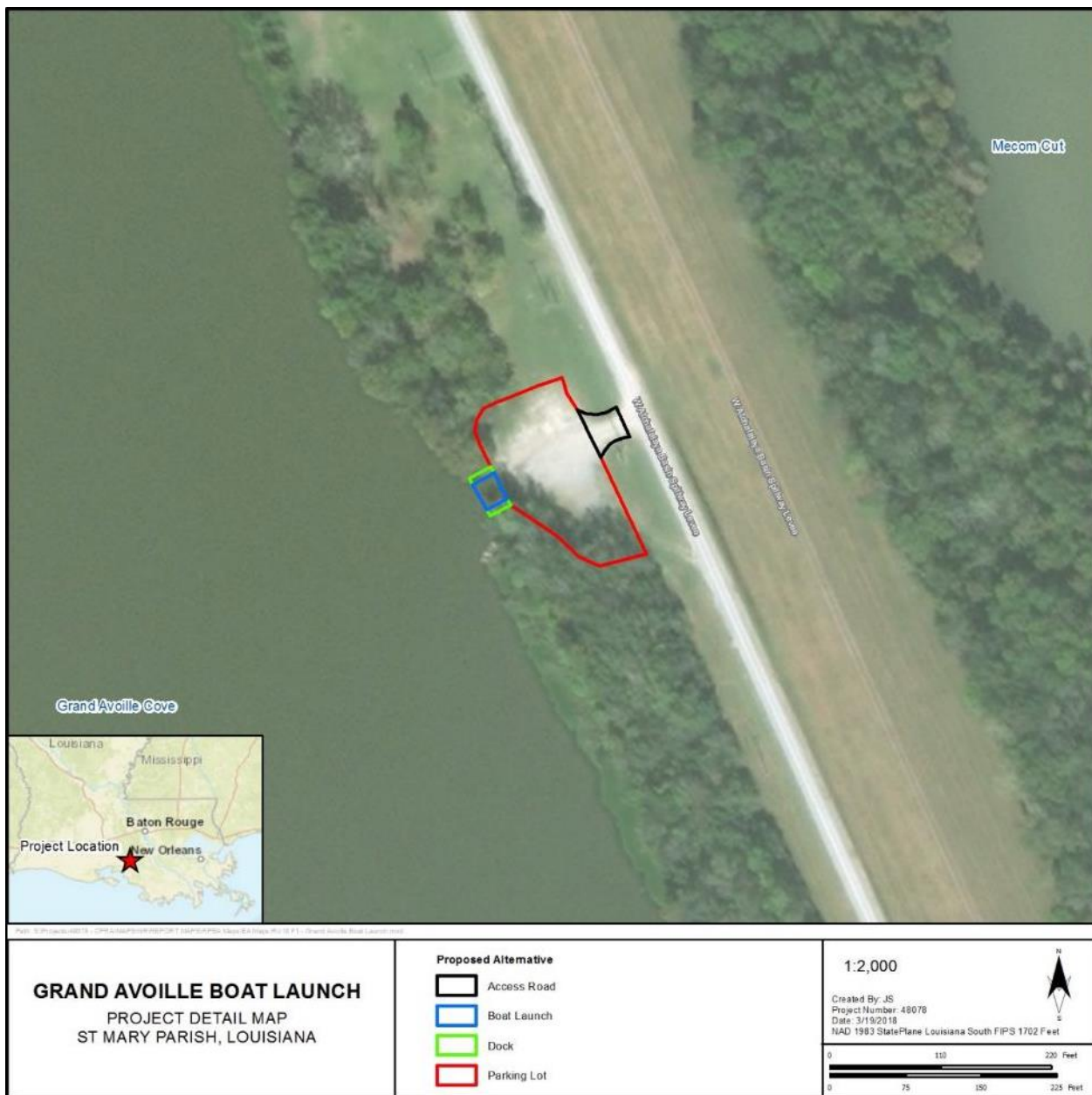
Other materials used for the parking lots and access roads would include stone base course, aggregate surface course, and geotextile fabric (laid underneath proposed aggregate and stone-based surfaces).

Operations and Maintenance

St. Mary Parish would be responsible for all maintenance activities and costs of repairs needed over the life of the facility.

Monitoring Activities

Monitoring of the alternative would include ensuring that the alternative is constructed as designed, and that the alternative enhances recreational use compared with pre-construction conditions. St. Mary Parish would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer. Funding for post-construction monitoring is not included in the alternative cost estimate, and would be the responsibility of St. Mary Parish.



19. *Belle Chasse*

Project Overview

The Belle Chasse alternative, also known as the Walker Road Boat Launch, submitted by Plaquemines Parish would involve the construction of a new boat launch on the site of what is currently an unimproved public boat launch. The alternative would provide a safe boat launch facility to access numerous water bodies, including Hero Canal, the Gulf Intracoastal Waterway, Barataria Bay, and the Grand Isle area.

Plaquemines Parish owns the property off Walker Road where the boat launch and parking lot are proposed to be located. The new facility is anticipated to have an average of 3,500 users per year. The site is currently used as a boat launch and needs to be improved for safer access.

Project Details

Plaquemines Parish has stated that it has a need for a public boat launch and a public parking area in the northern Plaquemines Parish area. The alternative would include installation of a pre-cast concrete ramp at the existing boat launch on Walker Road. The currently informal parking area would also be formally designated and constructed by adding 6 to 8 inches of crushed limestone over the existing surface. The boat launch would provide enhanced public access to the water for recreational use, including fishing and boating. For planning purposes, it is assumed that the alternative would permanently impact previously disturbed areas. The alternative is primarily the improvement of an existing facility and no vegetation is anticipated to be removed.

The alternative is expected to take approximately 12 months from start to finish, subject to approval of permits and environmental review. A conceptual design has already been developed. Preliminary planning and project commencement activities are anticipated to take approximately 3 months. E&D are anticipated to take approximately 3 months. Contracting and pre-construction activities are anticipated to take approximately 3 months. Construction is anticipated to take approximately 3 months.

The alternative includes several features that may require excavation and grading. It is anticipated that the ramp would be constructed of pre-cast concrete and the parking area would be surfaced with 6 to 8 inches of compacted limestone. Minor grading of the existing access and parking area may be necessary to improve drainage and prepare the site. The approximately 1,500-square-foot boat ramp would likely have concrete sidewalls covered by vinyl sheet pile installed along the sides of the boat ramp to prevent erosion and to provide long-term stability. In-water work would consist of minor excavation and grading to accommodate the new ramp; no riparian vegetation would require removal.

Operations and Maintenance

Plaquemines Parish would be responsible for all maintenance activities and costs of repairs over the life of the facility.

Monitoring Activities

Monitoring of the alternative would include ensuring that the alternative is constructed as designed, and that the alternative enhances recreational use compared with pre- construction

conditions. Plaquemines Parish Engineering Department would be responsible for performance and use monitoring and for obtaining as-built designs from the project engineer. Funding for post-construction monitoring is not included in the alternative cost estimate and would be the responsibility of Plaquemines Parish.

