APPENDIX B: DRAFT PBRR CULTURAL RESOURCES SURVEY REPORT CHAPTER 1 TO CHAPTER 4

PHASE I CULTURAL RESOURCE SURVEY OF THE PROPOSED CONNECTION BETWEEN THE PORT BIENVILLE RAILROAD AND THE NORFOLK SOUTHERN RAIL LINE NEAR INTERSTATE 59, NORTH OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S JOHN C. STENNIS SPACE CENTER, PEARL RIVER AND HANCOCK COUNTIES, MISSISSIPPI

PROJECT NO. FRA-0023-00(003)/105494 101000-102000

By J. Howard Beverly, Clayton Tinsley, Megan Koszarek, Ann Keen, and Ann Wilkinson

Prepared by:

August 2017

MANAGEMENT SUMMARY

This report describes the field and laboratory methods for and the results of a Phase I Archaeological and Cultural Historic Reconnaissance survey conducted for the Mississippi Department of Transportation, the Federal Railroad Administration, and the Hancock County Port and Harbor Commission for a proposed new freight rail line that would provide a direct connection between the Port Bienville Railroad and the Norfolk Southern rail line near Interstate 59, north of the National Aeronautics and Space Administration's John C. Stennis Space Center (Project No. FRA-0023-00(003)/105494 101000-102000). This connection would provide a second Class 1 rail connection to Port Bienville and the Industrial Park.

The Archaeological APE's boundary is defined as a 100-foot buffer on either side of the proposed railroad segments. The segments total 38.1 kilometers (23.7 miles) in length, and the Archaeological APE encompasses 575 acres (232.7 hectares). The Revised Port Bienville Short Line Railroad Proposed Cultural Resources Survey Field Methodology, MDO # FRA-0023-00(003)/105494 101000-102000, MDAH Project Log #03-082-16, (Report # TBA), Hancock and Peal River Counties was reviewed and accepted by the Mississippi Department of Archives and History (MDAH) on May 2, 2016.

The Cultural Historic APE is defined as being first within the boundary of the Archaeological APE, and secondly within 75 meters of the Archaeological APE.

A total of 24 linear archaeological sites were identified within the Archaeological APE. Of these sites, 13 are not eligible for inclusion in the NRHP, and 11 have undetermined eligibility statuses. The current project will not have an adverse impact to any archaeological sites recorded within the APE.

Three newly recorded historic resources, Resources 1, Resource 2, and Resource 3, were identified during the cultural historic reconnaissance. All three are part of the railroad line (22Ha767) built specifically by Southern Railway for transporting construction materials and other material to the John C. Stennis Space Center, a NRHP listed property. Therefore, these are recommended as eligible for listing on the NHRP under Criterion A for its association with the NRHP listed John C. Stennis Space Center.

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ACKNOWLEDGEMENTS

J. Howard Beverly was principal investigator for the archaeological survey. The field director for the archaeological project for CDM Smith was J. Howard Beverly and for HDR it was Clayton Tinsley. Ann Wilkinson of CDM Smith contributed to the report along with Ann Keen, Megan Koszarek, and Clayton Tinsley of HDR. Howard Beverly produced the maps and formatted the report.

ACRONYMS

Anno Domini	A.D.
Area of Potential Effect	APE
Before Christ	B.C.
Before Present	B.P.
Centimeters	cm
Department of Transportation	DOT
Fahrenheit	F
Geographic Information System	GIS
Geographic Information System Professional	GISP
Hancock County Port and Harbor Commission	HCPHC
Isolated Find	IF
Kilometer	km
Mile	mi
Millimeters	mm
Mississippi Department of Archives and History	MDAH
Mississippi Department of Transportation	MDOT
Mississippi State Historic Preservation Office	SHPO
National Aeronautics and Space Administration	NASA
National Environmental Policy Act	NEPA
National Historic Preservation Act	NHPA
National Register of Historical Places	NRHP
Norfolk Southern	NS
Port Bienville Railroad	PBRR
Right-of-Way	ROW
Register of Professional Archaeologist	RPA
John C. Stennis Space Center	SSC
Shovel Test Probe	STP
Transportation Planning Report	TPR
United States Geological Survey	USGS

1.0 INTRODUCTION

This report describes the field and laboratory methods for and the results of a Phase I cultural resource survey conducted for the Mississippi Department of Transportation (MDOT), the Federal Railroad Administration (FRA), and the Hancock County Port and Harbor Commission (HCPHC) for a proposed new freight rail line that would provide a direct connection between the Port Bienville Railroad (PBRR) and the Norfolk Southern (NS) rail line near Interstate 59 (I-59), north of the National Aeronautics and Space Administration's (NASA) John C. Stennis Space Center (SSC) (Project No. FRA-0023-00(003)/105494 101000-102000) (Figure 1-1). This connection would provide a second Class 1 rail connection to Port Bienville and the Industrial Park.

1.1 PROJECT PURPOSE

The purpose of the project is to construct a new railroad line to support the needs of the Port Bienville Industrial Park, and its tenants and other industries in the area. A new dual Class 1 railroad connection to serve the Port Bienville Industrial Park and surrounding area would:

- Improve rail transport time and reliability;
- Foster greater economic opportunities and attract new industries to Hancock and Pearl River Counties;
- Create flexibility in rail transportation options during storms and other emergencies.

1.2 PROJECT LOCATION

The project is located in the southwestern portion of the state of Mississippi and encompasses a portion of Hancock and Pearl River Counties (Figure 1-1). Six segments comprise the centerline of the proposed PBRR corridor (Figure 1-2). Each of the segments is described below, from north to south.

1.2.1 Segment 11

Segment 11 is approximately 3.44 miles long and is located at the northern end of the proposed PBRR corridor near Nicholson, Mississippi. Dominant land uses include prior-converted pine plantations, roadways, railroad, utility infrastructure, and residential. Existing habitats consist of pine savannah/pine flatwoods, scrub/shrub wetlands, emergent wetland, and upland Pine Plantations. The segment also includes roadway, railroad, agricultural drainage features, and swales that convey storm water drainage from runoff during rain events.

1.2.2 Segment 10B

Segment 10B is approximately 5.17 miles long and is located near the northern end of the proposed PBRR corridor, between Segments 9 and 11. Dominant land uses within Segment 10B consist of roadway and utility infrastructure, and prior converted pine plantations. Existing habitats include pine savannah/pine flatwoods, scrub-shrub wetlands, bottomland hardwoods, emergent wetlands, and upland pine plantations.

Figure 1-1: Proposed PBRR Corridor Location within Pearl River and Hancock Counties

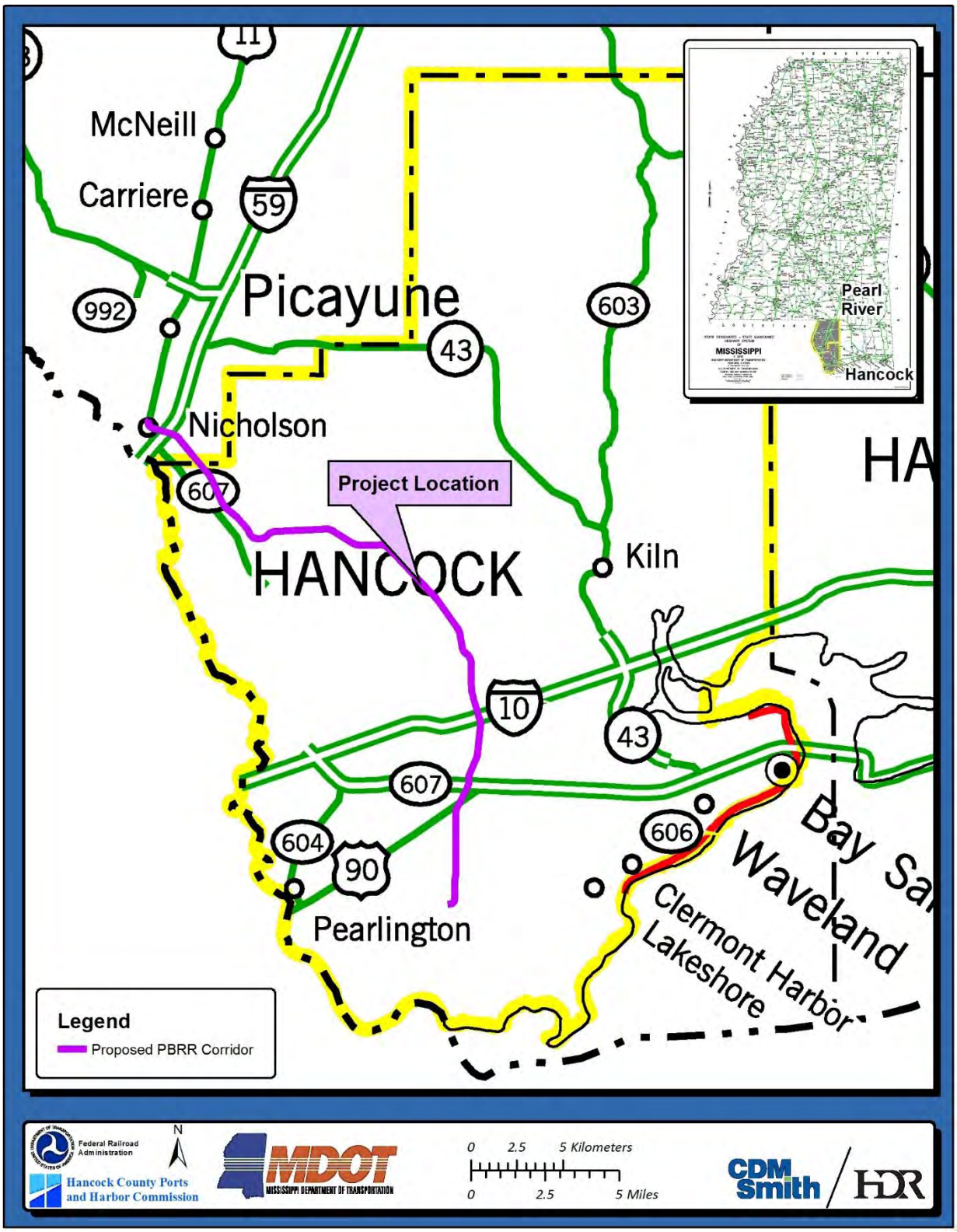
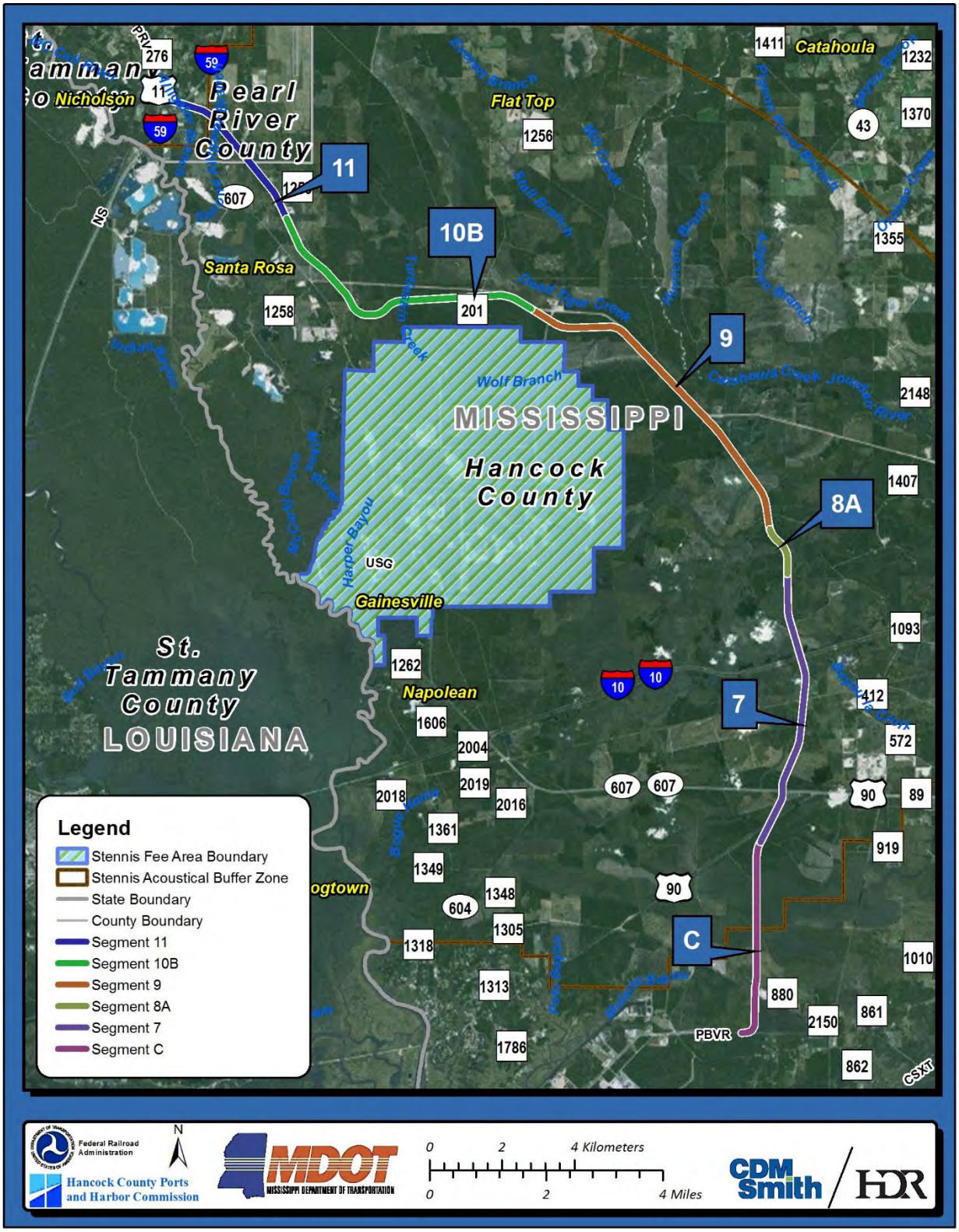


Figure 1-2: Proposed PBRR Segments



1.2.3 Segment 9

Segment 9 is approximately 5.98 miles long and is located between Segments 8A and 10B. The segment begins approximately 0.4 mile west of the Texas Flat Road and Mainline Road intersection and ends approximately 2.2 miles north of Interstate 10 (I-10). Dominant land uses within the limits of this corridor include prior-converted pine plantation of loblolly and slash pine, roadway, utility infrastructure, and farmlands. Open water and emergent wetland habitat exist along pipeline and utility right-of-way throughout this segment, likely resulting from disturbance during right-of-way construction and maintenance. Other existing habitats include scrub-shrub wetlands, pine savannahs, emergent wetlands, bottomland hardwoods, and pine plantation.

1.2.4 Segment 8A

Segment 8A is a relatively short segment approximately 0.87 mile and is located between Segments 7 and 9. This segment consists of mostly pine savannahs and emergent wetlands north of I-10. Land uses in this area were consistent with other areas within the proposed PBRR corridor. These include hunt clubs and silvicultural practices. A large portion of the segment had been recently clear-cut.

1.2.5 Segment 7

Segment 7 is approximately 4.84 miles long and is located near the southern end of the proposed PBRR corridor, between Segments 8a and C. The segment begins approximately 1 mile south of US 90 and ends 1.5 miles north of I-10. Dominant land uses consist of prior-converted pine plantations of loblolly and slash pine, roadway and utility infrastructure, residential, and cattle pasture. Existing habitats include pine plantation, bottomland hardwoods, pine savannah/pine flatwoods, scrub shrub wetlands, emergent wetlands, and early succession pine plantation uplands.

1.2.6 Segment C (Revised from Segments 1–6)

Segment C is approximately 3.39 miles in length beginning at the Port Bienville railroad and ending approximately 1 mile south of US-90. The corridor is bisected by several unnamed access roads used for both silviculture and pipeline maintenance. The abundance of deer stands would indicate this area is predominantly used for hunting purposes. Land uses for this area include roadway and utility infrastructure, residential, and hunt clubs in addition to silvicultural practices that dominate the landscape.

1.3 REGULATORY CONTEXT

The project is subject to compliance with the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.) and its implementing regulations (36 CFR 800). Specifically, Section 106 of the NHPA requires that the responsible federal agency consider the effects of its actions on historic properties, which are properties listed in or determined eligible for listing in the National Register of Historic Places (NRHP), and provide the Federal Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. The lead Federal Agency for this project is the Federal Railroad Administration because the project calls for the modification of an existing railroad.

Per Section 106 requirements, the lead federal agency, in consultation with the State Historic Preservation Officer (SHPO), develops the area of potential effects (APE), identifies historic properties (i.e., NRHP-listed and NRHP-eligible) in the APE, and makes determinations of the

proposed project's effect on historic properties in the APE. Section 106 regulations require that the lead federal agency consult with the SHPO and identified parties with an interest in historic properties during planning and development of the proposed project. The ACHP may participate in the consultation or may leave such involvement to the SHPO and other consulting parties. ACHP, if participating, and the SHPO are provided an opportunity to comment on the proposed project and its effects on historic properties. They participate in development of a Memorandum of Agreement (MOA) or Programmatic Agreement (PA) to avoid, minimize, or mitigate adverse effects, as applicable. Stipulations in a MOA or a PA must be implemented. If a National Historic Landmark (NHL) is located within the APE and would be adversely affected by the project, the federal agency must also comply with Section 110(f) of the NHPA. Section 110(f) requires that the agency undertake, to the maximum extent possible, planning and actions to minimize harm to any adversely affected NHL and afford the ACHP an opportunity to comment. Per 36 CFR 800.10(c), the agency must notify the Secretary of the Interior of any consultation regarding an NHL and invite the Secretary and the ACHP to participate in consultation where an adverse effect to an NHL may occur.

1.3.1 Area of Potential Effect Definition

The Area of Potential Effects (APE) is defined in 36 CFR Part 800.16(d) of the NHPA as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

1.3.2 Identification of Historic Properties

Historic properties are listed in or determined eligible for listing in the NRHP by applying the NRHP Criteria for Evaluation to evaluate a property's historic significance. The Criteria state that the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Built resources are typically evaluated under Criteria A, B, and C; Criterion D applies primarily to archeological resources.

If a property is determined to possess historic significance, its integrity is evaluated using the following seven Aspects of Integrity to determine if it conveys historic significance: location; design; setting; materials; workmanship; feeling; and association. If a property is determined to possess historic significance under one or more Criteria and retains integrity to convey its significance, the property is deemed eligible for the NRHP during Section 106 review.

1.3.3 Determination of Effect

Effects assessments are based on the criteria of adverse effect as defined in 36 CFR 800.5 "Assessment of adverse effects." According to this portion of the regulations, the criteria of adverse effects are defined as follows:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.*

Examples of adverse effects are identified in 36 CFR 800.5 and include, but are not limited to, the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

NRHP bulletins do not address assessments of effects, as effects evaluations are related to the Section 106 process and not the Section 110 process in which the National Register guidance is more commonly used. However, crucial information on integrity assessments (used for eligibility determinations) provides information regarding what each aspect of integrity entails and how each aspect relates to the select National Register criteria for eligibility. As described above, retention of relevant aspects of integrity is critical to a property's significance under the NRHP Criteria for Evaluation. The National Register Bulletin *How to Apply the National Register Criteria for Evaluation*

(National Park Service 1997) identifies the aspects of integrity and describes their relevance to the NRHP Criteria for Evaluation. The seven aspects of integrity are described in the bulletin as follows:

- Location is the place where the historic property was constructed or the place where the historic event occurred;
- Design is the combination of elements that create the form, plan, space, structure, and style of a property;
- Setting is the physical environment of a historic property;
- Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- Feeling is a property's expression of the aesthetic or historic sense of a particular period of time; and
- Association is the direct link between an important historic event or person and a historic property.

According to guidance found in *How to Apply the National Register Criteria for Evaluation*, different aspects of integrity may be more or less relevant depending on why a specific historic property was listed in or determined eligible for listing in the NRHP. For example, a property that is significant for its historic association (Criteria A or B) is eligible if it retains the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s). A property determined eligible under Criteria A or B ideally might retain some features of all aspects of integrity, although aspects such as design and workmanship might not be as important.

A property important for illustrating a particular architectural style or construction technique (Criterion C) must retain most of the physical features that constitute that style or technique. A property that has lost some historic materials or details can be eligible if it retains the majority of features that illustrate its type and/or style in terms of the massing, spatial relationships, proportion, pattern of windows and doors, texture of materials, and ornamentation. The property is not eligible, however, if it retains some basic features conveying massing but has lost the majority of the features that once characterized its type or style. A property significant under Criterion C must retain those physical features that characterize the type, period, or method of construction that the property represents. Retention of design, workmanship, and materials will usually be more important than location, setting, feeling, and association. Location and setting will be important for those properties whose design is a reflection of their immediate environment (such as designed landscapes).

For a historic district to retain integrity, the majority of the components that make up the district's historic character must possess integrity even if they are individually undistinguished. In addition,

the relationships among the district's components must be substantially unchanged since the period of significance.

To determine project effects, each historic property in the APE was visited, and project plans and additional documentation were reviewed. Following guidelines set forth in 36 CFR 800 and supported by information on integrity set forth in the National Register Bulletin *How to Apply the National Register Criteria for Evaluation*, the following findings were used to assess project effects to historic properties:

- **No Effect**: Per 36 CFR 800.4(d)(1), an undertaking may have no effect to historic properties present in the APE, and a finding of "No Effect" may be determined for an undertaking. This finding indicates that an undertaking would not alter any aspects of integrity for any historic properties.

- **No Adverse Effect**: Per 36 CFR 800.5(b), an undertaking may be determined to have "No Adverse Effect" to historic properties if the undertaking's effects do not meet the criteria of adverse effect as described above. If project implementation would alter a specific aspect of integrity for a historic property but the effect would not alter a characteristic that qualifies that resource for inclusion in the NRHP in a manner that diminishes the significant aspect of integrity, then the finding for that aspect of integrity is "No Adverse Effect."

- **Adverse Effect**: An adverse effect is determined if the undertaking would alter a characteristic that qualifies that contributing resource for inclusion in the NRHP in a manner that diminishes the significant aspect(s) of integrity.

1.3.4 Avoidance Alternatives, Planning to Minimize Effects, and Mitigation

Per 36 CFR 800.6, a finding of adverse effect to historic properties requires that efforts to resolve such effects by developing and evaluating alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects must be undertaken.

To determine if any historic properties within the project's APE would be affected by the project, documentation was reviewed for all NRHP listed and eligible properties within the APE, project plans were reviewed, and additional field visits were conducted to each historic property. Using the criteria of adverse effect established in 36 CFR 800.5(a)(1) and guidance found in How to *Apply the National Register Criteria for Evaluation*, each historic property was evaluated to determine if implementation of the project would alter any historically significant characteristics or features of each historic property by diminishing relevant aspects of that property's historic integrity.

1.4 IDENTIFIED AREA OF POTENTIAL EFFECTS DEFINITION

For the purpose of the Archaeological and Architectural investigations detailed in this report, two defined APE are used. One is for delineating the archaeological limits of investigation (Archaeological APE), and the other defines the architectural research limits (Architectural APE).

1.4.1 Archaeological APE

The final constructed footprint of the rail bed is expected to be typically less than 100 feet in width. As such, the Archaeological APE consists of a 100 foot (30.48 m) buffer applied along the centerline of the proposed Port Bienville Railroad (PBRR), resulting in a total survey corridor measuring 200

feet (60.96 meters) in width. The proposed PBRR corridor is 38.1 kilometers (23.7 miles) in length, and the Archaeological APE encompasses 575 acres (232.7 hectares). The northern terminus of the proposed PBRR corridor is easting 241467.764244, northing 3374759.986355 (UTM 16 NAD 27) and the NW ¼ SW ¼ NW ¼ SE ¼ of Section 39 Township 6S Range 17W. The southern terminus of the proposed PBRR corridor is easting 257112.267091, northing 3348105.949963 (UTM 16 NAD 27) and the NW ¼ NW ¼ SE ¼ SW ¼ of Section 20 Township 9S Range 15W. Figure 1-3 outlines the Archaeological APE on USGS quadrangle maps, and Figure 1-4 outlines the Archaeological APE on an aerial photograph.

1.4.2 Architectural APE

The Architectural APE is defined as being a 75 meter (246.06 feet) MDOT and MDAH approved buffer size around the Archaeological APE. Figure 1-3 outlines the Architectural APE on USGS quadrangle maps, and Figure 1-4 outlines the Architectural APE on an aerial photograph.

1.5 ARCHAEOLOGICAL AND ARCHITECTURAL INVESTIGATIONS SPONSOR

The sponsor for this project is MDOT and HCPHC.

1.6 ARCHAEOLOGICAL AND ARCHITECTURAL INVESTIGATIONS GOALS

The archaeological and architectural investigations reported in this document were undertaken to identify any archaeological or architectural resources within the proposed PBRR corridor that are eligible for listing in the NRHP. This was accomplished by conducting a Phase I archaeological survey of the APE to generate a preliminary description of any archaeological sites that were present in the proposed PBRR corridor as well as an architectural study of the Architectural APE to identify historic resources.

The archaeological and architectural research was conducted in compliance with provisions of the National Historic Preservation Act of 1966 (P.L. 89-665; 80 Stat.915, 16 U.S.C. 470 et seq), the National Environmental Policy Act of 1969 (P.L. 910190; 83 Stat. 852, 42 U.S.C. 4321 et seq), Procedures of the Advisory Council on Historic Preservation (36 CFR 800), Executive Order 11593, Protection and Enhancement of the Cultural Environment (16 U.S.C. 470; Supp. 1, 1971), and Section 404 of the Clean Water Act (33 U.S.C. § 1251 et seq.).

This report conforms to the Mississippi Department of Transportation Guidelines for Contractors on Archaeological Investigations and Reports (2007) and the MDAH's Guidelines for Archaeological Investigations and Reports in Mississippi (Sims 2001).

1.7 PERSONNEL

The personnel for this project were comprised of archaeologist(s) and architectural historians from the Lexington, Kentucky, office of CDM Smith Inc, and the Dallas, Texas, office of HDR Inc.

Figure 1-3: Proposed PBRR Corridor Location on USGS Topographical Maps

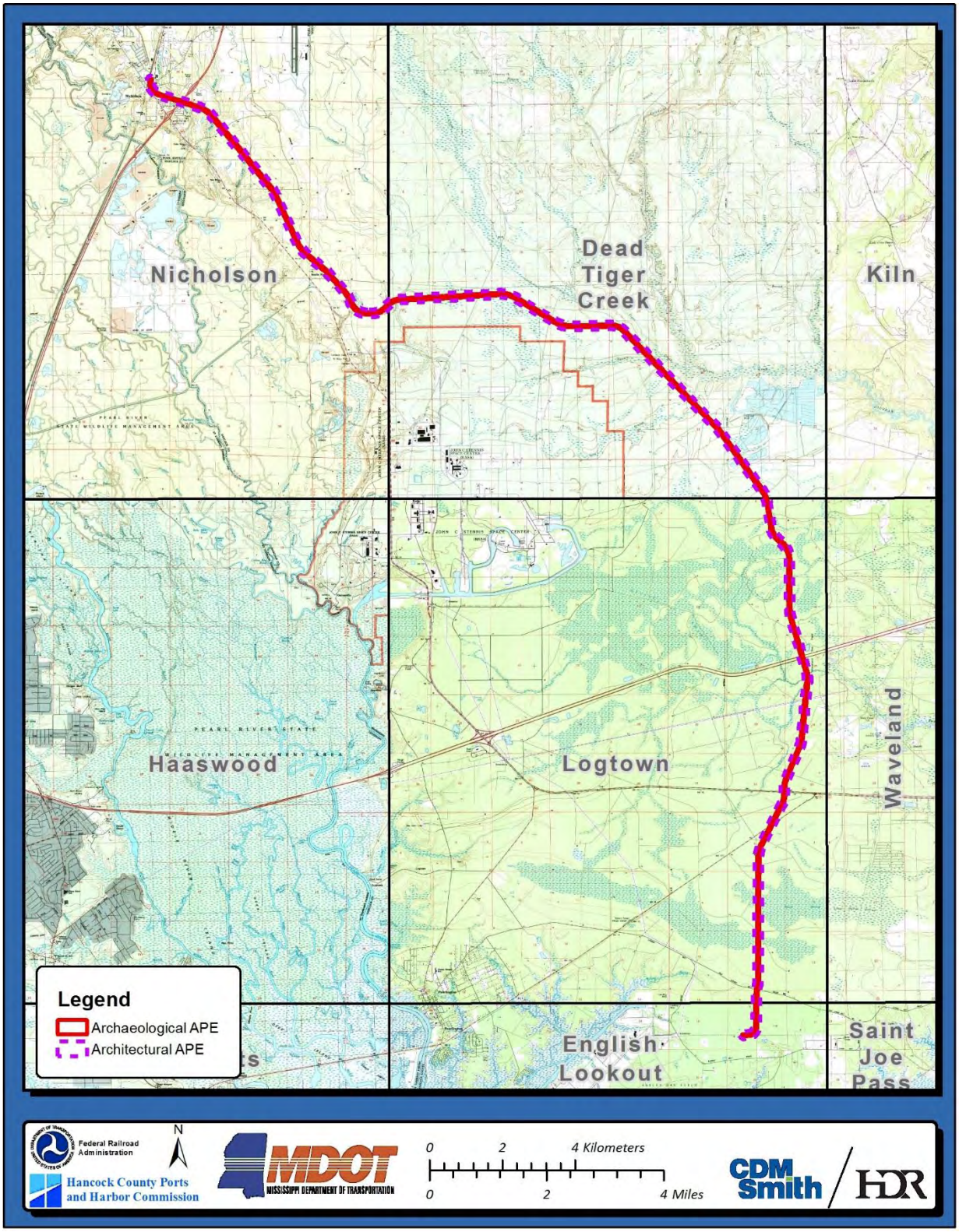
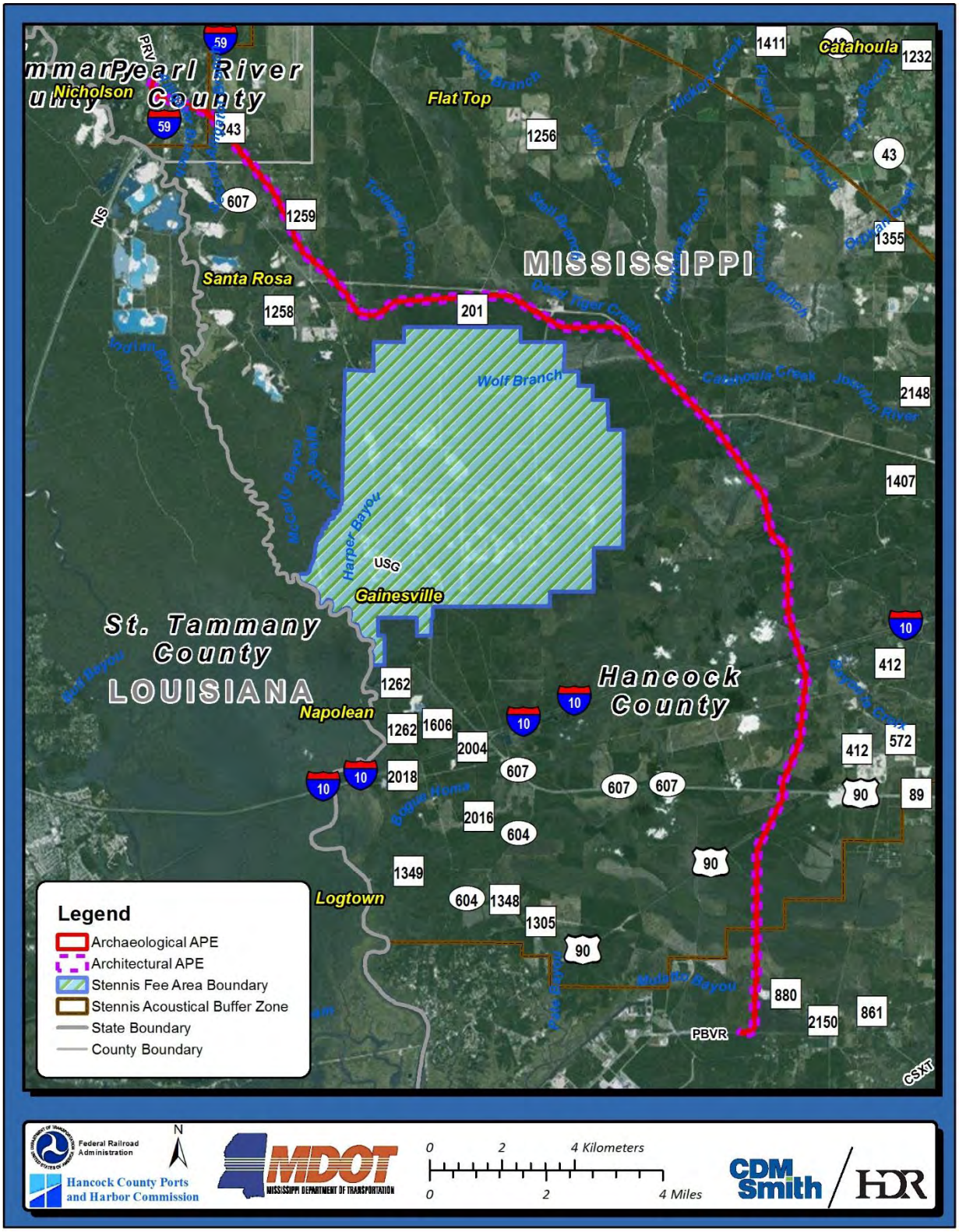


Figure 1-4: Proposed PBRR Corridor Location on Aerial Photograph



1.7.1 Principal Investigator

The principal investigator for this study was Mr. J. Howard Beverly, Jr., RPA. Mr. Beverly planned and supervised field and laboratory activities and, as needed, directed additional effort to determine eligibility status.

1.7.2 Field and Laboratory Crew

The field director for CDM Smith was J. Howard Beverly, Jr. The field director for HDR was Clayton Tinsley.

1.8 BACKGROUND RESEARCH DATES

The Mississippi Department of Archives and History (MDAH) files were consulted on April 26, 2016.

1.9 FIELD SURVEY DATES

The phase I Archaeological and Architectural survey was conducted between April 12 and 19, 2016, and between June 14 and 16, 2016.

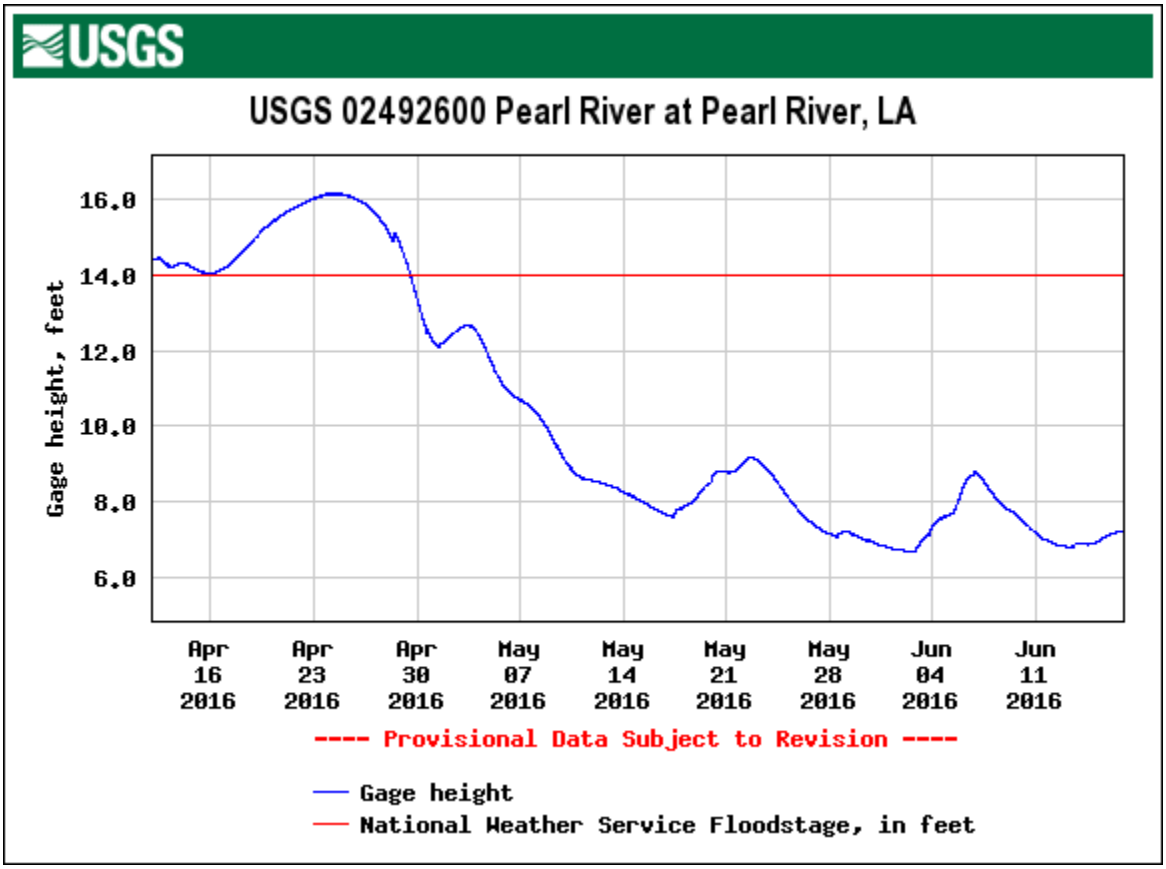
1.10 FIELD SURVEY CONDITIONS

The weather during the April field visit was a mix of rain and sun with warm temperatures, while June was sunny and hot (Table 1-1). In the days leading up to the April field visit, the area had received substantial rainfall, causing water level to rise above flood stages (Figure 1-5), inundating low lying areas and ponding on poorly drained soils.

Table 1-1: Weather Information

Date	Temp. (°F)			Precip. (in)	Events
	high	avg	low	sum	
April 12, 2016	72.0	67.4	62.2	1.83	Rain, Thunderstorm
April 13, 2016	74.3	66.1	61.2	1.43	Rain, Thunderstorm
April 14, 2016	85.3	70.8	64.9	0.29	Rain
April 15, 2016	71.2	66.7	64.2	0.00	
April 16, 2016	73.0	66.9	64.0	0.00	
April 17, 2016	76.6	68.4	61.5	0.00	
April 18, 2016	85.8	69.5	59.4	0.00	
April 19, 2016	86.2	70.5	61.0	0.00	
June 14, 2016	91.8	79.9	75.1	0.00	
June 15, 2016	91.9	84.5	78.6	0.00	
June 16, 2016	96.1	85.8	78.5	0.00	

Figure 1-5: Pearl River Gage Height and Flood Stage from April 12 to June 16, 2016



1.11 EXHIBIT PREPARATIONS AND MAPS

Maps and figures for this report were prepared using a combination of Microstation design files, GIS data overlays, and databases gathered from a number of different resources. All GIS work was conducted by Mr. J. Howard Beverly, RPA.

1.12 CURATION INFORMATION

All field notes, maps, and forms will be curated by MDOT.

1.13 OVERVIEW OF FINDINGS

1.13.1 Archaeological Findings, Conclusions, and Recommendations

No previously recorded archaeological sites were identified within the Archaeological APE. A total of 24 newly recorded linear archaeological sites were identified as a result of this investigation (Table 1-2). Of these sites, 13 are not eligible for inclusion in the NRHP, and 11 have undetermined eligibility statuses. The current project will not have an adverse impact to any archaeological sites recorded within the APE.

1.13.2 Architectural Findings, Conclusions, and Recommendations

No previously recorded architectural resources were within the Architectural APE. Three newly documented architectural resources, Resource 1, Resource 2, and Resource 3, were identified (

Table 1-3). All three were built by Southern Railway for transporting construction materials and other material to the Mississippi Test Operations site, now known as the John C. Stennis Space Center. Although the resources were built to enable construction of the NRHP-listed Rocket Propulsion Test Complex, they are not associated with the mission of the complex. They provided necessary infrastructure and support for the complex but were not specifically associated with the complex's mission or any historic themes or events. The structures are not historically or architecturally significant, as defined by the National Park Service. Therefore, the Resources are recommended not eligible for the NRHP under Criteria A-D.

Table 1-2: Archaeological Sites

Site Number	Context	Period of Occupation	NRHP Recommendation
22Ha171	Historic		Undetermined
22Ha181	Historic		Undetermined
22Ha766	Historic		Not Eligible
22Ha767	Historic		Undetermined
22Ha768	Historic		Not Eligible
22Ha769	Historic		Not Eligible
22Ha770	Historic		Undetermined
22Ha771	Historic		Not Eligible
22Ha772	Historic		Undetermined
22Ha773	Historic		Not Eligible
22Ha774	Historic		Not Eligible
22Ha775	Historic		Not Eligible
22Ha776	Historic		Not Eligible
22Ha777	Historic		Not Eligible
22Ha778	Historic		Not Eligible
22Ha789	Historic		Not Eligible
22Ha780	Historic		Not Eligible
22Ha781	Historic		Not Eligible
22Ha782	Historic		Undetermined
22Ha783 (a–g)	Historic		Undetermined
22Pr158	Historic		Undetermined
22Pr180	Historic		Undetermined
22Pr967	Historic		Undetermined
22Pr968	Historic		Undetermined

Table 1-3: Newly Documented Historic Properties

Site Number	Type	Location	NRHP Recommendation
Resource 1	Southern Railroad Bridge over Second Alligator Branch	89° 40' 27.07" W 30° 28' 6.89" N	Not Eligible
Resource 2	Southern Railroad Bridge over I-59 and Alligator Branch	89° 41' 3.09" W 30° 28' 24.59" N	Not Eligible
Resource 3	Southern Railroad Culvert over Indian Camp Branch	89° 39' 56.05" W 30° 27' 34.00" N	Not Eligible

2.0 ENVIRONMENT

This section describes the present environment and setting of the proposed PRBB corridor and how the prehistoric and historic environment may have differed from the contemporary environment.

2.1 GEOLOGY

The state of Mississippi lies almost entirely within what is known as the Gulf Coastal Plain which is continuous to the east with the Atlantic Coastal Plain. The Gulf Coastal Plain is subdivided along the Mississippi River into the East Gulf Coastal Plain and the West Gulf Coastal Plain. The Mississippi River Alluvial Plain is to the northwest. It consists of level and nearly level floodplains that extend to the foothills of the loess bluffs which form a crescent at the region's eastern edge.

The bedrock underlying Pearl River and Hancock counties include Graham Ferry and Pascagoula Formations, Citronelle Formation, High Terrace deposits, Pamiloco Sand, alluvium, coastal deposits, and eolian sand. The geology underlying the proposed PRBB corridor consists of coastal deposits (Figure 2-1). Coastal deposits include fine to medium quartz sand with shell fragments and accessory heavy minerals found along Gulf coastal beaches. In the Mississippi Sound, Little Lagoon, bays, lakes, streams are fine to medium quartz sand, silt, clay, peat, mud and ooze (Nicholas et al. 1983:2; Smith et al. 1981:2; USGS 2016).

2.2 PHYSIOGRAPHY

The proposed PBRR corridor is within the Gulf Coastal Plain physiographic province, mainly on the eastern flank of the Mississippi embayment. The area is characterized by low hills, low steep-sided ridges, and gently rolling lowlands (Shimer 1972).

Mississippi can be divided further into nine distinct physiographical zones. These are the Black Prairie, Costal Zone, Delta, Jackson Prairie, Loess Hills, North Central Hills, Pine Belt, South Central Hills, and the Tombigbee Hills. The proposed PRBB corridor is entirely within the Coastal physiographic zone (Figure 2-2).

The Coastal Zone is a flat area rising gently inland from the shore in a belt about 10 to 15 miles wide and parallel to the Gulf Coast. The soils, consisting mostly of ultisols, inceptisols, a few histosols and entisols, and rare spodosols, are acid and include areas of boggy soils with high organic content. They originate from Pleistocene and recent deposits of clay, silt, sand and gravel. The vegetation found in this area is similar to those found in the southern part of the Pine Hills such as live oaks, southern magnolia, and saw-palmetto. Along the shore are the saline and brackish marshes with black needlerush and cordgrasses. Also present are fire-dependent savannas with slash pine include numerous grasses, sedges, and carnivorous plants (Stewart 2003).

Figure 2-1: Geology of the Proposed PBRR Corridor

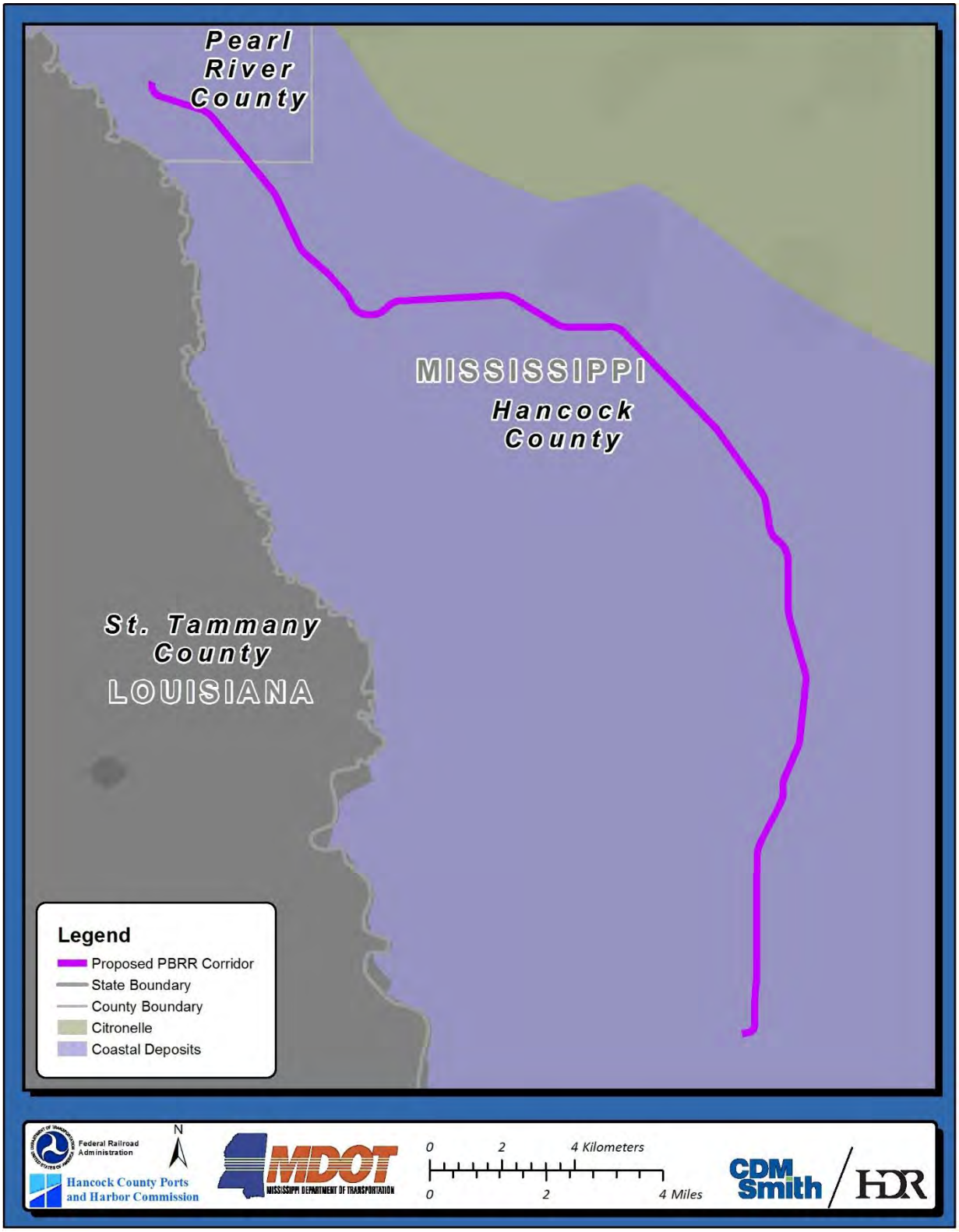
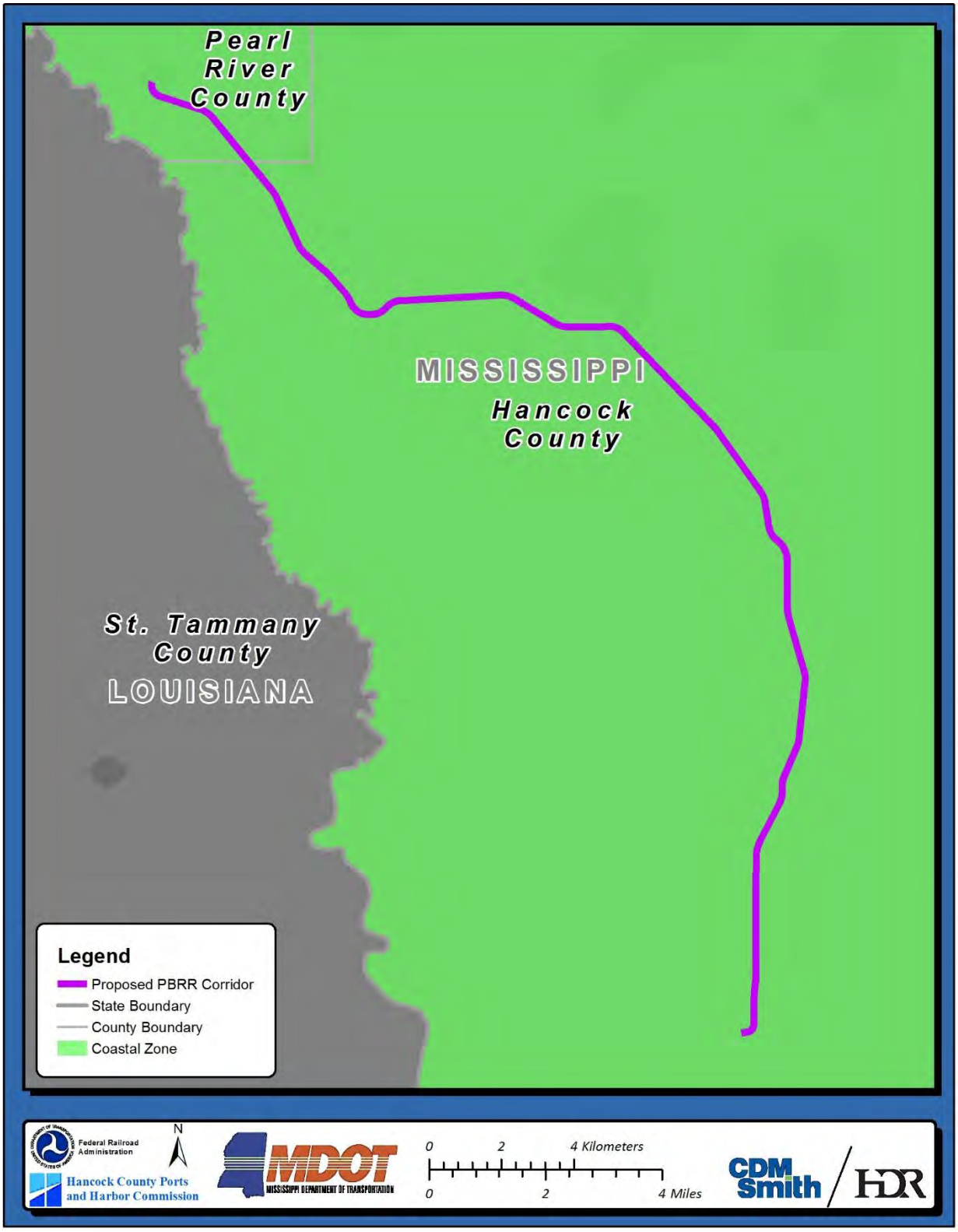


Figure 2-2: Physiography of the Proposed PBRR Corridor



2.3 ECOLOGY

Pearl River and Hancock county is located within the South Coastal Plains Level III ecoregion for Mississippi (Figure 2-3). The Southern Coastal Plain extends from South Carolina and Georgia through much of central Florida, and along the Gulf coast lowlands of the Florida Panhandle, Alabama, and Mississippi. Although appearing heterogeneous flat throughout the region, it contains barrier islands, coastal lagoons, marshes, and swampy lowlands. Once covered by a variety of forest communities that included trees of longleaf pine (*Pinus palustris*), slash pine (P. *elliottii*), pond pine (P. *serotina*), beech (*Fagus grandifolia*), sweetgum (*Liquidamber styraciflua*), southern magnolia (*Magnolia grandiflora*), white oak (*Quercus alba*), and laurel oak (Q. *laurifolia*), the area is now mostly made up of slash and loblolly pine with oak-gum-cypress forest in some low-lying areas, pasture for beef cattle, and urban development (Chapman et al. 2004).

Within Pearl River and Hancock County, the proposed PRBB corridor is located within the Gulf Coast Flatwoods (Figure 2-4). This area is a narrow region of nearly level terraces and delta deposits composed of Quaternary-age sands and clays. Wet, sandy flats and broad depressions that are locally swampy are now usually forested or in pine plantations, while some of the better-drained land has been cleared for pasture or crops. Dominant land uses include woodland, wildlife habitat, and urban development. Historically, pine savannas with slash and longleaf pine (*Pinus elliottii*, P. *palustris*) and a variety of grasses, sedges, rushes, pitcher plants and orchids were common. A high natural fire frequency was typical, often sparked by lightning and fueled by wiregrass (*Aristida spp*.) that maintained the more open savannas (Chapman et al. 2004).

2.4 SOILS

There are 26 different soil series within the proposed PBRR corridor. These are Atmore silt loam (At), Beauregard silt loam (Be), Bibb sandy loam (Bd), Escambia fine sandy loam, zero to two percent slopes (EaA), Escambia loam, zero to two percent slopes (EsA), Escambia loam, two to five percent slopes (EsB), Eustis loamy fine sand, two to five percent slopes (EuB), Guyton silt loam (Gu), Harleston fine sandy loam, zero to two percent slopes (HlA), Harleston fine sandy loam, two to five percent slopes (HlB), Malbis fine sandy loam, two to five percent slopes (MaB), McLaurin fine sandy loam, two to five percent slopes (McB), Pits (Pa), Poarch fine sandy loam, zero to two percent slopes (PoA), Poarch fine sandy loam, two to five percent slopes (PoB), Poarch fine sandy loam, five to eight percent slopes (PoC), Poarch loam, zero to two percent slopes (PoA), Saucier fine sandy loam, zero to two percent slopes (SaA), Saucier fine sandy loam, two to five percent slopes (SaB), Saucier loam, zero to two percent slopes (SaA), Saucier-Susquehanna complex, two to five percent slopes (ScB), Smithton association, frequently flooded (SW), Smithton fine sandy loam (St), Smithton fine sandy loam, frequently flooded (Su), Trebloc association, frequently flooded (TR), and Water (W). A map of the soil types is presented in Figure 2-5.

The Atmore silt loam (At) soils are made up of one major component (Atmore) and three minor components (Harleston, Poarch, and Escambia). Slopes are zero to two percent. This component is on terraces on coastal plains. The parent material consists of silty alluvium over fine-loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer, plinthite, is 24 to 50 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate.

Figure 2-3: Level III Ecoregions of the Proposed PBRR Corridor

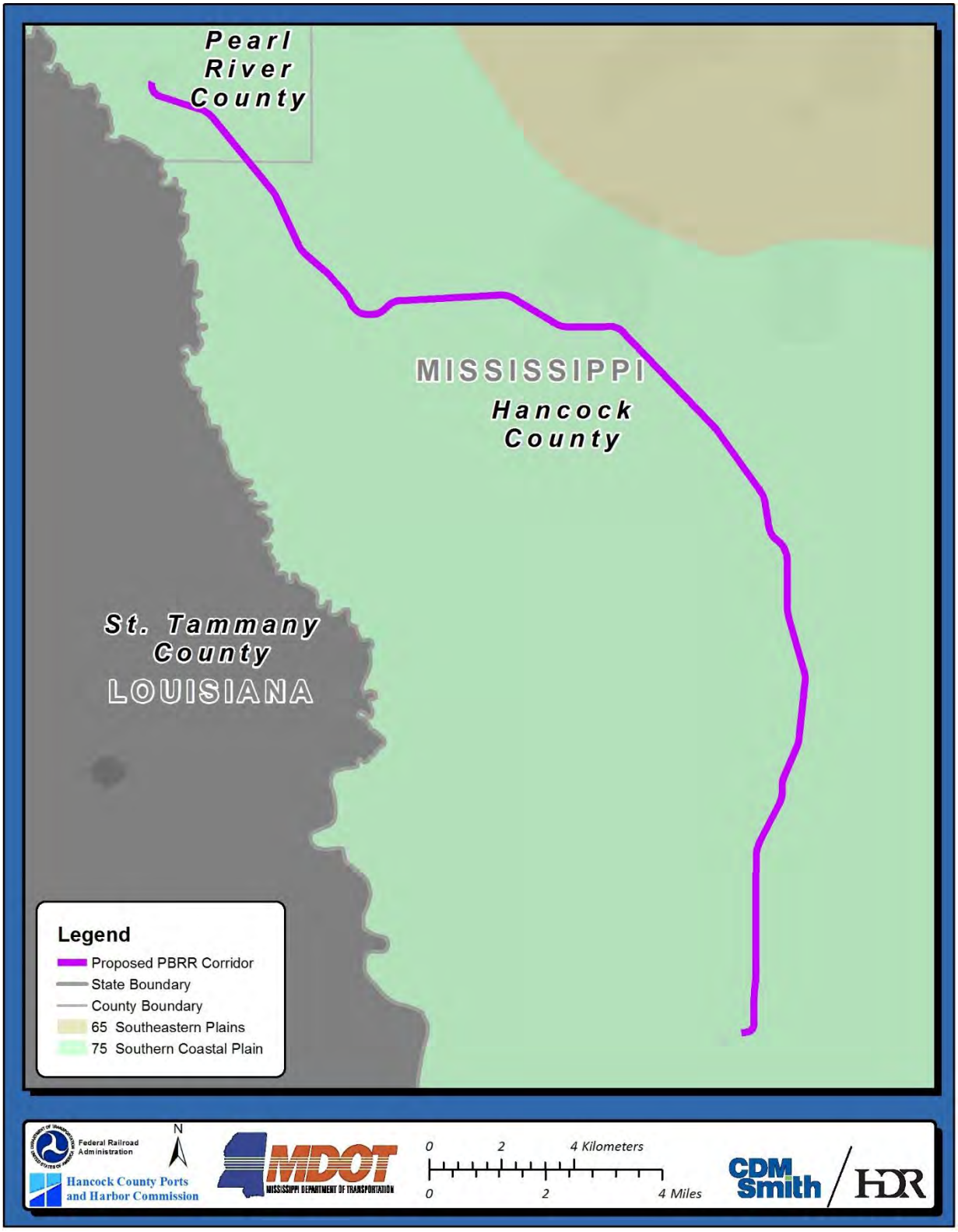


Figure 2-4: Level IV Ecoregions of the Proposed PBRR Corridor

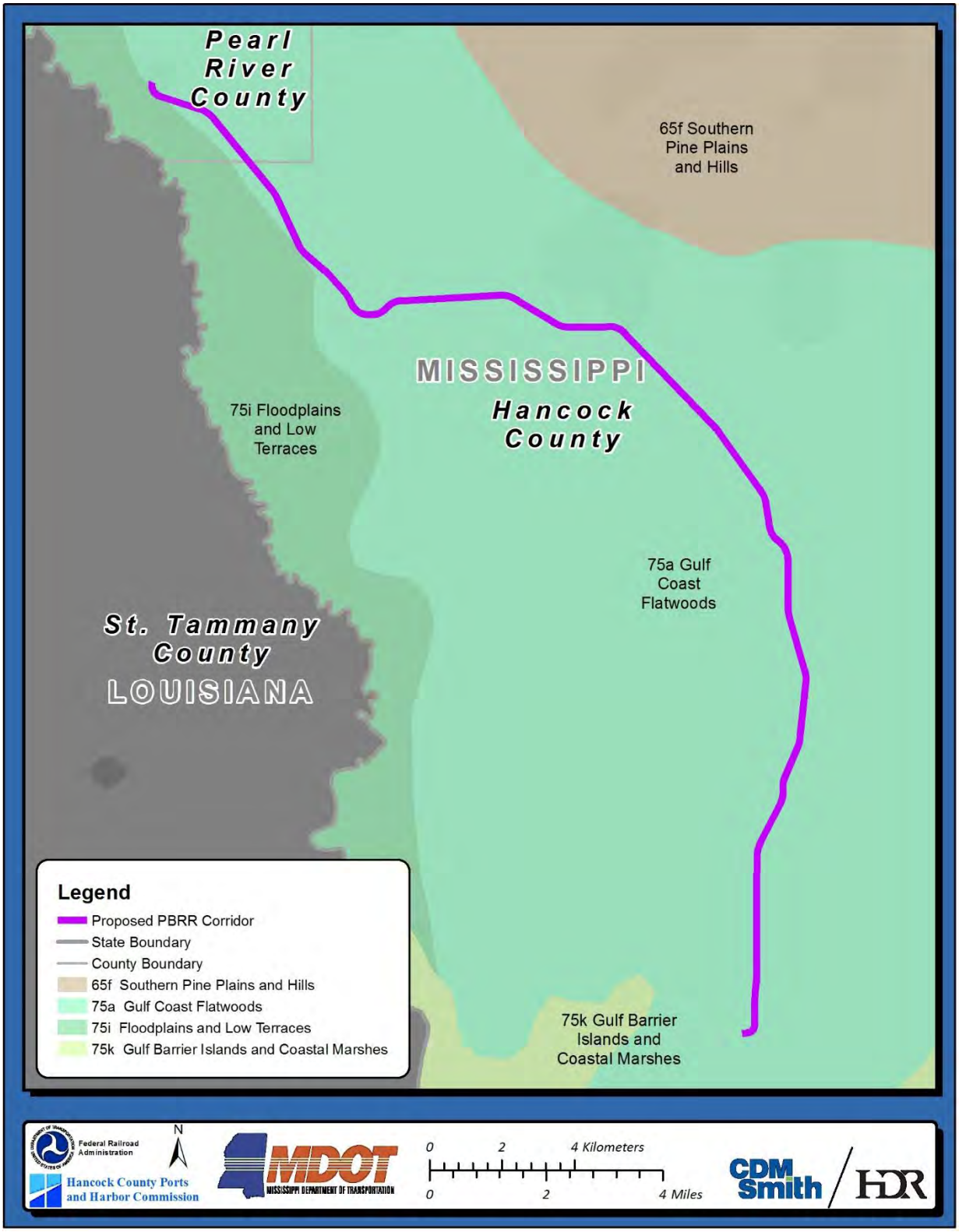
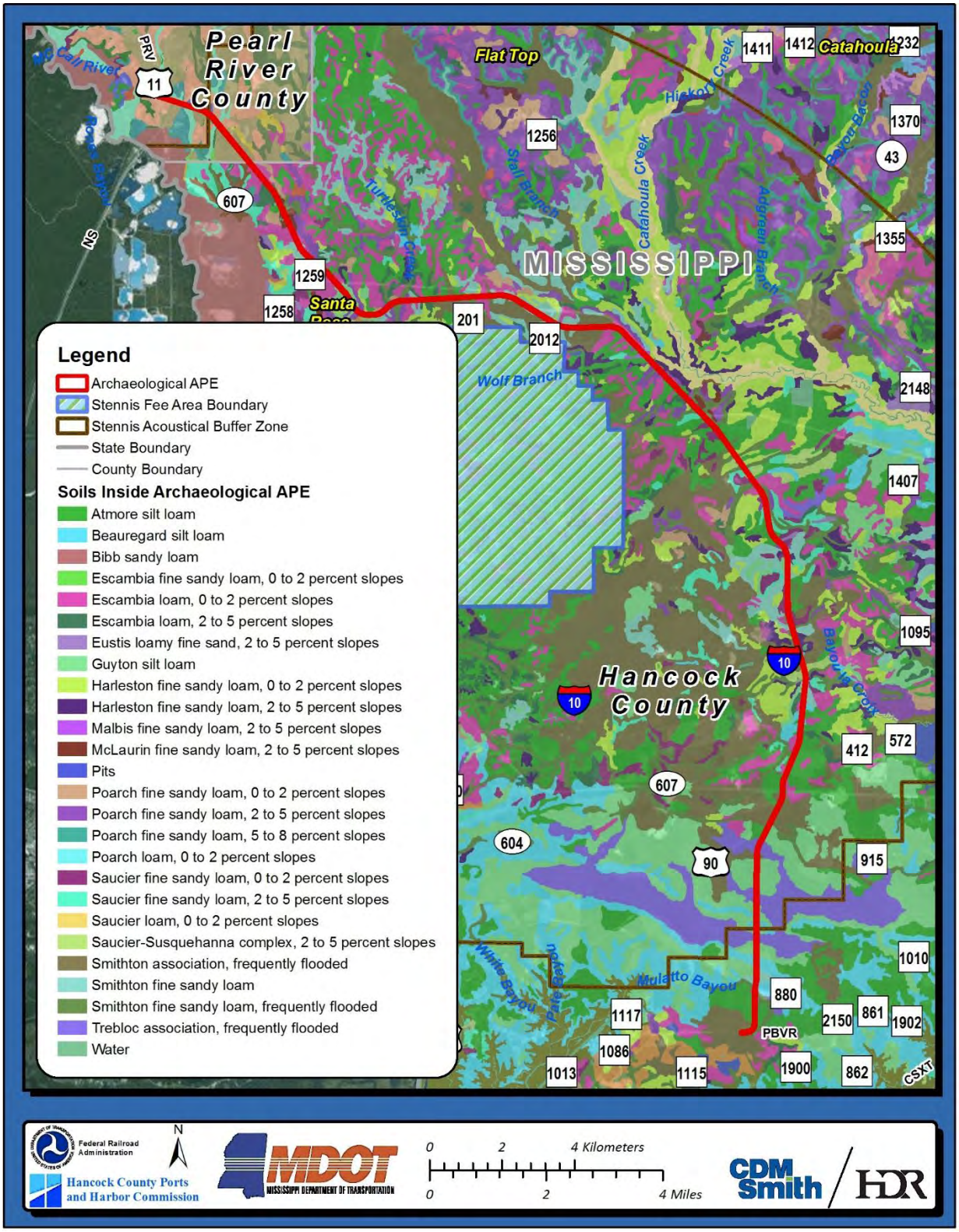


Figure 2-5: Soils Inside the Proposed PBRR Corridor



Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at four inches during March, April, October. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 4w. This soil hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

The Beauregard silt loam (Be) soils are made up of one major component (Beauegard), and four minor components (Atmore, Smithton, Escambia, and Harleston). Slopes are zero to one percent. This component is on coastal plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, December. Organic matter content in the surface horizon is about three percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria (USDA 2016).

Bibb sandy loam (Bd) soils are made up of one major component (Bibb) and one minor component (Dovoran). This component is on flood plains. The parent material consists of sandy and loamy alluvium deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at nine inches during January, February, March, April, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria (USDA 2016).

The Escambia fine sandy loam, zero to two percent slopes (EaA) soils is made up of one major component (Escambia) and three minor components (Atmore, Malbis, and Poarch). Slopes are zero to two percent. This component is on coastal plains, interfluves. The parent material consists of loamy fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Escambia loam, zero to two percent slopes (EsA) soils are made up of one major component (Escambia) and five minor components (Guyton, Harleston, Saucier, Atmore, and Poarch). This component is on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during January, February, March, December. Organic matter content in the surface horizon is about one percent.

Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria (USDS 2016).

Escambia loam, two to five percent slopes (EsB) soils consist of one major component (Escambia) and five minor components (Atmore, Harleston, Guyton, Poarch, and Saucier). Slopes are two to five percent. This component is on hillslopes. The parent material consists of Sandy Marine Deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about one percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria (USDS 2016).

Eustis loamy fine sand, two to five percent slopes (EuB) soils consist of one major component (Eustis) and three minor components (Escambia, Harleston, and Poarch). Slopes are two to five percent. This component is on hillslopes. The parent material consists of Sandy Marine Deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria (USDS 2016).

The Guyton silt loam (Gu) soils are made up of one major component (Guyton) and three minor components (Myatt, Abita, and Stough). The Guyton component makes up 90 percent of the map unit. Slopes are zero to one percent. This component is on fluviomarine terraces, flood-plain steps. The parent material consists of late Plisetocene age terraces with loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at nine inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Harleston fine sandy loam, zero to two percent slopes (HlA) soils consist of one major component (Harleston) and three minor components (Bibb, Smithton, and Stough). Slopes are zero to two percent. This component is on stream terraces on coastal plains. The parent material consists of loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 22 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Harleston fine sandy loam, two to five percent slopes (HlB) soils consist of one major component (Harleston) and three minor components (Bibb, Smithton, and Stough). Slopes are two to five percent. This component is on marine terraces on coastal plains. The parent material consists of loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 22 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. Irrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Malbis fine sandy loam, two to five percent slopes (MaB) soils consist of one major component (Malbis) and four minor components (Saucier, Poarch, Benndale, and Escambia). Slopes are two to five percent. This component is on fluviomarine terraces on coastal plains. The parent material consists of fine-loamy marine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 39 inches during January, February, March, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

The McLaurin fine sandy loam, two to five percent slopes (McB) is made up of one major component (McLaurin) and two minor components (Smithdale, and Benndale). Slopes are two to five percent. This component is on dissected fluviomarine terraces on coastal plains. The parent material consists of loamy fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Pits (Pa) are open excavations from which soil and commonly underlying material have been removed, exposing either rock or other material (USDA 2016).

Poarch fine sandy loam, zero to two percent slopes (PoA) soils are made up of one major component (Poarch) and one minor component (Smithton). Slopes are zero to two percent. This component is on ridges. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not

ponded. A seasonal zone of water saturation is at 45 inches during January, February, March, December. Organic matter content in the surface horizon is about one percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria (USDA 2016).

Poarch fine sandy loam, two to five percent slopes (PoB) soils consist of one major component (Poarch) and three minor components (Escambia, Malbis, and Harleston). Slopes are two to five percent. This component is on broad ridges on dissected uplands coastal plains. The parent material consists of loamy fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 45 inches during January, February, March, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Poarch fine sandy loam, five to eight percent slopes (PoC) soils consist of one major component (Poarch) and three minor components (Harleston, Smithton, and Escambia). Slopes are five to eight percent. This component is on hillslopes. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 45 inches during January, February, March, December. Organic matter content in the surface horizon is about one percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria (USDA 2016).

Poarch loam, zero to two percent slopes (PoA) soils consist of one major component (Poarch) and one minor component (Smithton). Slopes are zero to two percent. This component is on ridges. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 45 inches during January, February, March, December. Organic matter content in the surface horizon is about one percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria (USDA 2016).

Saucier fine sandy loam, zero to two percent slopes (SaA) soils consist of one major component (Saucier) and four minor components (Malbis, Poarch, Escambia, and Atmore). Slopes are zero to two percent. This component is on fluviomarine terraces, coastal plains. The parent material consists of loamy over clayey fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during January, February, March. Organic matter content in the surface horizon is about three percent. Nonirrigated land capability

classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

The Saucier fine sandy loam, two to five percent slopes (SaB) are made up of one major component (Saucier) and four minor components (Malbis, Poarch, Escambia, and Atmore). Slopes are two to five percent. This component is on fluviomarine terraces, coastal plains. The parent material consists of loamy over clayey fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during January, February, March. Organic matter content in the surface horizon is about three percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Saucier loam, zero to two percent slopes (SaA) is made up of one major component (Saucier) and one minor component (Smithton). Slopes are zero to two percent. This component is on coastal plains. The parent material consists of loamy over clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 39 inches during January, February, March. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria (USDA 2016).

Saucier-Susquehanna complex, two to five percent slopes (ScB) soils consist of two major components (Saucier and Susquehanna). Saucier soils have a slope of two to five percent. This component is on fluviomarine terraces, coastal plains. The parent material consists of loamy over clayey fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during January, February, March. Organic matter content in the surface horizon is about three percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. Susquehanna soils have a slope of two to five percent. This component is on erosional uplands fluviomarine terraces on coastal plains. The parent material consists of silty clay fluviomarine deposits over clayey fluviomarine deposits derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface (USDA 2016).

Smithton association, frequently flooded (SW) soils consist of one major component (Smithton) and three minor components (Trebloc, Harleston, and Bibb). Slopes are zero to two percent. This component is on terraces. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria (USDA 2016).

Smithton fine sandy loam (St) soils consist of one major component (Smithton) and four minor components (Atmore, Harleston, Guyton, and Plummer). Slopes are zero to two percent. This component is on terraces. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria (USDA 2016).

Smithton fine sandy loam, frequently flooded (Su) soils consist of one major component (Smithton) and four minor components (Guyton, Harleston, Plummer, and Atmore). Slopes are zero to two percent. This component is on terraces. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria (USDA 2016).

Trebloc association, frequently flooded (TR) soils consist of one major component (Trebloc) and four minor components (Smithton, Harleston, Atmore, and Guyton). Slopes are zero to two percent. This component is on terraces. The parent material consists of silty alluvium deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at nine inches during January, February, March, April. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria (USDA 2016).

Water (W) are areas where there is water present at the soil surface (USDA 2016).

2.5 DRAINAGE

The northern, central and eastern parts of Hancock county are drained by the Jordan and Wolf Rivers and their numerous tributaries which all empty into the St. Louis Bay. The western part of Hancock County is drained by the Pearl River. The western part of Perl River County is drained by

the Pearl River (Smith et al. 1981:2). The north-central and south-central parts of the county are drained by East Creek and West Hobolochito Creek. The eastern part of the county is trained by the Wolf River and its tributaries which all empty into the St. Louis Bay (Nichols et al. 1983:3).

The proposed PBRR corridor is situated within the Pearl River Basin and covers over 8,700 square miles. The basin drains all or parts of 24 counties in Mississippi and three parishes in Louisiana. Over 16,000 miles of streams and rivers flow through the basin. Subwatersheds of the Pearl River Basin include Fannegusha Creek, Mill Creek, the Strong River, Magees Creek, West Boley Creek, and Mike's River (Mississippi Department of Environmental Quality 2016). The proposed PBRR corridor falls within the Lower Pearl River watershed (MDEQ 2016b). The natural hydrology has been heavily altered in the area due to silvicultural activities including ditching, rowing, and logging within the numerous pine plantations that account for most of the proposed PRBB corridor. The hydrology of the proposed PRBB corridor is shown in Figure 2-6.

2.6 PREHISTORIC CLIMATE

During the Wisconsin glacial period, northern Mississippi was covered by a boreal forest of jack (*Pinus banksiana*) and red pine (*Pinus resinosa*) and some spruce (*Picea*). As the climate warmed from 12,050 to 9,050 B.C., the boreal forest changed to a mesic and more modern forest type dominated by broadleaf deciduous trees. By 9,050 to 8,050 B.C. the climate became drier and the modern hardwood forest covering Mississippi came into existence around 7,050 to 3,050 B.C. (Braun 1950).

In southern Mississippi, thick-leaved scrubby oak forest or oak savannah covered most of the area with either openings between oak groves or the oaks spaced widely apart. The modern Coastal Plain environment came into its own about 3,050 B.C. and is affected by rising sea levels, drops in stream gradient, and rising ground water tables.

Pearl River and Hancock counties are within the southeastern evergreen forest region (Braun 1950). Original forests of the area were characterized by Longleaf Pine with Loblolly Pine-Slash Pine in Pearl River County and by Slash Pine with Longleaf Pine-Bay-Savannas in Hancock County (Figure 2-7). Pines were dominant and hardwoods grew along the steams (Nichols 1983:45).

2.7 MODERN CLIMATE

In Hancock County the average temperature during the winter is 52 degrees F and the average low is 43 degrees F. In summer the average temperature is 81 degrees F and the average high is 89 degrees F. Average yearly rainfall is 79 inches with most falling April through September. Thunderstorms occur on about 70 days each year and most occur in summer. Snow fall is rare. When snow is present it usually measures less than two inches and usually of short duration (Smith 1981:1).

In Pearl River County the average temperature during the winter is 53 degrees F and the average low is 42 degrees F. In summer the average temperature is 81 degrees F and the average high is 91 degrees F. Average yearly rainfall is 61 inches with most falling April through September. Thunderstorms occur on about 70 days each year and most occur in summer. Snow fall is rare. When snow is present it usually measures less than two inches and usually of short duration (Nichols 1983:1).

Figure 2-6: Hydrology of the Proposed PBRR Corridor

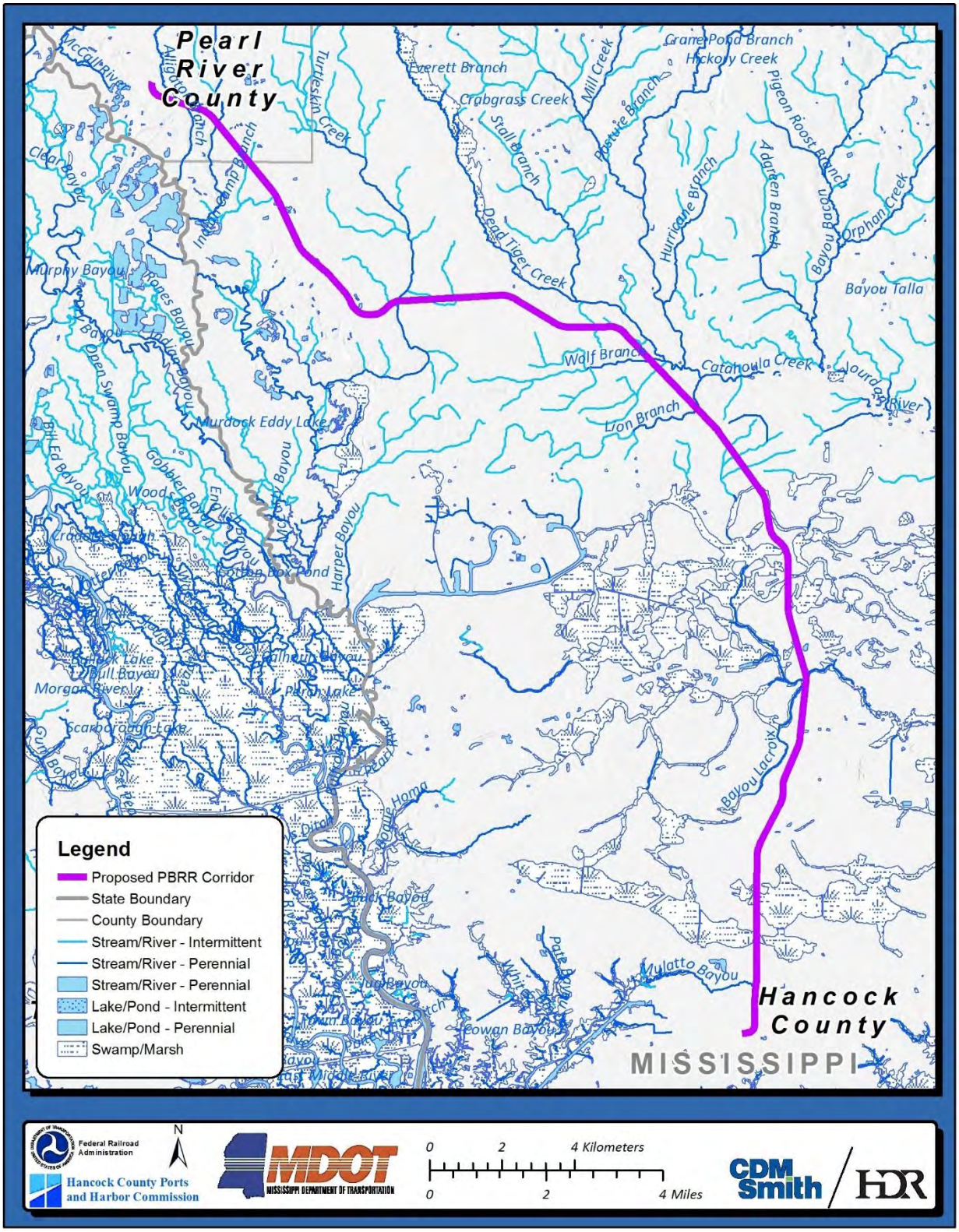
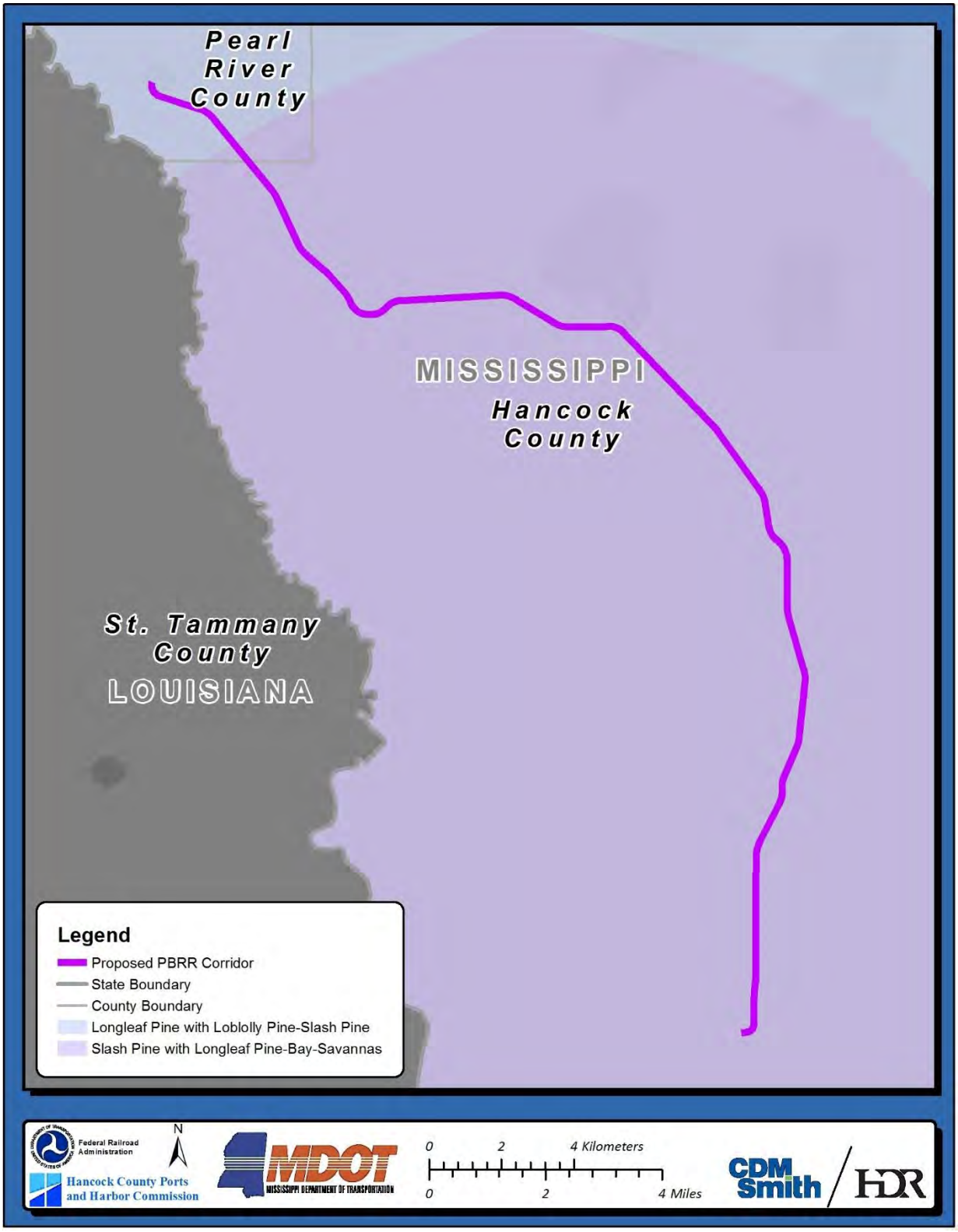


Figure 2-7: Historic Forest Habitation of the Proposed PBRR Corridor



2.8 FLORA

Commercial woodland covers approximately 76 percent of Hancock County and 67 percent in Pearl River County. These commercial woodlands are composed of five dominate forest types: the longleaf slash pine, the loblolly-shortleaf pine, the oak-pine, the oak-hickory, and the oak-gum-cypress (Nichols 1983:34; Smith 1981:31).

2.9 FAUNA

Some species originally inhabiting Perl River and Hancock counties included wolves, panthers, deer, and turkey. Mass deforestation prior to World War II eliminated the woodland habitat for needed most of these species. Today Pearl River and Hancock County have a large and varied population of wildlife. Whitetail deer, turkey, and squirrel inhibit the wooded areas. Bobwhite, quail, dove, cottontail, meadowlark, and many types of songbirds are present in non-wooded areas. The wetlands support wood ducks, mallards, Canadian geese, rails, shore birds, coots, cranes, and snipe along with muskrat, mink, nutria, otter, beaver, raccoon, alligators, turtles, and crawfish (Nicholas 1983:45; Smith 1981:33).

2.10 PAST AND PRESENT LAND USES

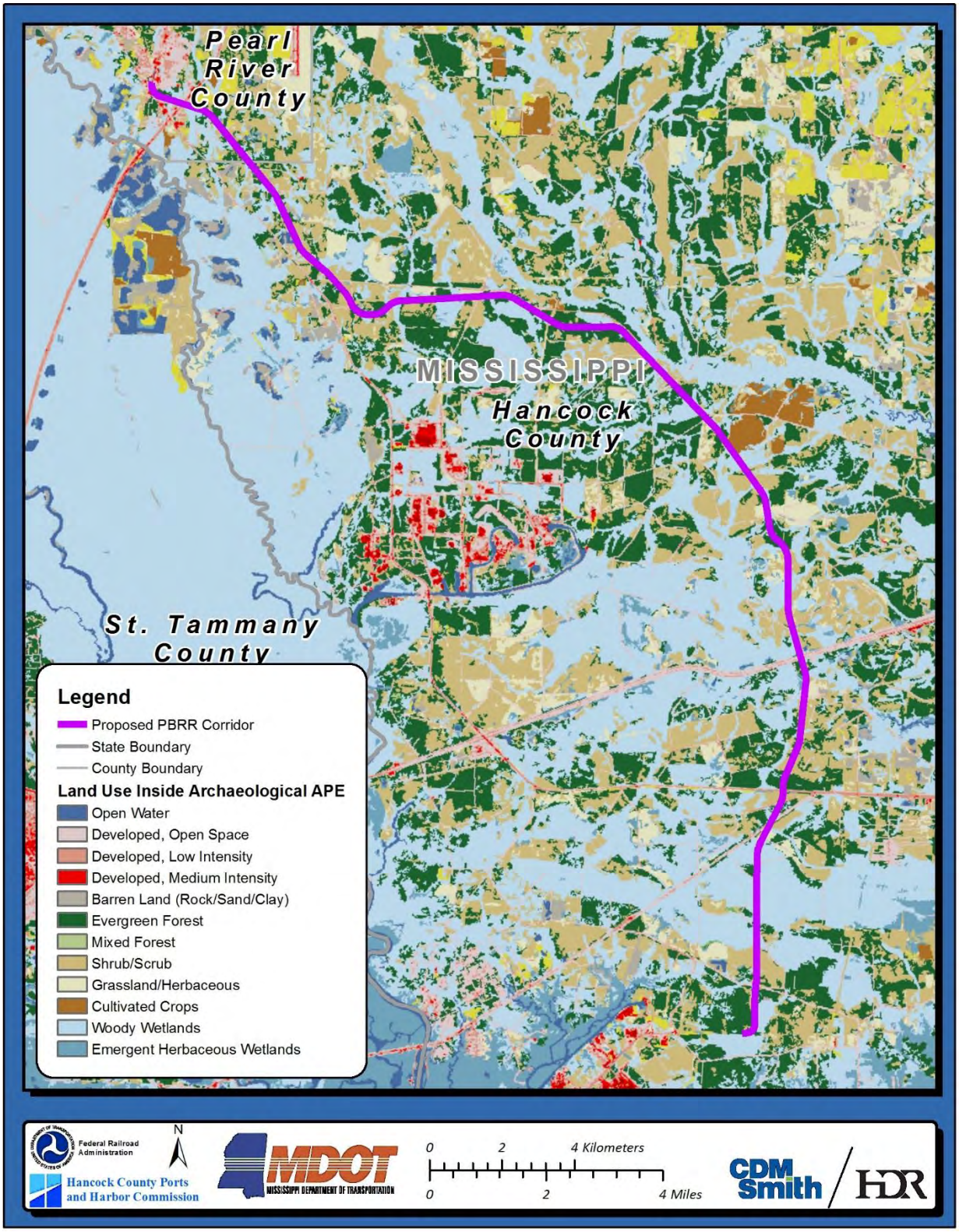
Hancock County is mostly agricultural, but it is also the site of several industries such as forest products, seafood production, marine concrete structures, utilities, construction, munitions, and space exploration and development (NASA) (Smith 1981:2).

Present land use for the proposed PBRR corridor was derived from the National Land Cover Database compiled in 2006 and based on the classification scheme developed by Huang et al. (2004). The land cover classification data was created by a combination of Landsat imagery and ancillary data. The combined image data is then generalized to a one-acre minimum mapping unit. An algorithm is then used to compare the pixel data against known values resulting in a product that identifies land cover type for the pixel. Twelve types of land cover are identified within the proposed PBRR corridor (Figure 2-8). Table 2-1 summarizes the land use data. Each classification is given below.

Table 2-1: Land Use Classification for the Proposed PBRR Corridor

Land Classification	Acers	Hectares	Percentage
Open Water	1	1	0.2%
Developed, Open Space	22	9	3.9%
Developed, Low Intensity	7	3	1.3%
Developed, Medium Intensity	2	1	0.3%
Barren Land (Rock/Sand/Clay)	2	1	0.4%
Evergreen Forest	152	61	26.4%
Mixed Forest	1	1	0.1%
Shrub/Scrub	188	76	32.7%
Grassland/Herbaceous	33	13	5.7%
Cultivated Crops	6	2	1.0%
Woody Wetlands	149	60	25.9%
Emergent Herbaceous Wetlands	12	5	2.1%
Total	575	233	100.0%

Figure 2-8: Land Use Classification of the Proposed PBRR Corridor



Open water are areas of open water, generally with less than 25 percent cover of vegetation or soil.

Developed, open space areas are areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Developed, low intensity areas are areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20 percent to 49 percent of total cover. These areas most commonly include single-family housing units.

Developed, medium intensity areas are areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50 percent to 79 percent of the total cover. These areas most commonly include single-family housing units.

Barren land (rock/sand/clay) areas are areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15 percent of total cover.

Evergreen forest areas are areas dominated by trees generally greater than 5 meters tall, and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species maintain their leaves all year. Canopy is never without green foliage.

Mixed forest areas are areas dominated by trees generally greater than five meters tall, and greater than 20 percent of total vegetation cover. Neither deciduous nor evergreen species are greater than 75 percent of total tree cover.

Shrub/scrub areas are areas dominated by shrubs; less than five meters tall with shrub canopy typically greater than 20 percent of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.

Grassland/herbaceous areas are areas dominated by gramanoid or herbaceous vegetation, generally greater than 80 percent of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.

Cultivated crops areas are areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled. Although cultivated crops are identified as being within the proposed PBRR corridor, these areas are likely recently cleared forested areas.

Woody wetlands areas are areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Emergent herbaceous wetlands areas are areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

3.0 REGIONAL SETTING, CULTURAL HISTORY, AND BACKGROUND RESEARCH

This chapter presents an overview of the regional settings and cultural history of the proposed PRBB corridor through a review of the prehistoric and historic cultural history for the region.

3.1 INTRODUCTION

The Native American chronology of the Mississippi coast can be broadly divided into the Paleoindian, Archaic, Gulf Formational, Woodland, Mississippi, Protohistoric, and Historic Periods. For Mississippi, the cultural histories of the first two periods, the Paleoindian and Archaic Periods, have been largely interpreted based on diagnostic lithic artifacts, especially as defined and summarized by McGahey (1996, 1997, 2004) (Table 3-1).

Table 3-1: Paleoindian and Archaic cultural chronology for Mississippi (based on McGahey 1996, 1997, and 2004)

Date	Period	Diagnostic Projectile Point and Knife Forms
1200 B.C.	Late Archaic	Various Stemmed/Barbed
3000 B.C.	Middle Archaic	Various Broad-stemmed/Oversized "Cache" types
6000 B.C.	Early Archaic	Early Corner-notched/Side-notched/Bifurcate base
8000 B.C.	Late Paleoindian	Dalton/San Patrice
8500 B.C.	Middle Paleoindian	Quad/Beaver Lake/Hinds/Coldwater
9000 B.C.	Early Paleoindian	Clovis/Cumberland
10,000 B.C.		

For this part of the Gulf Coast, the post-Archaic chronology, which is largely tied to diagnostic ceramic classes, has traditionally been organized into three parallel sequences of periods and phases, as follows:

1. Extreme southeastern Louisiana, which has more relevance for the western part of the Sound (Table 3-2).

2. The Mississippi Coast, which is most relevant in the central portion of Mississippi Sound (Table 3-3).

3. Southwestern Alabama, which is most relevant to the eastern portion of Mississippi Sound (Table 3-4).

Table 3-2: Chronology of Native American culture on the Extreme Eastern Louisiana Coast, ca. 3000 B.C. to A.D. 1800

Cultural Chronology for the Extreme Eastern Louisiana Coast, 3000 B.C.* to A.D. 1800**			
Date	Period	Culture	Phase
A.D. 1800	Historic	Various Cultures	Various Tribes
A.D. 1700	Protohistoric	Pensacola (Mississippian)	Late Bayou Petre
A.D. 1550	Mississippian		Early Bayou Petre
A.D. 1200	Coles Creek	Transitional Coles Creek	St. Gabriel?
A.D. 1200		Coles Creek	Bayou Ramos
A.D. 1200			Bayou Cutler
A.D. 700	Baytown	"Costal Troyville"	Whitehall
A.D. 400	Marksville	Marksville	Magnolia
A.D. 200			Labranche
A.D. 1	Tchula	Tchefuncte	Beau Mire
250 B.C.			Pontchatrain
500 B.C.	Poverty Point	Poverty Point	Garcia
			Bayou Jasmine
1500 B.C.	Late Archaic	Archaic	Pearl River
3000 B.C.			

* East of the Barataria Basin. ** Based on Weinstein et al. 1977 and Jeter et al. 1989.

Table 3-3: Chronology of Native American Culture on the Eastern Mississippi Coast, ca. 2000 B.C. to A.D. 1775

Cultural Chronology for the Eastern Mississippi Coast, 2000 B.C. to A.D. 1775*			
Date	Period	Ceramic Series	Phase
A.D. 1775	Colonial (E. Historic)	Natchezan/Choctawan	La Pointe
A.D. 1699	Protohistoric	Pensacola**	Bear Point
A.D. 1550	Mississippi	Pensacola**	Singing River
A.D. 1350		Pensacola/Moundsville**	Pinola
A.D. 1200	Late Woodland	Coles Creek/L. Weeden Island	Tates Hammock
A.D. 800		Troyville/E. Weeden Island	Graveline
A.D. 550	Middle Woodland	L. Marksville (Issaquena)/L. Santa Rosa	Godsey
A.D. 250		E. Marksville/E. Santa Rosa	Greenwood Island
100 B.C.	Late Gulf Formation	Tchefuncte/Bayou La Batre/Alexander	Apple Street
800 B.C.	Middle Gulf Formation	Wheeler/St. Johns	Claiborne
1200 B.C.	Late Archaic	Preceramic	Undefined
2000 B.C.			

* Based on Blitz and Mann 2000 and Blitz and Downs 2011. ** Mississippian culture.

Table 3-4: Paleoindian and Archaic Cultural Chronology for Southwest Alabama (based on several sources, including Anderson and Sassaman 1996, McGahey 2004, and Walthall 1980)

Paleoindian and Archaic Cultural Chronology for Southwest Alabama			
Date	Period	Phase/Complex	Horizon Markers (Projectile Point and Knife Forms)
1000 or 1200 B.C.	Late Archaic	Cypress Point	Various Stemmed
3000 B.C.	Middle Archaic	Un-named	Broad Stemmed/Morrow Mountain
6000 B.C.	Early Archaic	Un-named	Kirk/Big Sandy/Bifurcate Stemmed
8000 B.C.	Late Paleoindian	Seed Tick	Dalton/San Patrice
8500 B.C.	Middle Paleoindian	Un-named	Cumberland/Suwannee/Quad
8800 or 9000 B.C.	Early Paleoindian	Un-named	Clovis
9500 or 10,000 B.C.			

Each of these has been modified as subsequent researchers refined the post-Archaic sequences for the Louisiana, Mississippi, and Alabama coasts (Blitz and Mann 2000; Blitz and Downs 2011; Boudreaux 2009:13–14; Brown 2004; Fuller 1998; Jeter et al. 1989:Fig. 11; Price 2009; Weinstein et al. 1977).

Much of the current understanding of the prehistory of the Mississippi coast is based on the chronology which has largely been tested and refined in the eastern part of that coast. This chronology's utility for the western part of the state remains to be thoroughly demonstrated. Therefore, the chronological framework of Blitz and Mann (2000), as modified by Blitz and Downs (2011), has been applied to the current proposed PRBB corridor with additional references to the chronology in general use in extreme southeastern Louisiana (Jeter et al. 1989; Weinstein et al. 1977) (Table 3-2 and Table 3-3). Furthermore, the eastern Mississippi coast chronology incorporates two phase designations, Bear Point and Tates Hammock, initially defined for the southwestern Alabama region (Fuller 1985, 1996, 1998; Walthall 1980). It is problematical whether these phases have specific relevance to the western Mississippi Sound region (compare Table 3-3 and Table 3-4).

It should be noted that the post-Archaic stage chronologies used in the present report employ different nomenclatures for cultural periods (compare the far left columns in Table 3-2, Table 3-3, and Table 3-4). Those for coastal Louisiana (Coles Creek, Marksville, etc.) are derived from sequences initially defined in the Lower Mississippi Valley, while those for the Mississippi and Alabama coasts (Middle Woodland, Late Gulf Formational, etc.) are more closely aligned with chronologies in use east of the Lower Mississippi Valley. For economy of presentation, the latter

period designators will be used when discussing the post-Archaic culture-history of coastal Mississippi.

3.2 PREHISTORIC PERIOD

3.2.1 Paleoindian and Archaic Stages (ca. 10,000 B.C. to 1,200 B.C.)

Although post-Archaic sites are relatively common on the Mississippi and Louisiana coasts, those representing the Paleoindian and Archaic stages are rare. The sparse Paleoindian and Archaic remains that have been reported typically occur as sporadic surface finds of diagnostic lithic artifacts, primarily projectile point/knife (PP/K) types (Blitz and Mann 2000:75; Greenwell 1984:127–129).

For the state as a whole, McGahey (1996, 2004) has subdivided the Paleoindian and Archaic stages into a series of cultural periods largely based on the morphological characteristics of PP/Ks (Table 3-1), most of which have yet to be documented for the immediate coastal region. The paucity of early sites and artifacts is probably due to the region's geomorphological history. As a result of the Early Holocene warming trend, high water levels inundated the present coastal area, making it largely uninhabitable during much of the Early Paleoindian through Early Archaic periods (Blitz and Mann 2000:7–8). The habitable landforms that existed in the region at that time have been destroyed, submerged, or severely reworked by subsequent hydrological and geomorphological changes. As a result, the lack of data from *in situ* Early Paleoindian through Early Archaic period occupations prevents informed interpretations of other aspects of early Indian culture, such as settlement patterns and resource utilization, as they apply to the coast.

Early Paleoindian period PP/Ks (ca. 10,000 B.C. to 9000 B.C.) are characterized by large fluted lanceolate types such as Clovis and Cumberland. Middle Paleoindian period PP/Ks (ca. 9000 B.C. to 8500 B.C.) are unfluted lanceolate types such as Quad, Beaver Lake, Coldwater, and Hinds. Late Paleoindian period types (ca. 8500 B.C. to 8000 B.C.) include Dalton and Dalton-like forms such as San Patrice. The Early Archaic period (ca. 8000 B.C. to 6000 B.C.) features early side-notched and corner-notched PP/K variants that often exhibit basal grinding. These include types such as Cache River, Greenbrier, Big Sandy, Hardin, Pine Tree, Decatur, Jude, Cave Springs, Stilwell, and Bolen.

Sites of the Middle Archaic period (ca. 6000 B.C. to 3000 B.C.) tend to occur on floodplains or on terraces near sizable streams (McGahey 1997). Although more than 200 sites dating to the Middle Archaic have been recorded in southern Mississippi, only limited data from excavations has been published (McGahey 1997). The rare Middle Archaic period PP/Ks recorded for southern Mississippi tend to conform to types such as Denton, Opossum Bayou, Morrow Mountain, White Springs, and St. Helena (McGahey 1997; 2004). Most feature broad blades and short, broad stems, often with thinned basal edges (McGahey 2004:87-135). Many are considerably larger than those of the previous Early Archaic period, suggesting they may have functioned as specialized blades or knives rather than projectile points. This trait culminated in oversized "cache blade" and "turkey tail" forms that may have been ceremonial or perhaps were emblematic of stone-working specialists (McGahey 2004:113–118).

A number of the cultural trends originating during the Middle Archaic continued and became more pronounced in the subsequent Late Archaic and Early Gulf Formational periods. The latter two culture-historical constructs are roughly coeval at ca. 3000 or 2500 B.C. to 1200 or 1000 B.C.

However, the Early Gulf Formational period, as defined by John Walthall and Ned Jenkins (see below), is not represented in the archaeological record of the north-central Gulf Coast region summarized here.

In terms of material culture, Late Archaic period components in Mississippi tend to feature a variety of stemmed or barbed PP/Ks made of non-local materials as well as locally available stone (McGahey 2004:136–186). The majority are characterized by straight or contracting stems that lack the thinned basal edges of many Middle Archaic types. An important new artifact class was the stone bowl, usually made of steatite but occasionally made of sandstone. Along with increasingly diverse assemblages of polished stone tools and ornaments, this earliest evidence of durable containers probably reflects more sedentary settlement patterns during the Late Archaic.

Published information is available for only three sites in the Mississippi coast region with definite Late Archaic period components (ca. 3000 B.C. to 1200 B.C.): Cedarland (22HA506), Escatawpa I (22JA543), and Escatawpa III (22JA545) (Blitz and Mann 2000:75–76). Prior to their demise, Cedarland and the nearby Claiborne site (22HA501) were large, elevated semi-circular constructions of earth and shell located near the mouth of the Pearl River (Gagliano and Webb 1970; Lewis 1988). Cedarland was pre-ceramic Late Archaic in age and was the type site for the Pearl River phase (Blitz and Mann 2000:75; Gagliano 1963:116). Cultural materials from the site included the following: Gary, Macon, Pontchartrain, and Kent PP/Ks made of both local and non-local stone; a variety of polished stone atlatl weights and plummets; red jasper beads; and amorphous baked-clay lumps associated with clay-lined features (Blitz and Mann 2000:75). All of these traits anticipate developments that characterized the later Poverty Point culture and the so-called Poverty Point exchange network (Webb 1977), as represented on the Mississippi coast by the nearby Claiborne site (see below). The limited artifact assemblages from the two excavated Late Archaic sites on the eastern Mississippi Gulf Coast, Escatawpa I and III, provide little additional data for interpreting the Late Archaic culture-history of that part of the coast (Blitz and Mann 2000:75–-76).

3.2.2 Gulf Formational Stage (ca. 2,500 B.C. to 100 B.C.)

Walthall and Jenkins (1976) defined the Gulf Formational Stage for the transition from the Late Archaic period to the Woodland period in the Gulf Coastal Plain. Although they include the Mississippi coast in their western sub-region (Walthall 1980:79; Walthall and Jenkins 1976:43), the earliest Gulf Formational sites lie well east of Mississippi (Smith et al. 2010). To date, no components of the Early Gulf Formational period (ca. 2500 B.C. to 1200 B.C.) have been identified in the state.

3.2.2.1 Middle Gulf Formational Period (c.a. 1,200 B.C. to 800 B.C.)

In terms of material culture, the Middle Gulf Formational period is characterized by the introduction of ceramics into the typical Late Archaic artifact lithic assemblage. In the north-central Gulf Coast region, these include fiber-tempered pottery and the rare occurrence of so-called "temperless" pottery similar to the St. Johns series. Both seem to have originated in the southern Atlantic region and the eastern part of the Gulf Coastal Plain during the Early Gulf Formational period. They subsequently spread westward across the Gulf Coastal Plain to the Mississippi Valley, although the St. Johns series seems to have played less of a role in this diffusion than fiber tempering.

3.2.2.1.1 Claiborne Phase (ca. 1,200 B.C. to 800 B.C.)

During the Middle Gulf Formational Claiborne phase, Mississippi Sound populations participated in the expansion of the Poverty Point exchange network (Blitz and Mann 2000:97). The name Poverty Point is derived from the type site, an area of massive earthwork construction in northeast Louisiana. Poverty Point was a cultural center with trade networks and influence extending throughout the Lower Mississippi Valley and beyond (Webb 1977). Most of the data concerning the related phase in the Mississippi Gulf Coast region comes from the Claiborne site (22HA501) (Blitz and Mann 2000; Gagliano and Webb 1970). Claiborne was a ceremonial center in the western portion of the region and was central to the predominantly east-west flow of nonlocal materials that linked the region to Poverty Point centers in the Lower Mississippi Valley and to smaller communities as far east as northwestern Florida. Fiber-tempered and St. Johns-like pottery appeared in the Mississippi Sound region for the first time during the Claiborne phase (Blitz and Mann 2000:97–98).

Aside from the large type site, Claiborne phase components are not well documented for the eastern Mississippi coast, due in part to a paucity of reported excavation data and in part to the mixed multicomponent nature of many Gulf Formational stage sites in the region. These factors have limited the systematic assessment of other attributes of the phase such as settlement patterns and broad subsistence practices. Most sites with probable Claiborne phase components are small dispersed midden locales, occasionally with burials, although the Big Greenwood Island site (22JA516) may have served as a smaller secondary center (see the discussion of the later Greenwood Island phase below). To the west, several Poverty Point-related sites in the Lake Pontchartrain area, although traditionally identified with the local Garcia and Bayou Jasmine phases (Weinstein et al. 1977) (see Table 3-2), may represent part of a broader settlement system associated with the Claiborne center (Blitz and Mann 2000:22).

3.2.2.2 Late Gulf Formational Period (c.a. 800 B.C. to 100 B.C.)

The estimated date ranges for the Late Gulf Formational period sites on the north-central Gulf Coast vary depending on the specific region. Generally, the period began between 1000 and 700 B.C. and ended between 250 and 100 B.C., making it approximately contemporaneous with the Early Woodland period elsewhere (Brown 2004:574). It was characterized by increasing regional diversification following a decline in the influence of Poverty Point culture. The trait of fiber tempering waned as the Bayou La Batre and Tchefuncte cultures emerged in the central and western Gulf Coastal Plain, respectively (Blitz and Mann 2000; Brown 2004; Fuller 1998; Weinstein 1986). Ceramics of the Alexander culture, which is centered in the Fall Line Hills, upper Tombigbee Valley, and Tennessee Valley regions north of the Coastal Plain, have also been found in Late Gulf Formational contexts on the Mississippi coast (Blitz and Mann 2000; Greenwell 1984).

The Tchula period of the Lower Mississippi Valley and coastal Louisiana (see Table 3-2) is approximately coeval with the Late Gulf Formational period. On the Louisiana coast and along adjacent portions of the Texas and Mississippi coasts, the dominant culture at this time was Tchefuncte (Brown 2004; Jeter et al. 1989:111; Weinstein 1986). Distinguishing ceramic traits for the Tchefuncte culture include coarse, poorly fired temperless pottery. Vessels often have conical or wedge-shaped podal supports and designs featuring zones of incisions, punctations, pinching, or stamping (Brown 2004:576; Phillips 1970; Weinstein 1986; Weinstein and Rivet 1978). A variety of animal and plant remains have been reported for a number of Tchefuncte earth and shell middens

in the coastal region, indicating a culture well-adapted to the diverse marsh environment. Some Tchefuncte culture sites, such as the Lafayette Mounds (16SM17), feature low conical earthen mounds, although the degree to which mound construction by Tchefuncte peoples was widespread remains somewhat contentious (Hays and Weinstein 2010).

For the eastern Louisiana coast, the Tchefuncte culture has been chronologically divided into the Pontchartrain phase, ca. 500 B.C. to 250 B.C., and the Beau Mire phase, ca. 250 B.C. to A.D. 1 (Jeter et al. 1989; Weinstein 1986) (see Table 3-2). These phases may be more applicable to adjacent portions of the western Mississippi coast than those defined for the eastern coast (cf., Table 3-3).

3.2.2.2.1 Apple Street Phase (ca. 800 B.C. to 100 B.C.)

Blitz and Mann (2000) defined the Apple Street phase for the Late Gulf Formational period on the Mississippi Gulf Coast. During this phase, the Claiborne center was abandoned as the Poverty Point exchange network waned and fiber tempered pottery began to be replaced by ceramics of the Bayou La Batre, Alexander, and Tchefuncte series (Blitz and Mann 2000:97–98). Although the distributions of these series were centered to the west (Tchefuncte), east (Bayou La Batre), and north (Alexander), they overlap in the Mississippi Sound region (Brown 2004; Blitz and Mann 2000; Greenwell 1984). Excavations in the region indicate Poverty Point artifacts continued to occur although in smaller numbers (Blitz and Mann 2000; Greenwell 1984). Apple Street phase subsistence and settlement patterns are not well known, although limited data indicates sites typically feature shell or earth middens (Blitz and Mann 2000).

3.2.3 Woodland Stage (ca. 100 B.C. to A.D. 1200)

3.2.3.1 Middle Woodland Period (c.a. 100 B.C. to A.D. 550)

For much of the Southeast, including portions of the north-central Gulf Coast, the Middle Woodland period saw the spread of a distinctive pottery style and certain aspects of mortuary ceremonialism related to Midwestern Hopewellian culture (Brown 2004; Walthall 1975, 1977). The apparent diffusion of these traits may have resulted from the activities of traders participating in a far-ranging exchange network sometimes referred to as the Hopewell Interaction Sphere (Caldwell 1964).

Middle Woodland period occupations in the southern part of the Lower Mississippi Valley and the Louisiana coast are equated with the Marksville period and culture (see Table 3-2). According to Toth (1974), Marksville peoples lived in villages organized at a tribal level. In addition to diagnostic pottery types, conical burial mounds, long distance trade in exotic items such as copper artifacts and marine shells were characteristic of the culture (Brown 2004:576-577; Toth 1988:29–73). Interments are generally associated with grave goods, some of which were manufactured from exotic raw materials such as copper (Neuman 1984:142–168; Toth 1974, 1988).

In the Lower Mississippi Valley and adjacent coast regions, ceramics during the Middle Woodland period were increasingly tempered with grog, an innovation that was technologically significant as it permitted greater efficiency in direct-fire cooking (Blitz and Mann 2000:98). Ceramics typically feature decorations executed by incising, stamping, and punctating, most often occurring as punctated or stamped zones or bands outlined by broad-line incisions. Farther east in southwestern Alabama and the western Florida panhandle, a closely related culture is known as Santa Rosa (Bense 1992; Fuller 1998:13–15). Sometimes referred to as "Porter Hopewell" (Walthall

1975) or "Porter Marksville" (Wimberly 1960), Santa Rosa culture featured Marksville-like vessel shapes and decorative styles but with greater variability in tempering attributes, especially sand, plus the occurrence of ceramics more closely affiliated with the late Deptford and Swift Creek cultures to the north and east.

The persistence of shared decorative styles (Marksville, Issaquena, Santa Rosa, Coles Creek, and Weeden Island) in the Lower Mississippi Valley and across a large portion of the northern Gulf Coast during the Middle Woodland and Late Woodland periods has sometimes been characterized as the Gulf Tradition. The roots of the Gulf Tradition may lie with earlier incised, punctated, and stamped Tchefuncte and Alexander types.

3.2.3.1.1 Greenwood Island Phase (ca. 100 B.C. to A.D. 250)

Blitz and Mann (2000) defined the Greenwood Island phase for the early part of the Middle Woodland period in the eastern Mississippi Sound region. In addition to grog tempering, ceramic innovations include zoned rocker stamping plus hatched, crosshatched, or herringbone-decorated rims. Ceramics diagnostic of the Greenwood Island phase include early Marksville-related types plus surviving variants of Tchefuncte, Alexander, and Bayou La Batre wares and minor occurrences of late Deptford and early Swift Creek types (Blitz and Mann 2000:26–28, Table 3-4).

Thus far, no Greenwood Island phase burial mounds have been identified in coastal Mississippi, although several unexcavated mounds in the region may date to that time. Some of the best evidence for the phase comes from Big Greenwood Island (22JA516), a multicomponent site located on the eastern portion of the Mississippi coast (Boudreaux 2009:136). Blitz and Mann (2000:28) summarize the data from the Greenwood Island phase component and suggest it included a specialized cemetery area. The site featured secondary burials, some with items such as copper beads and a copper ear spool, artifacts that are typical of Marksville-related components affiliated with the so-called Hopewell exchange network. As with that site, many of the middens identified on the eastern Mississippi coast with Gulf Formational components also feature Greenwood Island phase components, suggesting some degree of continuity in settlement patterns and subsistence practices.

For the Mississippi coast as a whole, it might be expected that Middle Woodland ceramics from sites at the western extreme would exhibit similarities to contemporary ceramics in southeastern Louisiana, while those at the eastern extreme would tend to be more similar to contemporary assemblages from southwestern Alabama sites. For example, the roughly contemporary LaBranche phase (ca. A.D. 1 to A.D. 200) has been defined for early Middle Woodland (or early Marksville) period manifestations in the extreme eastern portion of the Louisiana coast (Jeter et al. 1989:139; Phillips 1970:898; Weinstein et al. 1977) (see Table 3-2). Originally recognized in contexts featuring late Tchefuncte ceramics, "pure" LaBranche phase components lacking Tchefuncte wares were subsequently identified in the Pontchartrain Basin eastward into St. Bernard Parish. In terms of ceramics, LaBranche phase components are most readily identified by the presence of Baytown Plain, *var. Marksville* and especially Mabin Stamped, *var. Crooks*. As with the Greenwood Island phase, artifacts of imported copper have been reported from LaBranche phase burials, signifying its participation in the Hopewell interaction sphere.

Similarly, the Blakeley phase of southwestern Alabama is an Early Woodland period manifestation (ca. 100 B.C. to A.D. 150/200) exhibiting influences from early Marksville culture (Fuller 1998:12–

13). However, because its roots are with Bayou La Batre rather than Tchefuncte culture, and because of its interactions with late Deptford and early Swift Creek to the east, Blakeley phase assemblages tend to feature a much higher frequency of sand tempered wares. As with both the LaBranche and Greenwood Island phases, Blakeley phase sites have produced exotic artifacts and materials, reflecting some degree of participation in the Hopewellian Interaction Sphere.

3.2.3.1.2 Godsey Phase (ca. A.D. 250 to A.D. 550)

Initially defined with a chronological span of ca. A.D. 200–400 (Blitz and Mann 2000:38–41), the dates for the Godsey phase were subsequently revised to ca. A.D. 250–550 based on the results of recent excavations at the Graveline Mound site (22JA503) (Blitz and Downs 2011) During this phase, there was a reduction in nonlocal and exotic artifacts and materials, suggesting a decline in the far-ranging trade or exchange network (Blitz and Mann 2000). However, the increased sharing of ceramic decorative styles with contemporary phases to the west (Magnolia phase) and the east (Porter phase) indicate a strengthening of the Gulf Tradition (Blitz and Mann 2000:38–39; Fuller 1998:13). Grog-tempered late Marksville (Issaquena) wares dominate the pottery assemblages from Godsey phase sites. They include Churupa Punctated, *var. Thornton;* Marksville Incised, *var. Yokena;* and Marksville Stamped, *vars. Godsey, Marksville,* and *Troyville*. Minor occurrences of sand-tempered pottery similar to those of the Porter phase in southwestern Alabama (e.g., Basin Bayou Incised and Alligator Bayou Incised) have been recorded for some Godsey phase components in the eastern Mississippi Sound region (Blitz and Mann 2000:39). However, the predominance of the Issaquena-related grog-tempered types indicates the strongest cultural influences at that time were coming from the west rather than the east.

To date, most reported Godsey phase sites have been shell middens, although the Jackson Landing site (22HA515), a large earthwork complex overlooking the western Mississippi Sound, may have a component similar to the Godsey phase (Blitz and Mann 2000:98). However, recent excavations and associated radiocarbon dates indicate the earliest component at Jackson Landing may be more similar to the subsequent Graveline phase than the Godsey phase (Boudreaux 2011). On Cat Island, the Middle Spit site (22HR1169) features what may be a small conical burial mound (Wharton et al. 2013:105–108). It suggests the Late Marksville-related components recorded for that site, as well others on Cat Island, may be more closely associated with the Magnolia phase mounds and middens recorded for nearby St. Bernard Parish, Louisiana rather than with the more easterly Godsey phase.

3.2.3.2 Late Woodland Period (c.a. A.D. 550 to A.D. 1200)

Throughout much of the Southeast, the Late Woodland period is associated with a reduction of burial ceremonialism and with decreases in the far-reaching trade in non-local or "exotic" artifacts and raw materials. However, because of the florescence of Coles Creek culture in the Lower Mississippi Valley and Weeden Island culture in southern Georgia and northwestern Florida, The Gulf Tradition remained strong, as reflected by the continued sharing of pottery decorative styles. One of the most significant technological advances associated with the Late Woodland period was the bow and arrow. Two new PP/K types are associated with the introduction of the bow and arrow: the triangular-shaped Madison and the corner-notched Collins arrow points (McGahey 2004).

The flat-topped platform mound appeared during the Late Woodland, signaling important changes in settlement patterns and social, ceremonial, and political systems. Platform mounds served as

substructures for religious and/or civic buildings rather than as specialized burial mounds (Neuman and Hawkins 1993). In addition, platform mounds were often arranged around open plazas where ceremonial activities occurred, while village areas tended to be located away from these centers. Several researchers, including Gibson (1978) and Neuman (1984), believe this change in settlement pattern indicates a move to a more centralized political organization.

In the southern portion of the Lower Mississippi Valley, the Late Woodland period is divided into the Troyville (A.D. 500 to 700) and the Coles Creek (A.D. 700 to 1000) periods. In the Coastal Pine Meadows region, Lewis (1988) has deemed the Late Woodland period as one of the least known periods in the Mississippi Gulf Coast. According to Morgan (1992), decreased site density on the coast at this time may imply a population decrease. Although most sites from this period are small shell middens, a major exception is the Graveline Mound site (22JA503). This site consists of seven mounds, including six conical and one ramped platform mound (Blitz and Mann 1993; 2000; Blitz and Downs 2011; Boudreaux 2009). Filmed and painted ceramics recovered from the platform mound are associated with the distinctive Quafalorma pottery horizon style, which extended from coastal Louisiana to coastal Florida (Belmont and Williams 1981; Blitz and Mann 1993).

3.2.3.2.1 Graveline Phase (ca. A.D. 550 to A.D. 800)

Blitz and Mann (2000) defined the Graveline phase for the early part of the Late Woodland period in the Mississippi Sound region. Although their initial estimated date range for the phase was ca. A.D. 400 to 700, data from subsequent excavations at the Graveline Mound site has resulted in a revised range of ca. A.D. 550 to 800 (Blitz and Downs 2011). Late Woodland culture in the Gulf Coastal Plain reflects influences from several directions (Brown 2004). Similarities in ceramic styles suggest that Mississippi Sound populations remained in the greater cultural sphere of the Lower Mississippi Valley, as reflected by grog-tempered ceramics of the so-called "Coastal Troyville" culture. However, the secondary but consistent occurrence of sand tempered early Weeden Island pottery implies interaction with eastern coastal populations as well (Blitz and Mann 2000:99).

During the Graveline phase, there is little evidence of imported lithic materials or artifacts at mound and habitation sites, and stone tools and debitage are uncommon for the phase in general (Blitz and Mann 2000).

3.2.3.2.2 Tates Hammock Phase (ca. A.D. 800 to A.D. 1200)

In regards to ceramics, the Tates Hammock phase represents the coastal expression of late Weeden Island and Coles Creek cultures. Tates Hammock was originally defined by Walthall (1980) for the entire Late Woodland period in the Mobile Bay region, where it was said to feature sand-tempered plain and check-stamped pottery plus so-called "classic" Weeden Island incised, punctated, and pinched types (Fuller 1998:16–18; Walthall 1980:171–172). Subsequent research in Mobile Bay and the Alabama coast region showed that for that area, at least, the phase could be sub-divided based on the relative frequencies of check stamping versus the other Weeden Island decorative types, with check stamping increasing in frequency through time (Fuller 1998). This resulted in the Tates Hammock phase being limited to the earlier part of the Late Woodland period (ca. A.D. 400 to 750), with the Coden phase being defined for the later part of the period (ca. A.D. 750 to 1100) (Fuller 1998; 2003). Subsequent research on the Alabama coast has suggested the period of ca. A.D. 400 to 650 could be further factored out of this redefined Tates Hammock phase based on the complete absence of check stamping and the occurrence of ceramic types resembling surviving

variants of Middle Woodland types such as Basin Bayou Incised (Dumas 2009:101–102, Fig. 6.5). The latter types occur with vessel forms and decorative styles typically associated with early Weeden Island pottery assemblages to the east and so-called "Coastal Troyville" assemblages to the west. Thus, this currently unnamed early Late Woodland complex might be expected to show some similarities in chronology and content to the Graveline phase.

Ceramics characteristic of the Tates Hammock phase in coastal Mississippi are grog-tempered Coles Creek types plus secondary occurrences of sand-tempered Weeden Island types. Additionally, types typically associated with Miller culture to the north, including Furrs Cord Marked and Mulberry Creek Cord Marked, occur in the Mississippi Sound region for the first time (Blitz and Mann 2000). As in southwestern Alabama, the introduction of cord marked pottery during the Late Woodland period probably represents growing influences from other pottery traditions as the Gulf Tradition began to wane, a trend that also seems to be reflected in the increasing frequency of check stamped pottery (Blitz and Mann 200:45; Fuller 1998:16).

Small stemmed and triangular arrowheads mark the arrival of bow-and-arrow technology on the Mississippi coast (Blitz and Mann 2000). Tates Hammock sites on the Mississippi Sound consist primarily of middens, although Site 22JA504 did contain a burial (Greenwell 1984). Although no Tates Hammock burial mounds have been excavated in coastal Mississippi, based on the presence of such mounds at Tates Hammock phase sites in Alabama, Morgan (1992) surmised that they probably exist on the Mississippi coast as well.

In addition to the greater frequency of Coles Creek versus Weeden Island ceramics, the primary difference between the Tates Hammock phase as it is defined in southeastern Mississippi as opposed to southwestern Alabama is that it subsumes the time period associated with the terminal Weeden Island-related Coden phase in Alabama (compare Table 3-3 and Table 3-4). These differences may indicate the need for new phase definitions, especially for the western part of the Mississippi coast, where pottery assemblages reflect stronger similarities to Coles Creek-related phases such as Bayou Cutler and Bayou Ramous in nearby coastal Louisiana.

3.2.4 Mississippian Stage (ca. A.D. 1200 B.C. to A.D. 1550)

For this report, the term "Mississippi" is used for the chronological period ca. A.D. 1200 to 1550, while the term "Mississippian" is reserved for the broader late prehistoric/protohistoric cultural tradition or stage that included regional cultures such as Pensacola, Moundville, Ft. Walton, and Plaquemine. Although some chronologies also use "Mississippian" for the period designation, that usage does not conform to the majority of those employed in the Southeast, including the north-central Gulf Coast region (cf., Blitz and Mann 2000; Brown 2004:581–585; Jeter et. al 1989:Fig. 11; Morgan 1992; Phillips 1970:Fig. 450).

The beginning of the Mississippi period is marked by the appearance of emergent Mississippian culture in the northern part of the Lower Mississippi Valley and throughout much of the interior Southeast. Mound sites were larger and more centralized, whereas non-mound sites were smaller but more numerous. Generally, Mississippian cultural characteristics include shell-tempered pottery, maize agriculture, and the emergence of a religious and social elite. The consensus view of Mississippian societies is one of chiefdoms supported by floodplain maize agriculture (Blitz and Mann 2000). In many parts of the Southeast, there was a hierarchy of site types. Special-purpose camps and farmsteads were scattered throughout the region. The latter were sites where nuclear

and extended families lived in small huts and cultivated maize, beans, and squash. The diet was based primarily on the consumption of cultivated plants, but it also included the use of game and wild plants. Many of the scattered farmsteads appear to have been affiliated with mound centers. Archaeological research has shown that these centers were occupied for long periods, supported elite or ceremonial structures, and frequently contained burials. Palisade walls surrounded many of the larger settlements. There was differential access to goods, and some sites show evidence of specialization in the production of certain classes of artifacts (Smith et al. 2010:10).

Plaquemine culture is a term used to denote the indigenous Mississippi period population of most of the Lower Mississippi Valley. It features the first definite evidence of a ranked society in the late prehistoric period (Kidder 1992). In regards to ceramics, Plaquemine assemblages reflect surviving technological traits of the preceding Coles Creek culture combined with new decorative styles and vessel shapes believed to have originated with early Mississippian cultures to the north.

Much less is known about contemporaneous coastal societies that possessed a material culture similar to the Mississippians. Although the Coastal Pine Meadows region has fewer areas suitable for horticultural production compared to the rich floodplains of the interior river valleys, there are more Mississippian sites recorded in this region than for any of the preceding periods (Morgan 1992). The majority of these sites appear to be short-term occupations related to specific resource extraction activities. However, there are some sites along the coast that suggest larger, more permanent settlements, including those that have platform mounds (Smith et al. 2010:11). One such site is Singing River (22JA508, 22JA520, 22JA578) in Pascagoula (Blitz and Mann 2000; Boudreaux 2009; Greenwell 1984; Morgan 1992). The Singing River site is an extensive earth-shell midden with a mound that has been damaged by later activities (Blitz and Mann 2000).

Early excavations at Singing River encountered burials in the midden deposit as well as post molds, ceramics, and burned wood associated with the mound (Blitz and Mann 2000:49). More recently, archaeologists excavated two areas of undisturbed midden (Blitz and Mann 2000:49–52). Pinola Unit 1 produced (in order of importance) grog-tempered, shell-tempered, shell and grog-tempered, and sand-tempered ceramics. Decorated pottery from this unit manifested a blend of attributes associated with Coles Creek/Plaquemine culture to the west and Moundville/Pensacola culture to the east. Another unit, Lewis Unit 1, produced mostly shell-tempered plain pottery and Moundville/Pensacola decorative types, indicating strong associations with Mississippian cultures centered to the north and east.

Finally, Morgan (1992) suggests the thick midden and substantial number of artifacts at the Deer Island site (22HR500) imply a permanent occupation. Remnants of a poorly documented mound on Deer Island from which burials and shell-tempered ceramics were recovered, plus the presence of possible daub (suggesting structures) support his supposition (Blitz and Mann 2000:53–54).

3.2.4.1 Middle Mississippi Period (c.a. A.D. 1200 to A.D. 1350)

3.2.4.1.1 Pinola Phase (ca. A.D. 1200 to A.D. 1350)

The Pinola phase represents the initial appearance of shell-tempered pottery and mixed shell-grog-tempered pottery on the Mississippi coast, marking a fusion of the coastal Coles Creek pottery tradition (i.e., late Gulf Tradition) with the Middle Mississippian pottery tradition (Blitz and Mann 2000:55-59). Blitz and Mann (2000:99) proposed that the Pinola ceramic complex was the "product

of indigenous producers of late Coastal Coles Creek/early Plaquemine series pottery exposed to Middle Mississippian tradition ideas, products, or people emanating from the interior Southeast."

Other significant traits of the phase include the adoption of maize agriculture, local salt production, and ceramic vessel shape and tempering adaptations probably related to the efficient processing of maize (Blitz and Mann 2000:99). Pottery types associated with the Pinola phase include Moundville Incised, *var. Moundville* (Moundville series) and D'Olive Incised (Pensacola Series) in addition to the Lower Mississippi Valley types such as Winterville Incised, Parkin Punctated, plus the saltpan type Kimmswick Fabric Impressed (Smith et al. 2010:11). In addition, a human effigy pipe, which is a widespread Mississippian symbolic artifact, was reported for the Singing River site (Blitz and Mann 2000:99, cover illustration; Greenwell 1984:Fig. 5.14 [misidentified as Weeden Island]).

3.2.4.2 Late Mississippi Period (c.a. A.D. 1350 to A.D. 1550)

3.2.4.2.1 Singing River Phase (ca. A.D. 1350 to A.D. 1550)

The Singing River phase is the local expression of the Pensacola culture, which was centered in southwestern Alabama and extended both eastward and westward along the northern Gulf Coast (Blitz and Mann 2000:99). In regards to ceramics, it is associated with the Middle Mississippian tradition as manifested by the Moundville and Pensacola pottery series. A high frequency of a regional variety, Moundville Incised, *var. Singing River*, helps distinguish the Singing River phase from the approximately contemporary Bottle Creek I and Bottle Creek II phases to the east (Blitz and Mann 2000:99; Fuller 1998:26-28). To the west, the early part of the Bayou Petre phase may be closely related to the Singing River phase (Weinstein et al. 1977; Weinstein and Dumas 2008). Both exhibit high frequencies of Moundville/Pensacola-related decorative styles, and both share a ceramic attribute that seems to be diagnostic of coastal Mississippian culture from southeastern Louisiana to southwestern Alabama: a prevalence of blocky or angular shell tempering that is visibly different from the flaky mussel shell tempering of most Mississippian pottery from other regions (Fuller 1996; Richard Weinstein, personal communication 2013).

Insufficient survey work has been completed to delineate the western and northern spatial extents of the Singing River phase. Similarly, the paucity of research has limited the interpretations of broader cultural patterns such as settlement patterns and subsistence. Non-mound sites appear to have functioned as semi-permanent occupations for food extraction purposes, as represented by numerous small to large shell middens (Blitz and Mann 2000). The Deer Island site, with its extensive oyster midden deposits, and the Singing River site, with its shell middens and platform mound, suggest Singing River phase settlement patterns, social structure, and subsistence practices may have been similar to those of other Mississippian cultures associated with the northern Gulf Coast. However, although both appear to have major components dating to the Singing River phase, additional testing is necessary to confirm the associations.

3.3 PROTOHISTORIC AND COLONIAL PERIODS (A.D. 1450-1798)

The Choctaw were the largest group (up to 200,000) inhabiting Mississippi and occupied most of the southern part of the state (Busbee 2005:18). The Choctaw were often in conflict with their neighbors to the north, the Chickasaw, who occupied all of the northern part of the state, as well as western Tennessee. To the west and along the Mississippi between Natchez and Vicksburg, the Natchez were present. Further south and mostly along the Gulf Coast lived smaller tribes like the Acolapissa, Biloxi, and Pascagoula tribes (Akin and Bolton 2002:11-16). Oral history of the Choctaw

places them within Mississippi hundreds of years before the first European contact. Although this history places their origins to the west, more recent ethnohistorical and archaeological research suggests they likely came from the southwest, east, and north (Galloway 1998). Their largest settlement was located at Nanih Waiya at the head waters of the Pearl River in Winston County, Mississippi. The mound at this site stands 20 feet high with its base measuring 100 feet by 218 feet. As many as forty to fifty, Choctaw villages were scattered across central Mississippi (Busbee 2005:18; Galloway 1998).

3.3.1 The French Colonial Period

Although French settlement of this area and Canada was recognized by both Britain and Spain, these two countries and their desire for expansion continued to cause concern for the French. Strategically placed forts and settlements along the coast insured French dominance. Early in 1699, the first French colony in the area was established at Biloxi. With 200 settlers, disease and food shortages made success a struggle. Further exploration of the gulf coast and rivers continued and more forts and settlements followed like Fort Louis at Mobile in 1702. Some loyalty was gained by the French with Native Americans through the introduction of European trade goods. However, the French also brought with them disease causing epidemics, as well as the slave trade. It was hard for the French to persuade settlers to the area, and the ones who did come were mostly French Canadians who preferred trading and trapping and living with the native populations rather than settling within a French community. Both the Choctaw's and Chickasaw's first encounter with the French occurred in 1702 at Mobile. The Chickasaws, having ties with the British, were warned by the French to end their relations or suffer war from the Choctaws and other tribes who would be armed by the French. At this time, the Choctaws alone outnumbered the Chickasaws with warriors (Akin and Bolton 2002:22-23; Busbee 2005:27; Walthall and Emerson 1991:6-7).

By 1718, the French settlements shifted from the coastal area to the interior along major rivers (Fort Rosalie at Natchez in 1716; Fort Toulouse near Wetumpka, Alabama in 1717; La Nouvelle-Orléans/ New Orleans in 1718; and Fort St. Pierre Site near Vicksburg in 1719). In this way, travel from the Lower Mississippi Valley, through the Illinois Country all the way to New France was insured (Walthall and Emerson 1991:5-7). New Orleans became the capital of the province in 1722 and the French economy in this area depended largely on a slave system consisting of rice, cotton, indigo, tobacco, and cattle. Although Native Americans were captured and used as slave labor, they often escaped, causing more reliance on imported Africans. By 1731, as many as 3,400 slaves were in the Louisiana province. Unlike British laws regarding slavery, the French were slightly more liberal and allowed slaves to purchase their freedom. This resulted in a large population of free blacks who contributed to the economy and culture of New Orleans and other port cities (Akin and Bolton 2002:22-24).

French relations with the Native Americans in the first part of the 18th century were a constant struggle. The French monarchy was not generous enough in the funding of settlements and Native American relations were weak due to lack of funding for gifts, an important part of native societies. Add to this a constant pro-British faction amongst the Choctaws and the relations of the tribe with the French became weak with little feelings of loyalty. This was eventually eased when the French sanctioned warfare against the Chickasaws as the Choctaws had been requesting for some time. The French provided the Choctaws with one gun, a pound of powder, and two pounds of bullets for every Chickasaw scalp. In addition, 80 livres of goods were promised for each Chickasaw captured

for slavery. As the alliance between the Choctaws and the French became more solidified, so did the Chickasaw's alliance with the British (Usner 1992:90).

Other tribes like the Natchez proved not so loyal upon the overbearing French rule. Several confrontational episodes had already surfaced between the French and Natchez, but the worst episode occurred in 1729. After the commander of the French forces at Fort Rosalie ordered the Natchez move from White Apple Village which was capital of their homeland, the Natchez rebelled. The Natchez, along with Chickasaws, attacked Fort Rosalie and nearby settlements and killed over 200 settlers (145 men, 36 women, and 56 children). The French reacted brutally. From 1730 until January of 1732, they pursued the Natchez with allied tribal forces until there were virtually no Natchez left alive. Those that did survive were either taken and sold into slavery or adopted by the Chickasaws (Busbee 2005:29-32; Fairly and Dawson 1988:17).

After the removal of the Natchez, more unwanted tribes were eliminated. War with the Chickasaws in the 1730s ended with a treaty in 1740 where the Chickasaws retained their land, but promised to not interfere with French affairs on the Mississippi. By the mid-eighteenth century, the French perceived the Choctaws as crucial allies in the exploitation of the region. This did not last, however, as the British with the help of the Chickasaws continued attempts to gain control of the region. The 1740s witnessed more war with the Chickasaws and a larger, Continental war between France and England. This was known as the War of Austrian Succession (aka King George's War to the British). The Chickasaws had found a way to divide the loyalty of the Choctaws by winning many over to their pro-British position. Although the French forces with pro-French Choctaws managed to crush the pro-British Choctaw faction in 1750, they were not successful in defeating the Chickasaw. From 1753 to 1763, the French and Indian War (aka Seven Years War in Europe) endured where the British finally defeated France. The Treaty of Paris in 1763 ended the period of French control in Mississippi when France surrendered its colony of Louisiana, giving all land west of the Mississippi River and New Orleans to Spain and all land east of the river to England (Busbee 2005:33-34; Usner 1992:87).

3.3.2 The British and Spanish Colonial Period

The relationship between the British and the Native Americans was unlike the French. The British and most of the European belief of superiority over the native tribes kept them segregated. British attempts at enslaving the tribes failed. However, the British had something the Native Americans desired -- firearms, ammunition, cloth, iron products such as cooking utensils, ceramic kitchen ware, and liquor. On the other hand, the native tribes were needed by the British for their land, military allies, and deerskins and beaver skins which brought high prices in the European market. Still, mistrust existed between the two for the entire time that the British owned the land. Control for the British, however, was short-lived, when the British surrendered the territory at the end of the American Revolution in 1781 (Busbee 2005:38-44).

Spain took control of what is now Mississippi and also took control of Natchez in hopes of increasing its influence on the Mississippi River. Under a dispute over land ownership, American settlers at this time began entering the state for settlement. The Spanish welcomed them as long they joined the Catholic Church. Most of the American settlers in Natchez refused, however, and the Spanish did little to enforce the rule. Spain managed to maintain rule for nearly 20 years though until Spain agreed with the Americans over the disputed land.

3.4 HISTORIC CONTEXT

The historic context of Mississippi is divided into four broad periods. The first period is the American Settlement and Antebellum Period which covers the time from 1798, the year Mississippi was officially declared a territory, to the beginning of the Civil War. The second period, Civil War, encompass the years of the Civil War, 1861-1865. The third period, Recovery and Postbellum, begins with the end of the Civil War in 1865 and ends in 1900. The last period, the Twentieth Century, covers the history of Mississippi throughout that century.

3.4.1 American Settlement and Antebellum Period (1798-1861)

Mississippi was officially declared a territory under President John Adams on April 17, 1798 (Busbee 2005:54). By the early nineteenth century, the Choctaw had clearly adopted most if not all of European technology. Upon the forced removal of the Choctaw following the Treaty of Dancing Rabbit Creek in 1830 (and proclaimed on February 24, 1831), counties were quickly formed across the rest of the state. American settlers came from nearby states like Kentucky, Tennessee, Georgia, South Carolina, Florida, and other Southeastern states. Land was inexpensive and available to farmers at easy credit terms (Busbee 2005:100). As a result, settlement increased quickly throughout the state over the following decade from 1830 to 1840. Most of these newcomers settled in the rural areas previously occupied by the Chickasaws and Choctaws (Busbee 2005:93).

Early settlers to central and northern Mississippi, like J. C. and Margaret Shelton Richie who arrived in the late 1830s, passed on their observations. They noted that the area had much to offer settlers. Stock did not have to be fed during the winter because rains were often plentiful enough to provide enough wild pea vines, grasses, and cane. A variety of nuts, and fish, deer, turkey, raccoon, opossum, and squirrel were all plentiful. In addition, there was enough undeveloped land for hogs and developed land productive enough to yield as much as “fifty bushels of wheat and seventy-five bushels of corn per acre”. Cotton was raised and spun and woven into cloth for slaves’ use. Most of the bottom land was cleared for farming and horses and mules were brought from Tennessee and Kentucky.

During both the colonial and territorial periods, slave trade was encouraged. The majority of the settlers from across the Southeast and Upper South also brought their slaves. Slaves fulfilled the farmer’s need for labor production of crops, in particular, cotton, a higher yielding cash crop than tobacco. Cotton was a labor intensive crop and required a large work force of slave labor. Its production was only limited by the numbers of workers, the larger farms and plantations of the wealthy planters, which produced the most cotton, had many slaves. Large farms might have up to 20 slaves while the middling planter might own up to 50 slaves. It was the elite planter, comprising 5 percent of all slaveholders, who owned more than 50 slaves. At the bottom of the social latter were the middle or yeoman class farmers who might own only five or more slaves or none (Busbee 2005:106-108).

Prior to statehood in 1817, a constitution was created for the state which ensured the protection of the institution of slavery. The state government was prohibited from emancipating slaves without the consent of the slave owner and all arriving settlers and visitors were permitted to bring their slaves. Under the new constitution, slaves were not allowed full due process unless a capital offense was committed, in which case a trial by jury was allowed. These laws only became more restrictive as the antebellum period progressed (Busbee 2005:74).

With major markets in Memphis, Mobile, and New Orleans roads and rivers were important methods of transportation of cotton exports and imports for the settlers. Old Native American trails like the Natchez Trace and newly commissioned roads like Andrew Jackson's Military Road across the state were important during the early nineteenth century (Busbee 2005:101-104; Crutchfield 1985:124). While the Natchez Trace was at its peak from about 1800 to 1820, with improvements made in between 1801 and 1803, it was never well suited for wagons and carriages (Crutchfield 1985:100-101; Obernuefemann and Thomas 2001:9). The first railroad lines in Mississippi were in use by 1830 but were short lines. Prior to 1861, only four major lines were in the state and even these were incomplete or lacked connecting roads (Busbee 2005:187).

In 1810 American and British settlers along the Gulf Coast who resented Spanish rule lead a rebellion which established the Republic of West Florida for a period of just 90 days. President Madison annexed the young republic on October 27, 1810 and on January 4, 1811 it was annexed to the territory of New Orleans as the Parish of Biloxi. The Hancock and Pearl River Counties area became part of the Mississippi Territory on December 13, 1812 and Hancock County, named after John Hancock, was formed. Later, the counties of Harrison, Stone, and part of Pearl River were formed from the original Hancock County.

No significant battles were fought within Hancock and Pearl River Counties during the War of 1812. A small naval engagement fought in the Mississippi Sound prior to the Battle of New Orleans stalled the British advance, allowing Andrew Jackson time to muster more defenders and complete his fortifications.

Some two years following the end of the War of 1812, legislation was passed enabling the incorporation of the western portion of the Mississippi Territory into the United States, and, on December 10, 1817, Mississippi was admitted to the Union as its 20th state. The first act of the Mississippi legislature was to incorporate the city of Bay Saint Louis to become the capital of the state. The incorporation was completed at the morning session but at the afternoon session, the representative from Rankin County changed his vote and Natchez was designated capital instead. It remained the capital for two years before the capital was moved to Jackson where it remains (Brieger 2000).

Settlement in Hancock and Pearl River Counties remained relatively sparse, though, during the years preceding the Civil War. During this time, the cotton economy boomed throughout much of the Southeast. Although Hancock and Pearl River Counties were agricultural by nature, they lay on the periphery of the cotton producing areas, and as such did not enjoy the wealth and prosperity other parts of Mississippi enjoyed thanks to plantation agriculture based cotton production (Brieger 2000).

3.4.2 Civil War (1861-1865)

In April of 1861, after learning that Confederate forces had fired upon Fort Sumter, volunteers from Mississippi wasted no time by joining up with Confederate forces. Corinth to the north became a military camp. After Confederates were defeated at Shiloh and Corinth a year later, Gen. Beauregard, commander of the Mississippi troops, evacuated Corinth and fell back with the army to Tupelo. Control of the Mississippi River was vital and General Sherman's victory at Vicksburg and the Union Navy's victory at New Orleans were both major blows for the Confederates (Busbee 2005:133-34; Fitts 1962:12). By 1863 Union forces had control of most of western Tennessee and

both sides began a series of raids. After the Union victory at Vicksburg, Sherman began his march east across central Mississippi. Union troops lived off the land as they progressed eastward, taking what supplies they needed from farms and plantations, and also destroying properties and the railroads.

No major military events occurred in Hancock and Pearl River Counties during the Civil War. The Mississippi Gulf Coast remained under Federal occupation throughout most of the war. Hancock and Pearl River Counties did not suffer the effects of the war associated with military actions that occurred farther north and west in the Mississippi interior, the Lower Pearl River area experienced problems from by "deserters, draft dodgers, outlaws and jayhawkers" (Guerin 2016b). To help with this problem, both Confederate and Union authorities ordered operations to put an end to the unlawful activities in the region (Bearss 1984).

3.4.3 Recovery and Postbellum (1865-1914)

The war was devastating to Mississippi, destroying its primary economic base of slavery and cotton production. The other two leading industries of lumber and textile production failed as well when mills were forced to close down or were destroyed during the war. By the end of the war, the state was nearly $9 million in debt from outstanding bonds and could not be helped by the failed state banks. The relatively comfortable existence of white farmers in the state who owned a small amount of land and few if any slaves was damaged to such an extent that no social level of society, from the small farmer to the elite plantation owners, was free from poverty (Busbee 2005:143-146).

With the final defeat of the Confederacy in 1865, Hancock and Pearl River Counties shared in the economic ruin that encompassed Mississippi. Agriculture, the most prominent economic pursuit within the state, was severely crippled by the war. Emancipation disorganized and disrupted the available labor supply. Transportation, particularly the railroad system, lay in ruins. Finally, land values seriously declined (Scarborough 1979:159-160)

Although recovery after the war was slow, by the early 1870s, farming had gradually spurred an economic recovery (Busbee 2005:158). Agricultural products across the state included corn, oats, wheat, tobacco, sorghum, and various kinds of fruits and vegetables. Cotton, however, was the most important crop. Improvements to the railroad also lead to an increase of its production (Busbee 2005:158). Cotton was the most important crop and improvements to the railroad also lead to an increase of its production (Busbee 2005:158).

Following the Civil War, the timber industry enjoyed a robust growth because both counties had large expanses of timber found in the piney woods region of southern Mississippi. It was the first economic interest to rebound from the devastation of the Civil War. As the timber industry grew, railroads were expanded and soon began to snake across the pinelands of southern Mississippi. As the new railroad lines were completed, northern speculators began buying huge tracts of land for timber production. Northern capital combined with inexpensive rail transportation fueled the dramatic postwar growth of the commercial lumbering industry (McLemore 1973:2:213-214).

3.4.4 Twentieth Century

Cotton remained the major agricultural product until the boll weevil devastated much of it by 1910. Within a short three-year period, the insects had progressed across almost all of the state,

destroying cotton fields and causing financial ruin. To bolster the local economy in the wake of the boll weevil, banks and railroads promoted agricultural diversification programs. Crops of the early twentieth century switched from primarily cotton to include wheat, corn, and soybeans with various fruits and vegetables, and various kinds of livestock (Busbee 2005:184-186).

The stock market crash of 1929 affected the county much like it did the rest of the state and country. For the state in general, most Mississippians had fallen into debt prior to the crash. Many farmers lost their property which marked the beginning of the Great Depression. Agricultural diversification was part of the answer to the state's economic recovery, but industrial growth was important too. It was not until World War II when the sudden growth of military camps and new industries put thousands of Mississippians back to work and the put the state on the road to recovery (Busbee 2005:226, 235, 262).

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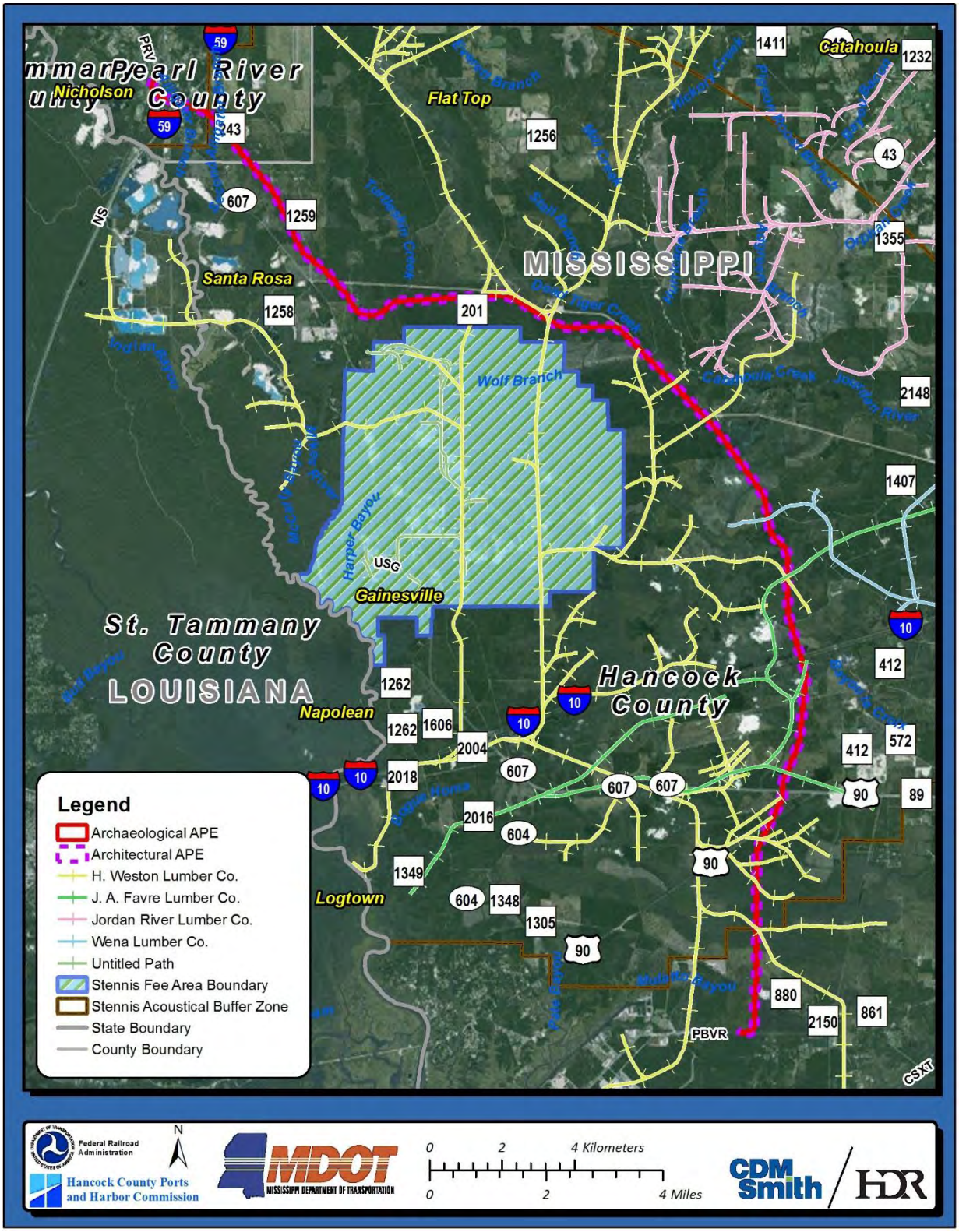
At the beginning of the twentieth century commercial lumbering continued to be the dominant economic undertaking in Hancock and Pearl River Counties. One of the more prominent commercial lumber companies in the proposed PRBB corridor was the H. Weston Lumber Company of Logtown that had been operating under various owners/partners since before the Civil War. The Weston company operated a sawmill at Logtown and a planning mill along the Pearl River and maintained an aggregate network of hundreds of miles of logging railroads that extended through the region. Additional resources owned by the company included schooners, steamers, and other vessels, as well as wharf facilities, railroad spurs, warehouses, and other amenities necessary for shipping operations (Guerin 2016a; Hancock County Historical Society 2016b; Mississippi Rails 2016; McCain Library and Archives 2016b). The extensive logging railroad network developed by the H. Weston Lumber Company and others is shown in Figure 3-1.

By the 1930s, however, lumber production had dramatically dropped due to the Great Depression and to the depletion of virgin pine. The era of large-scale lumber manufacture in the project vicinity ended in 1930 with the closing of the H. Weston Lumber Company in Logtown (Hickman 1962). Following the decline of the lumber boom, agriculture received a boost with the introduction of citrus fruit, pecan, and tung orchards in the area (Federal Writers' Project 2016).

World War II produced an economic boom in the Hancock and Pearl River Counties. In June 1941, the U.S. War Department began construction in Biloxi on Army Air Corps Station No. 8, Aviation

Figure 3-1: Historic Logging Railroads (after Mississippi Rails 2016)



Mechanics School. Two months later, the base was designated Keesler Army Airfield in Biloxi and basic training was added to the technical training programs provided at the facility. The War Department recognized a need for a bombing and gunnery range to train combat crews flying B-17s. Forty tracts of land were leased in Hancock County consisting of approximately 30,622 acres (Figure 3-2). The range was to support units stationed at Biloxi, Mississippi, New Orleans, Louisiana, and units of the 5th Air Support Command located at Gulfport, Mississippi. Building of the bombing and gunnery range began in early 1942 and consisted of three bomb targets, a rifle range, two machine gun ranges, and a ground strafing range that overlapped the gunnery ranges (Parsons Engineering Science, Inc. (PES):1999).

The site was reported as excess in 1946 by the Army, and utilization of the site conveyed to the Navy. In 1948, the Navy granted the Air Force a permit to use the site from 1948 to 1955. The Navy continued to use the site until 1963, at which time leases were terminated (PES 1999).

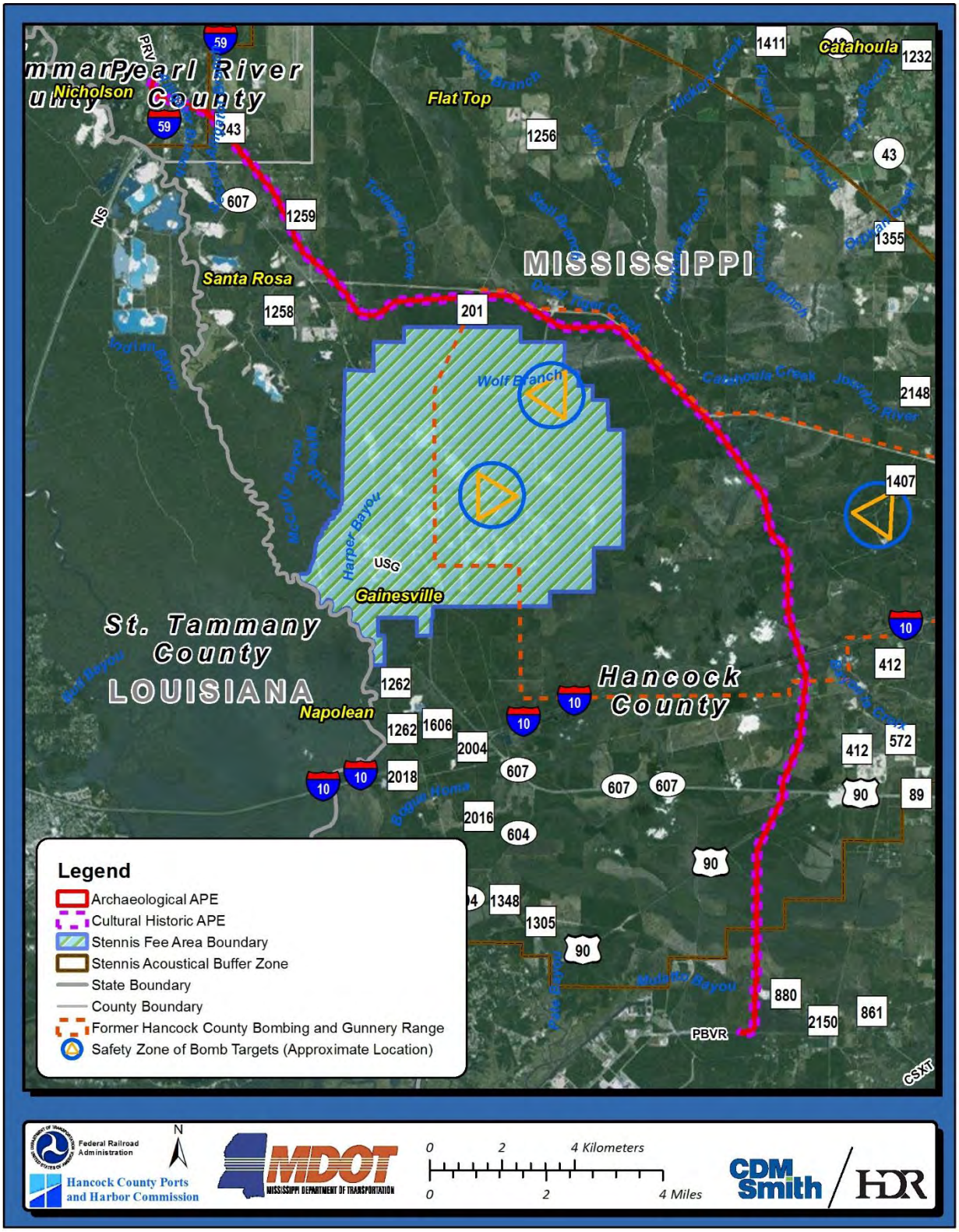
On October 25, 1961, the National Aeronautics and Space Administration (NASA) announced plans to establish a rocket test site in western Hancock County called the Mississippi Test Center. On 9 October 1962, the United States Government began acquiring fee simple title and easement interest in real estate for the Mississippi Test Facility in south Mississippi and Louisiana. The Government acquired the land through the Department of the Army, as agent for the National Aeronautics and Space Administration (NASA), with funds furnished by NASA. Land acquisition totaled approximately 11,258 acres fee simple. This purchase included two of the bomb targets, as well as the lower ends of the gunnery ranges. The Department of the Navy was advised by letter not to extend their leases and they were terminated 30 June 1963 (NASA 2016a; PES 1999).

To transport construction material to the new Mississippi Test Center, the Southern Railway built a 10.5-mile spur between its New Orleans and Northwestern main line and the Mississippi Test Center site at its own expense "for the privilege of serving the construction and operation needs of the test facility" (Herring 1997:56). The Southern Railway used its own labor to lay the track. Work began on the line in March 1963 and was completed on May 10, 1963. The line was known locally as the "NASA Turn." The line and the structures along it were constructed to withstand the enormous weight and scale of the building materials and structural components required for the construction projects at the Mississippi Test Center (Daspit 2016).

After several name changes, NASA's installation was designated the John C. Stennis Space Center in 1988, in honor of a U.S. senator who was a strong supporter of the national space program. Until recently, the primary mission of the Stennis facility was to test NASA's space shuttle main engines; however, with that program ending in 2010, Stennis has been changing focus toward testing rocket engines both for NASA and for commercial entities (NASA 2016b).

The construction of the Stennis Space Center had a tremendous physical impact on western Hancock County. During the 1960s, the United States government exercised eminent domain to acquire thousands of acres of land, not only for the NASA testing facility, but also for its surrounding acoustical buffer zone. All of these combined purchases marked the end of five small towns in the area: Santa Rosa, Gainesville, Logtown, Napoleon, and Westonia. All of these communities now are extinct. Structures and even cemeteries, in some cases, had to be removed for the testing site and surrounding acoustical buffer zone, leaving this part of Hancock County unpopulated (Guerin 2016a; Hancock County Historical Society 2016a, 2016c.).

Figure 3-2: Location of Former Hancock County Bombing and Gunnery Range



3.5 ARCHIVAL RESEARCH

A review of historic maps and aerial photographs was conducted, focusing on the Archaeological and Architectural APEs.

3.5.1 Historic Maps

The proposed PRBB corridor is located within Township 7S Range 15W, Township 7S Range 16W, Township 7S Range 17W, Township 8S Range 15W, Township 9S Range 15W of the St. Stephens Meridian in Hancock County and within Township 6S Range 17W and Township 7S Range 17W of the St. Stephens Meridian in Pearl River County. A summary of the original Bureau of Land Management, General Land Office (BLM-GLO) surveys of the exterior township lines is presented in Table 3-5. There are no cultural features depicted on the survey plats.

Also examined were available historical USGS topographical maps. The USGS map name, scale and publication date for the reviewed maps is presented in Table 3-6. Mississippi State Highway maps dating from 1928 to 2016 were also reviewed.

3.5.2 Historic Aerial Photographs

A review of historic aerials photographs from the USGS showed the condition of the proposed PRBB corridor from the 1950s to the 2000s. The earliest available photograph dates to 1952 with additional aerial photographs available from 1952, 1954, 1967, 1969, 1970, 1971, 1972, 1973, 1975, 1976, 1978, 1979, 1982, 1985, 1987, 1988, 1989, 1990, 1992, 1994, 1995, 1996, and 2007. These aerial photos were reviewed and they show extensive logging and areas of mature tree growth within the majority of the proposed PRBB corridor with little change between the aerials.

3.6 BACKGROUND RESEARCH

A review of MDAH files was conducted to identify previous surveys, previously recorded archaeological sites, and previously recorded architectural sites within one kilometer of the APE.

3.6.1 Previous Surveys

The archaeological site files at the MDAH were consulted to identify previous cultural resource surveys that have been conducted within one kilometer of the APE. A total of 33 sites were identified, (Table 3-7, Figure 3-3 and Figure 3-4). Twelve of these surveys cross or are located within the Archaeological APE. These results are described below.

3.6.2 Previously Recorded Archaeological sites

The archaeological site files at the MDAH were consulted to determine the variety of site types on record within this one kilometer of the Archaeological APE and their densities. A total of 19 sites were identified, 14 in Hancock County and five in Pearl River County (Table 3-8). None of these sites are within the Archaeological APE.

In 1987, at the request of Diversified Energy Services, Inc., James Lauro conducted a cultural resources survey of a proposed 20-foot-wide fiber optic line following the outside of the southern boundary of I-10 across Hancock, Harrison, and Jackson Counties, Mississippi. Much of the cultural proposed line cut across low lying, swampy areas which were not considered favorable for archaeological site locations. As a result, no cultural resources were identified (Lauro 1987 (MDAH Report 87-083)).

Table 3-5: BLM-GLO Summary Information

County	Township	Range	Survey Date	Surveyor Name	Approved Date	Approved By
Hancock	7S	15W	No Date	George J Williams (Deputy Surveyor)	4/6/1832	Gideon Fitz (Surveyor General)
Hancock	7S	16W	1/1/1827	Elihu Carver (Deputy Surveyor)	12/10/1829	James P Turner (Surveyor General)
Hancock	7S	17W	1/1/1827	Elihu Carver (Deputy Surveyor)	12/9/1829	James P Turner (Surveyor General)
Hancock	8S	15W	No Date	Elihu Carver (Deputy Surveyor)	4/6/1832	Gideon Fitz (Surveyor General)
Hancock	9S	15W	No Date	Elihu Carver (Deputy Surveyor)	4/6/1832	Gideon Fitz (Surveyor General)
Pearl River	6S	17W	1/1/1824	Peter Mccaskill (Deputy Surveyor)	12/9/1829	James P Turner (Surveyor General)
Pearl River	7S	17W	1/1/1824	Elihu Carver (Deputy Surveyor)	12/9/1829	James P Turner (Surveyor General)

Table 3-6: USGS Historic Maps Summary Information

USGS Map Name	Publication Year
USGS 1:24000-scale Quadrangle for Dead Tiger Creek, MS	1957
USGS 1:24000-scale Quadrangle for Dead Tiger Creek, MS	1996
USGS 1:24000-scale Quadrangle for English Lookout, LA	1956
USGS 1:24000-scale Quadrangle for English Lookout, LA	1968
USGS 1:24000-scale Quadrangle for English Lookout, LA	1993
USGS 1:31680-scale Quadrangle for English Lookout, LA	1954
USGS 1:24000-scale Quadrangle for Grand Island Pass, MS	1956
USGS 1:24000-scale Quadrangle for Kiln, MS	1959
USGS 1:24000-scale Quadrangle for Logtown, MS	1958
USGS 1:24000-scale Quadrangle for Logtown, MS	1993
USGS 1:24000-scale Quadrangle for Nicholson, LA	1955
USGS 1:24000-scale Quadrangle for Nicholson, LA	1993
USGS 1:24000-scale Quadrangle for Nicholson, LA	1998
USGS 1:24000-scale Quadrangle for Nicholson, MS	1998
USGS 1:24000-scale Quadrangle for Saint Joe Pass, MS	1994
USGS 1:24000-scale Quadrangle for Waveland, MS	1956
USGS 1:24000-scale Quadrangle for Waveland, MS	1997
USGS 1:31680-scale Quadrangle for English Lookout, LA	1935
USGS 1:31680-scale Quadrangle for Grand Island Pass, LA	1935
USGS 1:31680-scale Quadrangle for Grand Island Pass, LA	1949
USGS 1:31680-scale Quadrangle for Haaswood, LA	1950
USGS 1:31680-scale Quadrangle for Haaswood, LA	1954
USGS 1:31680-scale Quadrangle for Honey Island, LA	1941
USGS 1:62500-scale Quadrangle for Nicholson, MS	1914
USGS 1:62500-scale Quadrangle for Nicholson, MS	1921
USGS 1:62500-scale Quadrangle for Nicholson, MS	1959
USGS 1:100000-scale Quadrangle for Gulfport, MS	1982

Figure 3-3: Previous Surveys on USGS Topographical Maps

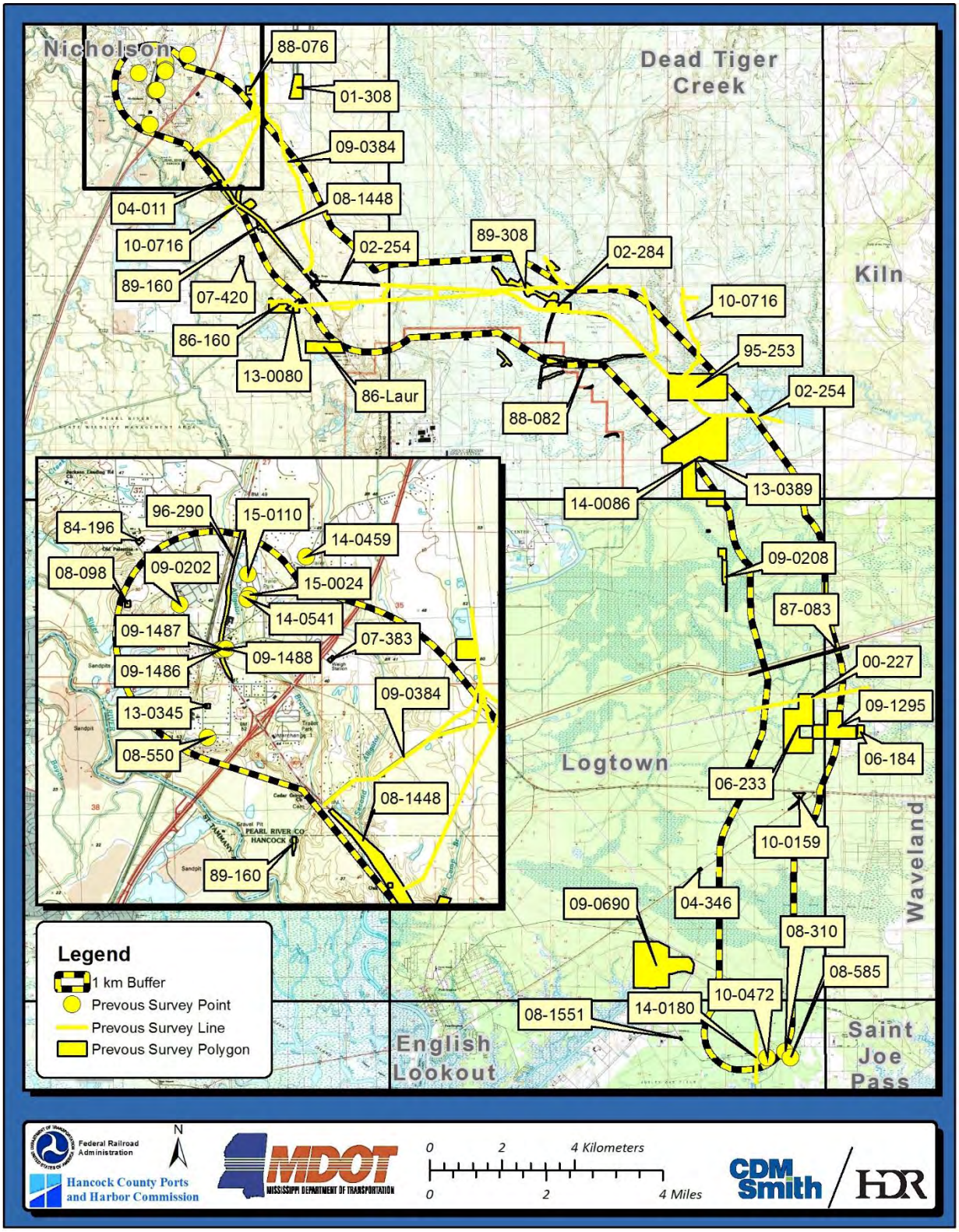


Figure 3-4: Previous Surveys on Aerial Photograph

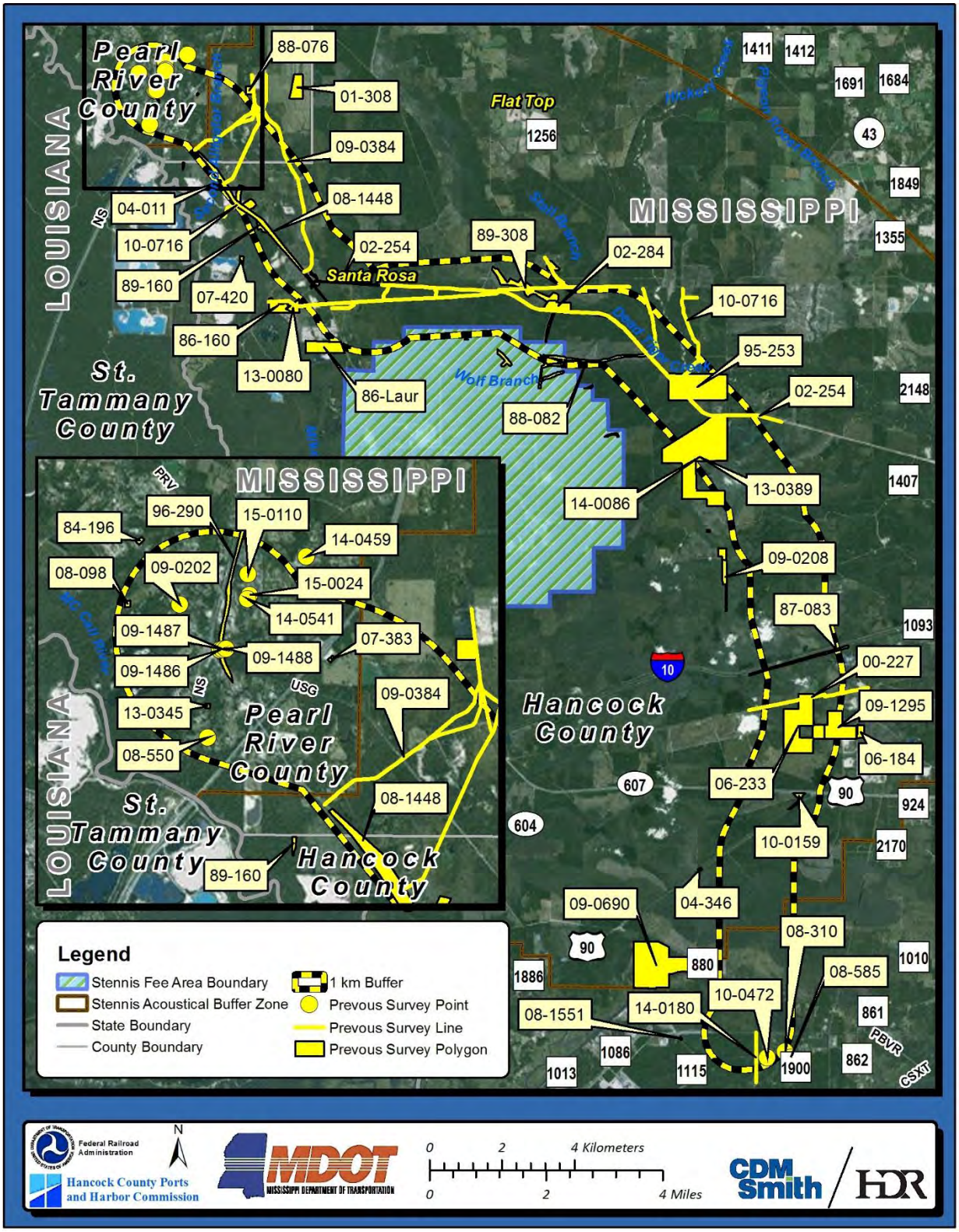


Table 3-7: Previous Surveys

Report #	Year	County	Author	Affiliation	Project	Map
86-Laur	1986	-	-	-	-	-
87-083	1987	Hancock, Harrison, Jackson	Lauro, James	James Lauro	CRS of Proposed Fiber Optical Line	Haswood, Logtown, Waveland, Lidalia, Gulfport NW, Gulfport North, Biloxi, Ocean Springs, Gautier North, Kreole
88-082	1988	Harrison	Mobile District, U.S. Army Corps of Army Engineers	Mobile District, U.S. Army Corps of Army Engineers	Cultural Resources Investigations for National Aeronautics and Space Administration at National Space Technology Laborites MSTL, Mississippi	Dead Tiger Creek, Logtown, Haaswood, Nicholson
89-160	1989	Hancock, Pearl River	Mobile District, U.S. Army Corps of Army Engineers	Mobile District, U.S. Army Corps of Army Engineers	Cultural Resource Investigations: Six Proposed Timber Sales, Hancock County, Mississippi	Nicholson
89-308	1989	Hancock, Pearl River	Mobile District, U.S. Army Corps of Army Engineers	Mobile District, U.S. Army Corps of Army Engineers	Historic Properties Investigations: Fee Owned Lands in the Acoustic Buffer Zone, Hancock County, Mississippi	Waveland, Haaswood, Logtown, Dead Tiger Creek
95-253	1995	Hancock	Hilliard, Elbert R.	-	Letter and depositions RE: Heresy locations of Choctaw graveyard and "Stomping Ground" in Devils Swamp	Logtown, Dead Tiger Creek
96-290	1996	Pearl River	Mann, Baxter C.	Mann & Associates	Cultural Resources Survey of Proposed Widening of US 11 from I-59 to MS 43 North, Picayune, Mississippi	Picayune, Nicholson
00-227	2000	Hancock, Harrison, Jackson	Pearce, Kenny, and Greg A. Mikell	Panamrican Consultants Inc.	Phase IA Cultural Resources Investigation for a Proposed Fiber-Optic Line through Hancock, Harrison, and Jackson Counties, Mississippi	-

Report #	Year	County	Author	Affiliation	Project	Map
02-254	2002	Hancock	Mann, Baxter C.	C. Baxter Mann, Jr. RPA	A Phase I Cultural Resource Survey for the Improvement Project of Texas Flat Road to be Located in Hancock County, Mississippi	Dead Tiger Creek, Kiln, Nicholson
02-284*	-	-	-	-	-	-
04-011	2004	Hancock	Ryba, Beth A.	MRS Consultants, LLC.	A Phase I Cultural Resources Assessment of the Proposed Nicholson Cellular Tower near Nicholson, Hancock County, Mississippi	Nicholson
06-233	2006	Hancock	Lauro, James	Archaeology Mississippi, Inc.	Cultural Resources Survey of Proposed 240 Acre Borrow Area, Hancock County, Mississippi	Logtown
07-383	2007	Pearl River	Lauro, Jim	Archaeology Mississippi, Inc.	Phase I Cultural Resources Survey of Proposed Nicholson Cell Tower Site, Pearl River County, Mississippi	Nicholson
08-098	2008	Pearl River	Ryba, Beth A.	MRS Consultants, LLC.	A Phase I Cultural Resources Assessment of the Proposed Nicholson Cellular Tower in Nicholson, Pearl River County, Mississippi	Nicholson
08-1448	2008	Hancock, Pearl River	Yakubik, Jill-Karen	Earth Search, Inc.	Phase I Cultural Resources Survey Proposed Improvements to Mississippi State Route 607 (SR 607), Saturn Drive to Interstate 59 (I-59), Hancock and Pearl River Counties, Mississippi	Nicholson, Dead Tiger Creek, Logtown, Haaswood
08-550	2008	Pearl River	Lackowicz, Robert	URS Corporation	MDA-07SR100467 106 Jorden McQueen Road, Picayune, MS	Nicholson
09-0202	2009	Pearl River	Lackowicz, Robert	URS Corporation	MDA-08SR2553338 3317 Jackson Landing Road, Picayune, MS	Nicholson

Report #	Year	County	Author	Affiliation	Project	Map
09-0384	2009	Pearl River, Hancock	Thorne, Robert M.	Pickering Firm, Inc.	Revised: A Cultural Resources Assessment of the Proposed Improvements and Widening of Ridge Road in Sections 23, 24, 25, 26, 35, and 36, T6S, R17W, and Sections 1, 2, 11, 12, and 13, T7S, R17W in Pearl River and Hancock Counties, Mississippi	Picayune, Nicholson
09-1295	2009	Hancock	Lauro, James	Archaeology Mississippi, Inc.	Phase I Cultural Resource Survey of Proposed Class I Rubbish Facility, Hancock County, Mississippi	Logtown, Waveland
09-1486	2009	Pearl River	Lackowicz, Robert	URS Corporation	MDA-08SR2594390 8 Emmette Meitzler Road, Nicholson, MS	Nicholson
09-1487	2009	Pearl River	Lackowicz, Robert	URS Corporation	MDA-08SR2594431 10 Emmette Meitzler Road, Nicholson, MS	Nicholson
09-1488	2009	Pearl River	Lackowicz, Robert	URS Corporation	MDA-08SR2594584 12 Emmette Meitzler Road (approx), Nicholson, MS	Nicholson
10-0159	2010	Hancock	Underwood, John, et al.	Mississippi Department of Transportation	Cultural Resources Survey of Proposed U.S. Highway 90/Mississippi Highway 607 Intersection Reconstruction, Hancock County, Mississippi	Logtown
10-0472	2010	Hancock	Lackowicz, Robert	URS Corporation	MDA-09SR2937624 11093 Lower Bay Road, Bay St. Louis, MS	English Lookout
10-0716	2010	Hancock, Harrison	Eberwine, James, et al.	R. Christopher Goodwin & Associates, Inc.	Phase I Cultural Resources Survey and Archaeological Investigations of the Portion of the Proposed Tri-States Pipeline Replacement Project, Hancock and Harrison Counties, Mississippi	Gulfport NW, Vidalia, Dead Tiger Creek, Nicholson
13-0345	2013	Pearl River	Lackowicz, Robert	URS Corporation	MDA 10NH10045 1065 River Road, Nicholson, Mississippi	Nicholson

Report #	Year	County	Author	Affiliation	Project	Map
13-0389	2013	Hancock	Price, Sarah E.	Coastal Environments, Inc.	Proposal for Phase I Cultural Resources Assessment of Selected Portions of the Texas Flat Road Mitigation Bank Project Tract, Hancock County, Mississippi	Dead Tiger Creek, Logtown
13-0389	2013	Hancock	Price, Sarah E.	Coastal Environments, Inc.	Historic Context for the Piney Woods, Hancock County, Mississippi	Dead Tiger Creek, Logtown
14-0086	2014	Hancock	Mikell, Gregory A.	Panamerican Consultants, Inc.,	Phase I Cultural Resource Assessment Survey: Portions of the Texas Flat Wetlands Mitigation Bank, Hancock County, Mississippi	Dead Tiger Creek, Logtown
14-0180	2014	Hancock	Yakubik, Jill-Karen	Earth Search, Inc.	Negative Finding Survey: Phase I cultural Resources Survey of the Proposed Line 07 Pipeline Maintenance Project in Hancock County, Mississippi	English Lookout
14-0541	2014	Pearl River	Lackowicz, Robert	URS Corporation	MDA #10NH06953, 1801 Hwy 11, Lot 24, Picayune, Pearl River Co, MS	Nicholson
15-0024	2015	Pearl River	Lackowicz, Robert	URS Corporation	MDA #10NH17063, 1801 Hwy 11 South, Lot 18, Picayune, Pearl River Co, MS	Nicholson
15-0110	2015	Pearl River	Lackowicz, Robert	URS Corporation	MDA #10NH17063, 1801 Hwy 11 S, Lot 59, Picayune, Pearl River, MS	Nicholson

Highlighted areas indicate those surveys that have been conducted within or though the Archaeological APE.
* This survey is incorrectly associated with the map survey location provided by MDAH.

Table 3-8: Previously Recorded Archaeological Sites

Trinomial	Cultural Affiliation	Materials	Natural Setting	Map Ref QUAD 7.5:	SHPO Evaluation
22HA566	Paleo Indian/ Early Woodland	Medium Lithic Scatter	First Terrace	Dead Tiger Creek	Unevaluated
22HA629	Middle Woodland	Light Lithic Scatter	First Terrace	Dead Tiger Creek	Unknown
22HA632	Unknown Aboriginal	Light Lithic Scatter	First Terrace	Dead Tiger Creek	Unknown
22HA633	Late Archaic/ Middle Woodland	Light Lithic Scatter/ Ceramics	First Terrace	Dead Tiger Creek	Unknown
22HA670	Late Woodland	Medium Lithic Scatter/Ceramics	First Terrace	Nicholson	-
22HA671	Historic (Middle - Late 19th Century)	Light Historic Scatter	Upland Ridge	Nicholson	Ineligible
22HA672	Historic (Early - Middle 20th Century)	Light Historic Scatter	Upland Ridge	Nicholson	Ineligible
22HA673	Historic (Early - Middle 20th Century)	Light Historic Scatter	Knoll on Terrace	Nicholson	Ineligible
22HA674	Unknown Aboriginal	Light Lithic Scatter	Knoll on Terrace	Nicholson	Ineligible
22HA675	Unknown Aboriginal	Heavy Lithic Scatter/Ceramics	First Terrace	Nicholson	Ineligible
22Ha676	Historic (Early 20th Century)	Heavy Historic Scatter	Flood Plain	Nicholson	Ineligible
22HA936*	-	-	-	-	-
22HA937*	-	-	-	-	-
22HA938*	-	-	-	-	-
22PR931	Historic (Late 19th - Late 20th Century)	Medium Historic Scatter	Upland (Ridge)	Nicholson	Unknown
22PR932	Historic (Late 19th – Early 20th Century)	Light Historic Scatter	Upland (Ridge)	Nicholson	Ineligible
22PR933	Unknown Aboriginal	Light Lithic Scatter	Upland (Ridge)	Nicholson	Ineligible
	Historic (Late 19th – Middle 20th Century)	Light Historic Scatter			
22PR934	Historic (Middle 20th Century)	Light Historic Scatter	Upland (Ridge)	Nicholson	Ineligible
22PR935	Historic (Middle 19th – Early 20th Century)	Medium Historic Scatter	Upland (Ridge)	Nicholson	Ineligible

*Site location is shown on MDAH maps but no information available.

The Mobile District, U.S. Army Corps of Army Engineers conducted a cultural resources investigation of approximately 3,000 acres for the proposed Advances Solid Rocket Motors site and three alternative areas for relocation of the Hazards Test Range at the Mississippi Test Facility (John C. Stennis Space Center) in Hancock County. As a result, no archaeological resources were documented. However, the report notes that numerous house sites are present within the area, but only documents one structure, the White Church, and recommends additional surveys for historic structures (Mobile District, U.S. Army Corps of Army Engineers 1988 (MDAH Report 88-082)).

A letter sent by Elbert R. Hilliard (then State Historic Preservation Officer) to Poss Tanguis on September 27, 1995, thanked Mr. Tanguis for his concern over various ground disturbing activities taking place around Hancock County. Mr. Tanguis had expressed a concern for these ground disturbing activities to affect "stomping grounds" and burial sites (Hilliard 1995 (MDAH Report 95-253)).

At the request of the Mississippi Department of Transportation, archaeologist from Mann & Associates conducted a cultural resources survey for the proposed widening of US 11 from I-59 to MS 43 North in Pearl River County. As a result of the survey, no archaeological sites were documented. Outside of the downtown Picayune area, no historic standing structures were documented. However, within the downtown area of Picayune, several buildings of possible historic value were documented (Mann 1996 (MDAH Report 96-290)).

Panamerican Consultants, Inc. (PCI) was contracted by Electrical Consultants, Inc. (ECI) through Gremminger and Associates, Inc. to conduct a Phase IA cultural-resource investigation of a proposed fiber-optic cable route from Pensacola, Florida to Houston, Texas. The Mississippi portion of the route extends through Hancock, Harrison, and Jackson Counties. Two portions of the proposed fiber-optic route were identified as high-probability areas. As a result, one archaeological site was identified, 22HA268. The site is an isolated find and was recommended as ineligible for NRHP inclusion (Pearce and Mikell 2000 (MDAH Report 00-227)).

A Phase I cultural resource survey was conducted of the proposed Texas Flat Road Improvement Project in Hancock County, Mississippi by C. Baxter Mann, Jr. The proposed PRBB corridor was a corridor approximately 16 miles long, and averaging 130 feet wide encompassing 252.1 acres. At least half of this area was existing paved road, so approximately 126.5 acres of potentially undisturbed land surfaces were surveyed. No archaeological or other cultural materials were recovered within the boundaries of the areas surveyed except for a previously identified site 22HA632, located on the north side of the Texas Flat Road and outside the Archaeological APE. Testing of appeared to indicate a possible early late Woodland occupation. However, no temporal diagnostics were recovered and all material originated from a disturbed context (Mann 2002 (MDAH Report 02-254)).

In 2006, archaeologist from Archaeology Mississippi, Inc. conducted a cultural resource survey for Eutaw Construction Co. Inc. of a proposed 240 acre borrow area located in Hancock County. As a result, no cultural resources of any type were identified nor were there any standing structures (Lauro 2006 (MDAH Report 06-233)).

Archaeologist from Pickering Firm, Inc. conducted a cultural resource assessment of the proposed improvement and widening of Ridge Road in Pearl River and Hancock Counties. Approximately 202 acers were examined. No archaeological sites or historic properties were identified (Thorne 20009 (MDAH Report 09-0384)).

In 2010 A Phase I cultural resources survey of the approximately 77.4 km (48.1 mi) long Tri-States Pipeline Replacement Project located within Hancock and Harrison Counties, Mississippi and St. Tammany Parish, Louisiana was conducted by archaeologist from R. Christopher Goodwin & Associates, Inc. Approximately 33.2 km (20.6 mi) of the project right-of-way was situated within the State of Louisiana, while the remaining 44.3 km (27.5 mi) extended through the State of Mississippi. As a result, two newly recorded cultural resources were identified: archeological Site 22HA706 and Historic Structure HSS-AR09-01. Site 22HA706 was characterized as a prehistoric lithic and ceramic artifact scatter likely associated with the Tchefuncte culture. Historic Structure HSSAR09-01 was characterized as a residential structure built ca. 1925. Neither resource was found to eligible for inclusion on the NRHP (Eberwine 2010 (MDAH Report 10-0716)).

A cultural resource assessment for selected portions of the Texas Flat Road mitigation bank project tract in Harrison County was conducted by archaeologist from Coastal Environments, Inc. in 2013. As part of this project a contextual report was also produced prior to the initiation of field work. The contextual report identified one possible post-removal Choctaw settlement and two 40-acre homestead clams as potentially historically significant. A Phase I cultural resources survey was conducted on the two 40-acre parcels and ten additional smaller parcels. As a result, two archaeological sites were identified: 22HA748 and 22HA749. Site 22HA748 is the remains of the Tocala Yarba homestead and avoidance was recommended. Site 22HA749 is an insignificant prehistoric artifact scatter (Price 2013a, 2013b (MDAH Report 13-0389); Mikell 2014 (MDAH Report 14-0086).

3.6.3 Previously Recorded Architectural Sites

The architectural site files at MDAH were consulted to determine the variety of property types on record within one kilometer of the APE and their densities. A total of five previously recorded cultural sites were identified via the MDAH site file search (Table 3-9, Figure 3-5 and Figure 3-6). While not included in the results of the MDAH site file search, the Rocket Propulsion Test Complex is designated as a National Historic Landmark, and, as such, is included in Table 3-9. None of the previously recorded architectural sites are within the Architectural APE.

The Hancock County Bombing Range is identified as site 045-BSL-6003. Its historic use is listed is military, miscellaneous, and is associated with the World War II theme. No specific site location is given. However, the bombing range's historic boundaries are known and a small part lies within the Architectural APE.

Site 109-NIC-0001 is the Nicholson School (White) complex. It is located at 1887 Highway 11, South, in Nicholson, Pearl River County.

Site 109-NIC-0001.1 is the Administration Building for the Nicholson School (White) complex located in Nicholson, Pearl River County. It was designed by Robert Watts in the Colonial Revival style and built in 1951. It is not located within the Architectural APE.

Site 109-NIC-0001.2-X is the Teacher's House associated with the Nicholson School (White) complex located in Nicholson, Pearl River County. It is a Craftsman Bungalow and its estimated date of construction is 1940.

Site 109-NIC-3001 is the (old) Alligator Creek Bridge. It is located along SR 607 near Nicholson in Pearl River County.

The Rocket Propulsion Test Complex at Stennis Space Center received National Historic Landmark designation and National Register of Historic Places listing in 1985, for its association with the Apollo program. Those same structures were determined eligible as part of the Space Shuttle program, evaluated in 2008. As part of the Space Shuttle program evaluation, there were about 40 other buildings/structures at Stennis Space Center recommended not eligible (Archaeological Consultants, Inc., 2008).

Table 3-9: Previously Recorded Architectural Sites

Inventory	Common Name	Historic Use	Architectural Style	Const. Date	Mississippi Landmark	National Register
045-BSL-6003	Hancock County Bombing Range (World War II)	Military: miscellaneous			No	No
109-NIC-0001	Nicholson School (White) complex	Educational: school, public			No	No
109-NIC-0001.1	Administration Building	Educational: administration building	Craftsman	c. 1930	No	No
109-NIC-0001.2-X	Teacher's House	Educational: teacher house	Colonial Revival		No	No
109-NIC-3001	(old) Alligator Creek Bridge	Bridge: vehicular		c. 1930	No	No
National Register ID 85002805	Rocket Propulsion Test Complex	Government/ Transportation/ Space		1965		Yes

Figure 3-5: MDAH Architectural Site File Search Results on USGS Topographical Maps

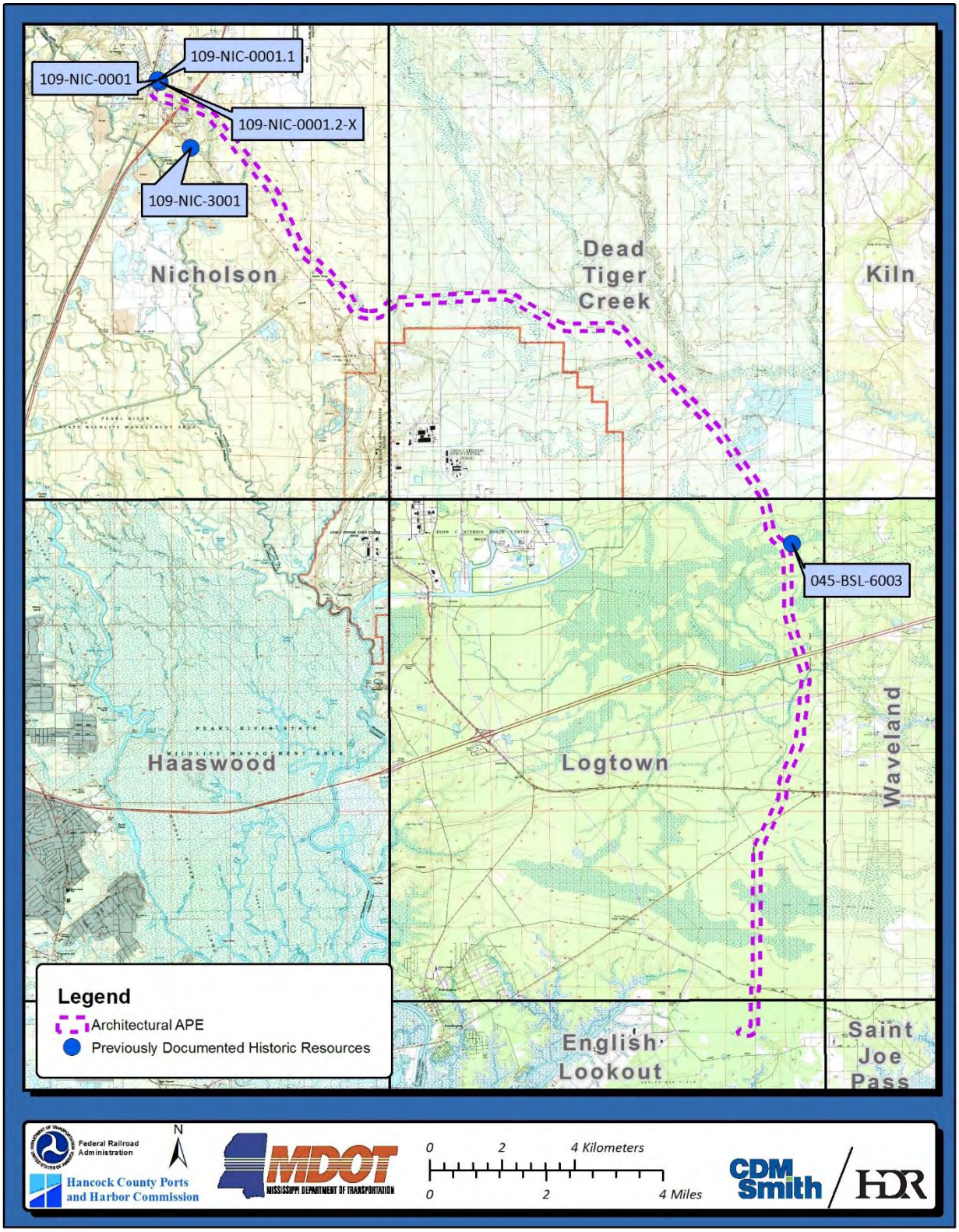
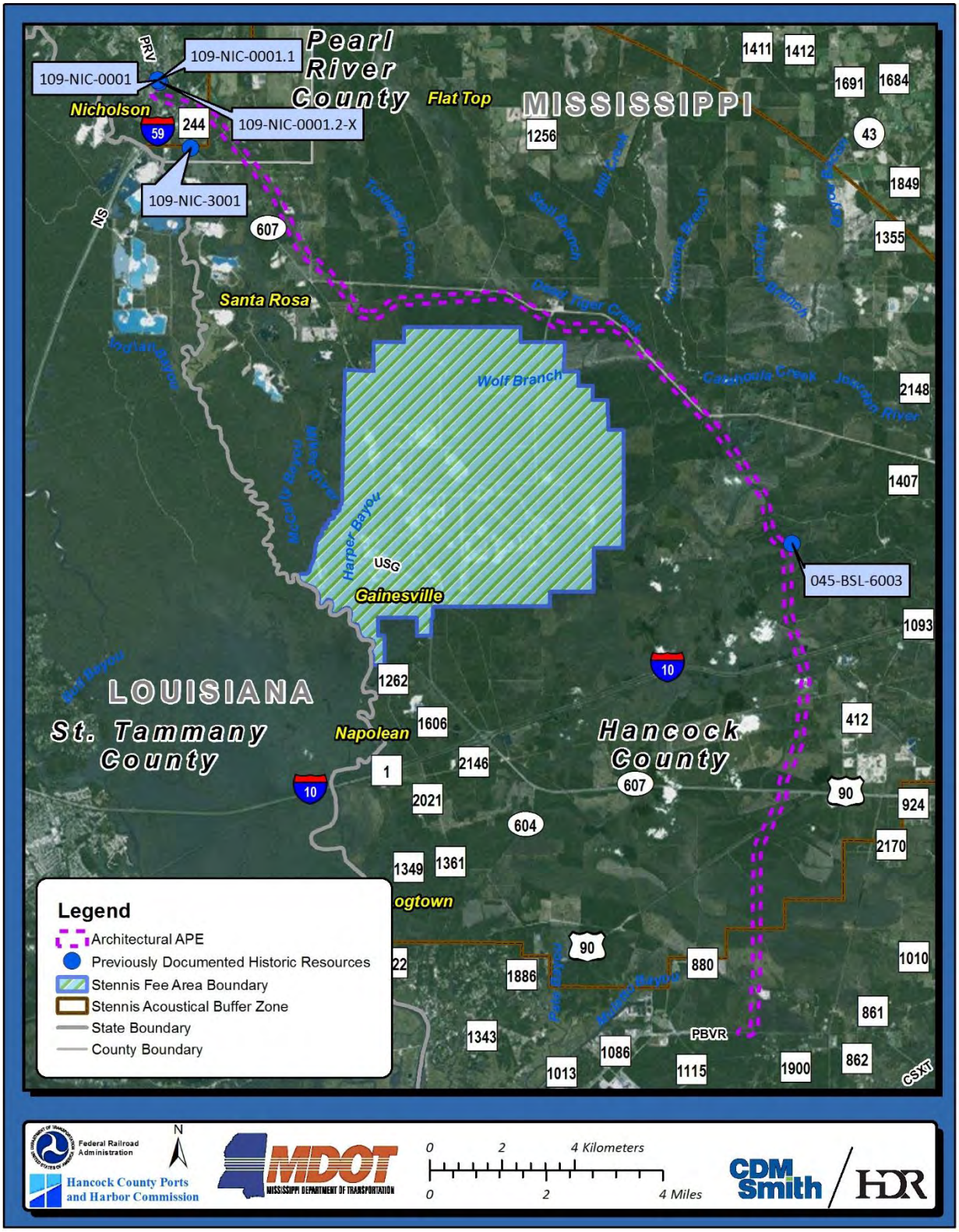


Figure 3-6: MDAH Architectural Site File Search Results on Aerial Photograph



4.0 RESEARCH DESIGN AND METHODOLOGY

In this section, the research design and methods employed during the course of the Phase I cultural resource survey are presented. The discussion of the design and methodology includes a description of the fieldwork methods and their application in different portions of the proposed PRBB corridor.

As no artifacts were discovered during the archaeological survey a discussion of laboratory methods is not included.

4.1 PURPOSE

The purpose of the Phase I archaeological survey is to assist MDOT with complying with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the Department of Transportation (DOT) Act requirements by identifying and evaluating all archaeological, traditional, cultural, and religious place resources within the Archaeological APE. The research design for the background records check and field methods used to address these goals are described below.

4.2 ARCHAEOLOGICAL RESEARCH TECHNIQUES

CDM Smith and HDR each surveyed half of the proposed PBRR corridor by dividing the corridor into eight sections. CDM Smith surveyed sections 2, 4, 6, & 8 while HDR surveyed sections 1, 3, 5 & 7 (Table 4-1). This "leap frog" division of the segments was chosen to equally distribute the various terrains and existing conditions of the corridor, so as to not give one firm the whole of a certain area. It also benefited safety because teams were in the same general area during fieldwork activities.

4.2.1 Field Methods Design

The field methodology developed for this project is designed to identify archaeological sites by visual inspection of exposed ground surfaces and subsurface testing. Field investigations took place April 12 and 19, 2016 and between June 14 and 16, 2016, and were conducted within the entire Archaeological APE.

4.2.2 Surface Inspection

In areas where there was good visibility of the ground surface (i.e. visibility greater than 30 percent), a visual inspection of the exposed ground surface was conducted. Intervals of 15 meters (49.2 feet) was maintained in these areas. If an archaeological site was encountered the intervals was shortened to 5 meters (16.4 feet). The exposed ground was systematically inspected and any artifacts encountered was collected, bagged, and labeled with appropriate provenience and locational information, and returned to the laboratory for analysis. Judgmental shovel tests were placed to obtain soil profiles and information for any site deposits.

Table 4-1: Division of Alignment

Section	CDM Smith/ HDR	Segment	Length (mi)
1	HDR	11	02.9
2	CDM Smith	11	0.5
		10B	1.9
3	HDR	10B	2.3
4	CDM Smith	10B	3.7
		9	1.0
5	HDR	9	2.2
		8A	0.9
		7	1.5
6	CDM Smith	7	2.4
7	HDR	7	1.0
		C	0.8
8	CDM Smith	C	2.6
Total			23.7

4.2.3 Shovel Test Probes

In areas where the ground visibility was poor (i.e. less than 30 percent), a sampling strategy utilizing systematic shovel probes was implemented. Where appropriate, two transects of shovel probes (30 m apart) were surveyed the length of the proposed PBRR corridor. Within the two transect, intervals of 30 meters (98.4 feet) was maintained between each shovel probe and excavated to sterile subsoil, where possible.

All shovel test probes measured 30 by 30 cm (12 by 12 inches) in diameter and the soil was passed through a 6.35 mm (1/4 inch) dry mesh hardware screen. Remaining artifacts were collected, bagged, and labeled with appropriate provenience and locational information and returned to the laboratory for analysis.

If a probe contained either artifacts or features was encountered, the interval between the probes was reduced to 10 meters (32.8 feet) and continued until two consecutive negative shovel test probes were encountered if the site was contained within the Archaeological APE. If, however, a site extended outside the Archaeological APE, shovel probing was conducted at 30 meter intervals outside the Archaeological APE to delineate the site boundary.

4.2.4 Auger Probes

In areas where cultural bearing soils extend to depths greater than 50 cm, judgmentally placed auger tests were excavated.

4.2.5 Areas of Special Consideration

4.2.5.1 Hancock Bombing and Gunnery Range

Approximately 9.76 miles of the proposed PBRR corridor fell within an area known historically as the Hancock Bombing and Gunnery Range. This area was formerly controlled by the USACE and

within it were 3 distinct aerial bombing ranges. Although the proposed PBRR corridor was not within the three bombing ranges, metal detectors were utilized at each shovel probe location that fell within the general Hancock Bombing and Gunnery Range, prior to digging,

If metal was present, the spot was marked with flagging tape, GPS coordinates taken and the location noted on field maps. The location was not excavated. A new shovel probe location a few meters away was selected and the process repeated. If no metal was indicated, then the shovel probe was excavated using standard procedures described above.

4.2.5.2 Northern Section of Railroad Tracks

The most northern section of the proposed PBRR corridor utilizes a 5.4-mile (8.6 kilometer) segment of the 16.9 kilometer (10.5-mile) Norfolk Southern Railway Spur in Pearl River and Hancock counties known as the "NASA Turn." The line is not currently active and the existing railroad bed will be used as a base for new rail placement. This 5.4-mile section was visually examined for trestles, culverts, etc. These resources were documented and photographed. As the rail bed will be reused, systematic shovel probing was not proposed within this section; however judgmental probes were placed within this section and in areas where the roadbed has eroded away and will require earthwork maintenance operations. GPS coordinates were taken and the location of each judgmental shovel probe location was recorded on field maps. In addition, this section of railroad was recorded and assessed as a linear archaeological site.

4.2.5.3 Wetlands

Areas of standing water were not shovel probed. These areas were photo-documented and marked on field maps and are included in this report. An examination of the LiDAR data was conducted to determine areas that may include cultural landforms such as shell middens, e.g. These areas were investigated during fieldwork.

4.2.5.4 Previously Surveyed Areas

According to MDAH-SHPO records, several areas within the proposed PRBB corridor were previously surveyed. If the surveys were conducted prior to 2001, the areas were re-surveyed using the methodology outlined above. Areas surveyed after 2001 will be considered as already surveyed and will not be re-surveyed as part of this project.

4.2.6 Site Definition

Several definitions are provided here for clarity and consistency when reporting and evaluating an archaeological find throughout this report. For the purpose of this study, all fieldwork and report writing for the project is in accordance with the G*uidelines for Archaeological Investigations and Reports in Mississippi* (Sims 2001) by MDAH and Mississippi State Historic Preservation Office (SHPO) and with *Guidelines for Contractors on Archaeological Investigations and Reports* (2007) by MDOT.

According to MDAH-SHPO, a prehistoric archaeological site is typically comprised of three or more artifacts. Counts are not the definitive means in determining a site, however. It is more a question of site integrity; in particular, whether or not the material is redeposited. For example: a flake scatter given a site number if it were determined that it was not redeposited (i.e., it is in the current location because the site is eroding down the hill). A site number would be given to the site on the

hill but the scatter at the bottom of the hill would be noted (Pam Lieb, personal communication 2008).

According to MDAH-SHPO, an historic archaeological site is any group of three or more artifacts that includes at least one diagnostic artifact and/or a feature(s) that are more than 50 years old. Features may include below ground deposits and soil stains as well as above ground resources such as an old road bed, trade routes, a battlefield, a landscape, a railroad, standing structures, architectural ruins, trash dumps, etc. (Susan Olin, personal communication 2014). Such linear resources do not have to have multiple features or artifacts in order to be assigned a state site number. Such stand-alone features have been defined by Susan Olin (2014) as:

> "…a collection of features that are substantially longer than they are wide and unusually are in the form of monuments associated with transportation, communication, and power networks. They include roads, trails, railroads, ships, shipwrecks, flumes, canals, telegraph lines, power lines, and power poles."

These linear resources may be recorded in segments or in their entirety.

An isolated find is restricted to non-diagnostic artifacts only and is considered to be an isolated find, not a site. Therefore, no site number is assigned. However, it is recorded and gets an isolated find number such and its location shown on a topographic map (Pam Lieb, personal communication 2008).

4.3 ARCHITECTURAL SURVEY TECHNIQUES

A variety of architectural survey techniques were employed. They were developed in conjunction with MDOT and MDAH. The procedures included archival and field research including the development of an area overview, historic overview, and historic context; and describing and evaluating identified historic properties. Each of these tasks is discussed in the following paragraphs.

4.3.1 Archival and Field Research

The Mississippi State Historic Resource files housed at the MDAH was consulted on December 8th, 2015. The purpose of the consultation was to form a basic understanding of the cultural history of the region and proposed PRBB corridor.

The fieldwork consisted of identifying and documenting all properties over 50 years of age within the Architectural APE. This work was conducted on April 12th through 16th, 2016. Photographic documentation and information pertinent to the completion of the Mississippi Historic Resources Inventory Form was collected for each identified property. Additional documentation and historical information was obtained from research conducted at the Hancock County public library, as well as online resources housed at various federal, state, and private institutions.

4.3.2 Historic Overview and Historic Context

Once fieldwork has been completed, to adequately evaluate the identified structures, they need to be placed within a historical context. The significance of an historic structure can be judged and explained only when it is evaluated within its historic context. Historic contexts are those patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning

(and ultimately its significance) within history or prehistory is made clear. This task was accomplished by studying local, regional, and state histories.

4.3.3 Descriptions and Evaluation of Historic Properties

This task represents the culmination of the previous activities. It involves the application of the field and archival findings to the documentation and evaluation of historic properties in the Architectural APE to determine their eligibility for nomination to the NRHP. National Register eligibility was determined by following National Park Service guidelines (Shrimpton 1997). Appropriate forms, including the Mississippi Historic Resources Inventory Forms, were completed for the appropriate historic property.

4.4 BACKGROUND RECORDS CHECK

A background site check was requested and received from the MDAH on December 8th, 2016. The background check reviewed the records of previously documented archaeological sites within one kilometer (0.62 mile) of the Archaeological APE. Prior archaeological surveys conducted in the vicinity of the Archaeological APE were also reviewed. The results of the background check were presented in Section 3 of this report.

4.5 NATIONAL REGISTER EVALUATION

As discussed in Section 1.3 above, the proposed undertaking must be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), requiring federal agencies to take into account the effects of their undertakings on properties listed or eligible for listing on the NRHP. While it does not require the preservation of such properties, it does require that their historic or prehistoric values be considered in weighing the benefits and costs of federal undertakings to determine what is in the public interest. Section 106 is invoked when "any project, activity, or program that can result in changes in the character or use of historic properties" (36 CFR 800) is undertaken whether federal agency jurisdiction is direct or indirect.

Pursuant to the October 1992 Amendments to the National Historic Preservation Act (Section 110 of NHPA 1980, amended 1992) an "undertaking" means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including (A) those carried out by or on behalf of the agency; (B) those carried out with federal financial assistance; (C) those requiring a federal permit, license, or approval; and (D) those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency.

4.5.1 Evaluating Archaeological Sites

The use of Criteria A, B, and C for archaeological sites are appropriate in limited circumstances and have never been supported as a universal application of the criteria. However, it is important to consider the applicability of criteria other than D when evaluating archaeological properties. It is important to note that under Criteria A, B, and C the archaeological property must have demonstrated its ability to convey its significance, as opposed to sites eligible under Criterion D, where only the potential to yield information is required.

4.5.2 Evaluating Historic Resources

Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original

locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years are not to be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

A. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
B. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
C. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
D. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
E. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
F. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
G. A property achieving significance within the past 50 years if it is of exceptional importance.

The categories need to be applied only to individual properties. Components of eligible districts do not have to meet the special requirements unless they make up the majority of the district or are the focal point of the district.