



U.S. Army Corps
of Engineers
New Orleans District

**CULTURAL RESOURCES SURVEY AND TESTING OF THE
MANDEVILLE HURRICANE PROTECTION PROJECT,
MANDEVILLE, ST. TAMMANY PARISH, LOUISIANA**

September 1996

FINAL REPORT

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Approximately 44.7 ac (18.1 ha) of the Mandeville project item were considered to be high probability areas for containing either prehistoric or historic cultural resources; the remaining 266.3 ac (107.8) were classified as low probability zones. Archeological fieldwork began with an initial windshield survey of the project corridor. If landowner permission was granted, pedestrian survey and shovel testing of each high probability zone segment was completed. Pedestrian survey and subsurface testing was completed on approximately 42.4 ac (17.2 ha) of the 44.7 ac (18.1 ha) of high probability areas. Despite the excavation of 92 shovel tests, no cultural resources loci or evidence of intact cultural deposits were identified. None of the surveyed areas are recommended for additional testing. However, prior to any future impacts, Phase I cultural resource survey is recommended for the 2.3 ac (0.9 ha) where right-of-entry was denied. The architectural survey included a reconnaissance level examination and a preliminary visual assessment of each historic standing structure found within or in the immediate vicinity of the Mandeville project item. These investigations identified 47 historic standing structures, including three that are currently listed in the National Register of Historic Places, and the Old Mandeville Cemetery. In addition, the direct effect of levee construction may impact several buildings older than 50 years; these are located along Lakeshore Drive and Little Bayou Castine. These buildings may be significant enough to warrant inclusion into the Mandeville historic district. The visual impacts to the historic buildings located along Lakeshore Drive in Mandeville will be adverse. The levee will obstruct direct views to Lake Pontchartrain for buildings located along Lakeshore Drive. The visual relationship between the dwellings and the lake represent part of the resources' historic setting, and therefore it is important to maintain the integrity of the area. It is recommended that additional historic and architectural work be undertaken to establish the exact boundaries of a potential Mandeville Historic District. Additionally, the Old Mandeville Cemetery should be avoided.



DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
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REPLY TO
ATTENTION OF:

November 20, 1996

Planning Division
Environmental Analysis Branch

To The Reader:

This cultural resource effort was designed and guided by the U.S. Army Corps of Engineers, New Orleans District, as part of our cultural resources management program. The report documents the results of a combined cultural resources survey and testing of a proposed hurricane protection project in Mandeville, Louisiana. We concur with the authors' evaluation of potential project impacts and recommendations regarding future cultural resources investigations. The Louisiana State Historic Preservation Officer has concurred with the authors' evaluation and recommendations.

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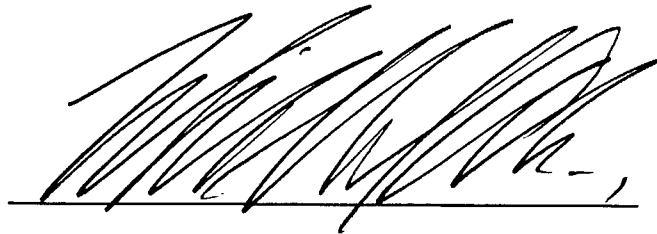
Kenneth A. Ashworth
Contracting Officer's
Representative

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R. H. Schroeder, Jr.
Chief, Planning Division

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MANDEVILLE HURRICANE PROTECTION PROJECT,
MANDEVILLE, ST. TAMMANY PARISH, LOUISIANA**

FINAL REPORT

A handwritten signature in black ink, appearing to read 'William P. Athens', is written over a horizontal line.

**William P. Athens, M.A.
Principal Investigator**

By

**Luis Williams, Katherine Grandine, Kevin Hymel,
Thomas Fenn, and William P. Athens**

**R. Christopher Goodwin & Associates, Inc.
5824 Plaque Street
New Orleans, LA 70123**

September 1996

For

**U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267**

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CHAPTER I

INTRODUCTION

This report presents the results of Phase I archeological and architectural investigations of the planned Mandeville Hurricane Protection Project Item in St. Tammany Parish, Louisiana. Fieldwork was conducted during January and February 1996, by R. Christopher Goodwin & Associates, Inc., for the U.S. Army Corps of Engineers, New Orleans District, as a part of a feasibility study designed to assess the impacts of the proposed hurricane control project on the surrounding area. The study was undertaken pursuant to Delivery Order 7 of Contract Number DACW29-94-D-0019. The project area is defined as that expanse stretching 100 m (328 ft) to either side of the proposed project centerline; thus, a 200 m (656 ft) wide project corridor was examined as part of this research (Figure 1, Sheets 1 and 2). The Mandeville project item encompasses approximately 311 ac (125.9 ha).

The Mandeville project item is located along the north shore of Lake Pontchartrain and is positioned in portions of Sections 45 - 48, 50, and 51, Township 8S, Range 11E. The project corridor is bound by Highway 190 to the north, by Little Bayou Castine to the east, and by Causeway Boulevard to the west. Currently, the majority of the runoff in the area drains into Lake Pontchartrain via either man-made culverts or through Little Bayou Castine. Under the proposed alignment plan, the entire Mandeville area east of Causeway Boulevard would be enclosed. A total of 4.8 km (3 mi) of levee, 1,219 m (4,000 ft) of floodwall, five swing gates, and an unspecified number of culverts would be constructed. The levee will border Lake Pontchartrain and Little Bayou Castine and will tie into high ground associated with the abandoned Illinois Central Gulf Railroad. The floodwall will be constructed parallel to Causeway Boulevard and will tie into high ground positioned along the south bank of Bayou Chinchuba. This flood protection system will have a crest of either 4.9 or 5.5 m (16 or 18 ft).

This Phase I cultural resources survey and inventory was designed to identify, record, and assess preliminarily all cultural resources located within the areas with a high probability for containing intact prehistoric and/or historic period cultural deposits. Prior to survey, the project area was stratified into high and low probability zones. A total of six locations (Segments M-1 through M-6), consisting of approximately 44.7 ac (18.1 ha), were characterized as high probability zones; the remaining 266.4 ac (107.8 ha) were classified as low probability zones. Fieldwork consisted of a three-step approach that was used to estimate the distribution of cultural resources and to test for their presence. This entailed: (1) cartographic, archival, and archeological review of data relevant to the project area; (2) windshield survey of the project area; and (3) where access was allowed, pedestrian survey and shovel testing of each high probability zone.

No archeological sites were identified during pedestrian survey and archeological testing of the Mandeville project item. However, access could not be obtained and no pedestrian survey or shovel testing was conducted at the 2.3 ac (0.9 ha) survey segment M-5. This area should be examined prior to any proposed construction impacts. No additional testing is recommended for Survey Segments M-1 - M-4 and Survey Segment M-6.

An architectural reconnaissance of the project area was conducted to assess physical impacts to standing structures and historic properties located within the 200 m (656 ft) corridor, as well as visual impacts to structures located outside of the immediate project area. These investigations consisted of archival research and a visual reconnaissance of the project vicinity. Archival research included a review of the state architectural files, as well as an examination of numerous historical maps, and pertinent secondary sources that documented historic settlement throughout the area. The visual reconnaissance survey resulted in the identification and documentation of all historic structures that could be visually impacted by the proposed construction activities. These investigations identified 47 historic standing

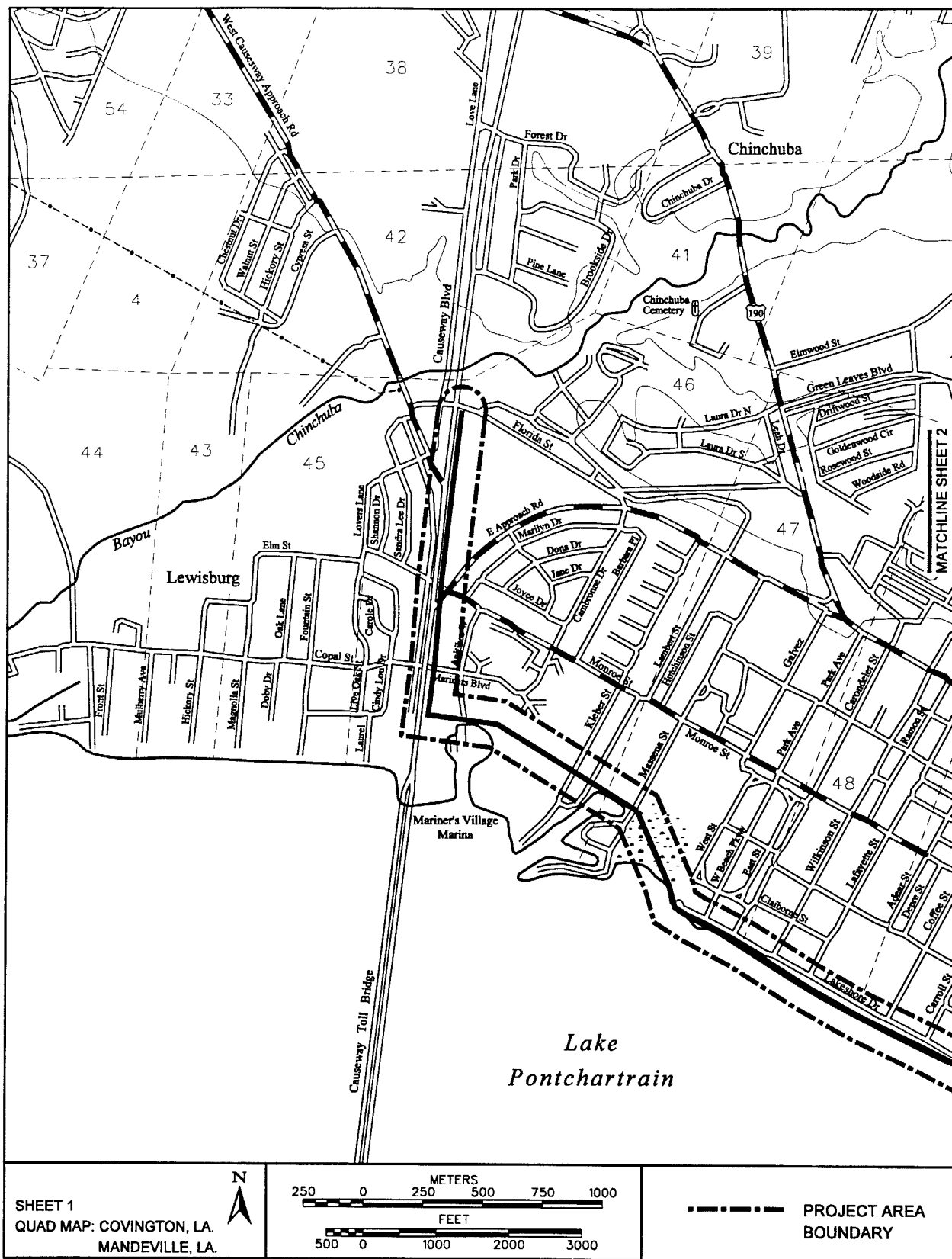


Figure 1. Excerpts from the 1996 digital 7.5' series topographic quadrangles, Covington and Mandeville, Louisiana, depicting the project area.

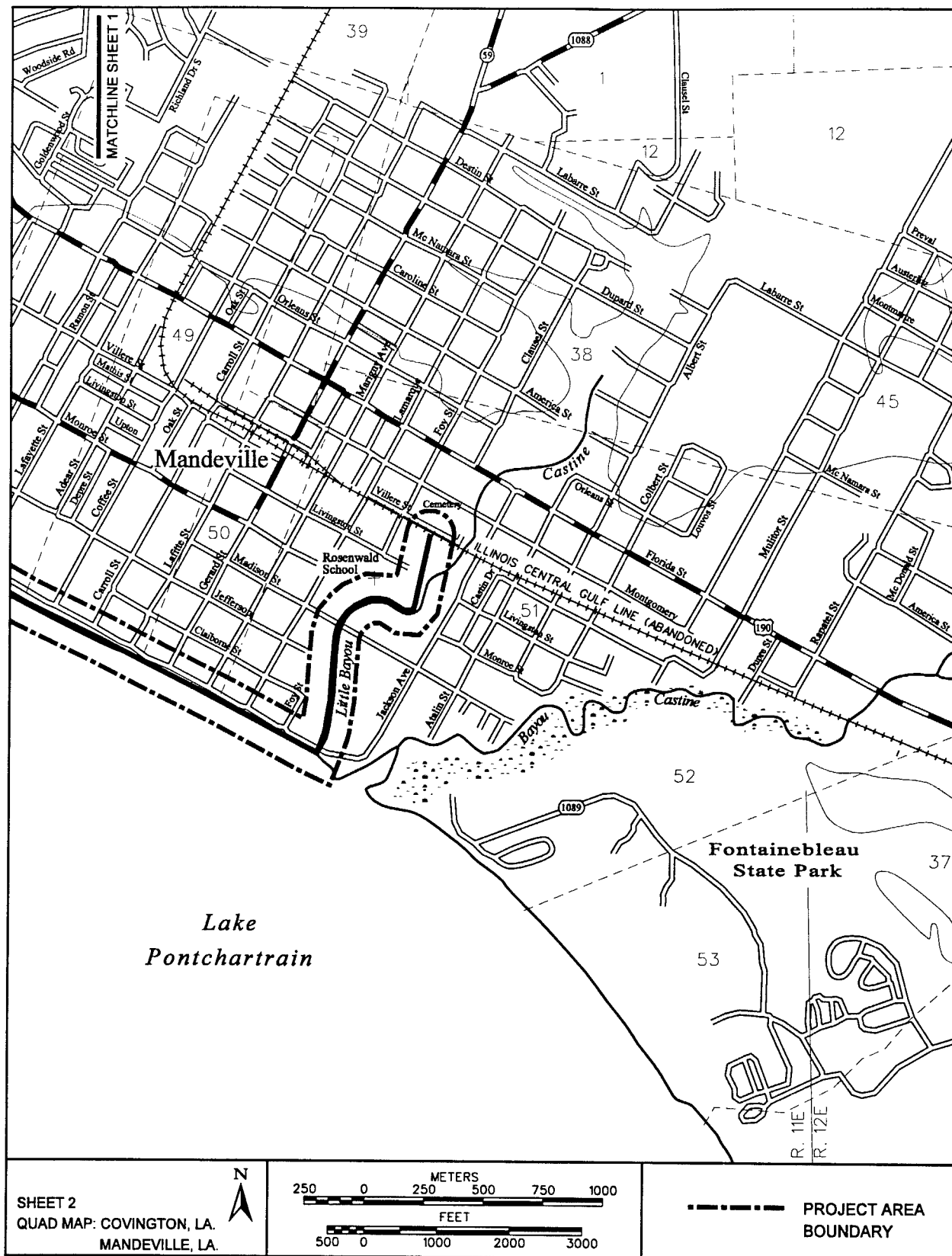


Figure 1. Excerpts from the 1996 digital 7.5' series topographic quadrangles, Covington and Mandeville, Louisiana, depicting the project area.

structures and the Old Mandeville Cemetery within the 200 m (656 ft) wide project corridor. These properties may be impacted directly by the proposed construction activities. Of the historic standing structures located on Lake Shore Drive, i.e., along Lake Pontchartrain, three are currently listed in the National Register of Historic Places. Each of these properties will be impacted visually by the proposed construction project.

Mr. William P. Athens, M.A., A.B.D., served as Principal Investigator for the project and directed both the field and laboratory investigations. Mr. Luis Williams, Jr., B.A., served as Project Manager. Ms. Katherine Grandine, M.A., conducted the architectural research; she was assisted by Ms. Charlotte Donald, B.A., and Ms. Ann Ballard Green. Mr. Kevin Hymel, M.A., completed the historical research of the project area. Mr. Thomas Fenn, B.A., conducted the geomorphological research. Ms. Michele Williams, M.A., conducted the floral and faunal research, while Mr. Allen Green conducted the laboratory and prehistoric research. Mr. Kirk Freeman, B.A., Ms. Angelle Montana, M.A., Ms. Angella Shelley, B.A., and Ms. Alison Van Wagner, B.S., served as Field Assistants.

Organization of the Report

The natural setting of the project area is examined in Chapter II and includes discussions pertaining to the geomorphology, geology, soils, flora, and fauna of the region. A prehistoric overview of the project area and a discussion of the known cultural chronology of St. Tammany Parish and the associated lifeways, subsistence practices, and material culture of the societies characteristic of each developmental stage are reviewed in Chapter III. The historical development of the region since European contact is chronicled in Chapter IV. Previous cultural resources investigations conducted in the immediate vicinity of the project area are described briefly in Chapter V. The research design and field methodologies are outlined in Chapter VI. The results of field investigations, as well as management recommendations, and a summary of the survey results are presented in Chapter VII. Standing Structures Survey forms are contained in Appendix I, and the Scope of Work is included in Appendix II.

CHAPTER II

NATURAL SETTING

Environmental factors no doubt influenced the distribution of archeological deposits throughout the St. Tammany Parish project area (Covington, Mandeville, and Slidell). This chapter includes a review of the environment and geomorphology of St. Tammany Parish, Louisiana, and the overall project vicinity. It summarizes the soil characteristics of the survey region and also describes the climate and major floral and faunal communities associated with the Mandeville project item.

Physiography

The Mandeville project item lies within the coastal plain and pine barrens located north of Lake Pontchartrain in St. Tammany Parish; collectively, they occupy coastal marshlands and/or flatwoods areas that contain combinations of terrace soils, floodplain soils, and poorly drained marshland soils. Drainages of the region include the Tchefuncta River, the Bogue Falaya River, Bayou Chinchuba, Bayou Castine, Bayou Lacombe, Bayou Liberty, and Bayou Bonfouca along with their tributaries and the two aspects of the Pearl River. The dominant distributary of these watercourses is Lake Pontchartrain, although the Pearl River empties into the marshland delta between Lake Pontchartrain and Lake Bogne near the Mississippi Gulf Coast. While only a few of these water sources have a direct impact on the current project item, each has been a contributor to the prehistoric make-up and historic development of both St. Tammany Parish and the region.

Excluding Lake Pontchartrain, 10 water sources are located in the immediate vicinity of the current St. Tammany project area. In Mandeville, Little Bayou Castine, a drainage of Lake Pontchartrain, composes the eastern boundary of the project item.

The proposed project area crosses a number of features, both natural and man-made. These features include the toe of the man-made levee which is covered by the waters of Lake Pontchartrain, land disturbed by road construction and development, land affected by spoil banks and landscaping, inundated marshy areas, standing structures, and the Old Mandeville Cemetery (Figures 2 and 3). From the beginning of the proposed project corridor just north of Florida Street, extending south to the inlet at Mariner's Village Marina (approximately 1,500 m [4,921 ft]), the project corridor has been impacted by road construction and modern development. The 200 m (656 ft) wide project corridor also includes a portion of the Mariner's Village Marina inlet. Located immediately east of Mariner's Village Marina is an 11.5 ac (4.6 ha) grassy parcel (Survey Segment M-1; see Figure 9 in Chapter VII). This gently sloping area consists of a landscaped northern portion and a southern portion comprised primarily of dredge spoil. From Kleber Street to Massena Street, the project corridor is categorized as an industrial area; an abandoned concrete factory is located in this highly disturbed area. Between Sunset Point Park and the existing lake front seawall is a low lying swampland of approximately 15.3 ac (6.2 ha) that has the potential for containing cultural resources (Survey Segment M-2; see Figure 9 in Chapter VII). Approximately 40 percent of this area is covered by stands of brush, flotsam and shallow water; the water table often is encountered at approximately 12 cm below surface (4.7 in below surface).

From West Street to the intersection with Little Bayou Castine, the project corridor follows the shoreline of Lake Pontchartrain and Lakeshore Drive. The northern portion of the project corridor has been impacted by road construction, the construction of a concrete seawall, and numerous standing structures.

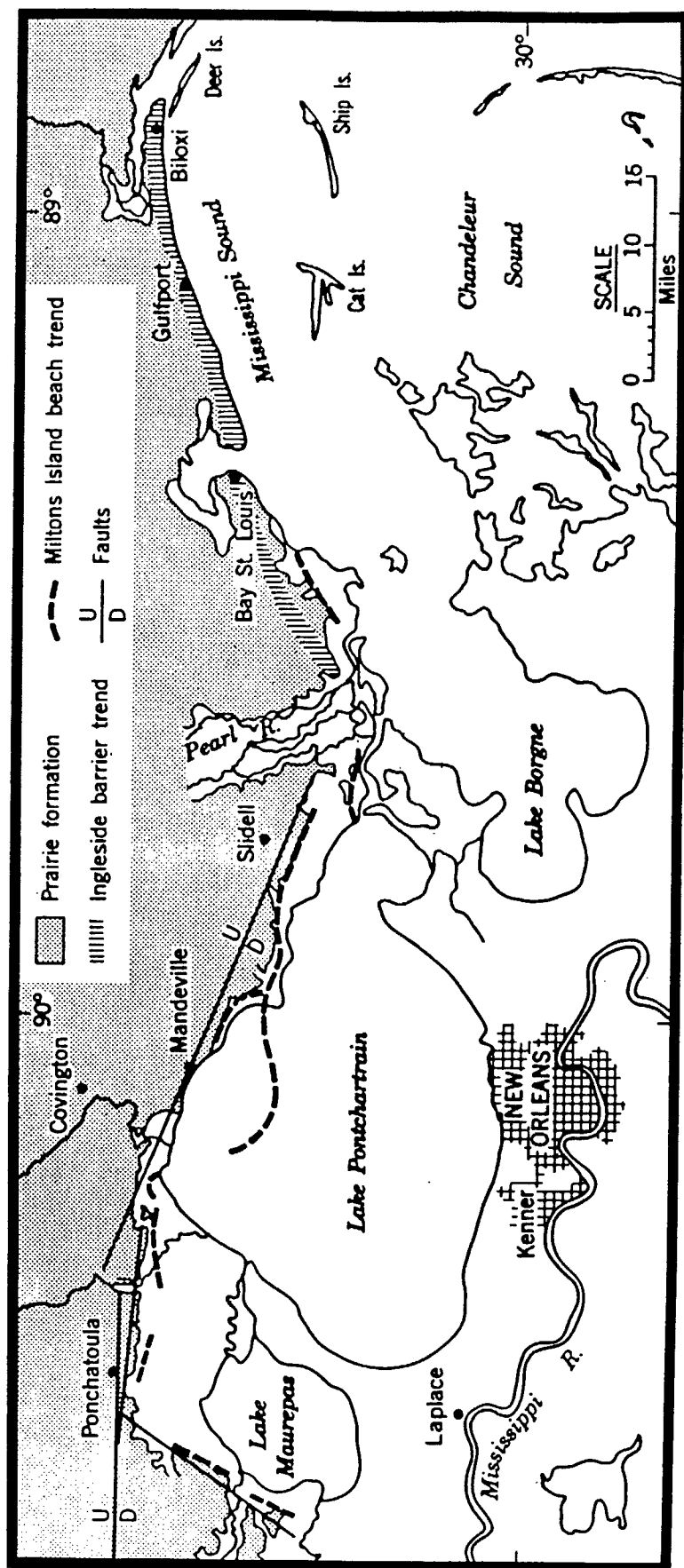


Figure 2. Locations and early interpretations of the ages of fluvial and marine features of the Prairie Complex in southeastern Louisiana (adapted from Saucier 1994).

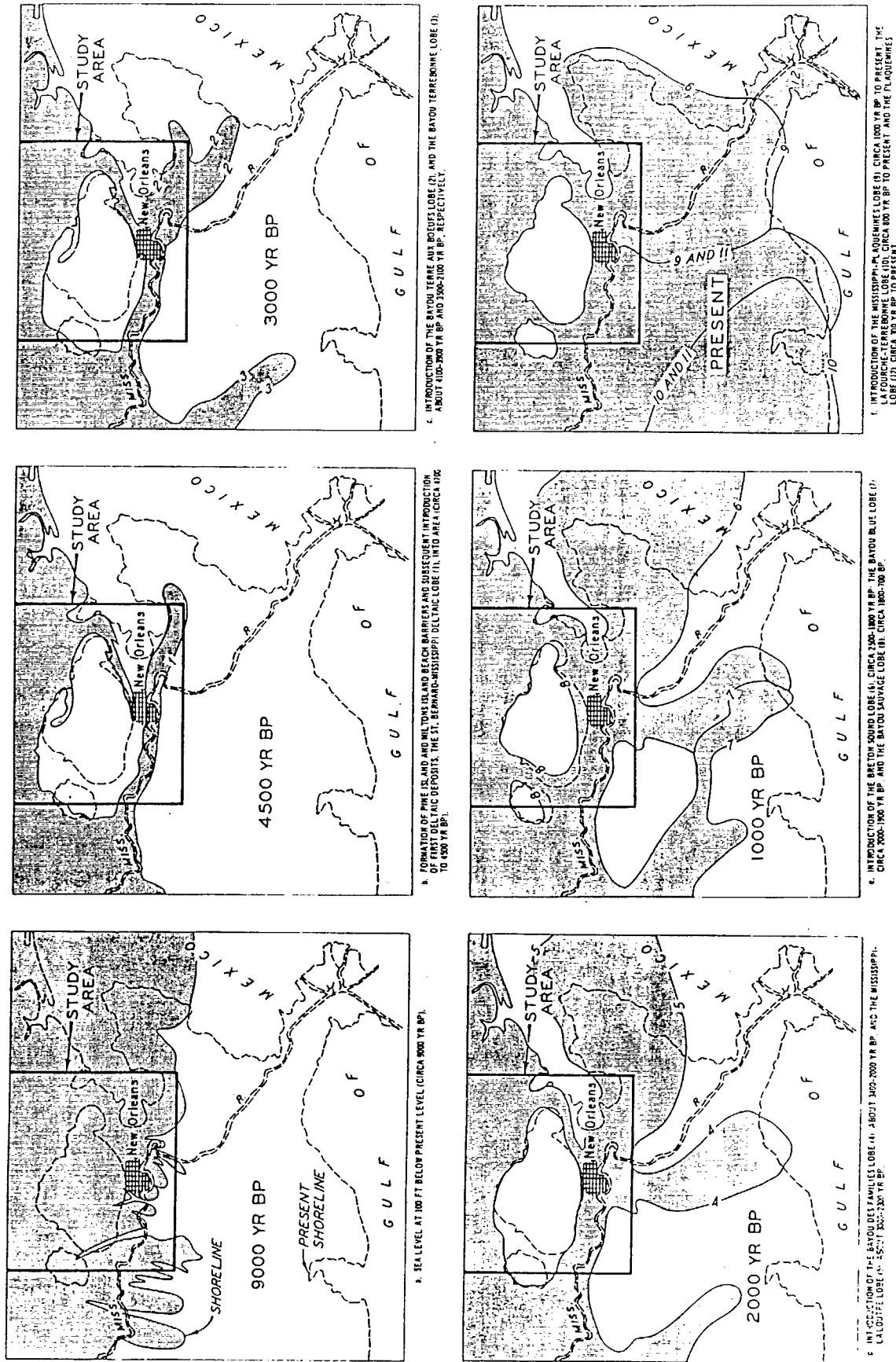


Figure 3. Geological development of southeastern Louisiana since 9,000 years before present (adapted from Kolb et al. 1975).

corridor turns north following Little Bayou Castine, the corridor again traverses a predominantly low lying, swampy area, until Livingston Street, a distance of approximately 1,000 m (3,280 ft). Within this area is a pocket of land categorized as residential; it has been disturbed by road construction. These areas are located on the easternmost edge of the project corridor stretching from Claiborne to Madison streets. This area also includes four pockets of land along the banks of Little Bayou Castine; due to their slightly higher elevations, these parcels were considered to have a high probability for containing intact cultural deposits (see Figure 9 in Chapter VII). The first high probability area consists of a 4.1 ac (1.6 ha) parcel located north of Madison Street on the left ascending bank of the bayou (Segment M-3). The second of these survey segments (M-4) can be characterized as a gently sloping parcel of land that measures 4.7 ac (1.9 ha) in size and is positioned on the right ascending bank of the bayou. Portions of this survey segment are located on the Rosenwald Elementary School grounds and apparently have been impacted previously. The third parcel (Segment M-5) is a 2.4 ac (0.9 ha) area located on a low rise on the left ascending bank of Little Bayou Castine. Segment M-6, the last of the high probability areas, is a 6.8 ac (2.8 ha) stretch of land that is situated between Livingston Street and the Illinois Central Gulf Railroad. Much of the terrain at this locale is steeply sloping, and subsurface testing indicates that the eastern end of this survey segment is regularly inundated. There are areas, however, of flat or gently sloping land. The northernmost location at the eastern end of the project corridor is the Old Mandeville Cemetery. It is located north of the Illinois Central Gulf Railroad on land that has been altered by mechanical landscaping.

In general, approximately 40 percent of the project corridor can be categorized as areas impacted by road construction or residential/commercial development, while 10 percent of the area is covered by an industrial site or by an active cemetery. Approximately 35 percent is either frequently inundated or swampy; the remaining 15 percent of the project corridor was evaluated as having a high probability for containing intact cultural deposits; these areas appear to have been impacted minimally.

Geomorphology

The most prominent geomorphological surface features in the project area are the Late Pleistocene age Prairie Complex and the Holocene age Deltaic Plains. The Prairie Complex was formerly designated the Prairie Terrace in earlier research (e.g., Mossa and Autin 1989; Saucier 1963, 1974; Sibley 1972). However, Mossa and Autin (1989:10) recognized that the "terrace" term or concept was used inconsistently and was problematic, particularly when viewed in light of recent major chronological distinctions identified within single terrace units (see Saucier 1994:83). Therefore, a change for this terminology from "terrace" to "complex" was suggested by Autin et al. (1991:549-50) and subsequently utilized by Saucier (1994:83).

The Prairie Complex consists of a sequence of as many as three morphostratigraphic and depositional units comprised of fluvial, colluvial, deltaic, estuarine, and marine deposits (Autin et al. 1991:556; Saucier 1994:173). Within the Florida Parishes of Louisiana, a lower, middle, and upper unit tentatively have been defined. These three units range in age from pre-Wisconsin (pre-78,000 before present [B.P.]) to Late Wisconsin (ca. 12,000 B.P.) and are separated by erosional unconformities (Saucier 1994:173). However, the upper Late Wisconsin unit is the only unit that is visible in the project area. As currently mapped, most of the southern half of the Florida Parishes, including the overwhelming majority of the southern half of St. Tammany Parish, is covered by the Prairie Complex (Kolb et al. 1975:Plate 2; Mossa and Autin 1989:Figure 5; Saucier 1994:Figure 43, Plate 2). The region of the Prairie Complex in the Florida Parishes represents the Undifferentiated Coastal Plain, one of seven depositional environments that can be found within the Prairie Complex. The Mandeville project area discussed in this report falls within this region (Figure 2). The other six depositional items consist of the valley train, the backswamp, the meander belt, the deltaic, the nearshore marine, and the buried Pleistocene deposits. Within the Florida Parishes, the Undifferentiated Coastal Plain deposits occur as two reasonably distinct sedimentary sequences. These deposits consist of a lower, basal unit containing mixtures of fossiliferous silts and clays, and an upper unit of complexly interfingered, lenticular masses of fluvial clays, silts, and silty sands

(Saucier 1994:178). The lower unit apparently originated from a brackish-water environment in a large sound or lagoon that existed between the Ingleside Barrier Trend and the mainland shoreline (Autin et al. 1991:558; Saucier 1994:178). The Ingleside Barrier Trend is considered to be a several-mile-wide barrier/beach complex, a portion of which extends along the Gulf Coast east of the mouth of the Pearl River (Saucier 1994:177, Figure 47). The deposition of the lower unit, culminating in the formation of the Ingleside Barrier Trend, is considered to be Sangamon in age (ca. 300,000 - 120,000 years B.P.), and results from a sea-level rise that may have peaked approximately 6 or 7 m (19.7 or 23.0 ft) above present levels, ca. 130,000 to 120,000 years ago (Autin et al. 1991:558). The upper unit of the Prairie Complex is considered to be alluvial and colluvial in origin and is deposited by small streams and as slope wash from both the Intermediate Complex and the older formations to the north (Autin et al. 1991:558; Saucier 1994:179). It also includes and merges with true fluvial terraces that extend inland along the larger streams of the local Coastal Plain. Examples of streams with true fluvial terraces in the project area are the lower portions of the Tchefuncta River and Bayou Bonfouca. The alluvial and colluvial materials forming the upper unit eventually filled the shallow sound or lagoon resulting in a broad, gently sloping, terrestrial alluvial plain, which is thought to be of Wisconsin age (Autin et al. 1991:558; Saucier 1994:179).

The deltaic plains in the vicinity of the Mandeville project item are bounded by the pre-Holocene Prairie Complex to the north and the interdistributary Lake Pontchartrain basin to the south. These plains were formed by deltaic progradation and in the coalescing of shifting delta complexes (Saucier 1994:30). Formation of the plains began after about 4500 B.P.; before this time, the Pontchartrain Basin represented a shallow embayment (Saucier 1994:280) (Figure 3). The Mississippi River began a shift from the Teche Complex of deltas to for the St. Bernard Complex of deltas sometime around 4500 B.P. (Saucier 1994:278-282). Saucier (1994:281) hypothesizes that this shift allowed the Mississippi River to fill the shallow embayment south of Baton Rouge (i.e., the area around present-day Lake Mauripas and the western side of Lake Pontchartrain). By about 3000 B.P., the Mississippi River had completely abandoned the Teche Complex and the discharge was divided between a number of distributaries; these included Bayou Terrebonne, initiating the development of the Lafouche Complex of deltas, and Metairie Bayou-Bayou Savage. The discharge of materials into the Metairie Bayou-Bayou Savage distributary resulted in the formation of much of the deltaic plains along the southern and southeastern edge of present day Lake Pontchartrain (Saucier 1994:281). Marsh and swamp deposits of the deltaic plain around lakes Mauripas and Pontchartrain were gradually created through sedimentation from drainages located east of the Mississippi River in Louisiana and from those in southern Mississippi (Fisk 1944:32).

According to Saucier (1963:12), land subsidence represents the most significant natural process in the Pontchartrain Basin over the past 5,000 years. He determined that the Pontchartrain Basin has subsided at a rate of 0.1 m (0.39 ft) per century for the last 4,400 years. That figure does not include the rate of sea level rise, which can increase the subsidence rate. In addition, faulting can accelerate the subsidence rate; however, the fault line nearest the project area does not appear to have caused any surface displacement (Saucier 1963:12). Subsidence can hinder archeological site discovery, particularly in areas where the land surface falls below water-level (e.g., swamps, marshes, lakes, and rivers). For example, archeological remains dating from the Coles Creek period were dredged from a location on a relict sand beach about 3.6 m (12 ft) underwater in Lake Pontchartrain approximately 8 km (5 mi) southwest of Mandeville Point (Saucier 1963:47-49, Figure 16).

The Deweyville Complex also is a geomorphological unit that could have been of importance to the prehistoric occupants in the vicinity of the project item. As with the Prairie Complex, the Deweyville Complex was formerly named the Deweyville Terrace, but a change from "terrace" to "complex" was suggested by Autin et al. (1991:549-50) and utilized subsequently by Saucier (1994:83). In southeast Louisiana, Deweyville Complex surfaces have been mapped only along the western edge of the Pearl River flood plain (Mossa and Autin 1989:18, Figure 5). Through St. Tammany Parish, the Deweyville Complex dips slightly more than 0.6 m (2 ft) per mile. These surfaces rise above the recent flood plain features, but they are topographically lower than the more expansive Prairie Complex surfaces. The Deweyville Complex

formed during the Late Pleistocene, 20,000 to 33,000 years ago (Saucier 1974). The Deweyville Complex consists of clays and silty clays mixed with sand and gravel; these deposits are associated with large meander scars of rivers more powerful than those active in the region today (Mossa and Autin 1989). It has been suggested that during prehistoric times, the gravels of the Deweyville Complex in the vicinity of the Mandeville project item served as raw material for the manufacture of lithic tools (Sibley 1972:47).

Soils

Soils within the Mandeville project item belong to the Guyton-Abita-Brimstone association, Myatt-Stough-Prentiss association, and the Ouachita-Bibb association (Trahan et al. 1990:6-8). The Guyton-Abita-Brimstone soil association, of which the entire Mandeville project area is comprised, is level to gently sloping, poorly to somewhat poorly drained and loamy throughout. The Myatt-Stough-Prentiss soil association is level and very gently sloping, poorly drained to moderately well drained, and loamy throughout; this soil association can only be found minimally in the Mandeville project item. The Ouachita-Bibb soil association, also occurring in a very small portion of the project area, is nearly flat, well drained and poorly drained, and loamy throughout.

Guyton series soils account for approximately 55 percent of the Guyton-Abita-Brimstone soil association and are found on broad flats and in drainageways, as well as in depressed areas. They are level and poorly drained soils. This series consists of two phases of silt loams with the only major difference being that one is occasionally flooded while the other is not. One of these phases (Guyton silt loam [Gt]) comprises some of the shoreline and other areas immediately adjacent to the shoreline along nearly the entire stretch of the Lake Pontchartrain portion of the Mandeville project item (Trahan et al. 1990:Sheet Nos. 35, 46). However, it should be noted that subsurface testing in Mandeville Area 1, east of Mariner's Village Marina (Figure 1, Sheet 1) revealed that the soil, which is identified as Guyton on soil survey maps, is actually dredge material that originated from the nearby boat basin. This was verified by both the harbor master and grounds keeper (David Keyser and Don Mills 1996:personal communication). The first phase of the Guyton series soils, Gt, typically consists of a dark grayish brown, silt loam surface layer, a grayish brown, mottled silt loam subsurface layer, and a light brownish gray and light olive gray, mottled silt loam and silty clay loam subsoil layer (Trahan et al. 1990:20).

The level to gently sloping, somewhat poorly drained Abita series soils constitute approximately 32 percent of the Guyton-Abita-Brimstone soil association and are found on the side slopes of drainageways and in the slightly raised positions on broad stream or marine terraces, as well as on low convex ridges (Trahan et al. 1990:11-13). This soil series also consists of two phases of silt loams with the major differences being a slight difference in the gradient and the positions of their occurrence around broad stream or marine terraces. Both phases of this soil series typically have a surface layer consisting of dark grayish brown silt loam, and a subsurface layer with three distinct zones. The subsurface layer of one of the soil phases (Abita silt loam, 0 to 2 percent slopes [Aa]) typically consists of an upper zone of brownish yellow and light yellowish brown, mottled silt loam, a middle zone of mottled strong brown, gray, and red silt loam, and a lower zone of light brownish gray, mottled silt loam (Trahan et al. 1990:11-13). In the Mandeville project item, this phase occurs in spots along either bank of Little Bayou Castine and in some of the backshore areas adjacent to the project area along Lake Pontchartrain (Trahan et al. 1990:Sheet Nos. 29, 35, 46). The subsurface layer of the second soil phase of this soil series (Abita silt loam, 2 to 5 percent slopes [Ab]) typically consists of an upper zone of light yellowish brown, mottled silt loam, while the middle zone consists of mottled light brownish gray, light yellowish brown, yellowish brown, and red, silty clay loam. The lower zone is a light brownish gray, mottled silty clay loam (Trahan et al. 1990:11-13). This phase also occurs in the Mandeville project area in the west bank of the Little Bayou Castine (Trahan et al. 1990:Sheet Nos. 35, 46).

The Brimstone soil series makes up approximately 8 percent of the Guyton-Abita-Brimstone soil association (Trahan et al. 1990:6). They tend to be level and poorly drained soils, and are found on broad flats and irregular slight rises. Although the Guyton-Abita-Brimstone soil association comprises the Mandeville project item, no Brimstone soils series is associated with this area.

Myatt series soils account for approximately 42 percent of the Myatt-Stough-Prentiss soil association (Trahan et al. 1990:6). This soil series is level and poorly drained, and is typically found on broad flats or stream terraces and in depressional areas on stream terraces and in narrow drainageways (Trahan et al. 1990:26-27). This series consists of two phases of fine sandy loam with the only major difference being that one is frequently flooded while the other is not. One of these phases (Myatt fine sandy loam [Mt]) typically is comprised of a dark gray fine sandy loam surface layer, a gray mottled fine sandy loam subsurface layer, and a gray mottled loam subsoil that is underlain by a light brownish gray, mottled clay loam (Trahan et al. 1990:26). The other phase of this soil series (Myatt fine sand loam, frequently flooded [My]) typically consists of a surface layer of dark gray fine sandy loam, a subsurface layer of gray mottled loam, and a subsoil layer divided into three parts (Trahan et al. 1990:27). The upper and middle portions of the subsoil layer are gray mottled loam, and the lower portion is mottled gray, light yellowish brown, and strong brown sandy clay loam. The subsoil is underlain by gray sandy clay loam. However, these two soil phases only occur in a few isolated locations in the Mandeville project item (Trahan et al. 1990:Sheet Nos. 35, 46).

The level and somewhat poorly drained Stough series soils constitute approximately 39 percent of the Myatt-Stough-Prentiss soil association, and are found on broad flats on stream terraces that are positioned slightly higher than those of the Myatt soils (Trahan et al. 1990:6, 35). This soil series consists of only a single soil phase (Stough fine sandy loam [St]) typically composed of a dark gray fine sandy loam surface layer, a mottled pale brown, light yellowish brown, and gray loam subsurface layer, and a mottled brownish and grayish loam subsoil layer (Trahan et al. 1990:35). In the Mandeville project item, the Stough soils occur near the terminus of the Lake Pontchartrain Causeway and adjacent to the Abita soil series on the west bank of Little Bayou Castine (Trahan et al. 1990:Sheet Nos. 35, 46).

The Prentiss soil series makes up approximately 13 percent of the Myatt-Stough-Prentiss soil association (Trahan et al. 1990:6). They tend to be level and very gently sloping and moderately well-drained soils, and are found on low ridges. This soils series is composed of two soil phases, but only one is found within the project area. This soil phase (Prentiss fine sandy loam, 0 to 1 percent slopes [Pr]) typically has a dark gray fine sandy loam surface layer and a yellowish brown, mottled sandy loam and loam subsoil layer that is underlain by a fragipan of mottled brownish and grayish loam (Trahan et al. 1990:29-30). In the Mandeville project item, the Prentiss soil phase only occurs where the Causeway Boulevard merges with the east and west access roads (Trahan et al. 1990:Sheet Nos. 35, 46).

The Ouachita-Bibb association, which accounts for only a minor percentage of the soils in the project item, is actually an undifferentiated group of soils that could be mapped individually but are mapped as one unit because they share similar characteristics and interpretations (Trahan et al. 1990:11). The Ouachita-Bibb soils are nearly level and consist of well-drained and poorly drained soils that are loamy throughout (Trahan et al. 1990:7). Typically, the Ouachita soils have a dark brown silt loam surface layer and a subsoil layer broken into three parts: dark brown silt loam upper part, dark yellowish brown and yellowish brown silty clay loam middle part, and yellowish brown silt loam lower part (Trahan et al. 1990:28). The Bibb soils typically are comprised of a surface layer with two parts: a dark grayish brown loam or fine loam upper part, and a grayish brown sandy loam lower part; the surface layer also contains an underlying layer with two parts: gray loam upper part, and light gray mottled sandy loam lower part (Trahan et al. 1990:28). In Mandeville, it occurs only at the Bayou Chinchuba end of the project area (Trahan et al. 1990: Sheet Nos. 29, 46).

Other soil series that account for minor percentages throughout the project area include the dredged aquents (Ag) and the Arat silty clay loam (AR). The dredged aquents represent spoil material dredged from nearby marshes, swamps, and waterways. They are nearly level to gently sloping and are poorly drained, and are variable in texture and range from muck and clay to sand (Trahan et al. 1990:15). Typically, these soils have a clay or silty clay loam surface layer, and an underlying layer that is clayey, mucky, loamy, or sandy, and may be fluid in some places or have thin organic layers and numerous shell fragments in others (Trahan et al. 1990:15). This soil series is found around the mouth of Little Bayou Castine and along much of the northern shore of Lake Pontchartrain in the Mandeville project item (Trahan et al. 1990: Sheet Nos. 25, 46, 60, 63, 64). The Arat series soils are level, very poorly drained and very fluid, and tend to be found in swamps. This soil series typically has a dark grayish brown, very fluid, silty clay loam surface layer, and a grayish brown and very dark grayish brown, very fluid, silty clay loam underlying layer that may contain logs and wood fragments in the lower part (Trahan et al. 1990:15). It is found only along much of the northern shore of Lake Pontchartrain in the Mandeville project item (Trahan et al. 1990:46).

Flora

The St. Tammany Parish project area falls within the "longleaf pine environment" (Poplin 1987:8, 11; Jones and Shuman 1988:5; Brown 1980:xxxiv). The close proximity of the project area to various marsh (freshwater, brackish water, and saline) and other aquatic environments belays the inclusion of such floras in a discussion of the project area. The longleaf pine areas are dominated by pine species such as spruce, bald cypress, longleaf pine, shortleaf pine, and slash pine (Table 1). Additional hardwood species, found in moister areas, include red maple, hickories, sweet gum, yellow poplar, sycamore, cottonwood, and oaks. The understory of the pine forests would include button bush, hawthorn, rattlebox, holly, wild azalea, palmetto, greenbriar, and various members of the grass and aster families (Brown 1980; Brown and Kirkman 1990; Jones and Shuman 1988:5; Newton 1987:77).

The marsh environment, which intergrades between fresh and brackish waters, contains very few arboreal species. Instead, a wide variety of monocotyledonous species dominate the marshes (Table 2). Common "grasses" include alligatorweed, saltgrass, spikerush, maiden cane, roseau, arrowheads, bulrushes, and marsh-grasses. The distribution of these species within the marsh is dependent upon the length of annual inundation and the degree of salinity associated with this inundation. Certain species such as rushes and marsh-grasses can tolerate a wide regime of salinity. Shrubby wax myrtle and buttonbush cannot tolerate even brackish waters. The resulting complexity of microhabitats makes the marshes of the St. Tammany Parish a rich and complex ecosystem.

The prehistoric and historic residents of St. Tammany Parish would have exploited the natural resources from both the longleaf pine and marsh environments. Both the archeological record and ethnohistoric accounts from the Southeast suggest seasonal movements between these two environments (Hudson 1978; Lentz 1986; Gagliano and Saucier 1963; Swanton 1946).

Hickory nuts were an important source of food for the prehistoric Native American populations throughout the eastern United States. Hickories occur in the longleaf pine portion of the project area. Whole hickory nuts were crushed and added to boiling water to produce a rich milky liquid (hickory milk), which was high in oil and protein content (Swanton 1946:273; Hudson 1978:301). Hickory nutshell is a major component of Archaic and Woodland period paleoethnobotanical assemblages (Asch and Asch 1985; Chapman and Shea 1981; Johannessen 1984). In the American Bottom area, hickory nutshell decreases during the Early Mississippian period, but remains an important part of most Eastern Woodland paleoethnobotanical collection until European contact (Johannessen 1984).

Table 1. Plant Species Native to the Long-Leaf Habitats in the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Acer rubrum</i>	Red maple
<i>Amaranthus</i> spp.	Pigweed
<i>Ambrosia trifida</i>	Ragweed
<i>Arundinaria</i> spp.	Cane
Asteraceae	Aster family
<i>Borrichia frutescens</i>	Sea ox-eye
<i>Carya</i> spp.	Hickory
<i>Celtis laevigata</i>	Sugarberry
<i>Cephalanthus occidentalis</i>	Buttonbush
<i>Chenopodium</i> spp.	Goosefoot
<i>Chionanthus virginicus</i>	Fringetree
<i>Crataegus marshallii</i>	Parsley hawthorn
<i>Cyperus</i> spp.	Sedges
<i>Daubentonia teana</i>	Rattlebox
<i>Diospyros virginiana</i>	Persimmon
<i>Drosera</i> spp.	Sundews
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Ilex decidua</i>	Deciduous holly
<i>Liquidambar styraciflua</i>	Sweetgum
<i>Liriodendron tulipifera</i>	Yellow poplar
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Magnolia virginiana</i>	Sweet bay
<i>Myrica cerifera</i>	Wax myrtle
<i>Nyssa sylvatica</i>	Swamp blackgum
<i>Picea glabra</i>	Spruce
<i>Pinus echinata</i>	Shortleaf pine
<i>Pinus elliotii</i>	Slash pine
<i>Pinus palustris</i>	Longleaf pine
<i>Pinus taeda</i>	Loblolly pine
<i>Platanus occidentalis</i>	American sycamore
Poaceae	Grass family
<i>Populus deltoides</i>	Eastern cottonwood
<i>Prunus serotina</i>	Black cherry
<i>Quercus alba</i>	White oak
<i>Quercus falcata</i>	Southern red oak
<i>Quercus marilandica</i>	Blackjack oak
<i>Quercus nigra</i>	Water oak
<i>Quercus nuttallii</i>	Nuttall oak
<i>Quercus phellos</i>	Willow oak
<i>Quercus virginiana</i>	Live oak
<i>Rhododendron canescens</i>	Wild azalea
<i>Rhus radicans</i>	Poison ivy
<i>Rubus</i> spp.	Brambles
<i>Sabal minor</i>	Palmetto
<i>Sabatia gentianoides</i>	Rose-gentian
<i>Sarracenia</i> spp.	Pitcher plants
<i>Smilax</i> spp.	Greenbriar
<i>Symplocos tinctoria</i>	Horsesugar
<i>Taxodium distichum</i>	Baldcypress
<i>Viburnum dentatum</i>	Small-leaf arrowwood
<i>Vitis</i> spp.	Grapes

Table 2. Marsh Plants Present in the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Aeschynomene virginica</i>	Sensitive jointweed
<i>Alternanthera philoxeroides</i>	Alligator-weed
<i>Amaranthus australis</i>	Belle-dame
<i>Aster</i> spp.	Aster
<i>Baccharis halimifolia</i>	Backbrush
<i>Bacopa caroliniana</i>	Carolina bacopa
<i>Bacopa monnieri</i>	Water hyssop
<i>Bacopa rotundifolia</i>	Round leaf bacopa
<i>Bidens laevis</i>	Bur-marigold
<i>Brasenia schreberi</i>	Water shield
<i>Cabomba caroliniana</i>	Fan wort
<i>Carex</i> spp.	Sedges
<i>Cephalanthus occidentalis</i>	Button-bush
<i>Ceratophyllum demersum</i>	Coontail
<i>Cladium jamaicense</i>	Saw-grass
<i>Cyperus</i> spp.	Umbrella-sedges
<i>Decodon verticillatus</i>	Water willow
<i>Distichlis spicata</i>	Salt grass
<i>Echinochloa walteri</i>	Walter's millet
<i>Eleocharis</i> spp.	Spikerush
<i>Fimbristylis castanea</i>	Sand rush
<i>Hibiscus moscheutos</i>	Marsh mallow
<i>Hydrocotyle</i> spp.	Pennyworts
<i>Hymenocallis occidentalis</i>	Spider lily
<i>Ipomoea</i> spp.	Morning glories
<i>Iva frutescens</i>	Marsh elder
<i>Juncus</i> spp.	Rushes
<i>Kosteletzkya virginica</i>	Pink hibiscus
<i>Lemna minor</i>	Duckweed
<i>Leptochloa</i> spp.	Sprangle top
<i>Limnobium spongia</i>	Frogbit
<i>Ludwigia</i> spp.	Willow primrose
<i>Lythrum lineare</i>	Loosestrife
<i>Myrica cerifera</i>	Wax myrtle
<i>Myriophyllum</i> spp.	Water millfoil
<i>Najas guadalupensis</i>	Southern naiad
<i>Nelumbo lutea</i>	American lotus
<i>Nymphaea</i> spp.	Water lily
<i>Nyphoides aquatica</i>	Floating heart
<i>Osmunda regalis</i>	Royal fern
<i>Panicum hemitomon</i>	Maidencane
<i>Panicum</i> spp.	Panicoid grasses
<i>Paspalum</i> spp.	Paspalum
<i>Phragmites australis</i>	Roseau
<i>Pluchea camphorata</i>	Camphorweed
<i>Polygonum</i> spp.	Smartweed
<i>Pontederia cordata</i>	Pickrelweed
<i>Potamogeton</i> spp.	Pondweed
<i>Ruppia maritima</i>	Widgeongrass
<i>Sagittaria</i> spp.	Arrowhead
<i>Salix nigra</i>	Black willow
<i>Saururus cernuus</i>	Lizard's tail
<i>Scirpus</i> spp.	Bulrush
<i>Sesbania</i> spp.	Rattlebox
<i>Spartina</i> spp.	Marsh-grass
<i>Spirodela polyrhiza</i>	Duckweed
<i>Taxodium distichum</i>	Baldcypress
<i>Typha</i> spp.	Cattail
<i>Utricularia</i> spp.	Bladderwort
<i>Vigna luteola</i>	Deerpea
<i>Woodwardia virginica</i>	Virginia chain fern
<i>Zizaniopsis miliacea</i>	Giant cutgrass

Acorn nutshells recovered from archeological sites tend to be poorly preserved and highly fragmented, making comparisons between raw counts of acorn and hickory nutshell misleading (Lopinot 1984). Paleoethnobotanical evidence of acorn use begins during the Archaic Stage (Chapman and Shea 1981) and continues, at a low rate, until the end of the Woodland Stage. There is evidence that some Southeastern groups intensified their use of acorns during the Mississippian Stage (Scarry 1986). Scarry (1986) suggests acorns may have been used later in prehistory as a lysine supplement to complement the lysine-poor maize diet. During the protohistoric and contact periods, numerous Native American groups consumed acorn nutmeats that were leached in water to remove the tannins. These nutmeats were ground and used as flour to make bread (Gilmore 1977; Swanton 1946:273, 279; Hudson 1978). Another use of acorn nutmeat was for oil, which was used for cooking and personal adornment (Swanton 1946:277). At least seven species of acorn occur in the longleaf pine region of St. Tammany Parish.

The seeds of several, locally available, weedy plants may have been collected and processed as grains. Grains generally are assumed to be major carbohydrate sources, but many of the wild grains were rich in oils and proteins. Some of the more common wild grains sources include pigweed, ragweed, sedge, goosefoot, umbrella-sedge, spike rush, marshelder, panicoid grasses, and smartweed (Erichsen-Brown 1979; Hall 1976; Kindscher 1987; King 1984; Yanovsky 1936). In addition, there is paleoethnobotanical evidence that goosefoot, sumpweed, maygrass, and knotweed were cultivated or even domesticated in the Eastern Woodlands (Asch and Asch 1985; Chapman and Shea 1981; Ford 1985; Fritz 1990; Smith 1992; Watson 1989).

Plants that represent sources of "greens" also are common to the project area. These species include pigweed, goosefoot (previously mentioned as a grain), smartweed, and knotweed (Erichsen-Brown 1979; Hall 1976; Kindscher 1987; King 1984; Yanovsky 1936). Greens are generally young leaves and shoots that are steamed or boiled prior to consumption. Such foods were important additions to the late winter/early spring diet. Greens represented a source of numerous minerals and vitamins as well as a relief from the otherwise monotonous winter meals.

Some of the local fleshy fruits, such as black cherry and persimmon, are from arboreal sources. Brambles (including blackberries and raspberries) and grapes are common fruits from herbaceous plants. While these fruits were not major subsistence items (Erichsen-Brown 1979; Hall 1976; Kindscher 1987), they were good sources of sugar, vitamins, and minerals. Native Americans dried some fruits for winter use, but most were consumed fresh.

Root foods are underrepresented in the paleoethnobotanical record, but were noted as important subsistence items in early historical records of Native Americans (Swanton 1946). Roots of groundnut, sedge, greenbriar, morning glory, bulrush, American lotus, arrowhead, water lily, and cat-tail all were utilized (Erichsen-Brown 1979; Hall 1976; Kindscher 1987; King 1984; Yanovsky 1936). Roots were important subsistence items because many could be gathered in the late fall and winter when other plant foods were unavailable. In addition, roots were dried and stored for later use.

Arboreal and herbaceous species also were used for numerous technological purposes by Native Americans in the Southeast (Swanton 1946). Oak, hickory, and other hardwoods were preferred for firewood and construction. Pestles and mortars also were made of hardwoods, especially hickory. Canoes were carved from light-weight woods, such as cypress. Spoons from yellow-poplar, oak-splint baskets, and numerous other household items were produced from trees and tree products common to the area. Saw palmetto leaves were used commonly for construction, thatching, and basketry production (Swanton 1946:246). One of the most important herbaceous technological plants was cane. Cane was used for arrow shafts, basketry, and even for construction (Swanton 1946), and vining species such as morning glory and grape also were used for basketry. Finally, numerous herbaceous and arboreal species were used as dye sources (Swanton 1946).

Fauna

The Mandeville project item and the surrounding aquatic environment have traditionally supported a wide variety of animal species. Tables 3 through 7 contain the scientific and common names of animal species found in the region that encompasses the project item (Burch 1975; Collins 1981; Gosselink 1984; McClane 1974; Trahan et al. 1990). It is difficult, however, to assess how numerous some of these species were prior to nineteenth and twentieth century logging, farming, and marsh drainage throughout the area. For example, certain birds and mammals, such as white-tailed deer, rabbits, and bobwhite quail thrive in disturbed habitats. These species were present during the prehistoric period, responding to clearings made by Native Americans, but they probably were less numerous than suggested by modern species distributions.

It also is difficult to estimate which animal species were the most significant subsistence resources for the prehistoric and historic inhabitants of the area. There are certain animal species that often are described as important "game species." However, the hunting and collecting habits of Native Americans and early European settlers probably were quite broad-based by modern standards.

Deer and bear species were important multipurpose resources to Native Americans (Swanton 1946) and historic European groups. These animals were hunted for the large amount of meat present on a given individual, but they additionally represented sources of technological materials. "The most important food animal was the deer, and deer hide probably formed the most important single material entering into native dress" (Swanton 1946:249). Deer bones were made into hide preparation tools, needles, beads, decorative items, and musical instruments. Deer horn was used for arrow points, club tips, glue, ornaments, and tools, while thread and some tools were made from entrails (Swanton 1946:246). In short, almost every part of the deer carcass was used.

The second most useful animal was the bear, which was "hunted for its flesh, but still more for its fat" (Swanton 1946). This fat was a vital resource during the late winter and early spring when the fresh meat was relatively lean. Bear fat also was used for personal skin and hair care, while their hides were used to make heavy robes and winter moccasins (Swanton 1946:246).

A variety of terrestrial mammals such as rabbits, squirrels, raccoons, and opossums were undoubtedly hunted by residents of the area. Additional mammals, like mink and weasels may have been hunted for their pelts as well as for their flesh (Swanton 1946). Most of the carnivore species (bear, bobcat, foxes, weasel, mink, and red wolf) noted in Table 3 are no longer common in the project item due to a combination of modern habitat destruction and over-hunting (Collins 1981).

Over 60 bird species either reside in or migrate through St. Tammany Parish (Table 4). The current project item is located within the Mississippi Flyway, resulting in seasonal abundance of various migratory ducks and geese (Gosselink 1984:82). Large numbers of these birds could be harvested during the fall and winter. The nearby marshes and aquatic environments support a variety of wading and song birds. Terrestrial species such as the turkey would have been more abundant in the upland areas. The flesh of turkeys was consumed, and the feathers used for ornaments, feather mantels, fans, and arrow production. "The turkey seems anciently to have been the most utilized [by Native Americans] of all birds" (Swanton 1946:251). Non-game birds (e.g., heron and woodpecker) and raptorial species (e.g., hawks, eagles, and owls) may have been captured for feathers, hides, or for ceremonial purposes.

The fresh and brackish water environments of St. Tammany Parish support a number of fish, reptile, and amphibian species (Tables 5 and 6; Collins 1981). Among the important freshwater game fish species are bass, freshwater catfish, gar, crappie, and various sunfish species (Trahan et al. 1990). The presence of these fish species within a drainage is dependent upon the nature of the distributary. Nearby rivers often have slower moving waters and swamps that support backwater species such as catfish.

Table 3. Mammals Present within the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Blarina brevicauda</i>	Short-tailed shrew
<i>Canis rufus</i>	Red wolf
<i>Cryptotis parva</i>	Least shrew
<i>Didelphis virginiana</i>	Virginia opossum
<i>Eptesicus fuscus</i>	Big brown bat
<i>Felis concolor</i>	Cougar
<i>Glaucomys volans</i>	Southern flying squirrel
<i>Lasiurus borealis</i>	Red bat
<i>Lasiurus intermedius</i>	Northern yellow bat
<i>Lasiurus seminolus</i>	Seminole bat
<i>Lutra canadensis</i>	River otter
<i>Lynx rufus</i>	Bobcat
<i>Mephitis mephitis</i>	Striped skunk
<i>Microtus pinetorum</i>	Woodland vole
<i>Mustela frenata</i>	Long-tailed weasel
<i>Mustela vison</i>	North American mink
<i>Myotis austroriparius</i>	Southeastern myotis
<i>Neotoma floridana</i>	Eastern wood rat
<i>Nycticeius humeralis</i>	Evening bat
<i>Ochrotomys nuttalli</i>	Golden mouse
<i>Odocoileus virginianus</i>	White-tailed deer
<i>Ondatra zibethicus</i>	Common muskrat
<i>Oryzomys palustris</i>	Marsh rice rat
<i>Peromyscus gossypinus</i>	Cotton mouse
<i>Peromyscus leucopus</i>	White-footed mouse
<i>Pipistrellus subflavus</i>	Eastern pipistrelle
<i>Plecotus rafinesquii</i>	Rafinesque's big-eared bat
<i>Procyon lotor</i>	Northern raccoon
<i>Reithrodontomys fulvescens</i>	Fulvous harvest mouse
<i>Reithrodontomys humulis</i>	Eastern harvest mouse
<i>Scalopus aquaticus</i>	Eastern mole
<i>Sciurus carolinensis</i>	Gray squirrel
<i>Sciurus niger</i>	Fox squirrel
<i>Sigmodon hispidus</i>	Hispid cotton rat
<i>Spilogale putorius</i>	Spotted skunk
<i>Sylvilagus aquaticus</i>	Swamp rabbit
<i>Sylvilagus floridanus</i>	Eastern cottontail rabbit
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat
<i>Urocyon cinereoargenteus</i>	Gray fox
<i>Ursus americanus</i>	Black bear
<i>Vulpes fulva</i>	Red fox

Table 4. Bird Species Present in the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Actitis macularia</i>	Spotted sandpiper
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Aix sponsa</i>	Wood duck
<i>Anas</i> spp.	Pond ducks
<i>Anser albifrons</i>	Greater white-fronted goose
<i>Anthus spinoletta</i>	Water pipit
<i>Ardea herodias</i>	Great blue heron
<i>Asio flammeus</i>	Short-eared owl
<i>Aythya</i> spp.	Diving ducks
<i>Botaurus lentiginosus</i>	American bittern
<i>Branta canadensis</i>	Canada goose
<i>Bubo virginianus</i>	Great horned owl
<i>Bucephala albeola</i>	Bufflehead
<i>Butorides striatus</i>	Green-backed heron
<i>Calidris</i> spp.	Sandpiper
<i>Casmerodius albus</i>	Great egret
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Ceryle alcyon</i>	Belted kingfisher
<i>Chen caerulescens</i>	Snow goose
<i>Chlidonias niger</i>	Black tern
<i>Chordeiles minor</i>	Common nighthawk
<i>Circus cyaneus</i>	Northern harrier
<i>Cistothorus</i> spp.	Wrens
<i>Colinus virginianus</i>	Bobwhite quail
<i>Corvus ossifragus</i>	Fish crow
<i>Coturnicops noveboracensis</i>	Yellow rail
<i>Dendrocygna bicolor</i>	Fulvous whistling-duck
<i>Dolichonyx oryzivorus</i>	Bobolink
<i>Egretta</i> spp.	Heron/egret
<i>Eudocimus albus</i>	White ibis
<i>Falco columbarius</i>	Merlin
<i>Falco sparverius</i>	American kestrel
<i>Fulica americana</i>	American coot
<i>Gallinago gallinago</i>	Common snipe
<i>Gallinula chloropus</i>	Common moorehen
<i>Geothlypis trichas</i>	Common yellowthroat
<i>Himantopus mexicanus</i>	Black-necked stilt
<i>Hirundo</i> spp.	Swallow
<i>Ixobrychus exilis</i>	Least bittern
<i>Laterallus jamaicensis</i>	Black rail
<i>Limnodromus</i> spp.	Dowitcher
<i>Limosa haemastica</i>	Hudsonian godwit
<i>Lophodytes cucullatus</i>	Hooded merganser
<i>Meleagris gallopavap</i>	Wild turkey
<i>Melospiza georgiana</i>	Swamp sparrow
<i>Mycteria americana</i>	Wood stork
<i>Numenius phaeopus</i>	Whimbrel

Table 4, continued

LATIN NAME	COMMON NAME
<i>Nycticorax</i> spp.	Night-heron
<i>Oxyura jamaicensis</i>	Ruddy duck
<i>Passerculus sandwichensis</i>	Savannah sparrow
<i>Phalaropus tricolor</i>	Wilson's phalarope
<i>Pharacrocorax auritus</i>	Double crested cormorant
<i>Plegadis falcinellus</i>	Glossy ibis
<i>Pluvialis squatarola</i>	Black-bellied plover
<i>Podiceps nigricollis</i>	Eared grebe
<i>Podilymbus podiceps</i>	Pied-billed grebe
<i>Pophyrula martinica</i>	Purple gallinule
<i>Porzana carolina</i>	Sora
<i>Quiscalus major</i>	Boat-tailed grackle
<i>Rallus</i> spp.	Rails
<i>Recurvirostra americana</i>	American avocet
<i>Riparia riparia</i>	Bank swallow
<i>Scolopax minor</i>	Woodcock
<i>Strix varia</i>	Barred owl
<i>Tachycineta bicolor</i>	Tree swallow
<i>Tringa</i> spp.	Sandpiper/yellow-legs
<i>Zenaida macroura</i>	Mourning dove

Table 5. Fish Species Present in the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Alosa chrysochloris</i>	Skipjack herring
<i>Amia calva</i>	Bowfin
<i>Aplodinotus grunniens</i>	Freshwater drum
<i>Centrarchus macropterus</i>	Flier
<i>Cyprinus carpio</i>	Carp
<i>Dorosoma cepedianum</i>	Gizzard shad
<i>Dorosoma petenense</i>	Threadfin shad
<i>Gambusia affinis</i>	Mosquitofish
<i>Heterandria formosa</i>	Least killfish
<i>Ictalurus</i> spp.	Freshwater catfish
<i>Ictiobus</i> spp.	Buffalofish
<i>Labidesthes sicculus</i>	Brook silverside
<i>Lepisosteus</i> spp.	Gar
<i>Lepomis</i> spp.	Sunfish
<i>Micropterus salmoides</i>	Largemouth bass
<i>Morone</i> spp.	Bass
<i>Notemigonus crysoleucas</i>	Golden shiner
<i>Poecilia latipinna</i>	Sailfin molly
<i>Pomoxis nigromaculatus</i>	Black crappie
<i>Pylodictis olivaris</i>	Flathead catfish

Table 6. Amphibian and Reptile Species Present in the St. Tammany Parish Project Area.

LATIN NAME	COMMON NAME
<i>Acris crepitans</i>	Northern cricket frog
<i>Agkistrodon contortrix</i>	Copperhead
<i>Agkistrodon piscivorus</i>	Cottonmouth
<i>Alligator mississippiensis</i>	American alligator
<i>Ambystoma</i> spp.	Salamanders
<i>Amphiuma tridactylum</i>	Three-toed amphiuma
<i>Anolis caroliniensis</i>	Green anole
<i>Bufo</i> spp.	True toads
<i>Chelydra serpentina</i>	Snapping turtle
<i>Coluber constrictor</i>	Racer
<i>Deirochelys reticularia</i>	Chicken turtle
<i>Eurycea quadridigitata</i>	Dwarf salamander
<i>Farancia abacura</i>	Mud snake
<i>Gastrophryne carolinensis</i>	Eastern narrowmouth toad
<i>Graptemys</i> spp.	Map turtle
<i>Hyla</i> spp.	Treefrogs
<i>Kinosternon subrubrum</i>	Eastern mud turtle
<i>Lampropeltis getulus</i>	Speckled king snake
<i>Macrochelys temminckii</i>	Alligator snapping turtle
<i>Malaclemys terrapin</i>	Diamondback terrapin
<i>Nerodia</i> spp.	Water snake
<i>Notophthalmus viridescens</i>	Central newt
<i>Pseudacris triseriata</i>	Upland chorus frog
<i>Pseudemys</i> spp.	Cooters
<i>Rana</i> spp.	True frogs
<i>Regina</i> spp.	Crayfish snake
<i>Siren intermedia</i>	Lesser siren
<i>Sternotherus odoratus</i>	Stinkpot
<i>Storeria dekayi</i>	Brown snake
<i>Thamnophis proximus</i>	Western ribbon snake
<i>Thamnophis sirtalis</i>	Common garter snake
<i>Trionyx spiniferus</i>	Spiny softshell

Table 7. Unionacean Clams Found in Freshwater Drainages within or near the St. Tammany Parish Project Area.

LATIN NAME
<i>Anodonta grandis grandis</i>
<i>Anodonta imbecilis</i>
<i>Anodonta suborbiculate</i>
<i>Arcidens confragosus</i>
<i>Cyclonaias tuberculata</i>
<i>Elliptio beadleiana</i>
<i>Elliptio crassidens</i>
<i>Elliptio dilatata</i>
<i>Fusconaia ebena</i>
<i>Fusconaia undata</i>
<i>Glebula rotundata</i>
<i>Lampsilis excavatus</i>
<i>Lampsilis ovata</i>
<i>Lampsilis straminea</i>
<i>Lampsilis teres</i>
<i>Lasmigona costata</i>
<i>Leptodea fragilis</i>
<i>Leptodea laevis</i>
<i>Ligumia nasuta</i>
<i>Megalanaia gigantea</i>
<i>Obliquaria reflexa</i>
<i>Obovaria jacksoniana</i>
<i>Obovaria olivaria</i>
<i>Obovaria subrotunda</i>
<i>Plectomerus dombeyanus</i>
<i>Quadrula nobulata</i>
<i>Quadrula quadrula</i>
<i>Tritogonia verrucosa</i>
<i>Villosa lienosa</i>
<i>Villosa vibex</i>

Swifter streams are populated with other fish species such as bass. Brackish waters represent important breeding areas for a number of fish and crustacean species. Finally, fish species such as carp, shad, and flathead catfish can tolerate the brackish waters of Lake Pontchartrain and its surrounding bayous. Fish bones were made into needles and weapons by Native Americans. Gar scales were sometimes used as arrow points. Frogs, snapping turtles, softshell turtles, and alligators probably were part of local subsistence systems. Other turtle species and even snakes probably were collected by the Native American inhabitants of the area. Turtle shells often were made into rattles and utensils by the Native Americans of the region (Swanton 1946:252-253).

Freshwater shellfish were utilized by Native American and European inhabitants of the region (Table 6). Shellfish middens throughout the midwestern and southeastern United States reveal the importance of shellfish as a subsistence resource to prehistoric Native Americans (Bense 1994:91-94). Approximately 30 species of Unionacean clams occur in the nearby freshwater drainages (Burch 1975), but not all species of shellfish are equally palatable, especially by modern standards (Thorne and Curry 1983). Brackish waters would be dominated by *Rangia cuneata*, which also was an important subsistence and technological resource. The shells of the shellfish were used for a variety of purposes by Native Americans (Swanton 1946:252-253). Shell was formed into knives, beads, and ornaments. In addition, crushed shell was used as a tempering agent for pottery during the chronological periods (Bense 1994; Knight 1984).

A variety of crustaceans occur within the waterways surrounding the general project area (McClane 1974). Blue crab (*Callinectes sapidus*), crawfish (Order Decapoda [esp. *Procambarus clarki*-Louisiana red swamp crawfish]), and shrimp (*Penaeus aztecus*-brown shrimp and *Penaeus setiferus*-white shrimp) would be at least part time residents of the local waterways. All of these species have been highly sought after by historic European fishermen in the project area. Shrimp species spawn in the ocean, and the juveniles migrate to less saline waters until they mature. Blue crabs inhabit warm brackish waters, therefore spending the colder months in deep water and the warmer months in toward shore where they mate. Over 29 species of crawfish occur in Louisiana, but the Louisiana red swamp crawfish is the most common in the project area. Crawfish inhabit a variety of freshwater habitats such as rivers and backswamps. The technology required to capture any of these crustaceans is relatively simple, as baited traps and cast-nets are very effective. The resulting catch could be preserved by drying (especially with small shrimp) or smoking (especially with larger shrimp or crawfish). It has been speculated by Shannon (1989:109), and his associate George Riser, that the Johnson Site (16ST68) may have contained tidal weirs that were used to collect white shrimp. The site, located on Bayou Castine, was identified as a Mississippian village site with an underlying Tchefuncte cultural period component. Shannon believes that juvenile shrimp may have entered the bayou, migrating on the tide, and were subsequently trapped in a weir. They then were spread on *rangia* shell and dried in the sun. No new information has been gathered from this site; however, this theory warrants additional study.

Climate

The climate throughout the current project area is strongly influenced by the Gulf of Mexico and by Lake Pontchartrain. The region is characterized by a humid subtropical climate. Long, hot, rainy summers and short, mild winters are common. The average annual temperature is 19.4° C (67.0° F), with an average maximum temperature of 25.9° C (78.7° F) and an average minimum temperature of 12.9° C (55.3° F). Temperatures generally exceed 32.2° C (90° F) during the months of June, July, and August. The highest average daily maximum temperature for Covington is 33.3° C (92° F); it occurs during the month of July. The lowest average daily minimum temperature is 4.4° C (39.9° F), and it occurs in January. Winters are relatively mild, with average daily minimum temperatures dropping below 7.2° C (45° F) only in December, January, and February (Trahan et al. 1990:98).

The average precipitation rate in St. Tammany Parish is relatively heavy, and regularly exceeds 155 cm (61 in) per annum. July and December are the two wettest months, and each receives an average amount of rainfall exceeding 15.2 cm (6 in.) October is the driest month, with a monthly mean rainfall of only 7.5 cm (2.97 in). Thunderstorms are most common during the summer months. They frequently cause flooding and are typically associated with frontal movements from the northwest that stall over the Gulf of Mexico, but on occasion they do form over Lake Pontchartrain. Hurricanes present the most dangerous weather threat to the area; they occur every few years during the summer or fall (Trahan et al. 1990:2:98). Snow very rarely falls in the project area; 15 percent of the winters experience a snowfall of less than 2.5 cm (1 in).

CHAPTER III

PREHISTORIC CULTURAL SEQUENCE

Introduction

The Mandeville project item lies within the coastal plain and pine barrens north of Lake Pontchartrain in St. Tammany Parish, Louisiana; the vicinity of the area occupies coastal marshlands and/or flatwoods areas that contain combinations of terrace soils, floodplain soils, and poorly drained marshlands soils. Since ca. 8000 years before present (B.P.), Lake Pontchartrain has been the dominant physiographic feature on the landscape. Subsequently, the lake and associated distributaries have represented the primary subsistence source for the region. This subsistence base fostered the growth and maintained the development of populations throughout southeastern Louisiana during the prehistoric period. Drainages of the region include the Tchefuncta River, Bayou Chinchuba, Bayou Castine, Bayou Lacombe, and Bayou Bonfouca along with their tributaries and the two aspects of the Pearl River. While only a few of these water sources have a direct impact on the current project item, each is a contributor to the make up and development of the region and of St. Tammany Parish.

St. Tammany Parish is one of the eight Florida parishes (St. Tammany, Washington, Tangipahoa, St. Helena, Livingston, East Baton Rouge, East Feliciana, and West Feliciana) that compose Management Unit IV as defined by *Louisiana's Comprehensive Archaeological Plan* (Smith et al. 1983). The prehistory of Management Unit IV extends from circa (ca.) 12,000 - 300 B.P. and can be divided into four general archeological stages. These four stages (Paleo-Indian, Archaic, Woodland, and Mississippian) represent developmental segments characterized by dominant patterns of subsistence and technology (Kreiger 1953; Willey and Phillips 1958). Each stage consists of a sequence of chronologically defined periods, which may be subdivided into phases based on sets of artifacts and other cultural traits characteristic of a particular geographic region (e.g., Jenkins 1979; Walthall 1980). While different systems have been used over the years to organize and describe the culture history of the region (e.g., the Paleo-Indian, Meso-Indian, and Neo-Indian eras used by Neuman 1984), the syncretic stage-period-phase system described by Willey and Phillips (1958) will be utilized in the discussion presented below. In recent years, eight cultural units have formed the prehistoric sequence of this Management Unit: Paleo-Indian, Archaic, Poverty Point, Tchefuncte, Marksville, Troyville-Coles Creek, Plaquemine, and Mississippian (Smith et al. 1983). However, current research (Kidder 1988) suggests that the Plaquemine culture is actually a variant phase of the Emergent Mississippian period and therefore will be discussed as such.

Paleo-Indian Stage (12,000 - 8000 B.P.)

Initial human occupation of the southeastern United States is generally believed to have occurred sometime between 10,000 and 12,000 years ago (10,000 - 12,000 B.P.). Paleo-Indian sites are characterized by a distinctive assemblage of lithic tools that include fluted and unfluted lanceolate projectile points/knives, unifacial end and side scrapers, gravers, and spokeshaves.

The earliest Paleo-Indian culture identified in North America has been named "Clovis," after the type-site in the Southwest. In the western United States, Clovis sites appear to fall within a relatively narrow time range, i.e., between 10,900 and 11,500 B.P. (Haynes 1991; Story et al. 1990:178). While the evidence for earlier "pre-Clovis" or "pre-projectile point" occupations continues to be debated, no earlier sites have been documented convincingly in North America. The lithic tool assemblage of the Clovis culture, and the Folsom culture of the Great Plains and Southern Plains, is generally referred to as the

Llano complex. The smaller, fluted Folsom and unfluted Midland projectile points/knives once were thought to postdate Clovis; however, accepted radiocarbon dating of numerous Folsom components in Texas produced dates ranging from ca. 10,000 to 11,000 B.P. (Largent et al. 1991:323-332; Story et al. 1990:189). This suggests that the Folsom culture may be partially contemporaneous with Clovis culture.

The Plano complex represents a similar tradition in the Southern Plains. In East Texas and Louisiana, this complex is represented by unfluted lanceolate Plainview, Firstview, Hell Gap, and Angostura projectile points/knives. These types first were thought to be unfluted variants of the Clovis type, but radiocarbon dating suggests a later temporal placement. Current data place the Plano complex from 8000 to 10,100 B.P. (Turner and Hester 1985:66, 141). Plano-type artifacts have been found throughout Louisiana (e.g., Cantley and Kern 1984; Hillman 1990:206-207). Gagliano (1963:12) recovered a single Plainview projectile point/knife from Jones Creek (Pacher Site - 16EBR26) near Baton Rouge.

Another Paleo-Indian tradition identified in North America is the Cody complex. This assemblage includes the stemmed lanceolate Scottsbluff and Eden projectile points/knives. Cody complex bifacial tools usually are identifiable by the presence of fine comedial pressure flaking. The uplands in the Texarkana region of northwest Louisiana, northeast Texas, and southern Arkansas have produced relatively large numbers of Cody Complex artifacts (Gagliano and Gregory 1965:62-77; Story et al. 1990:209), but reliable radiocarbon (^{14}C) dates have not been conclusive. These ^{14}C dates range from 9100 to 10,200 B.P. (Story et al. 1990:209), although Turner and Hester (1985:149) place the Scottsbluff projectile point/knife at ca. 8650 - 9120 B.P.

Paleo-Indian peoples are thought to have been highly mobile hunter-gatherers, organized in small bands or extended family groups. The formerly prevalent notion that the Paleo-Indian populations were represented by specialized big game hunters seems less tenable as information becomes available from a more inclusive set of Paleo-Indian sites. While sufficient evidence exists for the exploitation of large mammals (mega-fauna) including mammoth, mastodon, bison, caribou, and elk at sites in the western and northern United States, kill sites are rare in the Southeast. The occurrence of Clovis-like fluted projectile points/knives in the southeastern United States is thought to reflect contemporaneity with a culture similar to the Clovis sites recorded in the western and northern parts of the country. Whether or not this suggests that big game hunting was a dominant adaptive strategy in the Southeast is less certain because of the regional environmental differences associated with the availability of the big game species. For example, excavations at the Kimmswick site in southeastern Missouri produced Clovis projectile points in direct association with disarticulated mastodon bones, suggesting that Southeastern Paleo-Indian populations did exploit large Pleistocene mammals at least occasionally (Graham et al. 1981). Although there is little data upon which to base a dietary reconstruction, Paleo-Indian subsistence throughout the Southeast is believed to have encompassed a broad spectrum of resources, including fish, fowl, deer, small mammals, nuts, and gathered plants (Smith 1986:9-10; Steponaitis 1986:369; Walthall 1980:36). The exception could possibly be the Folsom culture. Folsom artifacts have been associated consistently with bison kill sites on the Great Plains. The lack of faunal evidence in association with Folsom finds in east Texas and Louisiana, due mainly to the highly acidic nature of the soils and the moist climate, precludes insight into the subsistence strategies of the area. Indications are that the Folsom culture could represent an adaptation to a specialized hunting strategy associated with the cyclical migration of large herds of bison (Story et al. 1990:189).

Most of the archeological evidence associated with the Paleo-Indian occupation of the southeastern region is limited to surface finds of diagnostic projectile points/knives (Mason 1962). In the Lower Mississippi Valley, Paleo-Indian projectile points/knives have been recovered along valley margins but rarely in the alluvial valley or along the coastal plain, and distributional studies indicate that Paleo-Indian sites in the eastern United States tend to be located on eroded terrace and plateau surfaces (Walthall 1980). Paleo-Indian and Early Archaic presence in the Lower Mississippi Valley is best documented from Maçon Ridge. Maçon Ridge is a relict Pleistocene braid plain that until recently was not known to contain sites

older than the Late Archaic period (Saucier 1981). Hillman (1990) collected information concerning 121 sites on the Maçon Ridge from which over a thousand Paleo-Indian and "epipaleoindian" projectile points/knives have been collected, including 272 Dalton-Meserve, 39 Hardin, and over 400 San Patrice types. He concluded that Early and Middle Paleo-Indian occupation of Maçon Ridge apparently was sporadic or seasonal, possibly reflecting the somewhat inhospitable conditions caused by the excessive accumulation of wind-blown dust across open grasslands during the formation of the loess hills. The distribution of recorded sites suggests that Maçon Ridge was occupied more intensely during the Late Paleo-Indian and Early Archaic periods. However, during the Late Paleo-Indian period, hunting camps and base camps normally were located very close to streams, ponds, or sloughs, on landforms generally no more than 1 m (3.3 ft) above the water source, even when higher elevations or ridges were located in the immediate vicinity. This preferential use of the area adjacent to the waterways may reflect the intensive use of wooded fringes along the waterways rather than the open grasslands. By the Early Archaic, settlement shifted to the higher elevations, possibly reflecting an environmental transformation of Maçon Ridge from open grasslands to open woodlands (Hillman 1990). Brain (1983) states that Paleo-Indian projectile points/knives have been found along relict channels of the Mississippi River and remnant Pleistocene surfaces in the floodplain that pre-date ca. 9000 B.P. Marshall (1984) notes that over 60 fluted projectile points/knives had been recorded in the Mississippi site files. In Louisiana, Paleo-Indian sites have been found along Tertiary upland ridges and uplands/floodplain bluffs (Guy and Gunn 1983). Projectile points/knives such as Clovis, Folsom, Scottsbluff, and Plainview have been found on the surface of these sites. Although the majority of these projectile points/knives have been found in northern Louisiana, a few have been found on late Pleistocene age Prairie Terrace deposits in southern Louisiana.

As of 1983, *Louisiana's Comprehensive Archaeological Plan* documents only two Paleo-Indian sites within Management Unit IV (Smith et al. 1983). While both of these sites were identified a substantial distance away from the current project item, i.e., in East Baton Rouge and East Feliciana parishes, these findings demonstrate the presence of Late Paleo-Indian sites within Management Unit IV. Additionally, a Dalton point/knife and a pair of unfluted Clovis points/knives were recovered from the Garcia Site (160R34), a site located on the marsh to the southeast of Lake Pontchartrain. The recovery of these points/knives is suggestive of a Paleolithic to Early Archaic occupation of this area. Lake Pontchartrain represented the shoreline of the Gulf of Mexico during the Pleistocene period, and it is likely that a majority of the Paleo-Indian Stage sites in this alluvial area are presently underwater. More intensive research will be required to define the nature and extent of these occupations.

Archaic Stage (8000 - 3000 B.P.)

The term "Archaic" first was coined in the second quarter of the twentieth century as a descriptor for the pre-ceramic cultures that followed the Paleolithic Stage. Environmental pressures, a warming trend, and a drier climate at the end of the Pleistocene accompanied by a rise in sea level, resulted in a combination of technological and social developments (Willey and Phillips 1958). This economic shift resulted in highly diverse localized resource and food procurement strategies (Haag 1971). Caldwell (1958) termed this hunting and gathering specialization as "maximum forest efficiency;" Brain (1971) modified this phrase to "maximum riverine efficiency" in reference to southeastern riverine and coastal communities. Archaic peoples moved on a seasonal basis to exploit a home range defined by the availability of nuts, fruits, fish, game, shell fish, and other natural resources (Muller 1978). The increased number of sites dating from the Archaic Stage suggests an increase in population throughout the area. Archaic societies operated on a system of fission and fusion. Macrobands formed during the spring and summer months, while in the winter months, smaller microbands exploited upland ranges (Muller 1978). Archaic populations apparently exploited a greater variety of terrestrial and marine species than their Paleo-Indian predecessors. Many populations with successful strategies during the Archaic sequence went on to develop the first quasi-permanent settlements (Neitzel and Perry 1977).

The Paleo-Indian to Archaic Stage transition was accompanied by a change in projectile point/knife morphology. These changes included the emergence of a wide variety of notched and stemmed projectile point/knife forms and the disappearance of the fluted projectile point/knife type. Nevertheless, evidence suggests that there was some continuity between the adaptations of the Paleo-Indian and the later Archaic peoples who occupied the deciduous forests of the region (Smith 1986). Archaic projectile point/knife sequences follow a general trend in haft morphology that progresses from side notched to corner notched to stemmed basal forms. These basal forms, though, are not mutually exclusive. Other Archaic Stage flaked artifact types included adzes, scrapers, and choppers. During the latter half of the Archaic Stage granitic rock, chert, jasper, sandstone, slate, steatite, and scoria were ground and polished into a variety of stone ornaments and tools, which included beads, gorgets, bowls, and celts/axes. Burial sites dating from the Archaic also have been found at numerous sites (Neuman 1984; Walthall 1980), suggesting that religion, or some form of belief, was recognized. The Archaic Stage can be divided into three subdivisions or periods: Early Archaic, Middle Archaic, and Late Archaic.

Early Archaic Period

In the Southeast, the Early Archaic period generally begins ca. 8000 - 10,000 B.P., but because of regional variation and temporal overlapping of stages, the assignment of late Paleo-Indian and Early Archaic period artifacts to correct temporal stages can be confusing.

Dalton projectile points/knives are the temporal successors of Clovis projectile points and have been dated between 9900 and 10,500 B.P. in Arkansas and Missouri (Goodyear 1982:382). At the Stanfield-Worley Bluff Shelter in northwestern Alabama, the Dalton zone dates from somewhat later, between 9000 and 9700 B.P. (DeJarnette et al. 1962; Griffin 1974). Dalton projectile points have been found in association with Kirk Notched, LeCroy, Rice Stemmed, and Graham Cave projectile points/knives in Horizon 11 at the Koster site, which dates from 8700 to 8450 B.P. This suggests that Dalton points/knives may extend later in time than initially thought.

Dalton projectile points/knives are sometimes accompanied by bifacially chipped stone adzes that may represent woodworking tools. Chipped and ground stone celts, probably the functional equivalent of Dalton adzes, have been recovered from the Kirk Horizon in Zone 16 at the St. Albans site and from Early Archaic sites in the Little Tennessee River Valley (Smith 1986:14). Based on the archeological record, the presence of Dalton projectile points/knives in southeast Louisiana is expected to be limited. Artifacts associated with the Dalton culture usually are restricted to the northern portion of the state.

Some of the earliest recognized Terminal Paleo/Early Archaic projectile point/knife types identified in Louisiana are the San Patrice, Keithville, and Pelican forms (Webb et al. 1971). Previously ascribed to the area encompassing northwest Louisiana, northeast Texas, and southwest Arkansas, later investigations have extended the geographic range of San Patrice to include an area from central Texas to southwest Alabama, and from southern Louisiana to central Arkansas (Brain 1983:32; Cantley and Kern 1984; Giliberti 1995:personal communication). In southeast Louisiana, San Patrice projectile points/knives have been recovered from East Baton Rouge Parish (Gagliano 1963:112), one of the parishes encompassed by Management Unit IV.

The San Patrice culture represents an adaptation of hunters/gatherers to the resources of a more restricted area. The hallmark of the San Patrice is the almost exclusive use of local lithic materials for the production of tools. Tool assemblages include San Patrice *var. Hope* and St. John projectile points/knives, hafted scrapers, Albany side scrapers, unifacial scrapers, burins, and engravers (Webb et al. 1971). More recently, Keithville *var. A and B*, San Patrice *var. Geneill*, and New River projectile point/knife types have been added to the assemblage (Brain 1983; Giliberti 1995:personal communication). Reliable ¹⁴C dates for these types are virtually unknown, but estimates, based on morphology and stratigraphic placement,

range from ca. 8000 to 10,000 B.P. (Brain 1983:25; Story 1990:202; Turner and Hester 1985:147; Webb 1981). Ensor (1986) suggests that the San Patrice projectile point/knife type, and related forms in the Southeast, may have developed from the earlier Dalton projectile point/knife forms. Story (1990:197), however, thinks that both Dalton and San Patrice types evolved from the earlier fluted point traditions.

Throughout the Early Archaic, the subsistence pattern probably resembled that of the preceding Paleo-Indian Stage. Early Archaic peoples traveled seasonally in small groups between a series of base camps and extractive sites, hunting deer and collecting acorns and nuts (Chapman and Shea 1981; Lentz 1986; Parmalee 1962; Parmalee et al. 1976). However, the extent to which the floodplain environments of the lower Mississippi Alluvial Valley were utilized remains unknown.

Tools associated with food processing, including manos, milling stones, and nutting stones, are first recovered from Early Archaic period sites. Commonly utilized plant foods, such as walnuts, hickory nuts, and white oak acorns could be hulled and eaten without cooking or additional processing (Larson 1980). Herbaceous seeds, which became an important food source later in the Archaic Stage, generally were absent during the Early Archaic (Chapman 1977; Lentz 1986). While living floors associated with hearths, shallow pit features, and milling tools are known from the Early and Middle Archaic, there is little evidence suggestive of below-ground food storage or of substantial structures (Steponaitis 1986:371).

Much of our knowledge regarding Paleo-Indian and Archaic lifeways is limited by problems of preservation. Lithic tools often are the only artifacts to survive, but they provide only limited information about a narrow range of activities (i.e., manufacture and maintenance of tools, processing of meat and hides, and working of wood and bone). Although they rarely are preserved in the archeological record, clothing, baskets, and other artifacts made of perishable materials such as bone, wood, antler, shell, hair, hide, plant fiber, and feathers were no doubt an important part of the Archaic cultural tradition. Impressions of woven mats and net bags preserved in fired clay hearths from Kirk strata at the Icehouse Bottom Site provide rare insight into the richness of the Early Archaic material culture (Chapman and Adovasio 1977).

The Early Archaic cultures immediately preceding San Patrice are little understood in Louisiana. So far, diagnostic projectile points/knives dating from the Early Archaic period, including Cache River, Calf Creek, Kirk, and Palmer only have been recovered from questionable contexts and in limited numbers. The large Early Archaic sites, such as those identified in Florida, Georgia, Alabama, Tennessee, and the Carolinas, have yet to be recorded.

In or adjacent to southeast Louisiana several sites contain Early Archaic material. One such site, the Claiborne Site (22HA501), is an approximately 11 ac (4.5 ha) multi-component site located on a terrace overlooking the left descending bank of the Pearl River. Site 22HA501 is known primarily for its Poverty Point affiliation. Excavations at this site in 1979, directed by Greenwell (1984:133) produced, "A large variety of" unspecified "Paleo-Indian-Archaic transition and Archaic points..." that were recovered from a single stratum located underneath features dating from the later Poverty Point occupation. Additional work by Bruseth (1991) reports that Kirk and Morrow Mountain points/knives, although rare, were recovered from the site. Gagliano's (1963:12) survey of "preceramic" sites in southern Louisiana and Mississippi found that Kirk Serrated projectile points/knives were not uncommon for the southeastern portion of the state.

Middle Archaic Period

During the Middle Archaic, three interrelated events occurred that helped shape the culture. First, the effects of continental glaciation subsided, resulting in a warmer and drier climate. Sometime prior to 3000 B.P., modern climatic and environmental conditions prevailed. Second, sociopolitical organization changed in some areas; an increased emphasis on ranked societies resulted in an increase in territorialism

and in regional diversification. Finally, technological improvements occurred, particularly with respect to groundstone, bone, and antler implements.

This period is typified by the Morrow Mountain Horizon. Small to medium-sized, triangular projectile points/knives with short tapered stems characterize the Morrow Mountain Horizon. Morrow Mountain forms are distributed widely; they have been recovered from the eastern seaboard to as far west as Nevada, and from near the Gulf of Mexico to as far north as New England (Walthall 1980). In Louisiana, the Middle Archaic is represented by projectile points/knives that include Morrow Mountain, Johnson, Edgewood, and possibly Calcasieu types (Campbell et al. 1990:96; Green 1991; Perino 1985:195). Excavations at 16VN791 in Vernon Parish, Louisiana, recovered evidence of a long tradition of corner notched projectile points/knives beginning in the late Middle Archaic. It has been suggested that these points, and others in the region, were derived from types incipient to central Louisiana (Campbell et al. 1990).

Late Archaic Period

The Late Archaic period represents a time of population growth, evidenced by an increasing number of sites found throughout the United States. Stone vessels made from steatite, occasional fiber-tempered pottery, and groundstone artifacts characterize the Late Archaic. Late Archaic projectile point/knife types found throughout Louisiana include corner notched and stemmed forms.

In the eastern United States, the Late Archaic economy focused on a few resources, including deer, mussels, and nuts. Jenkins (1979) recognized a seasonal procurement strategy in Middle Tennessee during the Late Archaic. During the spring, macrobands formed to exploit forested riverine areas. Archeological investigations of Late Archaic shell middens and mounds indicate a reliance on shellfish, fish, and riverine fauna and flora. During late fall and winter, Late Archaic peoples split into microbands and subsisted on harvested and stored nut foods and faunal species commonly found in the upland areas.

Archaic period sites typically are found along the boundary of Quaternary and Tertiary areas with relatively flat or undulating bluff tops that overlook the floodplains. Within Management Unit IV, Late Archaic sites appear on the Prairie terraces and relict levees (Gagliano 1963). Archaic style projectile points/knives commonly are found throughout the state; however, few of Louisiana's discrete, intact archeological deposits dating from the Archaic have been excavated systematically, analyzed, and comprehensively reported (Neuman 1984). Late Archaic sites that have been systematically studied in the west-central and northern part of the state, have yielded projectile points/knives that include Gary, Kent, Palmillas, Carrollton, Marcos, Bulverde, Ensor, Ellis, Epps, Macon, Yarbrough, Motley, Pontchartrain, Delhi, and Sinner types. Groundstone objects recovered from these sites include celts/axes, plummets, and steatite bowl fragments (Campbell et al. 1990; Smith 1975).

In southeast Louisiana the Cedarland Plantation Site (22HA506), the Late Archaic type site for the Pearl River Phase is a rangia shell midden located near the mouth of the Pearl River and adjacent to the Claiborne Site (22HA501). Artifacts recovered from this site include Gary and Pontchartrain projectile point/knife types, modified bone/antler tools, steatite vessels, utilized shell, and ornamental items (beads/plummets). A small number of clay lined fire hearths also have been identified at this location. As of 1983, the original publication date for *Louisiana's Comprehensive Archaeological Plan*, 68 Archaic sites, a majority of the recorded prehistoric sites recorded for the unit, had been documented in Management Unit IV (Smith et al. 1983).

Poverty Point Culture (4000 - 2500 B.P.)

Poverty Point represents a transitional culture that originated ca. 4000 B.P. and is best represented at the type site (16WC5) in northeast Louisiana. The site is situated adjacent to Bayou Macon and near several major rivers, including the Mississippi, Tensas, Ouachita, and Boeuf. This riverine location was ideal for exploiting the flow of trade goods from other regions (Jeter and Jackson 1990:142; Muller 1978; Neitzel and Perry 1977) and for cultural diffusion. Evidence of long distance trade at Poverty Point includes ceramics from the St. Johns River region of Florida and lithic materials from deposits in Arkansas, Illinois, Indiana, Missouri, Ohio, Oklahoma, and Tennessee (Connaway et al. 1977:106-119; Gibson 1974:26, 1979, 1994; Jeter and Jackson 1990; Lehmann 1982:11-18; Webb 1982:13-14). Poverty Point culture probably represents the first chiefdom-level society to develop in the eastern United States (Gibson 1985a; Muller 1978).

The Poverty Point site (16WC5) is distinguished primarily by its large earthworks and its complex microlithic industry. The earthworks include six segmented ridges, 15 to 46 m (50 to 150 ft) wide, that form five sides of an octagon, and several other Poverty Point mounds scattered throughout the immediate site area. The largest mound, Mound A, may be a large bird effigy (Webb 1982). At the time of its construction, Poverty Point was the largest earthwork in the Americas.

Materials identified at Site 16WC5 and associated with Poverty Point culture include the atlatl, plummets, beads and pendants, thin micro flints/blades, clay cooking balls and objects (figurines/fetishes), as well as both food storage and preparation containers. Container types consisted of steatite vessels, evidence of baskets and basketry, and untempered ceramic material; most ceramic vessels have been primarily sand tempered, although a minority of grit tempered, clay tempered, and fiber-tempered ceramic and untempered sherds and vessels have been recovered. Webb (1982) also reported the recovery of seed processing implements, stone hoe blades, nutting stones, and milling stones. Earthen ovens also have been identified.

Brain (1971) identifies Poverty Point as a bottomland occurrence, and Webb (1982) suggests that Poverty Point sites typically are found in four locations. These areas include the Quaternary terraces or older land masses that overlook major stream courses, along major river levees of active or relict river channels, at river-lake junctions, and along coastal estuaries or older land surfaces located within a coastal marsh area. These sites appear to be located in areas ideal for exploiting forest-edge resources and for transporting exotic materials. Sites range in size from large ceremonial centers to small hamlets or foraging stations.

In southeast Louisiana, small shell middens located along the shoreline of Lake Pontchartrain exhibit Poverty Point traits and suggest seasonal and specialized adaptations to marsh environments. These sites represent two phases of Poverty Point culture: the Bayou Jasmine phase and the Garcia phase. Bayou Jasmine phase sites are located on the western shore of the lake as well as along the natural levee ridges of the Mississippi River distributaries. Garcia phase sites are located along the eastern shore of Lake Pontchartrain. The Garcia Site (16OR34), the type site for the Garcia phase, was found to contain a beach deposit of *Rangia* shells and midden debris. Radiocarbon dates from Bayou Jasmine phase components cluster around 3450 B.P., while Garcia phase sites date about 1,000 years later (Gagliano 1963; Gagliano and Saucier 1963). Bayou Jasmine phase sites, such as the type site located along the western shore of the lake exhibit Poverty Point traits exclusively (Duhe 1976). In contrast, Garcia phase sites, i.e., those found along the eastern shore, contain both bone, tool, and microlithic industries (Gagliano and Saucier 1963). Additionally, the Claiborne Site (22HA501, occupied during the Archaic Stage) is considered by Webb (1977) to be a Poverty Point regional center. In the original publication of *Louisiana's Comprehensive Archaeological Plan*, only three Poverty Point sites were documented in Management Unit IV (Smith et al. 1983).

Woodland Stage (3000 - 900 B.P.)

Despite the many innovations introduced during the Poverty Point cultural period, this culture is portrayed frequently as either a Late Archaic period culture or as a pre-Woodland transitional manifestation. The Woodland Stage in Louisiana is characterized by a combination of itinerant and possibly sedentary agriculture, the introduction of the bow and arrow, and the widespread use of ceramics. The Woodland Stage includes three periods: Early Woodland, Middle Woodland, and Late Woodland. The Early Woodland (ca. 2500 - 2000 B.P.) is represented by the Tchefuncte culture, the Middle Woodland (ca. 2000 - 1600 B.P.) is associated with the Marksville culture and to a lesser extent the Troyville culture, and the Late Woodland (ca. 1600 - 800 B.P.) originated with the Troyville culture but is dominated by Coles Creek culture. In most parts of the region, the Woodland Stage was eclipsed by the Plaquemine culture (i.e., the florescence of the Mississippian Stage).

Tchefuncte Culture (2500 - 2000 B.P.)

Tchefuncte culture is characterized by the first widespread use of pottery, although within the context of a Late Archaic-like hunting and gathering tradition that maintained a Late Archaic-like tool inventory (Byrd 1994; Neuman 1984; Shenkel 1981:23). The culture first was identified at the type site (16ST1), located southeast of the current Mandeville project site on the north shore of Lake Pontchartrain, (Ford and Quimby 1945; Weinstein and Rivet 1978). Later, the Tchefuncte culture was defined by Ford and Quimby (1945) based on Works Progress Administration excavations at Big Oak Island (16OR6) and Little Woods Midden (16OR1-5), situated on the southeastern edge of the lake.

Originally, Tchefuncte culture was thought to be an adaptation to the southwest Louisiana coast and to the central portion of the Vermilion River in south-central Louisiana. Tchefuncte or Tchefuncte-like ceramics now have been found in southeast Missouri, northwest Mississippi, the Yazoo Basin, coastal Alabama, and east Texas (Brookes and Taylor 1986:23-27; Mainfort 1986:54; Neuman 1984; Webb et al. 1969:32-35; Weinstein 1986:102). In coastal Louisiana, six phases have been designated for the Tchefuncte period. From west to east, these are the Sabine Lake phase bordering Sabine Lake in southeast Texas and southwest Louisiana; the Grand Lake phase in the Grand lake and Vermilion Bay area; the Lafayette phase on the west side of the Atchafalaya basin (west of the Vermilion River); the Beau Mire phase below Baton Rouge in the Ascension Parish area, and the Pontchartrain phase encompassing Lake Maurepas and Lake Pontchartrain in the Pontchartrain Basin (Weinstein 1986:108).

For the purpose of this review, a date range extending from ca. 2500 to 2000 B.P. for the Tchefuncte period will be used; however, research suggests that dates for the Tchefuncte period differ quite widely from region to region and occasionally within the same region (Webb et al. 1969:96; Weinstein 1986). Most agree that Tchefuncte dates from as early as 2700 B.P. in the south and that it diffuses to the north, where it is known as Tchula, and terminates sometime around 1900 B.P. (Gibson and Shenkel 1988:14; Perrault and Weinstein 1994:48-49; Shenkel 1974:47; Toth 1988:19). There is, however, evidence supportive of coastal Tchefuncte sites that were in existence until ca. 1700 B.P. (Byrd 1994:23; Neuman 1984:135). If these dates are correct, it implies that the last remaining coastal Tchefuncte communities were coeval with late Marksville culture (Toth 1988:27-28).

Tchefuncte ceramics were fired at a low temperature and tempered with either sand or clay (Phillips 1970). The northern Tchula variant ceramics are clay/grog tempered or temperless and are often associated with minor amounts of distinctive sand tempered "Alexander series" incised, pinched, and plain ceramic types, which may represent material traded from northern Alabama (Jenkins 1982; Williams and Brain 1983). Vessel forms consist of bowls, cylindrical and shouldered jars, and globular pots that sometime exhibit podal supports. Many vessels are plain; however, some are decorated with punctations, incisions, simple stamping, drag and jab, and rocker stamping. Punctated types are more numerous than

stamped types, but parallel and zoned banding, stippled triangles, chevrons, and nested diamonds also represent popular motifs. During the later portion of the Tchefuncte period, red filming also was used to decorate some vessels (Perrault 1994:46-47; Speaker et al. 1986:38; Phillips 1970).

Most Tchefuncte sites are classified as coastal middens, or as inland villages or hamlets. Settlement usually occurred along the slack water environments of slow, secondary streams that drained bottomlands, floodplain lakes, and littoral zones (Neuman 1984; Toth 1988:21-23).

For the most part, the stone and bone tool subassemblages remained nearly unchanged from the preceding Poverty Point culture. Stone tools included boat stones, grooved plummets, chipped celts, and sandstone saws; bone tools included awls, fish hooks, socketed antler points, and ornaments. In addition, some tools such as chisels, containers, punches, and ornamental artifacts were manufactured from shell. Projectile points/knives characteristic of Tchefuncte culture include Gary, Ellis, Delhi, Motley, Pontchartrain, Macon, and Epps (Ford and Quimby 1945; Smith et al. 1983:163).

Tchefuncte burials and artifacts suggest an egalitarian social organization. The population probably operated at the band level, with as many as 25 to 50 individuals per band. The widespread distribution of similar ceramic types and motifs implies a patrilocal residence with exogamous band marriage (Speaker et al. 1986:39).

Examination of faunal and floral remains from Morton Shell Mound (16IB3), a coastal Tchefuncte shell midden, suggests that some coastal sites were occupied on a seasonal basis, usually in the summer and autumn, and possibly during the spring (Byrd 1994:103). The preponderance of freshwater fish remains at sites such as Big Oak Island (16OR6) and Little Oak Island (16OR7) indicates a reliance on aquatic resources (Shenkel and Gibson 1974). As of 1983, the original publication date for *Louisiana's Comprehensive Archaeological Plan*, 11 Tchefuncte period sites had been documented in Management Unit IV (Smith et al. 1983). A number of sites with Tchefuncte cultural period affiliations have been recorded within the immediate vicinity (i.e., 1.6 km [1 mi]) of the current project item.

Marksville Culture (2100 - 1600 B.P.)

Marksville culture, named for the Marksville site (16AV1) in Avoyelles Parish, often is viewed as a localized version of the elaborate midwestern Hopewell culture (Toth 1988:29-73). Marksville peoples probably used a hunting, fishing, and gathering subsistence strategy much like those associated with earlier periods. A more highly organized social structure is implied by the complex geometric earthworks, conical burial mounds for the elite, and unique mortuary ritual systems that characterize Marksville. Some items, such as elaborately decorated ceramics, were manufactured primarily for inclusion in burials. Burial items include pearl beads, carved stone effigy pipes, copper ear spools, copper tubes, galena beads, and carved coal objects. Toward the end of the Marksville period, Hopewellian influences declined, and mortuary practices became less complex (Smith et al. 1983; Speaker et al. 1986).

The Marksville period, for the purpose of this study, is assigned an age from ca. 2100 to 1600 B.P. (Kidder 1988:52; Toth 1988:9). Radiocarbon dates associated with Marksville ceramics from other regions of the Southeast suggest that the introduction of Hopewellian traits into the Lower Mississippi Valley possibly started as early as 2200 B.P. and lasted to ca. 1550 B.P. (Ford 1988:63; Mainfort 1988:143-144).

Ceramic decorative motifs such as cross-hatching, U-shaped incised lines, zoned dentate rocker stamping, cord-wrapped stick impressions, stylized birds, and bisected circles were shared by Marksville and Hopewell cultures (Toth 1988:45-50). Additional Marksville traits include a chipped stone assemblage of knives, scrapers, celts, drills, ground stone atlatl weights and plummets, bone awls and fishhooks, baked clay balls, and medium to large stemmed projectile points. A variety of exotic artifacts commonly found at

Marksville sites suggests extensive trade networks and possibly a ranked, non-egalitarian society. Some commonly found exotic items include imported copper earspools, panpipes, platform pipes, figurines, and beads (Toth 1988:50-73; Neuman 1984). The utilitarian material culture remained essentially unchanged, reflecting an overall continuity in subsistence systems (Toth 1988:211).

Gagliano (1979) suggests that subsistence activities were a cyclical/seasonal activity that revolved around two or more shifting camps. In the vicinity of the current project item, shellfish collecting stations on natural levees and lower terraces around Lake Pontchartrain and Lake Maurepas were occupied and utilized during the summer months. During the winter months, semi-permanent hunting/gathering camps on the prairie terrace were occupied. This subsistence technique reflects the fission and fusion that probably originated during the Archaic Stage.

As of 1983, the original publication date for *Louisiana's Comprehensive Archaeological Plan*, only eight Marksville period sites had been documented in Management Unit IV (Smith et al. 1983); none of these sites is located in St. Tammany Parish. However, Heartfield, Price and Greene, Inc. (1982) identified five sites (22HA504, 22HA5511, 22HA512, 22HA514, and 22HA515) that contained Marksville cultural period components in Hancock County, Mississippi. Each of these sites lies in close proximity to the Pearl River basin.

Troyville-Coles Creek Period (ca. 1600 - 800 B.P.)

Troyville culture, called Baytown elsewhere, was named after the mostly destroyed Troyville mound group (16CT7) in Jonesville, Louisiana. Troyville represents a transition from the Middle to Late Woodland period that culminated in Coles Creek culture (Gibson 1984). Neuman (1984) places the beginning of Troyville culture at ca. 1605 B.P., and Kidder (1988:57) places the beginning of the Coles Creek at ca. 1200 B.P. The continuing developments of agriculture and the refinement of the bow and arrow during this time, radically altered subsequent prehistoric lifeways. During the Troyville cultural period, bean and squash agriculture may have become widespread based on the appearance of large ceramic vessels. This shift in subsistence practices probably fostered the development of more complex settlement patterns and social organization.

The Late Woodland Coles Creek culture emerged from Troyville around 1200 B.P. and encompassed an era of considerable economic and social change in the Lower Mississippi Valley. By the end of the Coles Creek period, communities became larger and more socially and politically complex, large-scale mound construction occurred, and there is evidence for resumption of long-distance trade on a scale not seen since Poverty Point times; this implies the reemergence of a chiefdom-like society in the Southeast (Muller 1978). Coles Creek ceramics have been recovered from early Cahokia contexts dating ca. 1100 B.P. in southeastern Missouri (Kelly 1990:136). Material and sociopolitical concepts thus possibly migrated into the Lower Mississippi Valley, along with trade items. These changes probably initiated the transformation of Coles Creek cultural traits into what is now recognized as the Plaquemine culture about 800 B.P.

The theory that subsistence based on intensive maize agriculture was a hallmark of Coles Creek culture, can no longer be supported (Kidder 1992). Although Coles Creek populations exhibit tooth decay rates consistent with a diet based on starchy foods such as maize, limited archeobotanical evidence for maize in Coles Creek midden deposits suggests that consumption of some other starchy foods must be the cause (Kidder 1992; Steponaitis 1986). The preponderance of evidence now available indicates that cultivation and consumption of maize was not widespread in the lower Mississippi valley until after the Coles Creek period, ca. 800 B.P. (Kidder 1992:26; Kidder and Fritz 1993). Thus, while maize existed during the Coles Creek period, and has been recovered archeologically, it was not the economic basis of the society.

Earlier assumptions about the nature and extent of social and political differentiation during Coles Creek also must be reexamined. Square-sided, flat-topped mounds believed to serve as platform bases for elite structures appear first during Coles Creek. However, evidence for the elite residential or mortuary structures often said to be associated with Coles Creek mounds remains elusive prior to 1000 B.P. (Kidder and Fritz 1993; Smith 1986; Steponaitis 1986). Nevertheless, both the form of the platform mounds and their arrangement around plazas is possibly indicative of Meso-american influence (Willey and Phillips 1958; Williams and Brain 1983).

The Coles Creek peoples continued to use Troyville wares, with some elaborations (McIntire 1958). The Churupa Punctated and the Mazique Incised designs, both of which are characteristic of the Troyville culture, were used by both Coles Creek and Plaquemine pottery makers (McIntire 1958). Similarly, French Fork Incised, which formed the basis for many Troyville classifications, continued to be used well into the Coles Creek period (Phillips 1970). Coles Creek peoples developed a new ceramic complex that included larger vessels and a wider range of decorative motifs, usually situated on the upper half of the vessel (Neuman 1984). Coles Creek Incised, Beldeau Incised, and Pontchartrain Check Stamped characterize the period (Phillips 1970; Gibson 1976; Weinstein et al. 1979). A distinctive decorative type, Coles Creek Incised, contains a series of parallel incised lines perpendicular to the rim of the vessel, often accompanied underneath by a row of triangular impressions (Gibson 1976; Phillips 1970:70; Phillips et al. 1951:96-97). Several of the ceramic motifs suggest outside cultural influences. French Fork Incised motifs and decorative techniques, for example, mimic almost exactly Weeden Island Incised and Weeden Island Punctated from the Northwest Florida Gulf Coast (Phillips 1970:84; Phillips et al. 1951:101; Willey 1949:411-422). Pontchartrain Check Stamped ceramics also appear at the same time as the resurgence of the check stamped ceramic tradition during Weeden Island III in Northwest Florida (Brown 1981:31).

Coles Creek sites primarily were situated along stream systems where soil composition and fertility were favorable for agriculture. Natural levees, particularly those situated along old cutoffs and inactive channels, appear to have been the most desirable locations (Neuman 1984).

Most large Coles Creek sites contain one or more mounds. Coles Creek mounds typically are larger, and exhibit more building episodes than the earlier Marksville burial mounds. Burials occasionally are recovered from Coles Creek mounds; however, the primary function of the mounds appears to have been ceremonial. At some Coles Creek sites, mounds are connected by low, narrow causeways; sometimes, plazas are associated with these multiple mound sites (Gibson 1985b).

The complexity of Coles Creek mound systems suggests a more complex social structure; a centralized authority and sizable labor force must have existed to build, maintain, and utilize these mounds. The centralized authority probably was of a special religious class, while the general population occupied the region surrounding the large ceremonial centers (Gibson 1985b; Neuman 1984; Smith et al. 1983).

Small Coles Creek sites consist mostly of hamlets and shell middens, and they normally do not contain mounds. Coles Creek shell middens commonly occur in the coastal region on higher portions of natural levees (Springer 1974).

Louisiana's Comprehensive Archaeological Plan documents 21 sites with Troyville-Coles Creek components within Management Unit IV (Smith et al. 1983); however, only four of these sites are located in St. Tammany Parish. In their literature search of the Pearl River, Heartfield, Price and Greene, Inc. (1982) identified two sites (16ST06 and 22HA500), one located in St. Tammany Parish, Louisiana and one located in Hancock County, Mississippi that contained a Baytown/Troyville cultural component. Additionally, they identified two sites (16WA06 and 16WA25) in Washington Parish, Louisiana that contained a Coles Creek component (Heartfield, Price and Greene, Inc. 1982).

Mississippian Stage (800 - 300 B.P.)

The Mississippian Stage represents a cultural climax in population growth and social and political organization for those cultures occupying the southeastern United States (Phillips 1970; Williams and Brain 1983). In the lower Mississippi valley, the advent of the Mississippian Stage is signaled at sites along the lower Mississippi and along the northern Gulf Coast by the arrival of such traits as shell tempered ceramics, triangular arrow points, copper-sheathed wooden earspools, and maize/beans/squash agriculture from the Cahokia area (Williams and Brain 1983). Formalized site plans consisting of large sub-structure "temple mounds" and plazas have been noted across the southeast at such places as Winterville, Transylvania, Natchez, Moundville, Bottle Creek, Etowah, and Kolomoki (Williams and Brain 1983; Hudson 1978; Walthall 1980; Knight 1984). In the vicinity of the current St. Tammany Parish project area, the Mississippian culture stage is characterized by the Plaquemines or Emergent Mississippian period (800 - 550 B.P.) and by the Late Mississippian period (550 - 300 B.P.).

Emergent Mississippian Period (800 - 550 B.P.)

The Emergent Mississippian period Plaquemine culture represents a transitional phase from the Coles Creek culture to a pure Mississippian culture (Kidder 1988). As stated in the discussion of Troyville-Coles Creek culture, interaction with the emerging Mississippian cultures of the Middle Mississippi Valley probably exerted enough influence during the latter part of the Coles Creek period to initiate the cultural change that eventually became the Plaquemine culture. The Medora Site (16WBR1), described by Quimby (1951), typifies Plaquemine culture. Plaquemine peoples continued the settlement patterns, economic organization, and religious practices established during the Coles Creek period; however, agriculture, sociopolitical structure, and religious ceremonialism intensified suggesting a complex social hierarchy. Plaquemine subsistence probably was based mainly on agriculture and supplemented by native plants and animals. Sites typically are characterized as ceremonial sites, with multiple mounds surrounding a central plaza, and dispersed villages and hamlets (Neuman 1984; Smith et al. 1983).

Although Plaquemine ceramics are derived from the Coles Creek tradition, they display distinctive features that mark the emergence of a new cultural tradition. In addition to incising and punctating pottery, Plaquemine craftsmen also brushed and engraved vessels (Phillips 1970). Plaquemine Brushed appears to have been the most widespread ceramic type. Plaquemine ceramic types included Leland Incised, Hardy Incised, L'Eau Noire Incised, Anna Burnished Plain, and Addis Plain. By ca. 550 B.P., the Plaquemine culture apparently had evolved into a true Mississippian culture (Kidder 1988:75).

Investigations at Cane Slough East (16ST171), primarily a Late Mississippian period site in Fontainebleau State Park and outside of the immediate vicinity of the Mandeville project Item, yielded a ceramic assemblage composed of Plaquemine, Lower Mississippi Valley Mississippian, and coastal Alabama/Florida ceramics. The site was interpreted either as a pure Plaquemine component or as a local group utilizing Plaquemine ceramics (Guevin et al. 1988:8-9). The presence of non-local ceramics and the admixture of Plaquemine and Mississippian ceramics at the site tend to support the assumption that this site represents a Mississippian site with ties to the Plaquemine culture and contact with tribes far to the east. As observed from the Cane Slough East Site, Neuman's (1984) contention, as well as others, that the Plaquemine culture could have lasted into the protohistoric or early contact period is possible.

Gregory (1969) indicates that Plaquemine sites demonstrate a propensity towards lowland areas including swamps and marshes; however, *Louisiana's Comprehensive Archaeological Plan* documents only eight Plaquemine cultural period sites in Management Unit IV (Smith et al. 1983). Neuman (1984) cites Hall's observation that Plaquemine culture sites in the upper Tensas basin were located most frequently on well-drained natural levees characterized by sandy soils. Shannon (1989) identified a ceramic sherd with a "Southern Ceremonial Complex" motif (i.e., open hand and eye) during the Phase I assessment and

delineation of the Johnson Site (16ST68), also known as "Bok Fuca," a shell midden located southeast of the current Mandeville project item. Subsurface shovel and auger testing also identified in situ features that Shannon interpreted to be the remnants of a Mississippian house site. The results of any additional testing have not been filed with the state.

Late Mississippian Period (550 - 300 B.P.)

During this time, several traits that are now definitive of the Mississippian period were wide-spread across most of the Southeast. These diagnostic traits include well-designed mound groups, a wide distribution of sites and trade networks, shell tempered ceramics, and a revival in ceremonial burial of the dead (Griffin 1990:7-9).

Mississippian subsistence was based on the cultivation of maize, beans, squash, and pumpkins; collection of local plants, nuts, and seeds; and fishing and hunting of local species. Major Mississippian sites were located on fertile bottomlands of major river valleys; sandy and light loam soils usually composed these bottomlands. A typical Mississippian settlement consisted of an orderly arrangement of village houses, surrounding a truncated pyramidal mound. These mounds served as platforms for temples or as houses for the elite. A highly organized and complex social system undoubtedly existed in order to plan these intricate communities.

Ceramic types are characterized by shell tempering, an innovation that enabled potters to create larger vessels (Brain 1971; Steponaitis 1983). Ceramic vessels included such forms as globular jars, plates, bottles, and pots. The loop handle has appeared on most Mississippian vessels. Decorative techniques include engraving, negative painting, and incising; modelled animal heads and anthropomorphic images also adorned ceramic vessels. Other Mississippian artifacts include chipped and groundstone tools; shell items such as hairpins, beads, and gorgets; and mica and copper items.

In the original version of *Louisiana's Comprehensive Archaeological Plan*, only three Mississippian cultural period sites were documented in Management Unit IV (Smith et al. 1983); none of these sites was located in St. Tammany Parish. Additionally, Heartfield, Price and Greene, Inc. (1982) identified only two sites (22HA515 and 22HA529) in Hancock County, Mississippi and one site (16WA08) in Washington Parish, Louisiana that contained Mississippian cultural period components during their literature review of the Pearl River basin. Two sites (16ST168 and 16ST170), located within the immediate vicinity of the Mandeville project item, were recorded after the publication of the *Louisiana Comprehensive Archaeological Plan*; they reportedly contain a Mississippian period component.

Protohistoric and Historic Period (A.D. 1539 - 1730)

An understanding of protohistoric and historic Native American cultures of the southeastern United States is severely limited by our frequent inability to recognize the ancestral cultures from which these groups were derived. This is due partially to the waning influence of Mississippian culture, but primarily is a result of the social disruption initiated by the legacy of the de Soto entrada of 1539 - 1543, and the subsequent French and Spanish exploration and colonization throughout the Southeast. These social interactions necessitated a major social/demographic reorganization. Native American population upheaval and depletions were related to warfare, disruptive migrations, and epidemics introduced by European contact (Smith 1987; Davis 1984). Information on protohistoric and historic populations, gleaned only in part from the archeological record, relies predominately on early European chroniclers.

Convention holds that as the influence of Mississippian culture declined throughout the Southeast, populations along the northern Gulf Coast reverted to egalitarian societies and readopted the

localized/regional hunting and gathering subsistence strategies that had been successful throughout the Archaic and Woodland stages (Peebles and Kus 1977; Peebles and Mann 1983). These strategies were frequently augmented by either itinerant horticulture or small-scale agriculture that produced corn, beans, and squash.

Villages apparently remained similar to those observed previously at Plaquemine and Mississippian sites. The larger villages generally featured one or more truncated pyramidal mounds surmounted by chiefs' houses and temples; the remaining villagers lived in the area surrounding the mounds, and in satellite hamlets. Houses were rectangular, and were constructed of poles placed in the ground, with wattle and daub walls and thatched roofs (Swanton 1946). Additionally, Cummins (1990), in reference to the elite religious and social organization complexity of the Chitimacha people who lived around Bayou St. John when the French arrived, states that "Their villages are composed of wooden houses and they used complex water craft." The French learned cultivation techniques for corn, squash, potatoes, tobacco, and other indigenous crops from the Chitimacha and apparently lived in their communities during times of famine.

According to *Louisiana's Comprehensive Archaeological Plan* (Smith et al. 1983), three native American linguistic groups occupied Management Unit IV at the time of European contact: Muskogean, Siouan, and Tunican. Muskogean speakers generally were concentrated within the Pearl River and Lake Pontchartrain regions, although they were found throughout Management Unit IV; Muskogean speakers found within this management unit included the Acolapissa, migrating Choctaw, and the Pensacola. The Siouan speaking Biloxi, along with the aforementioned Pensacola, occupied the Pearl River area (Giardino 1984). The Tunica moved south from northwest Mississippi and eventually settled near the confluence of the Mississippi and Red rivers in 1706. Giardino (1984) indicates that the Colapissa resided near present-day Slidell from 1705 to 1712, and that a group of Colapissa and Nassitoch were inhabitants of the vicinity of Bayou Castine, to the north of present-day Mandeville, in 1705.

Disease and disruptive migrations due to colonial expansion and to the change in ownership of the regions from France to Spain and then to England accounted for the disintegration of aboriginal populations in the area. Subsequently, no Native American tribes remained in the vicinity of the current St. Tammany project area by the early nineteenth century.

CHAPTER IV

HISTORIC LAND USE

Introduction

The Mandeville project item is situated in the southern portion of St. Tammany Parish, Louisiana. Established in 1834 primarily as a resort, Mandeville also benefitted from trade and the development of small industries. This chapter describes land use and development throughout Mandeville's history.

Early Discovery

Spanish explorer Hernando de Soto was the first European to investigate the interior of North America. Landing in Tampa Bay in May of 1539, de Soto led his team of 620 men as far north as North Carolina and traveled as far west as Oklahoma. De Soto died in 1541, somewhere between Memphis and Baton Rouge, while exploring the lower Mississippi River. It took the rest of his crew, however, another year to reach the existing Spanish outposts in Mexico. After the de Soto expedition, no Europeans ventured into the project area for another 150 years (Davis 1971:27-28).

Next to explore the general project region was Rene Robert Cavalier, Sieur de La Salle, who sailed down the Mississippi from the Illinois River in 1682. Upon reaching the mouth of the Mississippi, La Salle claimed all territory drained by the river for the "all mighty, all powerful, invincible and victorious Prince, Louis the Great, by the grace of God, King of France and Navarre." He also gave Louisiana its name (Davis 1971:29).

The first European to set foot on St. Tammany Parish soil was Pierre le Moyne, Sieur d'Iberville; this occurred on March 28, 1699. Searching for a location to build a fort to protect the region from British encroachment, Iberville and his crew sailed up the Mississippi River and across a river, which he named for himself (Iberville River), to Lake Pontchartrain. Skirting the northern shore of the lake, Iberville landed at Goose Point, 8 km (5 mi) southeast of Mandeville, to spend the night. He described the land as low to the water, treeless, and swarming with mosquitoes (Ellis 1981:10).

Five months later a second team, headed by Iberville's younger brother, Jean Baptiste Le Moyne, Sieur de Bienville, explored Lake Pontchartrain. Eager to meet the Quinipissas Indians, who had been visited by La Salle, Bienville met only Acolapissas Indians, who had never heard of La Salle. After a tense first meeting, in which the Indians were terrified of the French because of a recent slave raid on their camp by a band of Englishmen and Choctaws, the Acolapissas guided the Frenchmen to a bayou (Bayou Castine) the Indians called "Castein Bayouque," which meant place of fleas. The crew was led next to the Taleatcha River, which, in their language, meant "Stone" river; however, the explorers incorrectly translated the name to "Pearl," hence the name Pearl River (Swanton 1946:196; Ellis 1981:30-31).

The Colonial Period

In 1718, the year the city of New Orleans was founded, a few settlements were established along the north shore of Lake Pontchartrain. Most of the settlers extracted pitch, tar, and resin from the woods north of the lake. Areas for processing tar were cleared so that the timber could be burned; the tar that dripped from the trees was gathered in large pits. Later, the tar was ignited to remove the excess moisture.

The resulting pitch then was removed from the pits with axes. Most of the tar works located along the north shore were positioned at the mouths of the Tchefuncta River and bayous Liberty and Bonfouca. The tar works incorporated the labor of 10 to 15 slaves, and utilized a pirogue or two to travel back and forth between the bayous (Ellis 1981:32-37).

During the 1740s, the Choctaw moved to the north shore area. The first settlements only were temporary. It was not until British rule came to the area that the Choctaw settled permanently, and established trade with the local population. While their numbers dwindled after British rule, there still were reports of Choctaw wandering through the area in the 1800s (Ellis 1981:29).

The area that eventually became St. Tammany Parish came under British rule after the French and Indian War. The 1763 Treaty of Paris formally removed French control from the parish, as well as from most of North America. The continent now was divided between Great Britain and Spain, and the Mississippi River served as a buffer between the two empires. The French settlers of the area, however, still were allowed to remain in Louisiana (Johnson 1971:1-2).

British captains visiting the north shore made mention of the town of "Tangipahou," a French trading area positioned near bayous Liberty and Bonfouca. Here the locals traded rum and weapons with the Choctaw Indians for deer skins, and sold pitch and tar to the residents of New Orleans who were under Spanish rule. England needed these resources to sustain her fleet, since most of her naval stores were supplied by foreign countries. The British, at first were tolerant of the illegal trade, but in 1777, with France and Spain supporting the American Revolution, the British began capturing vessels involved in illegal trade across the lake (Ellis 1981:45-46; Johnson 1971:183-184).

The modern St. Tammany Parish area experienced a small influx of British settlers while under British rule. It was not until the American Revolution, however, that settlement increased substantially. Most of the new settlers probably were trying to escape the effects of the Revolutionary War.

During the war, the residents of the area became the first Louisianians to swear allegiance to the United States of America. Captain William Pickles, an American naval officer, landed on the north shore on September 21, 1779 and made all the British residents sign a surrender document. The inhabitants swore to "consider ourselves belonging to the said United States, and are willing to remain here and enjoy our Property and Privileges under said States" (St. Tammany Parish Historical Society 1975:21; Ellis 1981:55-56).

The 1783 Peace Treaty of Paris ceded the modern St. Tammany Parish area to Spain, as part of West Florida. Under Spanish rule the population of the parish began to grow and Spanish troops were dispatched to the area; however, in 1799, they were subsequently transferred to New Orleans. While the United States contested that the Louisiana Purchase included modern St. Tammany Parish, Spain continued to hold onto the area, claiming that they had won it from Great Britain (Ellis 1981:57-64).

During the Spanish colonial age, St. Tammany Parish encompassed more land than its present-day boundaries. The parish, known as Chifoncte, also encompassed present-day Tangipahoa and Washington parishes. In 1810, the Spanish renamed the parish St. Ferdinand, in honor of King Ferdinand VII, who had been imprisoned by Napoleon (Figure 4). The Parish eventually emerged as an important brick making and boat building center. When old Indian roads were used to connect the parish with Baton Rouge and Natchez, the suburb of Buck Falia, present-day Covington, became an active center of trade and transportation (Arthur 1975:146; Ellis 1981:65-70).

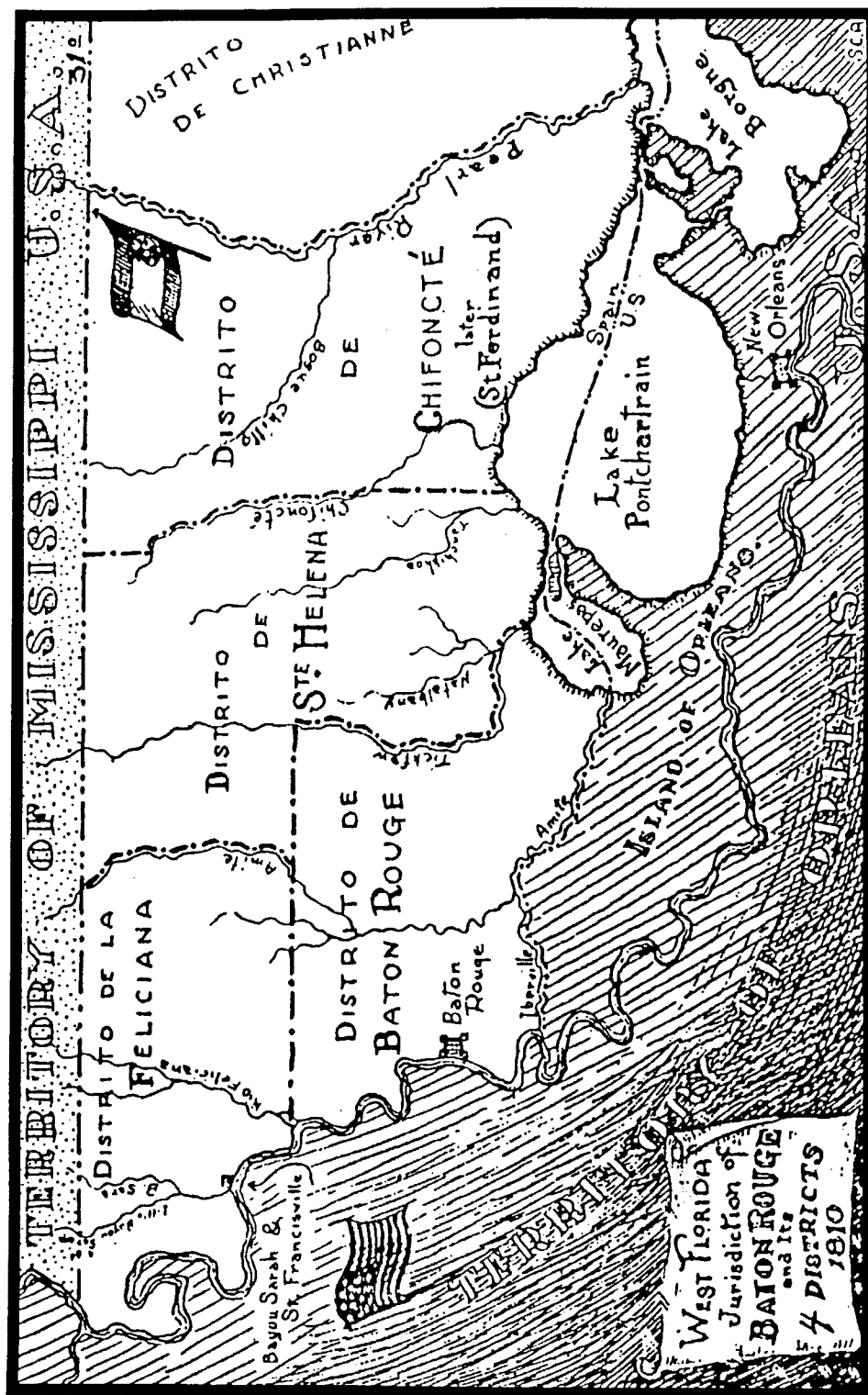


Figure 4. The four districts of Spanish West Florida (Arthur 1975:146).

The Territorial Period

In the summer of 1810, Anglo-American settlers, unhappy with Spanish rule, attacked the Spanish fort at Baton Rouge. In September, the settlers met and declared the existence of the "State" of West Florida, and soon after, the President of West Florida petitioned President James Madison to make the new republic part of the United States. On December 10, William Claiborne, the governor of the territory of New Orleans, led a small contingent of men from New Orleans to Baton Rouge, and declared West Florida as the county of Feliciana (Davis 1971:172-173). Later, this county would be subdivided into four parishes: Feliciana, East Baton Rouge, St. Helena, and St. Tammany. The new St. Tammany Parish encompassed:

. . . all that tract of county east of the Ponchitoola, including the settlements of Chiffonta, Boquechitto and Pearl rivers, shall form the fourth parish, to be called the parish of St. Tammany (Ellis 1981:78).

According to legend, St. Tammany Parish derived its name from a Delaware Indian, Tamanend, who was renowned for his friendly relations with settlers. As a parish of the United States, the area began to develop.

The Antebellum Period

The Creole bon vivant of New Orleans, Bernard P. de Marigny de Mandeville, in the 1820s bought from Antoine Bonnabel and Lewis Davis properties on the north shore of Lake Pontchartrain and the east side of Bayou Castaigne. At the present location of Fontainebleau State Park, Marigny established Fontainebleau Plantation on which he attempted to cultivate cane and manufacture sugar. Ruins of his sugar mill still may be seen at the site. Judging from the quality of the soil on the Marigny tract, he probably prospered more from the sawmill and brickworks located on the property than from the production of sugar (Ellis 1981:110-111; St. Tammany Parish Development Board 1955:12). Whatever the case, Marigny's importance in the history of the parish accrues not from his agricultural efforts but from his role as "the first of St. Tammany's great real estate promoters" (Ellis 1981:110).

After acquiring all the old English land grants on the lake to the west of Fontainebleau Plantation, Marigny in 1834 laid out the resort of Mandeville, which he named for himself. His property extended for 8 km (5 mi) along the lakefront and included the present site of the city of Mandeville between Bayou Castaigne and Lewisburg (Ellis 1981:110; St. Tammany Parish Development Board 1955:12).

John Davis, impresario of the Orleans Theatre in the Crescent City, joined Marigny de Mandeville in developing the resort. On February 24 - 26, the developers sold lots in the new resort at auction in New Orleans; 358 persons bought 432 lots. The earliest buildings of the town consisted of a hotel, the Mandeville, and a gambling casino. The hotel opened July 4, 1834. Louis Boudro, a noted French chef, took charge of the dining facilities (St. Tammany Parish Development Board 1955:12).

Marigny guaranteed steamboat service from Milneburg (on the lakefront outside of New Orleans) at one dollar per trip; the *Blackhawk* carried passengers across Lake Pontchartrain. By July 1837, the *Pontchartrain* made excursions across the lake three days a week, including Sundays (St. Tammany Parish Development Board 1955:12; Ellis 1981:110-111).

Mandeville was incorporated in 1840 by special charter. Visitors enjoyed regattas, picnics, dances, "bathing" in the lake, and fishing at the resort. Particularly during periodic epidemics, many New Orleanians fled from the fevers to the north shore. After public objections to duelling increased in New Orleans,

duellists responded to affronts to their honor by taking the steamboat across the lake and exchanging fire in the groves of Mandeville (St. Tammany Parish Development Board 1955:12).

By the time of the Civil War, Marigny de Mandeville had over-extended his capital and lost much of his property. He died a pauper (St. Tammany Parish Development Board 1955:12). Furthermore, the Civil War severely dimmed the luster of Mandeville as a resort, but the village revived during the latter part of the nineteenth century.

The Civil War

When Louisiana joined the Confederacy in 1861, St. Tammany Parish contributed soldiers and supplies to the war effort. The parish was spared most of the destruction associated with the war. After New Orleans surrendered to Admiral David Farragut on April 29, 1862, the parish became an active center for black-market trade and Confederate deserters were common throughout the area.

Official trade between St. Tammany Parish and New Orleans stopped completely after the fall of New Orleans. Parish residents petitioned the Confederate Army to allow trade, but rebel commanders reminded them of their duty and forbade exchange under penalty of death. Nevertheless, the citizens of the area continued to smuggle bricks and lumber across the lake. Neither Union nor Confederate troops ever fully quelled the profitable illegal commerce (St. Tammany Parish Historical Society 1975:61-63).

Union gunboats with landing parties visited the parish no less than eight times during the course of the war, sailing up the Pearl and Tchefuncta rivers and up bayous Bonfouca and Vincent. An expedition to Mandeville found the docks and landings burned by rebels who did not want the facilities used by Federal troops. On December 28, 1863, a division of Union soldiers landed in Madisonville to conduct raids and foraging parties. Later, when Confederate soldiers captured a Union naval officer who had left his ship in the Tchefuncta River, the Captain warned the citizens of Mandeville to release the prisoner or prepare for bombardment. A Confederate officer replied that if the town was shelled, the prisoner would be killed. The Union boat sailed away without firing a shot. According to local legend, a Union gunboat did fire on Mandeville, aiming for a house at the corner of Gerard and Lake streets. The salvo, however, struck a house down the street, imbedding a cannon ball into its wall (Ellis 1981:141-149; Fischer [ca. 1970]:43).

By 1863, desertion became a serious problem for the Confederate army. Despite certain amnesties granted by southern generals, soldiers still would not return to their units. Deserters then were threatened with being hunted down and forced back to camps. St. Tammany Parish shared the dubious honor, along with Livingston and Ascension parishes, of housing 1,200 deserters (Winters 1991:306).

The Postbellum Era

After the war, the major industries such as brickyards, sawmills, and pitch and tar production centers still survived. However, St. Tammany as a resort parish ceased to exist for the rest of the 1860s. While the population did not decline sharply like other areas in the south, the amount of wealth in the parish dropped considerably. It was not until the end of Reconstruction, i.e., in 1877, that the parish began once again to show signs of growth (Ellis 1981:155-156).

By 1880, the population of the parish numbered 6,887, an increase from 5,586 reported in 1870. Farming and livestock were on the rise, and Mandeville opened one new hotel. Nevertheless, the brick industry, an important aspect of St. Tammany Parish's commerce, suffered losses as six plants shut down (United States Census Bureau 1872, 1883; Ellis 1981:155-159).

After several unsuccessful attempts, railroads began to connect Mandeville and Covington. The East Louisiana Railroad, which connected Slidell with New Orleans, reached Covington in 1888. By 1892, Mandeville was linked to Covington via a route through Abita Springs (Figure 5) (Ellis 1981:167).

The logging and lumber mill industry benefited the most from the new railroads. For example, parish residents who wanted their land cleared for farming could have their trees transported by rail car and sold to the saw mills. They were no longer at the mercy of the rivers to transport their logs. With greater access to lumber, the number of saw mills throughout the area began to increase. Among the new mills constructed was a 40-horsepower steam saw mill, built in Mandeville in 1893 by the Depre brothers (Ellis 1981:175).

The new railroads impacted heavily on ship building and lake commerce in the parish. With railroads carrying huge amounts of products in and out of the parish, the shipping businesses dwindled. Tourism, however, brought new life to cross-lake travel. The excursion business expanded as New Orleans residents rediscovered the cool summer air of the parish (Nichols 1990:6). By the late 1890s, the industries such as brick making, lumbering, and ship building had developed a base from which to build on after the turn of the century.

Agriculture also played a role in the growth of the parish. By 1890, cotton, corn, sweet potatoes, and oats dominated the market; however, the amount of Irish potatoes and rice produced during this period also increased (United States House of Representatives 1896; Ellis 1981:181-183).

Erosion and flooding also presented problems for the area, e.g., the Mandeville shoreline was slowly eroding away and wind from the south often blew waves into the town. A wooden sea wall was constructed, but it was destroyed partially by the hurricane of 1893. A cement sea wall then was built in its place, but it too was damaged by the hurricane of 1915. It would be another 20 years before a permanent wall was built in the area (Figure 6) (Nichols 1990:8).

The Modern Era

By the turn of the century, the population of the parish reached 13,335 as the industries of the late 1800s began to expand. The number of railroads, brickyards, sawmills, and ship building enterprises increased. After World War I, however, these industries began to taper off as the pine forests of the area disappeared.

The construction of new railroads practically ceased by 1902 until enough trees could be harvested to make room for the new lines. By 1905, the Salmen brothers connected Slidell to Mandeville with their new rail line. An electric rail line was also established from Covington, through Abita Springs, and to Mandeville in 1909. Once the cars arrived in Mandeville, they rode out on long piers over Lake Pontchartrain where passengers debarked to ferries bound for New Orleans. The venture, however, was not profitable, and the line was abandoned in 1918 (Ellis 1981:167-171).

In 1913, the Poitevent and Favre Lumber Company moved from central St. Tammany to the Mandeville lake front. The plant resembled a small village and included railroads, employee quarters, and a commissary. Barges were built on site to haul lumber across Lake Pontchartrain to other markets (Figures 7 and 8). The company closed in 1925, and today has been replaced by Mariners Village, a condominium complex that overlooks Lake Pontchartrain (Ellis 1981:167, 175; Sanford 1905:30; Nichols 1990:91-92).



Figure 6. The old wooden seawall as seen from a wharf before the seawall was damaged by the 1895 hurricane (Nichols 1990:7).

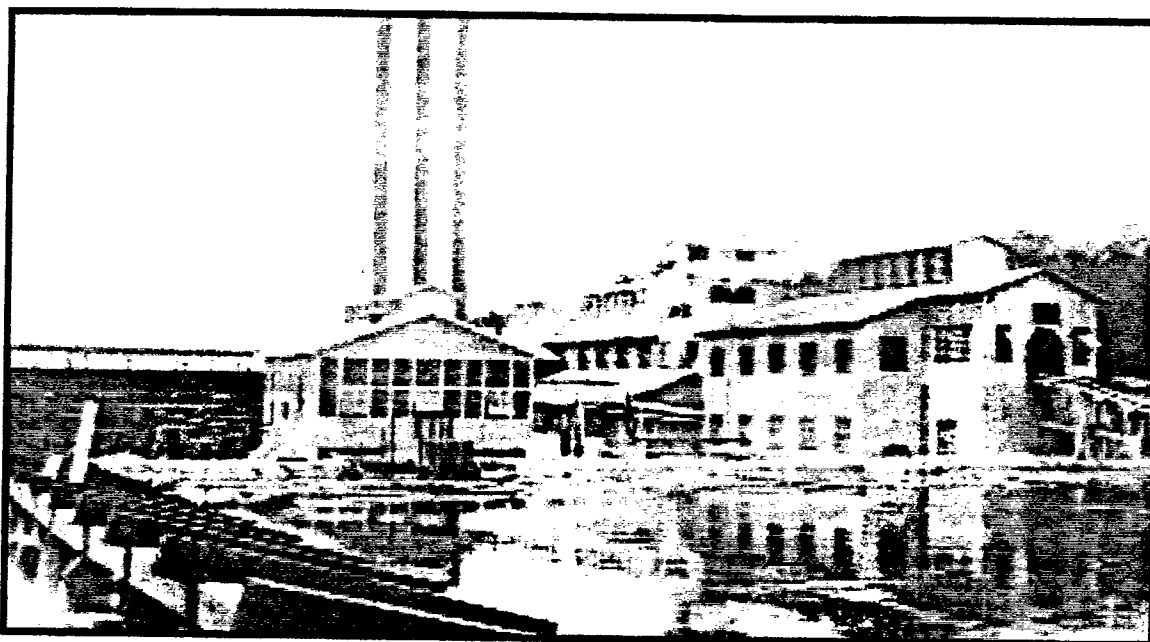


Figure 7. The Poitevent-Favre Mill boiler room, with three smoke stacks, is situated to the left of the mill (Nichols 1990:91).

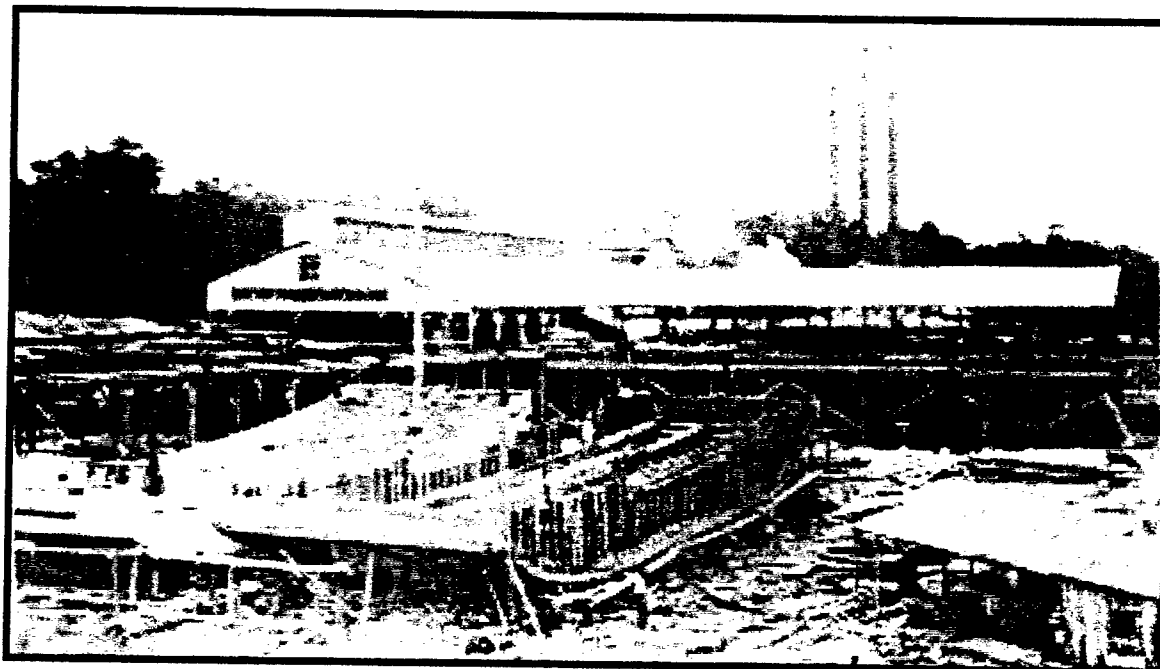


Figure 8. Barges were built at the Poitevent-Favre Mill to transport lumber across Lake Pontchartrain (Nichols 1990:91).

America's entry into World War I created ship building jobs in St. Tammany Parish. In 1917, the U.S. Navy decided to stop building large battle wagons and to concentrate on smaller boats to fight the German U-boats. This change in philosophy created a variety of new opportunities for the smaller ship builders of the region (Williams 1996:1-15).

Throughout the 1920s, steamers from across the lake deposited both visitors and automobiles at Mandeville. In 1924, the public wharf, burned but the town quickly rebuilt it. The following year, the town sponsored an effort to remove tree stumps from the lake front; at least \$1,000.00 was raised for the project (Nichols 1990:7).

Monies continuously were funneled into the seawall project and used to finance similar ideas to prevent the flooding of the town. It was not until 1938 that a permanent concrete seawall was constructed, with help from the federal government. New Deal legislation called for building an 8,200 foot long concrete seawall with an additional 1,200 feet protected by a wooden wall. Concrete wings ran perpendicular to the beach, at intervals of 150 feet; they were designed to catch drifting sand and to create a new beach. Even though the planned beach never was completed, an endeavor that cost \$234,000.00, the seawall still stands today (Nichols 1990:9-10; WPA 1938:3).

By 1955, most parish residents worked either as craftsmen or as laborers. Only one manufacturing plant, George A. Mire, Inc., operated out of Mandeville. Farming was evident in the parish with 18,477 ac (7,477.6 ha) dedicated to raising peach, pecan, and tung, while 4,293 ac (1,737.4 ha) were dedicated to growing corn (St. Tammany Parish Development Board 1955:30, 50, 100).

St. Tammany Parish was connected to New Orleans on August 30, 1956, with the completion of the causeway. Previous legislation and plans, including the building of a series of islands in Lake Pontchartrain connected by a road, were proposed, but none of these plans was successful. The roadway was constructed of 17 m (56 ft) long and 10 m (33 ft) wide sections, and, at a length of 38.3 km (23.83 mi), it was dubbed the "world's longest bridge." The new highway to New Orleans helped to increase the population of the parish. Before the causeway, the 1950 census recorded 26,988 residents in St. Tammany Parish. After the causeway was constructed, the 1960 census reported 38,643 residents. A second span was added to the causeway on May 10, 1969. The new expanse caused another population surge in 1970 when the population grew to 63,585 (Nichols 1990:9-11). In fact, in 1984, St. Tammany was listed among the 21 fastest growing counties in the United States (*Times Picayune* 1985).

Summary

St. Tammany Parish was settled by the French, British, Spanish and, finally, by the Americans. These early settlers either traded or produced pitch, tar, and resin. Mandeville prospered as the population grew and trade created more jobs. In fact, the area has relied more on commerce and industry than on farming.

During the Civil War, St. Tammany Parish experienced raids from Union troops onboard gunboats. After the war, railroads helped to increase industry, while farming made substantial gains. Brickyards and tar and pitch industries, as well as sawmills, boomed at the turn of the century, and then began to disappear as the forest and other resources dwindled. Mandeville emerged as a tourist town, boasting of its lake beaches and resorts. The construction of the causeway across Lake Pontchartrain provided the parish direct access to New Orleans and helped to spur both population and economic growth throughout the region.

CHAPTER V

PREVIOUS INVESTIGATIONS

The Mandeville Hurricane Protection Project Item is located along the northshore of Lake Pontchartrain and around the city of Mandeville. The 200 m (656 ft) wide project item corridor, 100 m (328 ft) to either side of the proposed centerline, encompasses approximately 311 ac (125.9 ha). It is situated in portions of Sections 45 - 48, 50, and 51, Township 8S, Range 11E. To limit the size and scope of this survey report, the vicinity of the project area has been defined operationally as that region within 8 km (5 mi) of the boundaries of the Mandeville delivery order. A number of cultural resource surveys and assessments have been completed within these limits (Table 8). These studies resulted in the discovery and recordation of numerous archeological sites, of which only four (16ST026, 16ST048, 16ST169, and 16ST170) fall within the immediate vicinity (i.e., 1.6 km [1 mi]) of the current project item (Figure 1, Sheet 2; Table 9). Additionally, 281 standing structures have been recorded within the same 1.6 km (1 mi) area (Table 10). All of the sites, the associated surveys, and the previously recorded standing structures are discussed below.

Previous Archeological Investigations

A review of materials on file with the state of Louisiana indicates that between 1975 and 1995, only 10 cultural resources surveys (22-0075, 22-0168, 22-0393, 22-0913, 22-1327, 22-1419, 22-1564, 22-1744, 22-1913, and 22-1918) have been completed in the vicinity of the Mandeville project item (Table 8). These surveys have resulted in the identification and recordation of numerous archeological sites, including four (16ST26, 16ST48, 16ST168, and 16ST170) located within the immediate vicinity of the current project area (Figure 1, Sheet 2; Table 9).

On February 13, 1975, archeologist Robert W. Neuman conducted a cultural resources survey of the Lake Pontchartrain northshore in the vicinity of Fontainebleau State Park (Neuman 1975). The survey, undertaken on behalf of the U.S. Army Corps of Engineers, New Orleans District, consisted only of an aerial visual reconnaissance of the Lake Pontchartrain shoreline. This survey resulted in the identification of three archeological sites; these shell middens were assigned site numbers 16ST26, 16ST48, and 16ST63. Only one of these sites (16ST26) is located within 1.6 km (1 mi) of the current project item (Figure 1, Sheet 2). No recommendations were made concerning additional testing or eligibility of the shell midden site. The remaining two sites, Sites 16ST48 and 16ST63, were reinvestigated the following year.

During 1976, Shenkel (1976) conducted additional Phase I cultural resources survey and inventory of the Lake Pontchartrain northshore between the mouth of Bayou Castine and the eastern boundary of Fontainebleau State Park. The project area encompassed an approximately 30.5 m (100 ft) wide strip within portions of Sections 52 through 54, Township 8S, Range 11E and a portion of Section 37, Township 8S, Range 12E. Fieldwork consisted of intensive pedestrian survey that originated at the waters edge and extended back into the backswamp. No new archeological sites were identified as a result of this survey. An attempt was made, however, to examine previously recorded sites 16ST26 and 16ST63. Site 16ST26 was relocated, and it was characterized as the dispersed remnants of a shell midden; it is located just east of Bayou Castine and extends for approximately 100 m (328 ft) along the shoreline of Lake Pontchartrain.

The collected artifact assemblage from this site consisted of 12 water worn prehistoric sherds and a piece of possibly utilized pumice. The ceramic subassemblage was indicative of both a Coles Creek and a Plaquemine culture period affiliation. Site 16ST63 was described by Neuman as a shell midden; however, a visual reconnaissance of the area failed to relocate the site. Shenkel suggested that the site either had

Table 8. Previously Completed Cultural Resources Surveys Located within 8 km (5 mi) of the Mandeville Project Item¹.

FIELD DATE	REPORT NUMBER	TITLE/AUTHOR	FIELD METHODOLOGY	RESULTS AND RECOMMENDATIONS
1975	22-0075	Archaeological Survey of the Lake Pontchartrain, North Shore, Louisiana Project (Neuman 1975)	Helicopter survey	Three prehistoric shell middens, 16ST26, 16ST48, and 16ST63, were located. No recommendations were made concerning additional testing or eligibility.
1976	22-0168	Archaeological Survey, Lake Pontchartrain, North Shore, Louisiana (Shenkel 1976)	Pedestrian survey and shovel testing; an attempt was made to relocate 2 sites previously identified by Neuman (1975)	Only Site 16ST26 was identified within the proposed project area; no additional testing was recommended. Site 16ST63 could not be relocated; it is either destroyed or was misplotted.
1978	22-0393	Cultural Resources Survey of 19 Microwave Tower and Substations in Louisiana, Cajun Electric Power Cooperative, Inc. (Nichols 1978)	Pedestrian survey and shovel testing	Two historic sites, one prehistoric site, and a prehistoric isolated find were located during survey; no additional testing was recommended.
1983	22-0913	Cultural Resources Evaluation of the St. Tammany Parish Solid Waste Landfill Site, St. Tammany Parish, Louisiana (Thigpen and Pearson 1984)	Pedestrian survey and shovel testing	No cultural resources were identified; no additional testing was recommended.
1988	22-1327	Submerged Cultural Resources Investigation of Various Waterways of Lake Pontchartrain's North Shore (Saltus 1988)	Literature search, remote sensing survey, and reconnaissance	A variety of watercraft, landings, bridges, and marine based businesses were identified; 4 locations (16ST34-16ST36 and the <i>Carondolette</i>) were recommended for additional testing and possible salvage and/or preservation.
1988-1989	22-1419	Cultural Resources Survey of the Northlake Museum and Nature Center, Inc. Property, St. Tammany Parish, Louisiana (Shannon 1989)	Pedestrian survey, shovel testing, and auger testing	Site 16ST68, a Mississippian period village with an underlying Tchefoncte component, was located; additional testing of this site was recommended.
1991	22-1564	Archeological Survey of a Planned Postal Facility Parcel, Mandeville, St. Tammany Parish, Louisiana (Hinks et al. 1991)	Pedestrian survey and shovel testing	1 historic site, 16ST159, was located during survey; no additional testing of the site or project area was recommended.
1993	22-1744	Historical Research and Archeological Reconnaissance of the Mandeville Seawall Replacement, St. Tammany Parish, Louisiana (Tavaszi and Maygarden 1994)	Pedestrian survey and trench excavation	The 1895 sea wall and 4 cultural resource locations (A-D) were identified; no additional testing was recommended.

Table 8, continued

FIELD DATE	REPORT NUMBER	TITLE/AUTHOR	FIELD METHODOLOGY	RESULTS AND RECOMMENDATIONS
1995	22-1913	1995 Annual Report for Management Units IV and V, Regional Archaeology Program, Museum of Natural Science, Louisiana State University (Hays 1995)	Archival research, Informant interviews, pedestrian survey, shovel testing, and auger testing	In St. Tammany Parish, 5 archeological sites (16ST032, 16ST036, 16ST068, 16ST104, and 16ST125) were updated and 6 sites (16ST168-16ST173) were recorded. 8 sites (16ST32, 16ST36, and 16ST168-16ST173) were recommended for additional testing.
1995	22-1918	Cultural Resources Survey of the Proposed Right-of-Way of Highway 3241 in St. Tammany Parish, Louisiana (Shuman et al. 1995)	Pedestrian survey and shovel testing	4 archeological sites (16ST164-167) were recorded, as well as 16 standing structures, a cemetery, and one toxic waste dump site. Site 16ST167 was assessed as eligible for the National Register of Historic Places.

¹Data obtained from the State Site Files, Louisiana Division of Archaeology, Baton Rouge, Louisiana.

Table 9. Previously Recorded Archeological Sites Located within 1.6 km (1.0 mi) of the Mandeville Project Item¹.

SITE NUMBER	SITE NAME	SITE DESCRIPTION	TESTING	NRHP SIGNIFICANCE	RECORDED BY
16ST026	Bayou Castine	Prehistoric shell midden; Coles Creek and Plaquemine culture ceramic material recovered	Surface collection	Unknown	Saucier & Gagliano 1958
16ST048	Bayou Castine	Four small prehistoric shell middens; unidentified ceramic material recovered	Surface collection	Unknown	Neuman 1975
16ST169	Fountainbleau 1	Prehistoric shell midden; Mississippian culture ceramic material recovered	Pedestrian survey and 1 shovel test	Unknown	Hays 1995
16ST170	Fountainbleau 2	Possible prehistoric shell midden; no artifacts observed or collected	Pedestrian survey	Unknown	Hays 1995

¹Data obtained from the State Site Files, Louisiana Division of Archaeology, Baton Rouge, Louisiana.

Table 10. Standing Structures Located within 1.6 km (1 mi) of the Mandeville Project Item.

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-014	Hickory St.	Residential	1928
52-015	221 Hickory St.	Residential	ca. 1925
52-016	Corner of Copal St. and Hickory St.	Residential	ca. 1925
52-017	627 Copal St.	Residential	ca. 1930
52-018	714 Copal St.	Residential	ca. 1930
52-019	on Lake end of Holly St.	Residential	ca. 1880
52-020	on Lake end of Holly St.	Residential	ca. 1900
52-021	on Lake end of Holly St.	Residential	ca. 1930
52-022	corner of Copal St.	Residential	1850
52-023	427 Copal St.	Commercial	1880
52-024	30 Copal St.	Residential	ca. 1900
52-025	125 Sassafras	Residential	ca. 1900
52-026	226 Magnolia	Residential	ca. 1880
52-027	between Holly St. and Magnolia	Residential	ca. 1850
52-028	between Holly St. and Mulberry St.	Residential	ca. 1925
52-029	last block of Mulberry	Residential	Not Recorded
52-030	Hickory St.	Residential	ca. 1930
52-031 A-C	end of Hickory St.	Residential	1937
52-032	159 Hickory	Residential	ca. 1900
52-033	156 Magnolia	Residential	ca. 1920
52-034	Magnolia	Residential	ca. 1880
52-035	Hickory St.	Residential	ca. 1930
52-036	Magnolia	Residential	1870
52-038	end of Fountain St.	Residential	Not Recorded
52-039	212 Fountain St.	Residential	ca. 1900
52-040	216 Fountain St.	Residential	ca. 1900
52-041	326 Copal St.	Residential	ca. 1895
52-042	private drive off of Esquinance between Laurel St. and Fountain St.	Residential	ca. 1890
52-043	private drive off of Esquinance between Laurel St. and Fountain St.	Residential	Not Recorded
52-044	private drive off of Esquinance between Laurel St. and Fountain St.	Residential	ca. 1890
52-045	private drive off of Esquinance between Laurel St. and Fountain St.	Residential	ca. 1910
52-046	end of Doby Dr. on Lake Pontchartrain	Residential	ca. 1900
52-047	end of Hickory St.	Residential	1939
52-060	Meiners Rd. off of Hwy. 1088 near intersection with Hwy. 59	Residential	1917
52-061	Hwy. 1088 near intersection with Hwy. 59	Residential	1922
52-062	1742 Destin St.	Residential	ca. 1930
52-063	1804 Destin St.	Residential	ca. 1930
52-064	1823 Destin St.	Residential	1928
52-065	1446 Gerard St.	Residential	1922
52-066	1135 Coffee St.	Residential	1925
52-067	1424 Gerard St.	Residential	1932
52-068	1835 Carroll St.	Residential	ca. 1920
52-069	1400 Gerard St.	Residential	ca. 1930
52-070	Gerard St.	Residential	ca. 1930
52-071	1114 Gerard St.	Residential	ca. 1930

Table 10, continued

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-072	corner of America St. and Gerard St.	Residential	ca. 1930
52-076	612 Lambert St.	Residential	ca. 1930
52-077	544 Lambert St.	Residential	1920
52-078	540 Lambert St.	Residential	1920
52-079	corner of Lambert St. and Monroe St.	Residential	ca. 1925
52-080	3316 Monroe St.	Residential	ca. 1930
52-081	3048 Monroe St.	Residential	ca. 1920
52-082	corner of Monroe St. and Galvez St.	Residential	ca. 1840
52-083	2838 North St.	Residential	1942
52-084	2309 North St.	Residential	1930
52-085	347 West St.	Residential	ca. 1930
52-086	corner of North St. and West Beach Parkway	Residential	ca. 1930
52-087	276 West St.	Residential	1927
52-088	240 West St.	Residential	ca. 1930
52-089	237 West St.	Residential	ca. 1930
52-090	331 West Beach Parkway	Residential	ca. 1930
52-091	320 West Beach Parkway	Residential	ca. 1930
52-092	314 West Beach Parkway	Residential	ca. 1930
52-093	corner of North St. and West Beach Parkway	Residential	1925
52-094	374 East St.	Residential	1932
52-095	360 East St.	Residential	1932
52-096	371 East St.	Residential	ca. 1930
52-097	2715 North St.	Residential	ca. 1930
52-098	321 East St.	Not Recorded	ca. 1930
52-099	corner of East St. and Center St.	Residential	ca. 1930
52-100	263 East St.	Residential	ca. 1930
52-101	246 East St.	Residential	ca. 1930
52-102	East St.	Residential	ca. 1930
52-103	in old West Beach Parkway Subdivision	Residential	ca. 1930
52-104	2646 Monroe St.	Residential	ca. 1930
52-105	Wilkinson St.	Residential	ca. 1900
52-106	412 Wilkinson	Residential	ca. 1822
52-107	300 Wilkinson St.	Residential	1928
52-108	corner of Wilkinson St. and Jefferson St.	Residential	ca. 1880
52-109	250 Wilkinson St.	Residential	ca. 1925
52-110	241 Wilkinson St.	Residential	ca. 1922
52-111	219 Wilkinson St.	Residential	ca. 1880
52-112	222 Wilkinson St.	Residential	ca. 1900
52-113	210 Wilkinson St.	Residential	ca. 1910
52-114	144 Wilkinson St.	Residential	ca. 1900
52-115	2500 block of Claiborne St.	Residential	ca. 1900
52-116	2527 Claiborne St.	Residential	ca. 1880
52-117	2521 Claiborne St.	Residential	ca. 1900
52-118	2520 Jefferson St.	Residential	ca. 1900
52-119	309 Lafayette St.	Residential	ca. 1930
52-120	433 Lafayette St.	Residential	1853
52-121	2531 Monroe St.	Residential	ca. 1900
52-122	736 Lafayette St.	Residential	1897
52-123	2443 Mathis St.	Residential	Not Recorded
52-124	508 Lafayette St.	Residential	Not Recorded

Table 10, continued

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-125	311 Lafayette St.	Residential	ca. 1920
52-126	302 Adear St.	Residential	1880
52-127	326 Adear St.	Residential	ca. 1888
52-128	corner of Adear St. and Upton St.	Residential	ca. 1900
52-129	corner of Adear St. and Upton St.	Residential	ca. 1920
52-130	526 Adear St.	Residential	ca. 1900
52-131	601 Adear St.	Residential	ca. 1925
52-132	2535 Mathis St.	Residential	Not Recorded
52-133	530 Coffee St.	Residential	1913
52-134	Monroe St.	Residential	ca. 1930
52-135	2427 Monroe St.	Residential	ca. 1930
52-136	2341 Monroe St.	Residential	ca. 1910
52-137	2337 Monroe St.	Residential	ca. 1910
52-138	2337 Monroe St.	Residential	ca. 1910
52-139	2331 Monroe St.	Residential	ca. 1910
52-140	411 Coffee St.	Residential	ca. 1900
52-141	2245 Jefferson St.	Residential	ca. 1940
52-142	2248 Jefferson St.	Residential	ca. 1920
52-143	145 Coffee St.	Residential	ca. 1904
52-144	132 Coffee St.	Residential	ca. 1900
52-145	117 Coffee St.	Residential	1923
52-146	724 Carroll St.	Residential	Not Recorded
52-147	551 Carroll St.	Residential	ca. 1920
52-148	523 Carroll St.	Residential	ca. 1900
52-149	2240 Monroe St.	Residential	1904
52-150	2330 Monroe St.	Residential	ca. 1910
52-151	2220 Monroe St.	Residential	1910
52-152	420 Carroll St.	Residential	1900
52-153	behind 420 Carroll St.	Residential	ca. 1830
52-154	300 Carroll St.	Residential	ca. 1880
52-155	246 Carroll St.	Residential	ca. 1900
52-156	232 Carroll St.	Residential	ca. 1904
52-157	217 Carroll St.	Residential	1876
52-158	210 Carroll St.	Residential	ca. 1880
52-159	200 Carroll St.	Residential	ca. 1904
52-160	corner of Claiborne St. and Carroll St.	Commercial	ca. 1900
52-161	138 Carroll St.	Residential	ca. 1904
52-162	132 Carroll St.	Residential	ca. 1904
52-163	120 Carroll St.	Residential	ca. 1904
52-164	133 Carroll St.	Residential	ca. 1904
52-165	129 Carroll St.	Residential/Commercial	ca. 1904
52-166	121 Carroll St.	Residential	ca. 1840
52-167	111 Carroll St.	Residential	ca. 1904
52-168	116 Lafitte St.	Commercial	ca. 1904
52-169	123 Lafitte St.	Residential	1860
52-170	131 Lafitte St.	Residential	ca. 1850
52-171	100 block of Lafitte St.	Residential	ca. 1920
52-172	corner of Claiborne St. and Lafitte St.	Commercial	ca. 1890
52-173	212 Lafitte St.	Residential	ca. 1915
52-174	219 Lafitte St.	Residential	ca. 1915

Table 10, continued

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-175	229 Lafitte St.	Commercial	ca. 1890
52-176	228 Lafitte St.	Residential	ca. 1920
52-177	234 Lafitte St.	Residential	ca. 1920
52-178	301 Lafitte St.	Commercial	Not Recorded
52-179	319 Lafitte St.	Residential	ca. 1890
52-180	325 Lafitte St.	Residential	ca. 1890
52-181	corner of Lafitte St. and Madison St.	Commercial	ca. 1890
52-182	402 Lafitte St.	Residential	ca. 1880
52-183	418 Lafitte St.	Residential	ca. 1890
52-184	Lafitte St.	Residential	ca. 1910
52-185	436 Lafitte St.	Residential	1920
52-186	2135 Monroe St.	Residential	ca. 1897
52-187	2129 Monroe St.	Residential	ca. 1920
52-188	2130 Monroe St.	Residential	ca. 1900
52-189	2117 Monroe St.	Residential	ca. 1920
52-190	corner of Lafitte St. and Monroe St.	Commercial	ca. 1900
52-191	530 Lafitte St.	Residential	ca. 1920
52-192	corner of Lafitte St. and Gerard St.	Residential	ca. 1920
52-193	746 Gerard St.	Residential	ca. 1920
52-194	Gerard St.	Residential	ca. 1920
52-195	corner of Livingston St. and Gerard St.	Residential	ca. 1920
52-196	532 Monroe St.	Residential	1932
52-197	525 Gerard St.	Residential	ca. 1915
52-198	2043 Monroe St.	Residential	ca. 1915
52-199	202 Monroe St.	Residential	ca. 1900
52-200	2028 Monroe St.	Residential	ca. 1890
52-201	447 Gerard St.	Residential	ca. 1890
52-202	434 Gerard St.	Residential	ca. 1890
52-203	429 Gerard St.	Residential	ca. 1915
52-204	424 Gerard St.	Commercial	ca. 1900
52-205	413 Gerard St.	Residential	ca. 1910
52-206	347 Gerard St.	Commercial	ca. 1925
52-207	348 Gerard St.	Residential	ca. 1925
52-208	335 Gerard St.	Commercial	ca. 1925
52-209	302 Gerard St.	Commercial	ca. 1920
52-210	2017 Jefferson St.	Commercial	ca. 1910
52-211	Jefferson St.	Residential	ca. 1910
52-212	2034 Jefferson St.	Commercial	1844
52-213	2027 Jefferson St.	Residential	ca. 1910
52-214	334 Gerard St.	Residential	ca. 1925
52-215	209 Gerard St.	Residential	ca. 1900
52-216	235 Gerard St.	Residential	ca. 1890
52-217	228 Gerard St.	Residential	ca. 1910
52-218	220 Gerard St.	Residential	ca. 1910
52-219	217 Gerard St.	Residential	1883
52-220	211 Gerard St.	Residential	ca. 1900
52-221	203 Gerard St.	Residential	ca. 1920
52-222	200 Gerard St.	Commercial	1920
52-223	2012 Claiborne St.	Residential	ca. 1910
52-224	2021 Claiborne St.	Residential	ca. 1900

Table 10, continued

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-225	2031 Claiborne St.	Residential	ca. 1900
52-226	148 Gerard St.	Residential	ca. 1910
52-227	137 Gerard St.	Residential	ca. 1910
52-228	193 Montgomery St.	Residential	ca. 1920
52-229	775 Marigny Blvd.	Residential	ca. 1920
52-230	735 Marigny Blvd.	Residential	Not Recorded
52-231	546 Marigny Blvd.	Residential	1872
52-232	525 Marigny Blvd.	Residential	ca. 1900
52-233	512 Marigny Blvd.	Residential	ca. 1900
52-234	504 Marigny Blvd.	Residential	ca. 1920
52-235	1928 Monroe St.	Residential	ca. 1900
52-236	1924 Monroe St.	Residential	ca. 1900
52-237	1920 Monroe St.	Residential	ca. 1900
52-238	1916 Monroe St.	Residential	ca. 1900
52-239	1921 Monroe St.	Residential	ca. 1900
52-240	335 Marigny Blvd.	Residential	ca. 1920
52-241	309 Marigny Blvd.	Residential	ca. 1915
52-242	corner of Marigny Blvd. and Jefferson St.	Residential	ca. 1870
52-243	302 Marigny Blvd.	Residential	ca. 1890
52-244	1927 Jefferson St.	Residential	ca. 1880
52-245	1932 Jefferson St.	Residential	ca. 1920
52-246	240 Marigny Blvd.	Residential	ca. 1920
52-247	Marigny Blvd. between Jefferson St. and Claiborne St.	Residential	ca. 1880
52-248	228 Marigny Blvd.	Residential	1880
52-249	222 Marigny Blvd.	Residential	1850
52-250	219 Marigny Blvd.	Residential	ca. 1910
52-251	209 Marigny Blvd.	Residential	ca. 1880
52-252	1941 Claiborne St.	Residential	ca. 1910
52-253	1929 Claiborne St.	Residential	ca. 1910
52-254	1923 Claiborne St.	Residential	ca. 1920
52-255	1924 Claiborne St.	Residential	Not Recorded
52-256	138 Marigny Blvd.	Residential	ca. 1910
52-257	122 Marigny Blvd.	Residential	ca. 1900
52-258	158 Marigny Blvd.	Residential	ca. 1900
52-259	139 Marigny Blvd.	Residential	ca. 1860
52-260	127 Marigny Blvd.	Residential	1902
52-261	121 Marigny Blvd.	Residential	ca. 1880
52-262	122 Lamarque St.	Residential	ca. 1920
52-263	133 Lamarque St.	Residential	ca. 1920
52-264	Claiborne, between Marigny Blvd. and Lamarque St.	Residential	ca. 1890
52-265	1819 Claiborne	Residential	ca. 1890
52-266	303 Lamarque St.	Residential	ca. 1900
52-267	Jefferson St., between Marigny Blvd. and Lamarque St.	Residential	ca. 1890
52-268	334 Lamarque St.	Residential	ca. 1890
52-269	300 block of Lamarque St.	Residential	ca. 1885
52-270	300 block of Lamarque St.	Residential	1885
52-271	300 block of Lamarque St.	Residential	1879

Table 10, continued

STANDING STRUCTURE NO.	ADDRESS	TYPE	DATE RANGE
52-272	735 Lamarque St.	Residential	ca. 1890
52-276	2801 Lakeshore Dr.	Residential	ca. 1930
52-277	2627 Lakeshore Dr.	Residential	ca. 1890
52-278	Lakeshore Dr. (between Wilkinson & Carondelet)	Residential	ca. 1900
52-279	2535 Lakeshore Dr.	Residential	ca. 1900
52-280	2529 Lakeshore Dr.	Residential	ca. 1925
52-281	2525 Lakeshore Dr.	Residential	1830
52-282	2505 Lakeshore Dr.	Residential	ca. 1900
52-283	2441 Lakeshore Dr.	Residential	ca. 1850
52-284	2423 block of Lakeshore Dr.	Residential	ca. 1840
52-285	2407 Lakeshore Dr.	Residential	1857
52-286	2313 Lakeshore Dr.	Residential	ca. 1930
52-288	2239 Lakeshore Dr.	Residential	ca. 1930
52-289	2200 block of Lakeshore Dr.	Commercial	ca. 1905
52-290	2221 Lakeshore Dr.	Commercial	ca. 1930
52-291	2143 Lakeshore Dr.-	Residential/Commercial	ca. 1926
52-292	2100 block of Lakeshore Dr.	Residential	ca. 1840
52-293	2135 Lakeshore Dr.	Residential	ca. 1900
52-294 A - E	2129 Lakeshore Dr.	Commercial	ca. 1885
52-295	2101 Lakeshore Dr.	Commercial	ca. 1930
52-296	2025 Lakeshore Dr.	Commercial	ca. 1885
52-297	Lakeshore Dr. (between Lafitte & Gerard, behind "Bechacs")		ca. 19??
52-298	Lakeshore Dr.	CAMELOT DINNER THEATRE	ca. 1900
52-299	1951 Lakeshore Dr.	Commercial	ca. 1860
52-301	1925 Lakeshore Dr.		ca. 1900
52-302	Lakeshore Dr. (between Marigny & Lamarque)		ca. 1930
52-303	1815 Lakeshore Dr.	Residential	ca. 1850-1900
52-304	1807 Lakeshore Dr.	Residential	
52-305	1725 Lakeshore Dr.	Residential	ca. 1860
52-306	1721 Lakeshore Dr.	Residential	1835
52-307A	1717 Lakeshore	Residential	ca. 1830
52-307B	1717 Lakeshore Dr., Slave Quarters	Residential	ca. 1830
52-308	1647 Lakeshore Dr.	Residential	ca. 1930
52-309	1635 Lakeshore Dr.	Residential	ca. 1850
	2423 Lakeshore Dr.	Residential	ca. 1842
	2547 Lakeshore Dr.	Residential	ca. 1920
	2605 Lakeshore Dr.	Residential	ca. Late 1880s
	2613 Lakeshore Dr.	Residential	ca. Late 1800s
	2627 Lakeshore Dr. (moved from 1700 block)	Residential	ca. 1840

eroded into the lake or had been plotted incorrectly. No additional testing of Site 16ST26 was recommended.

A survey of 19 proposed microwave tower and substation locations to be constructed in south-central and southeast Louisiana by Cajun Electric Power Cooperative, Inc. was completed by Espey, Huston, and Associates, Inc. of Austin, Texas in March, April, and September of 1978 (Nichols 1978). Only one of these proposed locations, "Mandeville," is situated within 8 km (5 mi) of the current project corridor. Fieldwork at the "Mandeville" location consisted of pedestrian survey along a series of linear transects. In addition to this visual inspection, at least two shovel tests were excavated. Shovel testing resulted in the recovery of three unmodified flint flakes and a single piece of burned sandstone; these artifacts were recovered from a depth of 0 to 20 cm (cmbs) (0 to 7.9 in [inbs]) below surface. No additional cultural material was recovered and there was no evidence of intact cultural deposits. No site number was listed in the report (22-0393), and no evaluatory testing of this prehistoric location was recommended. This cultural resource location is not located within 1.6 km (1 mi) of the current project area.

On December 8, 1983, Coastal Environments, Inc. performed an archeological survey of a single 96 ac (38.9 ha) parcel located in St. Tammany Parish, Louisiana, within Section 16, Township 8S, Range 12E. This survey was conducted for J. J. Krebs and Sons, Inc. of New Orleans, prior to construction of the proposed St. Tammany Parish Solid Waste Landfill (Thigpen and Pearson 1984). Following an archival and literature search, a pedestrian survey of the accessible portion of the project area was performed along a series of "zig-zag" transects. Visual reconnaissance was augmented by the excavation of an unspecified number of judgmentally placed shovel tests throughout the planned project area. No cultural resources were identified and no additional testing of the project parcel was recommended.

In 1988, archeologist Allan Saltus conducted a remote sensing survey of the lower Tchefuncta River in St. Tammany Parish, Louisiana (Saltus 1988). This study, as a part of an ongoing project, was undertaken to determine the quantity, the quality, and the types of sites that remain in the waterways along the northshore of Lake Pontchartrain. Baseline information gathered through the combination of an intensive literature search and the subsequent fieldwork was intended to be used by future maritime researchers. It was anticipated that information gleaned from the study could be used to extrapolate the number of submerged cultural resources that are anticipated along each of three other river courses (Bogue Falaya, Bayou Desire, and Bayou Castine). An exploratory survey of the Tangipahoa River, the Tchefuncta River, Bayou Castine, Bayou Lacombe, and Bayou Bonfouca was initially performed. This research produced over 100 anomalies and visually identified the CSS *Carondolette*. Saltus evaluated this vessel, located in the Bogue Falaya River, as a potentially significant cultural resource and recommended it for additional testing.

The majority of the field research focused on recordation and evaluation along the Tchefuncta River, and an attempt was made to identify the number of submerged cultural resources located between statute river mile 0 and statute river mile 7.25 (SRM) of the river. Fieldwork consisted of an initial magnetometer survey combined with a visual reconnaissance of the adjoining banklines. The bulk of all recorded magnetic anomalies then were retested by sonar imagery that was able to provide a more detailed subsurface picture. Artifacts also were collected by divers from the marine floor and from the neighboring banklines. In excess of 60 sunken watercraft and two abandonment areas, as well as a number of boatyards, landings, and other marine-based industries were identified. Only four Louisiana state archeological site numbers (16ST133 - 16ST136) were assigned; aspects of each site were recommended for additional evaluatory testing, preservation, and/or salvage.

Site 16ST133, the Tchefuncta River Coastal Marsh Area, is a former shipping channel originating at SRM 0 and extending to SRM 1.25. Submerged properties identified within this site area consisted of a barge or barge-like structure, the burnt remains of a late nineteenth century vessel similar to a freighter, a wooden barge, a possible net repair area, and a man-made canal. While additional testing of the entire

area was recommended, only the possible freighter was assessed as a potentially significant cultural resource.

Site 16ST134, the Madisonville Area, is located in the vicinity of Bayou Desire from SRM 1.25 to SRM 2.5 on the Tchefuncta River. Cultural properties that comprise this site are two abandonment areas, either four or five boatyards, one of which is the Madisonville shipyard, a landing located upstream from the Madisonville Community, and 21 watercraft. Of these 21 watercraft, 16 are constructed of wood and five are iron riveted. Additional evaluatory testing, historical research, and diver investigation, were recommended at both of the abandonment areas, a World War I era vessel, and a Jahncke barge.

The third Site (16ST135), the Houlton Lumber Company Area, contains a single abandonment area, 38 watercraft, three boatyards, and a shipway. Each of these was identified between SRM 2 and SRM 5 of the Tchefuncta River. Additional investigation of this portion of the river was recommended in the vicinity of five of the submerged water craft, four schooners, and a flatboat.

The fourth Site (16ST136) is named the Pineland Park Area, and it extends from SRM 5 to SRM 7.25. Site 16ST136 is comprised of six landings, one boatyard (shipway), and a single watercraft. Initial historical research suggested that this vessel may be the remains of the blockship *Tchifonta*. Construction of the *Tchifonta* began in 1812 at the federal shipyard on Bayou Tete L'Ours; however, it was interrupted by the British attack on New Orleans in 1813. Subsequently, the *Tchifonta* was never completed. Saltus evaluated the watercraft as a potentially significant cultural resource and recommended it for additional evaluatory testing.

None of these four site locations or submerged properties (16ST133 - 16ST136 and the CSS *Carondolette*) is located within the immediate vicinity, i.e., within 1.6 km (1 mi), of the current Mandeville project item.

Between July 1 and December 31, 1988, G. W. Shannon & Associates, Inc. conducted a cultural resources survey of the Northlake Museum and Nature Center, Inc. property. The 52.1 ac (21.1 ha) survey area is located in portions of Sections 37 and 47, Township 8S, Range 12E, in St. Tammany Parish (Shannon 1989). The project, undertaken on behalf of the Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development, Division of Archaeology, was designed to locate, identify, delineate, and evaluate all cultural resources that might be impacted by the proposed construction of the proposed museum. Fieldwork included systematic pedestrian survey and shovel testing along 20 transects spaced approximately 20 m (65.6 ft) apart. Each shovel test was excavated to a minimum depth of 40 cmbs (15.7 inbs) and the resulting fill screened through 0.65 cm (0.25 in) hardware cloth. A total of 411 shovel tests were planned, but only 354 were excavated; the remaining 57 shovel tests could not be excavated due to the presence of standing water. Only 18 of the excavated shovel tests produced cultural material. This resulted in the recordation of one cultural resources location (Site 16ST68). Site 16ST68 was described as an approximately 3.4 m (11 ft) high discontinuous *Rangia cuneata* shell midden that measured approximately 140 x 80 m (459 x 263.5 ft) in size and encompassed an area of some 2.8 ac (1.1 ha). The excavation of 51 auger tests during the subsequent site delineation process indicated that the actual midden extended to an average depth of 45 cmbs (17.7 inbs). The artifact assemblage, originating from both surface and subsurface contexts, consisted of 43 prehistoric ceramic sherds, 10 pieces of lithic material, 1 spokeshave, 2 pieces of ocher, 1 sandstone fragment, and 9 unidentified/unspecified bone fragments. Diagnostic materials recovered from Site 16ST68 suggested two occupations of the site; these ceramic sherds were dated either from the Mississippian cultural period or the earlier Tchefuncte cultural period. An unspecified number of ceramic sherds contained what Shannon described as, "...classic hand and eye and death's head Southern Cult motifs.". In situ cultural features, probably from a house site, and intact cultural deposits also were identified. Site 16ST68, which is not located in the immediate vicinity of the current project area, was assessed as a potentially significant cultural resource and was subsequently recommended for additional testing or preservation.

During July and August 1991, R. Christopher Goodwin & Associates, Inc. conducted a Phase I cultural resources survey of a 11.5 ac (4.7 ha) parcel located west of U.S. Highway 190, in Mandeville for the U.S. Postal Service (Hinks et al. 1991). The survey was designed to identify, inventory, and assess all archeological sites prior to the construction of a planned postal facility. Fieldwork included a pedestrian survey and shovel testing along eight transects spaced 30 m (98.4 ft) apart. Survey resulted in the excavation of 67 shovel tests, each of these measured at least 30 cm (11.8 in) in diameter and was excavated to approximately 20 cm (7.9 in) into culturally sterile soils, and all shovel test fill was screened through 0.6 cm (0.25 in) hardware cloth. Only one cultural resources location (Site 16ST159) was identified. This site was characterized as the remnants of a domestic residence that included a brick foundation. Cultural material recovered from the site suggested dates ranging from ca. 1890 and extending into the modern era. Site 16ST159 lacked archeological integrity, and no additional testing of the site was recommended. This locale is not located within the immediate vicinity (1.6 km [1 mi]) of the current project area.

During July 1993, Earth Search, Inc. conducted historical research and archeological reconnaissance survey along the northshore of Lake Pontchartrain prior to replacement of the Mandeville seawall, which was recently completed (Tavaszi and Maygarden 1994). This investigation encompassed parts of the current Mandeville project item; the 1993 study originated along the marsh located at the northwest end of Lakeshore Drive and extended southeast to a terminus at Little Bayou Castine. Historical research consisted of a combination of literature search and a review of relevant maps. Archeological survey consisted of a combination of pedestrian survey and the excavation of seven backhoe trenches throughout the project area. Survey resulted in the relocation of four surface scatters (Scatter A-D). "Scatter A" consisted of an isolated porcelain sherd, "Scatter B" consisted of three porcelain sherds with decal applique, "Scatter C" consisted of an isolated whiteware sherd, and "Scatter D" was characterized as an isolated ironstone sherd. In addition, the remnants of a wooden seawall (ca. 1895) was observed in one of the trenches. The seawall was severely deteriorated, and consisted mostly of soil stains. No official state site number was requested, and no additional testing of the project area was recommended.

During parts of 1994 and 1995, regional archeologist Christopher Hays conducted a review of 25 previously recorded and newly identified sites as one of the stated objectives of the Annual Action Plan for Management Units IV and V (Hays 1995). Field methodology consisted of archival research, informant interviews, pedestrian survey, and limited auger and shovel testing. In St. Tammany Parish, 11 prehistoric sites (16ST32, 16ST36, 16ST68, 16ST104, 16ST125, and 16ST168-16ST173), were visited. Site forms for Sites 16ST32, 16ST36, 16ST68, 16ST104, and 16ST125 were updated, and Sites 16ST168-16ST173 were recorded for the first time. The majority of these sites (n=9) were described as prehistoric shell middens; they were located on bayous and along the northshore of Lake Pontchartrain. These sites were assigned dates ranging from the Archaic/Poverty Point cultural period through the Mississippian cultural period. Site 16ST104 (George Risor) was described as an upland camp site with a Tchefuncte and a Coles Creek through Plaquemines period cultural affiliation. Site 16ST125 (Shadow Mound) was located on a tributary of Bayou Chinchuba, approximately 1.6 km (1 m) north of Lake Pontchartrain; it contained evidence of both Coles Creek and Contact period cultural components. Site preservation ranged from destroyed (Sites 16ST104 and 16ST125) to good (Sites 16ST168 and 16ST170). Sites 16ST32, 16ST36, and 16ST168-16ST173 were recommended for descriptive and/or evaluatory testing. Only Site 16ST169 and Site 16ST170 are located in the immediate vicinity of the current project area.

In 1995, Compliance Consultants, Inc., conducted a Phase I cultural resources survey of the approximately 648.2 ac (262.3 ha) proposed Highway 3241 Right-of-Way in St. Tammany Parish (Shuman et al. 1995). This stretch of state highway is oriented between U.S. Interstate 12 and Bush, Louisiana. Fieldwork consisted of pedestrian survey augmented by the excavation of 1,891 shovel tests. This Phase I cultural resources survey resulted in the recordation of four archeological sites (16ST164-16ST167), 16 standing structures, and a toxic waste dump site. Site 16ST166 was identified as a historic/modern cemetery; each of the three remaining sites was characterized as a prehistoric lithic scatter. Each site

produced a number of potentially diagnostic projectile points dating from the Archaic Stage and extending into the Woodland Stage. In addition, a number of ceramic artifacts were recovered from Site 16ST165. Only Site 16ST167 was assessed as a significant cultural resource and recommended for inclusion on the National Register of Historic Places. None of the four identified archeological sites, the 16 standing structures, nor the toxic waste site is located within 1.6 km (1 mi) of the current project item.

Previously Recorded Archeological Sites

Only four archeological sites (16ST26, 16ST48, 16ST169, and 16ST170), have been identified within 1.6 km (1 mi) of the Mandeville project item (Figure 1, Sheet 2; Table 9). Each of these sites is located to the east of the project area on or around Bayou Castine, and each has been mentioned previously in this chapter. Site 16ST26 (Bayou Castine) was recorded originally by Saucier and Gagliano in 1958 and was subsequently relocated by Neuman (1975:22-0075). Investigations at this locale by Shenkel (1976:22-0168) during the following year, characterized the site as an extensive shell midden with evidence of Coles Creek and Plaquemine occupation. The site currently is in poor condition and may be composed in part of dredge material from Bayou Castine. Site 16ST48, also named Bayou Castine, consists of a series of four small middens, that appear to date from post-Archaic times. These locations extend over approximately 1.6 km (1 mi) from near the mouth of the bayou to just north of Highway 190 (Neuman 1975:22-0075). Site 16ST169 (Fontainbleau 1) was recorded this past year as a result of the Management Units IV and V annual update (Hays 1995:22-1913). Through minimal testing, this shell midden was characterized as a minor Mississippian period camp probably used for foraging and food processing. Hays recommended the site for additional testing. Site 16ST169 was not evaluated applying the National Record of Historic Places criteria for evaluation. The remaining site, 16ST170 (Fontainbleau 2), also was recorded by Hays (1995) in the 1995 annual report of Management Units IV and V (22-1913). He described the site as an intact, possibly Mississippian shell midden. The shell layer extended to a depth of approximately 25 cmbs (9.8 inbs). Despite a pedestrian survey and visual reconnaissance of the site area, no cultural material was observed or recovered. Site 16ST170 was recommended for preservation and additional evaluatory testing.

Previous Architectural Investigations

Approximately 281 standing structures have been recorded within 1.6 km (1 mi) of the project area; this information is on file with the Office of Cultural Development in Baton Rouge, Louisiana (Table 10). Residential structures comprise 91 percent of the buildings (n=257), while 21 buildings (7 percent) are commercial. Only two buildings combine residential and commercial use, while the use of the remaining building was not identified.

A total of 76 buildings (27 percent) date from the nineteenth century, while 90 of the buildings (32 percent) were constructed between 1900 and 1919. Approximately 104 buildings (37 percent) were constructed between 1920 and 1945. The construction dates for the 11 remaining buildings were not recorded.

At least two architectural surveys have been undertaken in the city of Mandeville. The first survey occurred during 1973 (LSU) and focused on Lakeshore Drive, the primary residential street in Mandeville. In 1982, a comprehensive survey was undertaken for the entire city, and data were compiled using Louisiana Standing Structures Survey forms (Boswell 1982). During the early 1980s, the creation of a historic district was proposed for the city; however, historic district designation was not approved by the city council (Linda Burnett 1996:personal communication).

Only three dwellings in the project area are listed in the National Register of Historic Places: Moore House, 1717 Lakeshore Drive (ca. 1840); Flagstaff, 1815 Lakeshore Drive (ca. 1900); and, Morel-Nott House, 2627 Lakeshore Drive (ca. 1840). All three buildings are examples of local design and building traditions. The Morel-Nott House is a rare example in Mandeville of a nineteenth-century Raised Creole Cottage; it was moved from another location in Mandeville to its current location during the 1960s. Moore House is significant for its early construction date and its architectural design; it is a five-bay house with a full-facade gallery on a raised basement. Flagstaff is a raised cottage that exhibits Colonial Revival architectural details; this building represents the apex of the late-nineteenth/early-twentieth century raised cottage tradition in Mandeville.

CHAPTER VI

RESEARCH DESIGN

Implementing the Mandeville Hurricane Protection Project will generate subsurface impacts that have the potential either to disturb or destroy archeological deposits and historic properties within a 100 m (328 ft) wide area to either side of the project centerline. This 200 m (656 ft) wide corridor encompasses approximately 311 ac (125.9 ha) and is used to define the total project area. This project also may impose visual impacts to a number of historic standing structures in the area. To assess properly the cultural resources potential of the project area, it was necessary to develop a research strategy that incorporated existing archival and site location data in developing appropriate archeological and architectural field methodologies.

The primary objectives of this study was to identify high probability zones for containing prehistoric cultural resources; to identify and describe prehistoric and historic cultural resources within the area of potential effect; to assess preliminarily the significance of all cultural resources in the planned project area; and to evaluate the impact of proposed construction activities on the identified cultural resources of the area. This chapter examines the current Mandeville Hurricane Protection Project Item and the field methodology utilized in assessing this area.

The Mandeville Hurricane Protection Project Item

The proposed project item totals 311 ac (125.9 ha) and is located on the northshore of Lake Pontchartrain. This project corridor is bounded by the Illinois Central Gulf Railroad to the northeast, by Little Bayou Castine to the east, by Lake Pontchartrain to the south, by Causeway Boulevard to the west, and by Bayou Chinchuba to the northwest (Figure 1, Sheets 1 and 2). The alignment plan calls for the construction of 4.8 km (3 mi) of levee, 1,219 m (4,000 ft) of floodwall, five swing gates and an unspecified number of culverts. Both the levee and the floodwall will measure either 4.9 or 5.5 m (16 or 18 ft) in height. The proposed levee will border Lake Pontchartrain and Little Bayou Castine, linking it with high ground associated with the abandoned Illinois Central Gulf Railroad or approximately 305 m (1,000 ft) south of U.S. Highway 190. The floodwall will be located parallel to Causeway Boulevard and will terminate at high ground immediately south of Bayou Chinchuba. The general topography of the Mandeville project item is flat to very gently sloping, and elevations average only 1.5 to 3 m (5 to 10 ft) NGVD.

Archival Research Methodology

Resources at the Louisiana Office of Cultural Development, Division of Archaeology and various governmental sources, as well as local and regional libraries were examined prior to surveying the project area. A variety of maps, reports, archeological site forms, and standing structure forms were examined to obtain information about the distribution of cultural resources throughout the project area and to document further the prehistoric and historic cultural development throughout Mandeville and St. Tammany Parish, Louisiana. This information also was used to infer the quantity and quality of cultural resources that might be located as a result of this survey.

Preliminary background research for the architectural review was undertaken using the survey indices of the Louisiana Standing Structures Survey maintained in the Office of Cultural Development in Baton Rouge. These files were used to identify previously recorded standing structures located within 1.6

km (1 mi) of the project item. Data on properties listed in the National Register of Historic Places also were obtained from this office. This archival review also included a search of materials located in the Mandeville Public Library. The Mandeville Public Library contained additional architectural survey data completed in 1982 for the City of Mandeville that do not appear on the indices maintained by the Office of Cultural Development in Baton Rouge. The current status of historic designations in Mandeville was investigated at City Hall.

Archival research also entailed the development of a general historic context for St. Tammany Parish. This context was compiled from a number of primary and secondary sources. Site specific history for the project area was collected to refine the general historic context and to identify significant development trends that reflect significant themes in national, regional, and local history. In addition, map research was undertaken to detail the general historical development of Mandeville and more specifically of the project area.

Archeological Field Methods

In accordance with guidelines set forth in the Scope of Work, Contract Number DACW29-94-D-0019, an attempt was made to examine all areas displaying a high potential for containing intact prehistoric and/or historic cultural deposits. Probability zones were identified based on the distance to nearest water source and in the presence or absence of floodplain areas and soils, as well as a review of historic maps and other sources. The 44.7 ac (18.1 ha) of identified high probability zones consisted of floodplain areas characterized by poorly or moderately drained soils as well as areas that lie within approximately 150 m (492 ft) horizontal distance of an identifiable water source. All other areas were classified as low probability zones.

Phase I survey included an intensive visual reconnaissance (windshield and pedestrian survey), and where applicable, systematic subsurface testing. Based on archival sources and on the results of the initial visual reconnaissance, six high probability zones were identified. These high probability survey locations were given the field designations Segment M1 - M6. Pedestrian survey and systematic shovel testing was planned for each of these locations; Segments M-1 through M-4 and Segment M-6 were tested successfully. Right-of-entry could not be received for Segment M-5.

As needed, shovel testing was conducted along linear transects spaced 25 m (82 ft) apart. A total of 92 of 106 planned shovel tests were excavated during the Phase I cultural resources survey of the project item. Each shovel test measured 30 cm (11. in) in diameter and was excavated at a minimum depth of 20 cm (7.9 in) into sterile subsoil or to a minimum depth of 50 cm below surface (cmbs) (19.7 in below surface [inbs]). All shovel test fill was screened through 0.63 cm (0.25 in) wire mesh, and stratigraphic descriptions were recorded for each excavated shovel test. Each shovel test was backfilled immediately upon completion of the archeological recordation process. Shovel tests were not excavated in areas characterized by heavy erosion, excessive disturbance, standing water, or in areas that were otherwise unsurveyable. High probability zones were rendered unsurveyable when property ownership could not be determined, when landowners or their agents could not be contacted, or when access to the property was denied. Locational and proximal information was recorded for each successfully tested survey segment; this information, along with a sketch map and photographs of each surveyed area, will be curated with the project field notes.

Architectural Field Methods

The purpose of the architectural reconnaissance survey was to define the area of potential effect for the project; to collect reconnaissance-level architectural survey data for each building older than 50

years of age within the area of potential effect; apply the National Register Criteria for Evaluation to each recorded resource; and to apply the Advisory Council on Historic Preservation's Criteria of Effect to each historic property in anticipation of effects caused by this undertaking.

The first step was to locate the hurricane protection project on the Mandeville 1968 (photorevised 1972 and 1979) 7.5' USGS topographic quadrangle. Map data were analyzed to anticipate the range of potential effects that the proposed construction project may have on the surrounding areas. The initial study area was defined as the corridor extending 100 m (328 ft) to either side of the project centerline. This became the core area of the reconnaissance survey. However, it was anticipated that potential visual effects might extend out and beyond this 200 m (656 ft) wide project corridor. The area of potential effect for the project was refined further by conditions identified in the field.

The reconnaissance-level field survey had two purposes: to identify built resources older than 50 years of age and to define the areas of anticipated visual effects. Architectural investigations were undertaken in accordance with guidelines established in *National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning* (National Park Service 1995).

The survey was accomplished by inspecting every building older than 50 years in the 200 m (656 ft) wide project corridor. The areas of potential effects were expanded to include potential visual effects identified by "view corridors" extending into the project item; areas screened by vegetative or topographic features were omitted. Black and white photographs (35mm) were taken for all built resources 50 years or older, or of major viewsheds. Architectural data collected from the project item included street address, building form, building material(s), and decorative feature(s).

Field notes were taken on the general character of the surrounding area, including development density, vegetation, streetscapes, man-made obstructions, and the general character of the surrounding construction. In Mandeville, the viewshed was analyzed up to two blocks away from the proposed impact area.

Louisiana Standing Structure Survey forms supplied by the Office of Cultural Development in Baton Rouge were completed for buildings older than 50 years located within the 200 m (656 ft) wide project corridor. The archival research and architectural data then were analyzed to provide preliminary assessments about the qualities of significance associated with the identified buildings.

The Criteria of Effect and Adverse Effect (36 CFR 00.9b[1-5]) were used to define potential project effects. Criterion of Effect states that:

00.9 (a) An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

Criteria of Adverse Effect state that:

00.9 (b) An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- (1) Physical destruction, damage, or alteration of all or part of the property;
- (2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) Neglect of a property resulting in its deterioration or destruction; and,
- (5) Transfer, lease, or sale of the property.

Criteria 1, 2, and 3 were the most relevant to the current investigation.

CHAPTER VII

RESULTS OF PHASE I INVESTIGATIONS

Following an archival review of the overall project area, a Phase I cultural resources survey and architectural assessment of the project corridor was performed. Archeological survey and inventory was attempted along all portions of the 200 m (656 ft) wide corridor identified as having a high probability for containing intact prehistoric/historic period cultural resources. This was achieved through a combination of pedestrian survey and systematic shovel testing in areas where access was allowed. No cultural resources were identified as a result of this survey. Architectural review consisted of a reconnaissance level survey and a preliminary visual assessment of historic standing structures relative to the immediate vicinity of the project corridor. These investigations identified 47 historic standing structures and one cemetery within the 200 m (656 ft) wide project corridor that may be disturbed or altered by the proposed construction. Additionally, numerous historic standing structures, including three that are currently listed in the National Register of Historic Places, will be visually impacted by this construction project.

The following paragraphs enumerate the results of this Phase I cultural resources survey and overview. Each of the archeological high probability zone survey segments is depicted in Figure 9, and a summary of each segment is presented in Table 11. The identified historic standing structures are depicted in Figure 10 and the resulting data are summarized in Table 12. Additionally, completed standing structure forms appear in Appendix I.

Architectural Results

The proposed flood control project comprises two parts: a floodwall along the east side of the Causeway and a levee along the waterfront of the city of Mandeville and Little Bayou Castine (Figure 10). The proposed levee would be located within an existing linear park along the north shore of Lake Pontchartrain in Mandeville. The project area will be discussed in three parts: the floodwall proposed for the western section near the Causeway, the levee along the north shore of Lake Pontchartrain through Mandeville, and the levee located along Little Bayou Castine.

Western Floodwall

The proposed floodwall will be oriented parallel to the east side of the Causeway (Figure 1, Sheets 1 and 2). The Causeway is a four-lane elevated highway that effectively blocks all views of the project item from the west. The section east of the Causeway is characterized by modern development completed during the 1980s; it contains single-family housing units and townhouses. In addition, this section includes the Mariners Village Private Marina along the lake front. No buildings older than 50 years will be affected by construction in this area.

Lakeshore Levee

Construction of a levee is proposed, which will begin north of Mariner's Village Marina and proceed east across the vacant Prestressed Concrete Products Co., Inc., industrial site and through a cypress swamp until it reaches the western edge of Lakeshore Drive (Figure 1, Sheets 1 and 2). No buildings are located in this area.

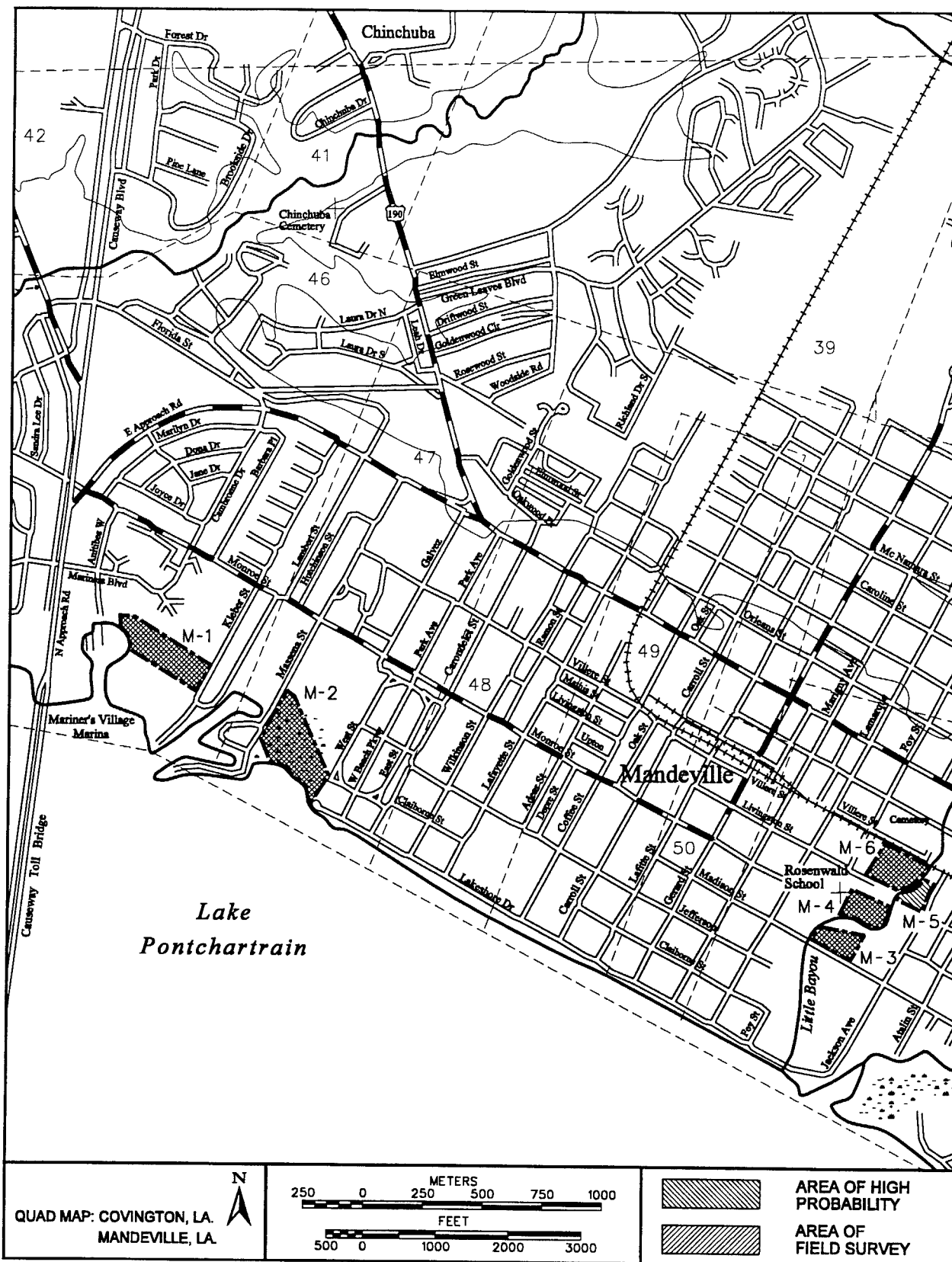


Figure 9. Excerpts from the 1996 digital 7.5' series topographic quadrangles, Covington and Mandeville, Louisiana, depicting the survey segments and areas of high archeological probability.

Table 11. Results of the Initial Phase I Archeological Assessment of the Mandeville Project Item.

SEGMENT/ AREA	TOTAL AREA	AREA SURVEYED	SHOVEL TESTS ¹	RESULTS AND RECOMMENDATIONS
M-1	11.5 ac (4.6 ha)	11.5 ac (4.6 ha)	35/40	No cultural resources were identified and no additional testing is recommended.
M-2	15.3 ac (6.2 ha)	15.3 ac (6.2 ha)	05/05	No cultural resources were identified and no additional testing is recommended.
M-3	4.1 ac (1.6 ha)	4.1 ac (1.6 ha)	19/20	No cultural resources were identified and no additional testing is recommended.
M-4	4.7 ac (1.9 ha)	4.7 ac (1.9 ha)	17/22	No cultural resources were identified and no additional testing is recommended.
M-5	2.3 ac (0.9 ha)	0.0 ac (0.0 ha)	NA	None of this segment has been surveyed. Pedestrian survey and shovel testing is recommended.
M-6	6.8 ac (2.8 ha)	6.8 ac (2.8 ha)	16/24	No cultural resources were identified and no additional testing is recommended.
Totals	44.7 ac (18.1 ha)	42.4 ac (17.2 ha)	92/106	Pedestrian survey and shovel testing of Segment M-5 is recommended.

¹ The total number of shovel tests excavated is located to the left of the /, the total number of shovel tests attempted during subsurface testing is located to the right of the /. The NA entry indicates that Segment M-5 is currently unsurveyable due to a right-of-entry problem and currently no shovel tests have been attempted.

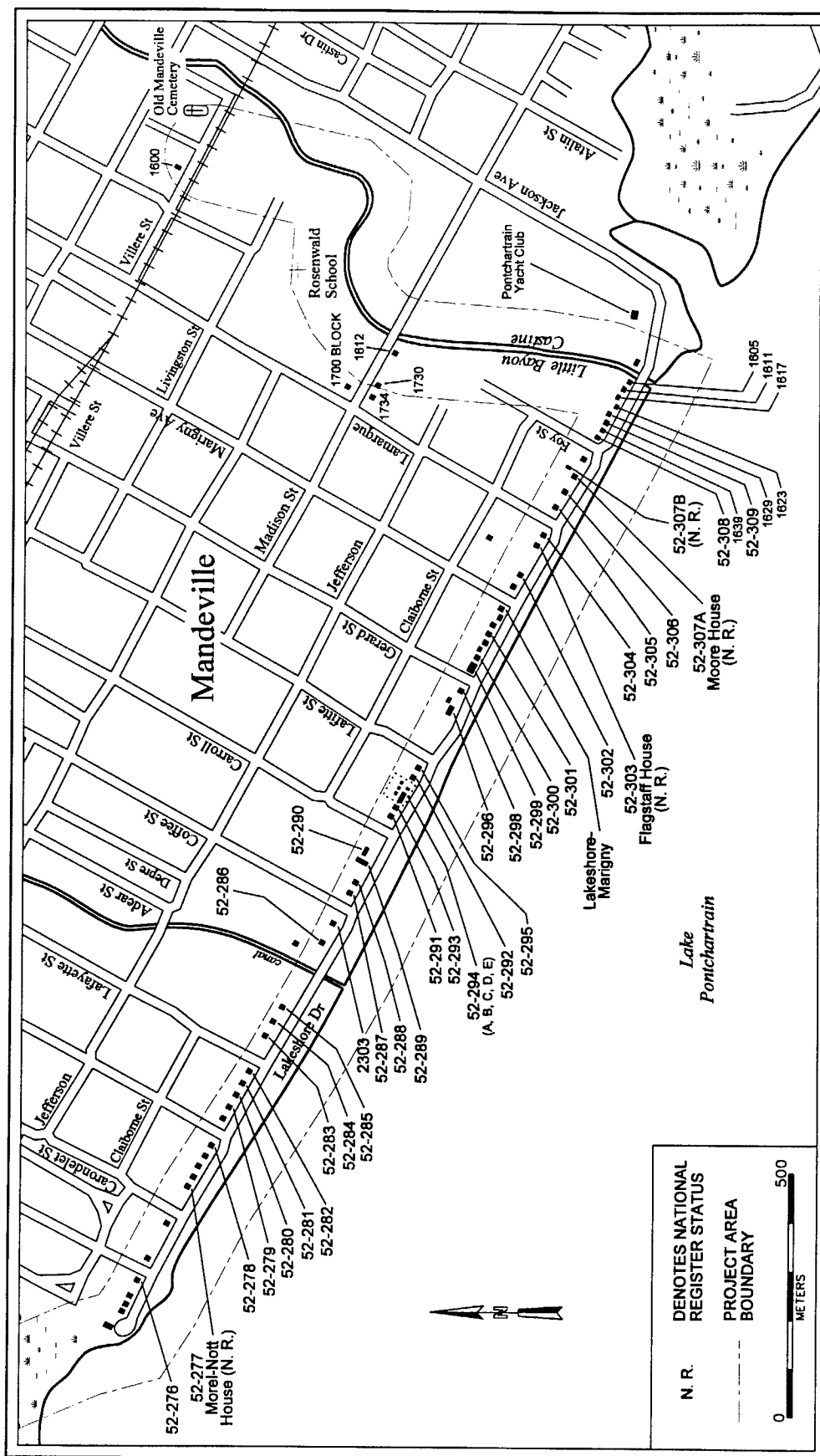


Figure 10. Excerpts from the 1996 digital 7.5' series topographic quadrangles, Covington and Mandeville, Louisiana, depicting the historic standing structures located within the project area.

Table 12. Standing Structures Located in the Mandeville Project Item.

Standing Structure No.	Address	Type	Date Range
52-276	2801 Lakeshore Drive	Residential	ca. 1930
52-277	2627 Lakeshore Drive	Residential	ca. 1840
52-278	2603 Lakeshore Drive	Residential	ca. 1900
52-279	2535 Lakeshore Drive	Residential	ca. 1900
52-280	2529 Lakeshore Drive	Residential	ca. 1925
52-281	2525 Lakeshore Drive	Residential	1830
52-282	2505 Lakeshore Drive	Residential	ca. 1900
52-283	2441 Lakeshore Drive	Residential	ca. 1850
52-284	2423 Lakeshore Drive	Residential	ca. 1842
52-285	2407 Lakeshore Drive	Residential	1857
52-286	2313 Lakeshore Drive	Residential	ca. 1930
52-287	2247 Lakeshore Drive	Residential	ca. 1905
52-288	2239 Lakeshore Drive	Residential	ca. 1930
52-289	2223 Lakeshore Drive	Commercial	ca. 1905
52-290	2221 Lakeshore Drive	Commercial	ca. 1930
52-291	2143 Lakeshore Drive	Residential/Commercial	ca. 1926
52-292	2113 Lakeshore Drive	Commercial	ca. 1840
52-293	2135 Lakeshore Drive	Residential	ca. 1900
52-294 A-E	2129 Lakeshore Drive	Social	ca. 1885
52-295	2101 Lakeshore Drive	Commercial	ca. 1930
52-296	2025 Lakeshore Drive	Commercial	ca. 1885
52-298	2001 Lakeshore Drive	Commercial	ca. 1900
52-299	1951 Lakeshore Drive	Commercial	ca. 1860
52-300	1943 Lakeshore Drive	Residential/Commercial	Not Available
52-301	1925 Lakeshore Drive	Residential	ca. 1900
52-302	1839 Lakeshore Drive	Residential	ca. 1930
52-303	1815 Lakeshore Drive	Residential	ca. 1850-1900
52-304	1807 Lakeshore Drive	Residential	Not Available
52-305	1725 Lakeshore Drive	Residential	ca. 1860
52-306	1721 Lakeshore Drive	Residential	1835
52-307A/B	1717 Lakeshore Drive	Residential	ca. 1830
52-308	1647 Lakeshore Drive	Residential	ca. 1930
52-309	1635 Lakeshore Drive	Residential	ca. 1850
RCG-064	Corner of Lamarque and Madison Streets	Residential	Not Available
RCG-065	1600 Villere Street	Residential	ca. 1900
RCG-067	1605 Lakeshore Drive	Residential	ca. 1900
RCG-068	1611 Lakeshore Drive	Residential	ca. 1900
RCG-069	1617 Lakeshore Drive	Residential	ca. 1900
RCG-070	1623 Lakeshore Drive	Residential	ca. 1900
RCG-071	1629 Lakeshore Drive	Residential	ca. 1900
RCG-073	1639 Lakeshore Drive	Residential	ca. 1900
RCG-106	Corner of Lakeshore Drive and Marigny	Residential	Not Available
RCG-134	2303 Lakeshore Drive	Residential	ca. 1920
RCG-168	Corner of Lakeshore Drive and Jackson Avenue	Social	ca. 1900
RCG-169	1612 Madison Street	Residential	ca. 1900
RCG-176	1730 Madison Street	Residential	ca. 1910
RCG-177	1734 Madison Street	Residential	ca. 1930

Levee construction is proposed along the north shore of Lake Pontchartrain following the shoreline and Lakeshore Drive. The lakeshore currently is lined by a recent concrete seawall, approximately 1.8 to 2.4 m (6 to 8 ft) high. An open, grassy linear park with a few mature trees is located directly in front of the seawall; the park also contains a sidewalk. Lakeshore Drive is a two-lane road; it runs parallel to the lakeshore and terminates at Jackson Drive, east of Little Bayou Castine.

Mandeville is organized using a basic grid plan; however, the blocks are irregularly sized since not all the streets have been platted. The southern boundary of the city is defined by the shoreline. Lakeshore Drive provides a primary east-west transportation artery. The other east-west thoroughfares are Jefferson Street, located two blocks north of the lake, and Monroe Street, located four blocks north of the lake. The north-south streets are named Lamarque, Marigny, Gerard, Lafitte, Carroll, Coffee, Lafayette, Wilkinson, Carondelet, and West Beach Parkway.

Detached dwellings are the dominate building type. Lot sizes vary throughout the neighborhood. Lakeshore Drive is the primary residential street and is lined by large, one and two-story buildings (Table 12). One-story cottages, bungalows, and shotguns are situated along the side streets. Commercial buildings are cited at the intersection of Girard Street and Lakeshore Drive and along Carroll Street.

The city of Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district. It has a significant history as a lakeshore resort in St. Tammany Parish from its founding in 1834 through the early twentieth century (Criterion A). The city represents a distinguishable entity containing buildings that exhibit the distinctive characteristics of local Louisiana domestic architecture from the late nineteenth through the early twentieth centuries (Criterion C). To date, an historic district in Mandeville is not listed officially in the National Register of Historic Places or designated by a local planning ordinance.

No physical destruction, damage, or alteration will occur to buildings older than 50 years during the construction of the proposed levee. However, the levee will have a direct visual effect on the historic buildings located along Lakeshore Drive (Figure 10; Table 12). These buildings comprise the most architecturally distinguished dwellings in the city and include three properties that are individually listed in the National Register of Historic Places. The buildings command sweeping views of the lake. These views are integral to the historic setting of the dwellings. The current seawall, although providing a physical boundary from the lake, does not impact the viewshed from these dwellings.

Viewsheds of the proposed project will be minimal from the side streets. The narrowness of the side streets, the set-backs of the residential buildings, and the number of trees reduce the lake views from the side streets. Vegetation is comprised of live oaks and other evergreens that block views of the lake year round. The widest side streets are West Beach Parkway, Carroll Street, Gerard Street, and Marigny Street. West Beach Parkway and Marigny Street are divided boulevards with trees planted in a central median. These median plantings further reduce the view of the lake.

Little Bayou Castine Levee

Little Bayou Castine flows into Lake Pontchartrain from a northeasterly direction and currently can be characterized as a thick cypress swamp. The path of the bayou interrupts the city grid at its eastern edge. Development near the bayou is sparse. The bayou does not command scenic views; no buildings are oriented towards the bayou (Figure 10).

On the western side of the bayou, the closest street that runs north from the lake is Lamarque Street. The path of Foy Street, one block east of Lamarque, is interrupted by the bayou. The nearby housing is characterized by one-story shotguns or cottages. Jackson Drive is located east of the bayou.

Houses built along these streets are oriented with their rear elevations to the bayou. The housing stock that faces Jackson Drive is modern. No effects of levee construction are anticipated for buildings located along these north-oriented streets.

Only three east-west streets cross the bayou in the project area: Lakeshore Drive, Madison Street, and Montgomery Street. Railroad tracks following the path of Villere Street also cross the bayou. Six buildings older than 50 years of age were identified along these streets. In addition, the Old Mandeville Cemetery borders the bayou north of the railroad tracks; it occupies the block north of Villere Street and south of Montgomery Street. The Old Mandeville Cemetery dates from the postbellum era, ca. 1866, and currently is in use. The cemetery is not eligible for inclusion on the National Register of Historic Places, because it is a cemetery, and further, it does not meet criteria consideration d; the Old Mandeville Cemetery does not derive its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events. A portion of the cemetery and one residence on Villere Street are located within the planned 200 m (656 ft) wide corridor (Table 12).

Four buildings located along Madison Street appear to be older than 50 years of age, and they are located within the 200 m (656 ft) wide proposed construction corridor (Table 12). The dwellings located at 1612 and 1730 Madison Street are positioned closest to the bayou; their side elevations overlook the bayou.

The dwellings at 1605 and 1617 Lakeshore Drive also may be affected directly by levee construction through the bayou, depending on the exact location and width of the proposed levee. These buildings define the eastern end of Lakeshore Drive and may be contributing buildings to a potential Mandeville Historic District. Although these buildings front onto Lake Pontchartrain, their side elevations are located close to the bayou.

The buildings identified along Little Bayou Castine may be associated with a potential Mandeville Historic District. It is recommended that additional historic and architectural work be undertaken to establish the exact boundaries of such a historic district and to identify all of the contributing resources. In addition, more detailed construction plans will be needed to determine if construction of a levee through the bayou will result in the physical destruction or alteration of these properties.

Archeological Survey

Following an initial literature review and a disturbance examination, only six locations within 100 m (323 ft) of the proposed project centerline were classified as having a high potential to contain either intact prehistoric or historic period cultural deposits. Each of these segments are positioned in locations that originally were used or developed during the Historic period and are situated along a natural watercourse. These high probability zones or segments encompass approximately 44.7 ac (18.1 ha); they were assigned the field designations M-1 through M-6 (Figure 9). While each of these segments was slated for pedestrian survey and subsurface testing, permission to access Segment M-5 could not be obtained. Efforts to contact landowners were made either in person or by telephone. If these attempts were unsuccessful, then letters requesting permission to access the land were left at the residence. Additionally, a limited time schedule to conduct survey prohibited the number of attempts to contact the landowners.

Segment M-1

Segment M-1 is an 11.5 ac (4.6 ha) parcel owned by Mariner's Village Marina and located immediately east of the marina. It lies at an approximate elevation of 2.1 m (7 ft; Figure 9; Table 11).

Currently, the northern portion of this grassy area is used for boat storage and maintenance; it gently slopes towards the lake. The southern portion of the segment, an open grassy field along the shore of Lake Pontchartrain, consists primarily of dredge spoil used both as fill and to prevent erosion (David Keyser [Harbor Master] and Don Mills [Groundskeeper] 1996:personal communication). The survey segment is bounded on the east by a channelized drainage positioned adjacent to an abandoned cement factory.

During pedestrian survey and shovel testing of the M-1 survey segment, 35 of 40 planned shovel tests were excavated throughout the area. Shovel tests were not excavated in a densely packed road surface, or within the maintenance and dry dock area. Each shovel test was excavated to an average depth of 50 cm below surface (cmbs) (19.7 in below surface [inbs]). A typical shovel test exhibited three strata in profile (Figure 11). Stratum I consisted of a compact layer of 10YR 4/3 dark brown silt, extended from 0 to 10 cmbs (0 to 3.9 inbs). Stratum II, a very compact 10YR 5/6 yellowish brown silt, extended from 10 to 15 cmbs (3.9 to 5.9 inbs). Stratum III contained very compact mottled soils; these included a 10YR 5/4 yellowish brown silt, a 10YR 7/2 light gray clayey sand, and a 10YR 6/8 brownish yellow clayey silt that extended from 15 to 50 cmbs (5.9 to 19.7 inbs). Soil mottling and mixing was observed at the interface of all strata, and dredge spoil was observed throughout. Segment M-1 has been impacted both by natural and mechanical activities and currently is in poor condition. The thick carpet of planted grass prohibited an examination of the surface, and no cultural material was recovered. No evidence of intact cultural deposits was observed as a result of this survey. No additional testing of Survey Segment M-1 is recommended.

Segment M-2

Survey Segment M-2 consists of an approximately 15.3 ac (6.2 ha) parcel located between Sunset Point Park and the existing lake front seawall (Figure 9; Table 11). The segment contains low lying swampland that lies at an approximate elevation of 1.5 m (5 ft) or less. Pedestrian survey along transects spaced 25 m (82 ft) apart was undertaken to identify possible rises and/or the presence of shell middens. During the visual reconnaissance of this survey segment, impeded by stands of brush, flotsam, and shallow water that extended over 40 percent of the area, five shovel tests were judgmentally excavated. All five of these shovel tests were terminated when water was encountered, i.e., at an approximate depth of only 12 cmbs (4.7 inbs). Each of these shovel tests contained a single stratum of 10YR 5/2 silt (Figure 11). No cultural resource material was recovered during this assessment of this survey segment. No additional testing at Survey Segment M-2 is recommended.

Segment M-3

Survey Segment M-3 encompasses approximately 4.1 ac (1.6 ha) and is positioned north of Madison Street on the left ascending bank of Little Bayou Castine (Figure 9; Table 11); initial investigations indicated that this area might contain prehistoric cultural resources. During the Phase I survey and assessment of this high probability zone, four linear transects spaced 25 m (82 ft) apart were established throughout the area. An examination of the surface was determined to be impractical due to a thick mat of decomposing vegetation; however, survey resulted in the excavation of 19 of 20 planned shovel tests along survey transects spaced 25 m (82 ft) apart.

The average shovel test was excavated to a depth of 38 cmbs (15.0 inbs) and displayed two strata in profile (Figure 11). Stratum I, a layer of 10YR 3/2 very dark grayish brown silt loam, extended from 0 to 13 cmbs (0 to 5.1 inbs). This was underlain by Stratum II, a damp 10YR 6/4 light yellowish brown sand; this stratum extended from 13 to 38 cmbs (5.1 to 15.0 inbs). A small percentage of the excavated shovel tests (n=5) contained a basal Stratum III that was described as a 10YR 6/8 brownish yellow sandy clay. This highly compact layer extended from 38 to 50 cmbs (15.0 to 19.7 inbs). Soil mottling and mixing,

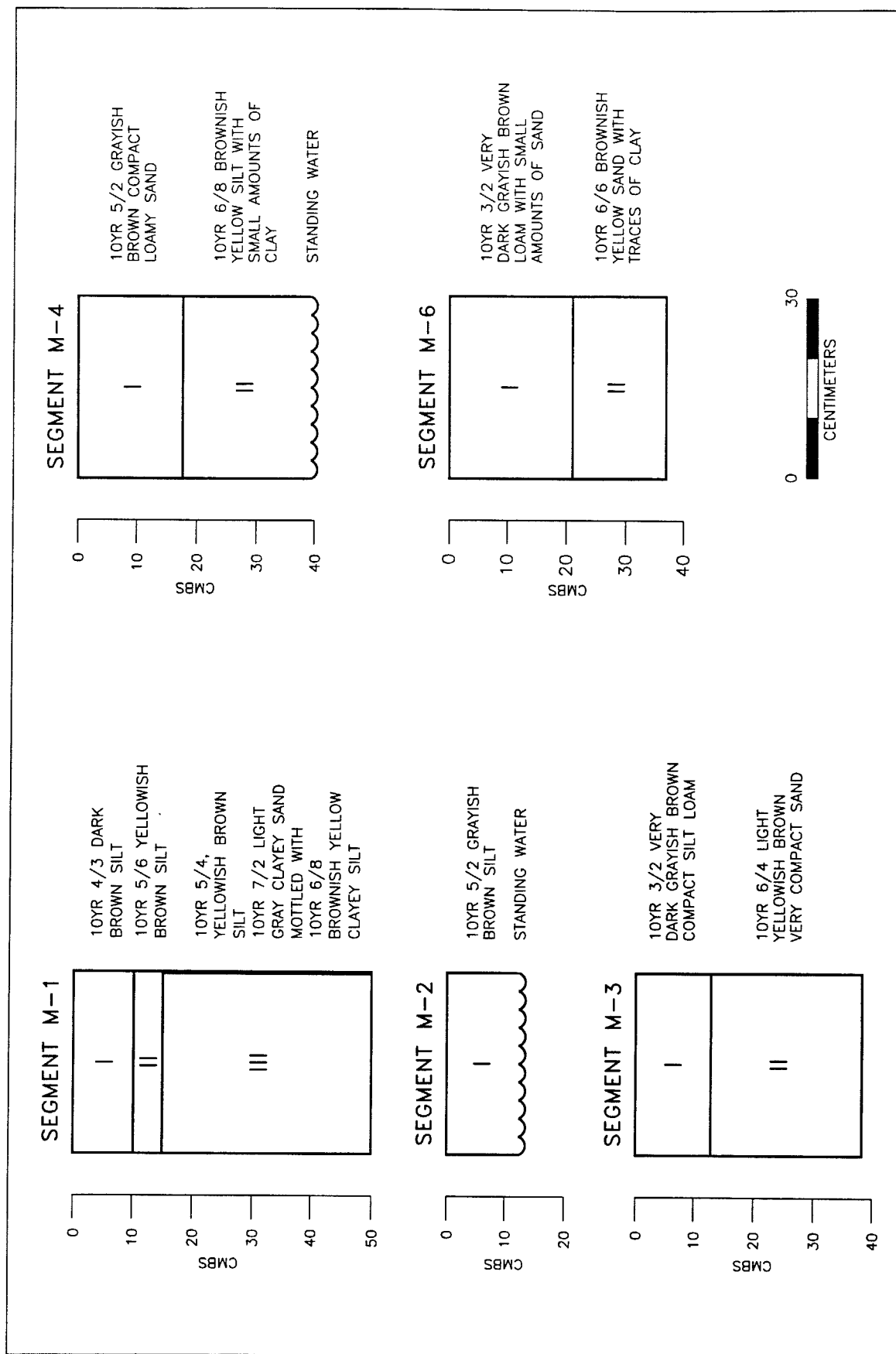


Figure 11. Representative shovel tests excavated at Segments M-1, M-2, M-3, M-4, and M-6 during the archeological survey of the Mandeville project area.

indicative of regular flooding, were observed to a varying degree in all three strata. No cultural resource material and no evidence of intact cultural deposits were identified as a result of this assessment. No additional testing of Survey Segment M-3 is recommended.

Segment M-4

Survey Segment M-4 measures approximately 4.7 ac (1.9 ha) in size and is positioned on the right ascending bank of Little Bayou Castine (Figure 9; Table 11). This segment lies at elevations ranging from approximately less than 1.5 to 3.1 m (5 to 10 ft) NGVD and consists of gently sloping topography that may have been conducive to prehistoric occupation. Portions of the segment are located on the modified and manicured grounds of Rosenwald Elementary School (Figure 9). Surface reconnaissance suggested that less than 50 percent of the ground surface was obscured by litter or vegetation. This examination of the segment was augmented by the excavation of 17 of 22 planned shovel tests. The five remaining shovel tests were not excavated due to obviously disturbed or altered surfaces, or to the presence of standing water. Each shovel test was excavated to a depth of approximately 39 cmbs (15.4 inbs) at which point standing water was encountered. A typical shovel test displayed two strata in profile (Figure 11). Stratum I, a layer of 10YR 5/2 grayish brown compact loamy sand, extended from 0 to 17 cmbs (0 to 6.7 inbs). This was underlain by Stratum II, a layer of 10YR 6/8 moist brownish yellow silt that contained small amounts of clay; it extended from 17 to 38 cmbs (6.7 to 15.0 inbs). Subsurface testing and visual examination of Segment M-4 failed to produce any cultural material or evidence of intact cultural deposits. A long-time resident of Livingston Street reported that a number of school children in the area had collected prehistoric artifacts, including projectile points and prehistoric ceramics sherds, during the most recent addition to the school (Joe Bono 1996:personal communication). This obviously disturbed area was visually examined, but no artifacts were observed. Attempts to excavate shovel tests were unsuccessful due to concrete and sundried clay. No additional testing of Segment M-4 is recommended.

Segment M-5

Survey Segment M-5 is an approximately 2.3 ac (0.9 ha) area characterized by a low rise (Figure 9; Table 11). The area overlooks Little Bayou Castine from the left ascending bank. During the course of the survey, several attempts were made to gain access to this property both by personal visits to the residence and by leaving a letter requesting permission to survey the grounds; however, these attempts proved unsuccessful. The land owner currently is unknown. This parcel of land is a portion of a well-maintained backyard and may very well be mechanically altered to a manicured state. It is suggested that visual inspection and possibly subsurface testing be performed throughout Segment M-5 prior to any proposed construction impact.

Segment M-6

Survey Segment M-6 encompassed roughly 6.8 ac (2.8 ha) located between Livingston Street and the Illinois Central Gulf Railroad (Figure 9; Table 11). The terrain is steeply sloping, elevations throughout the area range from 0 to 3.1 m (0 to 10 ft), and the eastern end of the survey is regularly inundated; however, there is enough flat or gently sloping land to suggest that it may have been used by prehistoric populations. Approximately 16 of 24 planned shovel tests were excavated throughout the area. The remaining shovel tests were not excavated because of standing water, excessive slope, or a combination of mechanical and natural erosion. A typical shovel test soil profile contained two strata and was excavated to a depth of 37 cmbs (14.6 inbs; Figure 11). Stratum I, a layer of 10YR 3/2 very dark grayish brown loam with small amounts of sand, extended from 0 to 21 cmbs (0 to 8.3 inbs). This was underlain by Stratum II, a layer of 10YR 6/6 brownish yellow sand that included some traces of clay; it extended from 21 to 37

cmbs (8.3 to 14.6 inbs). Almost 60 percent of the shovel tests (n=9) contained standing water. Neither visual inspection of the largely obscured ground surface (greater than 60 percent) nor subsurface testing of the project area produced evidence of artifacts or intact cultural deposits. No additional testing of Survey Segment M-6 is recommended.

Summary and Recommendations

Phase I cultural resources survey and architectural reconnaissance of the Mandeville project area was conducted along the length and across the width of this 200 m (656 ft) corridor that encompassed the proposed flood wall and levee location in Mandeville, Louisiana (Figure 1, Sheets 1 and 2). The architectural survey was undertaken to identify all historic standing structures within the impact corridor as well as those that might be visually impacted by the proposed construction.

Architectural investigations revealed that direct effects of levee construction may occur to buildings older than 50 years located along Little Bayou Castine and to the Old Mandeville Cemetery. Buildings located along Lakeshore Drive and Little Bayou Castine may be included in a potential Mandeville Historic District. It is recommended that additional historic and architectural work be undertaken to establish the exact boundaries of this potential district. While not eligible for inclusion on the National Register of Historic Places, the Old Mandeville Cemetery should be avoided, and a modification to the current alignment plan may be required. Additionally, the cemetery should be protected from any visual impacts resulting from construction along Little Bayou Castine.

The visual impacts to buildings located along Lakeshore Drive in Mandeville will be adverse. The levee will obstruct direct views to Lake Pontchartrain for buildings located along this street. The visual relationship between the dwellings and the lake are part of the resources' historic setting and is important in maintaining the integrity of the area. Lakeshore Drive is the location of some of the oldest and most elaborate dwellings in the city. Three of the dwellings located on this street already have been listed individually in the National Register of Historic Places (Figure 10).

Archeological survey focused on six segments (M-1 - M-6), i.e., on 44.7 ac (18.1 ha) that had been identified as having a high probability for containing intact prehistoric and/or historic period cultural deposits.

Survey Segments M-1 through M-4 and Segment M-6 were surveyed for evidence of intact cultural resources; right-of-entry could not be obtained to survey Segment M-5. None of the surveyed areas produced cultural material or contained evidence of intact cultural deposits. No additional testing of these areas is recommended. Segment M-5 should be surveyed archeologically prior to any impacts associated with the proposed construction.

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PERSONAL COMMUNICATIONS

Joe Bono, 1996

Linda Burnett, 1996

Joseph Anthony Giliberti, 1995

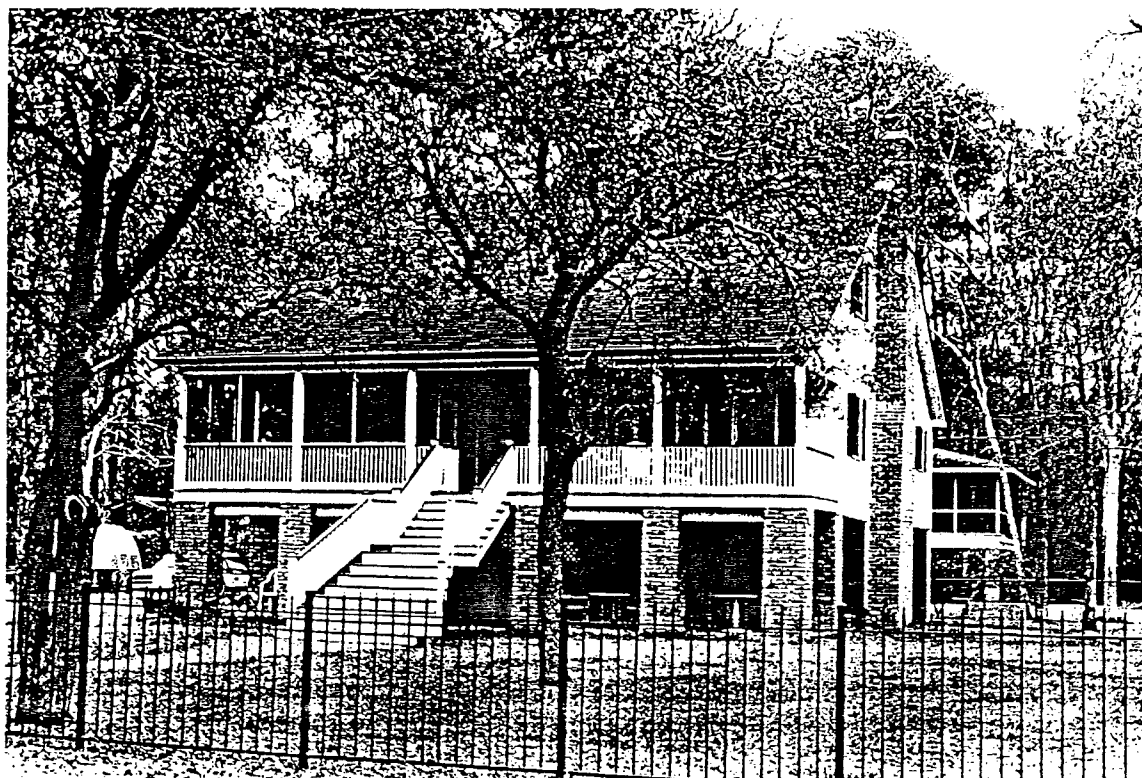
David Keyser, 1996

Don Mills, 1996

APPENDIX I

STANDING STRUCTURES SURVEY

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 47
 Property Address 2801 Lakeshore Drive
 Property Type Residential Construction Date ca. 1930
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

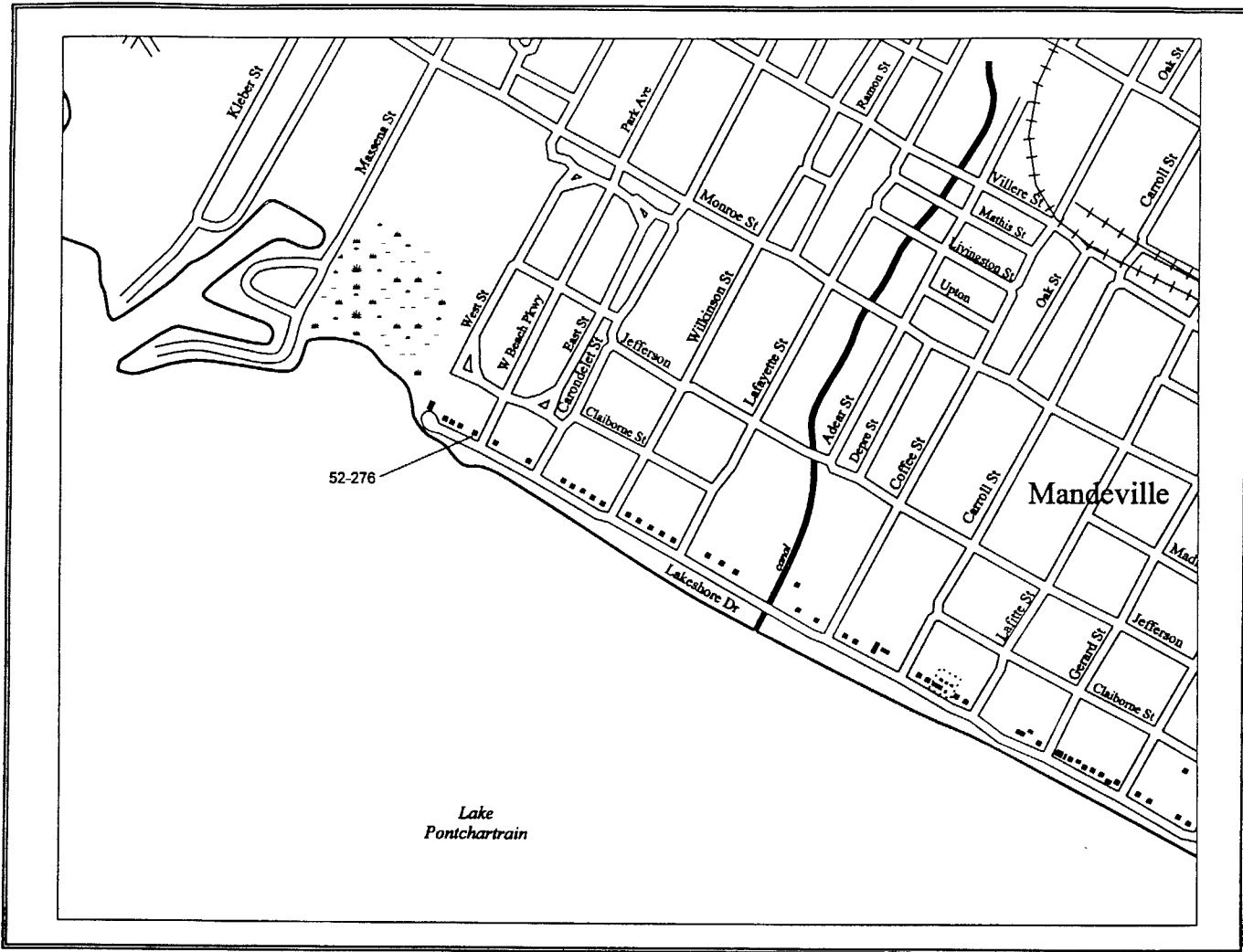
II. Condition Good Style Raised Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

2801 Lakeshore Drive is a wood-frame, two-story residence supported on brick piers and a raised basement. The five-bay front facade is clad in horizontal lap board. Louvered French doors open onto a full-facade front gallery. This screened gallery has six wooden turned columns. The continuous-pitched side-gabled roof is clad in composition roll shingles. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted *A Field Guide to American Houses* by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-17

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 48

Property Address 2627 block of Lakeshore Drive

Property Type Residential Construction Date ca. 1890

Name (Common) Hanisee House Name (Historic) Morel-Nott House

Owner & Owner Address _____

II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Horizontal lap board

III. Physical Description of Property and Historic Significance.

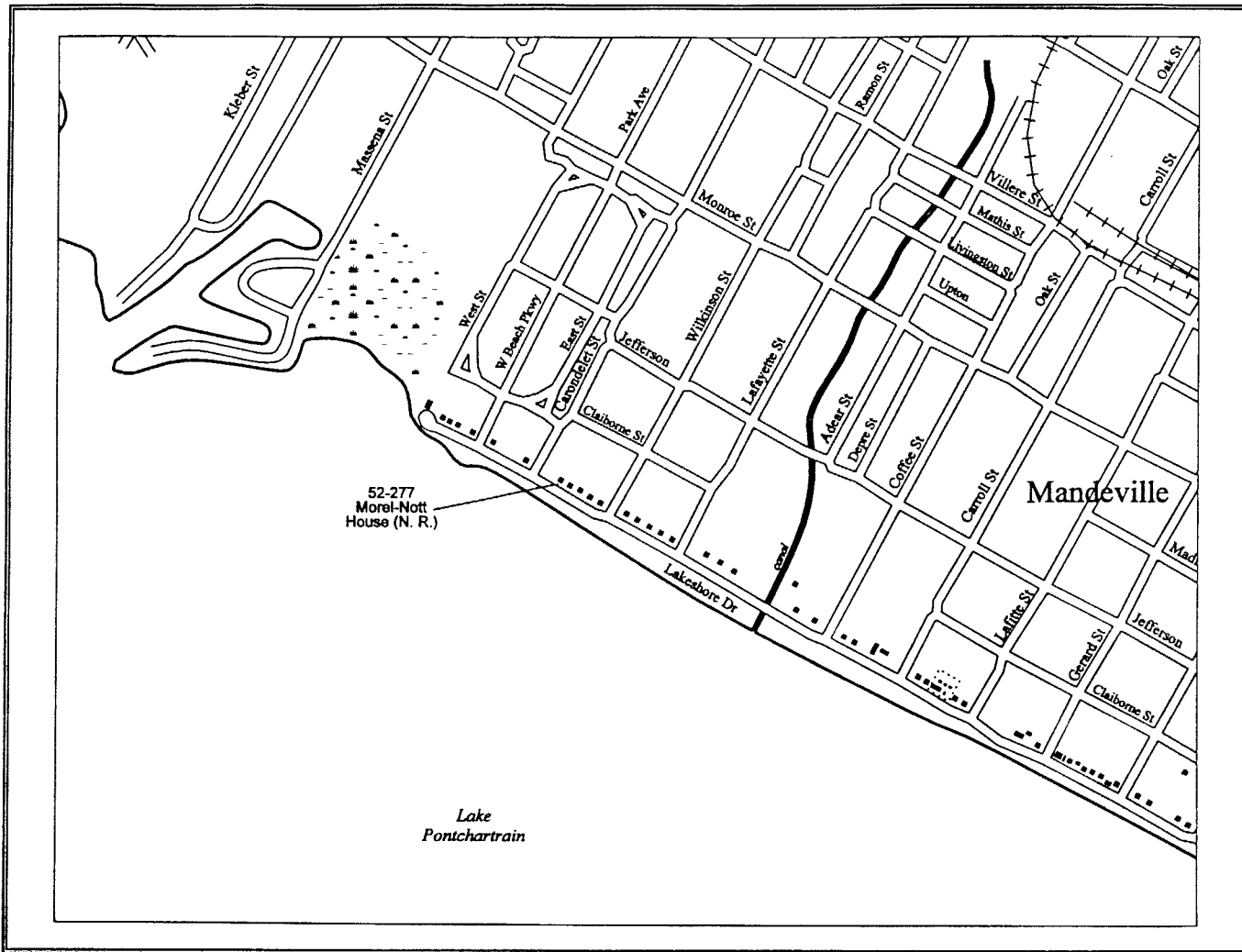
This house is a raised Creole cottage supported on brick piers. The wood-frame building is clad with clapboard. The steeply-pitched, side-gable roof is clad with slate. Four shuttered French doors open onto the front gallery. This building was moved from its original location in 1965. It was listed in the National Register of Historic Places in 1979.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by

Date March 18, 1996 Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-32

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

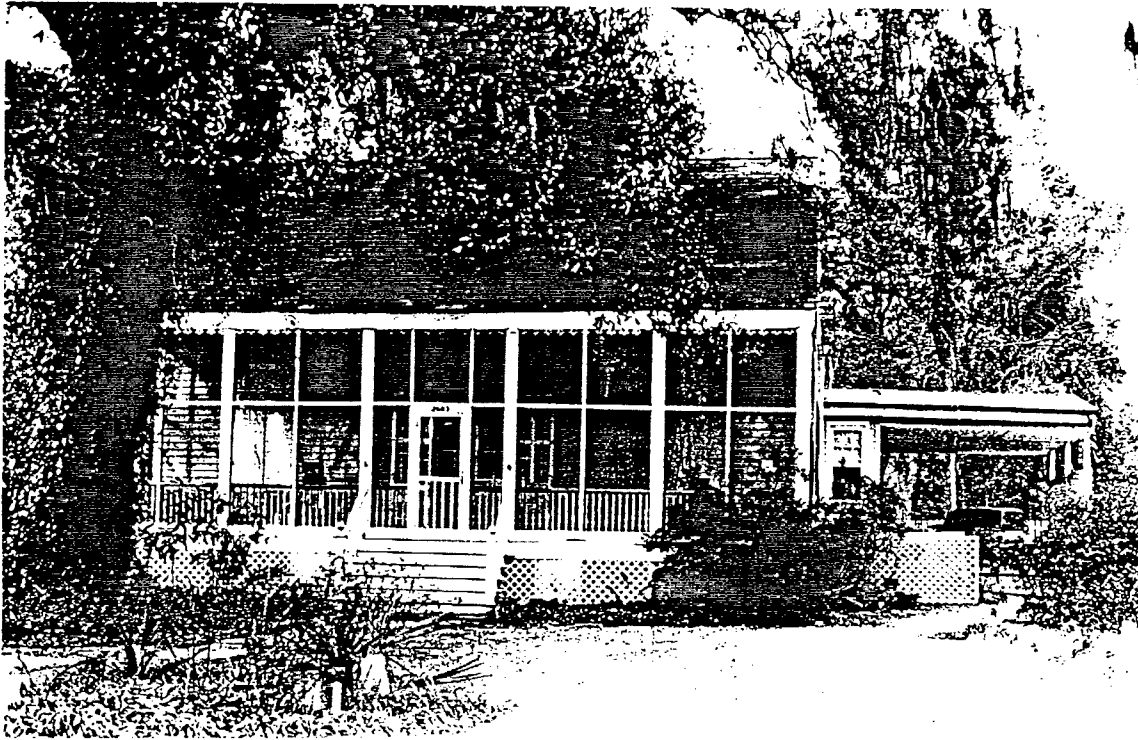
Remarks: This house is presently on the National Register of Historic Places

Other features: _____ porch/gallery(s) X _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2603 Lakeshore Dr.Property Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

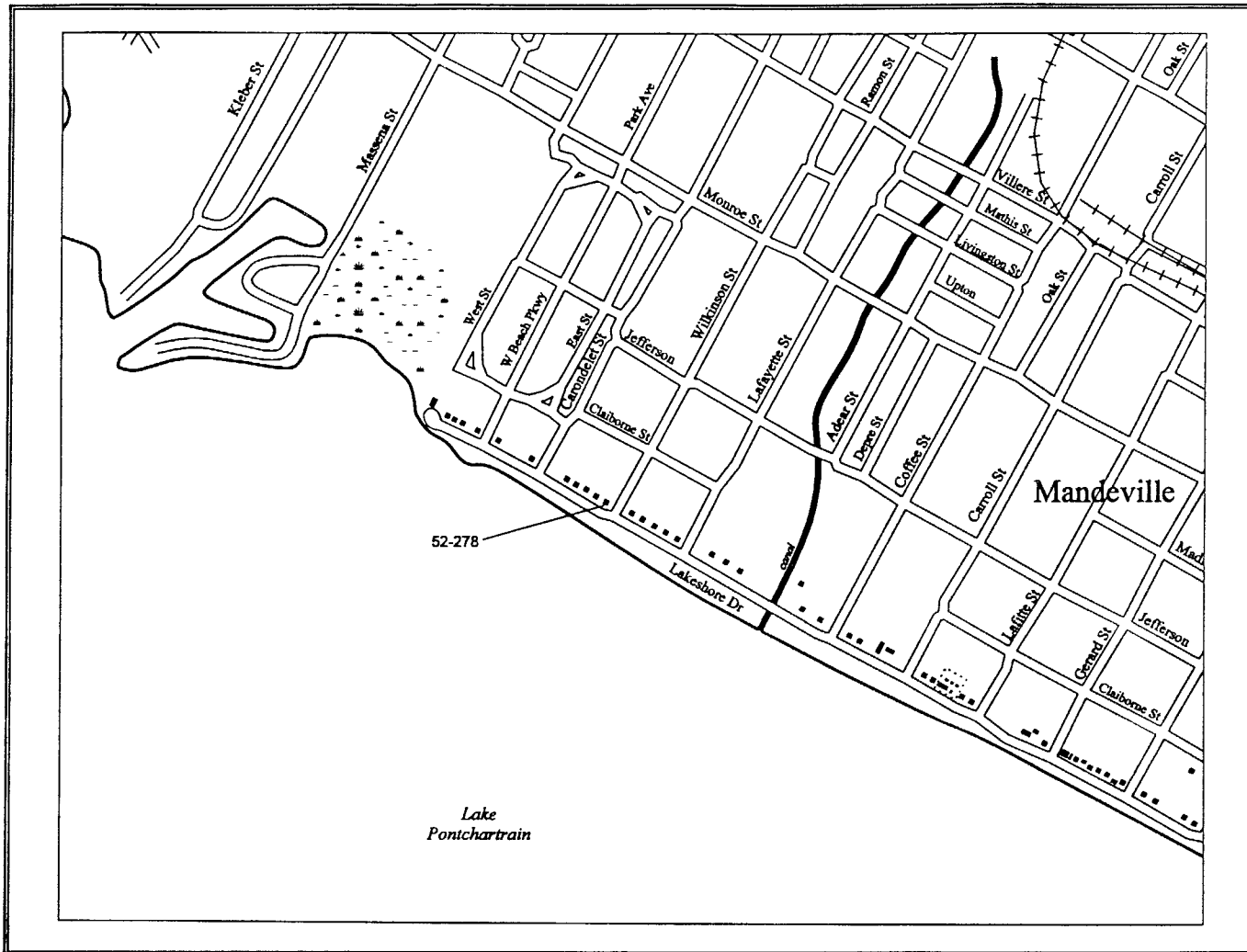
II. Condition Good Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This wood-frame, one-story building is clad with clapboard. The house is supported on brick piers. The side-gabled roof is clad with shingles. The full-facade front gallery is screened. The central doorway has a transom. The windows have shutters. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.Date March 18, 1996For U.S.A.C.O.E., New Orleans DistrictV. Sources Consulted A Field Guide to American Houses byVirginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-30

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 48
 Property Address 2535 Lakeshore Drive
 Property Type Residential Construction Date ca. 1900
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan Bungalow Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story, wood-frame residence is raised on brick piers. The walls are clad in horizontal lap board. The front facade is five bays across. The windows are nine-over-nine-light, double hung sash. The central front door is a glazed French door. The canted side-gabled roof is clad in composition roll shingles; a single front dormer with four six-over-six-light, double hung sash windows is located in the front of the house. The full-facade front porch has four square wooden columns. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.

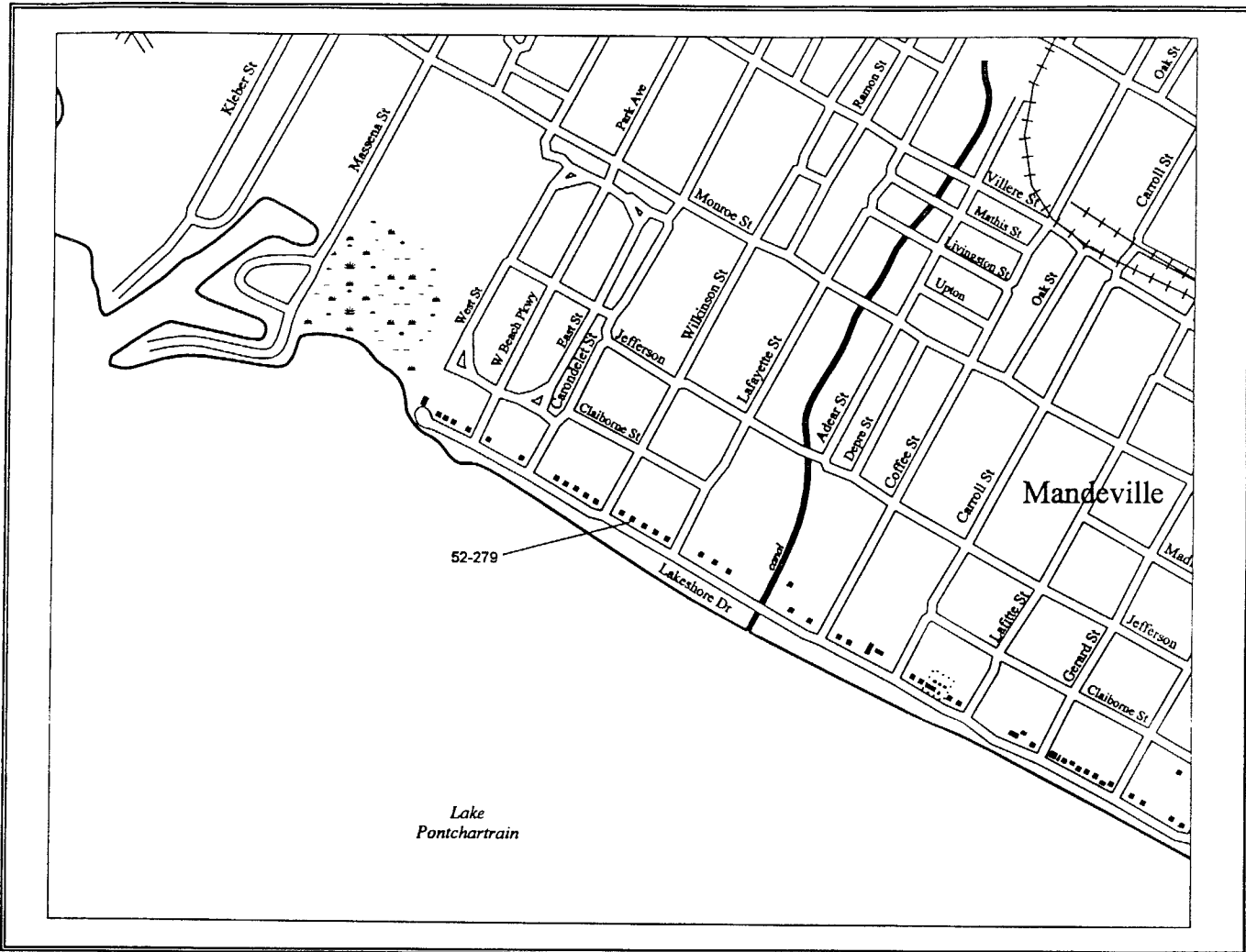
Date March 18, 1996

For U.S.A.C.O.E., New Orleans District

V. Sources Consulted *A Field Guide to American Houses* by

Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-29

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

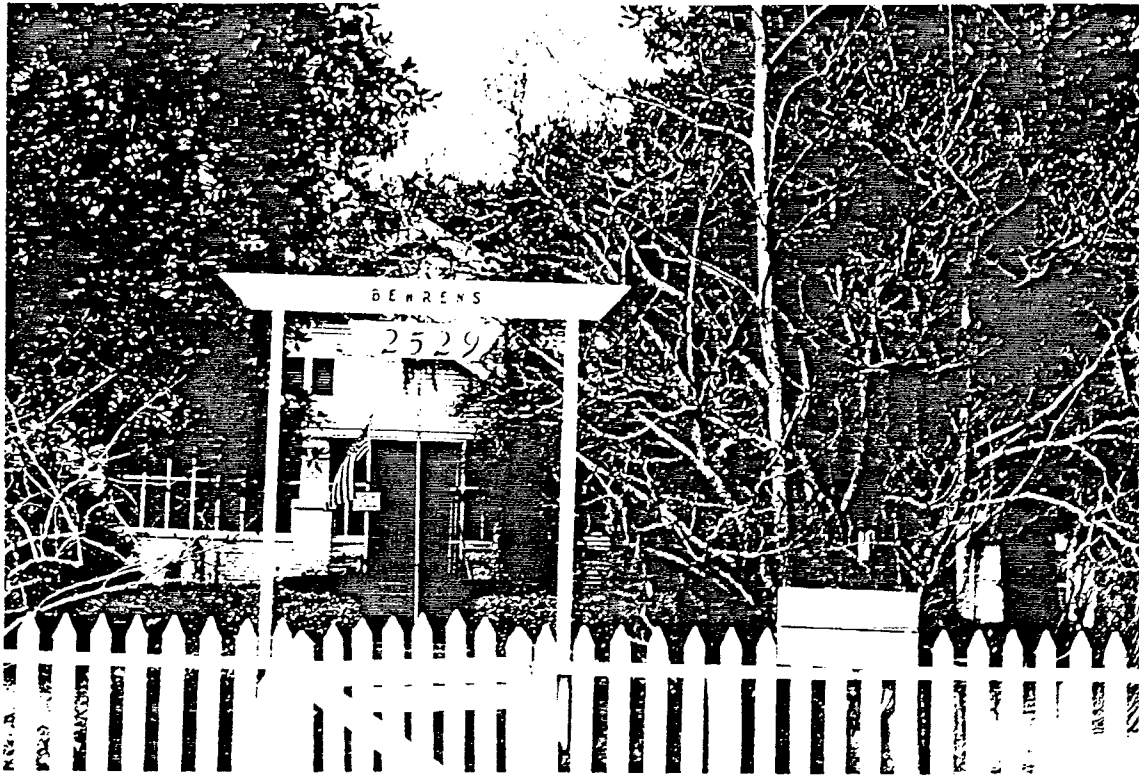
Remarks: This structure has been severely altered since the 1982 survey across the front facade.

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2529 Lakeshore DriveProperty Type Residential Construction Date ca. 1925

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

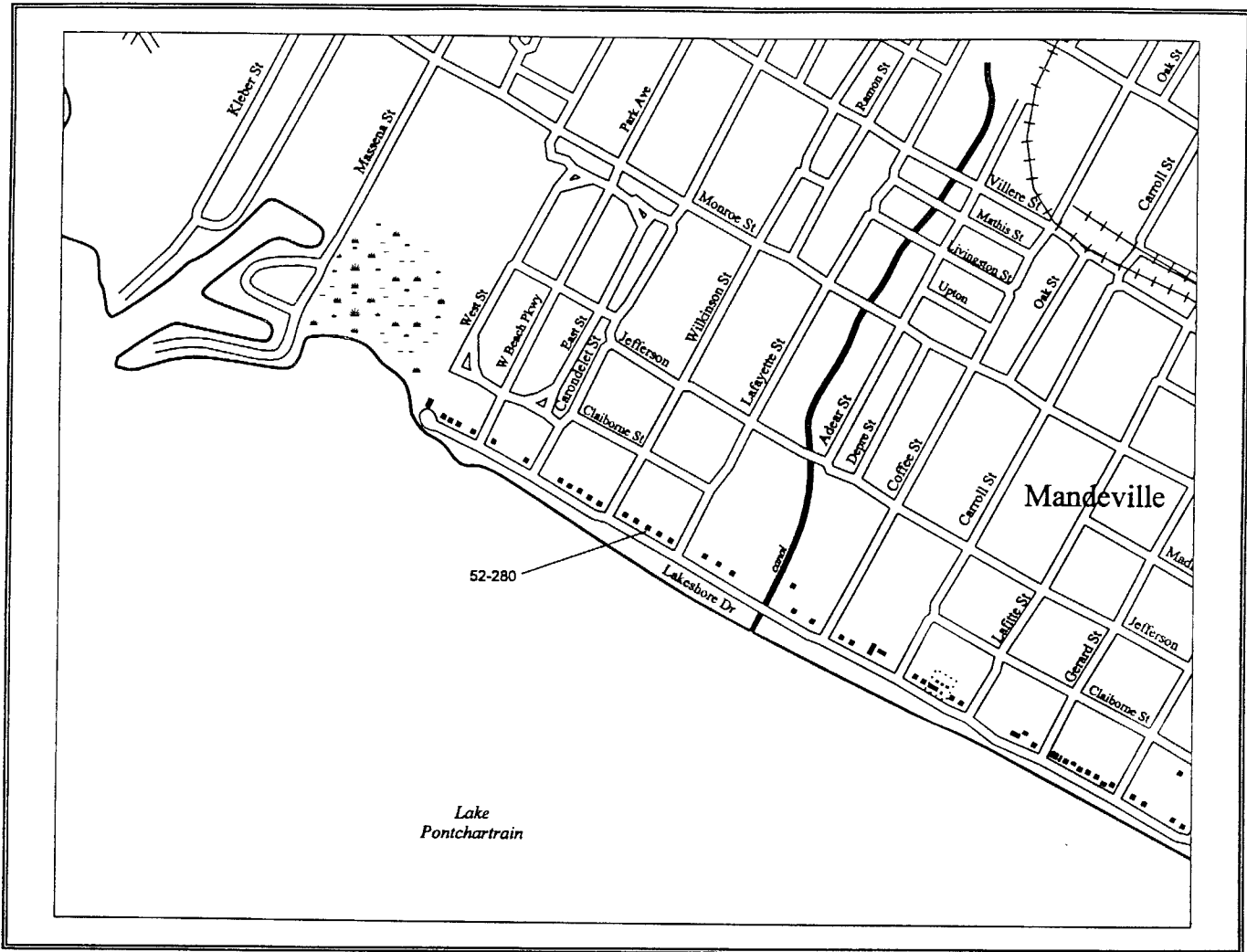
II. Condition _____ Style Craftsman Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

2529 Lakeshore Dr. is a Craftsman Cottage style, one-story building clad in horizontal lap board. The full-facade front porch is enclosed with screen, limiting the visibility of facade openings. Large wooden tapered posts are supported by brick piers. The roof is front gabled. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-28

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

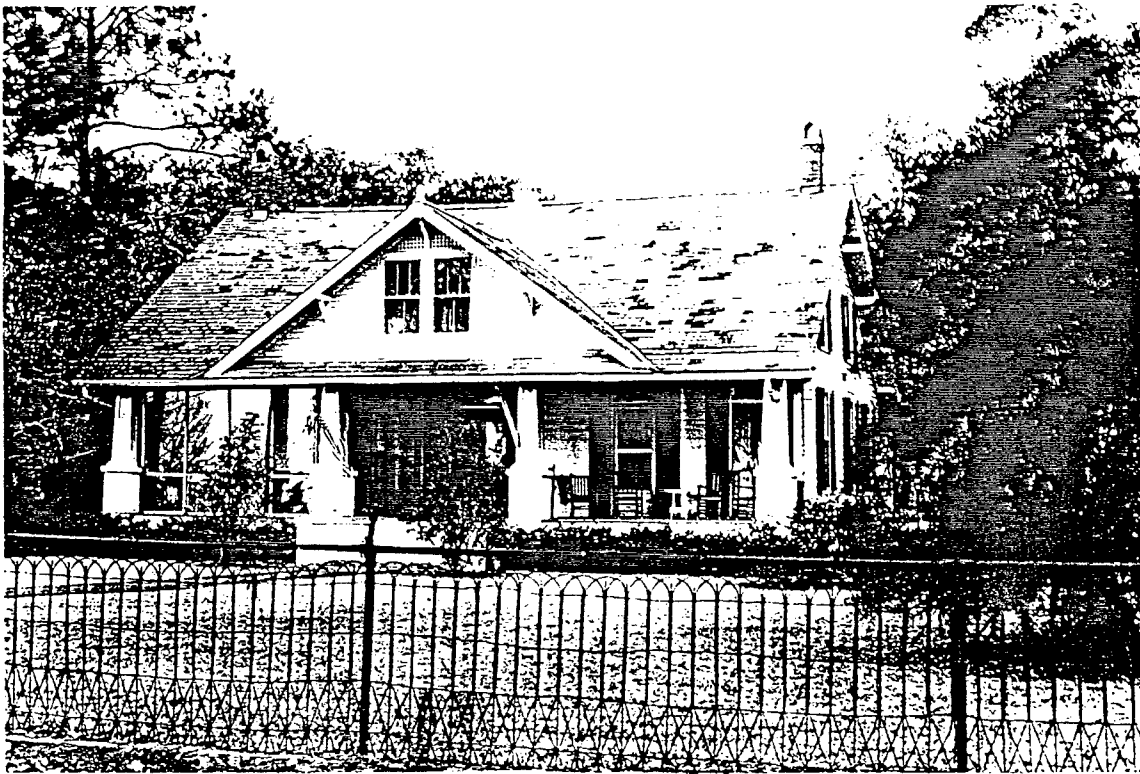
Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2525 Lakeshore DriveProperty Type Residential Construction Date ca. 1830 (per owner 1982)

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

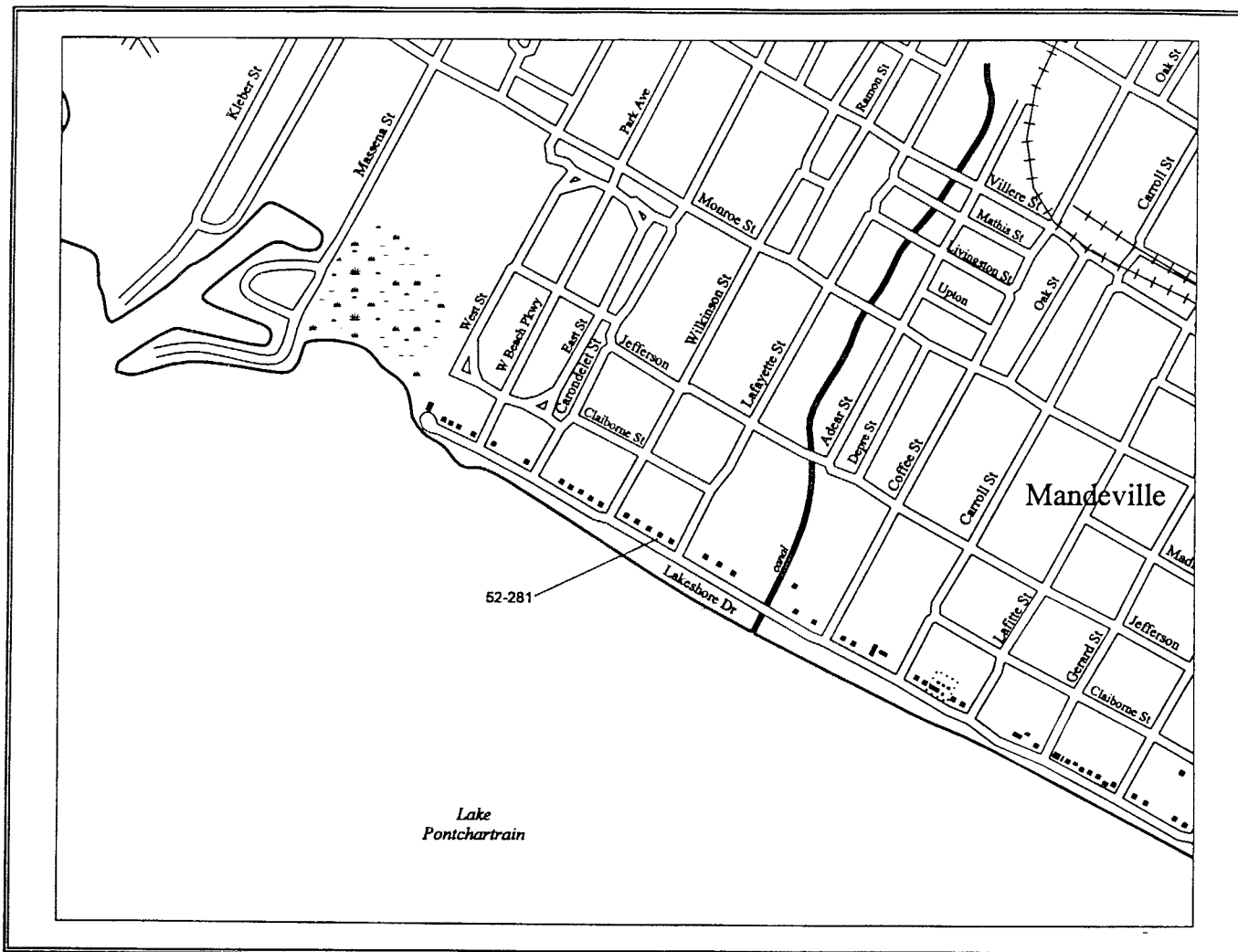
III. Physical Description of Property and Historic Significance.

This wood-frame, three-bay building is clad in horizontal lap board and set on brick piers. The windows are one-over-one-light, double hung sash with transoms and full length louvered shutters. The central entry contains a double door with single glass panels in each door. The doorway is completed by a transom and full length louvered shutters. The cross-gabled roof is clad with synthetic shingles. The front gable has three decorative brackets and two three-over-three-light, double hung sash windows. Interior brick chimneys are located at the gable ends. A full-facade porch crosses the front of the structure; the roof is supported by four square wooden columns with battered sides supported on low brick piers.

This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-27

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features 1 porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2505 Lakeshore DriveProperty Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

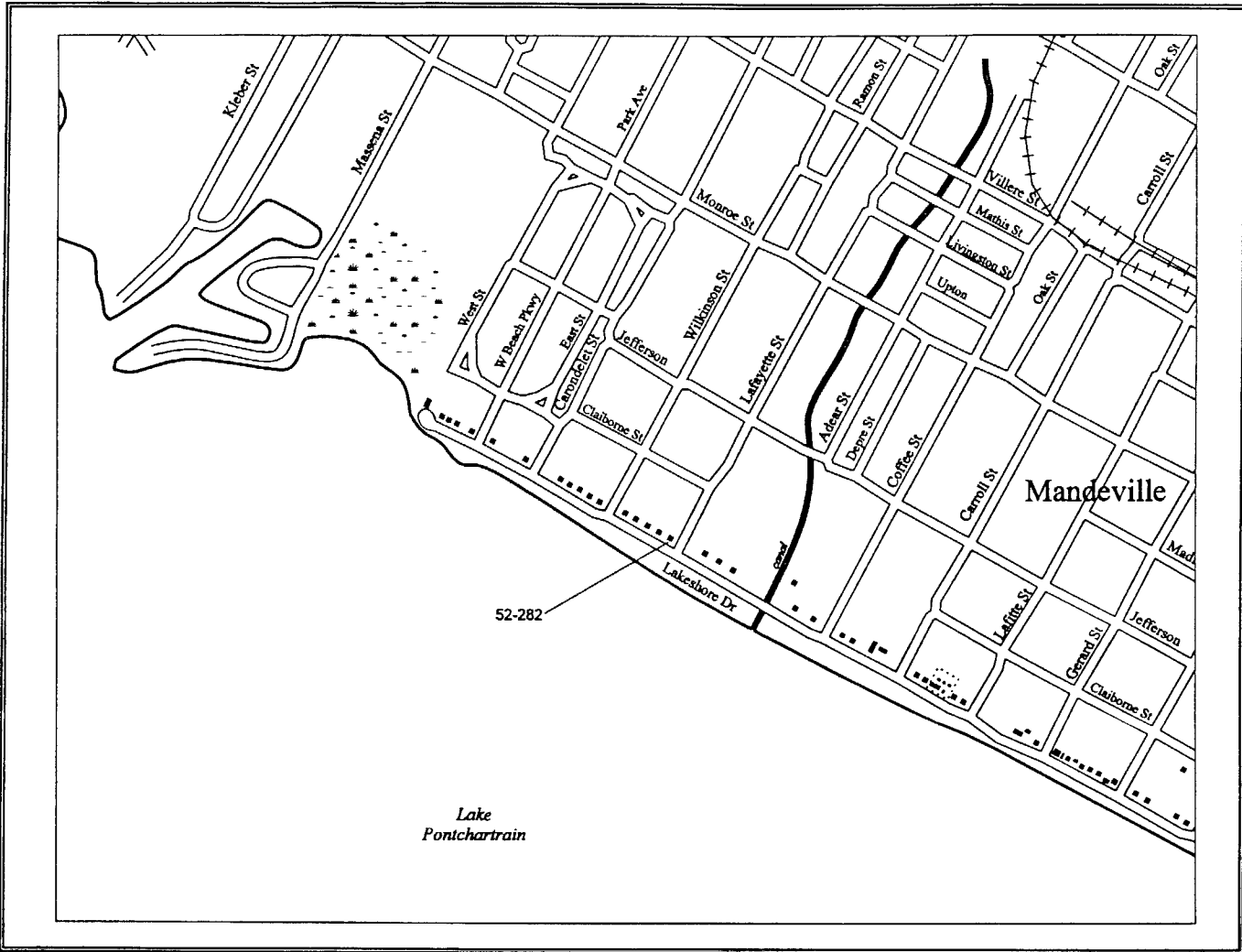
Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. This one-story, wood-frame building is clad in horizontal lap board. It is raised on brick piers. The front facade has five bays and a screened full facade gallery. The screening obscures the front of the structure. The central entrance has a transom and sidelights. The four windows have full length shutters. The side-gable roof is clad in synthetic shingles and has three front-gable dormers. Each dormer has one six-over-six-light, double hung sash window. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-25/26

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



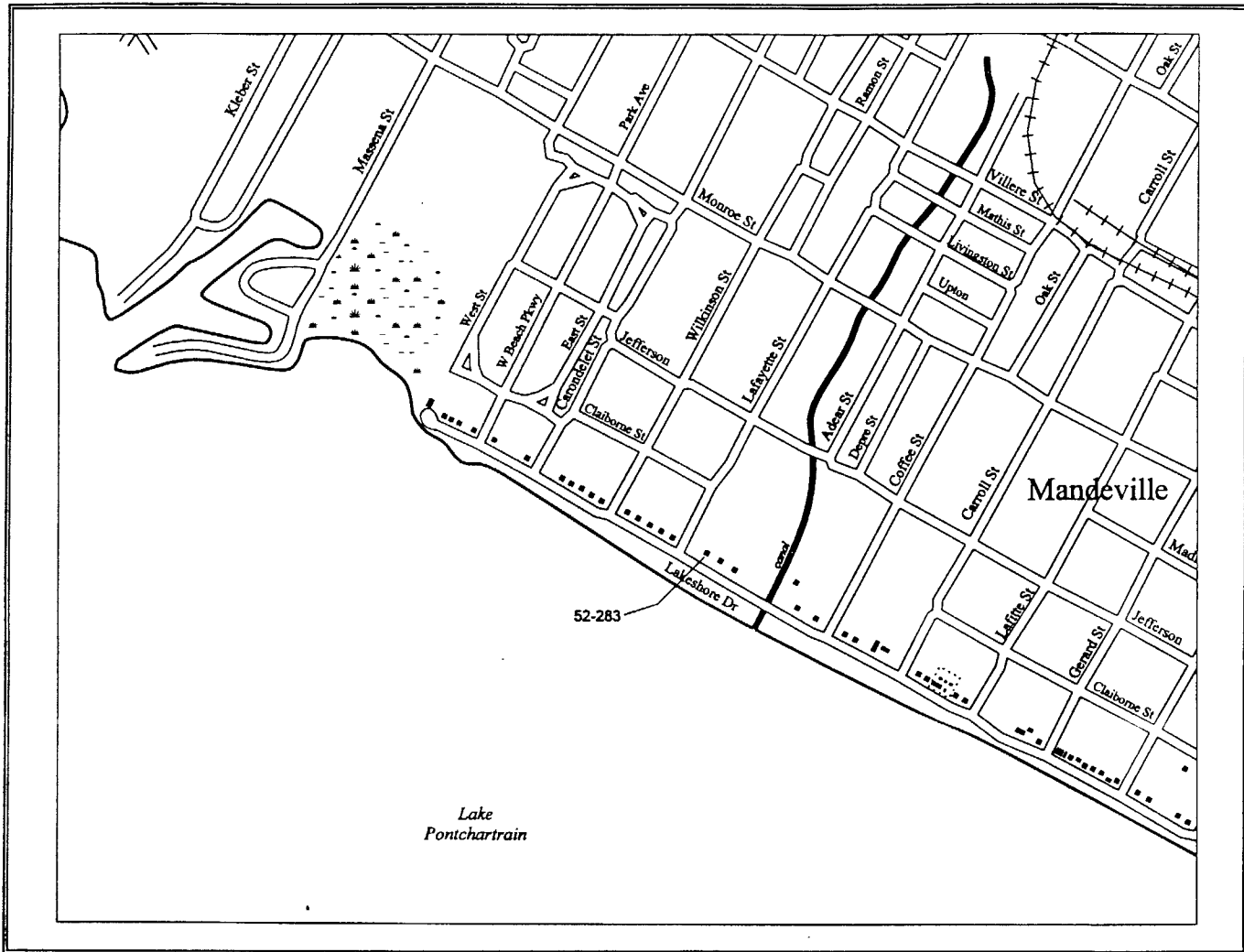
I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 48
 Property Address 2441 Lakeshore Drive
 Property Type Residential Construction Date ca. 1850
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. This raised, wood-frame building is clad in horizontal wood siding and is supported on brick piers. The supporting piers have been partially enclosed to provide a basement. The side-gabled roof is clad in synthetic shingles and has a front gable dormer that contains two two-over-two, double hung sash windows. An exterior brick chimney is located on the east gable end. The five-bay front elevation has a full-facade screened porch. The porch is supported on six square posts and is ornamented with a wood balustrade. The porch also has a shed roof extension that has decorative knee braces and exposed rafter ends. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-24

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features x porch/gallery(s) x dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

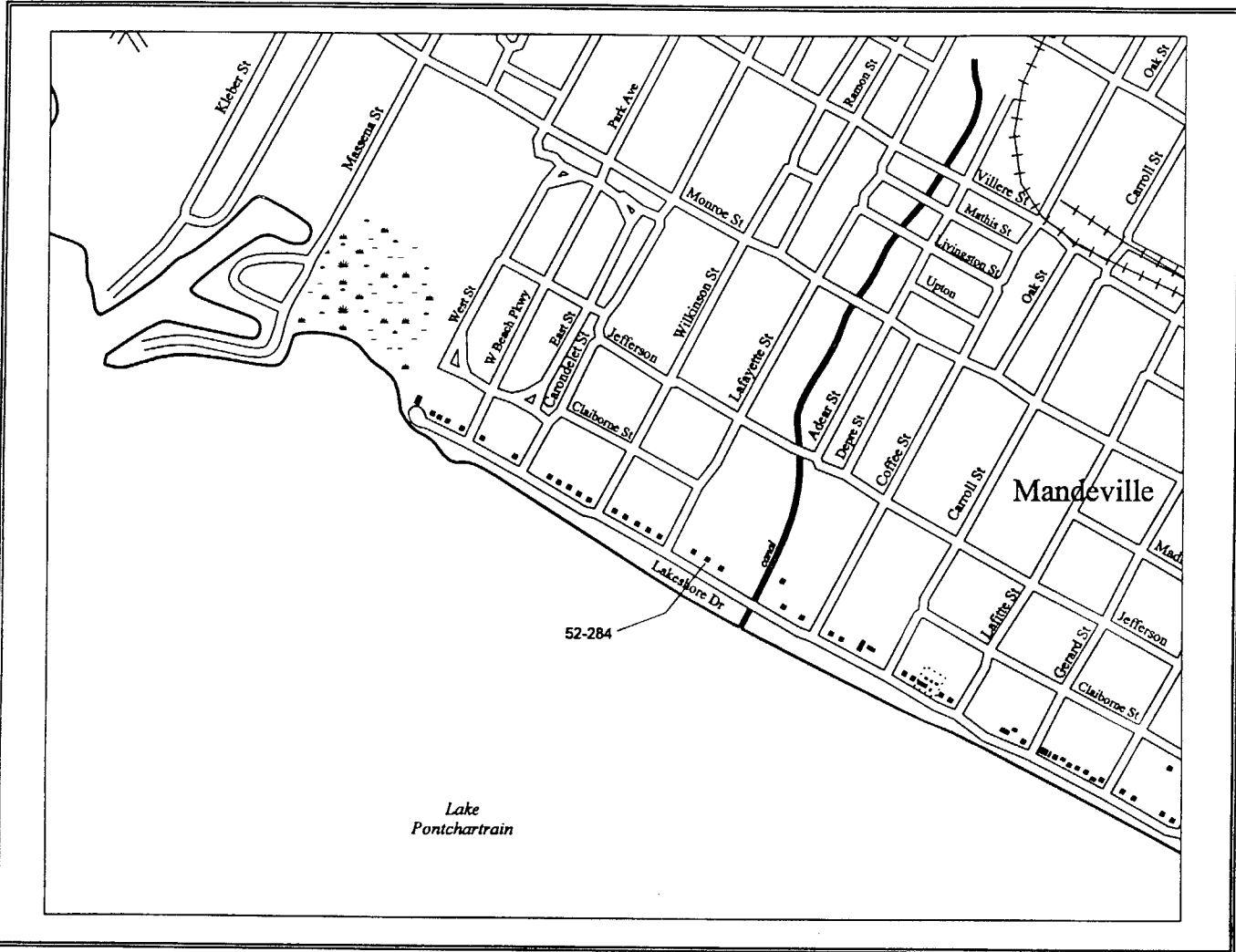


Municipality Mandeville Parish St. Tammany
 SGS Quad Mandeville Township 8S Range 11E Section 48
 Property Address 2423 Lakeshore Drive
 Property Type Residential Construction Date ca. 1840
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____
 Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

Physical Description of Property and Historic Significance. 2423 Lakeshore Drive is a one-story, wood-frame residence clad in horizontal wood siding. The building is elevated on brick piers. The front facade has five bays. Each bay contains full-length windows with transoms set in a segmental arch surround. Each window has full-length louvered shutters. The centrally located entry contains a pair of 15-light French doors with transom set in a segmental arch surround. The side-gabled roof is clad with synthetic shingles. The pedimented gabled dormer contains spindle frieze, a turned balustrade, and a single four-over-four-light, double-hung sash window. Two interior chimneys are located at each gable end. A shed roof covers full-facade front gallery. The roof is supported by six turned colonettes. The porch is ornamented with a turned balustrade and a spindle frieze. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted *A Field Guide to American Houses* by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-23

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project. Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2407 Lakeshore DriveProperty Type Residential Construction Date ca. 1857

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

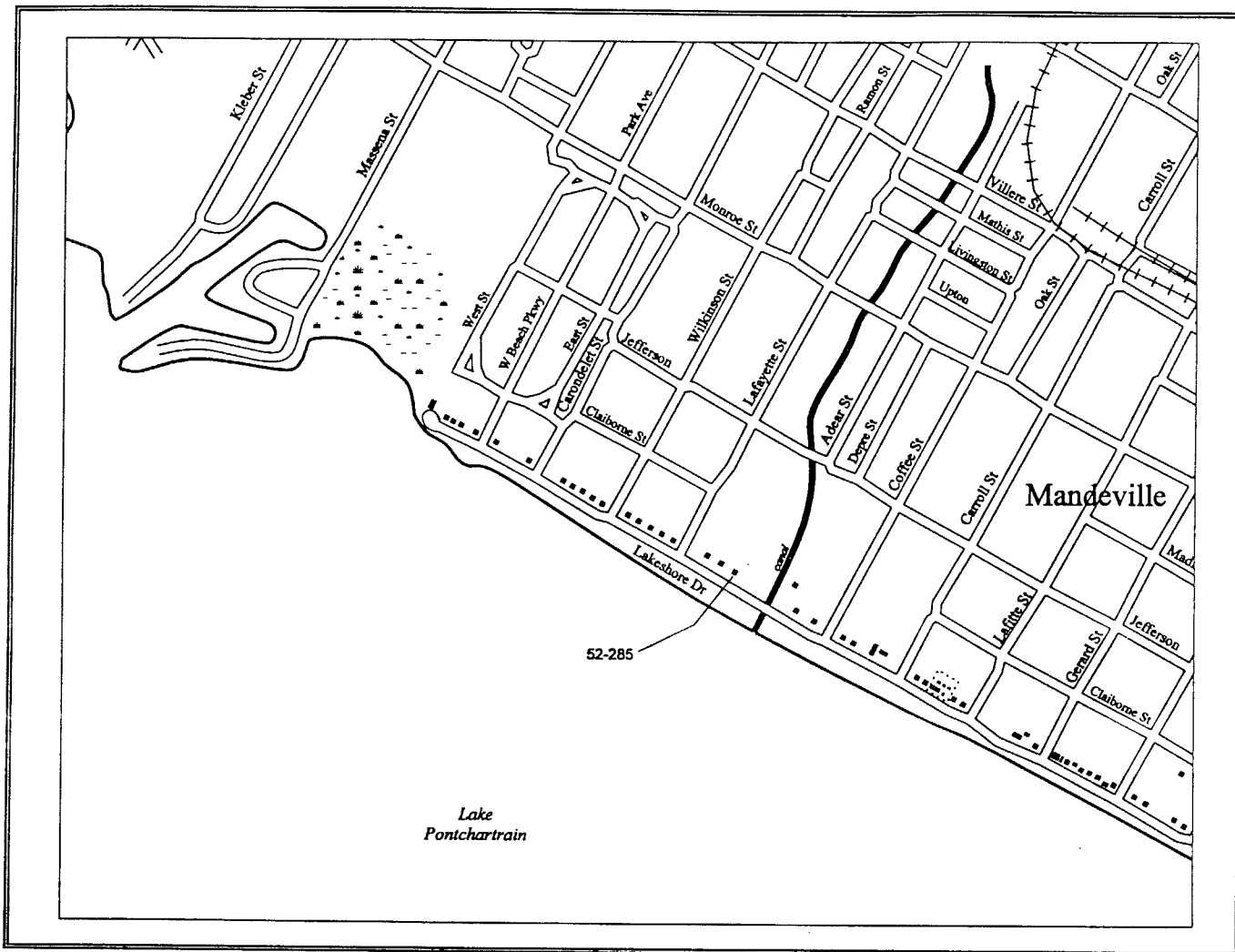
III. Physical Description of Property and Historic Significance.

2407 Lakeshore Drive is a one-story, wood-frame building clad with horizontal lap board. It is supported on brick and concrete block piers. The five-bay facade contains four sets of French doors with overhead transoms. The doors have full-length battened shutters. The central entry contains a wood-and-glass-paneled door with overhead transom and side lights. The hipped roof is clad with standing seam metal. A front-gabled dormer contains decorative trim and a single two-over-two-light, double-hung sash window. Two interior double brick interior chimneys are located near the side elevations. The full-facade, open gallery is supported by six turned colonettes. The porch is ornamented with a turned balustrade and a decorative frieze trim. An elevated addition is located near the east side of the building.

This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-21/22

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

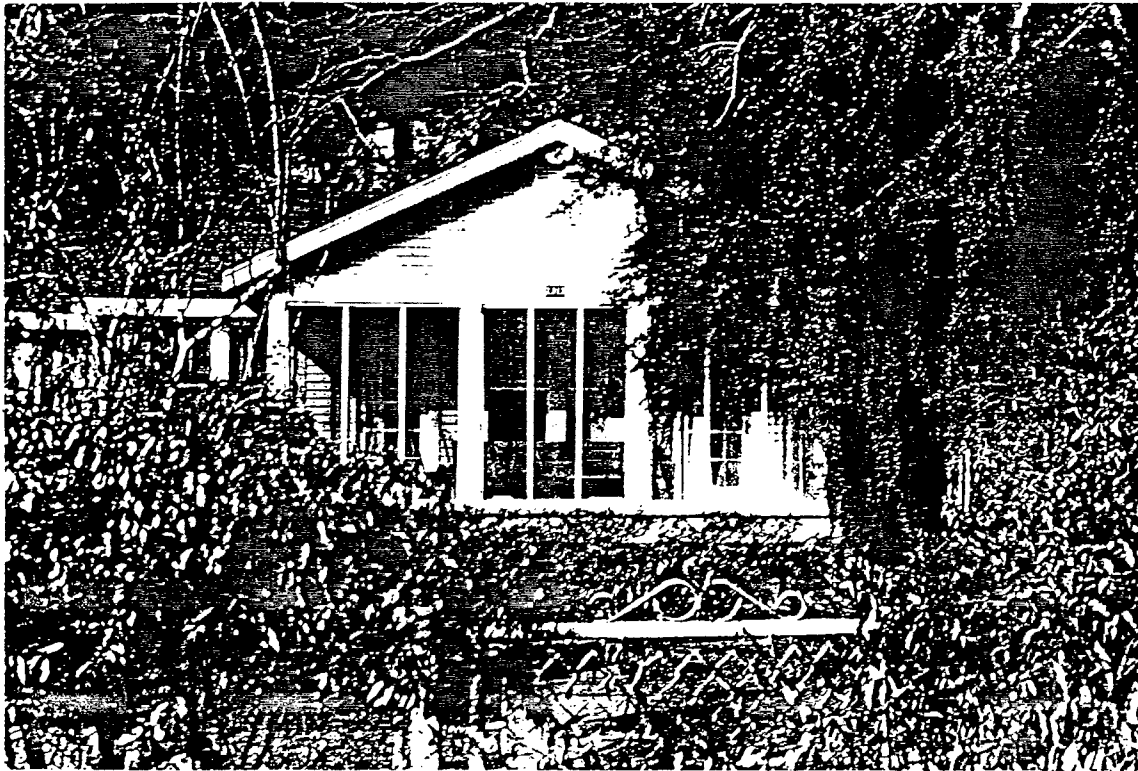
Remarks: _____

Other Features _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 48
 Property Address 2313 Lakeshore Drive
 Property Type Residential Construction Date ca. 1930
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style Bungalow Floor Plan _____ Structural material Horizontal lap board

III. Physical Description of Property and Historic Significance.

2313 Lakeshore Drive is a one-story, wood-frame building clad in horizontal wood siding; it is supported on brick piers. The central entrance contains two 15-light doors. The windows are three-over-three-light, double-hung sash windows. The roof is side-gabled with a front projecting gabled roof over the porch. The entire roof is clad with synthetic shingles. Additions have been made to the original structure resulting in an ell to the west side of the house. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.

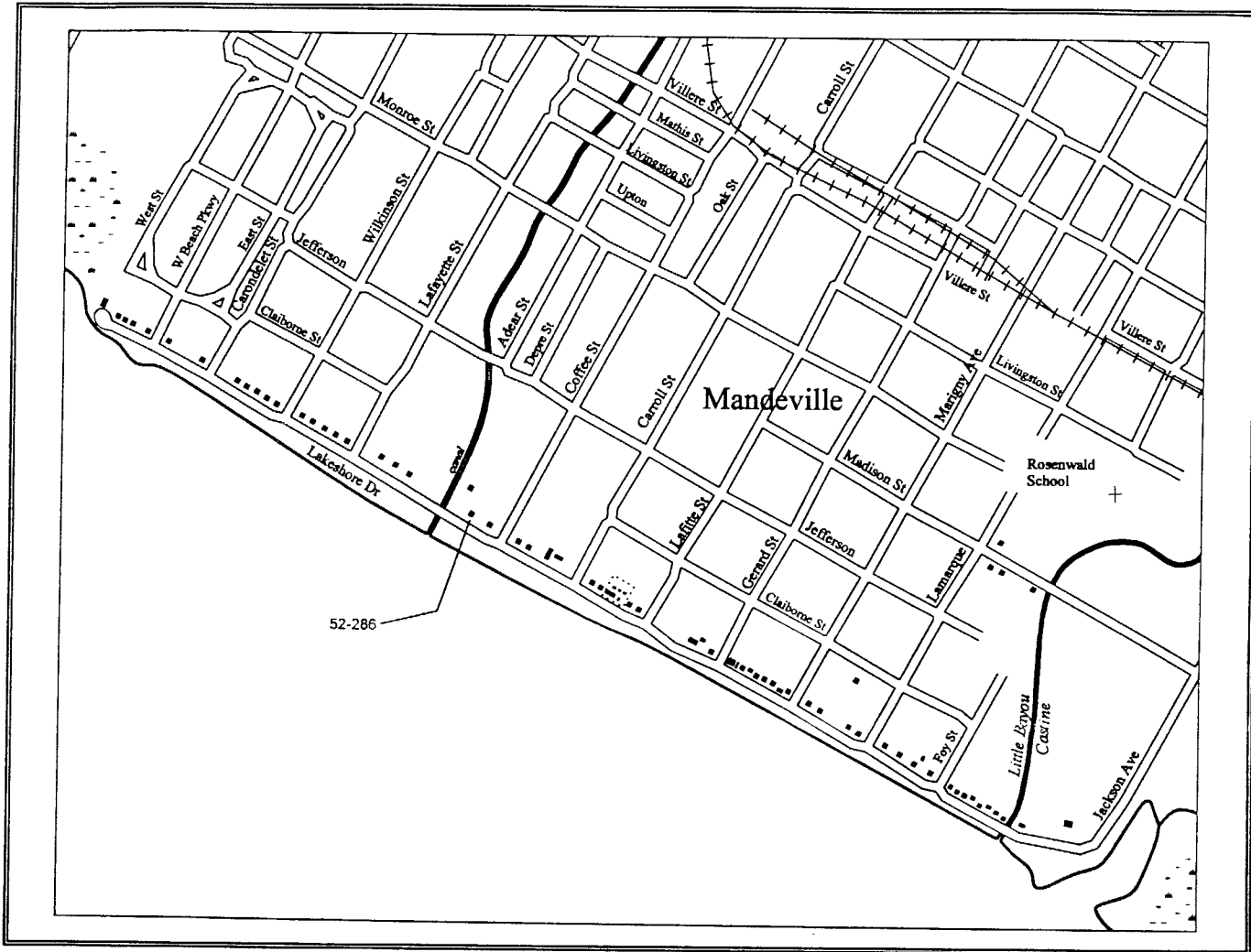
Date March 18, 1996

For U.S.A.C.O.E., New Orleans District

V. Sources Consulted A Field Guide to American Houses by

Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-20

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

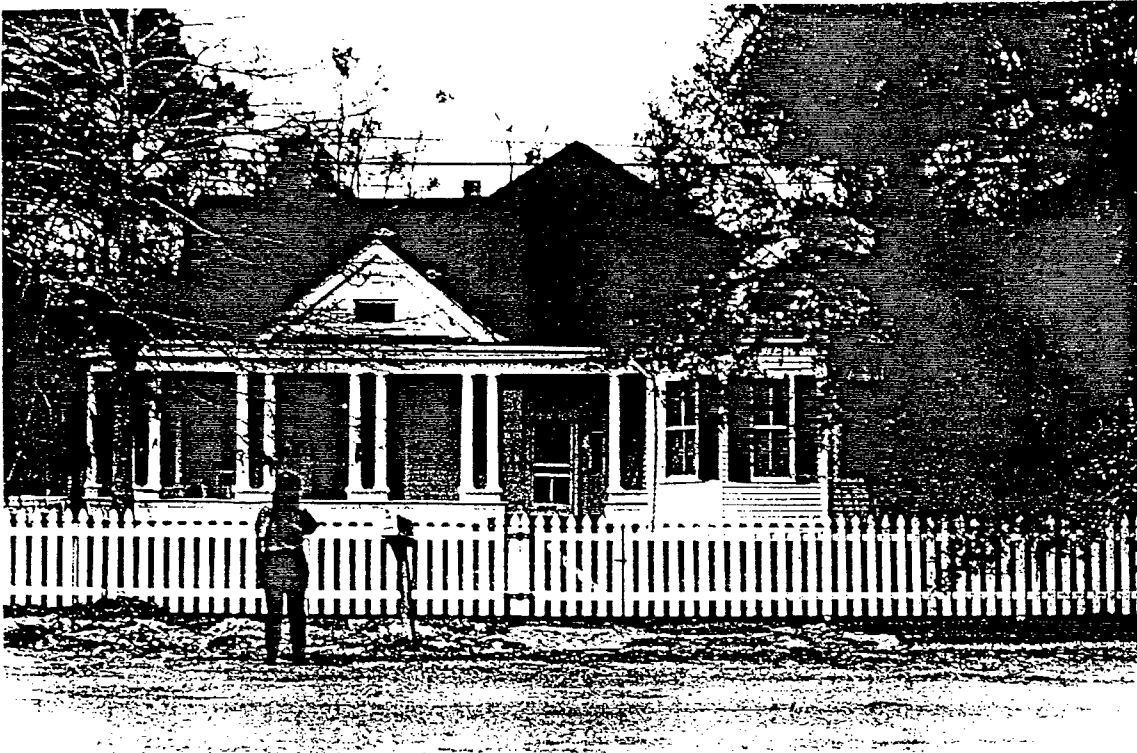
Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 49
 Property Address 2247 Lakeside Drive
 Property Type Residential Construction Date ca. 1905
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

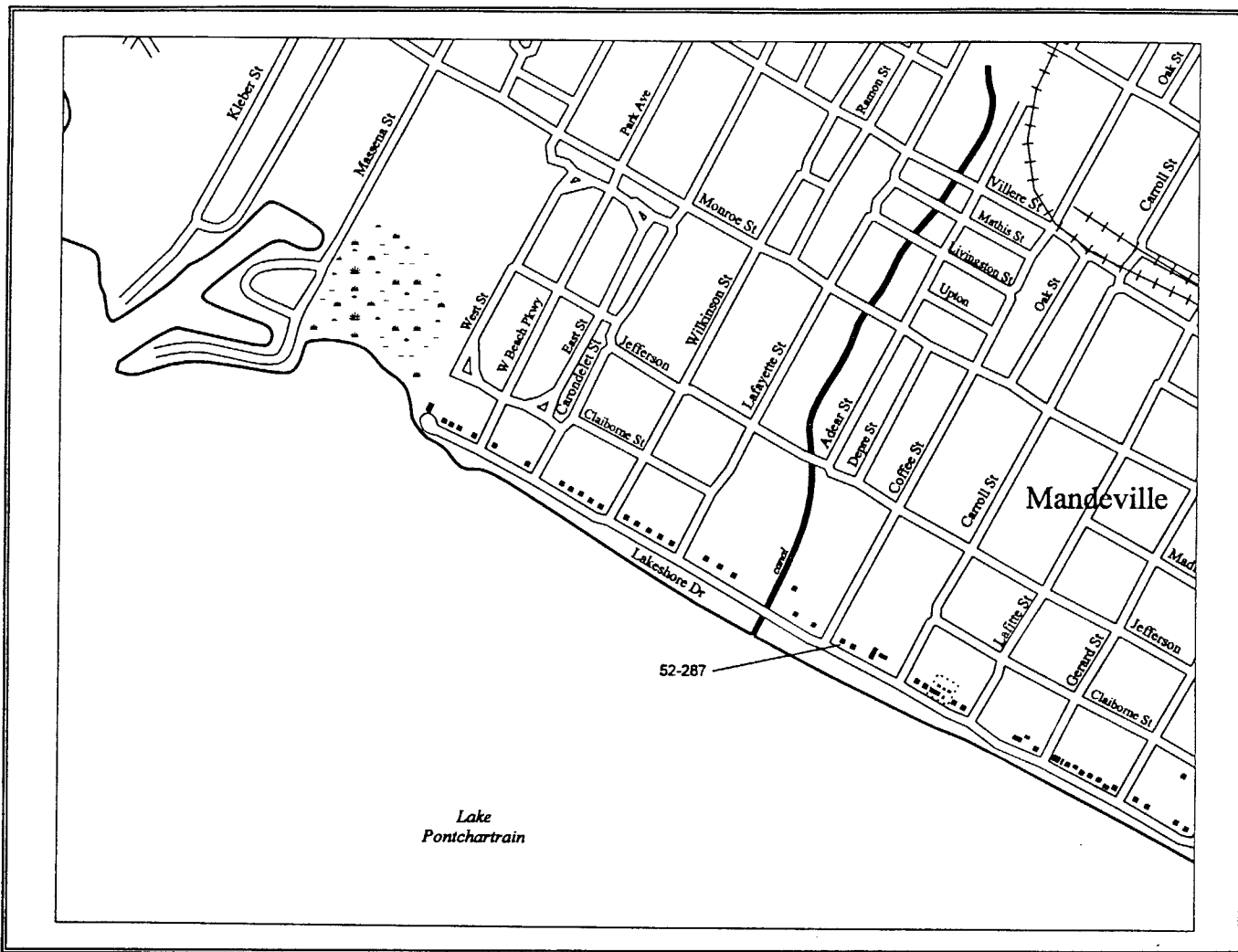
II. Condition _____ Style Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding. The multiple hipped roofs are clad with synthetic siding. The front elevation has a gable dormer. The main entry has a single door with a transom. The windows have exterior shutters. The three-quarter facade wrap porch is supported by paired colonettes. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections _____

Photographs: _____ Exposure # 05-11

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 49Property Address 2239 Lakeshore DriveProperty Type Residential Construction Date ca. 1905

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

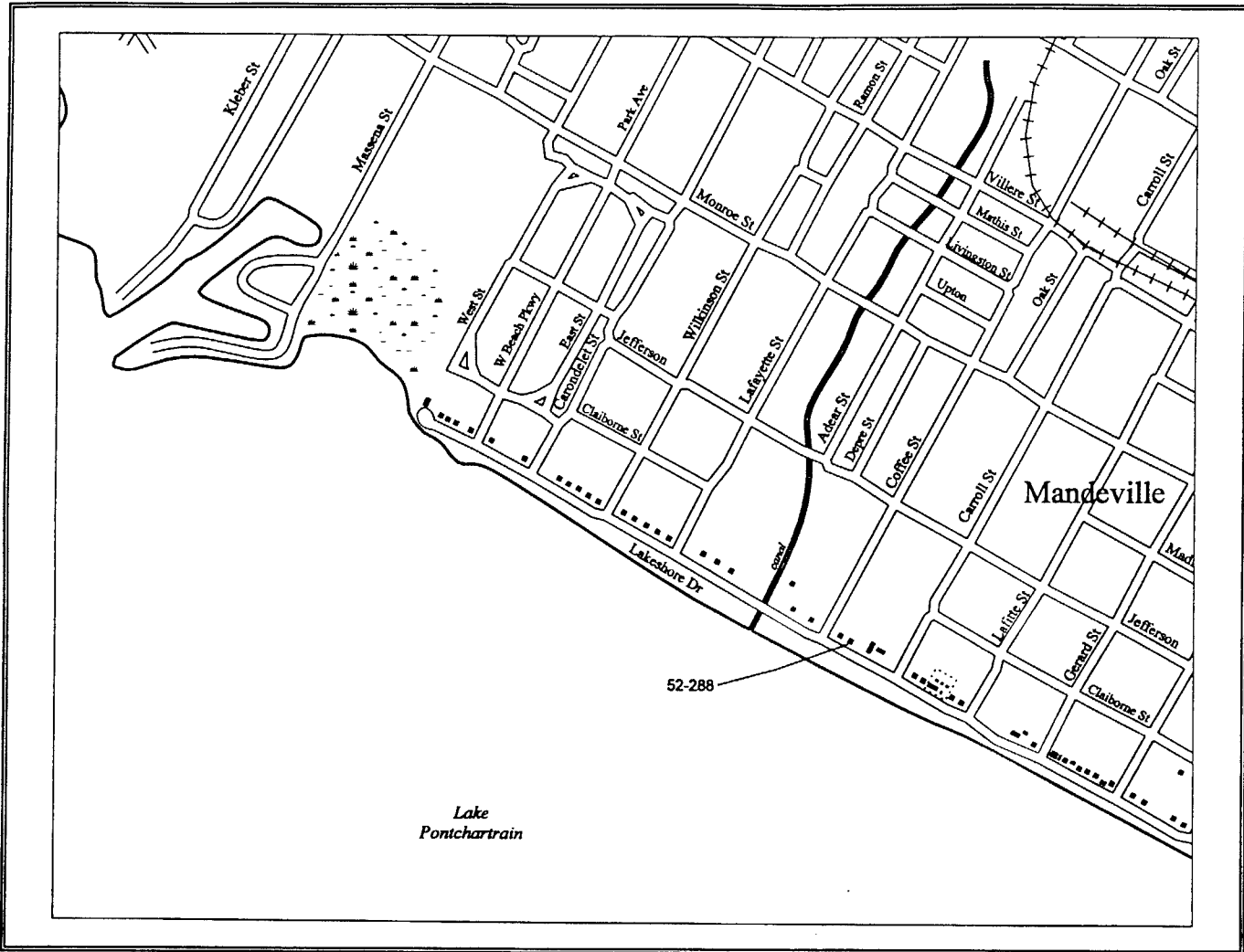
II. Condition _____ Style Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding. The pyramidal hipped roof has a pedimented gable front dormer. The front facade is three bays wide and has a full-facade open porch. The porch roof is supported by colonettes. The windows are two-over-two-light, double-hung sash. The central entrance contains paired French doors and a transom. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-10

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

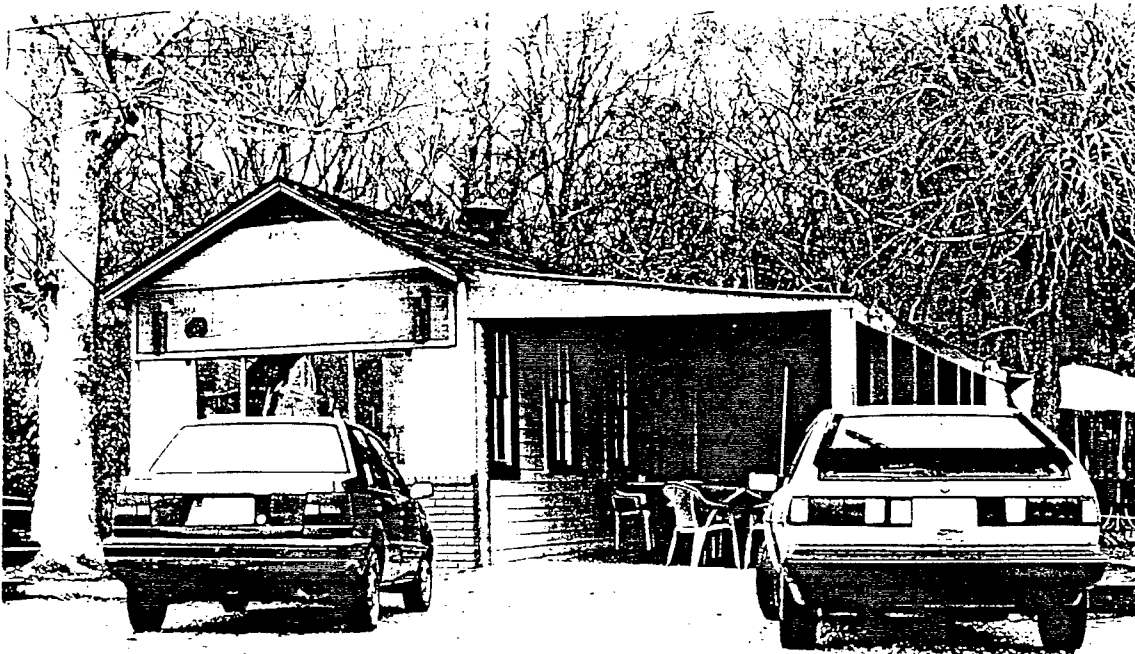
Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



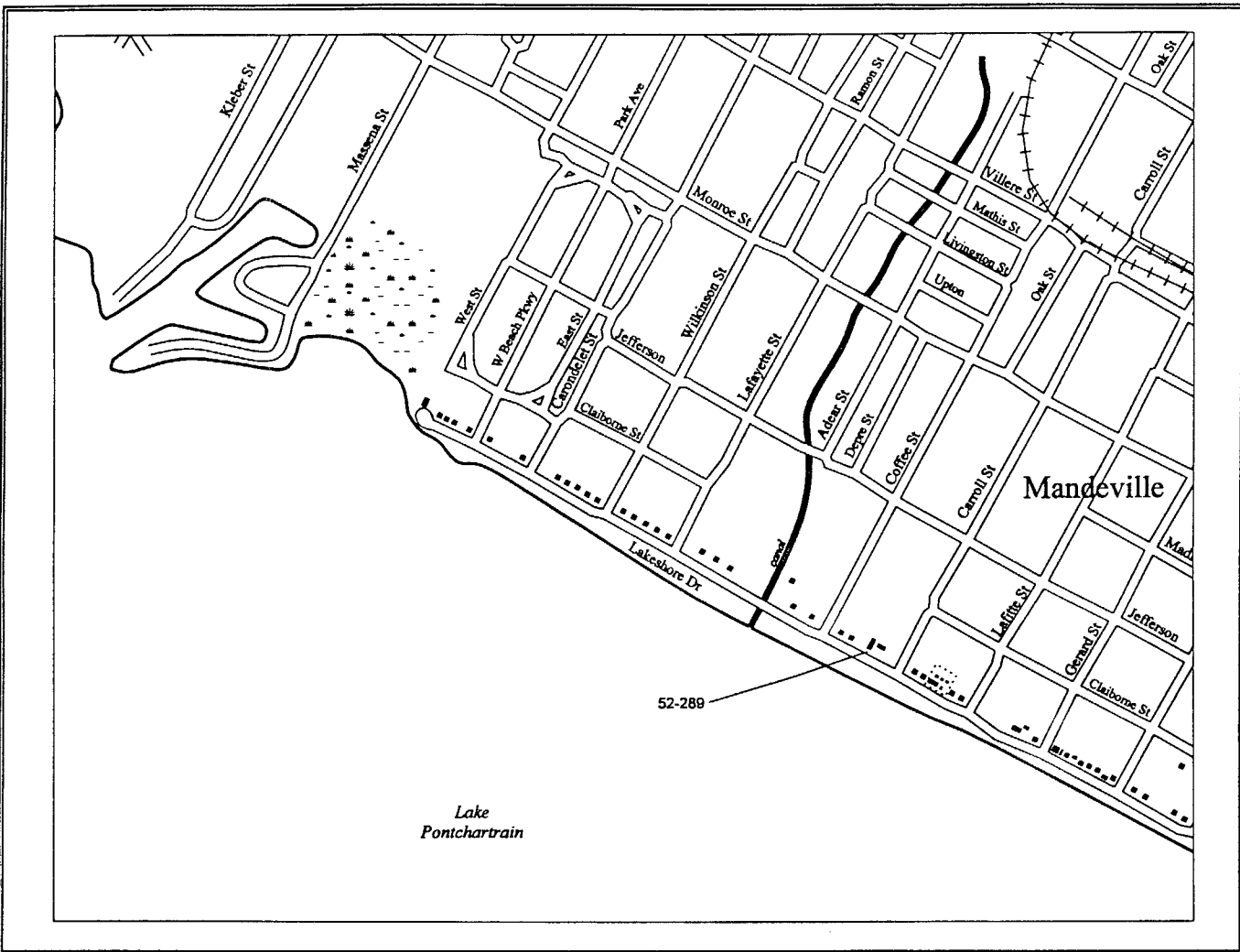
Municipality Mandeville Parish St. Tammany
 SGS Quad Mandeville Township 8S Range 11E Section 49
 Property Address 2223 Lakeshore Drive
 Property Type Commercial Construction Date ca. 1905
 Name (Common) Surfside Bar Name (Historic) _____
 Owner & Owner Address _____
 Condition _____ Style _____ Floor Plan _____ Structural material _____

Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding. The side-gabled roof is clad with synthetic shingling. The windows and doors are modern replacement units. This building has undergone modification since the 1982 survey.

Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-21

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 49

Property Address 2221 Lakeside Drive

Property Type Commercial Construction Date ca. 1930

Name (Common) Creole Cafe Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material _____

III. Physical Description of Property and Historic Significance.

This one-story building is clad with board and batten siding. The side-gabled roof is clad with synthetic shingling. The windows and doors are modern replacement units.

IV. Recorded by R.C. Goodwin & Associates, Inc.

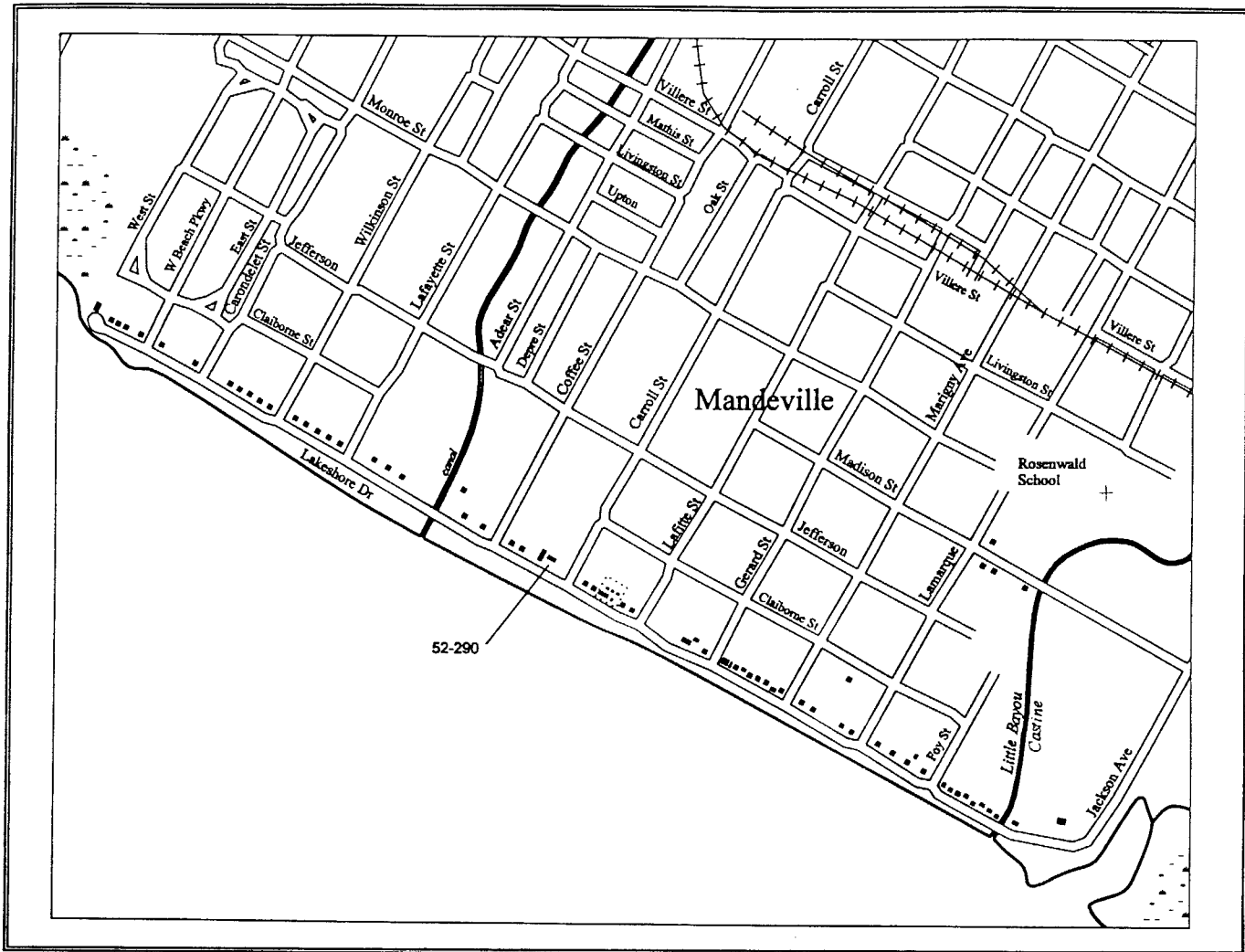
V. Sources Consulted *A Field Guide to American Houses* by

Date March 18, 1996

Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-20

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 49Property Address 2143 Lakeshore DriveProperty Type Residential/Commercial Construction Date ca. 1926Name (Common) Wind Haven Antiques Name (Historic) _____

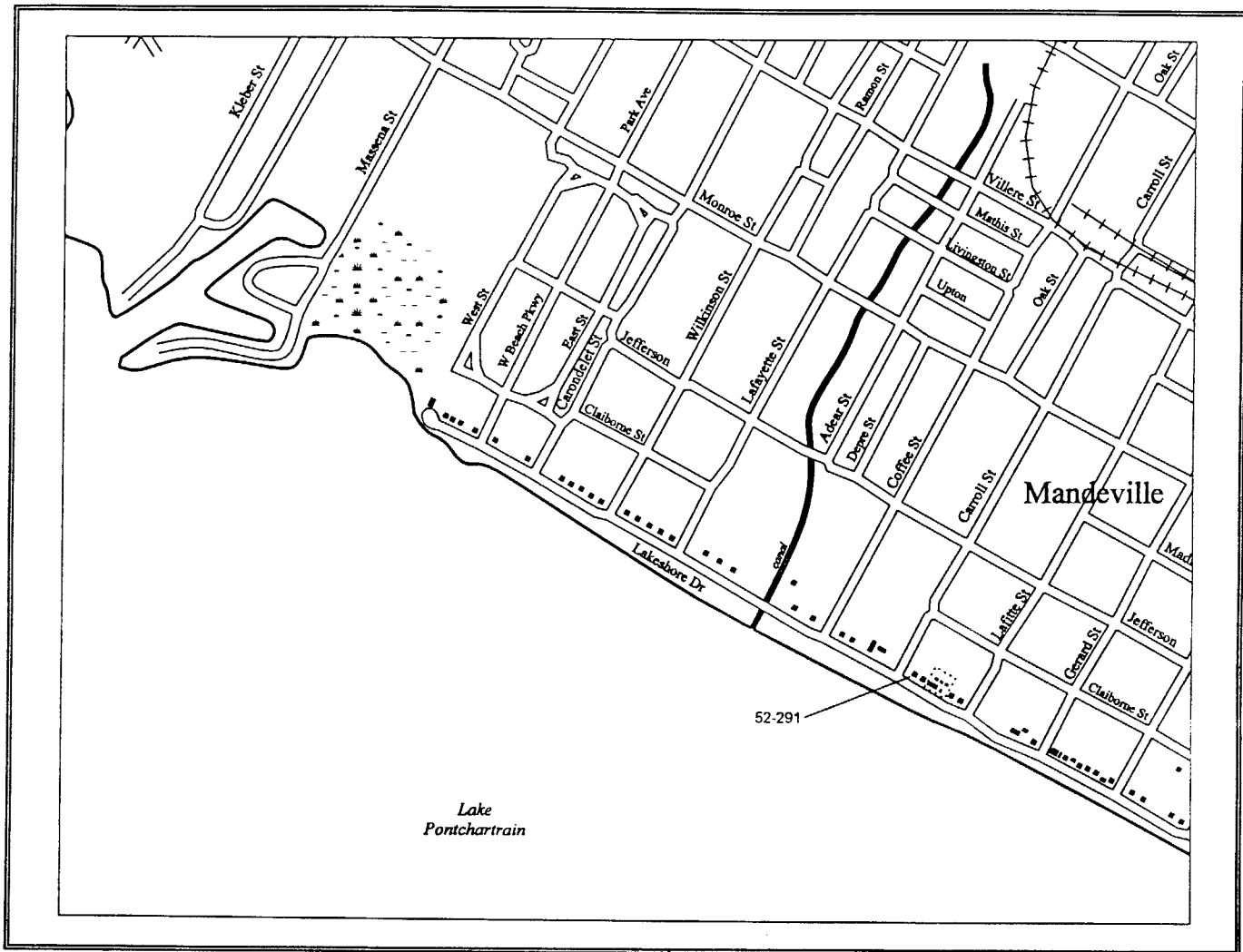
Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. 2143 Lakeshore Drive is a two-story, wood-frame building clad in beaded horizontal wood siding. The three-bays of the ground floor comprise two casement windows set in brick surrounds and a central entry with sidelights. The second floor has five bays including four sets of French doors with decorative transoms set in brick surrounds. The central entry contains a set of paired 15 light French doors with a decorative transom and side lights set within a decorative surround. The side gable roof includes an integral two-tiered porch supported by square wood posts. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.Date March 18, 1996For U.S.A.C.O.E., New Orleans DistrictV. Sources Consulted A Field Guide to American Houses byVirginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-35

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other _____

interior features _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 49Property Address 2113 Lakeshore DriveProperty Type Residential Construction Date ca. 1840

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

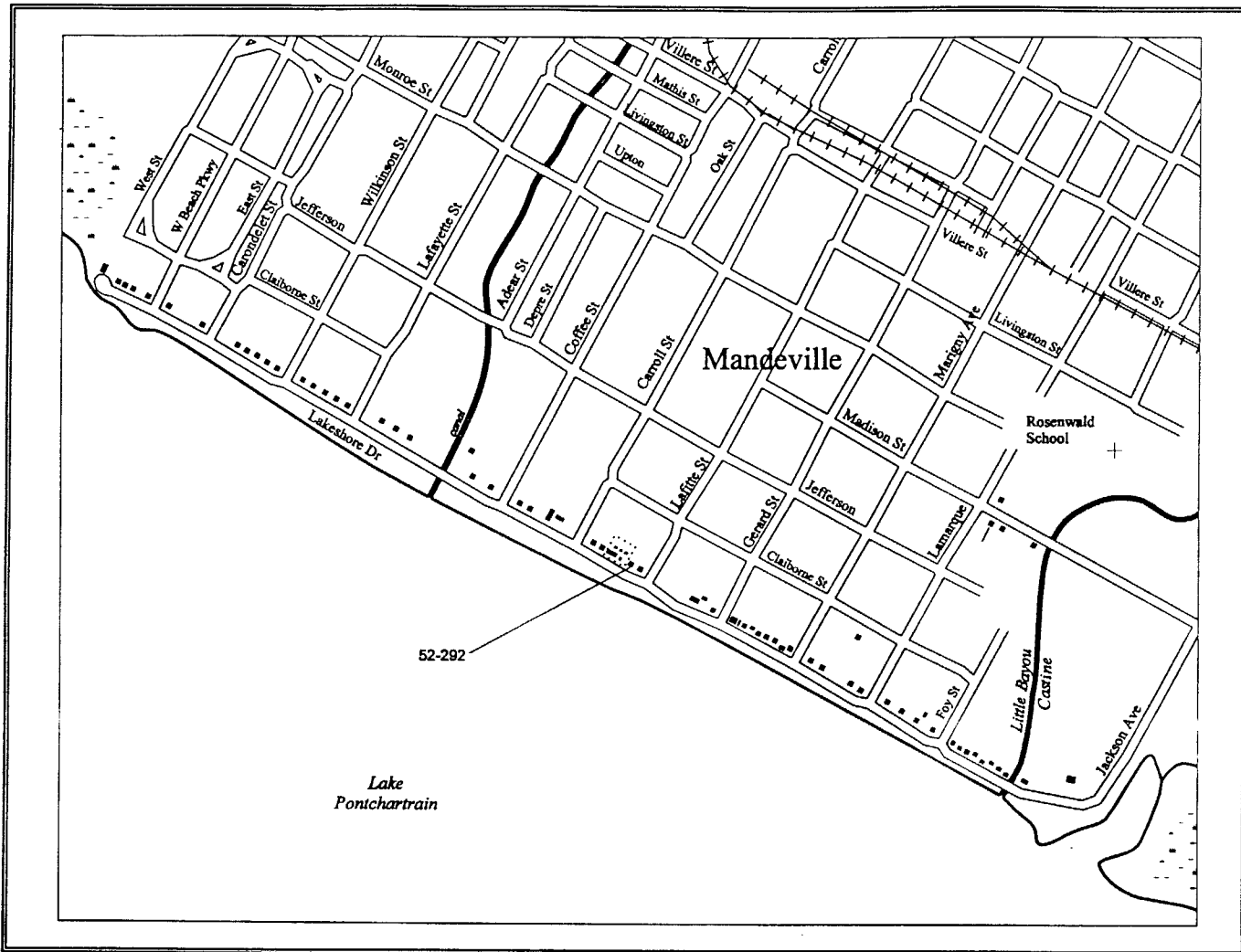
II. Condition _____ Style Shotgun Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This building is a one-story, wood-frame residence clad with horizontal siding. The pyramidal hipped roof is clad with composition roll. A full-facade screened porch obscures all openings. This building appears to have undergone extensive modification since 1982. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.Date March 18, 1996For U.S.A.C.O.E., New Orleans DistrictV. Sources Consulted A Field Guide to American Houses byVirginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-29

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 49Property Address 2135 Lakeshore DriveProperty Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

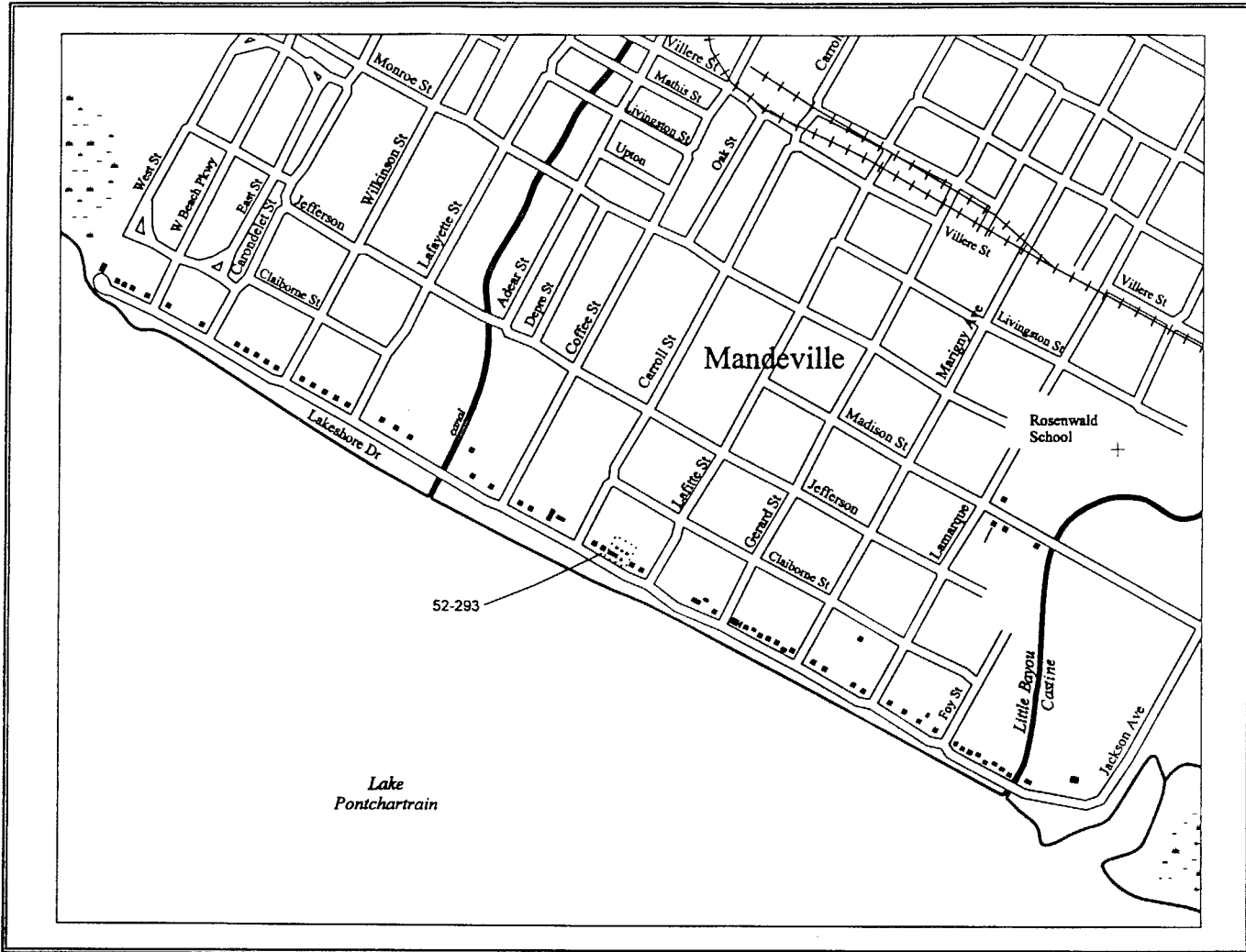
Owner & Owner Address _____

II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. 2135 Lakeshore Drive is a one-story, wood-frame structure clad with horizontal wood siding. It is supported on brick piers ornamented with lattice work. The five-bay front facade contains five sets of French doors with three light transoms and louvered shutters. A decorative pedimented wood lintel tops the central bay. The side-gabled roof is clad in standing seam metal. Three front gabled dormers contain a single six-over-six-light, double-hung window enframed by square pilasters with simply molded capitals and bases and pediments. An interior brick chimney is located at each gable end of the structure. A full length open gallery crosses the front of the house. The roof is supported by six square posts with simple molded capitals and bases. It appears that extensive remodeling has occurred to this house since the 1982 study. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-34

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 49
 Property Address 2129 Lakeshore Drive
 Property Type Commercial Construction Date ca. 1885
 Name (Common) Rest A While Name (Historic) Frappart Hotel
 Owner & Owner Address International Order of Kings, Sons, & Daughters

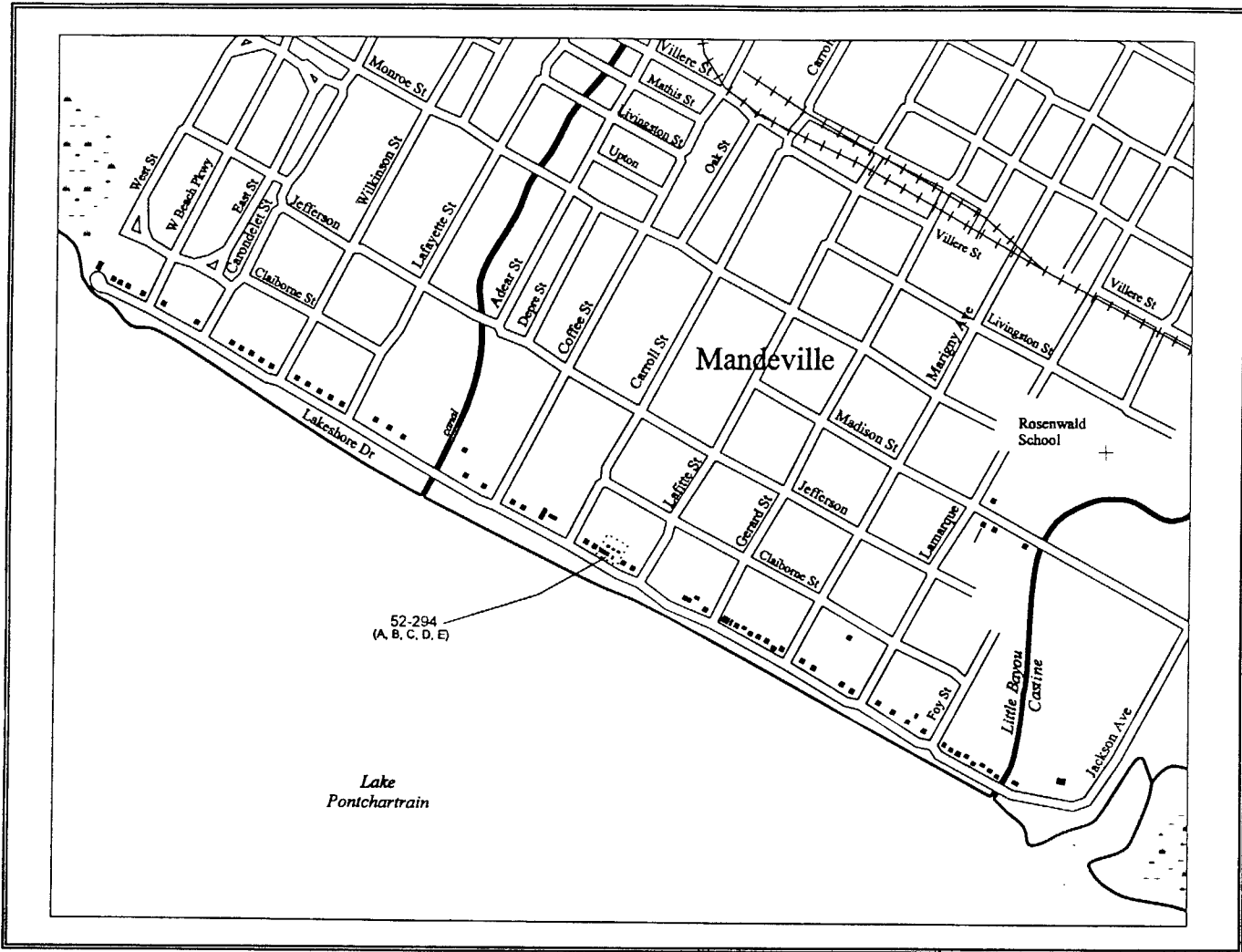
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

2129 Lakeshore Drive is a two-story, wood-frame building clad in horizontal wood siding. The ground story has casement windows. The elevated first story has a full-facade gallery supported on colonnettes with a square balustrade. The continuous-pitched, side-gabled roof has exposed rafter ends. The openings onto the gallery contain pairs of French doors covered with louvered shutters. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-32

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 49Property Address 2101 Lakeshore DriveProperty Type Commercial Construction Date ca. 1930Name (Common) Zazou Cafe/Journal Publications, Inc. Name (Historic) _____

Owner & Owner Address _____

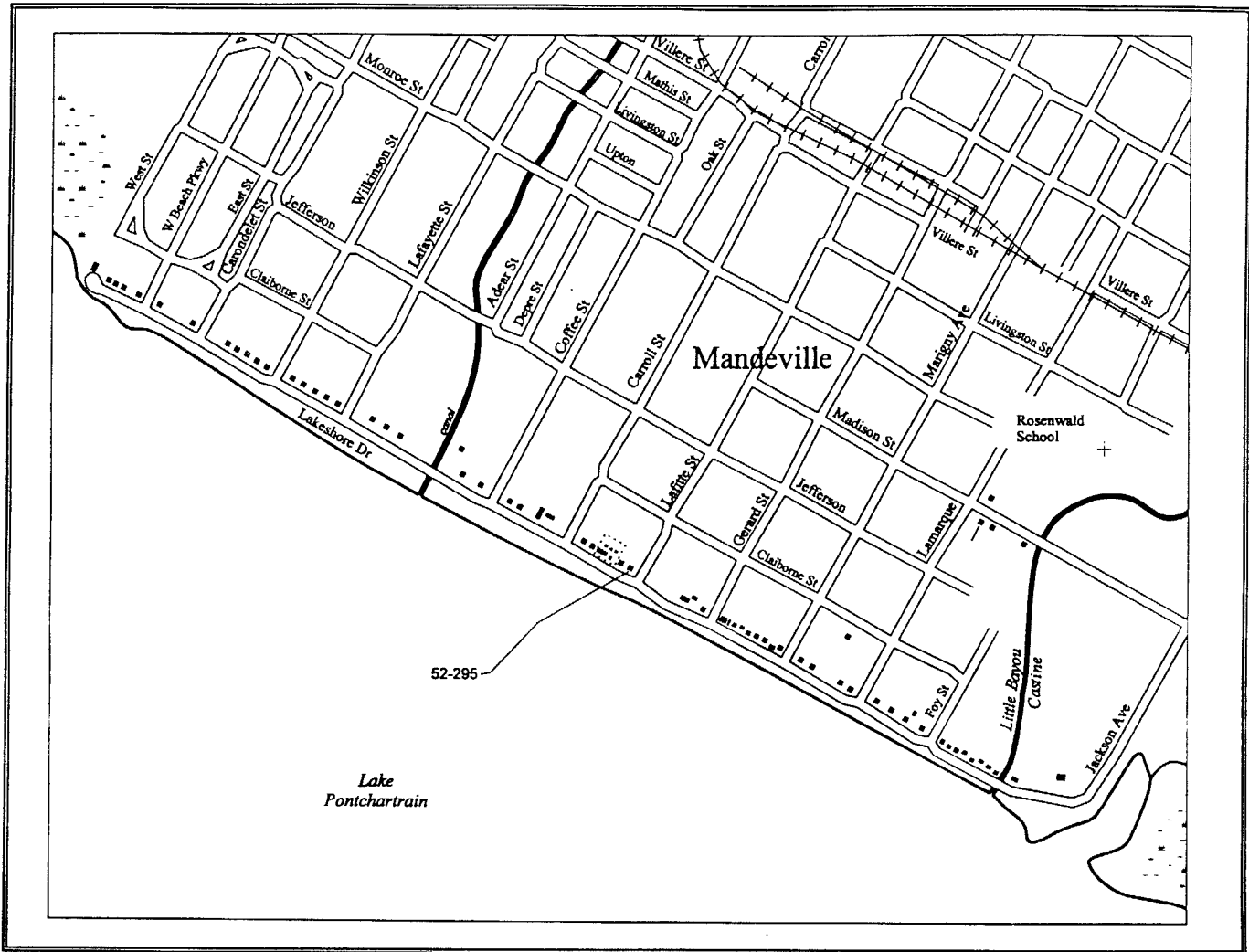
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This is two-story, wood-frame building is clad with horizontal lap board. The first floor contains a modern door and two modern windows. The second floor has four two-over-two, double-hung sash windows with battened shutters. The roof is a shingled hip roof with exposed rafter ends. An addition is located on the west side. Extensive renovations to the first floor interior occurred during the late 1970s and early 1980s. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-29

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

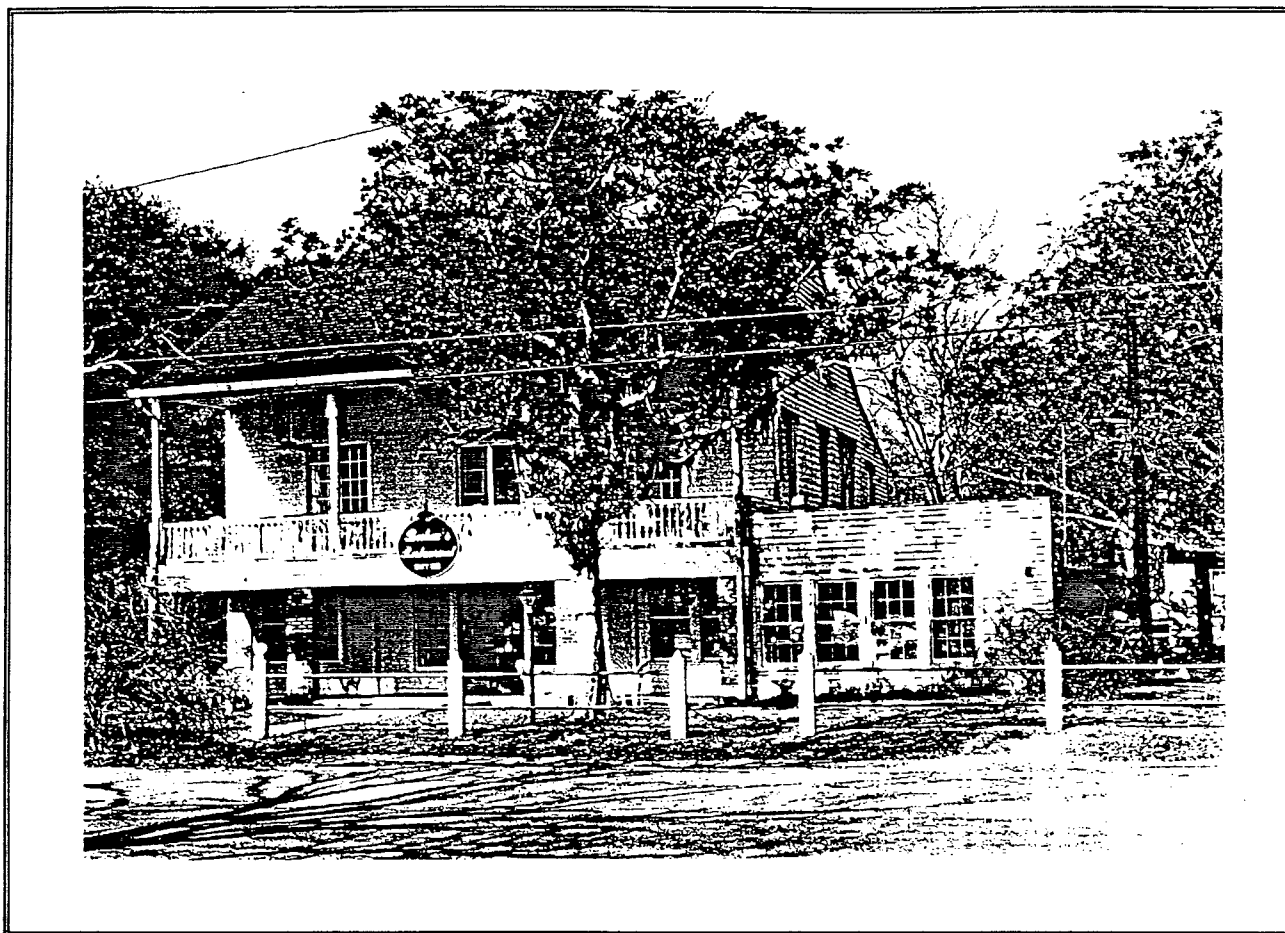
Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 50Property Address 2025 Lakeshore DriveProperty Type Commercial Construction Date ca. 1885Name (Common) Bechac's Restaurant Name (Historic) _____

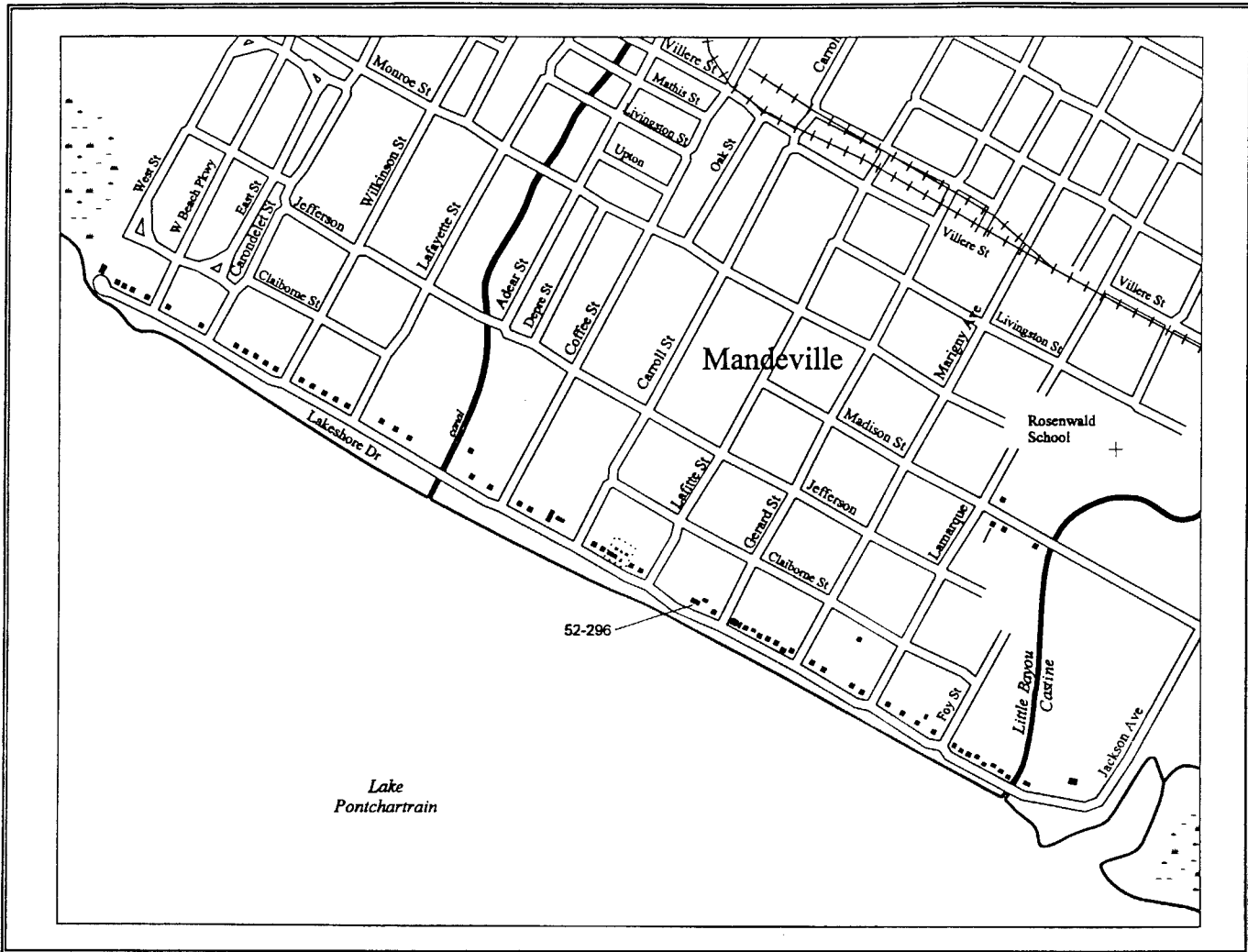
Owner & Owner Address _____

II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Brick & wood frame

III. Physical Description of Property and Historic Significance. 2025 Lakeshore drive is a brick and wood-framed, Raised Creole cottage. The support structure of large brick columns has been enclosed to form a ground floor. The exterior brick walls have been stuccoed. The main part of the building has three bays. The main entry is a set of full length French doors. The second floor face has three bays, all three appear to be full length French doors. The center bay has a transom. The structure has a side gable, continuous pitch roof clad in synthetic shingles. A full length gallery with four turned colonettes and turned bausters is present. Modern ceiling fans have been installed. A one-story, wood clad addition is located east of the main building. The addition contains six-over-six, double-hung sash windows. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-27

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

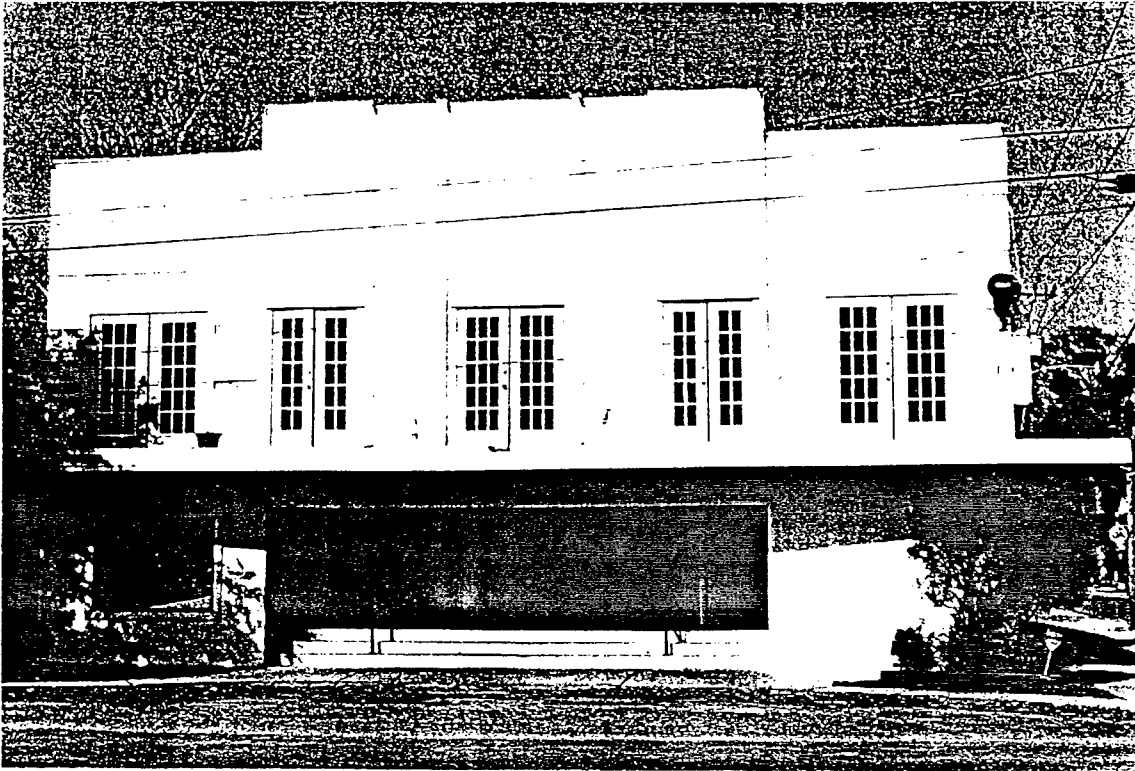
Remarks: _____

Other Features: 1 porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 50
 Property Address 2001 Lakeshore Drive
 Property Type Commercial Construction Date ca. 1930
 Name (Common) Blue Moon Junction Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Stucco

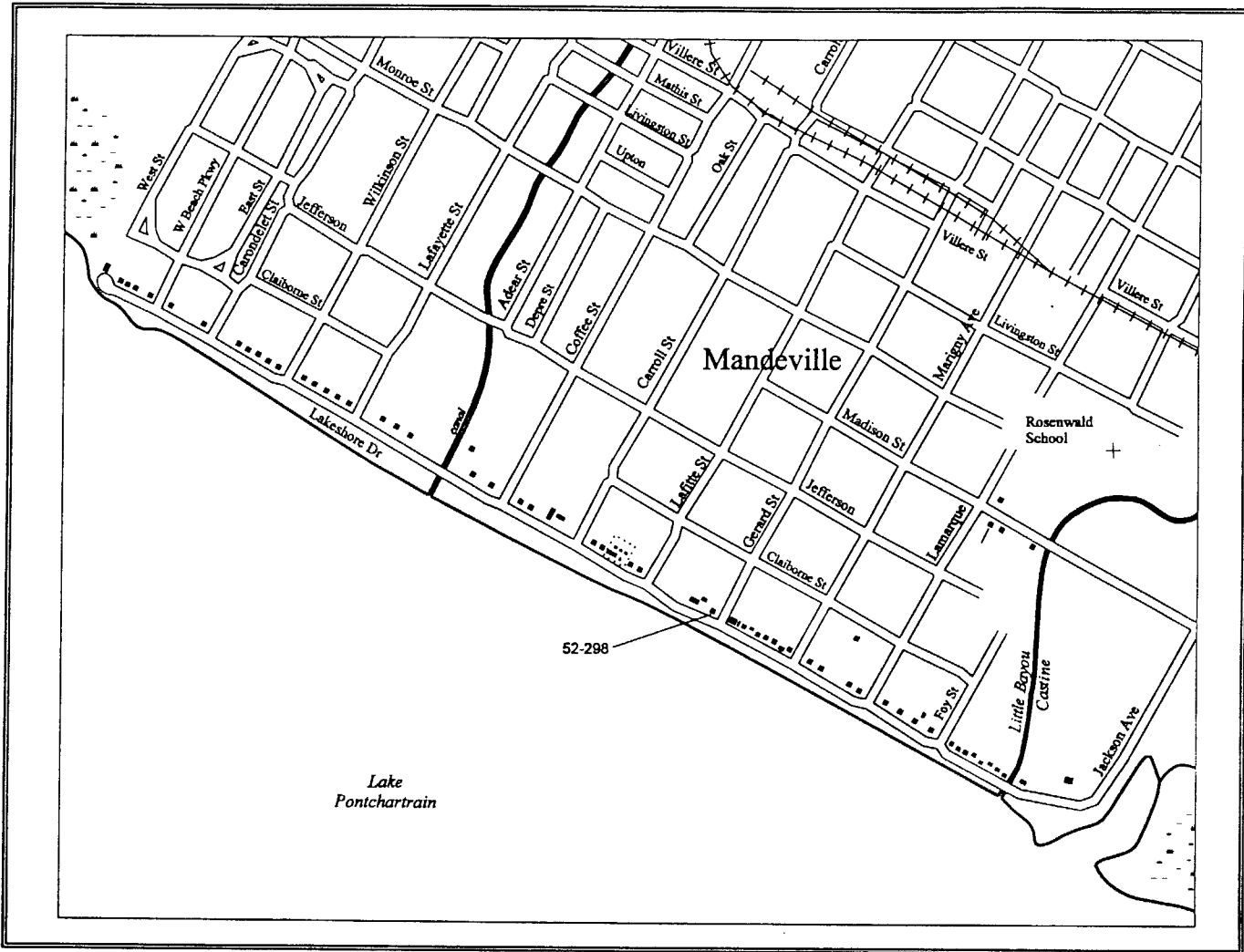
III. Physical Description of Property and Historic Significance.

2001 Lakeshore Drive, originally constructed as a movie theater, is a two-story, stuccoed building. The front stepped parapet wall obscures a front-gabled roof. The second-story openings have replacement French doors. The first floor entrance contains a modern glass door. A front facade retains its marquis. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.
 Date March 18, 1996
 For U.S.A.C.O.E., New Orleans District

V. Sources Consulted A Field Guide to American Houses by
Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-27

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



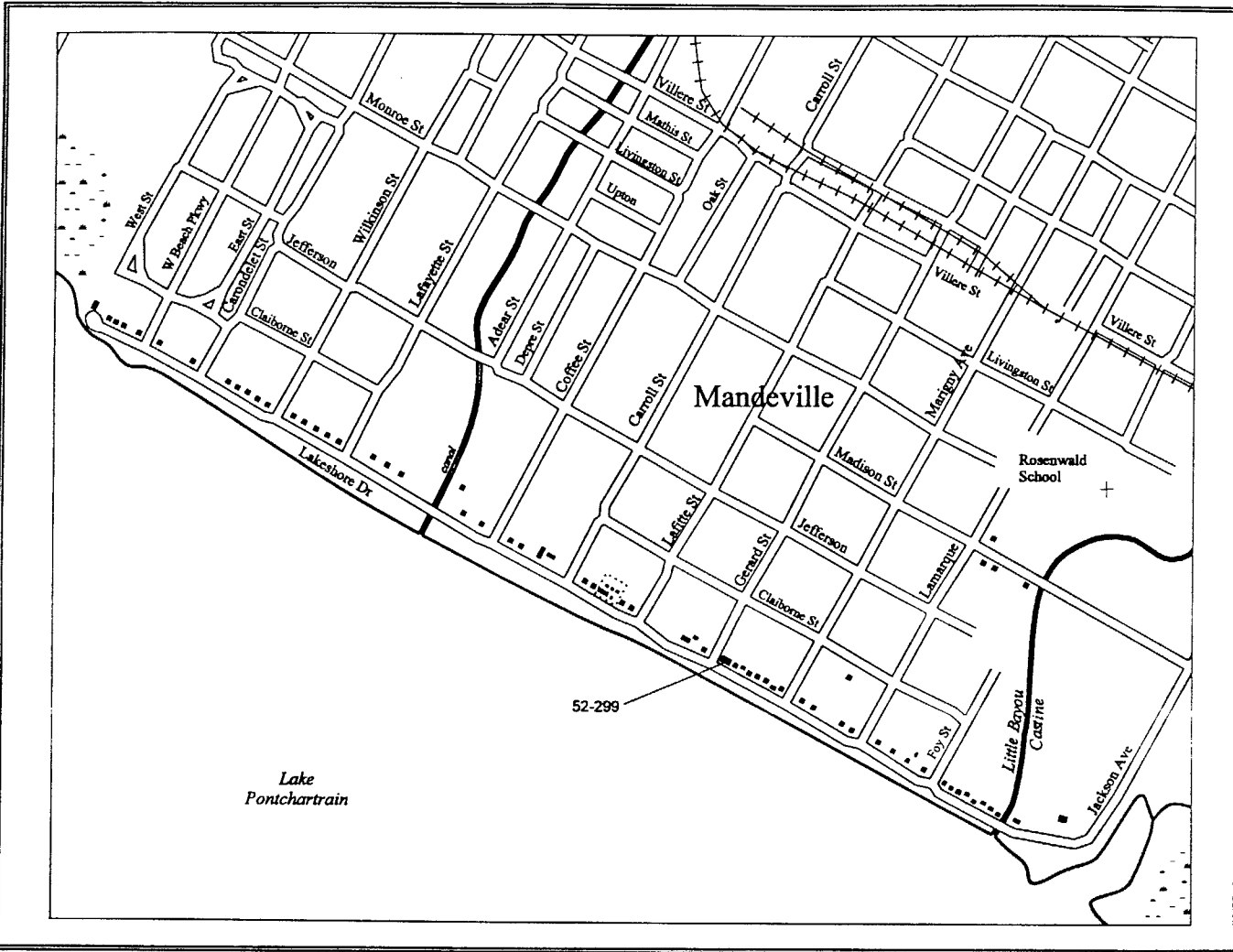
Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 50
 Property Address 1951 Lakeshore Drive
 Property Type Commercial Construction Date ca. 1860 (per 1982 Standing Structure form)
 Name (Common) Don's Bar Name (Historic) _____
 Owner & Owner Address _____
 I. Condition _____ Style _____ Floor Plan _____ Structural material Stucco

II. Physical Description of Property and Historic Significance.

1951 Lakeshore Drive is a two-story, wood-frame building with a stucco facade. Modern picture window bays are present on both sides of a modern replacement door. The second floor has four six-over-six-light, sash windows with batted shutters. The roof is flat with a parapet. According to the 1982 standing structure form, this building served as a hospital during the Civil War. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

V. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-26

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

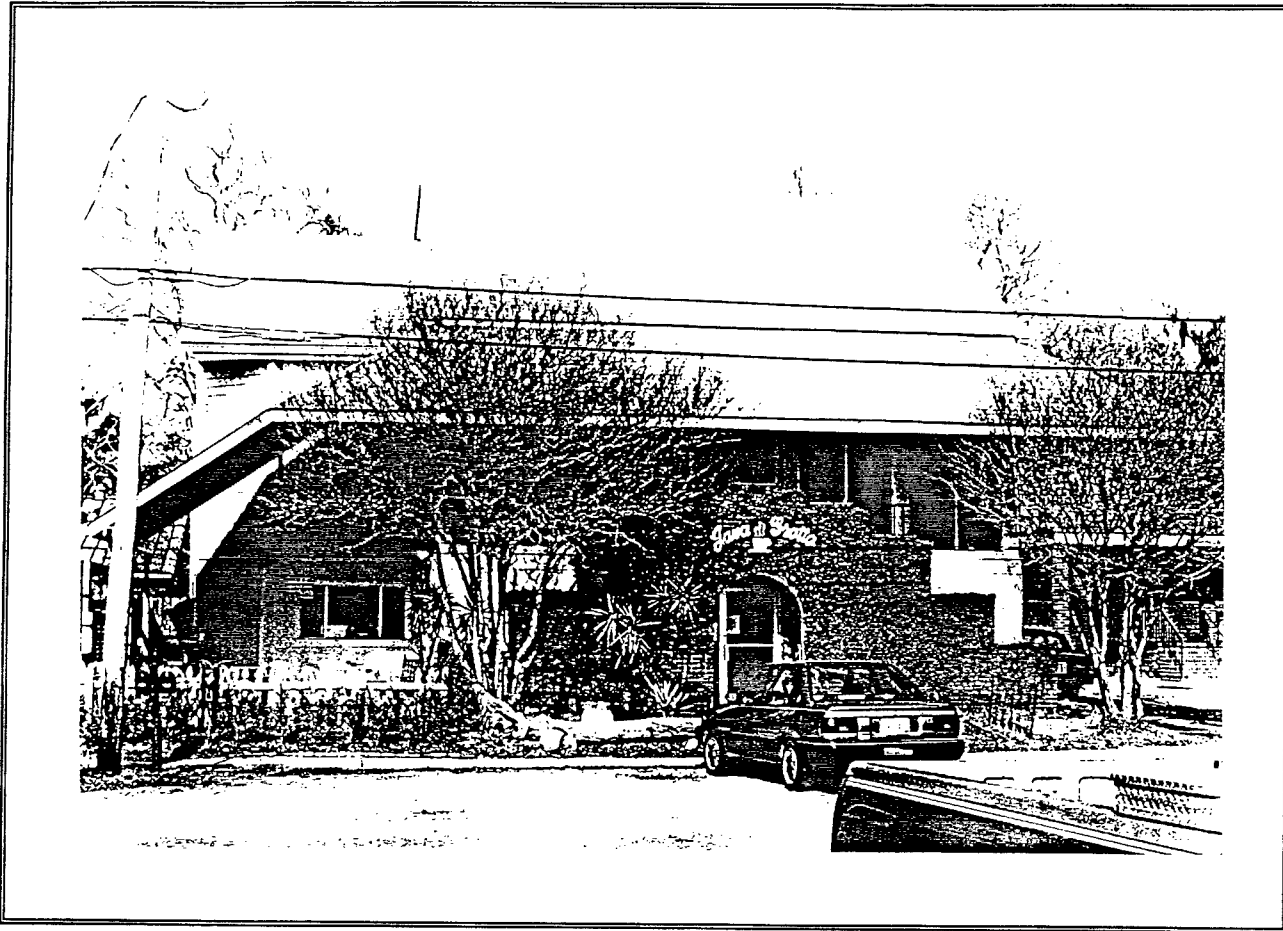
Remarks: _____

Other Features _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 50
 Property Address 1943 Lakeshore Drive
 Property Type Residential/Commercial Construction Date Unknown
 Name (Common) Java Grotto Name (Historic) _____
 Owner & Owner Address _____

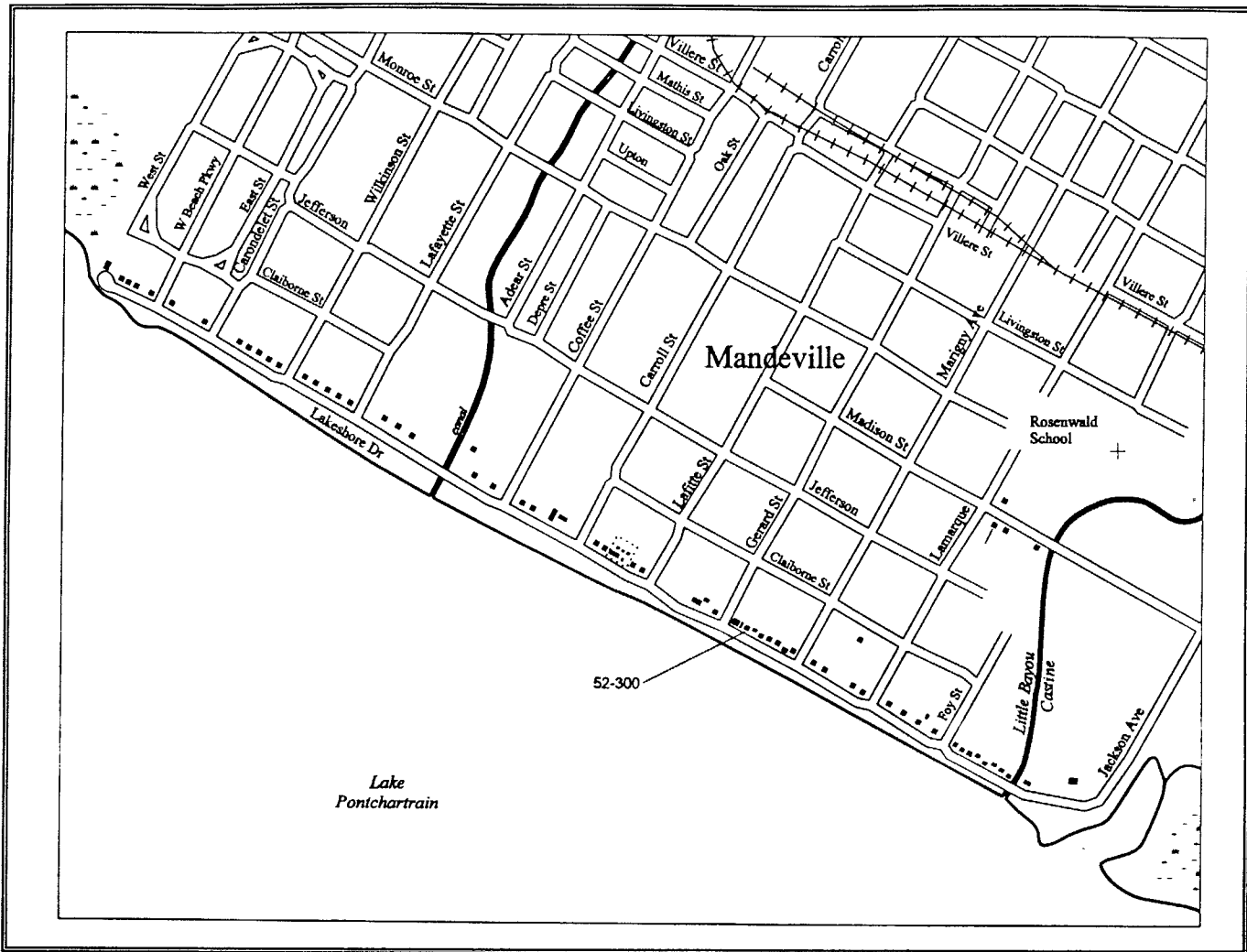
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This two-story, wood-frame building supported on raised brick piers. The building has a side-gabled is clad with composition roll. A full length screened gallery is located on the second story; the openings are obscured. The main entry is located in the ground floor. It has been modernized to appear to be stone. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-24

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data _____

Remarks _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 50Property Address 1925 Lakeshore DriveProperty Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

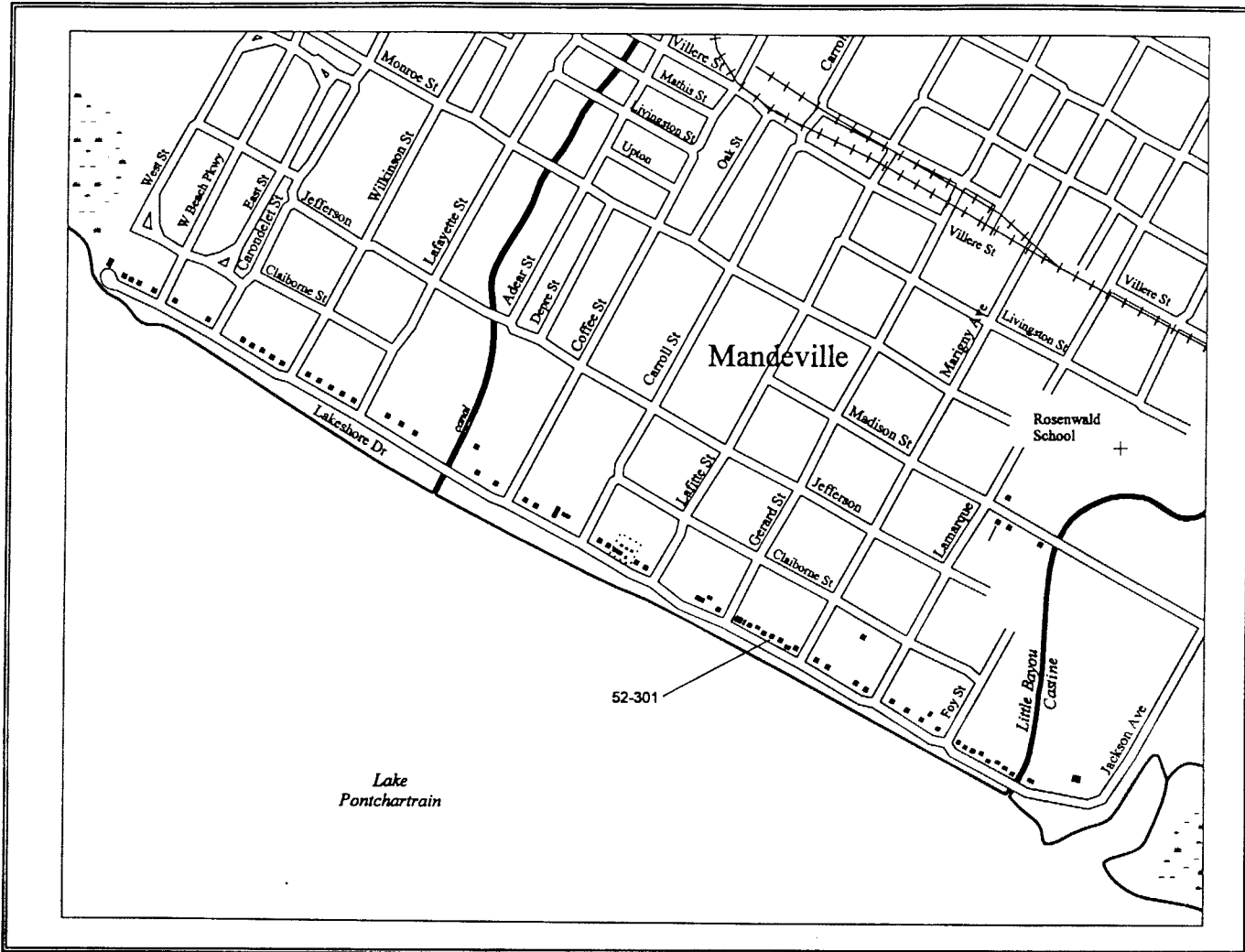
II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story, raised Creole cottage is supported by large brick columns. The understructure was partially enclosed to form a ground floor. The first floor appears to have five bays, covered by louvered shutters. The side-gabled roof has a pedimented gable dormer in the front elevation. The gable dormer has decorative trim and two decorative windows. A full-length gallery is screened. The porch roof is supported by square columns with a square balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-22

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1839 Lakeshore Drive
 Property Type Residential Construction Date ca. 1930
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

1839 Lakeshore Drive is a one-story, wood-frame residence clad in horizontal wood siding. The three-bay building is supported on piers. Two sets of eight-light French doors framed by louvered shutters are located on either side the entry way. The entry way contains a paneled door with two lights. The entry surround contains a transom and three-light sidelights. The cross-gabled roof is clad with octagonal shingles. A full-facade porch is supported by seven square wood columns and is ornamented with a square balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1815 Lakeshore Drive
 Property Type Residential Construction Date ca. 1900
 Name (Common) Flagstaff Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This two-story house is clad in horizontal wood siding. The building is elevated on brick piers that have been partially enclosed to provide service areas. The side-gabled is clad in shingles. A front gabled dormer is located in the center of the front roof elevation. The dormer has a decorative vergeboard trim and six-over-six-light, double-hung sash window with louvered shutters. The continuous pitch roof is supported by classical columns with Eastlake turned balustrade. The full length gallery has decorative medallions in the cornice and a portion (half) has been screened in since 1915. An exterior brick chimney is located in the east end. This building was listed in the National Register of Historic Places in 1983.

IV. Recorded by R.C. Goodwin & Associates, Inc.

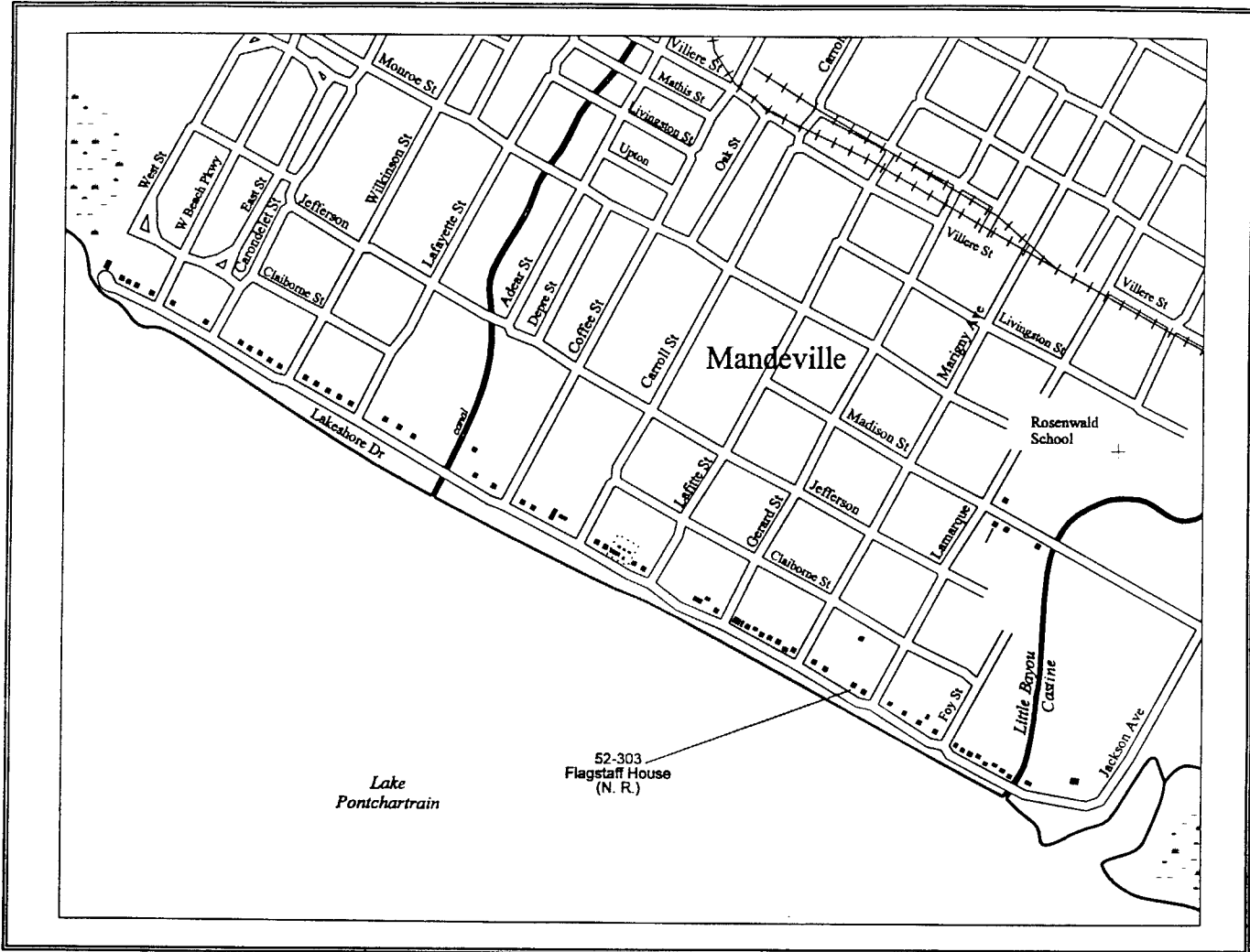
Date March 18, 1996

For U.S.A.C.O.E., New Orleans District

V. Sources Consulted A Field Guide to American Houses by

Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-33/34

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: This structure was nominated for the National Register for Historic Places in 1983.

Other Features _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 51Property Address 1807 Lakeshore DriveProperty Type Residential Construction Date unknownName (Common) Mandeley Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan Bungalow Structural material Wood frame

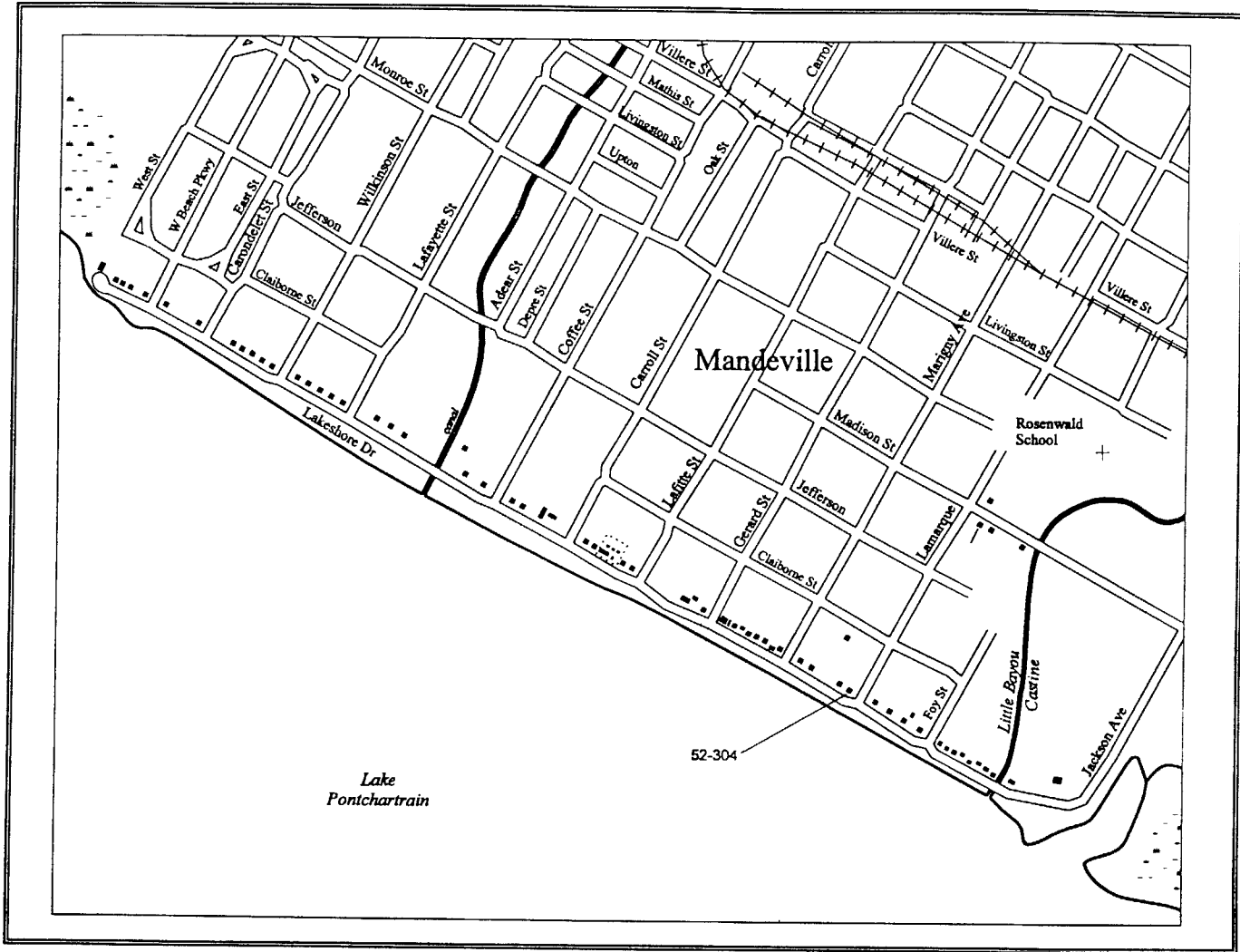
III. Physical Description of Property and Historic Significance.

"Mandeley" is a one-story, wood-frame building clad with horizontal wood siding. The five-bay front facade contains full length French doors with full-length louvered shutters. The side-gabled roof is clad with synthetic shingles. Two front-gabled dormers contain four-over-four-light, double-hung sash windows. Interior chimneys are visible on each gable end. The building has a full-facade porch ornamented with square columns and a balustrade.

This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-33

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: 1 porch/gallery(s) 2 dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 51Property Address 1725 Lakeshore DriveProperty Type Residential Construction Date ca. 1860Name (Common) Peaceland Name (Historic) _____

Owner & Owner Address _____

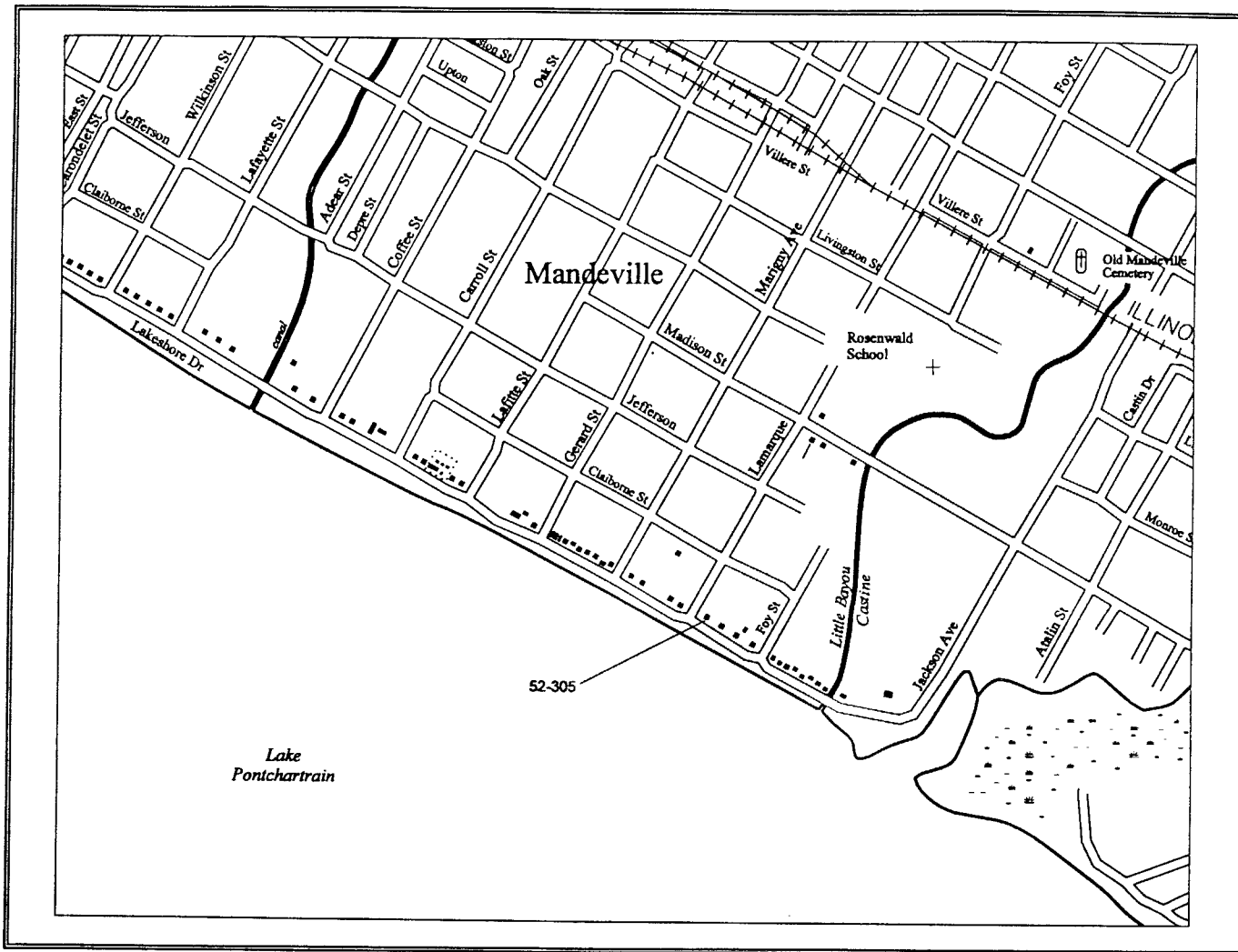
II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This a one-story, Raised Creole cottage is supported by brick piers. The building is clad with horizontal wood siding. Four full-length French doors with louvered shutters form the front facade. Each opening has a three-light transom. The bellcast roof is clad with standing seam metal material and has a center gable dormer with three, four-over-four-light, double-hung sash windows. An interior brick chimney is present. A full-facade gallery is located across the front and continues around the west side of the house to an ell addition in the rear of the structure. A plain rail balustrade and turned colonettes ornament the gallery. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted *A Field Guide to American Houses* byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-25

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

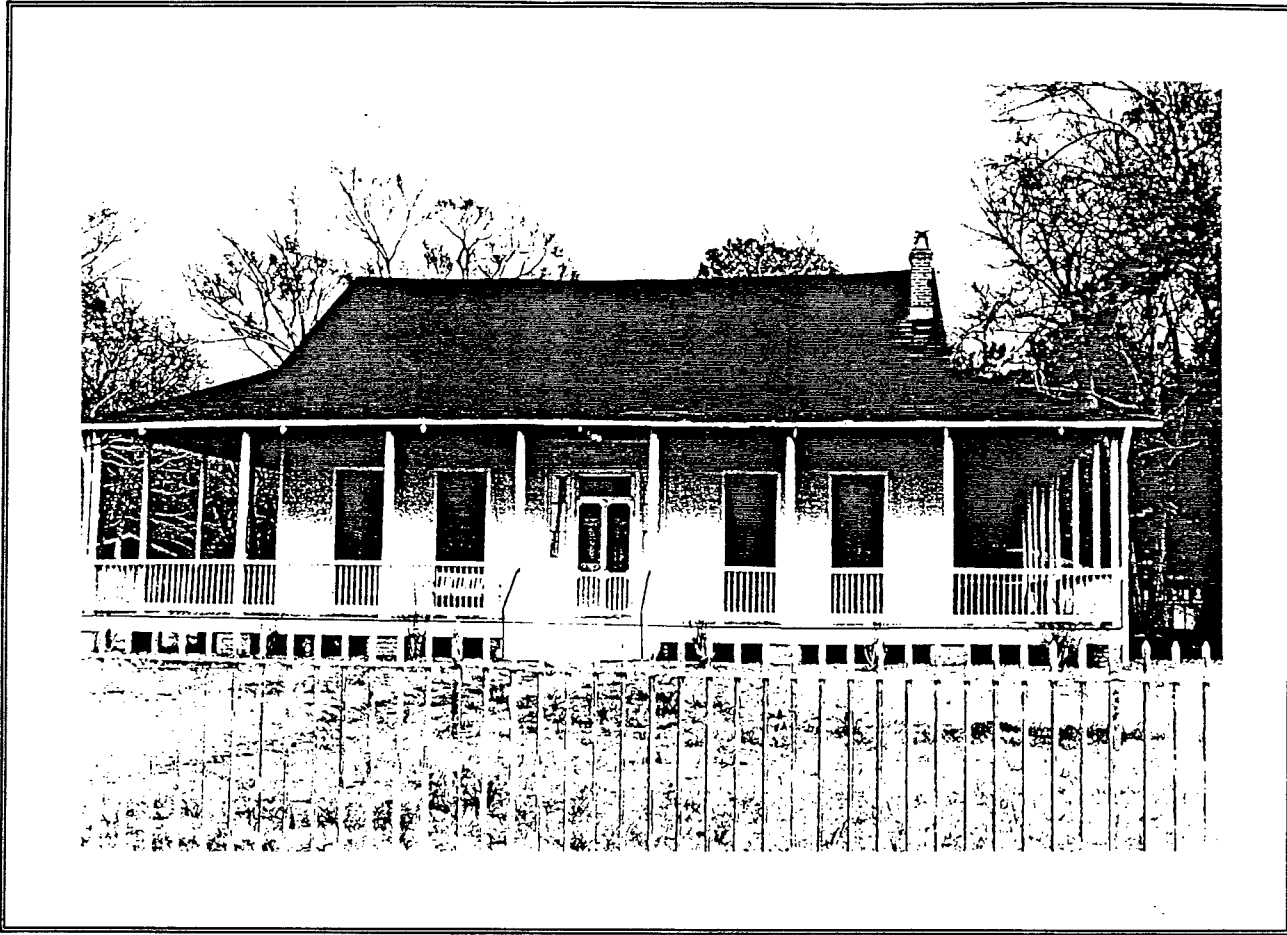
Remarks: _____

Other Features: 3 porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 51

Property Address 1721 Lakeshore Drive

Property Type Residential Construction Date 1835

Name (Common) _____ Name (Historic) Little Flower Villa

Owner & Owner Address _____

II. Condition _____ Style Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

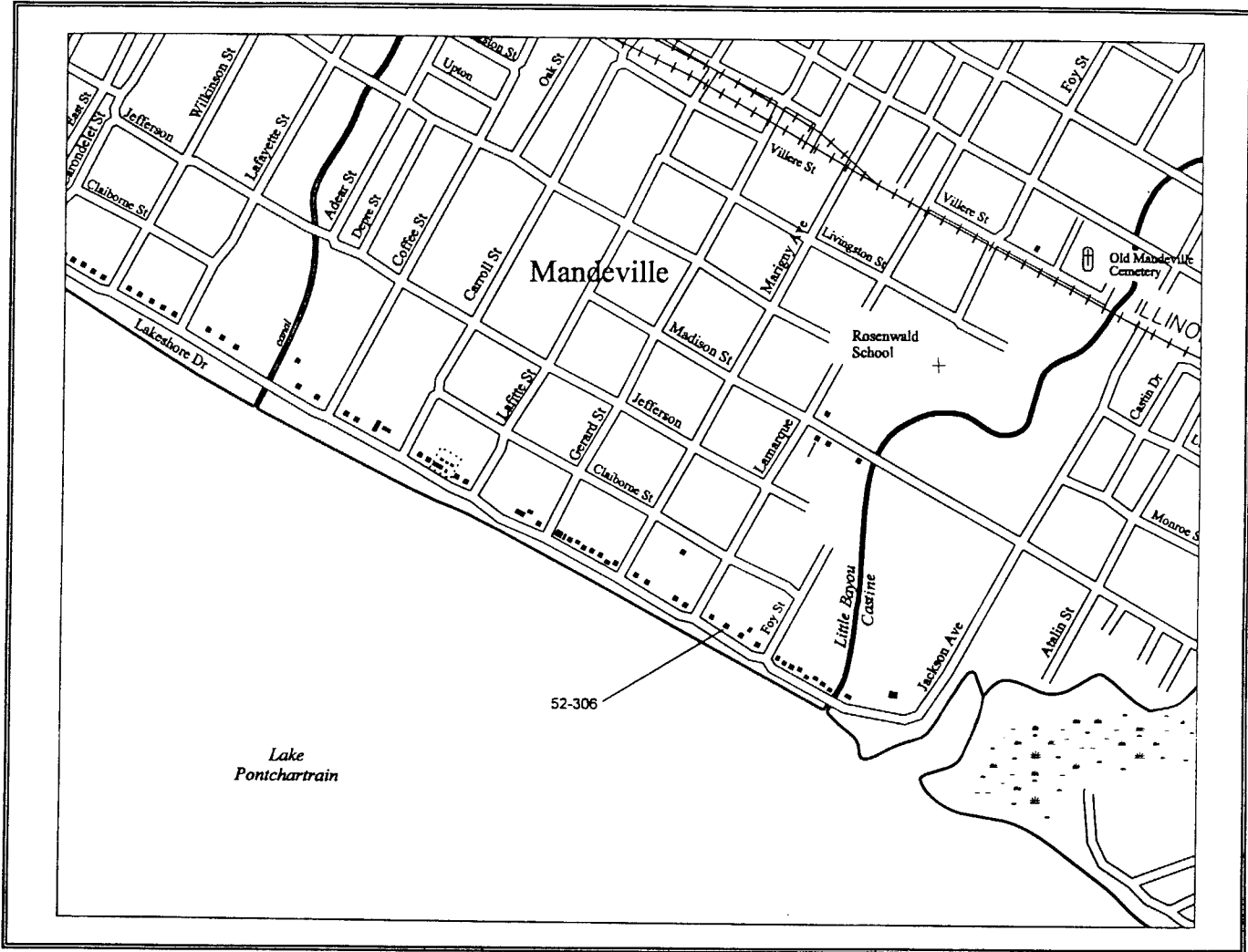
1721 Lakeshore Drive is a one-story Creole cottage raised on brick piers. The front facade contains five bays of full length French doors with full length louvered shutters. The central entrance bay is ornamented with glass paneled transom and paneled glass sidelights. The shingled roof is a side gable-on-hip with hip extensions that form the roof for the front and side galleries; the gallery roofs have exposed rafter ends. The porch is ornamented by square colonettes and a balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by

Date March 18, 1996 Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-25

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

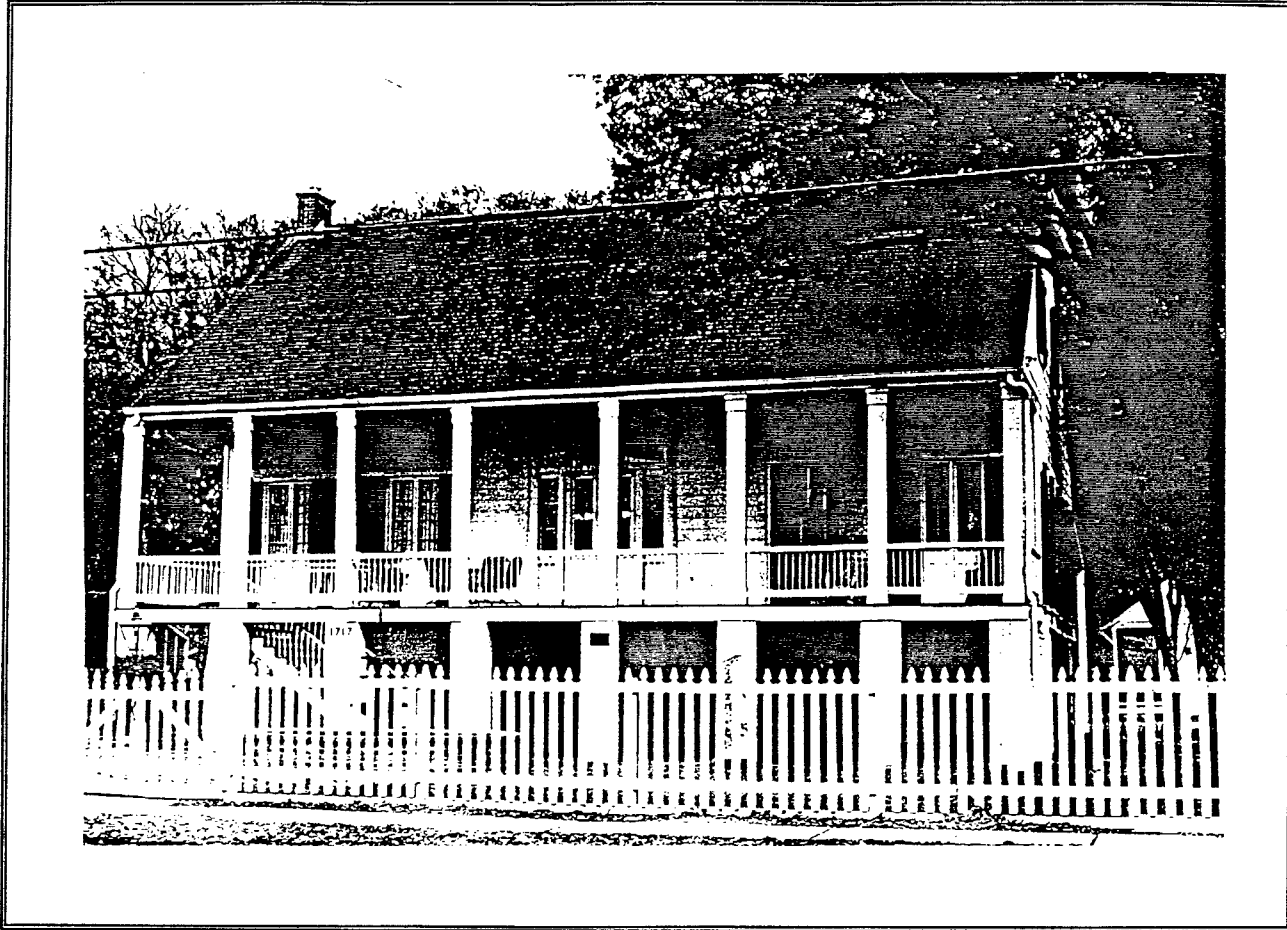
Remarks: _____

Other Features: porch/gallery(s) dormers(s) ironwork balcony

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1717 Lakeshore Drive
 Property Type Residential Construction Date ca. 1840
 Name (Common) Moore House Name (Historic) _____
 Owner & Owner Address _____

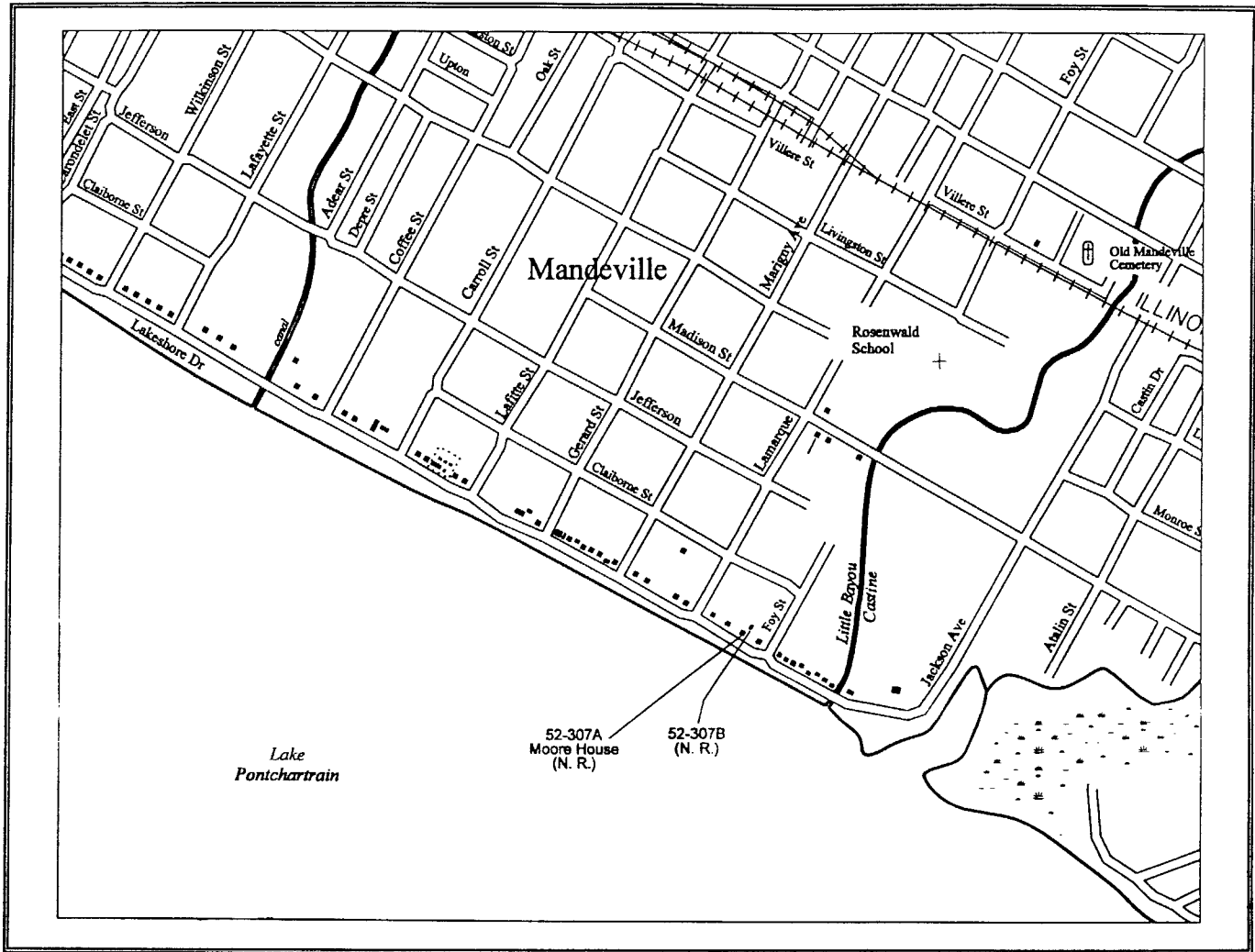
II. Condition _____ Style Raised Creole Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

1717 Lakeshore Drive is a two-story, wood-frame building supported on raised brick piers. The side-gabled shingled roof has two interior chimneys. A continuous pitch roof covers a full length gallery with square colonettes and balusters. Four sets of French doors are covered by louvered shutters. The main central entrance has French doors, sidelights and a transom. The ground floor was enclosed in the late 1970s or early 1980s. There are slave quarters in the rear. This building was listed on the National Register of Historic Places in 1983.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-24

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

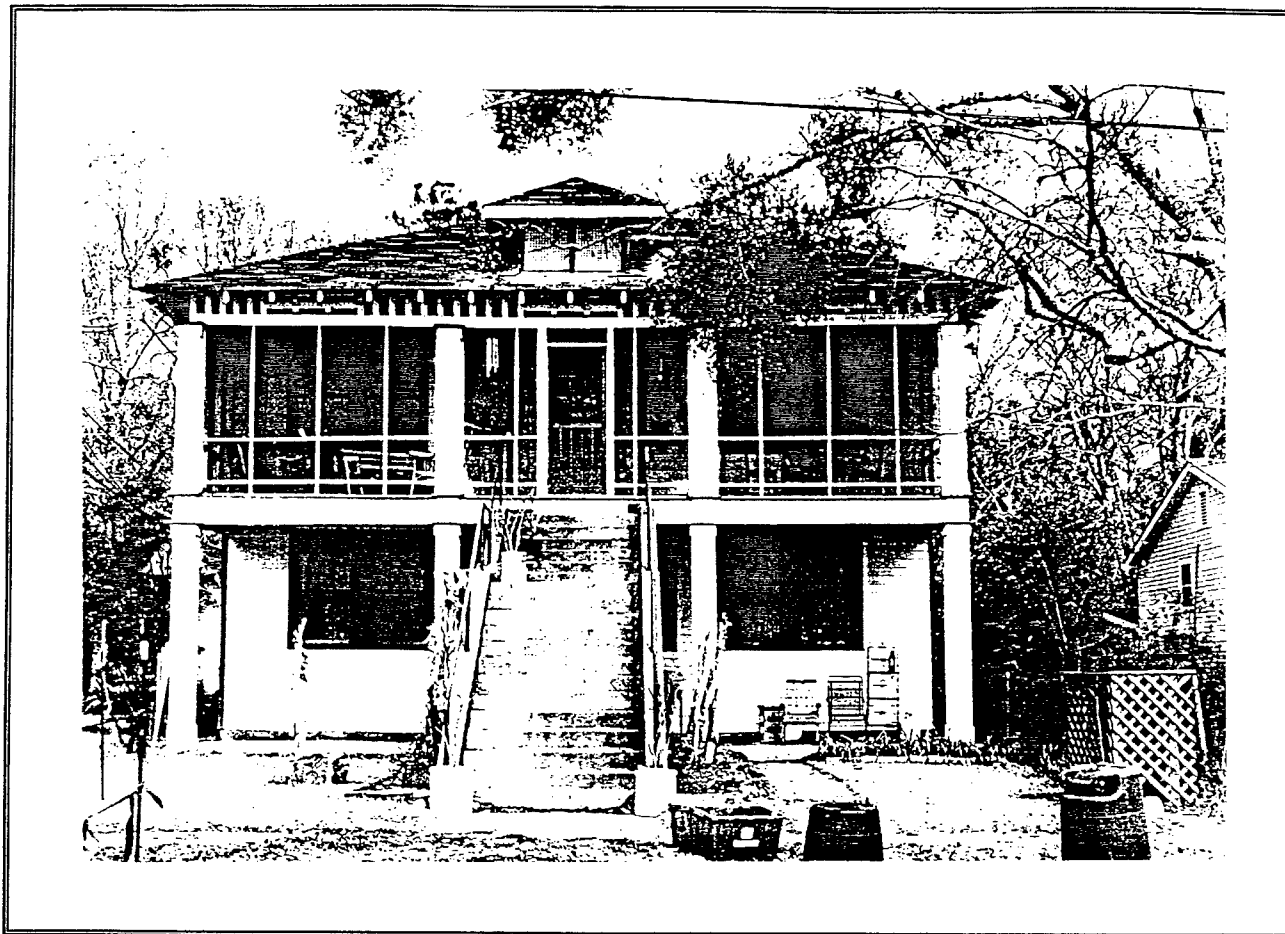
Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 51Property Address 1647 Lakeshore DriveProperty Type Residential Construction Date ca. 1930

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

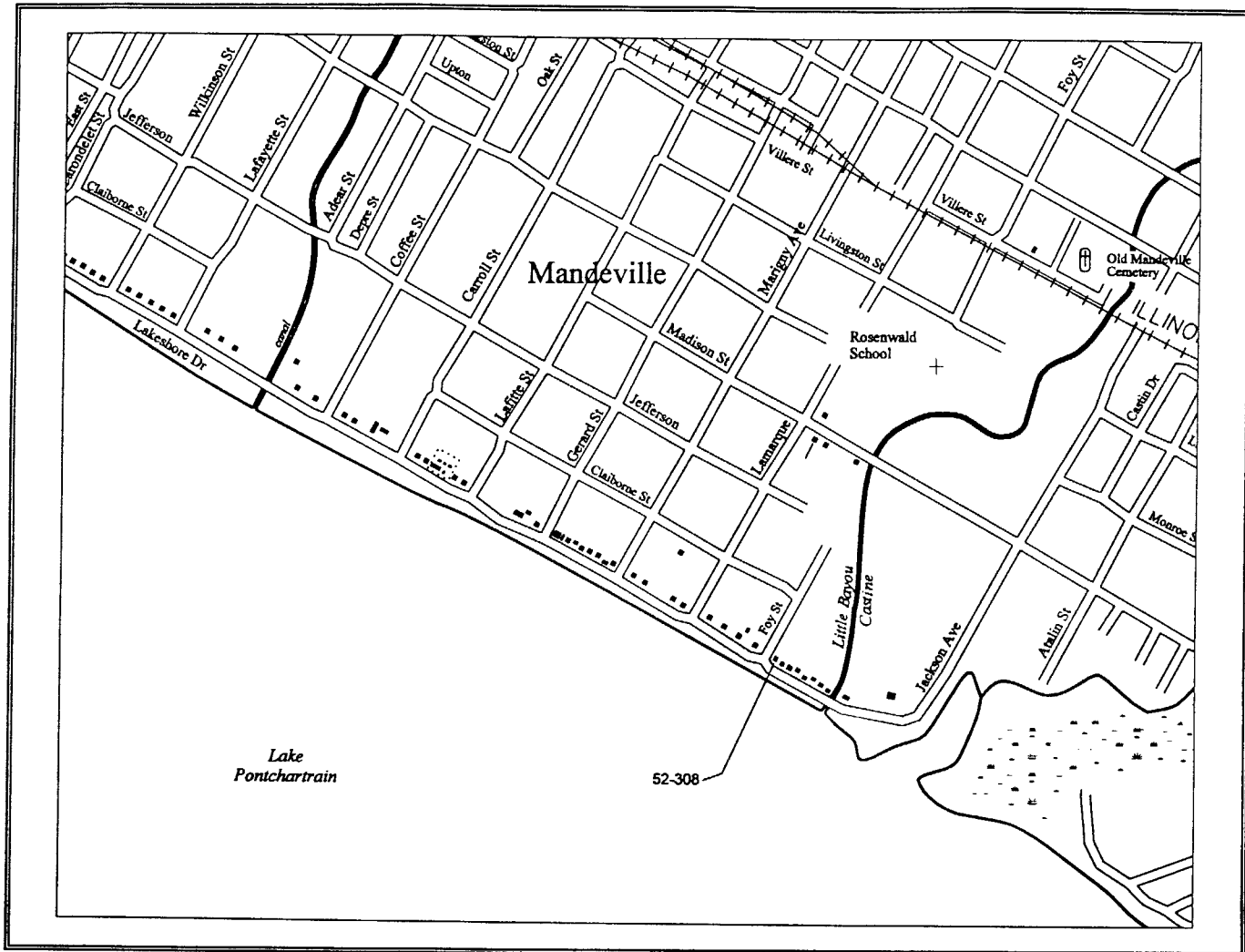
II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This is a wood-framed, bungalow is clad with horizontal wood siding. It rests on a concrete foundation. The understory has been partial enclosed to create a service area. The three-bay building contains paired six-over-one-light, double-hung sash windows. The central entrance contains a wood paneled door with nine glass lights. The door is framed by sidelights. The hipped roof has a central hipped dormer with a louvered facade with exposed rafter ends. First and second story galleries are supported by four square posts with simple molded capitals. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-23

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

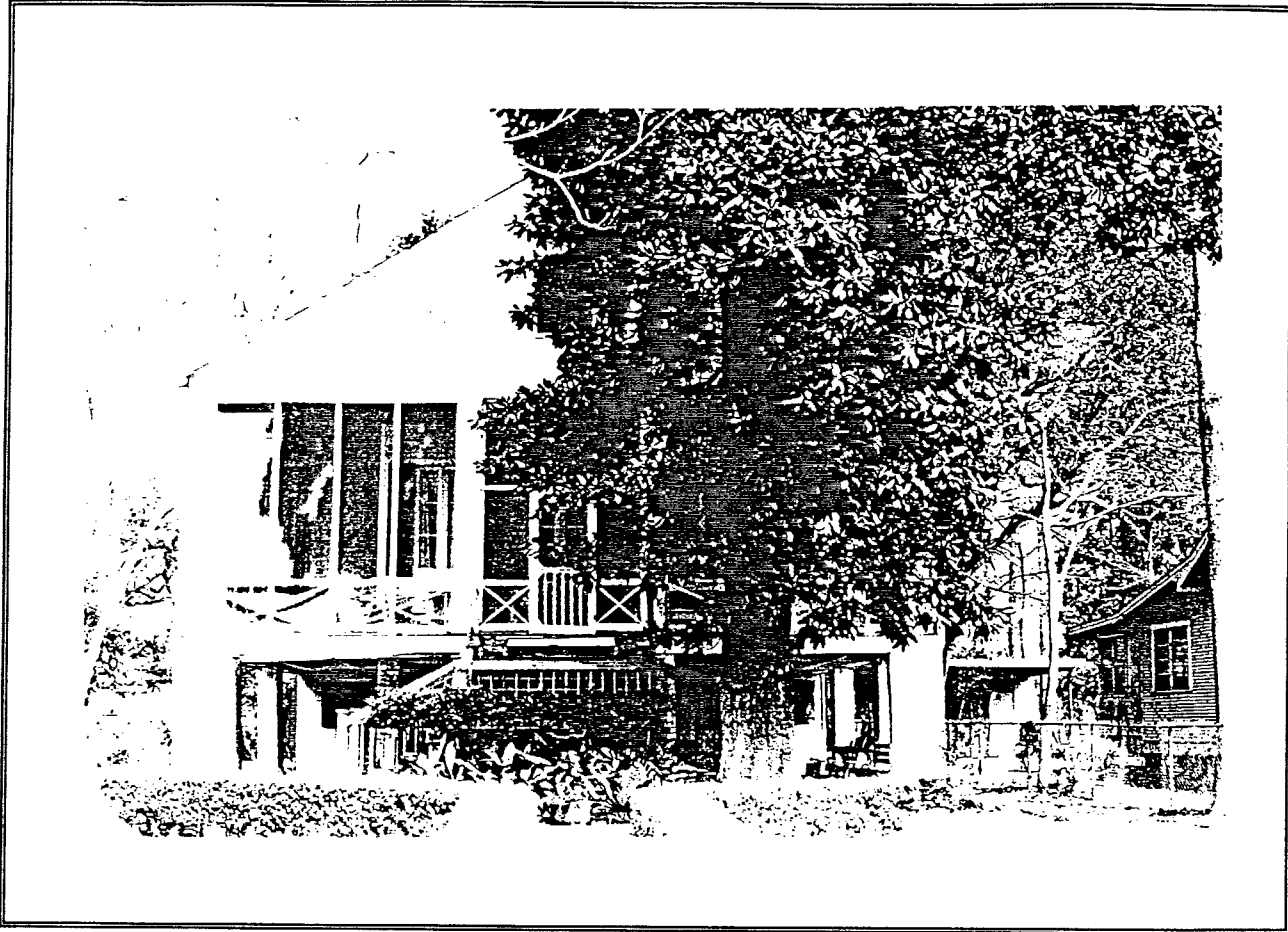
Remarks: _____

Other Features: 1 full porch/gallery(s) 1 shed dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1635 Lakeshore Drive
 Property Type Residential Construction Date ca. 1850
 Name (Common) Magnolia/ Oriole Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. This two-story building is clad with horizontal wood siding. The first floor consists of a modern, partial enclosure of the original brick pier support structure. A full-facade, screened gallery extends across the front and around both sides of the first floor. The porch is ornamented with square columns and a diagonal-crossed balustrade. Three sets of French doors with full-length louvered shutters are located on the front facade. The front gabled roof is continuous pitch and incorporates that roofs of the side galleries.

This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc.

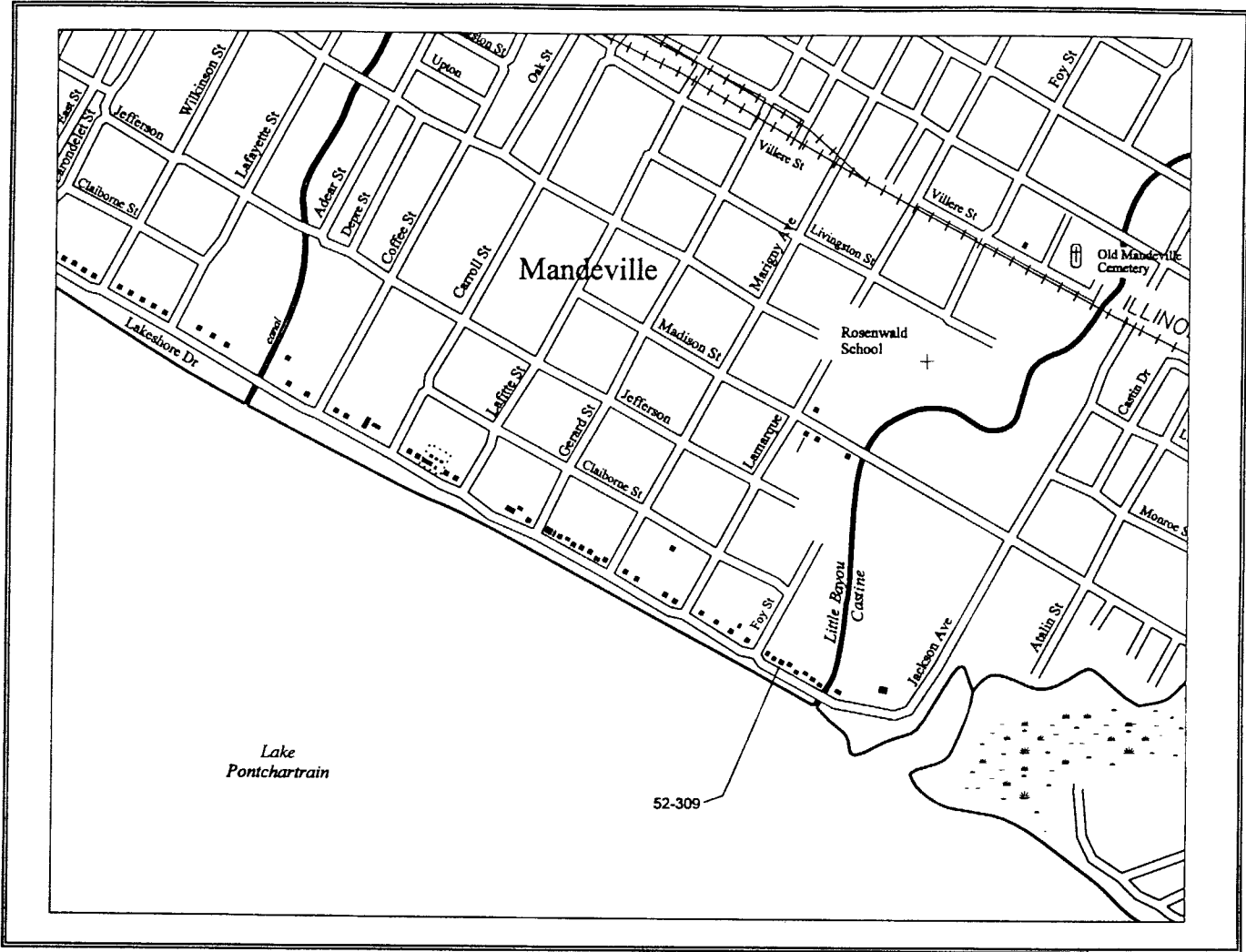
Date March 18, 1996

For U.S.A.C.O.E., New Orleans District

V. Sources Consulted *A Field Guide to American Houses* by

Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-20

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

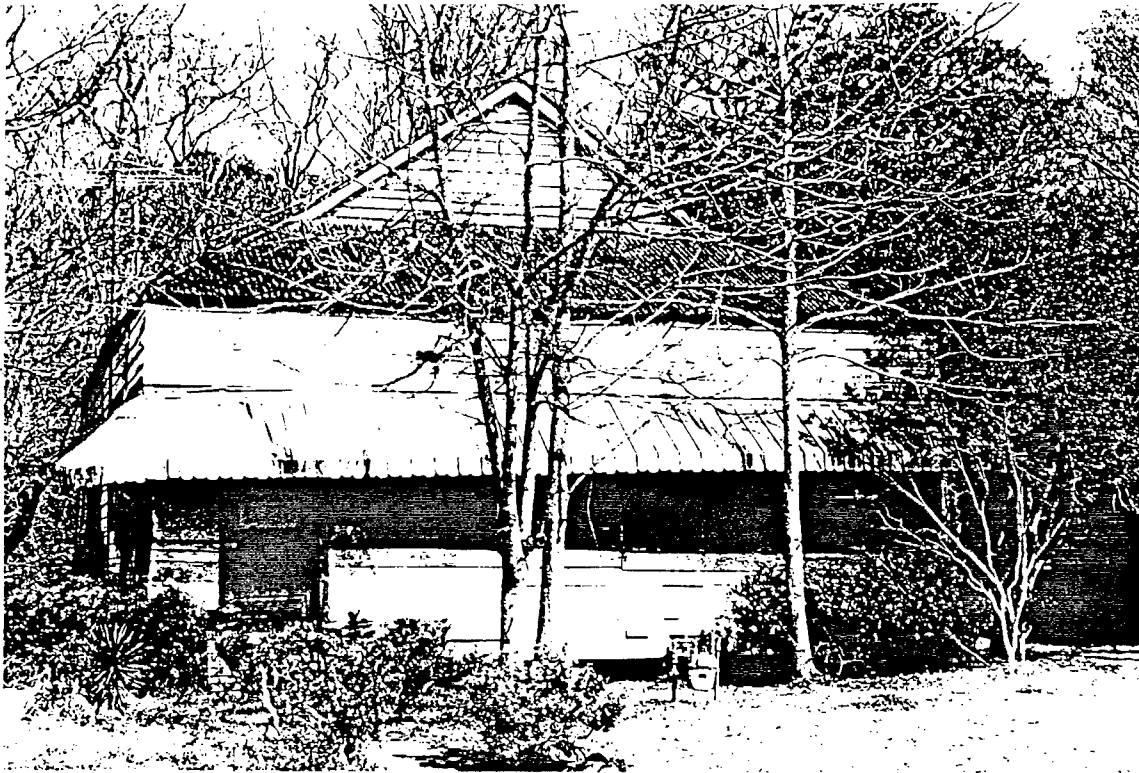
Remarks: _____

Other Features: 3 porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1700 Block of Madison Street (Corner of Lamarque and Madison)
 Property Type Residential Construction Date Unknown
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding and supported on brick piers. The front-gabled roof is clad with corrugated metal. The three-bay front facade has a full-facade enclosed porch contained under a shed roof. The porch is enclosed with windows and a wood-paneled door with three glass lights. The porch is also shaded by an awning.

IV. Recorded by R.C. Goodwin & Associates, Inc.

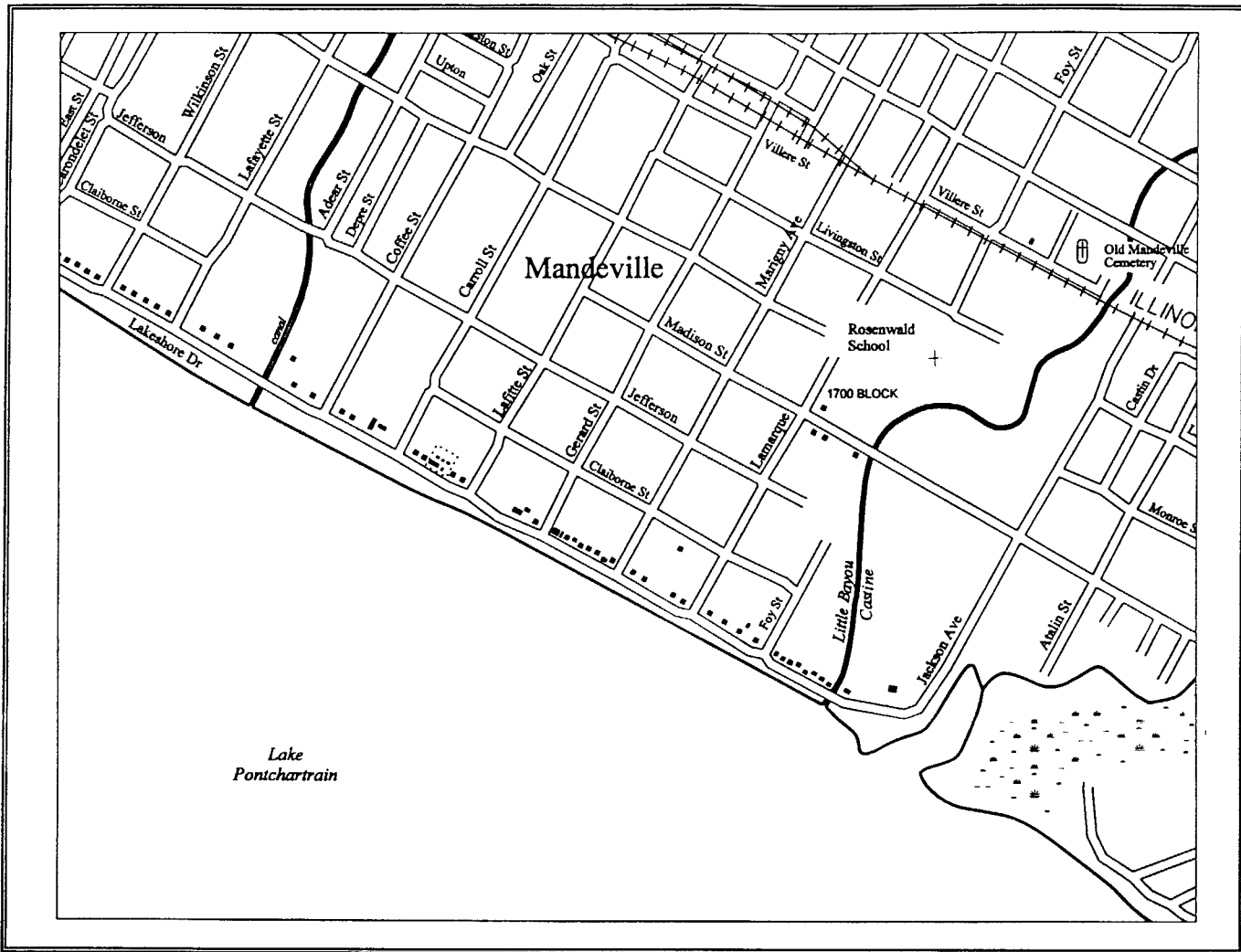
Date March 18, 1996

For U.S.A.C.O.E., New Orleans District

V. Sources Consulted A Field Guide to American Houses by

Virginia and Lee McAlester

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-12

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

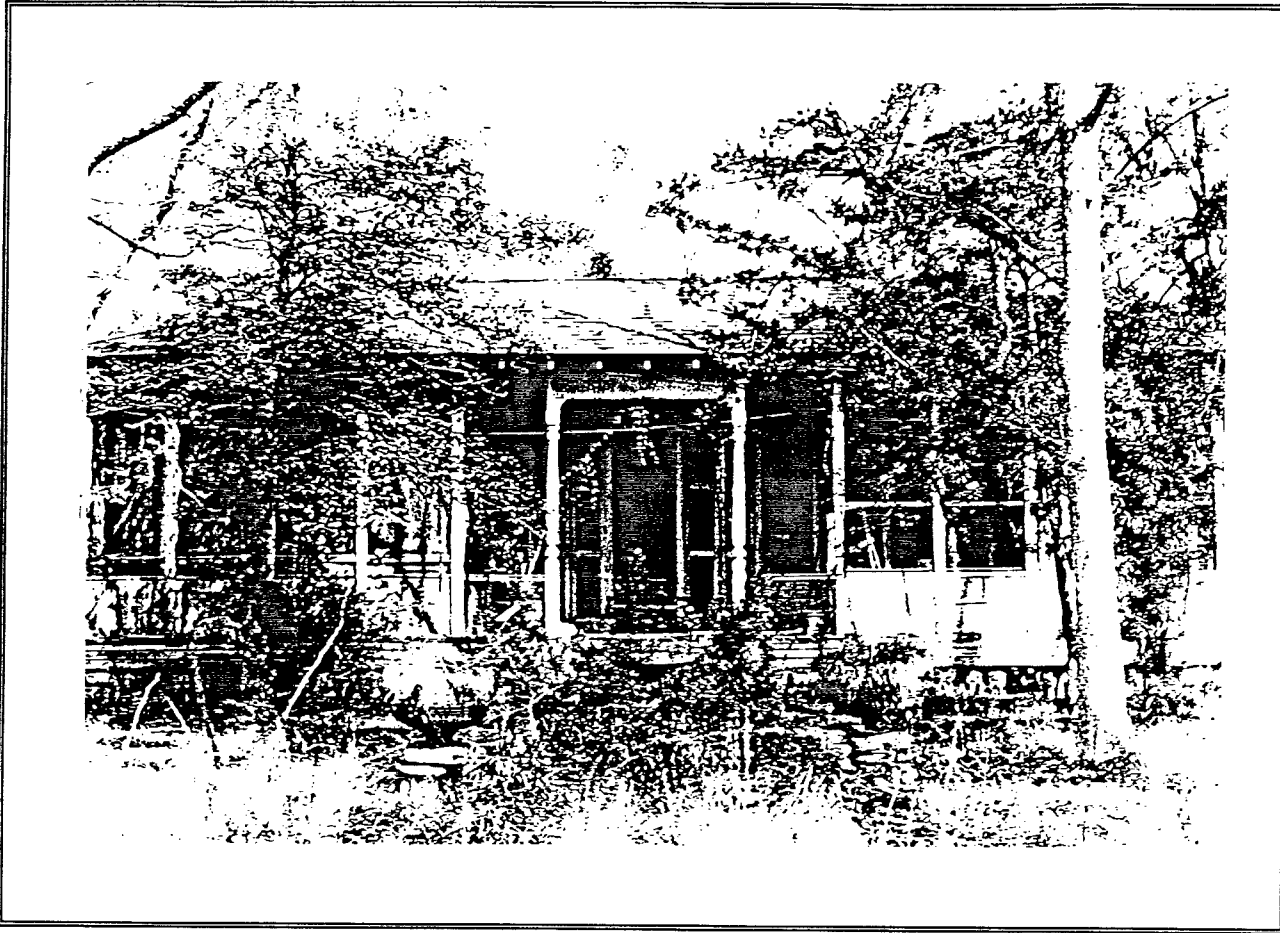
Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 51

Property Address 1600 Villere Street (west of Old Mandeville Cemetery)

Property Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

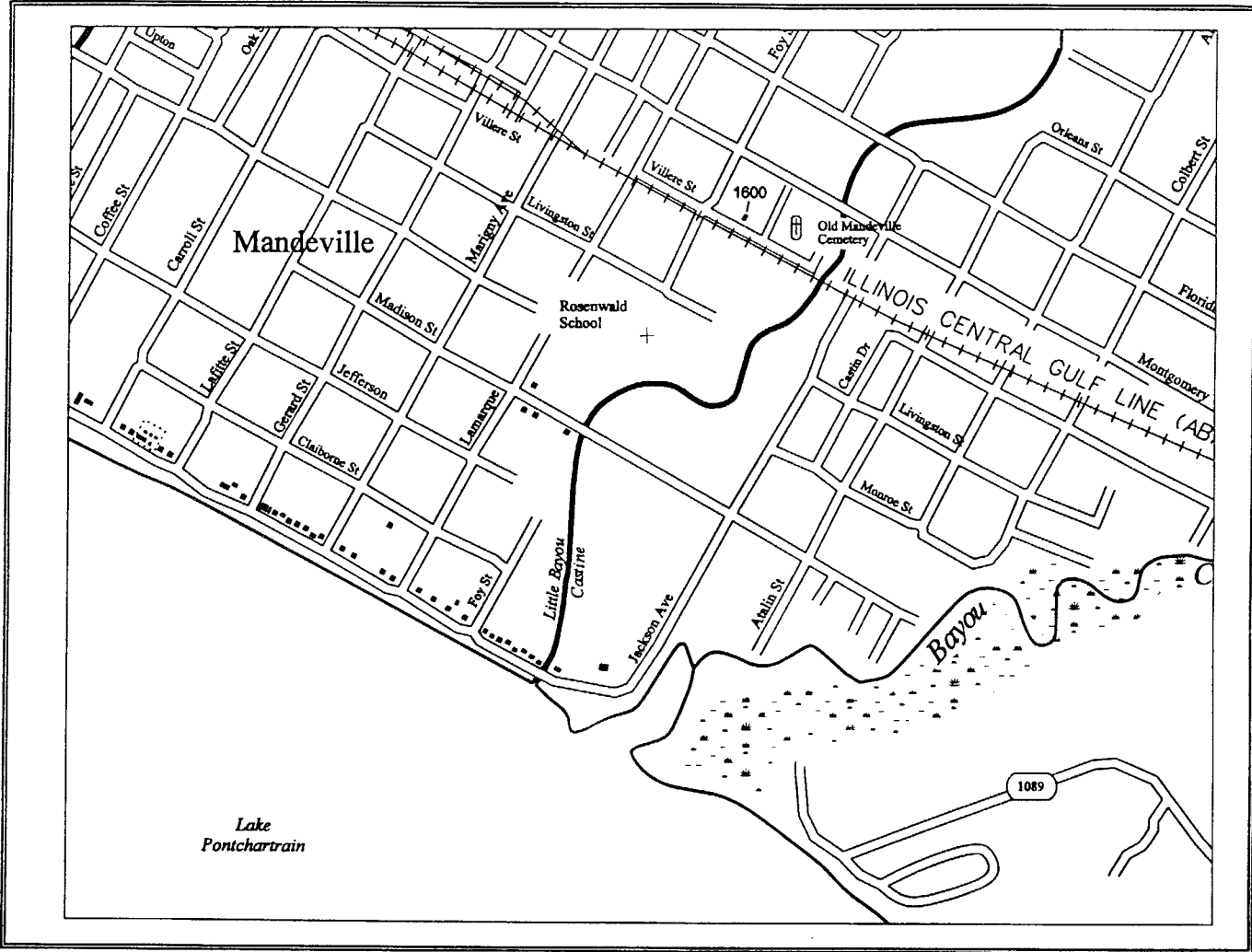
This one-story building is clad with both board and batten and horizontal wood siding. It is supported on brick and concrete piers. The hipped roof is clad with slate; exposed rafter ends are visible. The four-bay front facade has an open gallery supported on both square wood posts and turned colonettes. The openings contain French doors with louvered exterior shutters. One interior brick chimney is visible.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by

Date March 18, 1996 Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-13

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ farmers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 51Property Address 1605 Lakeshore DriveProperty Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

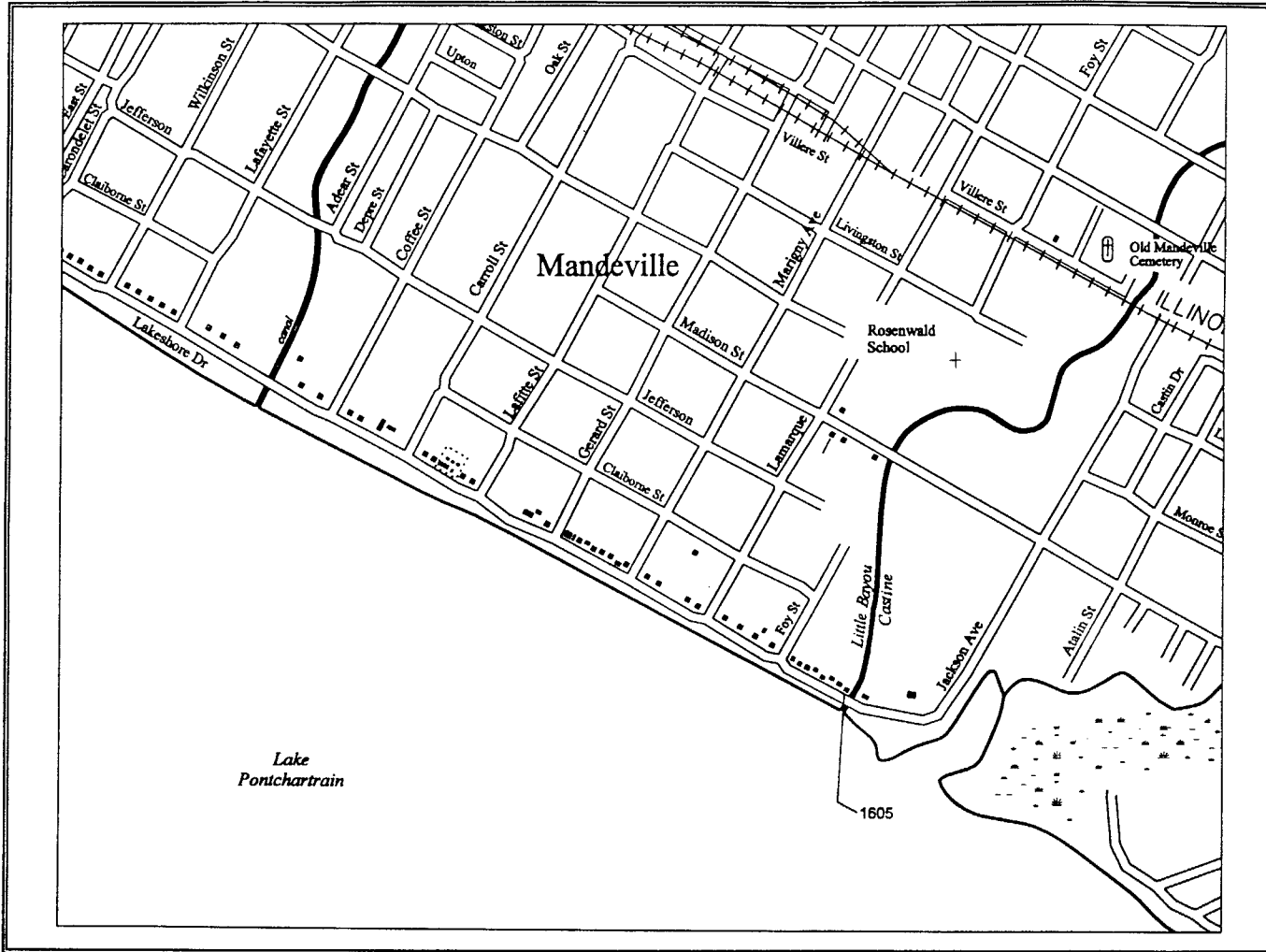
II. Condition _____ Style Craftsman Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This building is a one-story, wood-frame residence clad with horizontal siding. The front-gabled roof is clad with composition roll; it has a decorative wood stringcourse in the gable end. The three bay front facade contains a central entrance with a multiple-glass light and wood-paneled door. The windows are paired, six-over-two-light, double-hung sash. A porch covers two-thirds of the front facade. The porch is ornamented with turned colonettes and a turned balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections _____

Photographs: _____ Exposure # 03-1

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ farmers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 51

Property Address 1611 Lakeshore Drive

Property Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style Craftsman Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

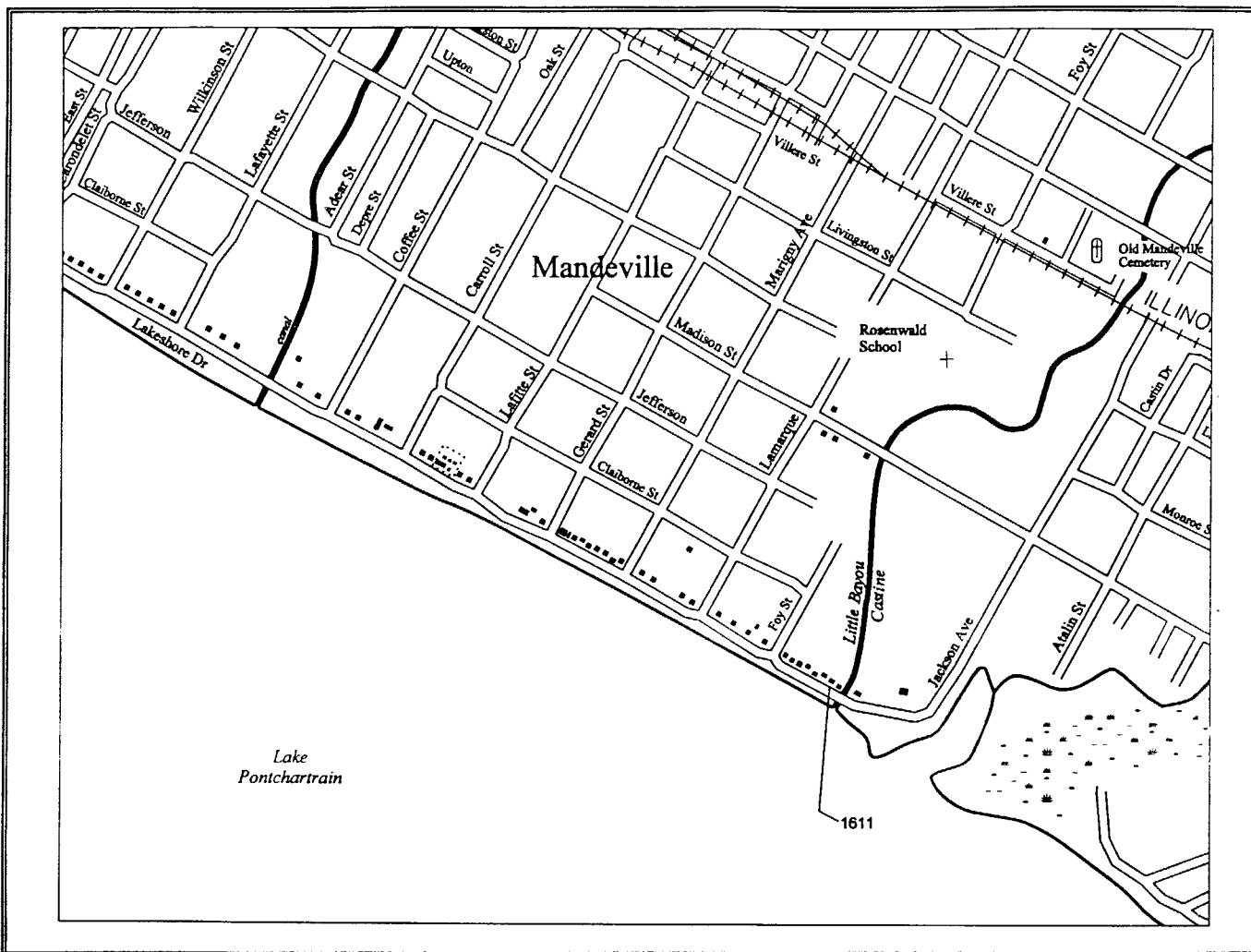
This building is a one-story, wood-frame residence clad with horizontal siding. The front-gabled roof is clad with composition roll; it has a decorative wood stringcourse in the gable end. The three bay front facade contains a central entrance with a multiple-glass light and wood-panelled door. The windows are paired, six-over-two-light, double-hung sash. A screened porch covers two-thirds of the front facade. The porch is ornamented with wood posts and a balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

V. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted *A Field Guide to American Houses* by

Date March 18, 1996 Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-16

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

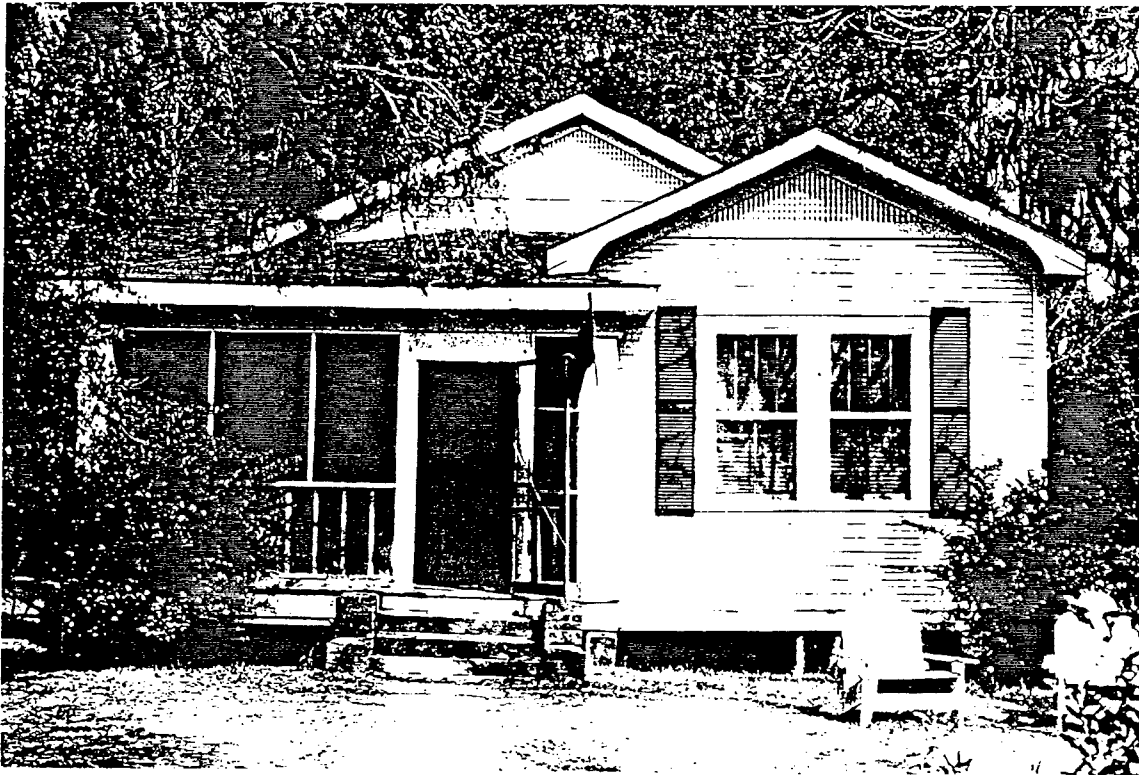
Remarks: _____

Other Features: _____ porch/gallery(s) _____ farmers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany

USGS Quad Mandeville Township 8S Range 11E Section 51

Property Address 1617 Lakeshore Drive

Property Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

II. Condition _____ Style Craftsman Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

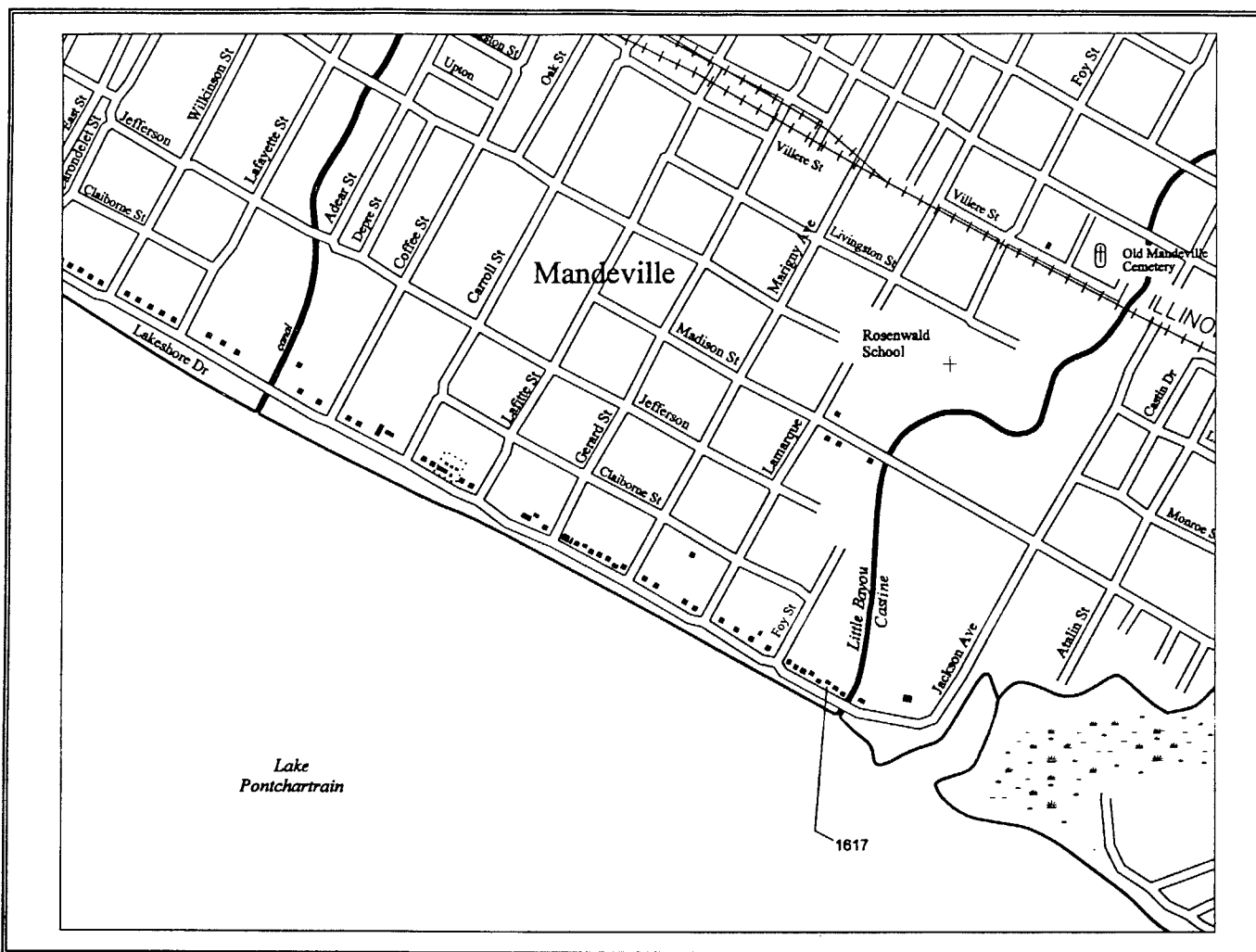
This building is a one-story, wood-frame residence clad with horizontal siding. The front-gabled roof is clad with composition roll; it has a decorative wood stringcourse in the gable end. The three bay front facade contains a central entrance with a multiple-glass light and wood-paneled door. The windows are paired double-hung sash. A screened porch covers two-thirds of the front facade. The porch is ornamented with wood posts and a balustrade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by

Date March 18, 1996 Virginia and Lee McAlester

For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-17

Field Notes: _____

Published References: *Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana* (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ farmers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1623 Lakeshore Drive
 Property Type Residential Construction Date ca. 1900
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

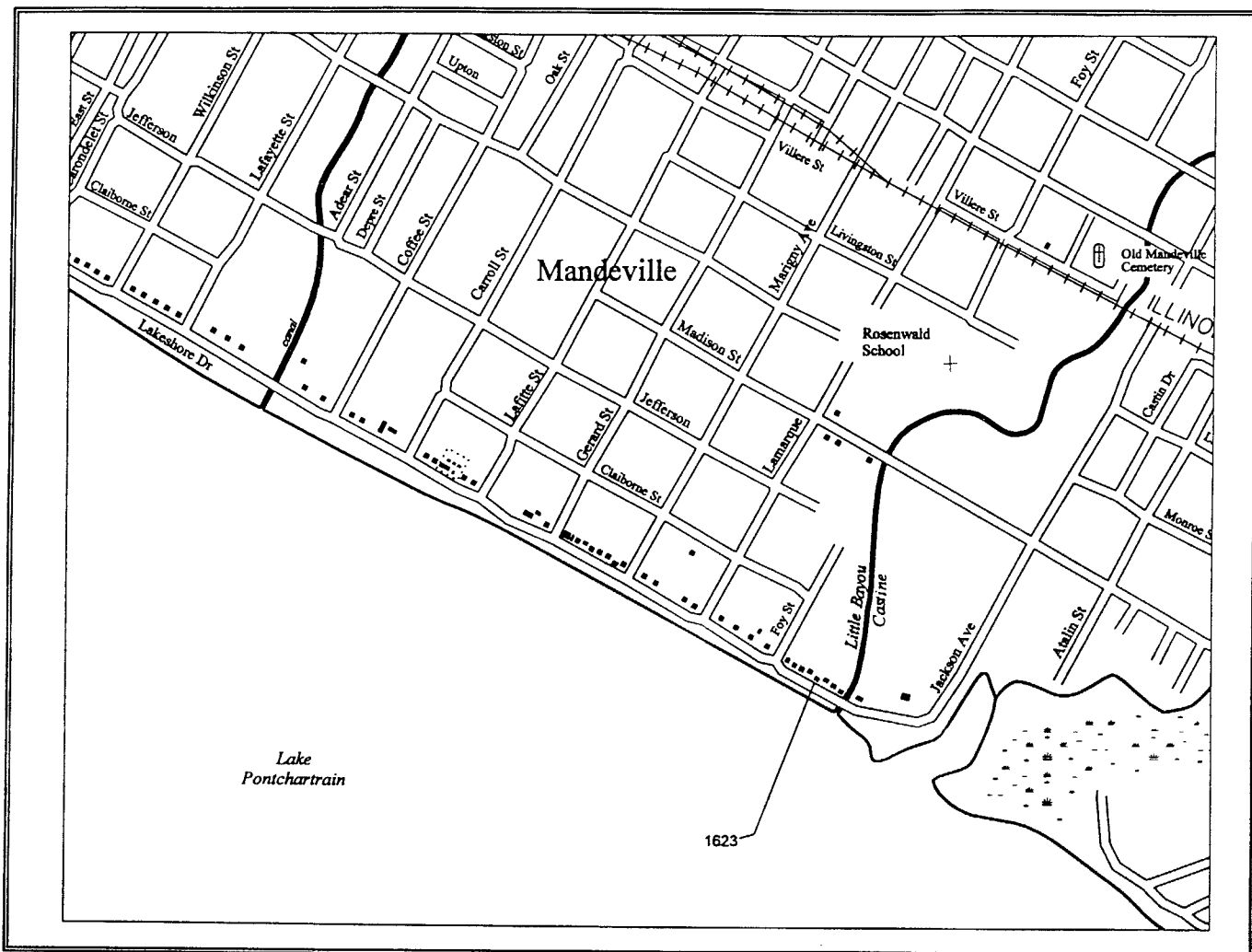
II. Condition _____ Style Craftsman Cottage Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This building is a one-story, wood-frame residence clad with horizontal siding. The front-gabled roof is clad with composition roll; it has a decorative wood stringcourse in the gable end. The three bay front facade contains a central entrance. The windows are paired double-hung sash. An enclosed porch covers two-thirds of the front facade. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections _____

Photographs: _____ Exposure # 03-18

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

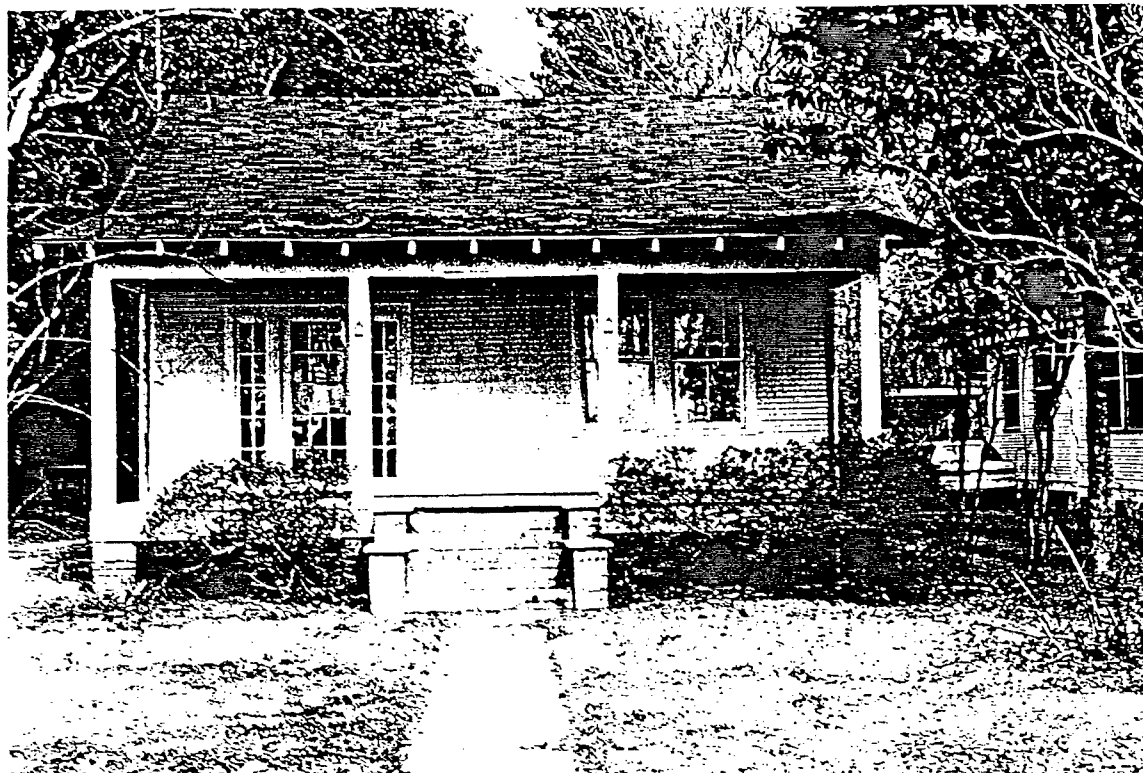
Remarks: _____

Other Features: porch/gallery(s) farmers(s) ironwork balcony

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1629 Lakeshore Drive
 Property Type Residential Construction Date ca. 1900
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

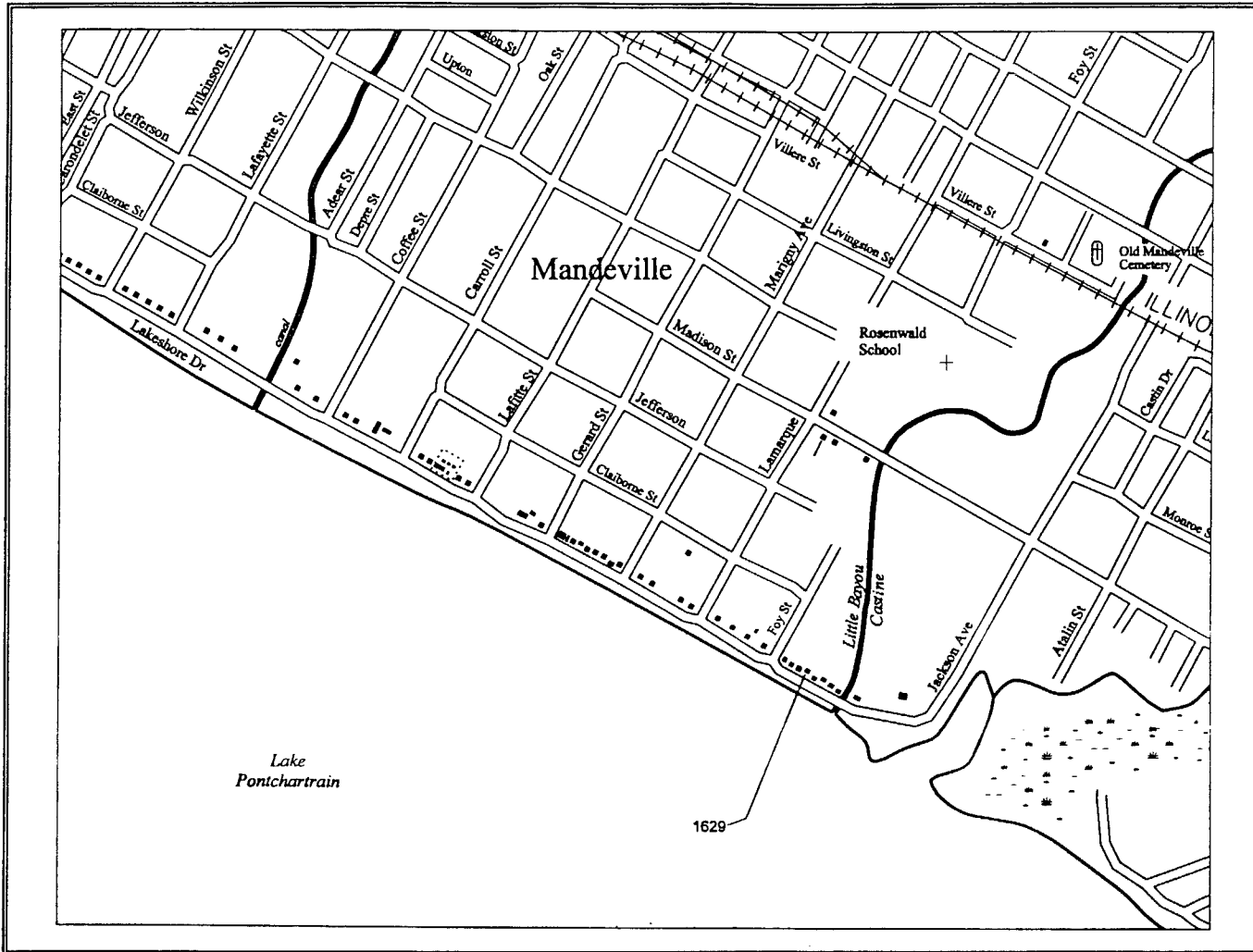
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This building is a one-story, wood-frame residence clad with horizontal siding. It is supported on brick piers. The side-gabled roof is clad with composition roll; the roof has exposed rafter ends. The two-bay front facade contains an off-center entrance. The windows are paired six-over-six-light, double-hung sash. The full-facade open porch has a shed roof and is supported on square wood posts. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted *A Field Guide to American Houses* by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 03-19

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

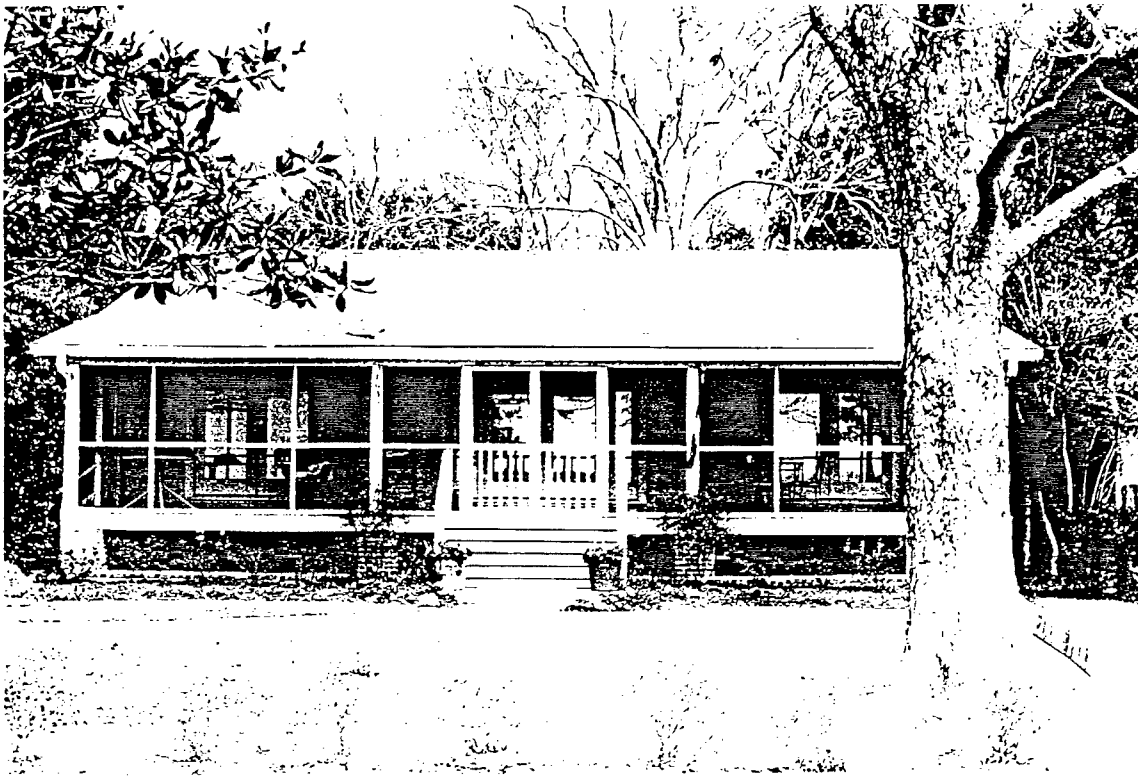
Remarks _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other _____

interior features _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 51Property Address 1639 Lakeshore DriveProperty Type Residential Construction Date ca. 1900

Name (Common) _____ Name (Historic) _____

Owner & Owner Address _____

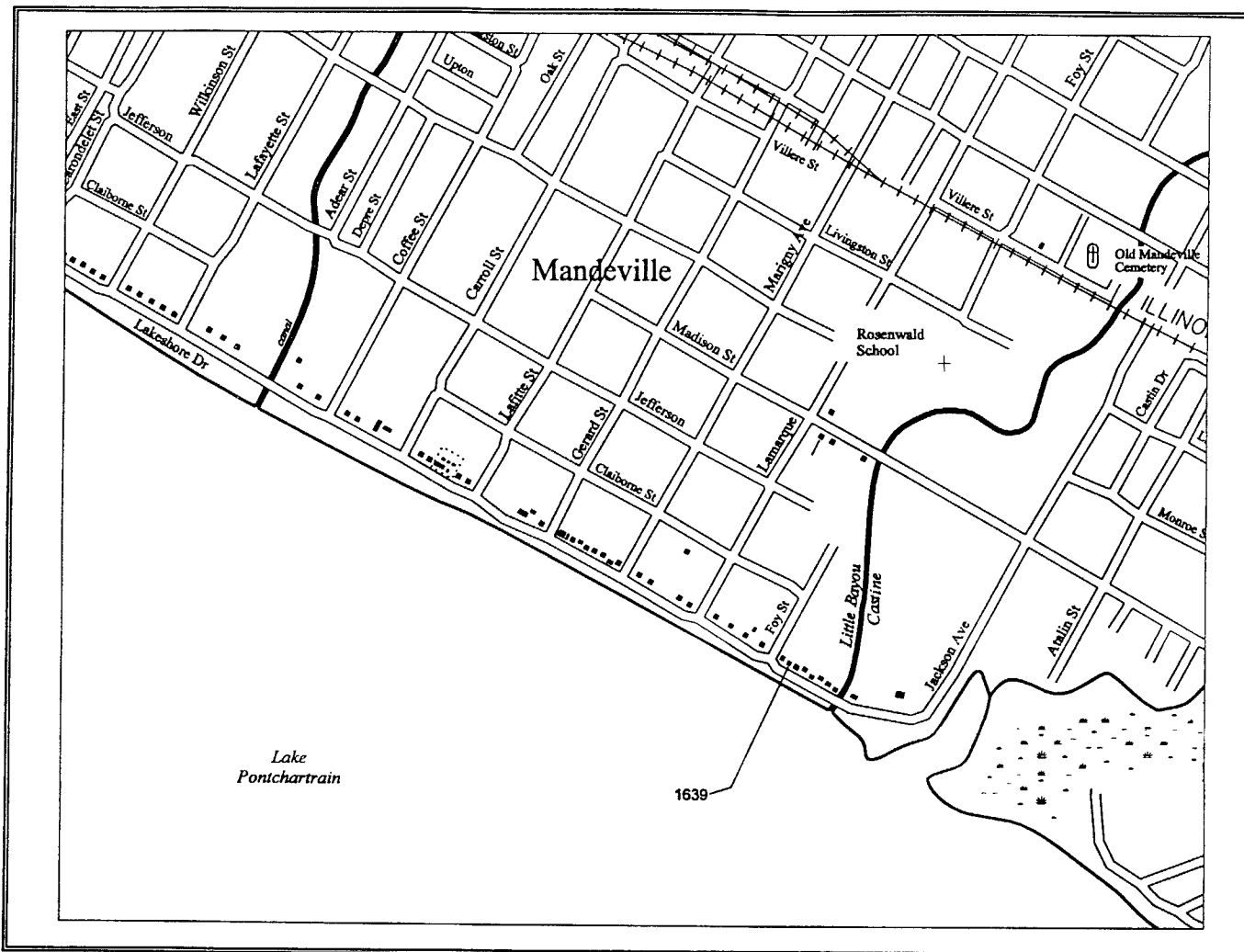
II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This building is a one-story, wood-frame residence clad with horizontal siding. It is supported on brick piers. The side-gabled roof is clad with composition roll. The three-bay front facade contains a central entrance. The windows are paired. The full-facade screened porch is supported on square wood posts. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs _____ Exposure # 03-21

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address Corner of Lakeshore Drive and Marigny Street
 Property Type Residential Construction Date Unknown
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

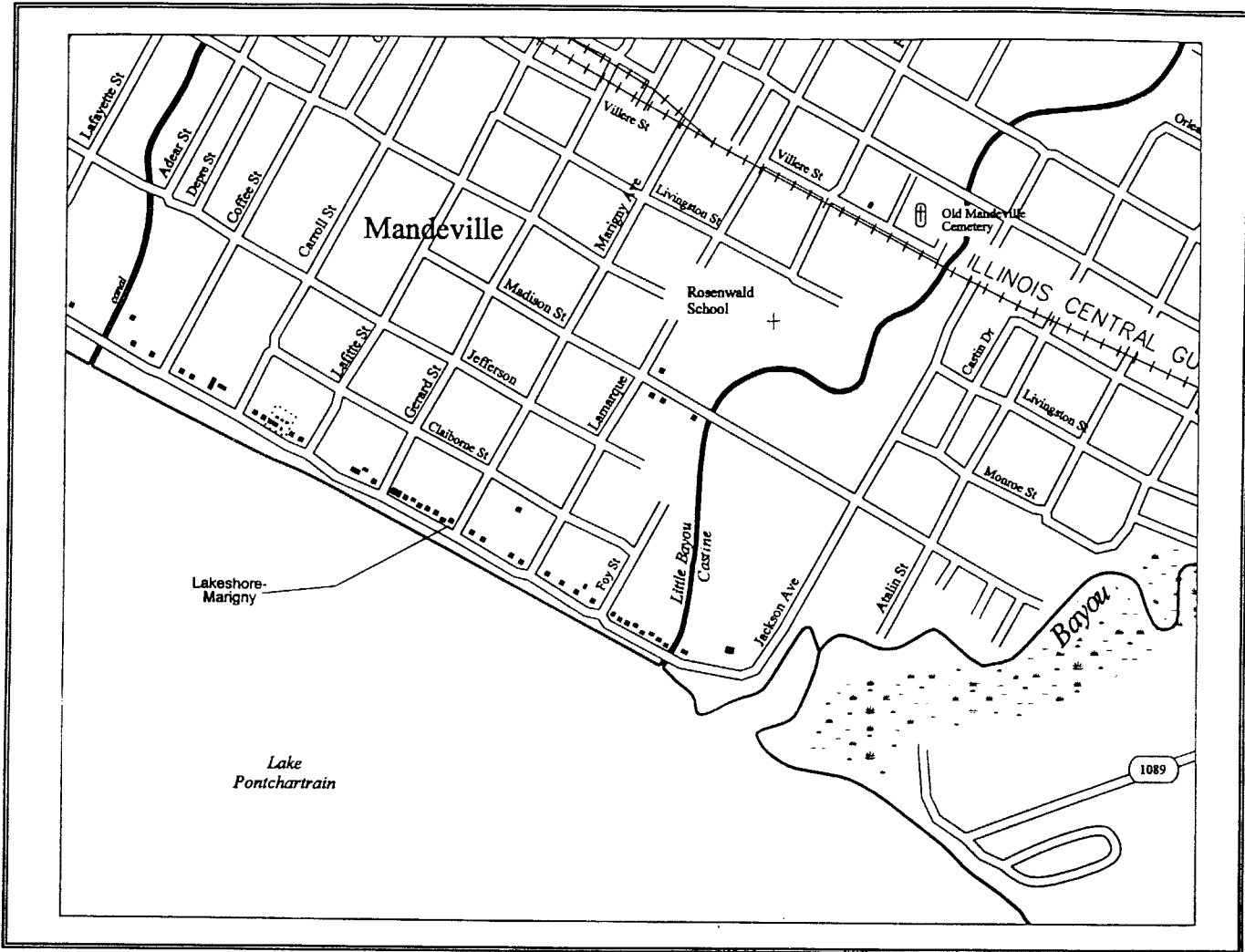
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This two-story, wood-frame building supported on raised brick piers. The building has a side-gabled roof. A full length gallery is ornamented with wood columns and a balustrade. The five-bay front facade appears to have sets of French doors are covered by louvered shutters. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 04-19/20

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: ☐ porch/gallery(s) ☐ dormers(s) ☐ ironwork ☐ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY

I. Municipality Mandeville Parish St. TammanyUSGS Quad Mandeville Township 8S Range 11E Section 48Property Address 2303 Lakeshore DriveProperty Type Residential Construction Date ca. 1920

Name (Common) _____ Name (Historic) _____

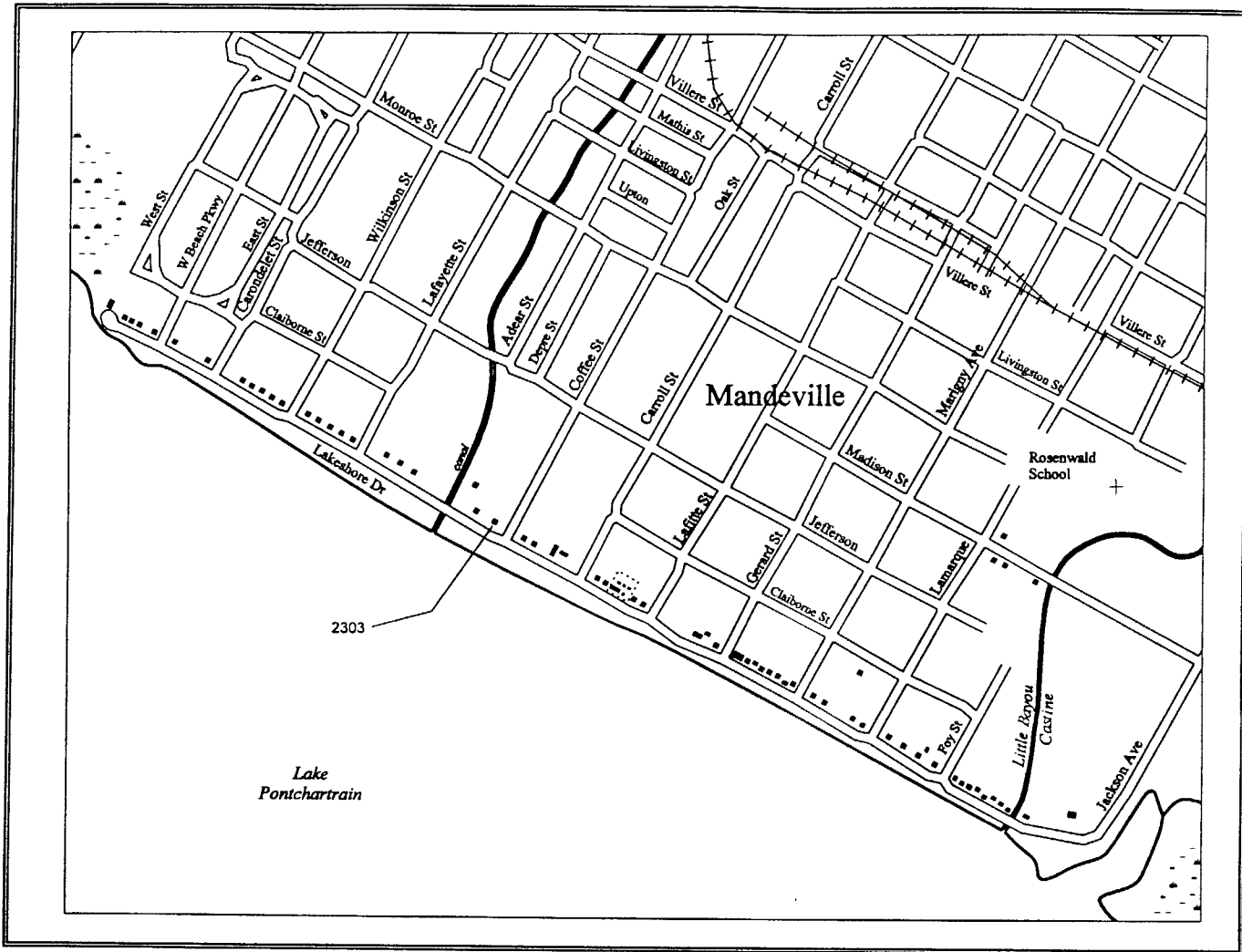
Owner & Owner Address _____

II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance. This one-story, wood-frame building is clad in horizontal wood siding. The side gabled roof contains a shed dormer that contains four windows. The front facade has a four-bay screened porch; the screens obscure the door and window openings. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses byDate March 18, 1996 Virginia and Lee McAlesterFor U.S.A.C.O.E., New Orleans District _____

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 05-12

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address Corner of Lakeshore Drive and Jackson Avenue
 Property Type Social Construction Date ca. 1900
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

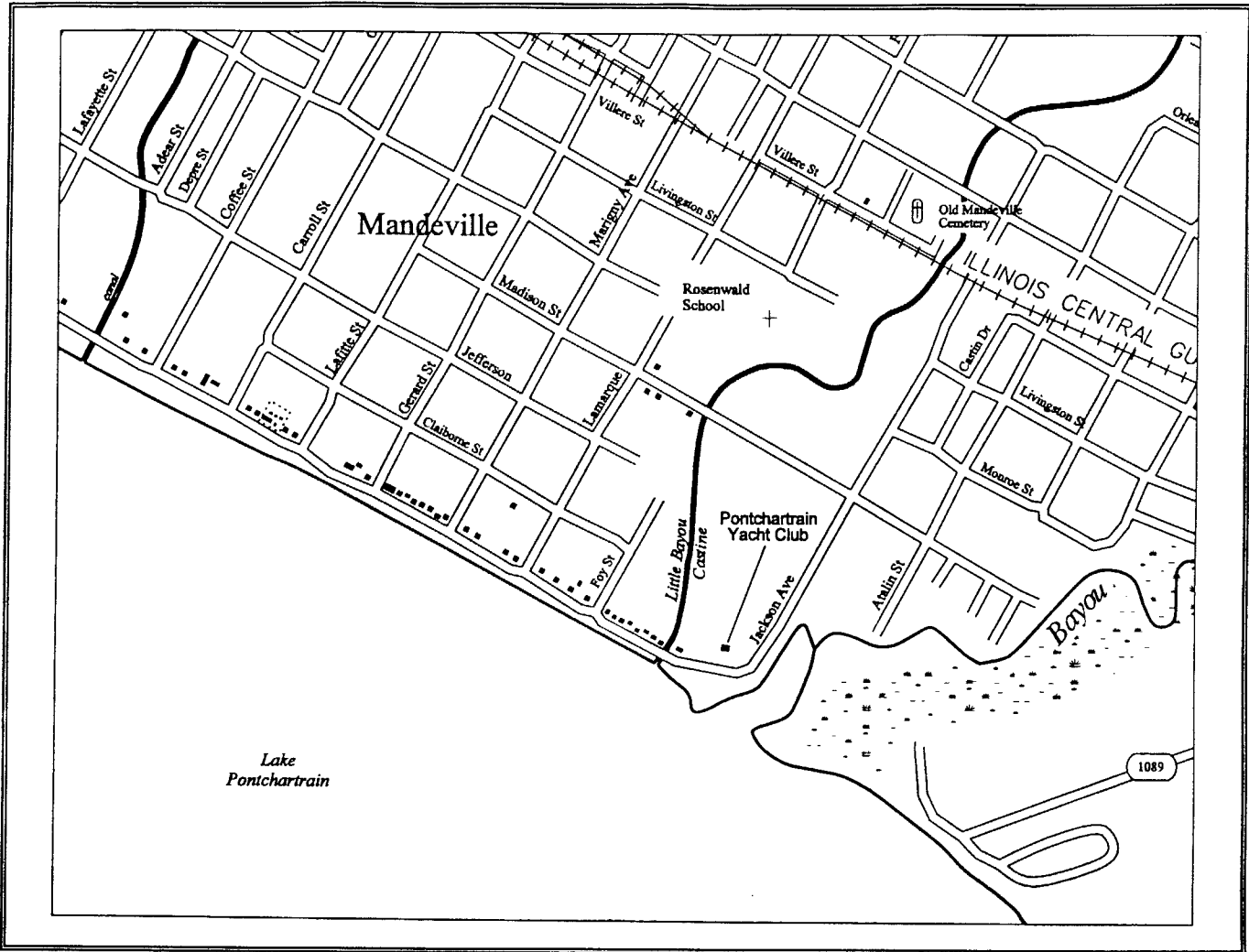
II. Condition _____ Style Bungalow Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

The Pontchartrain Yacht Club is a one-and-a-half story, wood-frame bungalow clad with horizontal siding. The asphalt-shingled, side-gabled roof has a gabled dormer with exposed rafter ends. The building has a full-facade open porch. Most of the windows and doors are modern replacement units. A few original windows contain multi-paned lights over a single light. This building is located along Lakeshore Drive, the premier residential street in the city of Mandeville. Mandeville possesses the qualities for listing in the National Register of Historic Places as an historic district under Criteria A and C.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-12/13/14

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

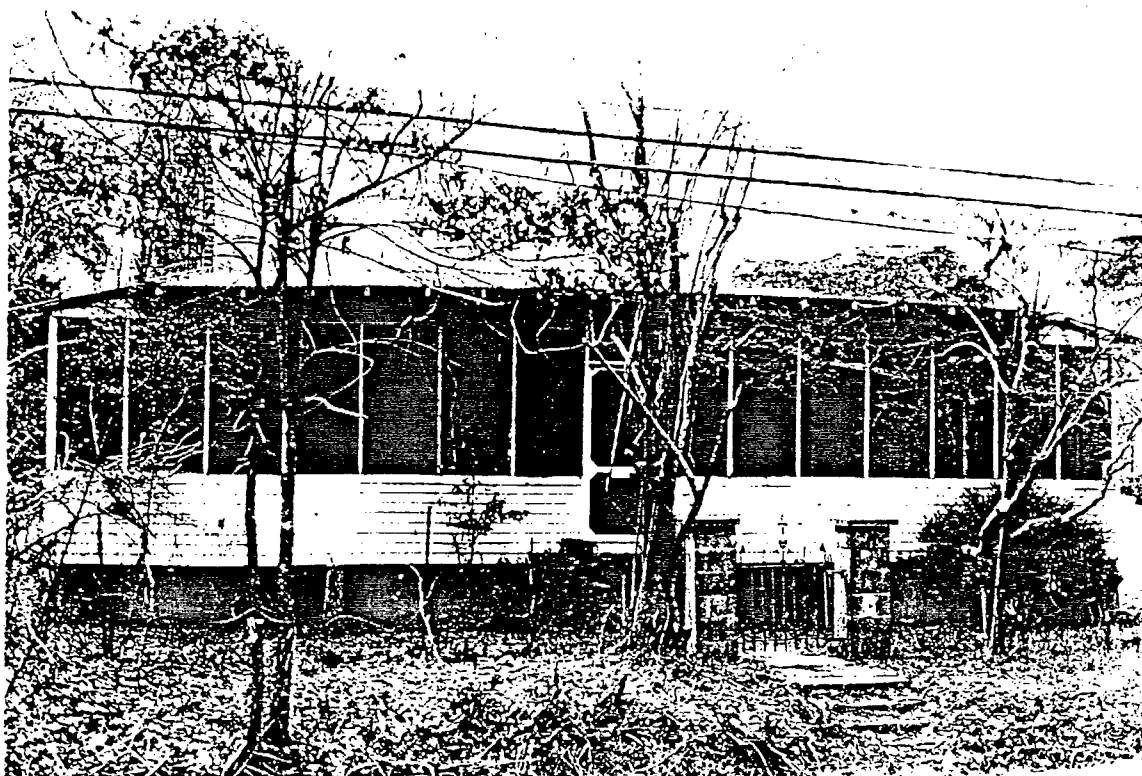
Remarks: _____

Other Features: porch/gallery(s) dormers(s) ironwork balcony

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



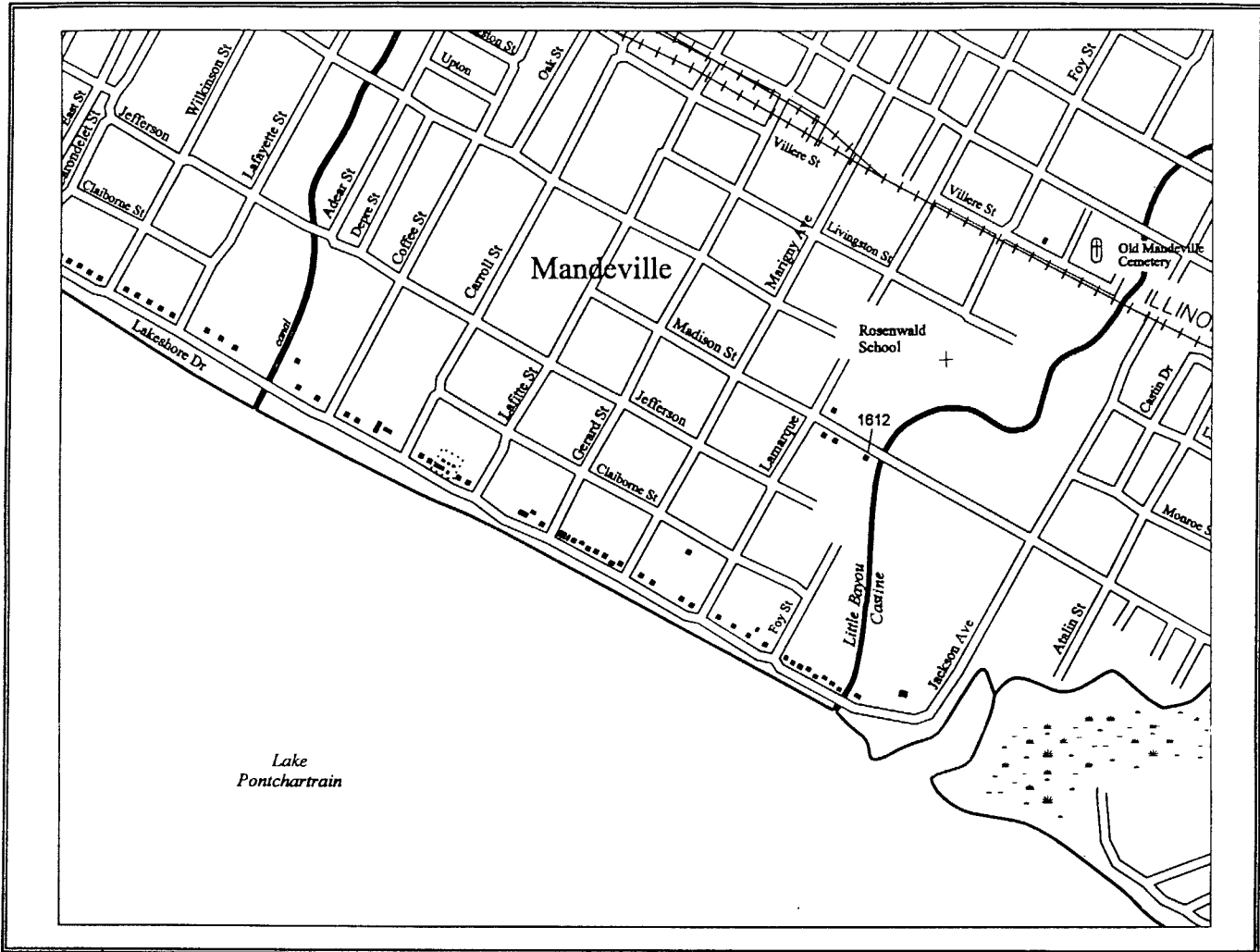
I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1612 Madison Street
 Property Type Residential Construction Date ca. 1900
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____
 II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding. The side-gabled roof is clad with standing seam metal. A screened porch is located on three sides of the building. The front facade is three bays wide; the window and door openings were covered with full-length louvered shutters.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-15

Field Notes: _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

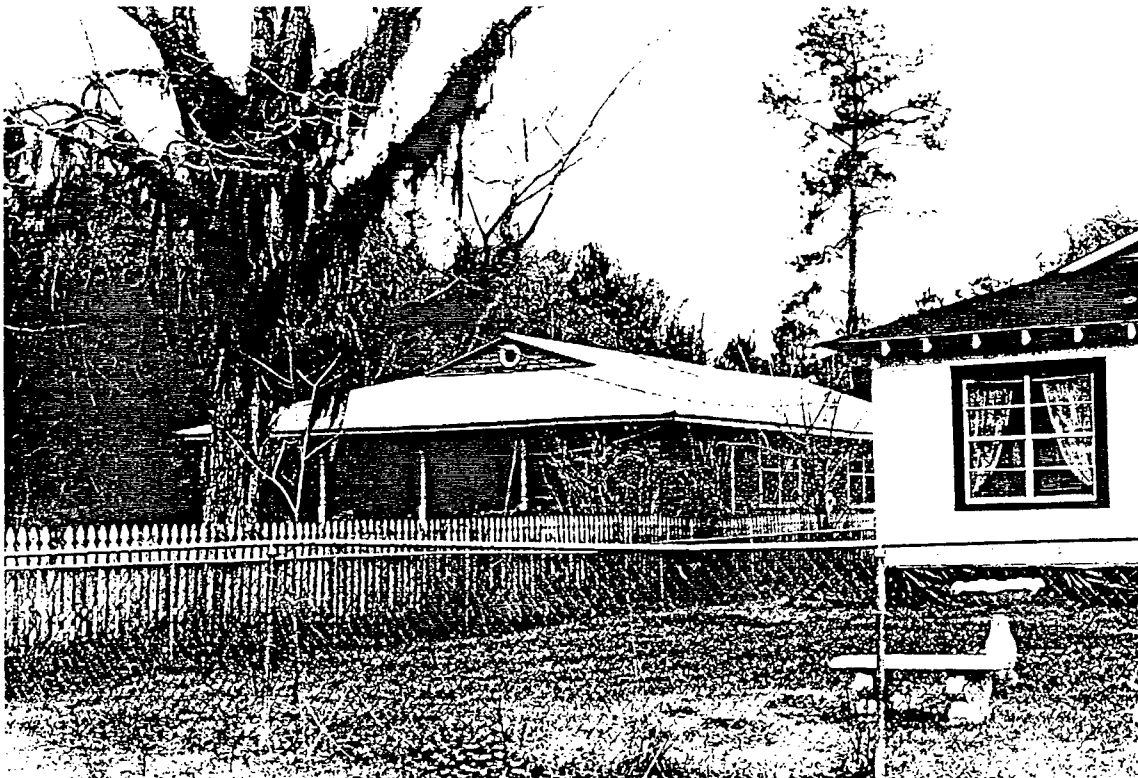
Remarks: _____

Other Features: _____ porch/gallery(s) _____ farmers(s) _____ ironwork _____ balcony _____

other: _____

interior features: _____

STANDING STRUCTURES SURVEY



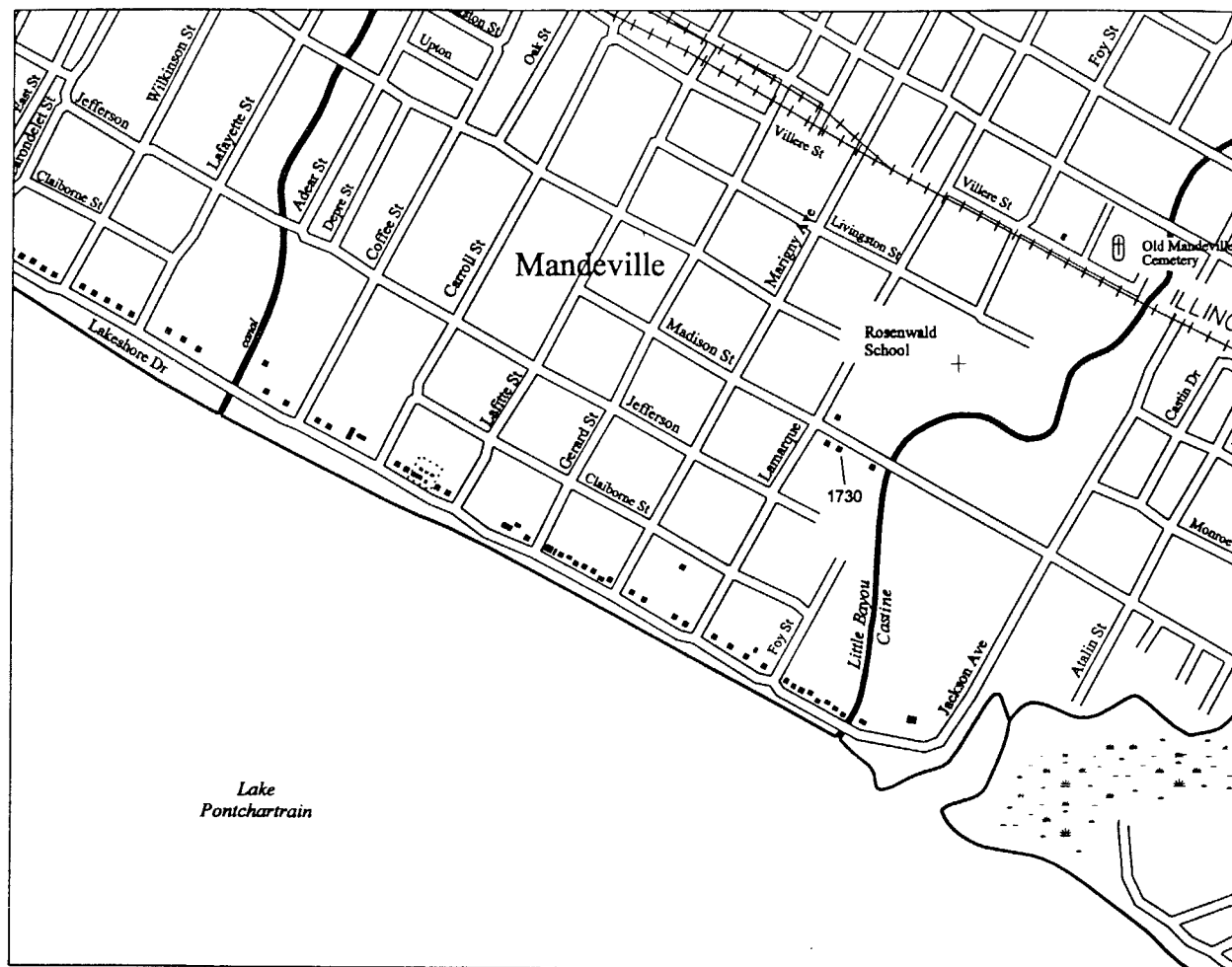
Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1730 Madison Street
 Property Type Residential Construction Date ca. 1910
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____
 Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

II. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding supported on brick piers. The front-gabled roof is clad with composition roll. An open porch is located on across the front facade; the shed roof of the porch is supported on wood colonettes.

V. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-23

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

Interior features: _____

STANDING STRUCTURES SURVEY



I. Municipality Mandeville Parish St. Tammany
 USGS Quad Mandeville Township 8S Range 11E Section 51
 Property Address 1734 Madison Street
 Property Type Residential Construction Date ca.1930
 Name (Common) _____ Name (Historic) _____
 Owner & Owner Address _____

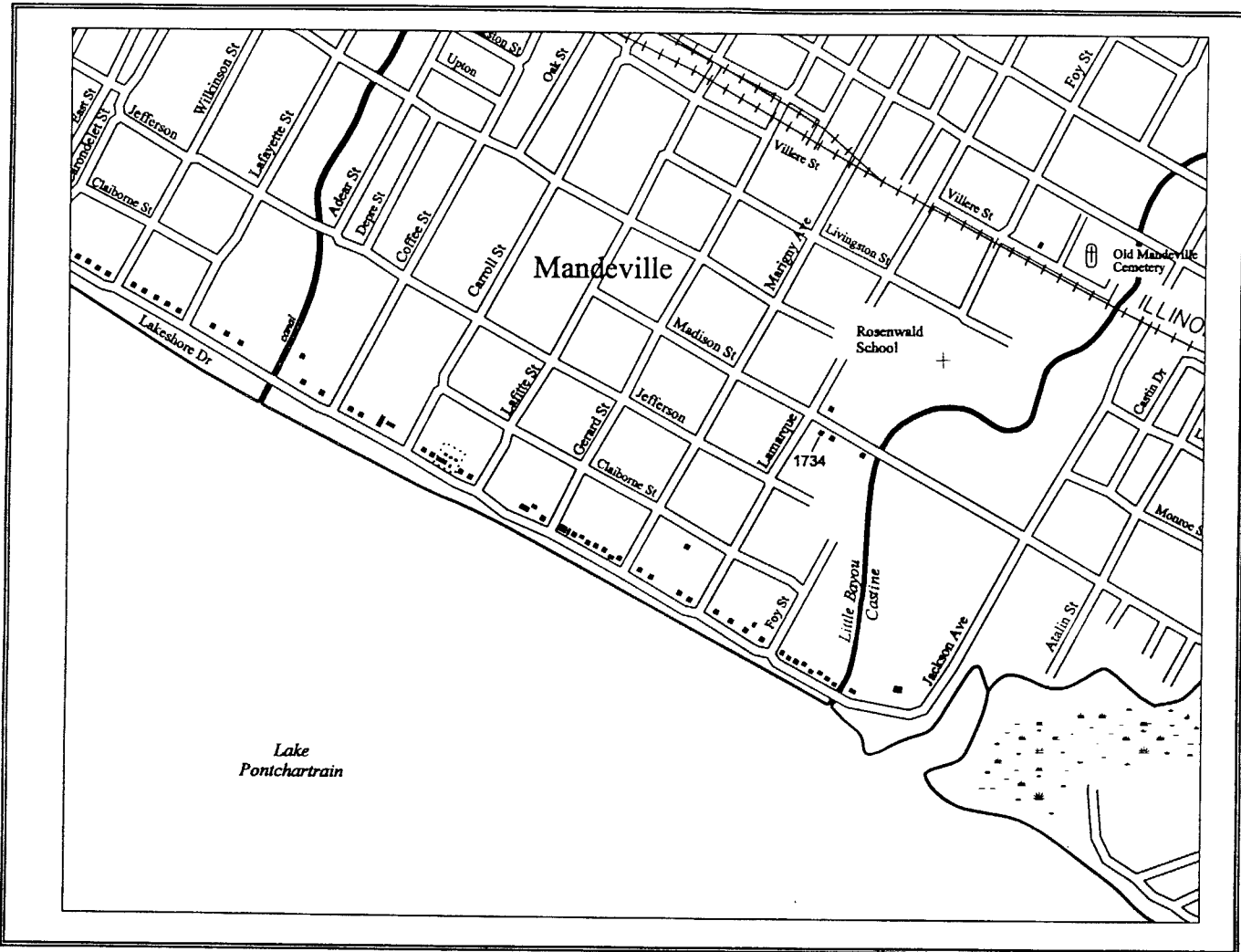
II. Condition _____ Style _____ Floor Plan _____ Structural material Wood frame

III. Physical Description of Property and Historic Significance.

This one-story building is clad with horizontal wood siding and supported on piers. The front-gabled roof with exposed rafter ends is clad with composition roll. The three-bay front facade has a two-thirds open porch; one bay is enclosed. The windows are modern replacements. The door occupies the central bay.

IV. Recorded by R.C. Goodwin & Associates, Inc. V. Sources Consulted A Field Guide to American Houses by
 Date March 18, 1996 Virginia and Lee McAlester
 For U.S.A.C.O.E., New Orleans District

QUAD MAP OF SITE LOCATION



Collections: _____

Photographs: _____ Exposure # 07-24

Field Notes _____

Published References: Cultural Resources Survey and Testing of the Mandeville Hurricane Protection Project, Mandeville, Louisiana (Williams et al. 1996)

Additional Data: _____

Remarks: _____

Other Features: _____ porch/gallery(s) _____ dormers(s) _____ ironwork _____ balcony _____
other: _____

interior features: _____

APPENDIX II
SCOPE OF WORK

SCOPE OF WORK

CULTURAL RESOURCE SURVEY, AND TESTING OF THREE ST. TAMMANY PARISH FLOOD CONTROL PROJECTS

Contract No. DACW29-94-D-0019

I. LOCATION, OBJECTIVE, PURPOSE AND AUTHORITY

1.1 Location: The project areas are located in Mandeville, Covington, and Slidell, St. Tammany Parish, La. Attachment I (project plans) illustrates the location of the project area, and provides a description of the construction project.

1.2 Objective: Conduct historical literature search and records review to determine the following: 1) the location of known cultural resource sites, 2) the location of high potential areas for cultural resources, and 3) past and present ground disturbance. Upon completion of the literature search and records review, the contractor will conduct a cultural resource inventory survey and test each recorded site. A scientific/technical report will be produced to document the findings of the cultural resource investigation.

1.3 Purpose: To obtain the professional services, labor, materials and equipment necessary to complete above noted objective.

1.4 Authority: The U.S. Army Corps of Engineers (COE) is obligated under the National Historic Preservation Act (NHPA), and National Environmental Policy Act (NEPA) to take into account the effect its undertakings have upon cultural resources within a given project area. Under these laws and regulations, the COE assumes responsibility for the identification and evaluation of all cultural resources within the project boundaries. In addition, the COE must afford the State Historic Preservation Officer (SHPO), and on occasion the Advisory Council on Historic Preservation (ACHP), the opportunity to review and comment upon proposed undertakings and associated cultural resource investigations.

II. BACKGROUND

2.1 Proposed Project: The proposed projects are designed to reduce flooding through the construction of floodwalls, levees, channel improvements and channel clearing. Attachment I

(project plans) illustrates the location of each project area and provides a description of the proposed construction activity.

2.2 Previous Research: With the exception of the Mandeville hurricane protection project, limited cultural resource investigations have taken place in both the Covington and Slidell project areas. Most of the Mandeville hurricane protection project area was surveyed and tested as part of the Mandeville seawall project (see Earth Search 1994). Nonetheless, this cultural resource investigation only covered approximately two thirds of the current project area.

III. SERVICES: The contractor shall perform all work required to provide the following services and products.

3.1 Cultural Resource Literature Search and Records Review (Task I): The contractor will conduct a comprehensive literature search and records review prior to the start of the field investigations. This will include, but may not be limited to the following: 1) review of all available historic maps and aerial photos, 2) examination of local and regional historic archives and public records, 3) a review of the State of Louisiana's cultural resource site and standing structure files, 4) a review of the National Register of Historic Places, 5) a review of geomorphological data and reports, and 6) a review of past cultural resource reports and records.

3.2 The literature search and records review will determine the location of known cultural resources and the potential for such resources within the project area. The analysis of aerial photos will be essential in the determination and identification of high potential cultural resource areas. Utilizing this data, the contractor will develop research goals, identify specific research problems and determine the most appropriate and effective research methods and techniques. Determining the significance for each prehistoric, historic and architectural cultural resource will be based upon its relationship to specific research goals and problems. Following completion of the literature search and records review, the contractor and Contracting Officer's Representative (COR) will meet to evaluate and/or reevaluate the research and field methodology to determine the need for a modification to the scope of work.

3.3 Cultural Resource Field Investigations (Task II): Field investigations will begin following the completion of Task Ia. Field methodology and techniques will follow acceptable professional standards (see Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, Federal Register, September 29, 1983). Project specific services are as follows.

a. The contractor will physically inspect/survey areas that have a high potential for the presence of cultural resources. **The contractor will be responsible for acquiring right-of-entry and land owner permission for the conduct of field investigations.** The study area will be 200 meters wide or 100 meters on either side of the project centerline. The total survey area encompasses approximately 1,050 acres. It is assumed that approximately 10% or 100 acres have a high potential for the presence of prehistoric and/or historic cultural resources.

b. In high potential areas covered by vegetation, shovel testing and/or testing with a hand auger should be utilized. Where possible, the pedestrian survey will be conducted along parallel transects spaced 25 meters apart. Shovel and/or auger tests will be placed along these same transects at 25 meter intervals. Shovel and/or auger test intervals in adjacent transects will be staggered or offset to maximize coverage. Back-dirt should be hand sorted with a trowel, screened, and examined for cultural evidence. Soil characteristics and stratigraphic associations will be described and recorded for all positive shovel and auger tests.

c. Standing historic structures 50 years of age or older will be recorded and classified in terms of their eligibility for nomination to the National Register of Historic Places. Louisiana standing structure site forms will be prepared for each architectural site.

d. All previously recorded and newly recorded cultural resource sites within the project limits will be evaluated and their present condition and integrity assessed. Depending on site condition and location, testing will be accomplished through shovel and/or auger tests. Cultural resource sites covered by shallow water and marsh vegetation can effectively be tested through a combination of probing and hand auguring. The goal of this testing will be a determination of the horizontal and vertical dimensions of the site, its cultural affiliation and integrity. Field techniques will follow acceptable professional standards and methods.

(1) Back-dirt resulting from shovel and auger tests will be screened through 1/4-inch mesh. Soil characteristics and stratigraphic associations will be recorded for each test.

(2) Where applicable, surface collections will be conducted in a systematic fashion. Collections can be made along transects and/or within established grid units. A representative sample of all artifact/ecofact categories will be made. If present, shell collection should reflect the biological diversity within the midden. All diagnostic cultural material will be collected.

(3) A site map will be prepared for each cultural resource site. The map will document the horizontal locations of all shovel tests, auger tests, collection units, diagnostic cultural materials, features and the horizontal limits of the deposit. A permanent site datum should be selected or established and marked on each map.

(4) Radiocarbon samples will be collected wherever possible.

(5) All human remains and/or burials and associated artifacts shall be left undisturbed. Upon discovery, the COR will be contacted immediately.

(6) Upon completion of field investigations, all test holes shall be backfilled.

(7) All cultural resources sites will be recorded on the appropriate State of Louisiana site forms and clearly delineated on USGS topographic maps (1:24,000 scale).

3.4 Laboratory Analysis and Cultural Resource Report
(Task III): All cultural material, reports, drawings, maps, photographs, notes, and other work developed in the performance of this contract shall be and remain the responsibility and/or sole property of the Government and may be used on any other work without additional compensation to the contractor. The contractor agrees not to assert any rights and not to establish any claims with respect thereto. The contractor agrees to furnish and provide access to all retained materials at the request of the COR.

a. Laboratory analysis and curation will be conducted in accordance with the following.

(1) All recovered archeological materials and artifacts shall be washed, preserved/stabilized and cataloged. All cultural materials shall be properly stored and secured from vandalism and extremes in temperature and humidity.

(2) Laboratory techniques and artifact analysis should meet acceptable professional standards. Faunal and floral remains will be identified according to standard zooarcheological procedures.

(3) Following completion of this delivery order, all cultural materials and records will be turned over to the State of Louisiana, Division of Archeology, Office of Cultural Development. Thus, all cultural materials and records will be cataloged according to the Division of Archeology's standards. The contractor shall work with the

Louisiana Division of Archeology and the COR to coordinate the transfer of all archeological materials and records.

b. Following completion of the field work, a draft cultural resource report shall be prepared. The draft report is expected to be a polished product and accurate representation of the final report with two exceptions: 1) the draft report will be double spaced and 2) photographs may be photo-copied rather than being in publishable form. Report style shall follow acceptable professional standards as established by American Antiquity. The Cultural Resource Report shall contain, but not be limited to the following.

(1) Discussion of proposed Federal action/project.

(2) Overview of regional prehistory, history, and previous cultural resource investigations.

(3) Research methodology and detailed discussion of field and laboratory techniques.

(4) Local geology and environment.

(5) Accurate and detailed discussion of cultural resource sites within project area. Detailed map illustrating areas covered by pedestrian survey. Cultural resource site locations, horizontal/vertical provenance and site integrity will be discussed. Detailed site maps and soil profiles will be prepared to accompany discussions.

(6) Artifact description and analysis accompanied by tables and illustrations.

(7) Comparison of cultural resource sites, materials and associated data with local and regional chronologies.

(8) If possible, a determination of cultural resource site significance and National Register Eligibility (see Revised 1991, National Register Bulletin 15, "How to Apply the National Register Criteria for Evaluation," Published by the National Park Service).

(9) Discussion of project impacts and recommendations regarding avoidance, need for additional testing, mitigation and/or preservation.

(10) In order to preclude vandalism, the draft and final reports shall not contain specific locations of archeological sites.

c. Once the draft report has been reviewed and accepted by the COR, a preliminary final report shall be prepared. Following inspection and acceptance of the preliminary final report, the final report will be prepared and 40 copies forwarded to the COR. The final report shall follow the format set forth in MIL-STD-847A with the following exceptions: (1) separate, soft, durable, wrap-around covers will be used instead of self covers; (2) page size shall be 8-1/2 x 11 inches with 1 inch margins; (3) the reference format and report style will be analogous to American Antiquity. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual dated January 1973. The cover of the report shall conform to the New Orleans District Cultural Resource Report Series standards and specifications. The COR will prepare a letter to the reader that will appear behind the Report Documentation Page at the beginning of the report. A copy of the Scope of Services shall be bound as an appendix at the end of the report.

IV. CONTRACTING OFFICER AND CONTRACTING OFFICERS REPRESENTATIVE

4.1 The COR for this project will be Dr. Kenneth Ashworth, CELMN-PD-RN, (504) 862-2548.

4.2 The contractor shall keep clear and legible field records. Records should be current and available for periodic review by the Contracting Officer (CO) or the COR. These records shall include, but shall not be limited to: field notebooks, site forms, field maps, drawings, and photographs.

4.3 The CO, COR, and/or their authorized representatives, may at all reasonable times inspect or otherwise evaluate the work being performed. All inspections and evaluations will be performed in such a manner as to not unduly delay progress of the work. It is necessary that close coordination between the contractor and the Government be maintained throughout all contract periods to ensure satisfactory completion.

V. ACCESS AND SAFETY

5.1 The contractor will secure right-of-entry for the above noted work. The contractor will work closely with land owner requests regarding artifact disposition, back-filling of test excavation units and entry through locked and/or secured fences and gates.

5.2 The contractor shall be subject to all Federal and state safety regulations. The contractor will prepare a safety plan for Government approval. The plan should be submitted with the contractors proposal and cost estimate.

VI. CONTRACT SCHEDULE

6.1 Contract proposal, estimate and safety plan shall be submitted within 5 days of receipt of delivery order package.

6.2 The Government shall review the proposal and safety plan within 5 days of receipt.

6.3 The contractor shall begin Task I no later than 5 days following award of delivery order.

6.4 The contractor and the COR will hold a pre-field work conference following completion of Task I.

6.5 The contractor shall complete Tasks I, II, and III (completion of draft report) 60 days following contract award. The draft report (5 copies) shall be submitted to the COR no later than 60 days following contract award. The COR will review the draft report and forward review comments to the contractor 15 days following receipt of the document. The contractor will make the required changes and forward (to the COR) a pre-final report (2 copies) no later than 10 days after receipt of the review comments. The COR will inspect the pre-final report and notify the contractor of its acceptance no later than 10 days following its receipt. Once accepted, the contractor has 10 days to prepare and forward 40 copies of the final report. A reproducible master (both hard-copy and computer diskette) and associated GIS/CAD computer data should accompany the final report.

6.6 A brief one page monthly progress report will be submitted along with each monthly billing voucher. The progress report will cover the billing period noted on the voucher. Each report will discuss project status, work performed, logistical problems and difficulties, if any, in meeting the contract schedule. Cost breakdowns should be grouped according to specific "Tasks."