Ground Penetrating Radar Survey at the Railroad Ward, Savannah, Georgia

LAMAR Institute Publication Series Report 104

The LAMAR Institute, Inc.
2009
Ground Penetrating Radar Survey at the Railroad Ward, Savannah, Georgia.

LAMAR Institute Publication Series Report 104

By Daniel T. Elliott

Submitted to:
The Coastal Heritage Society
Martin Luther King, Jr. Boulevard
Savannah, Georgia 31402

Project CHS0006

Prepared by:
The LAMAR Institute, Inc.
P.O. Box 2992
Savannah, Georgia 31402

Savannah, Georgia
2009
Introduction

This report details the findings of a Ground Penetrating Radar (GPR) survey that was performed by archaeologists with The LAMAR Institute and the Coastal Heritage Society (CHS) on April 18 and 19, 2006. This fieldwork was also supplemented by historical and archival research on the study area. The GPR survey was done in advance of archaeological salvage operations by CHS, which preceded a construction project. The results of the archaeological shovel test and large block excavations will be reported elsewhere by Rita Folse Elliott and her colleagues.

The study area was bounded on the North by Harris Street; East by Parker’s Convenience Store, South by Charlton Street and private property, and West by Purse Street. This property is owned by the City of Savannah and is slated for a 20-year lease to the McKibbon Hotel Group, Inc. This study was intended to aid in the identification of any significant archaeological resources within this area. It is supplemental to traditional shovel testing survey, which is reported elsewhere by Rita Elliott, CHS Curator of Exhibits and Archaeology.

Methods

The study area was covered by two GPR sample grids, which were designated “Block A” and “Block B”. Additional GPR samples were collected along Purse and Harris streets, but these areas lie outside of the immediate study area. These GPR grids were mapped in with a Sokkia total station so that the information could be incorporated into a broader mapping database for the Savannah History Museum and surrounding areas. The GPR survey crew included Daniel Elliott, Rita Elliott, Daniel Battle, Daphne Owens, and Virginia Pierce.

The radar transects, or radargrams, were collected along lines spaced 50 cm apart. The lines in Block A were collected along the grid North-South axis. Odd-numbered lines were oriented South-Southeast (207 degrees) and Even-numbered lines were oriented North-Northeast (27 degrees). Block A examined an area measuring 88.5 meters (grid East-West) by 25 meters (grid North-South). A total of 178 radargrams was collected in Block A. Progress along these lines was from East to West. Datum point 8 (4919.55 North, 5043.32 East) served as the Southwest corner of the Block A grid. The end point for Radargram A1, which originated at Datum 8, was at 4894.60 North, 5044.53 East.

Block B radargrams were collected along the grid East-West axis. Block B was located immediately adjacent to Block A. Odd-numbered lines were oriented West-Northwest (297 degrees) and Even-numbered lines were oriented East-Southeast (117 degrees). Block B examined an area measuring 13 meters by 13 meters. A total of 27 radargrams was collected in Block B. Progress along these lines was from North to South. Datum point 15 (4890.01 North, 4970.04 East) served as the Northeast corner of the Block B grid. Several areas of apparently intact 19th century brickwork were observed on the eroding ground surface of Block B.
The GPR machine settings for Blocks A and B were identical. Data was collected from a time window of 75 nanoseconds (ns). A 500 MHz shielded antenna was used for data collection. A sampling frequency of 6797 MHz was used for the survey. Four stacks of data were averaged. Block A was collected on April 18 under cloudy conditions. Block B was collected on April 19 under cloudy conditions. Fieldwork ended abruptly on the afternoon of April 19 by a strong thunderstorm. The survey grid along Harris Street was not completed. Only the southern 3 m of the street was examined.

A systematic shovel test survey was done simultaneous with the GPR Survey. The shovel tests were excavated by Rita Elliott and Virginia Pierce. This information provided immediate feedback to the GPR crew regarding soils, rubble zones, and artifacts. The full analysis of the shovel test findings is documented elsewhere. Soils across the study blocks were mixed sand, sand loam, and building rubble. Abundant large, medium and small metal objects were observed at the surface across the study area. This metal interfered with the radar signal to an undetermined extent.

Historical research on the property also was conducted to provide better context for this study. This research was conducted by Daniel Elliott and Rita Elliott. Some of the preliminary field data from the present study was integrated into a broader report on Savannah’s Revolutionary War battlefields (Elliott and Elliott 2009).
Historical Background

Heavy rain preempted the GPR survey on the afternoon of April 19. Consequently, the crew conducted research pertaining to the study area at the Georgia Historical Society (GHS). Researchers consulted the paper card catalog of manuscripts and books at the GHS for important keywords, Harris Street, Purse Street, Railroad, Worker's Village. Nothing of particular note was identified by this search. Researchers examined a map atlas of major fires in Savannah, which is on file at GHS, for any references to catastrophic fires in the study area. No major fires were recorded in this vicinity.

Purse Street is named for a member of the Purse family, who were prominent residents of Savannah in the 19th century. Members of the family include: Thomas Purse (b. 1802, d. 1872), Daniel Gugel Purse (b. 1839, d. 1908), Benjamin S. Purse, Frank E. Purse, and Thomas Purse (b. 1874, d. 1946). As best can be determined, no members of the Purse family ever lived on Purse Street.

The Railroad Ward was created by the City of Savannah on December 11, 1867. City documents show that it originally consisted of, “all that portion lying between Jones street on the south, West Broad Street on the east, Purse street on the west, and Railroad Street on the north” (City of Savannah 1907:328).

The study area is situated within the boundaries the Central of Georgia Railroad National Historic Landmark District. This district is composed of the Central of Georgia train shed, shops, and other support structures associated with the operation and maintenance of the Central of Georgia Railway. The Central of Georgia was the first railroad to operate in Georgia. Construction of a railroad line from Savannah to Macon began in 1833 as the Central Rail Road and Canal Company and the initial route was completed by the early 1840s. The railroad continued to expand throughout the 19th century, despite the extensive destruction caused by Major General William T. Sherman’s troops in 1864. By the early 20th century, the Central of Georgia operated hundreds of miles of track in Alabama, Georgia and Florida. Throughout this era, Savannah served as the headquarters for the railway company. Passenger service to Savannah was discontinued in the early 1970s, marking the end of the glory years of the railroad in Georgia. Portions of the Central of Georgia’s routes continue to be used by their present corporate entity, Norfolk Southern, although the original route from Savannah to Macon and the station and various facilities in downtown Savannah are historical footnotes.

Researchers briefly reviewed the Central of Georgia manuscript collection finding aid for any information pertaining to the study area. These records span the period from 1833 to 1971 (MS 1362). Although this collection contains a wealth of material relevant to the nearby railroad roundhouse, researchers identified nothing specifically mentioning the nearby workers villages. Of possible research value are rent ledgers, covering the period from 1897 to 1918 (MS1362 BJ-40) and rent registers, covering the period from 1897-1963 (MS1362 BJ-50). Also of possible interest is a 1923 aerial photograph of the depot.
and shops, which was published in the Central of Georgia’s *Right Way* magazine [these were not examined]

The 1891 panorama, or “birds-eye” view of Savannah is an artist’s rendering that shows several dwellings in the study area.

A 1953 map of Savannah, which is mounted on the wall at GHS, shows Savannah’s town Wards. This map showed the study area divided into numbered lots. The research team made a rough sketch of the layout of the lots on the northern part of the block, which included all the study area. The study area includes Lots 2, 3, 4, 18, 20, 21, 28, and 29. The study area is within the Railroad Ward of Savannah. The Ward books contain a variety of early information. The items listed for the Railroad Ward covered two typed pages, but none were within the study area.

Sanborn Fire Insurance Maps provide some of the most detailed information on former land use and the built environment in the study area. The 1884, 1888, 1898 and 1916 Sanborn Maps (UGA’s collection, which are available online) were examined for details of the study area, and the relevant portions were downloaded. Although the 1884 Sanborn Map lacks detail, it does provide the notes, “26 Frame Dwgs [Dwellings] & Shanties & 1 Brick Dwg. & 18 Barns on this Block”. These improvements would include some that were located on the southern part of the block, which was not included in this study. The 1884 Sanborn Map, which includes the study area, is shown in Figure 1. The 1888 map shows much greater detail than the 1884 map (Figure 2). The 1898 map shows more substantial built environment in the study area than that indicated on the 1888 map.

![Figure 1. Portion of 1884 Sanborn Map.](image)
The 1916 Sanborn Map, which includes the study area, is shown in Figure 3. The 1916 map shows a slight decrease in buildings on this block of Railroad Ward. It also reveals some consolidation of some buildings.

The 1954 and 1972 Sanborn Maps at the Georgia Historical Society were examined for details of the study area. These maps were not copied. The 1954 Sanborn shows a series of buildings fronting on Harris Street, which are numbered from West to East:

- 533 W. Harris St., dwelling at corner of Purse and Harris Streets
- 531 W. Harris St., chapel “colored” on same lot as 533 W. Harris St.
- 529 W. Harris Street, dwelling
- 527 W. Harris Street, dwelling
- 525 W. Harris Street, dwelling [colored in pink on map, whatever that means*]
- 523 W. Harris Street, dwelling
- 521 and 519 W. Harris Street, duplex dwelling
- 517 W. Harris Street, long, narrow dwelling
- 515 and 513 W. Harris Street, duplex dwelling
• 509 W. Harris Street, building labeled “C.B.” with tiled area in rear [building colored in blue, tiled area is in pink, Cow Barn?]
• 507 and 505 W. Harris St., duplex dwelling with tiled area (described above) in rear.

Other street addresses in the study vicinity include a smaller duplex at 519 ½ and 521 ½ W. Harris Street, which are located in the central rear of the lots at 519 and 521 W. Harris Street. A small dwelling is also shown fronting Purse Street on the lot containing 531 and 533 W. Harris Street. Other features shown on the 1954 Sanborn include a 6-inch water pipe that runs down the centers of Harris and Purse Streets. A large black dot, identified as “T.H.” is shown on the south side of Harris Street near the center of the block.

The 1972 Sanborn map shows only one dwelling extant on the study area. This indicates that sometime between 1954 and 1972 a significant “urban renewal” took place on this lot and most of the older dwellings were leveled. The street address of the surviving dwelling, which was located at the corner of Purse and Harris streets, was 533 Harris Street. This house is most likely the same structure as that identified by archaeologist Edward Rutch, who excavated a “control unit” backhoe trench in this vicinity. This is also the approximate area where the 20th century “shanty” photographs on file at Coastal Heritage Society, Historic Preservation Division, were taken.

After this brief research of historic documents was conducted, the research team was made aware of a recent thesis on the subject by a SCAD student (Graf 2002). Although a considerable amount of the present research was redundant with Graf’s study, other data was gathered that Graf did not identify or address. Graf compiled a series of Autocad renderings of the study area, which superimposed building data from various Sanborn maps.

**Personalities in the Study Area**

The people who lived in the study area were largely a transient group. Consequently, these people have left only fragmentary glimpses of their lives in the archival record. These people were not the most prominent citizens of Savannah. As a group, they represent the blue collar working class. Their occupations range from common laborer, to more skilled tradesmen such as carpenters, glaziers and brick masons, to slightly more prestigious jobs such as train conductor, clerks, and one police sergeant. At least nine people out of 26 families, who were living there in the 1880s and early 1890s, were employed by the Central of Georgia Railway. Their jobs included laborers, a carpenter, clerks, a section boss, and a conductor. Several others worked in jobs that were no doubt closely allied with the railroad industry. Eight of the 26 families were identified in the city directories as boarders, while the others were identified as residents (and presumably property owners). Table 1 lists those persons associated with property in the study area.
Sophie Alston

Sophie Alston worked as a cook and in 1888 she was listed as a resident of Harris Street in the 4th dwelling West of West Broad Street. She was an African-American woman, who was widowed. She was born into slavery sometime around 1846. By 1900 census records indicate that Sophie was living with her daughter and son-in-law, John W. Roberts.

Fannie A. LaRoche and John Myers

Fannie A. LaRoche was a widowed homemaker and in 1888 she was listed as a resident of Harris Street in the 3rd dwelling West of West Broad Street, or just west of Sophie Alston. Fannie was formerly married to Mr. A. LaRoche. The O. A. LaRoche household, headed by Mrs. LaRoche, possibly the same as Fannie A. LaRoche, was listed in the 1870 census for Savannah. She owned real estate valued at $20,000.00 and had a personal estate valued at $4,000.00. Her approximate birth year was 1822 and she was a native of South Carolina. The entire LaRoche household numbered 16 and included members of the...
Johnson, LaRoche, Myers, and Williams families. John Myers worked as a glazier for A. Hanley in 1888. In that year John resided on Harris Street in the 4th dwelling West of West Broad Street. He was listed in the 1870 census for Savannah, where he was identified as a mulatto, aged 6, and born in Georgia. John and his older brother Fred lived in the LaRoche household.

Charles L. Lodge
Charles L. Lodge was a carpenter, who had a long history of residence in Savannah. In 1888 he lived on Harris Street in the 7th dwelling West of West Broad Street. In the 1860 census, Charles was listed as a 35 year old white male carpenter, whose owned real estate valued at $3,000.00 and a personal estate of $500.00. He moved to Savannah from Wilmington, Delaware. In 1860 he was living with his wife Anna, who was a dressmaker, their four young children, and Charles’ relative Alfred Lodge (possibly his brother). Despite the hardships of post-Civil War Savannah, Charles was able to grow his nest egg. By 1870 his real estate was valued at $4,000.00 and his personal wealth was $450.00. The 1870 census lists his age at 47.

James E., John and Walter R. Posey and William J. Hanlon
James E. Posey, John Posey and Walter R. Posey all resided in a dwelling at the southeast corner of Harris and Purse streets. All three were employed by the Central of Georgia Railway. James was identified in the 1891 city directory as the resident and the other Poseys were listed as tenants on the property. James worked as a Section Boss on the railroad. John Posey was a common laborer and Walter Posey worked as a clerk. None of them were listed in the 1870, 1880, or 1900 census. The ethnicity of the Posey family was not determined. Earlier census records for Savannah list a Jane Posey, who owned three African-American slaves. A clear connection, however, between these enslaved males and the Poseys living in the study area was not established. One other person was listed as a resident at the same address in the 1888 city directory. William Hanlon was a clerk, who also worked for the Central of Georgia Railway. William J. Hanlon was not located in the 1870, 1880, or 1900 census enumerations. The 1870 census lists a John Hanlon living in Savannah. John Hanlon was born about 1810 and was a carpenter and white male from Ireland. We surmise that William J. Hanlon was possibly his son.

Owen T. Riley
Sergeant Owen T. Riley worked for the Savannah Police department and in 1888 he rented a room in a boarding house on Harris Street (9th dwelling, West of West Broad Street). Riley’s time in the study area and in Savannah was brief, since he is not listed in either the 1870, 1880, or 1900 census enumerations.

Martha Smith
Martha Smith was a widowed homemaker, formerly married to Mr. W. Smith. In 1888, Martha resided on Harris Street in the 1st dwelling west of West Broad Street. That dwelling may lie just east of the study area and beneath the Parkers convenience store. Our Martha is possibly the same person as Martha Smith, a 39 year-old white woman, whose occupation was listed in 1870 as a dairy maid.
William Williams

William Williams was a common laborer who, in 1888, resided on Harris Street in the 10th dwelling West of West Broad Street. Several people by that name lived in Savannah but our William was most likely an African-American and native of Georgia, born into slavery about 1846. In 1900, he lived in Savannah with his wife, Mary and their son James.
GPR Survey Results and Interpretation

The study area was covered by two GPR Blocks (A and B). The location of these blocks, superimposed on a modern aerial photograph, is shown in Figure 4. The GPR Survey of the Parkers study lot yielded exciting and intriguing results. As might be expected, the area contains many strong radar signatures, many of which may represent important archaeological deposits. The GPR radargrams were post-processed by using four separate imaging software programs. Each program has its strengths and weaknesses for interpretation of radar data. The “art” of GPR data interpretation rests in the ability to juggle these various visual outputs and then weave a reasonable story from these results. The images shown in the following discussion were generated using GPR-Slice, Easy 3-D and GroundVision software.

Strong radar signals were mapped over most of the study area. The majority of these anomalies are probably cultural generated, although some may result from biotic disturbances, such as live oak tree roots. Historical evidence indicates that the older buildings on these city lots were razed in the 1960s or a few decades earlier. Cartographic and photographic evidence suggests that most of these buildings were wood frame structures. At least one brick dwelling was located on this city block by 1884.

Figure 4. Aerial View of Study Area Showing GPR Blocks A and B.

GPR Block A exhibited abundant GPR anomalies and several interesting targets were identified. Figure 5 shows an aerial view of the radar information in Block A at 18-25 ns, or approximately 75 cm below ground. In this map areas of strong radar reflection are
shown in yellow, orange and red, whereas areas of little reflection are shown in shades of blue. An extensive area of disturbance was identified on the northeastern end of the study area. Preliminary findings from the shovel tests in this area suggest that this disturbance may be relatively recent. Deeply buried modern artifacts were recovered from tests in this area. The GPR anomalies in this area, while clustered, do not form any recognizable rectangular patterning. Although important GPR signals may be “hiding” in this sea of anomalies, these cannot be easily discriminated. Test excavations in this area should focus on determining any potential for older, intact deposits.

A series of relatively shallow radar anomalies are distributed along the back lot line on the southeast part of the study area. These may represent a series of shallow pits or privies along the back of the lots. These appear to extend less than one meter below ground. Further to the west in Block A, however, is a large radar anomaly that exhibits greater depth. This potential feature measures approximately 2-3 meters in diameter. Its consistent appearance with increasing depth may indicate that it is a well, or a deep privy.

Two large, strong radar anomalies are located in the western part of Block A. These anomalies were consistent with depth and may represent deep cellars filled with debris. Interestingly, no corresponding buildings, other than sheds or small outbuildings, are shown in this vicinity on the Sanborn maps. These radar anomalies may represent cellars that predate the earliest Sanborn map (1884). The buildings in this area may have been razed prior to 1884. These two anomalies are aligned with Savannah’s town plan. They may represent cellars associated with buildings from the Antebellum era. If it can be demonstrated that these deposits date prior to 1884, then they may have the potential to aid in the interpretation of life in this part of town during Reconstruction and earlier eras of the 19th century.

These features were explored by additional archaeological excavations to determine their age, function and research potential. After machine stripping of one of these areas, the
CHS archaeological team a large rectangular cellar filled with mid-late 20th century debris. The results of that excavation will be reported elsewhere by Rita Elliott and her colleagues.

GPR Block B identified several strong radar anomalies that may form a rectangular pattern that is diagonal to the town grid of Savannah. This fact is most intriguing since all of the Sanborn maps show the buildings oriented with the town grid. During Georgia’s Trustees period the study property was part of Savannah’s farm lots. These rectangular tracts were a logical extension of Savannah’s town plan. As this property was subdivided in the late 18th and early 19th centuries, many of these rectangular lots were bisected on a diagonal axis. One probable vestige of these early survey lines remains on the southwest side of the study area. The GPR anomalies in Block B may represent buildings that are aligned on this diagonal grid. Buildings built on this alignment predate the Railroad Ward (and the introduction of the railroad). The GPR data in Block B was the only indication of buildings built on this diagonal alignment. All of the data from Block A were either aligned with the existing town plan, or their alignment was poorly defined, or “random”.

Two large GPR targets were recognized in Block B, as revealed in Figure 6. These areas of strong radar disturbance may represent two distinct buildings, or possibly portions of a single large dwelling. Other archaeological evidence from this general area, including surface artifacts, exposed brick foundations, and shovel test information indicate this area was settled by the late 18th or early 19th centuries. While early artifacts were found elsewhere in the study area, they were most concentrated on the Western and Southwestern parts. The GPR features that were tentatively identified in GPR Block B are interesting targets for future investigations. This area may have the potential to define aspects of life in this part of Chatham County, prior to the introduction of the railroad. This is a little explored avenue of research and a poorly understood era in Savannah’s history.

Limited GPR survey also was conducted along Harris and Purse streets on the portions immediately adjacent to the study area. The sidewalk along Harris Street was included within this surveyed area. The Sanborn Maps indicated that buried water pipes were present beneath the centers of both streets. Surface indications of other subsurface utility-related features included manhole covers and several large depressions on the street pavement. Figure 7 shows GPR data from a portion of the south one-half of Harris Street. Two large buried metal structures are apparent in these data. Numerous other radar anomalies were noted beneath Harris and Purse streets. Some of these may represent important deposits, particularly those associated with the 1779 Siege of Savannah and the assault on the Spring Hill redoubt. Some also may be associated with the War of 1812 or the Civil War periods, since the military was active in this area of Savannah during both wars.
Figure 6. Aerial Map of GPR Block B at About 90 cm Below Ground.

Figure 7. GPR Anomalies on Portions of Harris Street.
Summary

The study property was covered by GPR survey. Two GPR Blocks (A and B) revealed extensive evidence of subsurface anomalies that were of potential historical interest. Time and resources did not allow for subsurface examination of most of these and as a result of subsequent construction activities, most, if not all subsurface evidence has been erased. Archaeological testing and salvage recovery was conducted by Coastal Heritage Society archaeologists and Coastal Georgia Archaeological Society volunteers on a portion of the property prior to construction and those findings are documented elsewhere.
References Cited

Boatner, Mark M.

Ancestry.com

Elliott, Rita F., and Daniel T. Elliott

Graf, Leone A.

Horne, Peggy
1982 Savannah’s Battlefield Park: A Photographic Essay. Regina Press, Savannah, Georgia. [not examined]

MacDonnell, A.H., compiler
1907 The Code of the City of Savannah of 1907. Morning News Print, Savannah, Georgia.

Strate, Jacob R.
1879 Letter by Jacob R. Strate, October 9, 1879. Manuscript 768, Georgia Historical Society, Savannah, Georgia.

Sanborn Fire Insurance Company

The Right Way

U.S. Bureau of Census

Wright, Ron