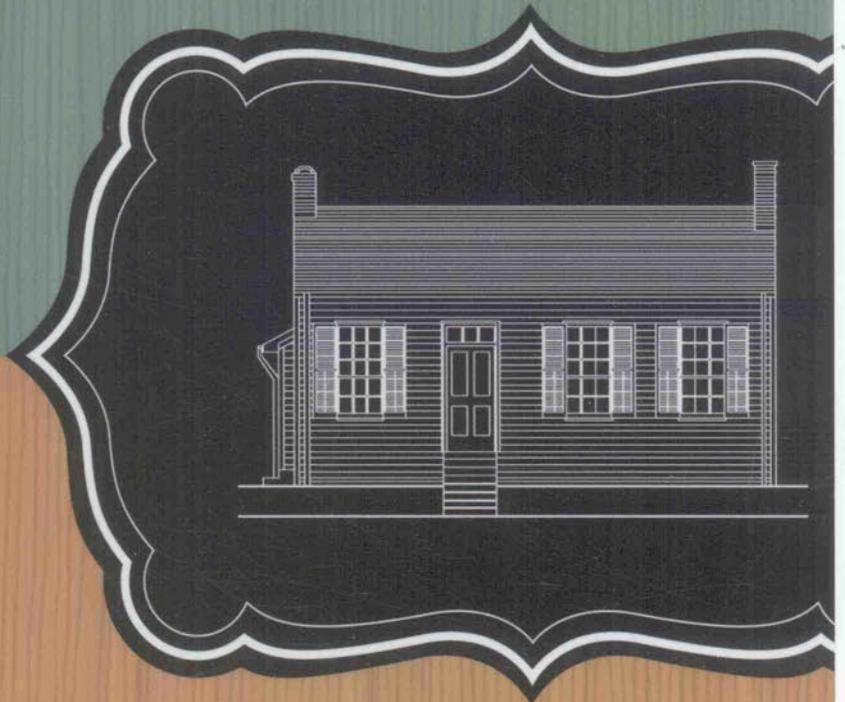


449/D-66



CARRIGAN HOUSE

LINCOLN HOME NATIONAL HISTORIC SITE

NATIONAL PARK SERVICE

SPRINGFIELD, IL USA

HISTORIC STRUCTURE REPORT

RATIO ARCHITECTS, INC.

H.F. LENZ CO.

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CARRIGAN HOUSE (HS-25)

Lincoln Home National Historic Site
Springfield, Illinois

Historic Structure Report

May 19, 2006



Prepared for
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Midwest Regional Office
Omaha, Nebraska

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CARRIGAN HOUSE (HS-25)

Lincoln Home National Historic Site
Springfield, Illinois

Historic Structure Report

May 19, 2006

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Regional Director, Midwest Region

CARRIGAN HOUSE (HS-25)

*Lincoln National Historic Site
Springfield, Illinois*

HISTORIC STRUCTURE REPORT

May 19, 2006

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Executive Summary

EXECUTIVE SUMMARY

At the request of the National Park Service, Midwest Regional Office, RATIO Architects, Inc., in conjunction with H.F. Lenz Company, The Jaeger Company, and Lawson Elser, Inc., has prepared this Historic Structure Report for the non-extant Carrigan House, within Lincoln Home National Historic Site (Lincoln Home NHS) in Springfield, Illinois. Lincoln Home NHS was established with the goal of preserving and interpreting the Lincoln Home to the time period of his residency, incorporating the neighborhood he knew and departed from to take the office of President of the United States in 1861 including its relevance to a deeper understanding of Lincoln in American heritage. The visitor is led to an appreciation of Lincoln's life and involvement in this community, where he developed into the statesman known throughout the world.

Lincoln Home National Historic Site is within the original blocks of the Elijah Iles Addition to the City of Springfield. Lincoln Home NHS encompasses four residential blocks in downtown Springfield, Illinois, from Capitol Avenue on the north to Edwards Street on the South and from Seventh Street on the west to Ninth Street on the east. Abraham and Mary Lincoln purchased the house on the corner of Eighth and Jackson in 1844 and lived at this location until they departed for Washington, D.C. in 1861, after Mr. Lincoln's election to the Presidency. This is the only residence the Lincolns ever owned.

The park was established in 1972, when the National Park Service acquired the Lincoln Home and other state-owned property through donation from the state of Illinois. The city of Springfield also donated property including the streets and alleys. The remainder of the four blocks was purchased from private property holders. The goal as stated in the Master Plan of 1970 is to "faithfully restore the neighborhood to establish the proper setting circa 1860." The Master Plan recommends restoration of the extant historic structures and reconstruction of the Burch and Carrigan Houses based upon available evidence. The Arnold house was restored in 1997, leaving the Burch and Carrigan sites yet to be addressed.

The purpose for the reconstructions is to enable the visitor to better understand the environmental context in which Abraham Lincoln was a part from his law practice in Springfield to the Presidency. In order to achieve this goal, historic structure reports for the non-extant Burch House located directly across the street from the Lincoln Home and the non-extant Carrigan House located directly next door were created to provide a basis for the eventual reconstruction of both structures to their 1860 appearances. The Historic Structure Report (HSR) will be a readily accessible reference document for the National Park Service, Lincoln Home NHS staff, and professionals working on or using the reconstructed structures. It will also be used as a tool in interpretation of the neighborhood based on historical and physical evidence. The HSR contains a bibliography of archival documentation relevant to the structure and be a resource for further research and investigation.

Investigation was made into the physical growth and appearance of each house and known outbuildings through historical and archeological research. A determination of house location, size and appearance including resolution of landscaping issues such as walks, vegetation, fences and grading has been made. Accessibility issues have been addressed in regard to the sites and structures and incorporation into the Lincoln Home NHS

programming. Building environmental systems including communications systems solutions have also been explored. Finally, a value analysis was completed followed by the creation of Class B cost estimate. The results of the investigative research and documentation are arranged in the following manner:

ADMINISTRATIVE DATA

This section contains the statement of purpose of the project including a general description of the park and the context under which this project is undertaken. Additionally, there are descriptions of the team members and insight into the investigation history and methodology.

PART 1: DEVELOPMENTAL HISTORY

This section includes the analysis of existing historic information as it relates to the chronology of the property. A history of owners and occupants associated with the property, historic photographs and maps, archeology and a comparison with buildings and/or features of the same time period are included. An architectural cross-analysis of the gathered information follows.

PART 2: TREATMENT AND USE

This section presents proposed uses and recommendations including information pertaining to the site, structural systems, building environmental systems, and accessibility. Proposed schematic plans for the reconstruction of the Carrigan House including an ultimate treatment plan follows with a Class B cost estimate.

Administrative Data

PROJECT BACKGROUND & PURPOSE

Robert Lincoln and his wife Mary deeded the Lincoln Home to the State of Illinois in 1887. A live-in custodian was appointed by the state to care for the home. During the 1920's a master plan for Springfield was developed by Myron West, which included acquiring additional land adjoining the Lincoln Home to develop a "Patriotic Center". This was never realized but did begin the implementation of zoning ordinances for the area. In 1939, the Bloom Plan was developed and put forth by the Department of Public Works and Buildings. This plan also called for the development of a park surrounding the Lincoln Home, however it too was never implemented. In addition, the grocery store across the street, the site of the former Burch house, was to be replaced by a custodian's residence. In the early 1960's, Springfield moved to further the preservation of the district with the passage of several ordinances controlling building permits, exterior improvements and design appropriateness in respect to establishing the proper character of the neighborhood. On September 12, 1961 the Lincoln Home District was established by the city of Springfield. However, the city's finances were tight. They in turn looked to the federal government for aid in effort to prevent further deterioration of the Lincoln Home area. With the assistance of Congressman Paul Findley, Lincoln Home National Historic Site was established in 1972, operated by the National Park Service.

The Lincoln Home is a National Historic Landmark designated in 1960 and the historic zone within Lincoln Home National Historic Site was listed as a National Register District in 1976. Lincoln Home's environment or setting impacts the house by contributing or detracting from the integrity and historical value. The faithful reconstruction of the Carrigan House would enhance the historical value and contribute to the setting for the 1860 interpretive date of the Lincoln Home. Further, the restoration of the cultural landscape, which includes the Carrigan House, is called for in the Master plan.

The non-extant Carrigan House is a critical visual element missing from the park experience. The reconstruction of the house would fill key gap in the historic complex providing the visitor with a fuller understanding of the environment within which the Lincolns lived. In addition it will screen out modern intrusive elements outside the historic zone. The neighborhood during Lincoln's time contained a diverse collection of residents and building styles. The reconstruction of the Carrigan House will contribute to the reestablishment of the diversity of housing and assist in telling the story of the neighborhood and its people.

PROJECT SCOPE

This HSR was created in an effort to compile existing and new research along with investigative findings, analysis and evaluation of the site and former structures. The report will serve as a record document for reconstruction goals and treatments relating to the Carrigan House. The project scope includes historic and cultural landscape research and architectural investigations. A site survey resulting in a topographical site plan used for investigation and design work was one of the first project activities. A subsurface soil investigation conducted in September 2005 to classify the soil samples will be used in the design of the new foundation and structural system. Drainage alternatives were also explored. Investigation was made into the physical growth and appearance of each house

through historical and archeological research. With this information schematic design was completed as the first step in the reconstruction of the Carrigan House.

PROJECT TEAM MEMBERS

Following the objectives of Lincoln Home NHS, the National Park Service, Midwest Region, engaged the professional services of RATIO Architects, Inc., an architectural firm specializing in historic preservation, to prepare the Historic Structure Report (HSR) for the Carrigan House. Team members providing support to RATIO Architects, Inc. includes:

Hanson Engineering, topographic & boundary survey;
H.F. Lenz Company, mechanical and electrical engineering;
The Jaeger Company, historic landscape architecture;
Kirk Associates, LLC, value analysis;
Lawson Elser, Inc., structural engineering;
Professional Services Industries, Inc., subsurface soil investigation.

The project team has gathered information, in addition to that which had been previously researched and collected, and conducted on-site physical investigations to formulate strategies for the reconstruction of the home. The results of this investigative research and documentation are contained in the historic structure report.

INVESTIGATION HISTORY AND METHODOLOGY

Primary and secondary sources were used during the historical investigation of the Carrigan House as listed in the bibliography. Archeology, historic maps and photographs were consulted as well in the research efforts. Limited archeological testing was conducted in May of 2005 by the Midwest Archeological Center preceded by a geophysical investigation in April. Previously in 1997, Floyd Mansberger of Fever River Research carried out a brief investigation of the exposed remains uncovered during the relocation of the Corneau House.

A review of previous studies was undertaken to understand the existing research available and determine what questions remained to be answered. Previous studies that were particularly important to the development of the HSR include: *The Historical Base Map* by Edwin C. Bearss and the *Historic Resource Study and Historic Structures Report for Blocks 7 & 10 Elijah Iles' Addition* by Albert W. Banton, Jr., Ellen Carol Balm, and Jill York O'Bright. Although there is a wealth of written information available about the Lincoln Home and the area as a whole, very little information exists pertaining to occupants of the house including the Carrigan family or the building episodes of the house. Research at Springfield-area repositories was conducted in an attempt to gather and uncover pertinent information; with the most pertinent material residing in the Sangamon Valley Collection at the Lincoln Public Library, Springfield and the Abraham Lincoln Presidential Library, formerly known as the Illinois State Historical Library. Lincoln Home NHS archives also contains a great deal of useful and pertinent data and photographic documentation relating to the Carrigan site. Research for the Carrigan House historic tax records was conducted at the Illinois Regional Archive Depository in Springfield. Unfortunately, it appears that these records had been destroyed approximately 60 years ago by the city. The tax records could have provided additional information concerning building episodes and possibly a definitive

construction date. In addition, an on-site investigation of the landscape features, available utilities and the building history was conducted. Programming was discussed with the Lincoln Home NHS staff in relation to the functionality of the reconstruction.

A Value Analysis (VA) session was held in November of 2005 at Lincoln Home NHS led by Stephen Garrett of Kirk Associates, LLC. Various floor plan options and construction approaches including accessibility were reviewed. An ultimate treatment plan was derived from the presentation and discussion using the "Choosing By Advantages" (CBA) method. A final report dated January 10, 2006 summarized the information presented at the session including a summary of recommendations and comparative costs (Class C and Class B cost estimates).

The Historic Structure Report follows the format directed by *Cultural Resource Management Guidelines (NPS-28)*, U.S. Department of the Interior with the use of the Chicago Manual of Style handbook. Recommendations are made in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, *Uniform Federal Accessibility Standards (UFAS)*, *International Building Code*, and *NFPA 5000 Building Construction and Safety Code*. The report is based on documentary evidence collected to date and limited physical archeology. The research is not concluded with this report as it could be supplemented in the future by newly uncovered documents and additional archeological findings.

PROJECT GOALS

The goal of this project is to prepare critical planning and design documents prior to the ultimate reconstruction of the Carrigan House. Documentation of the house's history, appearance, and development has been delineated. The Carrigan House is missing from the landscape, but its reconstruction would provide an improved visual and historic context for the Lincoln Home. It is anticipated that the building will eventually be opened to the public for exhibits and contribute to the historic context of Lincoln Home National Historic Site.

FUTURE RESEARCH

Several questions raised during the preparation of the HSR may be answered during additional archeological testing scheduled for spring 2006. Any new information about the house and its associated features generated as a result of those investigations may then be used to potentially refine the reconstruction plan. These questions include the following:

- Locate foundation of the north chimney in the ell addition at the west extent of the house,
- Confirm the location of the north porch,
- Clarify the location of the East Addition,
- Extend the Test Unit #6 to clarify the locations of Irwin and Carrigan foundations,
- Identify any remains of the outbuildings

If reconstruction of the Carrigan House is undertaken in the future, the park will need to develop a formal data recovery plan in consultation with the State Historic Preservation Office in order to mitigate the impact of reconstruction on significant archeological resources

a the site, in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended. Mitigation might include devising methods to preserve some features in place, and/or documenting and removing them through excavation.

Part 1:
Developmental History

PROJECT LOCATION

The Carrigan House site is located within Lincoln Home National Historic Site in Springfield, Illinois. The Carrigan House was originally built in the Elijah Iles Addition to the town of Springfield in Block 10, Lot 6 and the north $\frac{3}{4}$ of Lot 7. The rectangular lot is approximately 70' wide north to south along Eighth Street and 152' long east to west along the boundary with the Lincoln Home.

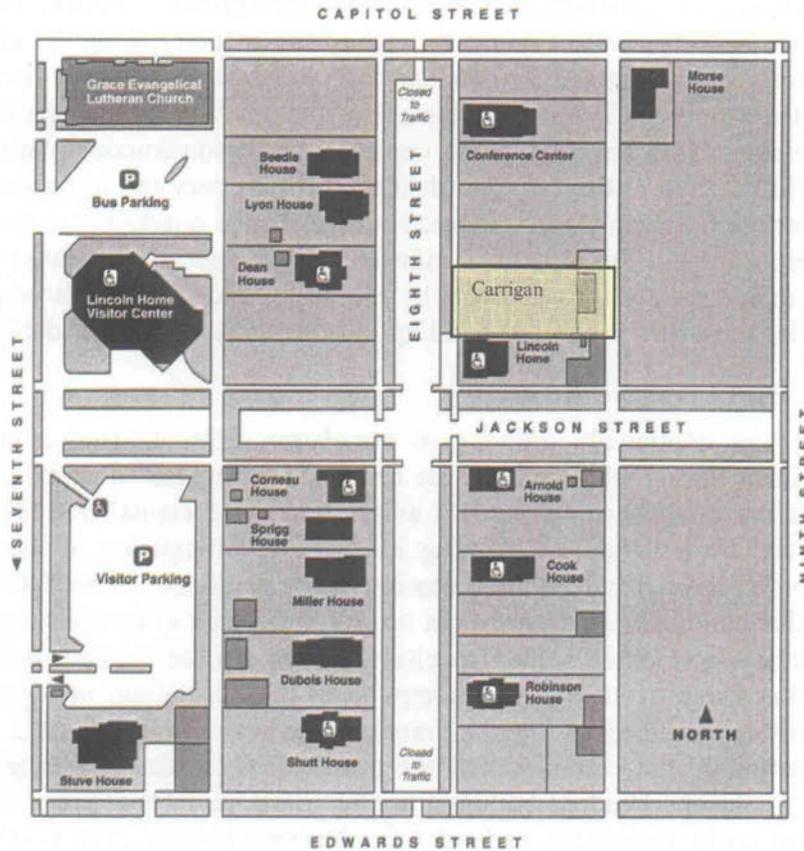


Figure 2-1: Map of Lincoln Home National Historic Site.

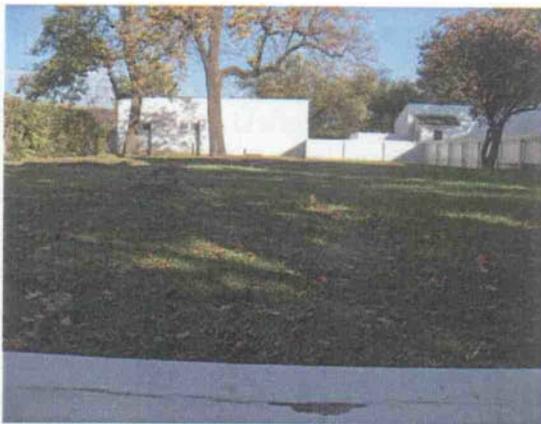


Figure 2-2: Photograph of the existing site looking east; RATIO Architects, Inc., July 2005.

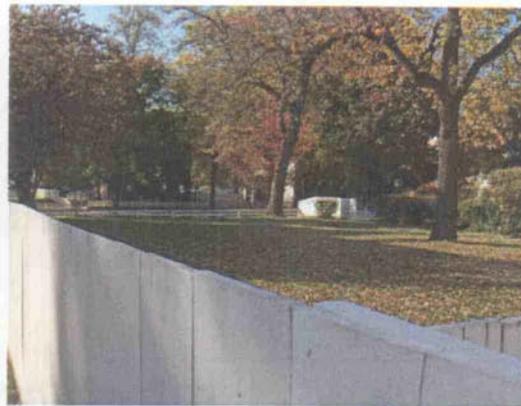


Figure 2-3: Photograph of the existing site looking northwest; RATIO Architects, Inc., July 2005.

HISTORY

History of the Carrigan House Site

As a part of Lincoln Home National Historic Site (Lincoln Home NHS), the Carrigan lot is an important element of the Lincoln neighborhood context. The non-extant Carrigan House was located just north of the Lincoln home at the corner of Jackson and South Eighth streets in (Sangamon County) Springfield, Illinois. Many changes occurred to the property in the years following the Lincolns departure from Springfield. Today, the lot contains a storage/office building built c1950 at the rear of the property along the alley. The Lincoln Home heating, ventilating and air-conditioning system is also located here. A board fence surrounds the property. Tracing the history of the land and its owners provides a historic perspective essential in developing and implementing reconstruction plans. A chain of title table is included (**See Table 2-1**) that delineates the owners and occupants of the property. Research for the Carrigan House historic tax records was conducted at the Illinois Regional Archive Depository in Springfield. Unfortunately, it appears that these records had been destroyed approximately 60 years ago by the city. The tax records could have provided additional information concerning building episodes and possibly a definitive construction date.

Springfield was continually growing in population from its beginning. However, the speculation that Springfield would be the new state capital added an extra enticement. The state legislature established Springfield as the new State capital in 1837 and in 1839 the capital moved from Vandalia. Starting in 1836, in anticipation of the announcement, a building boom occurred and the town was in want of workmen. A resident of the town wrote in a letter that buildings could not be put up due to the lack of workmen and that carpenters, masons, tinnners and other skilled mechanics were needed.¹ This building boom even withstood the Panic of 1837. An excerpt from the Springfield newspaper, *Illinois State Journal*, written by the editor Simeon Francis gives evidence to this fact. "Notwithstanding the depreciation of the currency, and the pressure of the times, Springfield continues to improve. About one hundred buildings went up last year [1841], and among them some beautiful and costly residences, and extensive business houses...The south part, and all that quarter of the city on the east along the line of the rail road from Cook to Washington streets, has been spread over with new buildings..." It was during this timeframe that the Carrigan House was constructed.

History, People, and Chronology

Pascal Paoli Enos purchased 160 acres from the U.S. government in November 1823 after moving to the area when he was appointed receiver of the Springfield District Land Office. Enos sold a portion of this land to Elijah Iles in 1825. When Iles moved to Springfield from Kentucky in 1821, he set up a general store and made plans to develop a town.² Iles was a moving force in creating the town of Springfield and also lobbied for its position as county seat and eventually as the state capital. Along with Enos, Iles donated land to form the new

¹ Beach, Richard H, "A letter from Illinois Written in 1836." *Journal of the Illinois State Historical Society*, (October, 1910).

² Angle, Paul. "*Here I have Lived*": *A History of Lincoln's Springfield 1821-1865*. (Springfield, Illinois: Abraham Lincoln Association, 1935), 9.

town of Springfield, which was originally named Calhoun. In 1836 the Iles Addition to the town of Springfield was platted, which contains Lincoln Home NHS.

In 1839, Francis Webster, Jr. purchased lots 6 & 7 in Block 10 of E. Iles Addition for \$500. He then sold the south $\frac{1}{4}$ of lot 7 to Charles Dresser in that same year. Dresser built his home on Lot 8 and purchased the south $\frac{1}{4}$ of Lot 7 (due to the contractor's error in sitting the foundations for the house) that he would sell to Abraham Lincoln five years later. Also in 1839, Webster and Luther M. Kennett entered into an agreement whereby Webster executed five promissory notes totaling \$2650. Samuel H. Treat, a judge and loan agent with the Illinois State Bank³, became the trustee for the remainder of the two lots in 1842 upon failure of payment to Kennett. Treat was directed to sell the property to the highest bidder to pay in cash. With the promissory notes in hand, Kennett purchased the property.

It is unclear after reviewing the deeds whether Webster or Kennett built the house. However, Webster married Emeline Barnes on May 26, 1838 and may have purchased the property and contracted to build the house as their new residence. This would explain the promissory notes and place the date of construction closer to 1839. The one-story, four bay wide, wood-frame residence had an ell to the rear, most likely built during the original phase of construction. However, the two archeological investigations that have been conducted indicate a slight jog in the foundation along the front façade. This may denote two phases of construction. Outbuildings associated with the house included a large barn (**Figure 2-6**) and a smaller one-story shed. By 1854, according to the first map of Springfield to indicate structures, the house had gained its final form (**Figures 2-7a, 2-9a, 2-19**).

Luther M. Kennett was born March 15, 1807 in Falmouth, Kentucky. After some formal schooling and studying law on his own he traveled to Saint Louis in 1825. He worked as a clerk and eventually became a partner with Hugh Lawson White. He was elected Alderman from the fourth ward in 1842 and was re-elected in 1846. In 1850, he was elected mayor of St. Louis and was re-elected for two additional terms. A member of the American Party, Kennett was elected to Congress in 1854 defeating former Senator Thomas Benton for this position. He was active in the development of railroad lines serving as vice president of the Pacific Railroad Company, a predecessor of the Missouri Pacific and eventually the Union Pacific. He also served as President of the Saint Louis & Iron Mountain Railroad in 1853. While serving as Mayor of Saint Louis, Kennett delivered a speech in Springfield during the Springfield Rail Road Company dinner for the "stockholders, press and many citizens of Saint Louis, and other places"⁴

Kennett had other connections to Illinois. His father, Preston Graves Kennett, is credited with being the first storeowner in Carrollton, Illinois in 1822, where he also served as the postmaster. His cousin, also named Luther Kennett, was well known in the real estate and abstract business; he was born in Carrollton in 1833 to Dixon H. and Fanny Kennett. Luther Kennett was married in 1823 to Martha Ann Boyce; they had one daughter before she died in

³ *Illinois Daily Journal*, "September 12, 1835.

⁴ *The Daily Journal*, "Rail Road Entertainment," October 9, 1852.

1835. In 1842, he married his cousin Agnes A. Kennett and together they had seven sons.⁵ Luther M. Kennett died in 1873 in Paris, France. The connection between Kennett and Webster can be understood when one considers that Webster and Mortimor Kennett, Luther's brother, were partners in a store in Springfield in 1836. This partnership was dissolved in December of 1836.⁶

While Kennett owned the house on Eighth Street, it was rented several times. Thomas Alsop, the proprietor of the City Mill is listed at this address in the 1857 to 1858 city directories. Thomas was married to Jane Hopkins in 1860. In 1860, Jane had a millinery store on Adams Street between 6th and 7th Streets, and Thomas operated a jewelry business at the same location.

The Carrigan family rented the house from 1859 until 1863. They emigrated from Ireland in 1840 and owned and operated a hotel in Springfield at Seventh and Adams Streets. In 1855, Henry Carrigan lost control of the hotel in chancery court. After a lengthy court battle the Carrigans regained title to the hotel in 1863 (**Figure 2-4**). Carrigan was also involved with local politics. He was nominated by the Democratic City Convention as a candidate for the office of City Marshall in 1859 but did not win the election. Henry and Susan Carrigan had three children, Hugh, Henry, and Owen. Owen contracted whooping cough and died in 1851 at the age of one.⁷

CARRIGAN HOUSE!
H. CARRIGAN,
Proprietor.
Corner of 7th and Adams, One Block East of Public Square.
Springfield, Illinois.

Figure 2-4: Advertisement for the Carrigan House from the 1864 Springfield City Directory.

From 1863 to 1867 there were no identified tenants. City directories do not have reverse listings until approximately 1879 when addresses were assigned. In 1867 the house was rented to Benjamin and Jennie Briggs. Benjamin Briggs worked in the U.S. Internal Revenue, Eight District Assessors Office in Springfield and married Jennie Stiner in June of 1867. It is from his letters to his sister that a brief description of the house is available. An excerpt from the letter dated October 27, 1867 provides the most information.

⁵“Saint Louis Mayors” St. Louis Public Library: <http://exhibits.spl.org/mayors/data/dt4847786.asp> (July-21, 2005)

⁶“Notice of Dissolution of Partnership”, *Sangamo Daily Journal*, December 10, 1836.

⁷ Craig, Carol A. “An Exploration of the Social Relationships Between The Abraham Lincoln Family and His Neighbors – Jameson Jenkins, William S. Burch, and Henry Carrigan Families: A Survey of Sources in Springfield, Illinois.” (Masters Thesis, University of Illinois at Springfield, 2005.), 56-57.

We have two front rooms and a sort of wood shed only it isn't, I cant' tell you what it is. They don't' have such houses as this is where you live, so I can't compare it to anything. If the old thing don't fall down on us we shall stay here all winter and how much longer I cannot say. It is a very old house, but old settlers say that when it was first built it was considered to be something grand. I presume so but its grandeur is on the decline. It stands right beside of Lincoln's unpretending cottage a picture of which you have seen no doubt. I don't see why they could not have taken in the surroundings a little when taking a picture of his house. But they didn't. I would like to have you come out and stay awhile with us. Just listen now and I will tell you how our house is furnished, commencing with our best room first. There is a two ply carpit on the floor, a bed full blown, 4 cane seated chairs and a rocking chair of the same kind, a side table, a pretty little stand with a drawer, a large looking glass and some book shelves hung up with a cord, and filled to the brim with books, a large lamp with a globe and that is all I believe. Next month we will get a stove and perhaps a bureau.

In the room which Jennie uses for the kitchen, we have a rug carpit, a cook stove, a nice wash stand with wash bowl pitcher and towels, 4 wood bottomed chairs, a sewing machine and two trunk filled with clothing. When we get the bureau we shall dispense with one of the trunks. The chimney in this room runs down to the floor and on each side of it there is a large cupboard, one of these we use for clothes press or wardrobe and the other a cupboard for crockery etc., of which there is considerable and not much either but I cant' begin to enumerate it. There is also a small table in the room which I forgot to mention, next month we shall get a larger one.

That is our stock in store at present. Oh no we have a clock. That's all, not much to be sure and yet enough to make a pleasant little home. Everything we have is new and all paid for. We pay eight dollars per month rent, and have the privilege of using the celler which is deep and large for this country. But by mutual consent it has been given up to the rats who took complete possession of it without asking any questions. We moved into our little home two weeks ago last Wednesday.⁸

From 1868 to 1876 the Carrigan House was rented to John Tilliotson, who worked as a plasterer. There were no tenants identified between 1876 and 1879. In 1879, the property was purchased by Thomas W.S. Kidd, the owner of the Springfield Daily Monitor, an independent Democratic newspaper. He started this paper in May 1873 and a daily edition in 1877. Kidd held many public offices in Springfield: 1857 Bailiff of the United States Marshal office; 1858 Coroner & Deputy Sheriff; and 1859 Sheriff of the Supreme Court of

⁸ Benjamin Briggs Manuscript Collection The Abraham Lincoln Presidential Library.

Illinois. He was appointed the court crier in 1859 by Judge Treat and held that position for 17 years. He also served as City Assessor for fifteen years and as Collector for two.⁹

Thomas Kidd was married to Charlotte Janney of Maryland and they had two children who lived to maturity, Lizzie and Presco. It is interesting to note that it is Lizzie who is listed on the deed. Prior to moving into their new home, the family was listed at 516 South Eighth Street in the 1879 city directory. It was during the Kidd's ownership that the Carrigan House was demolished and the new and larger "Irwin House" in the Free Classic style was built (**Figure 2-14 and 15**). According to the December 1879 Minimum Tariff of Rates, a two-story frame dwelling was located on Lots 6 & 7 and occupied by Kidd.

In 1900, Isreal and Almira Irwin purchased lots 6 & 7 from T.W.S. Kidd. Isreal was a contractor in Springfield. The Irwins owned the house until 1923 when it was purchased by the State of Illinois and demolished soon after. It was the general opinion of the time that the house was too close to the Lincoln Home and presented a fire hazard.¹⁰ The lot remained empty until the state of Illinois constructed a building at the rear of the lot c.1950. In 1962, the Junior League of Springfield raised funds to move the Corneau House to the Carrigan lot to prevent its demolition. In 1997, the Corneau House was moved back to its original location in Block 6 Lot 16.

Chain of Title

Table 2-1 provides a chain of title in table format. Shaded entry identifies and describes the portion of lot 7 that was sold to Charles Dresser and later owned by Abraham Lincoln. It is interesting to note that during the deed research it was found that oftentimes the ownership was listed in the names of the children or women of the family, as in the case of the Kidd's and Irwin's ownership. During Kennett's ownership there are two periods of time for which tenants of the Carrigan House were not identified: 1863-1867 and 1873-1879. Unfortunately, reverse city directories are not available until after this time period.

⁹ Portrait and Biographical Album of Sangamon County, Illinois 1891. (Chicago: Chapman Brothers Publishers, 1891), 486.

¹⁰ *DuQuoin Call*, "Take Steps For Better Care of Lincoln Home", May 25, 1923.

CHAIN OF TITLE
 CARRIGAN HOUSE – BLOCK 10 LOTS 6 and 7
 ELIJAH ILES ADDITION

DATES	OWNER	OCCUPANT	NOTES
1837	Elijah & Malinda Iles	None	Elijah Iles Addition
1837	Gersham Jayne	None	Block 10 Lots 5-8
1839-1842	Francis Webster, Jr.	Francis and Emeline Webster	Block 10 Lots 6 and 7 House Built c.1839
1839	Charles Dresser		S1/4 of Lot 7
1842-1845	Samuel H. Treat (Trustee)	?	Lot 6 and N3/4 lot 7
1845-1879	Luther M. Kennett	Alsop, Thomas (1857-1859) Carrigan, Henry (1859-1863) No tenants identified (1863-1867) Briggs, Benjamin (1867-1868) Tillotson, John (1868-1873) No tenants identified (1873-1879)	Lot 6 and N3/4 lot 7
May 6-8, 1879	Lewis H. Converse		Lot 6 and N3/4 lot 7
1879-1900	Lizzie G. Kidd	T.W.S., Presco and Lizzie Kidd	First use of address: 420 S. Eighth St. "Carrigan" House demolished c.1879 "Irwin" House built 1879
1900-1923	Almira C. Irwin	Isreal A. & Almira C. Irwin	Street addresses renumbered: 422 S. Eighth Street
1923-1972	State of Illinois	None	1923 Demolished "Irwin" House 1962 Corneau House moved to Lots 6 & 7
1972-Present	United States of America	National Park Service Lincoln Home National Historic Site	1997 Corneau House moved to its original lot

Table 2-1: Chain of Title, Carrigan House.

HISTORIC PHOTOGRAPHS AND MAPS

Historic Photograph Analysis

There have been many photographs taken of the Lincoln Home that include a partial view of the Carrigan House and property. Most provide only limited information due to the angle of the photograph or the distance from the house. Several historic photographs were sent to the Gerald R. Ford Conservation Center in Omaha, Nebraska to digitally enhance the photographs at a high resolution in effort to procure additional architectural information and details. The photographs included here provide information pertaining to the form, features, and building materials of the Carrigan House. Information that can be gained from the photographs includes:

- Siding material: wood clapboard
- Building Height: 1-story
- Roof Material: Wood Shingle
- Windows: nine-over-six double hung on the front façade and six-over-six double hung on the gabled dormers
- Four Bays wide
- Chimney placement: one on each gabled end
- Additions: Ell is 1-1/2 stories with gabled dormers

Figure 2-5: This photograph taken during the summer of 1860 is the earliest known image of the Carrigan House. Two brick chimneys can be seen, one on either end of the main portion of the side gabled house. The roof material is wood shake and the house is sided in painted wood clapboard. The front windows are nine-over six with working wood slat shutters. The ell is partially visible, as is the rear porch. The rear porch extended from the house and its roof has a gentle slope extending from the roofline of the house. In this photograph, a single gabled dormer is visible on the roof of the rear ell. It has diagonal wood siding and a six-over-six window. The four-board wood fence and gate leading to the side yard appear to have a painted finish.

This photo offers a partial view of the Carrigan House and side yard between the south elevation of the house and the neighboring Lincoln Home and fence. The landscape appears not to be maintained evidenced by the large dead tree and overgrown vegetation on the lot. Two trees apparent in the landscape of the south side yard are in declining health. The tree closest to the front of the yard appears to have been split or topped, possibly due to storm damage. Both trees are void of foliage while other vegetation in the photo appears to be fully leafed out, indicating the late spring or summer season at the time the photo was taken. Two informally maintained shrubs are apparent along the southwest foundation corner of the house along with several more mature informal shrub plantings in the understory of the side yard.

A four-board fence was in place at the time of this photo, along the front property line. A gate appears in this photo leading into the side yard approximately 12'-15' from the southwest corner of the lot. The gate featured vertical boards in contrast with the fencing, and was hinged on the south side, opening towards the street. The front elevation of the house

and height of vegetation above the fenceline indicates that the yard is elevated several feet above the sidewalk level.

Figure 2-6: This photograph taken August 8, 1860 provides information concerning the large two-story barn on the Carrigan lot along the south boundary line shared with the Lincoln Home. The wood framed barn has vertical board and batten siding and there are no visible doors on the west façade. The other outbuilding indicated on the 1858 map cannot be seen in this photograph. The visible landscape, which appears overgrown and unkempt, includes a dead tree and several large bushes. A wood fence and gate from Eighth Street are also apparent.

This photo offers a more complete perspective of the south side yard of the Carrigan property. The head on view offers more information about the spatial relationship of the plant material of the side yard (**L2 Historic Plan**). This view also reveals more about the location and construction of the side yard gate. The gate boards appear to have an equal amount of alternating space width as the vertical board width. The landscape was informal with a more naturalistic appearance in the canopy and understory. One of the dying trees appears again in poor health in this photo. The ground layer of the yard appears to be lawn.

Figure 2-7 and 7a: This photograph taken c. 1867 provides the best view of the entire front façade of the Carrigan House, however a date for the photograph is unknown. An estimate based on the tree size in the front of the Lincoln Home is c. 1865. Two windows can be seen to the right of the front entry door and one to the left. Other details that can be seen include a divided transom above the door and working, wood slat shutters on the front windows.

The two declining trees from previous photos appear to be in good health in this photo, possibly predating this photo to the previous images based on the health of the trees. The assumption being that the trees in poor health would have continued to decline. A second gate is visible along the front fenceline leading to the front door of the Carrigan House. Two deciduous street trees are planted in front of the Carrigan House within the parkway between the sidewalk and Eighth Street.

Figure 2-8 and 8a: In this photograph taken in 1865, the ell can be viewed to a greater extent. Two gabled dormers can now be seen. The two dormers on the ell indicate one and one-half story construction for this portion. The windows in the dormers are six-over-six. An enclosed porch on the southeast corner of the house can also be seen. This porch and the porch on the ell are similarly enclosed with tall wooden, fixed-in-place louvers with adjustable slats. The louvers on the ell are in disrepair and missing slats. The brick chimney along the north wall of the ell can be seen for the first time.

This image features a different fence style along the front property line on the Carrigan House. The fence is constructed with three horizontal boards with an “x” cross piece at the top. The fence appears to be about the same height as the previous fence. All boards appear to be new as the configuration differs from the previous four-board fence.

Of the two trees in a poor state of health from previous periods, one remains closest to the street, while the other towards the middle of the side yard appears to have been removed and a younger tree planted in its place.

Figure 2-9 and 9a: This photograph was taken in 1865 during the activities for Abraham Lincoln's funeral. Although the Carrigan House chimney is incorporated in the end wall, the brick is exposed along the bottom third of the exterior wall facing the Lincoln Home. The wood clapboard siding covers the remainder of the chimney until it extends up past the roof. The chimney crowns can be seen in more detail as well in this photograph. The crown on the northern chimney of the gabled end has a barrel-vaulted hood. The southern chimney has a flat cap.

Figure 2-10 and 10a: This photograph provides a long view of the ell and porch structure. Two gabled dormer windows with diagonal wood siding can be seen on the roof of the ell. A fuller view of the porch is also presented. Although this photo is not dated, it was most likely taken in the 1870's due to the dilapidated condition of the porch structure. The ell's roofline is sagging in the center, above the louvered porch.

Figure 2-11 and 11a: Only the rear porch and the ell are visible in this photograph taken c.1870-1875. The chimney on the north side of the rear of the ell is visible through the trees, however the developing tree foliage and exposure of the photograph mask a majority of the south elevation. Two gabled dormers can be seen on the roof of the ell.

Figure 2-12 and 12a: This photograph captures a portion of the front façade and end gable of the main portion of the house. The front façade reveals a four bay wide dwelling with a door located off center, one window to the left and two to the right. Shutters can be seen on the windows, however the fenestration division cannot be determined from this photograph.

Figure 2-13 and 13a: This later photograph c.1878 dates from the time just before the Carrigan House demolition. The louvered porch roof is in disrepair and many of the louvered shutters are missing slats. The end of the roofline is visible for the first time in this photograph providing an opportunity to determine the length of the ell.

Figure 2-14: This photograph, taken c.1900, shows that the "Irwin" house is set deeper on the lot than the other houses on Eighth Street. The two-story gable front and wing, Folk Victorian residence is much grander and larger in scale than the former Carrigan House. A bay window, two-over two windows, spindlework gable detailing, and a second story porch over the front entry are typical Queen Anne details. This style was spread rapidly across the country through pattern books and the first architectural magazine, *The American Architect and Building News*.¹¹ The railroad also assisted in the spread of the style, making the availability of pre-cut details convenient to many parts of the country.

The demolition of the Carrigan House and construction of the Irwin House appears to have eliminated all traces of the Carrigan landscape. All previous vegetation and the fence along

¹¹ McAlester, Virginia and Lee. *A Field Guide to American Houses*. (New York: Alfred A. Knopf, Inc., 1984), 308-312.

the front property line have been removed. Two trees have been planted in the front yard. There appears to be a low retaining wall along the front slope of the yard where it meets the sidewalk.

Figure 2-15: This photograph, taken c.1892, provides information concerning the Irwin House additions, their rooflines, and how they were connected to the main house. A one-story shed roof addition can be seen on the southeast corner and a two-story gabled addition extends to the rear. Three chimneys can clearly be seen from this view, one centrally located, one on the south-facing gable of the wing, and one in the shorter extension on the rear. The outbuildings cannot be seen in this view.

This view of the Irwin House indicates that there were several trees of adolescent maturity located in the rear of the Irwin lot. These trees were likely planted during or after the construction of the Irwin House.



Figure 2-5: “Home of Abraham Lincoln”, summer 1860. View looking northeast. A partial view of the Carrigan front facade and the roof of the ell with a gabled dormer can be seen to the left. (Courtesy The Abraham Lincoln Presidential Library)

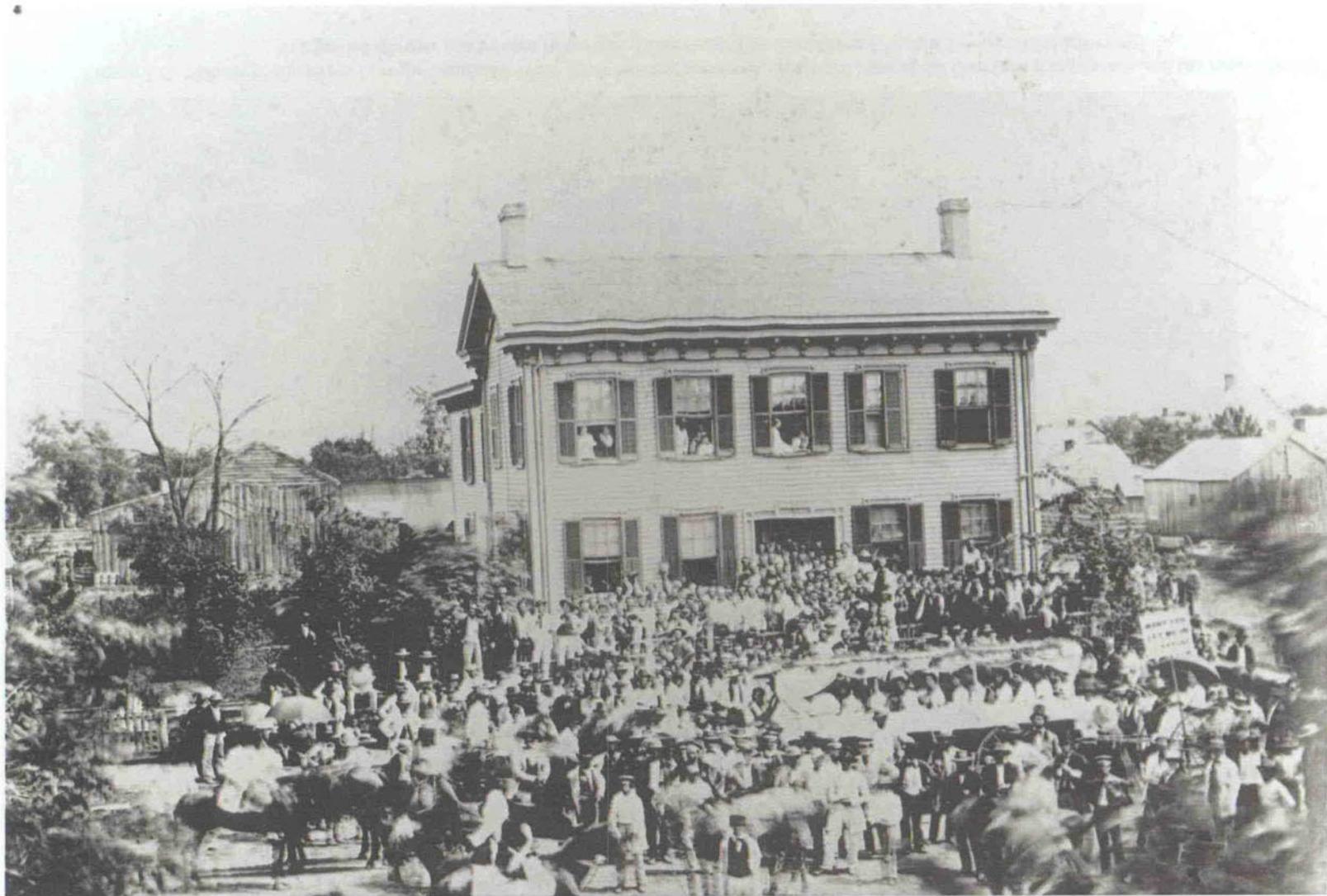


Figure 2-6: "Lincoln Home" August 8, 1860, view looking southeast; The Carrigan side yard and barn can be seen to the left. (Courtesy The Abraham Lincoln Presidential Library)

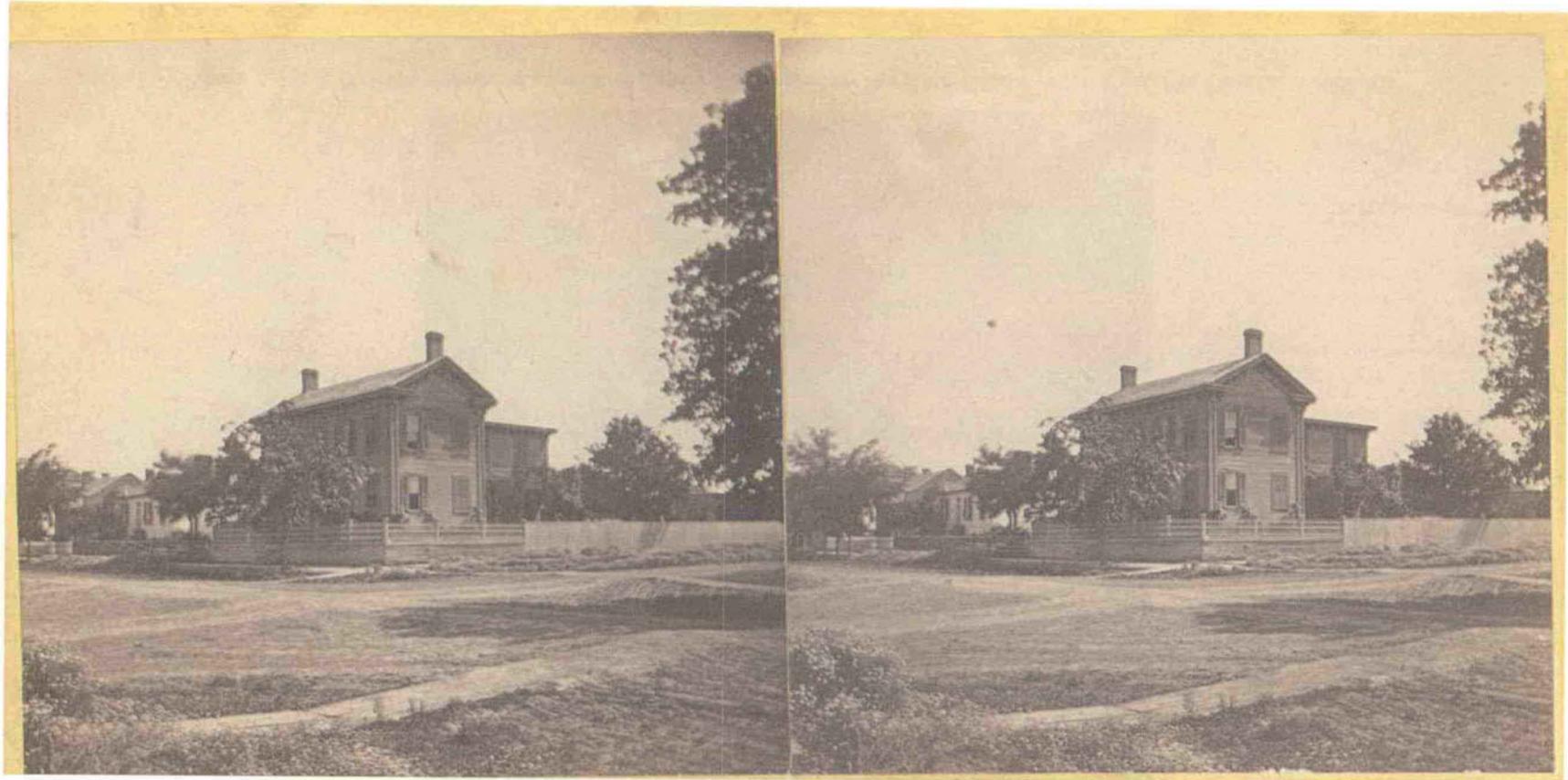


Figure 2-7: The entire front elevation of the Carrigan House can be seen in this stereograph, c.1867. (Courtesy Lincoln Home National Historic Site)

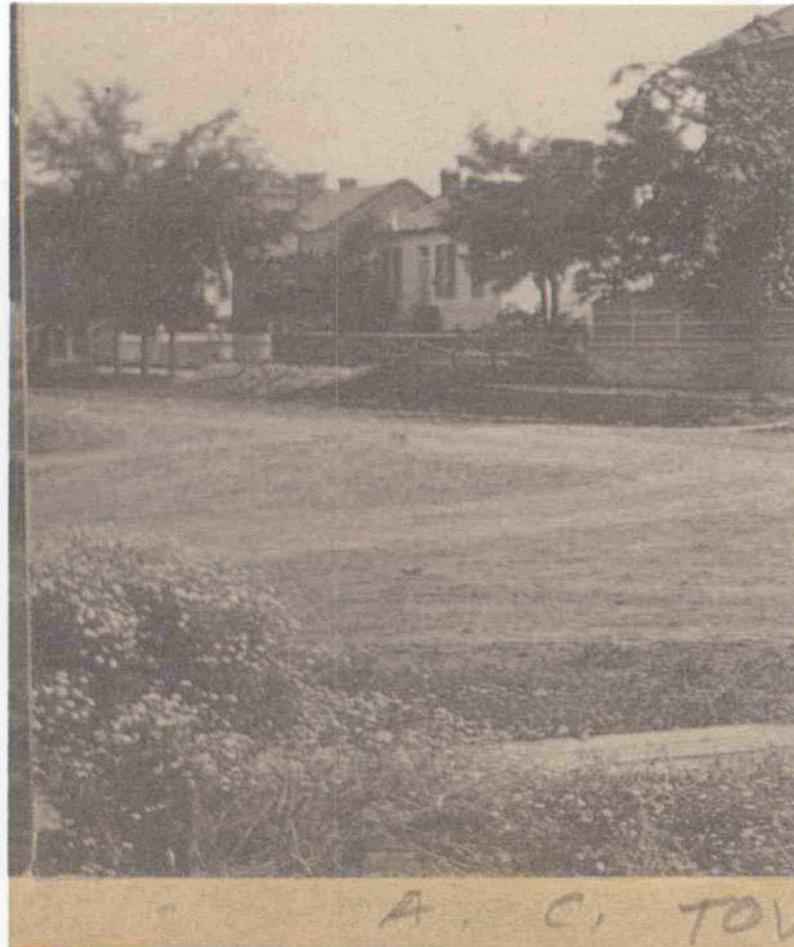


Figure 2-7a: A digitally enhanced portion of Figure 2-7 created by the Ford Conservation Center in Omaha, Nebraska.

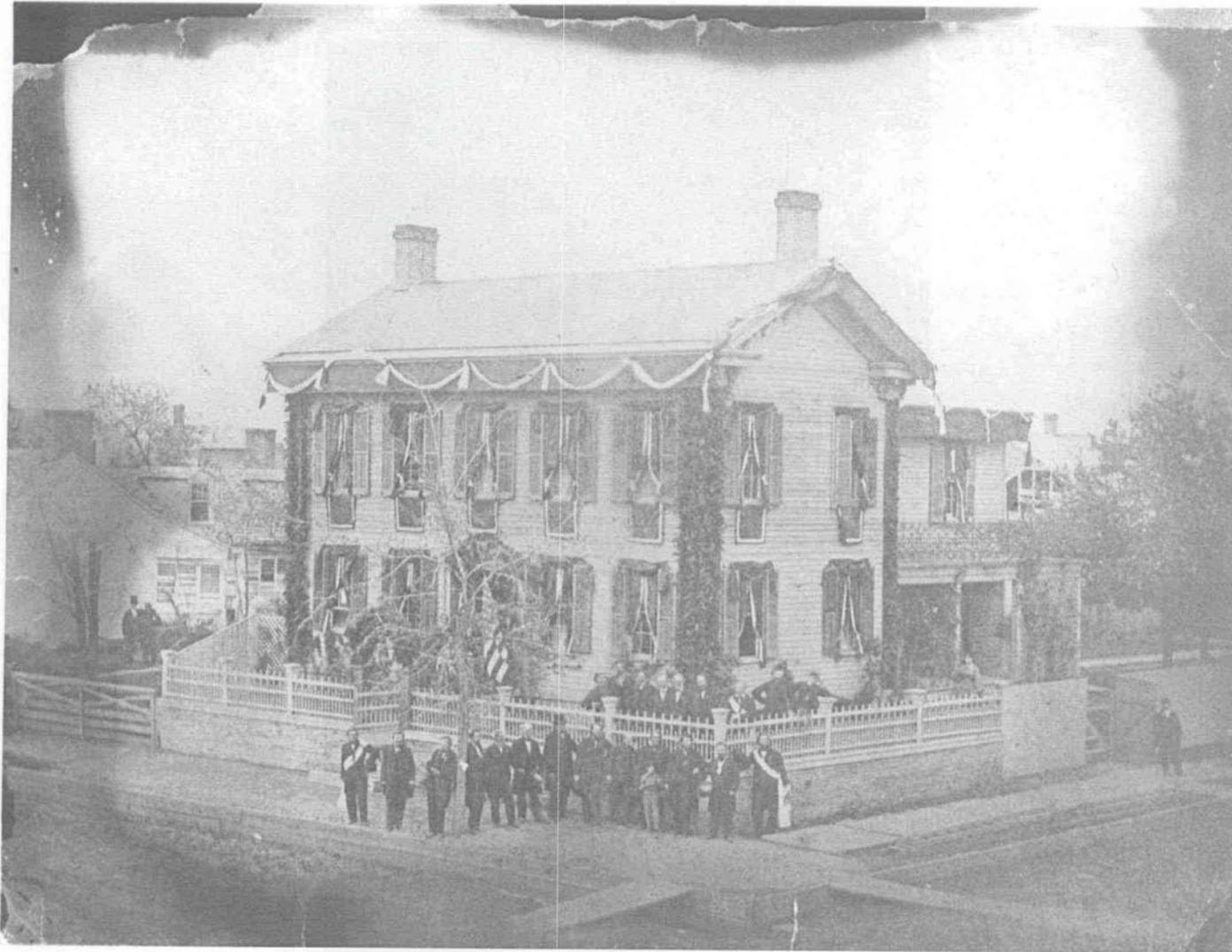


Figure 2-8: The Lincoln House dressed for mourning, 1865. View looking northeast. The rear extension to the Carrigan House can be seen to the left, including the ell with louvered porch. (Courtesy of the Abraham Lincoln Presidential Library)

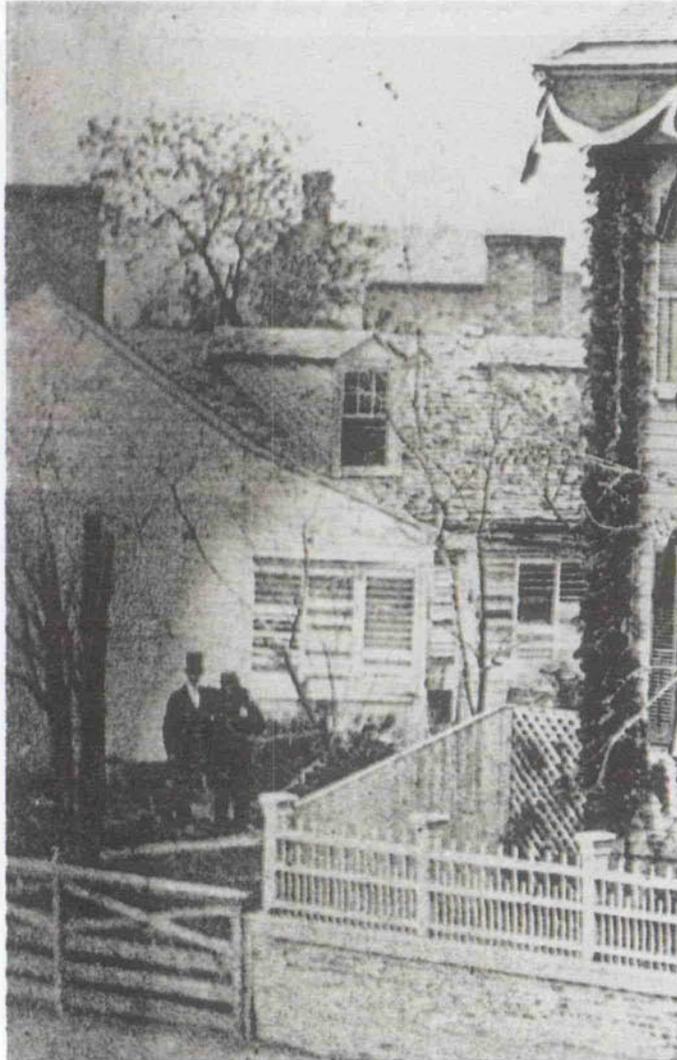


Figure 2-8a: A digitally enhanced portion of Figure 2-8 created by the Ford Conservation Center in Omaha, Nebraska

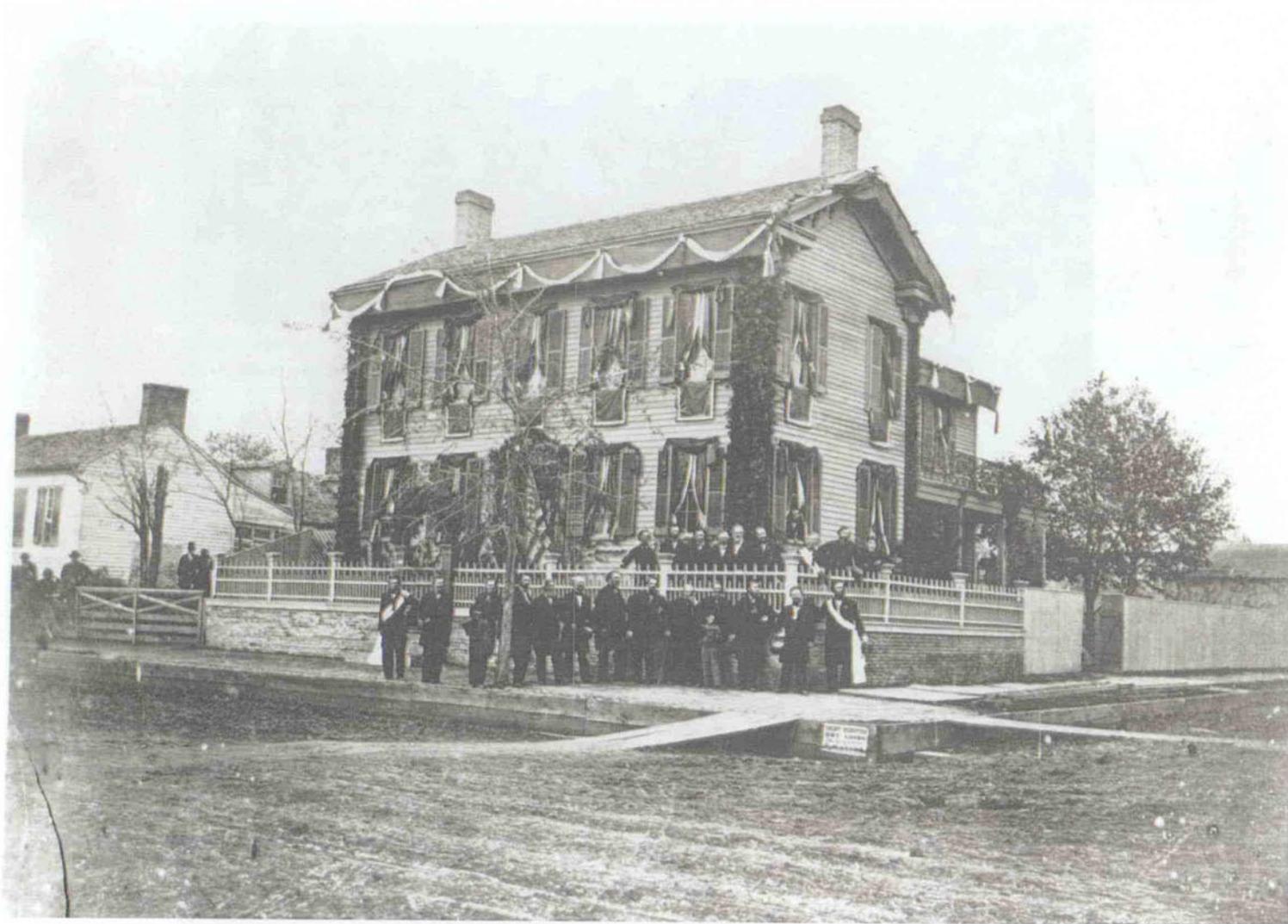


Figure 2-9: A partial view of the west and south elevations of the Carrigan House, 1865. Two dormers and a third chimney on the ell are visible. (Courtesy The Abraham Lincoln Presidential Library)



Figure 2-9a: A digitally enhanced portion of Figure 2-11 created by the Ford Conservation Center in Omaha, Nebraska



Figure 2-10: A view of the rear louvered porch and ell addition, c.1870. (Courtesy The Abraham Lincoln Presidential Library)

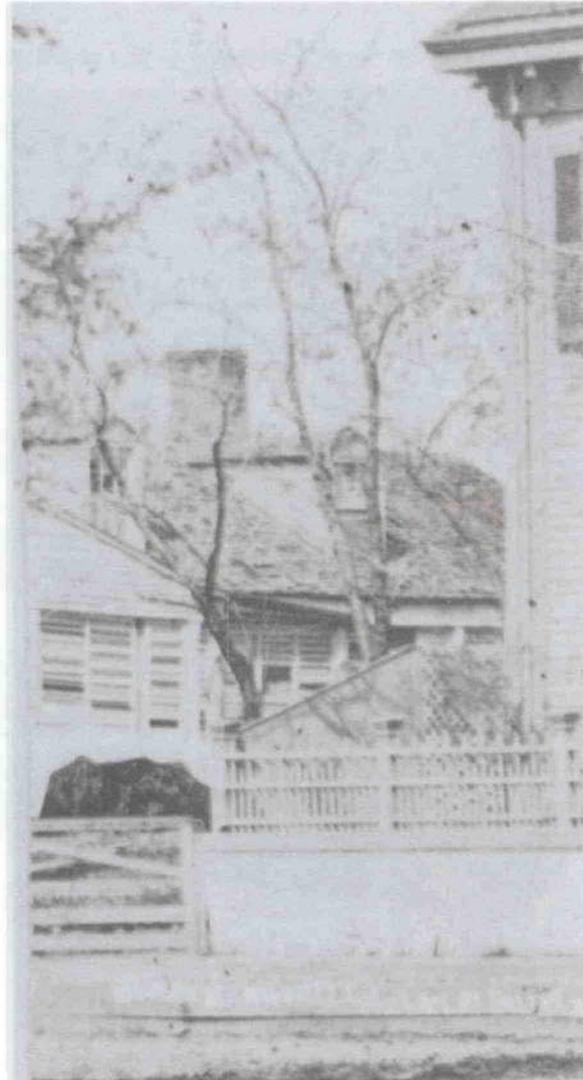


Figure 2-10a: A digitally enhanced portion of Figure 2-9 created by the Ford Conservation Center in Omaha, Nebraska

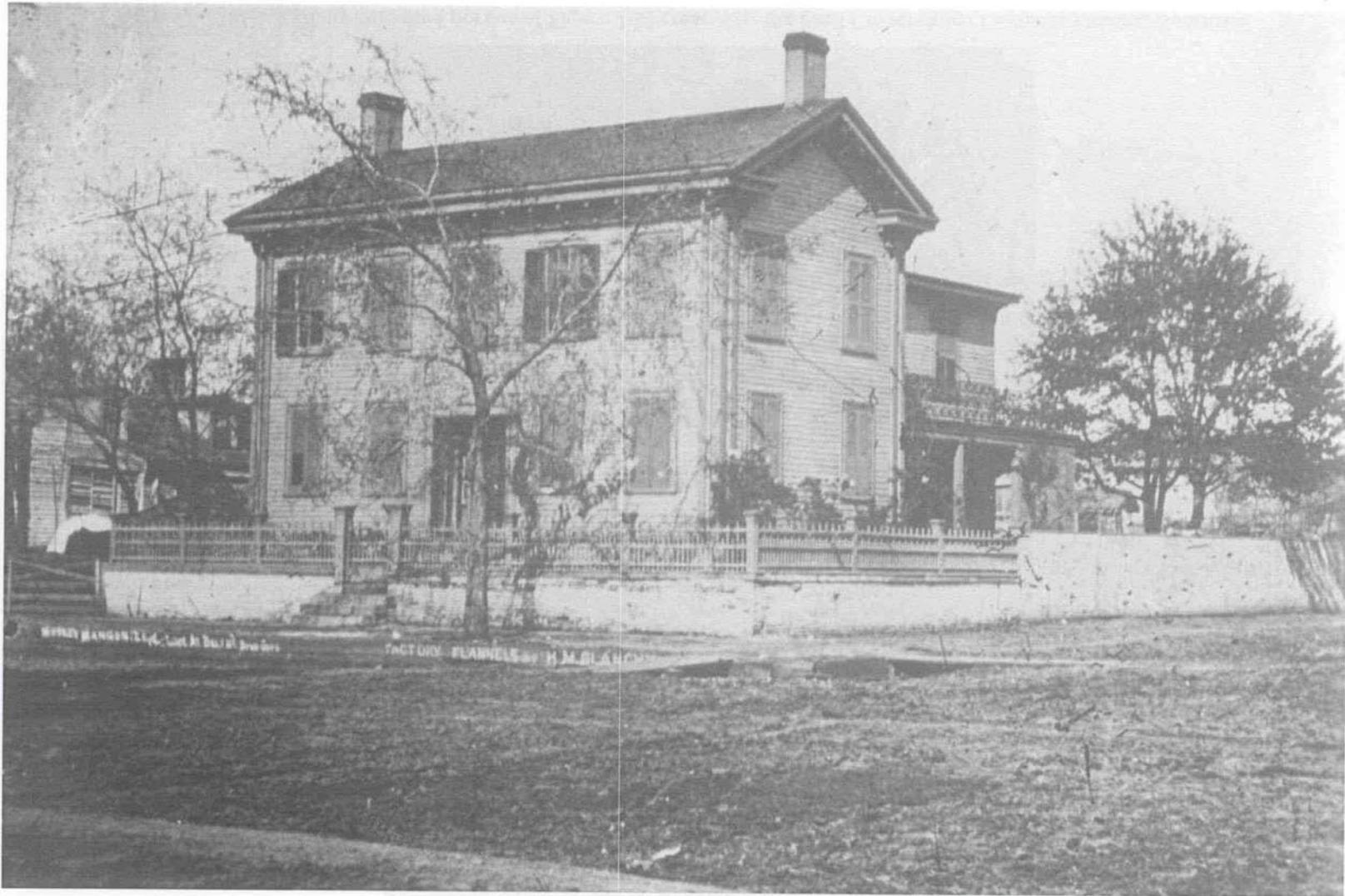


Figure 2-11: The Carrigan House c. 1870-1875. (Courtesy The Abraham Lincoln Presidential Library)



Figure 2-11a: A digitally enhanced portion of Figure 2-10 created by the Ford Conservation Center in Omaha, Nebraska



Figure 2-12: A stereoview of the west (front) elevation including the fence c.1870. (Courtesy Lincoln Home National Historic Site)

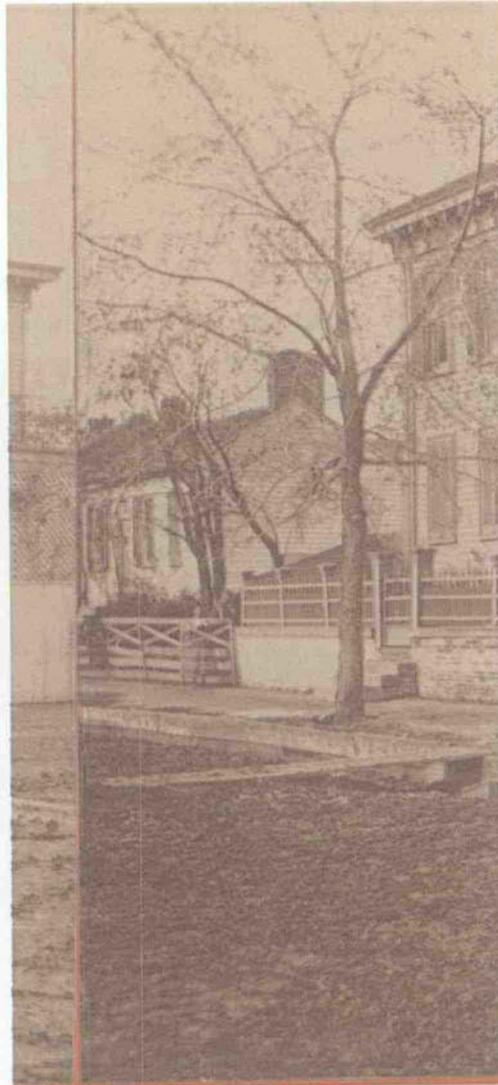


Figure 2-12a: A digitally enhanced portion of Figure 2-12 created by the Ford Conservation Center in Omaha, Nebraska



Figure 2-13: This stereoview c.1870-75 provides a view of the south elevation of the ell and main portion of the house. (Courtesy of the Lincoln Home National Historic Site)

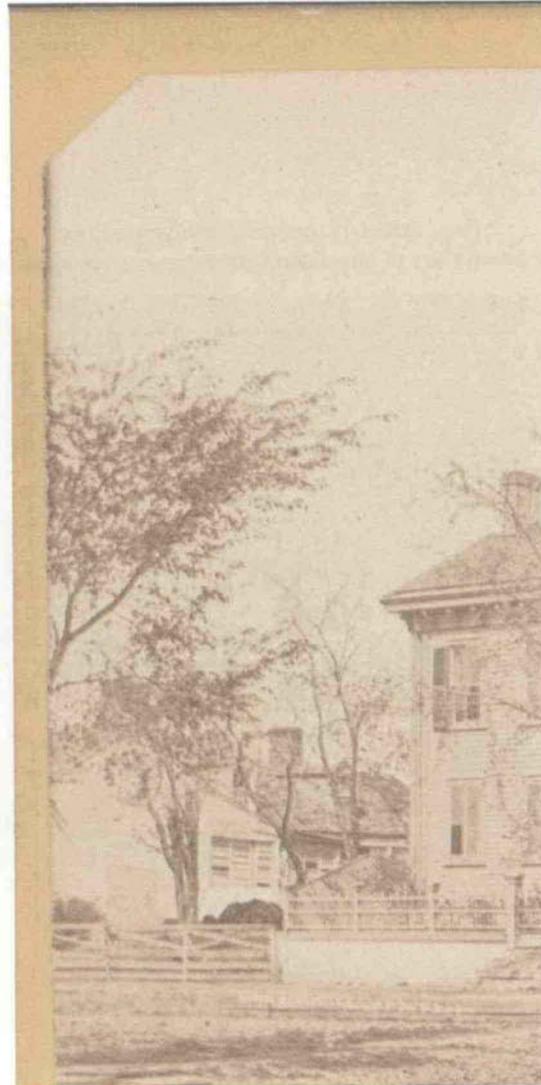


Figure 2-13a: A digitally enhanced portion of Figure 2-13 created by the Ford Conservation Center in Omaha, Nebraska.



Figure 2-14: Lincoln Residence and the “Irwin” house, c.1900-1905. (Courtesy The Abraham Lincoln Presidential Library)



Figure 2-15: Rear view of the Lincoln and “Irwin” homes c.1892. (Courtesy The Abraham Lincoln Presidential Library)

Panoramic Drawings

There are three panoramic drawings that were made during the late 19th century depicting the city of Springfield, one from each of following years: 1867, 1870 and 1873. The panoramic drawings are not completely accurate as the artists tended to take artistic liberties. Differences can be seen between the three drawings in the size and shape of the house, existence of outbuildings and landscaping features. The 1867 drawing by A. Ruger (**Figure 2-16**) provides a view of the Carrigan House from the rear. The ell addition can be seen as well as the large barn at the rear of the property. The overall massing of the building is given but little detail is provided such as window placement. In contrast, the 1870 depiction by Beck and Pauli (**Figure 2-17**) provides a view of the south elevation and does not include any outbuildings for the Carrigan House. Additionally, the drawing does not indicate any openings along the south elevation of the main portion of the house or the ell. The 1873 Koch panorama (**Figure 2-18**) provides a view of the north elevation of the Carrigan House. This is significant as there are no known photographs depicting the north side of the house. Information that can be taken from this panorama includes: window and door openings along the north elevation, rooflines, and the configuration of the ell to the main portion of the house. There are no outbuildings indicated on the Carrigan property in the Koch panorama.

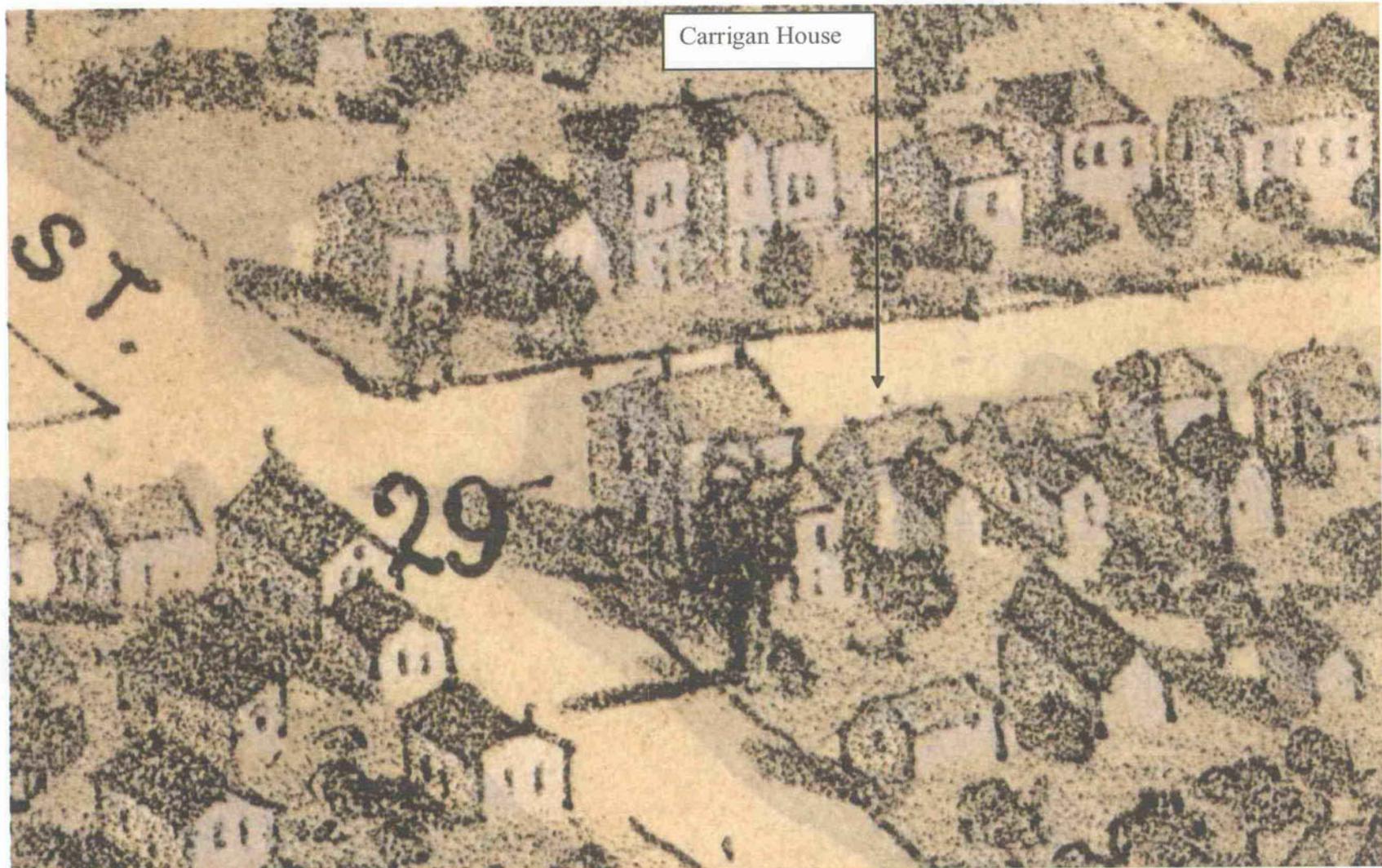


Figure 2-16: Springfiled, Illinois 1867. Drawn from nature by A.Ruger. (Courtesy The Abraham Lincoln Presidential Library)

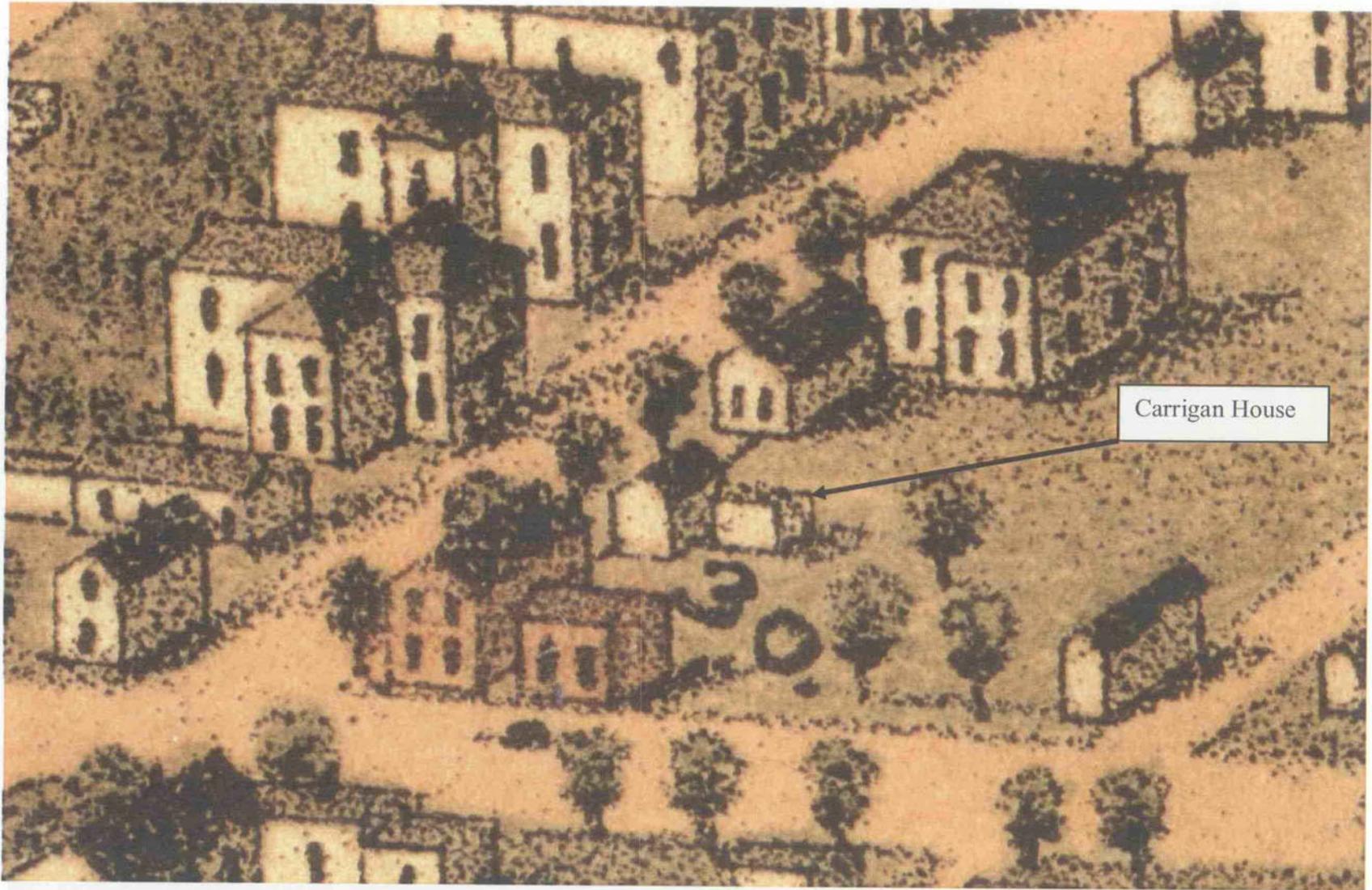


Figure 2-17: Beck and Pauli Panorama, 1870. (Courtesy The Abraham Lincoln Presidential Library)

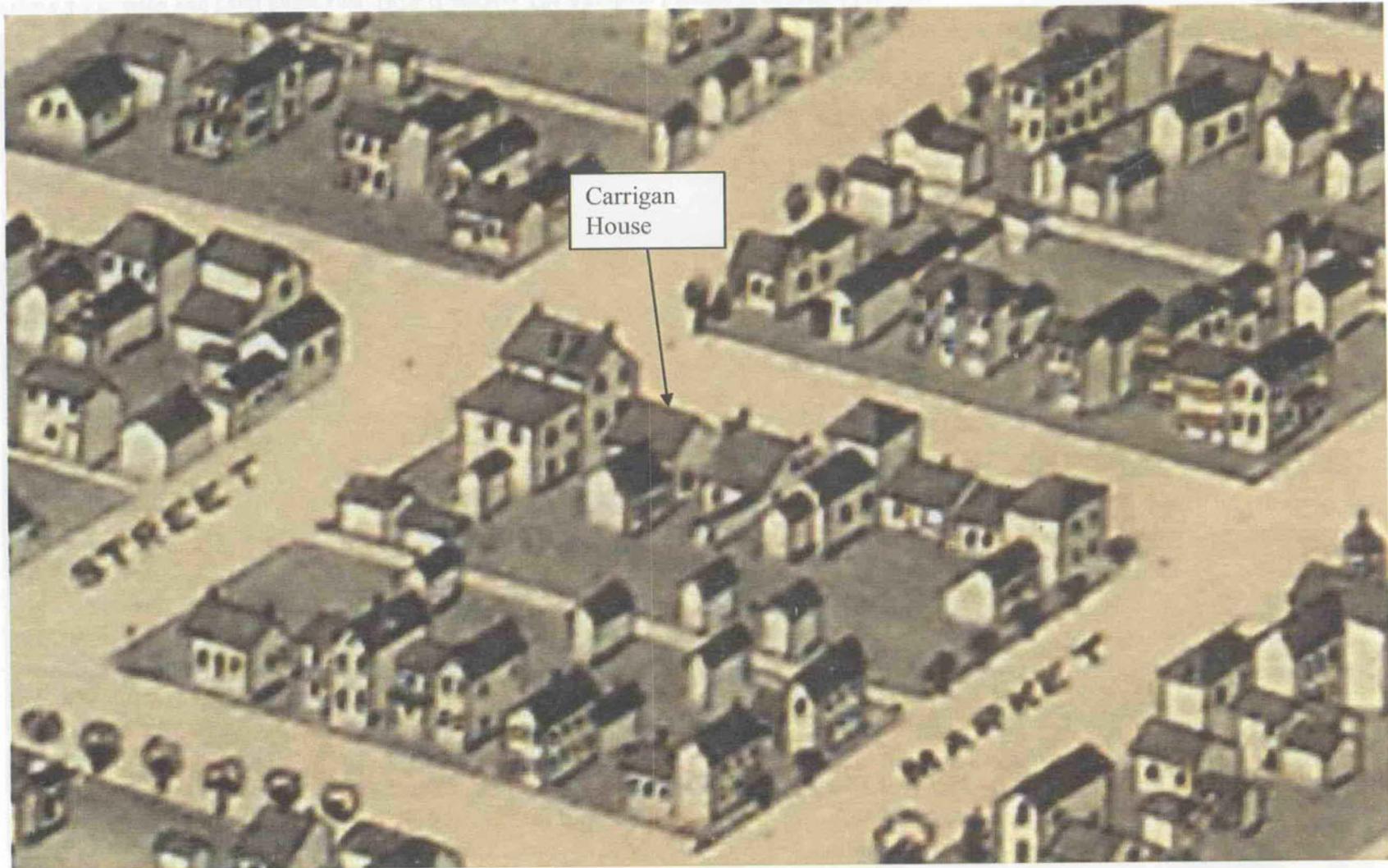


Figure 2-18: A portion of the 1873 birds eye view of Springfield by Augustus Koch. (Courtesy the Lincoln Public Library, Springfield, IL)

Historic Map Analysis

The dates and descriptions documenting the evolution of the site and the structures rely upon research conducted from the City of Springfield, Sangamon County, Illinois maps (1854,1858) and the Sanborn Map Company's Insurance Maps of Sangamon County, Illinois (1884-1950). On the 6th of April 1840, the Town of Springfield was incorporated as a city. As the city grew, a need arose for mapping and building information. The earliest map indicating lots with structures is dated 1854. The firm of Hart & Mapother C.E. & Architects from New York published the map, and M. McManus, the Springfield city surveyor, conducted the survey. The 1858 map was surveyed and produced by William Sides, the city engineer. These maps provide building size and material information as well as most outbuildings, lot division, and in some cases ownership. Privies were generally not indicated on these maps as it was considered impolite. The legend from the 1854 map indicates wood frame buildings with a single slash hatch and brick or stone-constructed buildings are crosshatched.

Sanborn Insurance Maps are large-scale maps, usually at 1-inch equals 50 feet, of towns and cities. They were produced by the Sanborn Map Company between the years of 1867 and 1970 to assist fire insurance companies in assessing the risk of insuring properties based on their fire protection characteristics. To this end, the maps contain footprints of buildings, structural composition, and other data. Structural composition was indicated by color. Most accessible maps are reproductions of the originals and in a microfilm, black and white format. Unless an original can be located this information is lost. The original 1896 Sanborn map for Springfield was located in the Sangamon Valley Collection at the Lincoln Public Library in Springfield. Although produced for the aforementioned purpose, these maps are also a significant resource for architectural historians to determine development and evolution of cities, towns, and specific properties.

City of Springfield, Sangamon County Maps

1854

The 1854 City of Springfield, Sangamon County, Illinois map depicts the Carrigan House on Lots 6&7 of Block 10 in the E. Iles Addition. Blocks 7 and 10 are fairly built up with a house on most lots where as Block 6 and 11 have more open spaces. The Carrigan lot has two outbuildings. One large sized structure is located along the alley and on the south property line, presumably the barn that is visible in photographs of the Lincoln home from 1860 and 1865. Two smaller wood frame structures are located closer to the house, one seemingly connected and the other along the north property line directly behind.

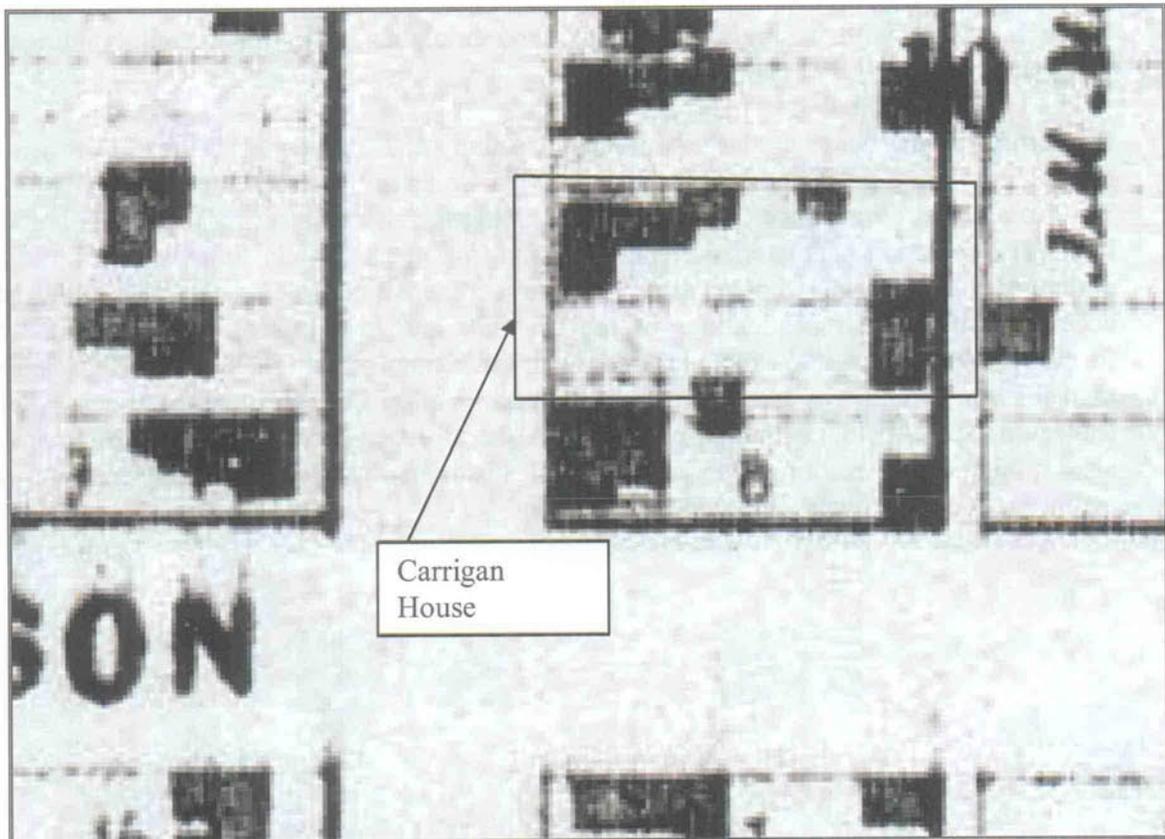


Figure 2-19 1854 City of Springfield Map

1858

The 1858 City of Springfield, Sangamon County, Illinois map includes clearer building material information. The Carrigan House has cross-hatching indicating wood frame construction. The outbuildings remain the same size and in the same location. Although not indicated, a privy was most likely present

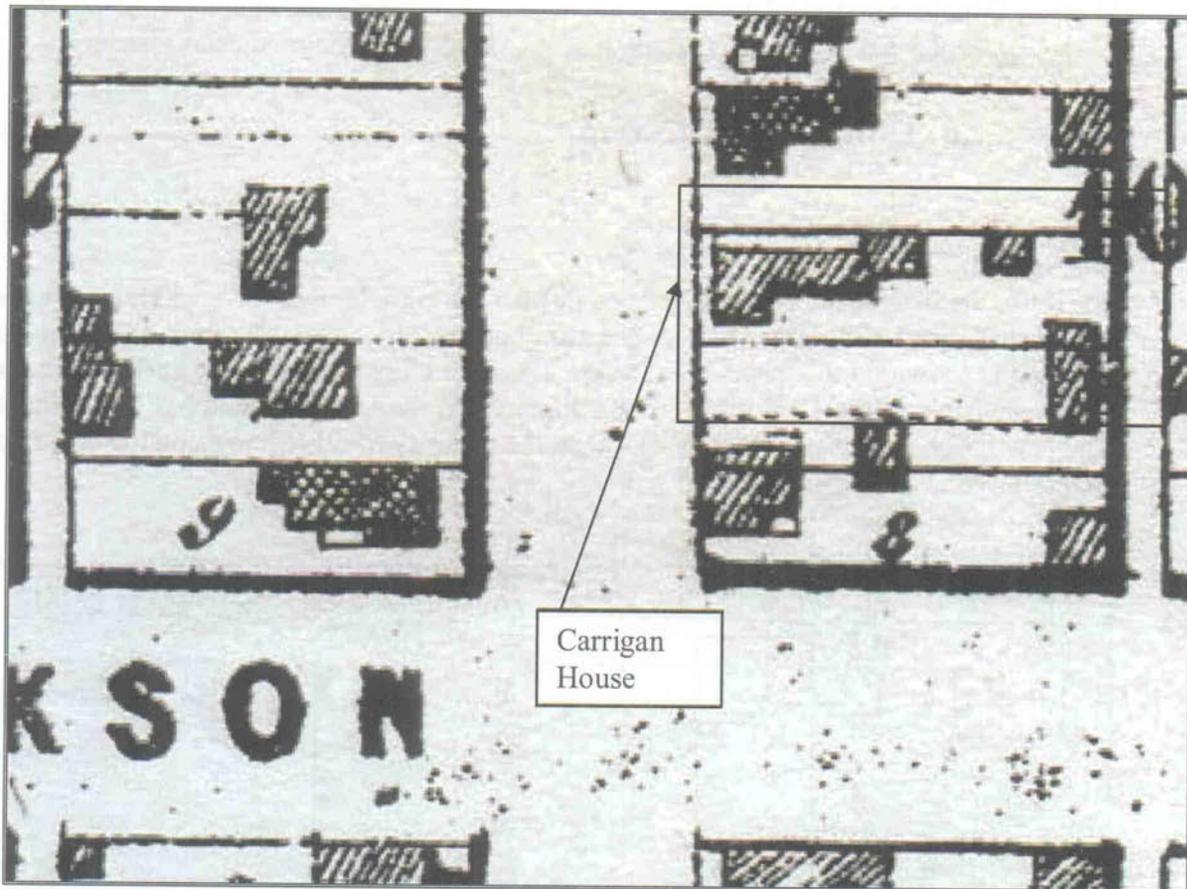


Figure 2-20: 1858 City of Springfield Map

Sanborn Maps

Legend			
o	Denotes non-combustible roof (slate or metal)		Denotes a 12"H firewall (parapet)
x	Denotes shingle roof (wood)		Shading indicates frame construction
#	Denotes number of stories		Shading indicates masonry construction
+	Denotes a 6"H firewall (parapet)		

Sanborn Map 1884

By 1884, the date of the earliest Sanborn map of Springfield, the Carrigan House had been demolished and a new larger two-story house built at 416 1/3 S. 8th Street. Only one out-building is shown on the map. It is located along the alley and the north lot line. The barn that was visible in the 1860 and 1865 photographs of the Lincoln home has been removed. The new house is set back much farther than the majority of other homes on the east side of Eighth Street.

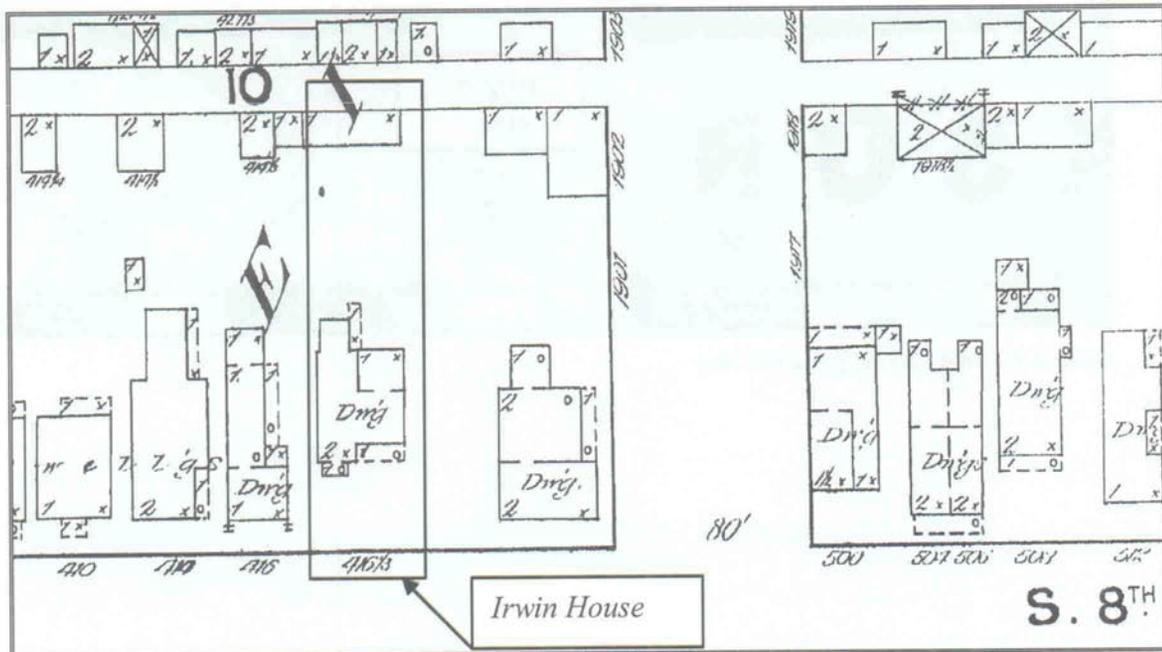


Figure 2-21: Sanborn Map, 1884.

Sanborn Map 1890

Two new outbuildings have been added to the lot as shown on the 1890 Sanborn map. Located along the alley, a large square shaped two-story structure is located directly next to the outbuilding shown on the 1884 map. A small, one-story outbuilding is placed at the south lot line. This map includes lot lines and indicated the Irwin House was built directly on the north boundary line.

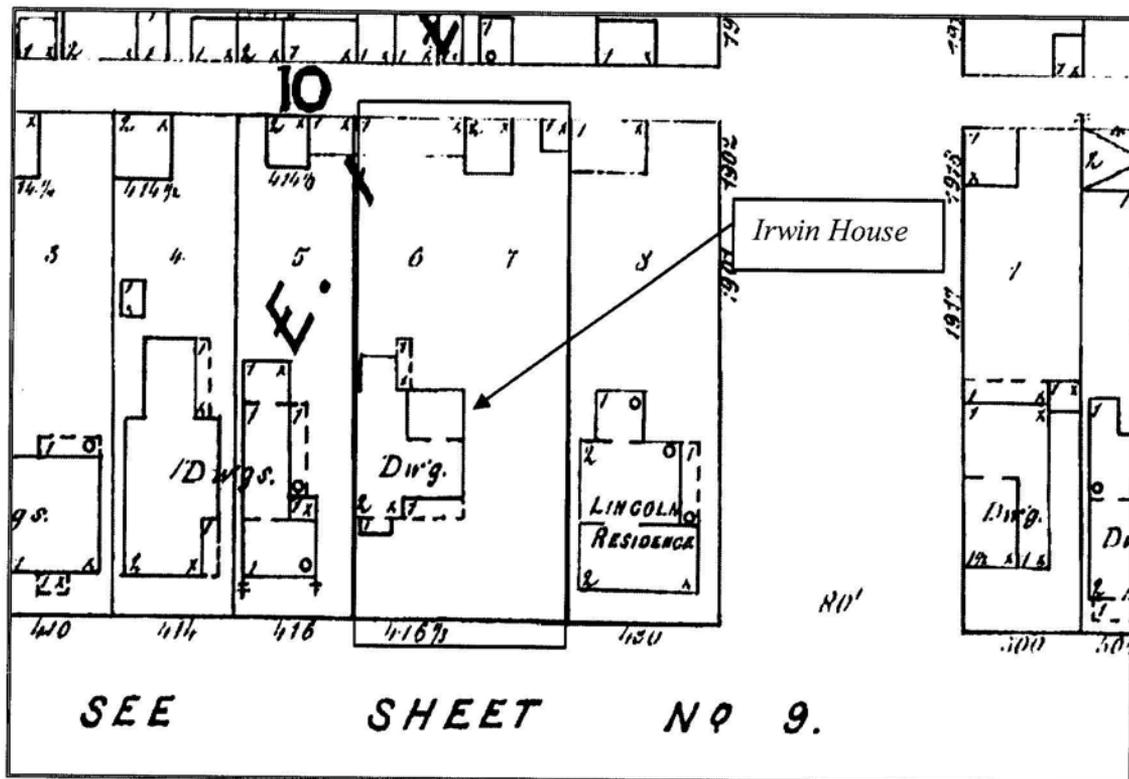


Figure 2-22: Sanborn Map, 1890.

Sanborn Map 1896

Several changes can be seen in the 1896 map. The house address has now changed from 416 1/3 to 422. The house is now located just south of the north property line. The large two-story square shaped outbuilding that first appeared on the 1890 map is now indicated as a 1-1/2 story stable. The shape is not quite square and the smaller wood frame outbuilding is drawn smaller than in 1890.

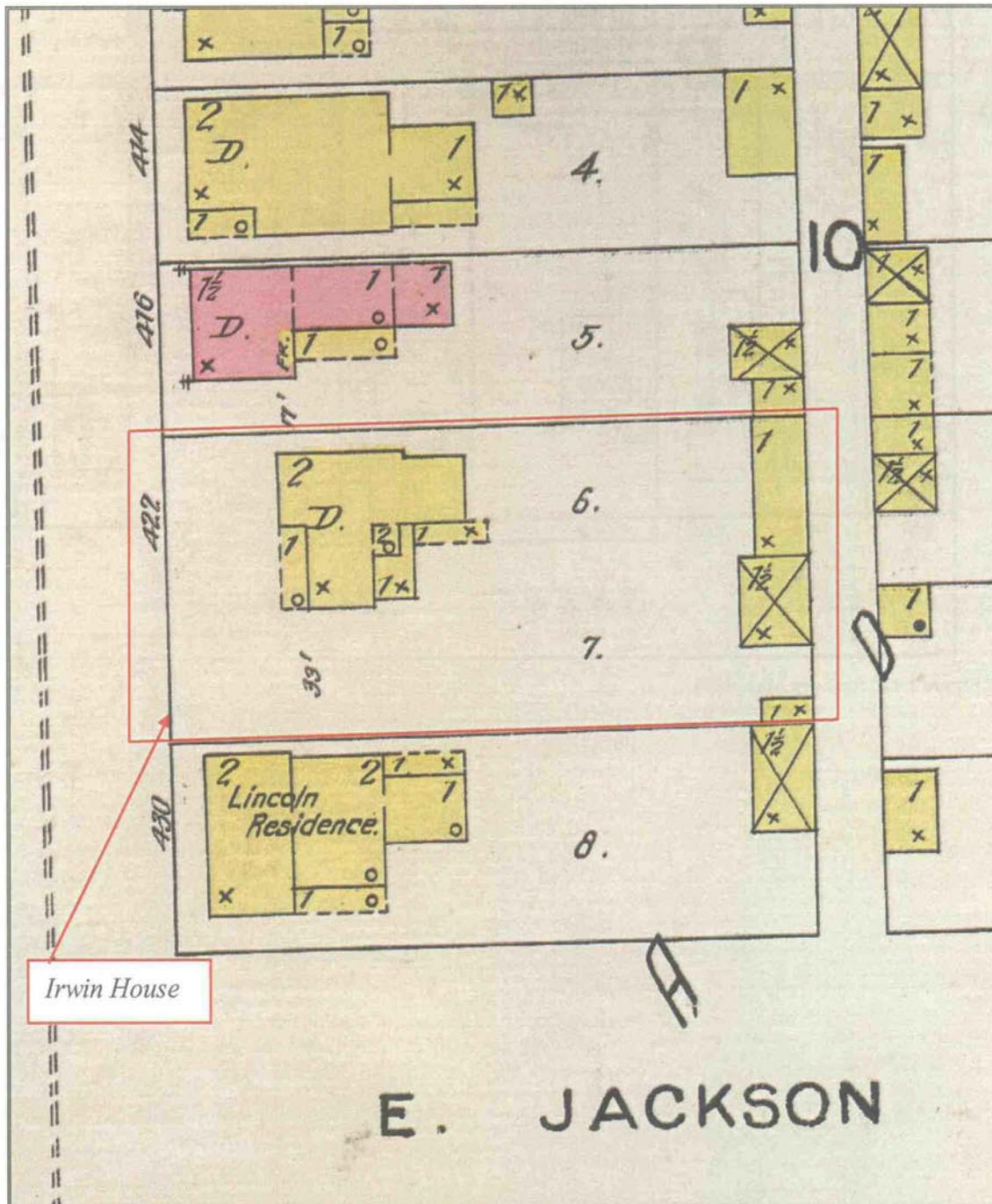


Figure 2-23: Sanborn Map, 1896. Courtesy The Lincoln Public Library, Springfield, IL.

Sanborn Map, 1917

Between 1896 and 1917, the house has seen some major changes. The front porch was enlarged to extend past the front of the house and some of the one-story portions of the house have new composition roofs. The house has been drawn in the same configuration but larger in comparison to the lot. All of the outbuildings from the 1896 map have been removed and three new outbuildings are indicated. Two large outbuildings are located in the center of the lots along the alley. The southern-most is a one-story, square shaped stable with a composition roof and the northern outbuilding is a one-story structure with a shingle roof.

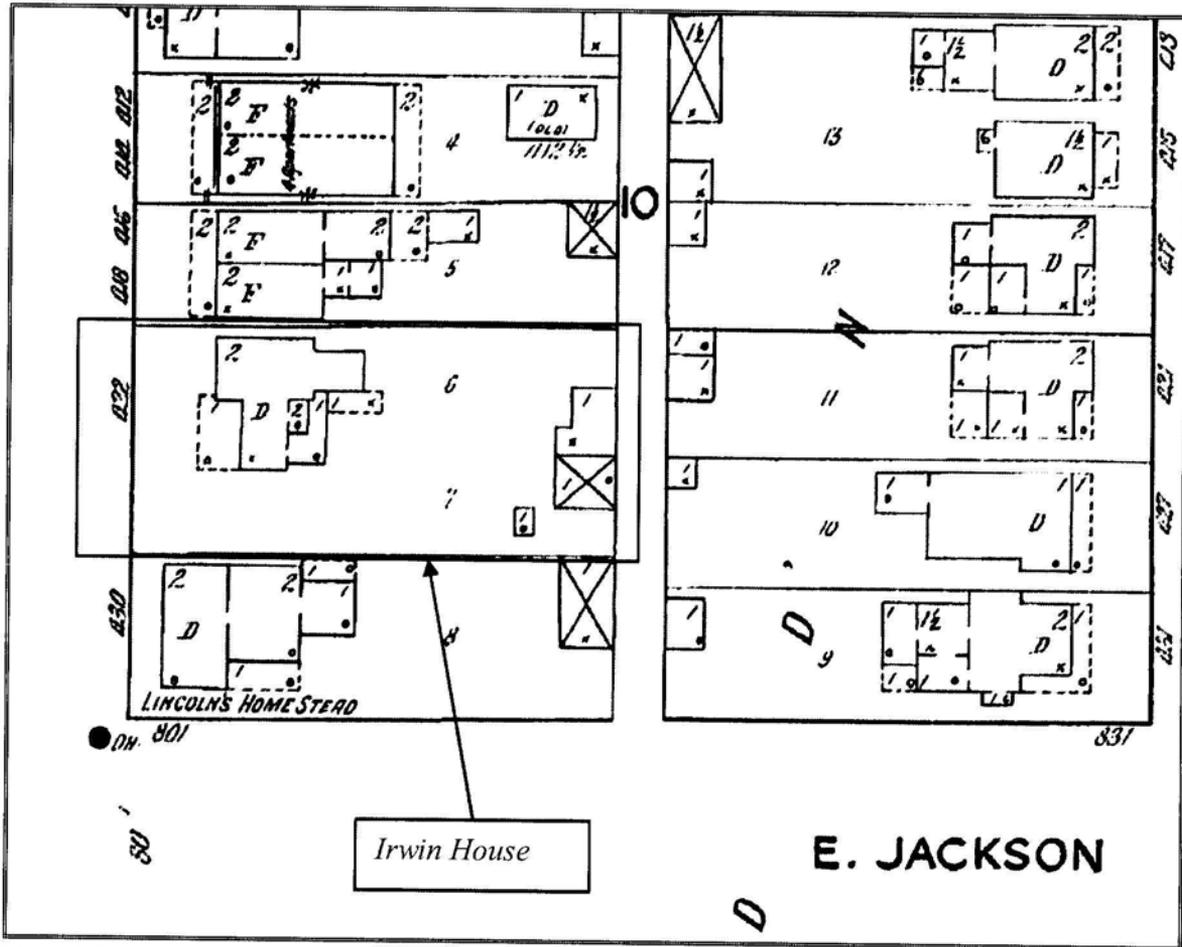


Figure 2-24: Sanborn Map, 1917.

Sanborn Map 1941

By 1941 all of the buildings and outbuildings on lots 6 and 7 have been demolished. In this Sanborn revision, the lot lines have been removed between lots 7 and 8. The State of Illinois had approved the demolition of the Irwin property in 1923.

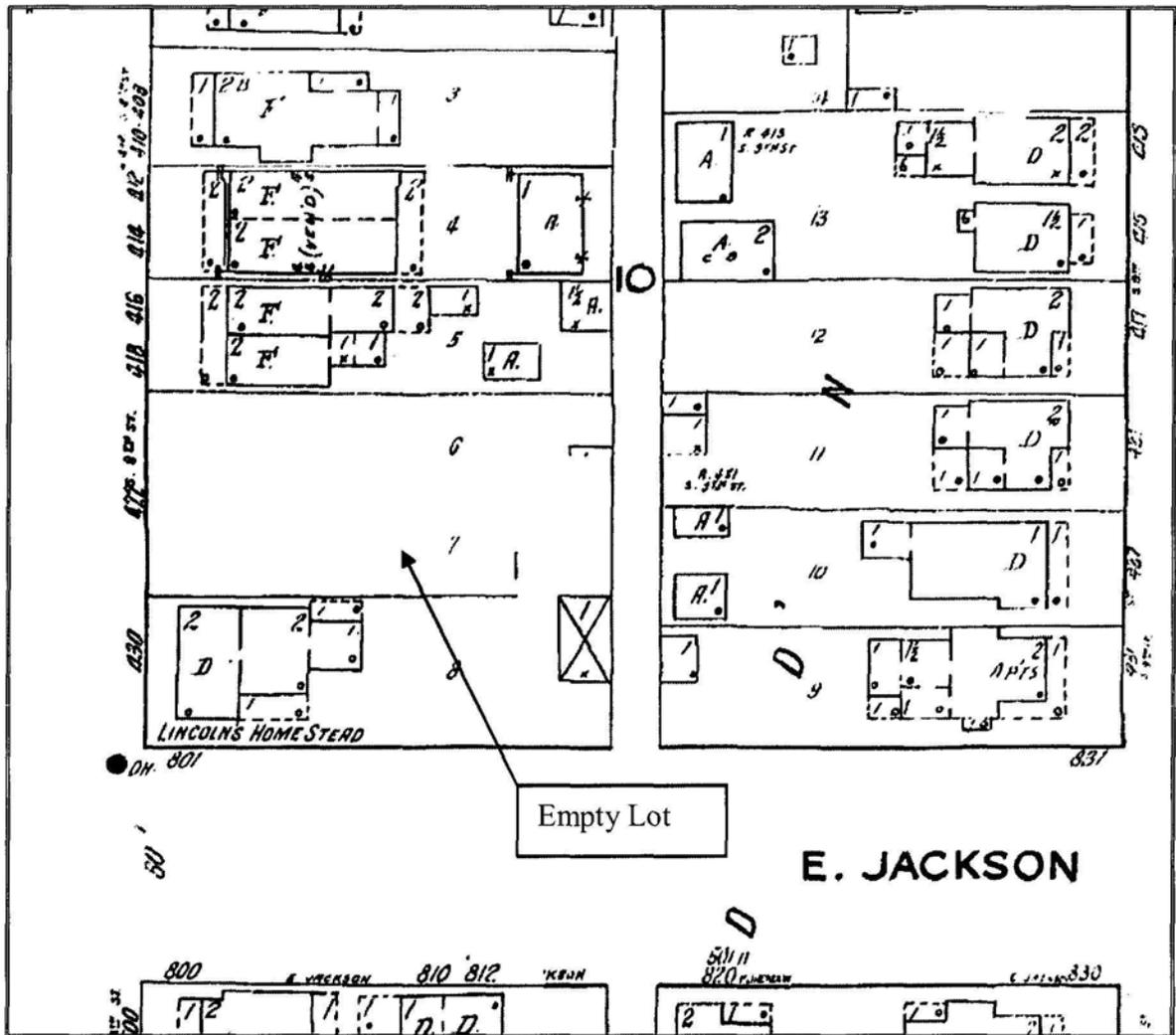


Figure 2-25: Sanborn Map, 1941

Archeological Investigations

Floyd Mansberger Archeological Investigation

This investigation conducted by Floyd Mansberger of Fever River Research was undertaken in relation to the relocation of the Corneau House to its original site. Beginning on September 29, 1997 before the move of the Corneau House, Mansberger uncovered the remains of an early to middle nineteenth century porch and steps. After the removal of the Corneau House in October of 1997, the area was further inspected. Two separate episodes of house construction were discovered. A dressed stone step, a series of single brick supports for steps and a short section of brick wall resting upon a shallow stone foundation were discovered relating to the Carrigan House. Foundation remains were also discovered in relation to a second later building episode. The brick wall or cheek wall may have been constructed prior to 1885 due to the discovery of an 1885 silver dollar in the demolition rubble, which would relate this construction to the Carrigan House. Some of the brick found was indicated as handmade with "old brown mortar". However, the existing historic photographs do not show this feature. Interesting to note, a dressed stone step was located below the existing boardwalk.

A two-room cellar was also discovered in relation to the earlier structure, the Carrigan House. Evidence of the foundation work for the rear extension or ell was also identified. The south room of the cellar had a brick floor in a running bond pattern, while the north room had a dirt floor. Mansberger indicated that this room actually extended into the adjoining yard to the north (Bugg House site). A four-foot wide doorway connected the two rooms of the cellar. The cellar walls to the rear or east appear in-line, however a discrepancy was found in the west or front foundation walls. The north room was apparently inset approximately 9 inches. Mansberger believed he had identified two corners of the Carrigan House, the southwest front corner and the southeast rear corner. (See **Appendix B**)

Geophysical Survey

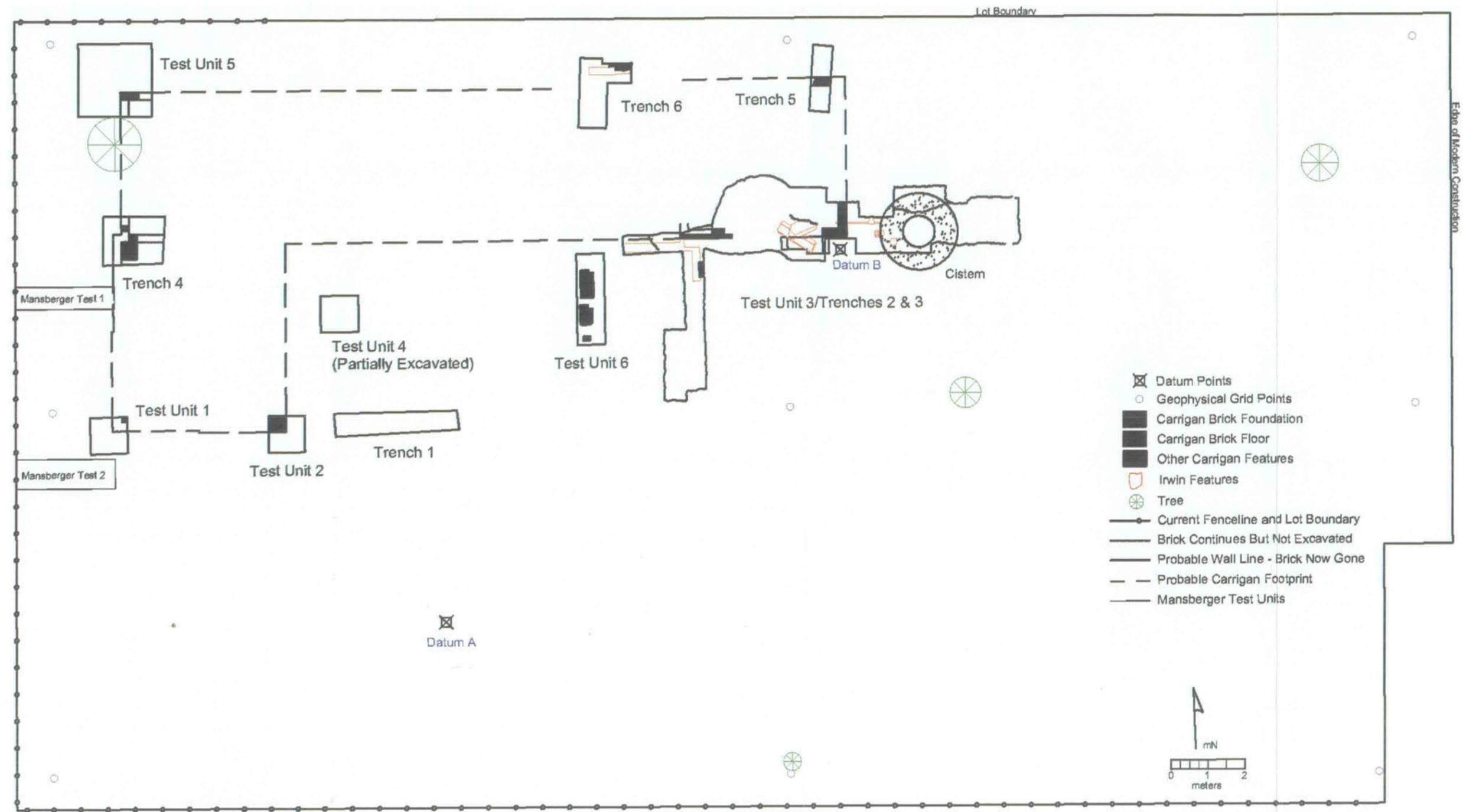
A Geophysical investigation of the Carrigan lot at the Lincoln Home NHS was conducted by the Steven L. De Vore and Jan Dial-Jones of the Midwest Archeological Center of the National Park Service between April 25 and 29, 2005 to gather information in advance of the preliminary evaluative archeological testing of the lot for the proposed reconstruction project. A magnetic gradient survey, conductivity survey, resistivity survey, and ground penetrating radar survey were conducted. The survey did not cover a portion of the lot along the northern edge due to the dense plant material along the lot line between the Carrigan and Bugg lots. Results for the Carrigan lot identified buried utility lines and suggested "the location of buried structural features associated with the Carrigan House and a possible historic sheet midden." Geophysical anomalies were mapped for future archeological investigation. In addition, the results indicated substantial modification to the original historic deposit from the later building episodes and recent landscaping and utility work. (See **Appendix G**)

Archeological Test Excavations

The National Park Service, Midwest Archeological Center conducted a limited archeological testing during the spring and summer of 2005 with the goal to identify the footprint of the

Carrigan House based upon intact remnants of the original foundations. A team from the Midwest Archeological Center led by Jan Dial-Jones and assisted by Al O'Bright and Lincoln Home NHS Maintenance Mechanic Supervisor, Vee Pollock, conducted this investigation. Five archeological test units and six backhoe trenches were excavated (See **Figure 2-27**). Foundations were exposed in several areas including the northwest (Test Unit 5) and southeast (Test Unit 2) corners of the front portion of the house. A cistern was located in Test Unit 3/Trenches 2&3. Carrigan foundation remains were also uncovered in Trench 4, where the foundation apparently jogs approximately 8 1/2 inches. (Note: This is a half-inch less than 9 inches reported by Mansberger)

Other findings included a short section of foundation along the front side of the house at an apparent jog in the wall line, two sections of the north foundation toward the back of the house, the southeast corner of the ell, and a short section along the south wall of the ell. Two other brick features, interpreted as supports for the porch that originally extended from the south wall of the ell, were located. These features were not found intact but rather in pieces due to disturbance by construction of the Irwin House and the later trenching of utility lines across the Carrigan lot. An attempt was made to identify the porch that extended off the backside of the front portion of the house and the southern edge of the ell's porch. These features were not able to be located due to time constraints. (See **Appendix H**)



Carrigan House Lot, Lincoln Home National Historic Site

August 11, 2005

Figure 2-27: Archeology plan map compiled by Jan Dial-Jones, August 11, 2005.

COMPARATIVE ANALYSIS

The Lincoln neighborhood in Springfield, Illinois contained a diverse assembly of people and architecture. Many of the homes built during the early years of Springfield's development do not reference one particular style but are what architectural historians call vernacular architecture. The Carrigan House falls into this category. Vernacular architecture is often categorized by floor plan due to lack of exterior architectural detail. The Carrigan House is an example of a Hall and Parlor. This plan type and its variations was the dominant housing form found during the pre-railroad era in Illinois and across the Midwest. Variations can be seen in the placement of chimneys, porch sizes and shapes, as well as the patterns of rear extensions or ells.

Based on the arrangement of the exterior architecture found in the photographs and the archeological evidence, the Carrigan House is an example of the Hall and Parlor typology. These floor plan types are part of the Chesapeake Bay Cultural Hearth, which exerted the most influence upon early architecture in the Midwest (**Figure 2-19**). Cultural hearths are defined as "an original source area with distinctive settlement forms as well as other cultural attributes, from which certain clearly identifiable elements were carried to other parts of the continent."¹ The origins of the Chesapeake Bay cultural hearth lie in the English tradition brought to this country by early settlers. As new territory opened in the west, the settlers brought their building traditions with them. Many of the settlers in the Springfield area originated from the State of Kentucky, which in turn was settled from Maryland and Virginia.

The book *Common Houses in America's Small Towns, the Atlantic Seaboard to the Mississippi Valley* conducted surveys in several towns across the Midwest including Petersburg, Illinois. Petersburg is approximately 20 miles northwest of Springfield. Their findings indicated the second highest percentage of single pile cottages located in Petersburg; second only to Rockville, Indiana. They defined a single pile cottage as a one or one-and-a-half story dwelling of one of three plans: Hall and Parlor, Saddlebag or the I. These dwellings typically have appendages to create an L or T in plan. The Hall and Parlor plan features two rooms side by side without a separating central hallway, a gable roof, end chimney(s), and the half story when present, finished as bedrooms. This building type was the most common form of housing stock during the early 1800's. Today, surviving examples can still be seen in towns such as Petersburg and Rockville where limited new home construction occurred between 1900-1950.²

The Hall and Parlor house was typically a one-story house containing two main rooms on the first floor. The chimneys were typically placed on the side gabled ends of the house and were most often located on the exterior to allow heat to more easily escape due to the climate of the Chesapeake Bay area. This feature was variable based on geographic location. In Illinois the chimneys tend to be integrated into the end wall to retain heat. Constructed in either brick or frame, the façade is more often symmetrical with a door

¹ Noble, Allen G. *Wood Brick, And Stone*. (Amherst, MA: The University of Massachusetts Press, 1984), 6.

² Jakle, John; Robert Bastian and Douglas K. Meyer. *Common Houses in America's Small Towns, The Atlantic Seaboard to the Mississippi Valley*. (Athens, GA: University of Georgia Press, 1989), 111-113.

centered on the façade. Frame examples are more common due to the ready abundance of the material in Springfield and the higher cost of brick. Considering the demolition of the building and limited floor plan evidence, this typology was determined to be the most probable basis for construction of the Carrigan House. This determination is centered upon the exterior architectural configuration analyzed from historic photographs and maps and the archeological investigation evidence.

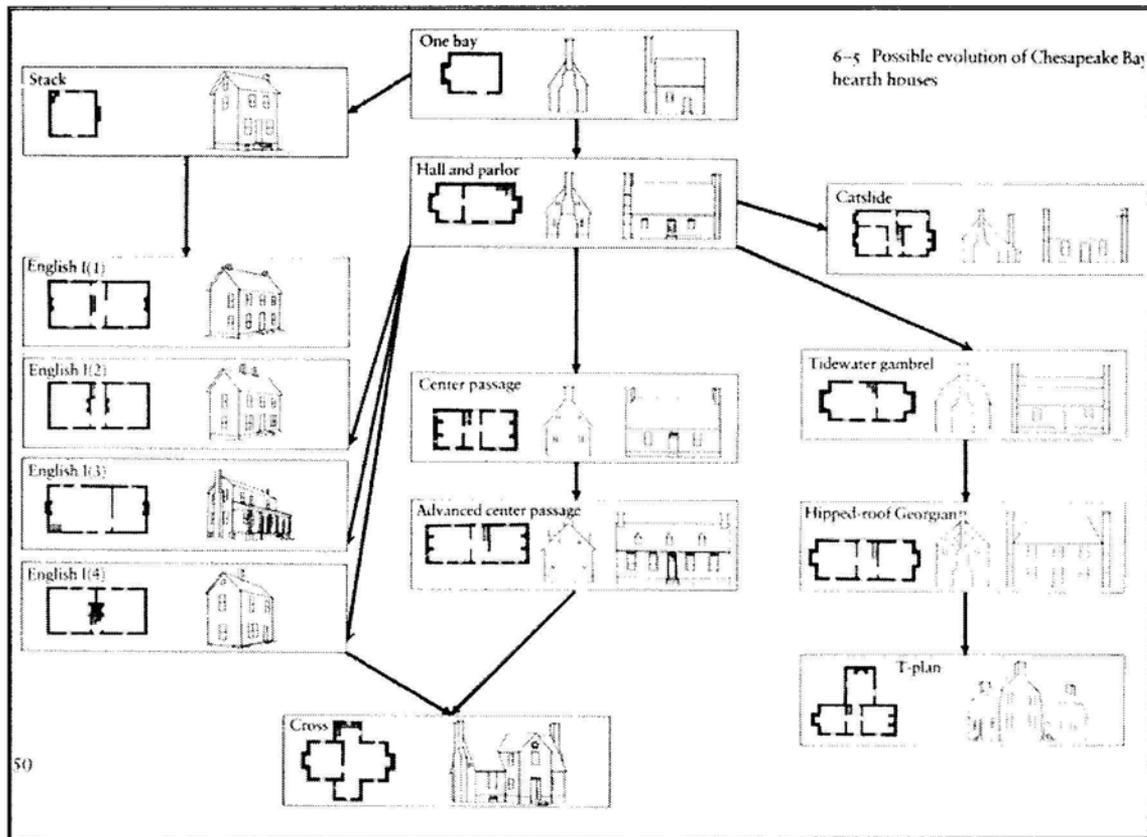


Figure 2-28: The evolution of the Chesapeake Bay hearth houses as depicted by Allen Noble in his book *Wood, Brick, and Stone*.³

Although pattern books and builders manuals were available early in the 19th century they focused mainly on high-style architecture. Vernacular architecture, such as delineated in the Carrigan House, sometimes incorporated hints of the popular high styles but more often had simple features without reference to a particular style. Local tradesmen such as carpenters and masons not master architects were involved with the construction of vernacular architecture. The Carrigan House, as typical of the majority of Springfield's housing stock from this time period, has little architectural character defining details. Explicit information pertaining to the interior of the house is non-existent, however details can be implied from the available archeology evidence, a comparison with similar

³ Ibid, 50.

area examples, and the written description detailed by a former occupant, Benjamin Briggs. (See quote on p 8-9)

Available new conveniences of the time included indoor plumbing and stoves for cooking purposes. However, it is interesting to note that the Lincoln's did not have indoor plumbing even in 1860 and a cooking stove was likely not introduced to their home until c.1850. The sewer system and a city water supply were not installed in the neighborhood until after 1865. It is therefore very likely that the interior of the Carrigan House lacked many of these comforts as well. Drainage before this time most likely was directed to the street or to cisterns, and privies would have been present on each lot.

The Carrigan House had two rooms in the main portion of the house with a fireplace hearth in each room. One rooms probably functioned as a bedroom and the other as a formal parlor or sitting room. A unique feature of this house is the enclosed porch with louvered shutters along the rear of the main portion of the house and the ell. The chimney visible on the north side of the ell in the historic photographs suggests it housed the kitchen. In the letter from Benjamin Briggs, a former occupant, to his sister, he discusses a basement which was substantiated by evidence found during the archeological investigation.

The Lincoln Home, as originally constructed by Charles Dresser, (**Figure 2-29**) was also similarly designed. The Lincoln cottage was a Central Passage plan built in 1839. The cottage had minor Greek Revival characteristics delineated by such details as the returned eaves and the recessed entry and small porch. The T plan shows an ell projecting from the center of the main portion of the house containing a kitchen. Chimneys were located on each end of the end-gabled dwelling.

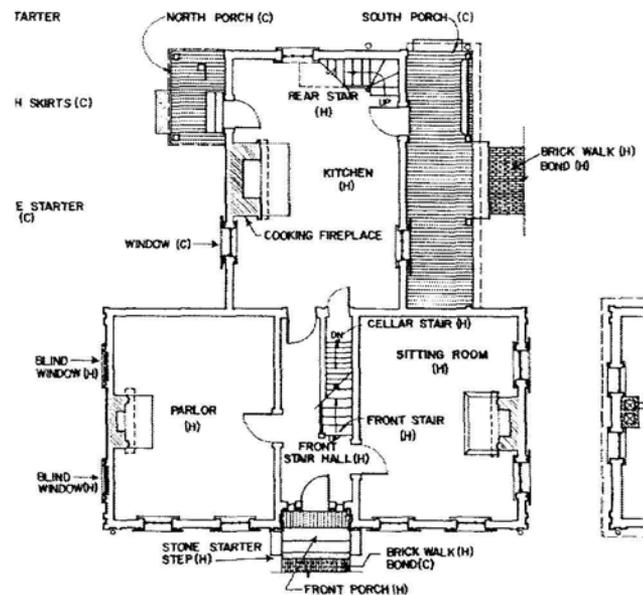


Figure 2-29: The conjectural first floor plan for the Rev. Charles Dresser/Abraham Lincoln cottage. (Historic American Buildings Survey, National Park Service, Brad McCormick, 1986.)

A good comparison for the Carrigan House exists with the Corneau House (**Figure 2-31 and 2-32**). This one-story house was built c.1850 with three main rooms and a central hall.⁴ The Central Passage house is a later, modified form of the Hall and Parlor. The wood frame constructed house had two fireplaces and six-over six windows with working shutters. The front door also had a divided transom window like the Carrigan House. The plan of the Corneau House (**Figure 2-30**) was originally L shape in plan consisting of the kitchen to the rear, central hall, and the north and south rooms, typical of the central passage plan. Several additions had been built to the Corneau House as the need arose for more space as seen in the floor plan. A chimney is located centered on each of the gabled ends of the main portion of the house. In addition, the kitchen has its own hearth. Both the Lincoln and Corneau plans were developed using archeological and historical evidence, however some conjecture based upon gathered data was employed.

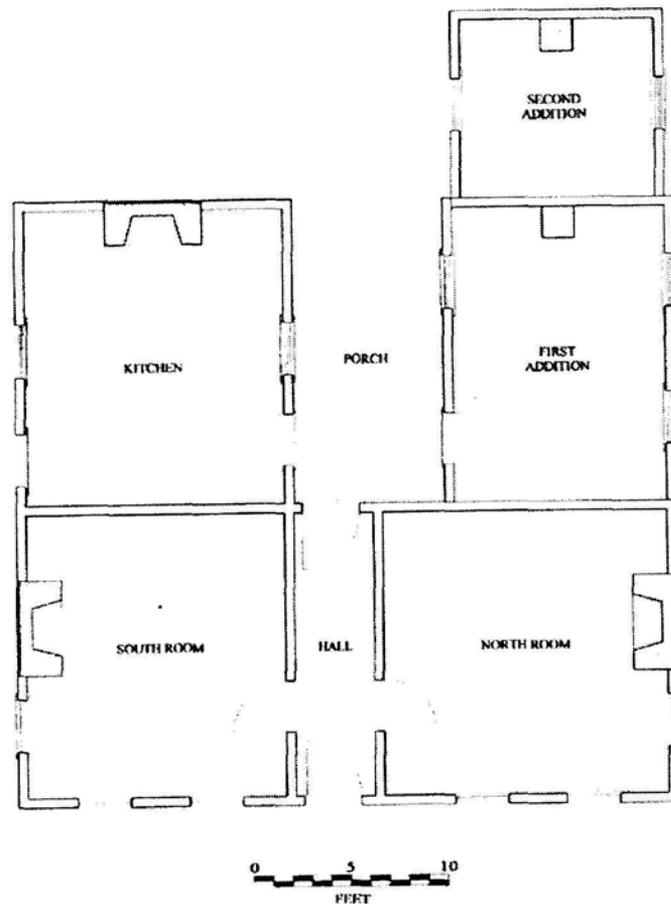


Figure 2-30: Conjectural sketch floor plan of the Corneau House c.1860 by Floyd Mansberger.⁵

⁴Ferry & Henderson Architects, Inc. *Historic Structure Report, Corneau House: Relocation, Reconstruction, Restoration*. September 1980, 12.

⁵Mansberger, Floyd. "Archaeological Investigations at the Corneau Site, Lincoln Home National Historic Site, Springfield, Illinois". (Lincoln Home National Historic Site, National Park Service, February 2005), 30.



Figure 2-31: The Corneau House on the Carrigan lot before its move in 1997.

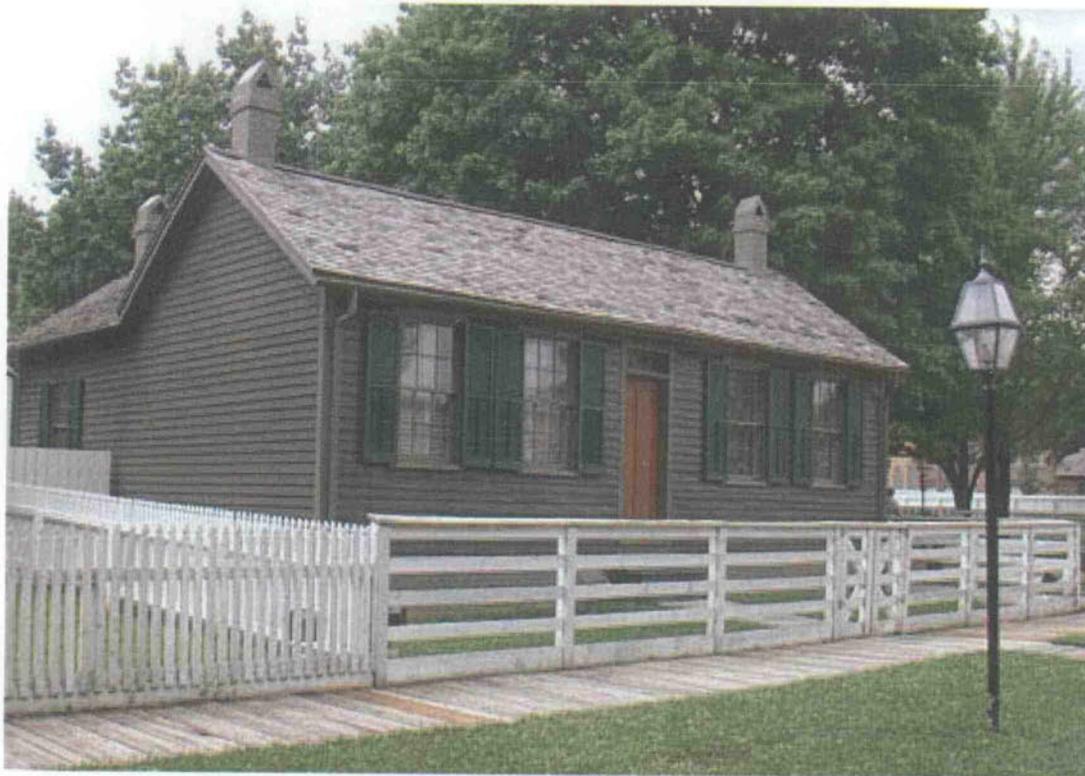


Figure 2-32: The Corneau House restored and located on its original site and orientation.

In 1992, a project was initiated by the Springfield Historic Preservation Association and conducted by Charles Kirchner & Associates to document the age of the identified buildings extant in Springfield during the Lincoln Era (1837-1861). Approximately 300 buildings were identified from an earlier study conducted in 1980 by the Springfield Historic Preservation Association. Several homes in the Lincoln Home NHS are included on the list: Beedle, Lyon, Dean, Arnold, and Sprigg. The update in 1993 by Charles Kirchner & Associates includes the house at 413 West Reynolds (**Figure 2-33**), which appears to share many characteristics with the Carrigan House. Both houses are four bays wide with a side gabled roof and have minimal architectural detail. Additionally, the rectangular massing and organization of window and door openings along the front façade are architectural features shared by both houses. This house lacks end gabled chimneys, however it appears that a chimney may be located in an ell to the rear of the house as seen just above the roof line to the left of the door. As this brick constructed house has survived into the 20th century, the roof material as well as the window and doors have most likely been replaced at one time during its history. A basement or crawlspace is evidenced by the vent opening in the foundation seen located between the two windows.



Figure 2-33: This house at 413 West Reynolds was identified in the Lincoln-Springfield Survey as pre-1860 construction.

Fever River Research conducted another relevant survey in the Springfield neighborhood of Enos Park. Five Hall and Parlor Cottages were identified, a number of which are among the oldest documented in the neighborhood. The oldest is located at 812 East Miller Street and was built between 1844 and 1854. The Hall and Parlor house in Enos Park are all of frame construction, have a rear addition added during construction or at an early date, and largely lack exterior detailing. These are all qualities shared with the Carrigan House. Overall, the Enos Park study identified the greatest number of houses as being of frame construction, as there were several lumberyards in Springfield during this time.

DESIGN REQUIREMENTS

Architectural Analysis

The Carrigan House was built between the years 1839 and 1842. The wood clapboard, four-bay wide, one story residence had a one-and-one-half story ell. The ell had two gabled dormers with diagonal siding on the south elevation. A louvered porch ran the length of the ell and along the rear of the main structure. By 1854, as evidenced by the early Springfield maps, the ell and porches had been added and two outbuildings constructed. A two-room basement was located under the main portion of the house. A brick cheek wall associated with the front stairs was located during the archeological investigations dating to the Carrigan House building episode. The roof was covered with wood shingles. A brick chimney was located on each end of the main structure and one along the north façade toward the rear of the ell. The base of the south chimney is exposed. The front door had a transom window above with one nine-over-six window to the north and two to the south. The windows have operable wood slat shutters. The historic photographs and letter from Benjamin Briggs provide evidence that the house and outbuildings were in disrepair in the late 1860's. In 1879, the property was sold to the Kidd family and the house and outbuildings demolished to make way for a larger and more modern home.

The Kidd family built a cross-gabled Free Classic residence on the property along with a large outbuilding at the rear of the lot. The Sanborn map from 1884 shows a small one-story porch projecting from the front of the Irwin house. This porch was removed by 1896, as it is not depicted on the Sanborn map for that year. The photograph c.1900 shows a bay window projection in this location. The 1884 Sanborn indicates one large, one-story outbuilding associated with the Irwin house. By 1890, three outbuildings are located along the alley at the rear of the lot. The large, one-story outbuilding remains in the northeast corner while a small one-story wood frame structure is located in the southeast corner. The third outbuilding, a square shaped two-story wood frame building, was built next to the larger original structure. The 1917 Sanborn map indicates that the second front porch, formerly in line with the front of the house, was extended past the front façade.

The Irwin house existed for forty-four years before it was demolished for supposed protection of the Lincoln Home. Construction projects after 1923 include a vertical wood sided storage/office outbuilding built c.1950 at the rear of the lot along the alley. The lot remained empty of any major structure until 1962 when the Corneau House was moved here to prevent its demolition. The Corneau House was moved back to its original setting and orientation in 1997 leaving the Carrigan lot without a house. Currently, the HVAC system for the Lincoln Home is located at the rear of the Carrigan lot along the alley next to the 1950's storage/office building.

The design team used a variety of different information sources in determining the building chronology and configuration of the Carrigan House and its placement on site as indicated below.

Survey - The design team employed Springfield, Illinois based Hanson Engineering to complete an extensive site survey. This survey provided benchmark, topographic, and site boundaries for the Carrigan site, but also provided site boundaries for both sides of Eighth Street between Jackson Street and Market Street, now Capitol Avenue.

Archaeology - The National Park Service's Midwest Archeological Center in Lincoln, Nebraska conducted preliminary archeological testing of the Carrigan House site in the spring of 2005. The survey built on Floyd Mansburger's precursory study of the Carrigan site of 1997 in relation to the moving of the Corneau House.

Historic Maps - Historic City of Springfield Maps (1854 and 1858) and the Sanborn Perris Map Company (later called the Sanborn Map Company) were used to understand the general configuration of the site, although these maps have varying degrees of accuracy.

Birds-Eye Views – There are three historic Birds-eye-views: A. Ruger, 1867; Beck and Pauli, c.1870; and Koch, 1873.

Historic Photographs – Historic photographs were gathered from the Lincoln Home NHS archives, the Abraham Lincoln Presidential Library, and the Sangamon Valley Collection of the Lincoln Public Library, of Springfield, Illinois. Several photographs were sent to the Ford Conservation Center in Omaha for digital magnification to allow a closer look at details.

In order to determine the site boundaries an extensive site survey was undertaken by Hanson Engineering. With this information in hand, the design team used AutoDesk's AutoCAD to overlay the existing historic maps on the survey. The National Park Service's Midwest Archeological Center in Lincoln, Nebraska provided the design team with AutoCAD base drawing of archeological surveys that were completed in 2005. These drawings were also overlaid on the historic maps and survey providing greater insight into the evolution of the properties (**Sheets OS1-8**). It was found that the information gathered from the early City of Springfield maps, Sanborn maps and the archaeology did not agree. Even within the Sanborn maps variations of footprint and location occurred. The conclusion was reached that in general the 1896 Sanborn map was the most accurate of the historic maps in regard to location. However, the Carrigan House had been replaced by the Irwin House in 1879. These maps have value in that they assist in understanding the archeology findings. A final conclusion was reached in relation to the footprint and location from study of the map overlays, photographs and the archaeology.

Historic Site Analysis

In a comparison study of the 1884 Sanborn Insurance Map and the current site survey, drawn on June 24, 2005, the overall dimensions of the Carrigan property have remained relatively close to the original. Historically, the property fronted approximately 70' of Eighth Street on the west side of the property. The 1884 map indicates that the north side of the Irwin house stood on the northern property line. Sheet OS3 illustrates the relationship of the 1884 Sanborn Insurance map to the current survey and the relative dimensions of the historic footprint of the house to the current property lines.

A study of the cited historic photographs of the Lincoln Home Site and adjacent Carrigan House site offer the most information in terms of plant material and site elements that existed during the period of interpretation. Two trees and a row of shrubs just north of the Lincoln-Carrigan fence are apparent in many of the photographs, most notably in the 1860 photograph by J. A. Whipple (**Figure 2-5**). The exact species of this vegetation is not known. A four-board rail fence with gate, which lined the front of the property along Eighth Street, is also in the 1860 photograph by J. A. Whipple. This fence was later removed and improved as evident in a series of photographs taken during the 1865 Lincoln funeral.

The Carrigan site quickly gained in elevation beyond the front fence line, placing the house several feet off of the sidewalk elevation and similar in elevation to the neighboring Lincoln Home. A path ran along the south side of the house from a gate in the front fence line just north of the two confirmed trees. This path is evident in the 1865 photograph of the Lincoln Home dressed for mourning (**Figure 2-8**). The front gate is present in a photo taken in August 1860 titled "The people of Springfield Celebrate His [Lincoln's] Nomination" (**Figure 2-6**) outside the Lincoln Home. This photo also features a large frame barn behind the Carrigan House and the four-board fence.

According to Proceedings of the Springfield City Council on June 13, 1853, a sidewalk ordinance was in place requiring property owners to install and maintain sidewalks adjacent to their property. The initial minimum requirement was that the material be brick paved or wood plank 4 feet in width. The ordinance was later revised to reflect a 5-foot minimum width. Plank crosswalks were constructed at all intersections from 1856-1859 by the City of Springfield. By 1853 oil streetlamps were used in Springfield. However, according to proceedings of the Springfield City Council, no streetlamps were located near the intersection of Eighth and Jackson Streets during the Lincoln Era.

Existing Site Conditions & Accessibility Assessment

The existing Carrigan site occupies 70' of frontage along Eighth Street and 70' to the rear of the property along a vacant alley. Sharing the northern boundary of the Lincoln home property, the Carrigan lot is 152.79' along the south side and 152.70' in length along the north side. The rear of the site is higher in elevation, with the high point being 598.74 in the northeast corner. The site slopes at about a 3% grade from east to west towards the center of the site where there is a transition to a 14% grade to a slight knoll then to 5% towards the front of the property. The first 12' of the property from the fenceline east

contains a 20% slope up to meet the predominant elevation of the site (+/-597). This grade change situates the Carrigan property 2-3 feet above sidewalk grade.

Existing vegetation within the property consists of five trees dispersed throughout the site and a 90' long shrub row along the north property line. Tree species include two *Tilia americana* (American Linden), one *Prunus spp* (Cherry), and two *Diospyros spp.* (Persimmon). Two street trees, one *Acer saccharinum* (Silver Maple) and one *Quercus palustris* (Pin Oak) are located within the planted parkway between the property line and Eighth Street. The locations for existing vegetation and their respective sizes are indicated in **L1-Existing Conditions**.

A one story wood frame, non-historic outbuilding is located at the rear of the Carrigan property and is the only structure on site at present. The building currently houses an office for Eastern National, the cooperating association that operates Lincoln Home NHS Visitor Center Museum Shop. The remainder of the site consists of an open lawn. The existing fence is a four-board wooden fence located on the front/west side and is similar to that which existed during the period of interpretation. A vertical board fence continues for approximately 25' on the north side of the property. The fence shared with the Lincoln Home site is a vertical board fence approximately 5' in height.

The Carrigan House will be located an approximate distance of 30 feet from the Lincoln Home, which provides an adequate buffer zone for construction. Contractors will be directed to keep the building trench in close proximity to the new construction, which should prevent any impact to the Lincoln Home.

The Carrigan site poses a difficult problem for accessibility. The wood boardwalk along Eighth Street is approximately 3'-0" below the site grade level, requiring stairs and ramps for accessibility purposes. The grade at rear of the site along the alley provides a more conducive access point, although this is also this is a much more circuitous route.

Civil

The Carrigan House was located on Lots 6 and 7 along Eighth Street, directly adjacent to the Lincoln Home, within Lincoln Home National Historic Site in the City of Springfield, Illinois. The infrastructure serving the site is a combination of public utility services and Park provided systems.

The City provided utilities include sewer, water, and electricity. Natural gas service is available through Central Illinois Light Company. All sewage lines will have to be combined with existing taps as, reportedly, the City will not permit any additional connections to the main. This will most likely result in reworking an existing 3" sanitary sewer traveling from the building at the rear of Lot 6 across the remaining foundations of the Carrigan House to Eighth Street. Storm water will extend under the boardwalks and discharge into the street where the storm water travels along the surface of the street to existing catch basins.

An 8" domestic water main is located beneath Eight Street. Either a new tap and meter will be required, or, it may be possible to connect to the 3" water main from the Lincoln Home to the Carrigan House to avoid additional meter and tap charges. Similarly, a 4" fire service can be connected to the existing service for the Lincoln Home.

Natural gas is located in the rear alley and is connected to an existing gas meter installed to serve the Carrigan House. The meter is located at a building at the rear of the Lincoln Home, near the Lincoln Home HVAC system's chiller. If required, the gas line will be extended from the meter to the Carrigan House. Electric power for the Carrigan House has already been established with a meter socket located on the exterior of the building existing at the rear of Lot 6. Single phase, 240/120-volt power is available.

Lincoln Home NHS maintains the communications (voice/data) system with the equipment located in the Corneau House. Beneath each of the wooden boardwalks, the Park distributes cable TV, site lighting, voice and data. A 25 pair direct burial cable and a 12 strand multimode fiber will be required to be pulled from the Carrigan House to the Corneau House.

EXISTING CONDITIONS - CARRIGAN HOUSE (HS-25)

LINCOLN HOME NATIONAL HISTORIC SITE

DRAWING SYMBOLS- CONSTRUCTION/DEMOLITION

- COLUMN GRID
- NEW CONSTRUCTION-REFERENCE TO PARTITION TYPE
- ELEVATION DATUM POINT
- ROOM NAME AND NUMBER
- DEMOLITION PLAN NOTE
- WINDOW NUMBER
- CONSTRUCTION PLAN NOTE
- ALIGN DESIGNATED SURFACES
- REVISION REFERENCE
- REFLECTED CEILING PLAN**
- ACOUSTICAL CEILING AND GRID
- FLUORESCENT LIGHT FIXTURE
- NIGHT LIGHT/24 HOUR CIRCUIT
- EMERGENCY LIGHT
- CEILING MOUNTED FLUORESCENT FIXTURE
- PENDANT MOUNTED FLUORESCENT FIXTURE
- COMPACT RECESSED FLUORESCENT FIXTURE
- PENDANT/CEILING MOUNTED FIXTURE
- TRACK LIGHTING
- RECESSED DOWN LIGHT
- CEILING MOUNTED WALL WASHER
- WALL MOUNTED FIXTURE
- LIGHT SWITCH
- 3-WAY SWITCH
- DIMMER SWITCH
- SPRINKLER HEAD
- EXISTING SPRINKLER HEAD
- WALL MOUNTED SPRINKLER HEAD
- ACCESS PANEL
- SUPPLY DUCT
- RETURN DUCT
- LINEAR DIFFUSER
- EXHAUST FAN
- SPEAKER
- SMOKE DETECTOR
- SECURITY CAMERA
- MOTION DETECTOR
- THERMOSTAT
- PHONE JACK

ARCHITECTURAL ABBREVIATIONS-

- A**
- A/C AIR CONDITIONING
 - A.C.T. ACOUSTICAL CEILING TILE
 - ACOUS. ACOUSTICAL
 - ADJ. ADJUSTABLE
 - ALUM. ALUMINUM
 - ALT. ALTERNATE
 - ARCH. ARCHITECT/ARCHITECTURAL
 - A.F.F. ABOVE FINISHED FLOOR
 - A.T.A. ADVANCED TECHNOLOGY AUDITORIUM
 - A/V AUDIO/VISUAL
- B**
- BD. BOARD
 - BITUM. BITUMINOUS
 - BLDG. BUILDING
 - BSMT. BASEMENT
- C**
- CAB. CABINET
 - C.T. CERAMIC TILE
 - C.B. CHALKBOARD
 - C.G. CORNER GUARD
 - CLG. CEILING
 - COL. COLUMN
 - CONC. CONCRETE
 - CONST. CONSTRUCTION
 - CONT. CONTINUOUS
 - C.O. CONTRACTING OFFICER
 - CONTR. CONTRACTOR
 - C.J. CONTROL JOINT
 - C.M.U. CONCRETE MASONRY UNIT
- D**
- DEPT. DEPARTMENT
 - DET. DETAIL
 - D.F. DRINKING FOUNTAIN
 - DIA. DIAMETER
 - DIM. DIMENSION
 - DISP. DISPENSER
 - D.M.B. DRY MARKER BOARD
 - DN. DOWN
 - DS. DOWN SPOUT
 - DWG. DRAWING
- E**
- EA. EACH
 - E.J. EXPANSION JOINT
 - EL. ELEVATION
 - ELEC. ELECTRIC/ELECTRICAL
 - ELEV. ELEVATOR
 - ENGR. ENGINEER
 - EQ. EQUAL
 - EQUIP. EQUIPMENT
 - E.W.C. ELECTRIC WATER COOLER
 - EXIST. EXISTING
 - EXT. EXTERIOR
 - E.I.F.S. EXTERIOR INSUL. FINISH SYSTEM
- F**
- FAB. FABRICATE/FABRICATOR
 - F.D. FLOOR DRAIN
 - F.E. FIRE EXTINGUISHER
 - F.E.C. FIRE EXTINGUISHER CABINET
 - F.H.C. FIRE HOSE CABINET
 - FIN. FINISH(ED)
 - FLR. FLOOR
 - FLUOR. FLUORESCENT
 - F.O.B. FACE OF BLOCK
 - F.O.BR. FACE OF BRICK
 - F.O.C. FACE OF CONCRETE
 - F.O.F. FACE OF FINISH
 - F.O.G. FACE OF GYPSUM BD.
 - F.O.S. FACE OF STUD
 - FPRF. FIREPROOF
 - FT. FOOT/FEET
 - F.V. FIELD VERIFY
- G**
- GA. GAUGE
 - GEN. GENERAL
 - GL. GLASS
 - G.W.B. GYPSUM WALL BOARD
- H**
- H. HEIGHT
 - H.B. HOSE BIBB
 - H.C. HANDICAP
 - HDWR. HARDWARE
 - H.M. HOLLOW METAL
 - HORIZ. HORIZONTAL
 - HVAC HEATING, VENTILATION & A.C.
- I**
- I.C.S. INTERACTIVE CLASSRM. STUDIO
 - I.D. INSIDE DIAMETER
 - INFO. INFORMATION
 - INCAN. INCANDESCENT
 - INSUL. INSULATION
 - INT. INTERIOR
- J**
- JAN. JANITOR
 - JT. JOINT
- L**
- LAV. LAVATORY
 - LB. POUND
 - L.H. LEFT HAND
- M**
- MAX. MAXIMUM
 - M.C.O. MULTIMEDIA COMMUNICATION OUTLET
 - MIP/SIT MULTIMEDIA INSTRUCTIONAL PORTABLE SYSTEM (TRADE-MARK)
 - MECH. MECHANICAL
 - MTL. METAL
 - MFR. MANUFACTURER(ING)
 - M.H. MANHOLE
 - MIN. MINIMUM
 - MISC. MISCELLANEOUS
 - M.O. MASONRY OPENING
- N**
- N.A.F. NO APPLIED FINISH
 - N.I.C. NOT IN CONTRACT
 - NO. NUMBER
 - N.P.S. NATIONAL PARK SERVICE
 - N.T.S. NOT TO SCALE
- O**
- O.A. OVER ALL
 - O.C. ON CENTER
 - O.D. OUTSIDE DIAMETER
 - O.H. OPPOSITE HAND
 - OPG. OPENING
- P**
- P. LAM PLASTIC LAMINATE
 - PLAS. PLASTER
 - PWD. PLYWOOD
 - PR. PAIR
 - PREFAB. PREFABRICATED
 - PT. BD. PARTICLE BOARD
 - PTD. PAINTED
- Q**
- Q.T. QUARRY TILE

DRAWING REFERENCES

- SECTION CUT REFERENCE DETAIL NUMBER
- SHEET CUT ON
- PLAN REFERENCE DETAIL NUMBER SHEET NUMBER
- ELEVATION REFERENCE DRAWING NUMBER
- SHEET CUT ON
- NORTH ARROW

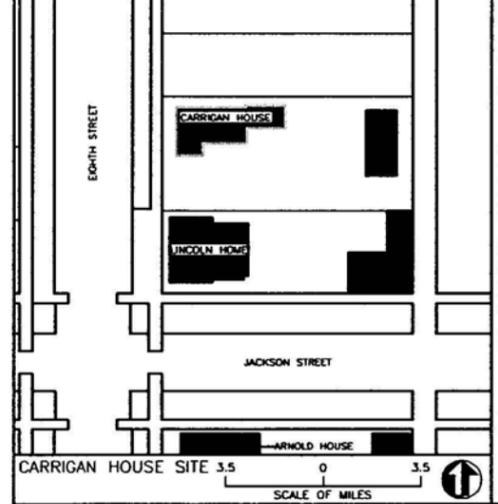
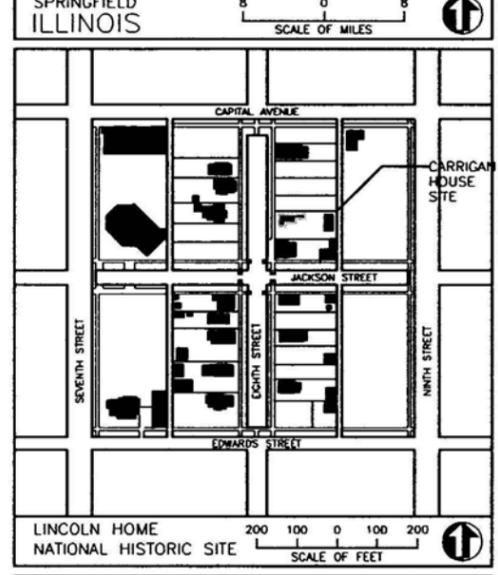
MATERIALS LEGEND-

- EARTH
- FACE BRICK
- GRANULAR FILL
- CUT STONE
- CONCRETE
- WOOD, FRAMING
- GYPSUM BOARD OR PLASTER
- WOOD SHIM
- CONCRETE MASONRY UNIT
- GLASS
- FINISHED WOOD
- GYPSUM BOARD OR PLASTER
- WATERPROOF MEMBRANE
- RIGID INSULATION
- BLANKET INSULATION
- PLYWOOD

- MISCELLANEOUS**
- DIAMETER
 - ANGLE
 - CENTER LINE
 - NUMBER
 - PLATE

INDEX OF DRAWINGS

SHEET	SUB SHEET	TITLE OF SHEET
1		COVER SHEET
	C1	SITE SURVEY
	L1	SITE ANALYSIS
	L2	HISTORIC SITE PLAN



REV. NO.	DATE	DESCRIPTION	BY	CHKD.

QUALITY DESIGN CERTIFICATION

RECOMMENDED: _____

APPROVED: _____



EXISTING CONDITIONS

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

TITLE OF DRAWING
COVER SHEET

LOCATION WITHIN PARK
CARRIGAN HOUSE (HS-25)

NAME OF PARK
LINCOLN HOME NATIONAL HISTORIC SITE

REGION: **MIDWEST** COUNTY: **SANGAMON** STATE: **ILLINOIS**

DRAWING NO. **449**
80095

PKG. NO. _____ SHEET _____ OF _____

GENERAL NOTES

RECORD DISTANCES PER PLAT OF SURVEY BY JOHN RAYNOLDS, I.L.P.S. # 2054 AND DATED JUNE 1974. ALSO REFERENCE SURVEY INFORMATION COMPILED BY JOHN GARRISON, I.L.P.S. # 1564 AND SHOWN IN A SKETCH DATED JANUARY 28, 1995.

BASIS OF BEARINGS IS GRID NORTH OF THE ILLINOIS STATE PLANE COORDINATE SYSTEM, NAD 83, WEST ZONE AND WAS DETERMINED USING SITE MONUMENTS LIHO 1 AND LIHO 2.

TREE SPECIES WERE IDENTIFIED BY THE JAEGER COMPANY.

PROPERTY PIN #: 14-34-178-024
ADDRESS: 8TH STREET AND JACKSON STREET
SPRINGFIELD, ILLINOIS 62701
OWNER: NATIONAL PARK SERVICE

UTILITY COMPANIES SERVING SITE:

- AMERITECH (TELEPHONE)
555 EAST COOK STREET
SPRINGFIELD, IL 62703
217-753-2973
- AMEREN/CILCO (GAS)
825 NORTH MACARTHUR AVENUE
SPRINGFIELD, IL 62701
888-672-5252
- CITY OF SPRINGFIELD (SEWER)
ROOM 201 MUNICIPAL CENTER WEST
SPRINGFIELD, IL 62701
217-789-2280
- CWLP (ELECTRIC)
10TH AND MILLER STREETS
SPRINGFIELD, IL 62702
217-789-2121
- CWLP (WATER)
11TH AND MASON STREETS
SPRINGFIELD, IL 62704
217-789-2323

RECORD BOUNDARY DESCRIPTION
(AS PROVIDED BY NATIONAL PARK SERVICE)

Burch House
Lot 9 of Block 7 of the Elijah Iles Addition to the City of Springfield, Illinois

Carrigan House
Lot 6 and the North 3/4 of Lot 7 in Block 10 of the Elijah Iles Addition to the City of Springfield, Illinois

BENCHMARKS

LIHO 1
BRASS DISK SET IN CONCRETE UNDER BOARDWALK ON WEST SIDE OF EIGHTH STREET ON SOUTH RIGHT-OF-WAY LINE OF CAPITAL AVENUE. DISK IS STAMPED "LIHO 1". ELEVATION 595.21'

LIHO 2
BRASS DISK SET IN CONCRETE UNDER BOARDWALK ON WEST SIDE OF EIGHTH STREET ON NORTH RIGHT-OF-WAY LINE OF EDWARDS STREET. DISK IS STAMPED "LIHO 2". ELEVATION = 589.01'

UTILITY NOTE

THE LOCATIONS OF THOSE BURIED AND ABOVEGROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVEGROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITIES MUST BE COORDINATED BETWEEN THE CONTRACTOR, UTILITY COMPANY, AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES, REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

STATE OF ILLINOIS
COUNTY OF SANGAMON

I, Darren E. Forgy, do hereby certify that I am a Professional Land Surveyor, licensed in the State of Illinois; that the survey of this plot was made under my direction; that the survey is true and complete as shown to the best of my knowledge and belief; and that all monuments and marks are of the character and occupy the position shown thereon.



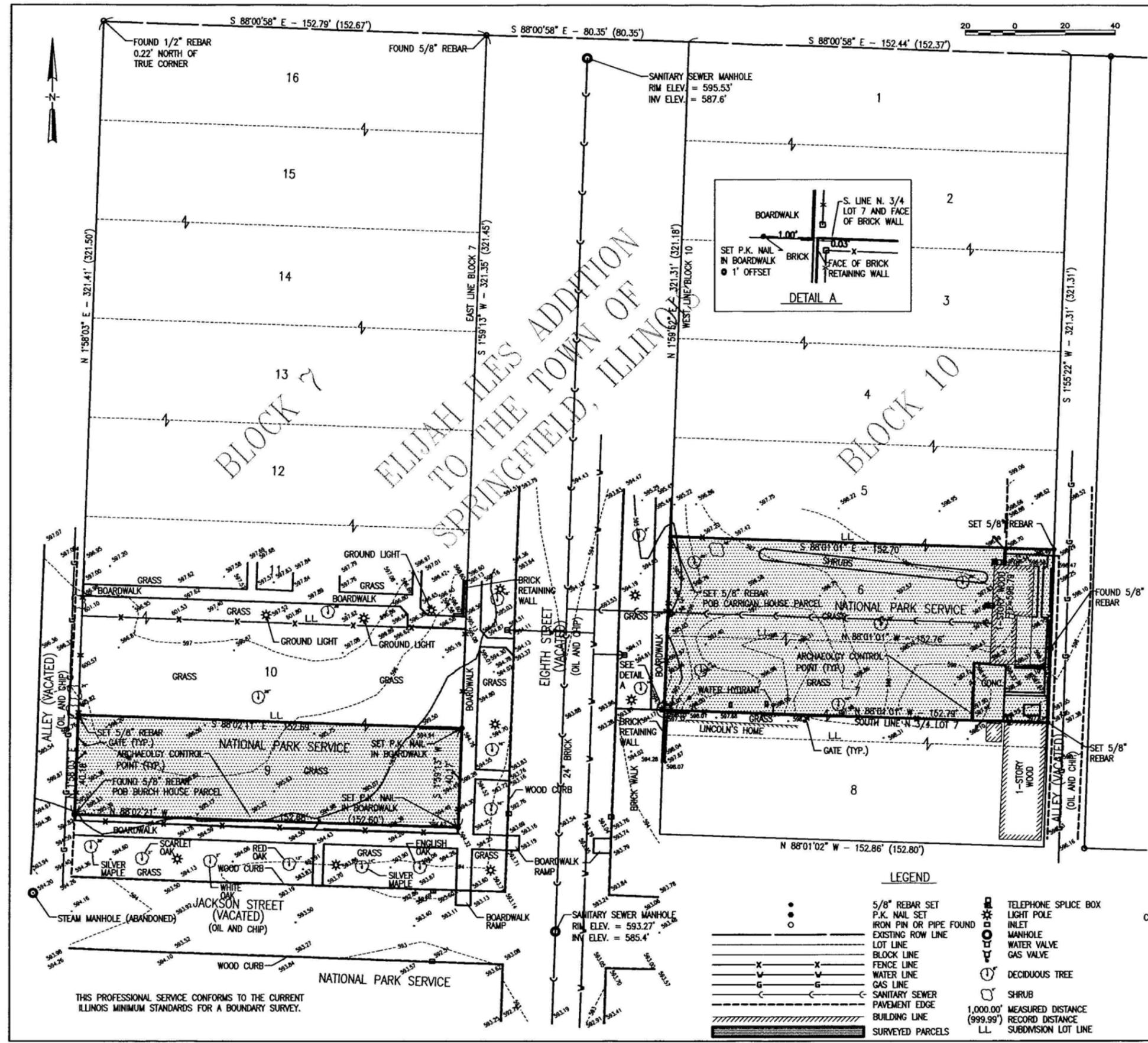
CO. LICENSE NO. 184-001084

PROFESSIONAL LAND SURVEYOR NO. 3637
LICENSE EXPIRES NOVEMBER 30, 2006

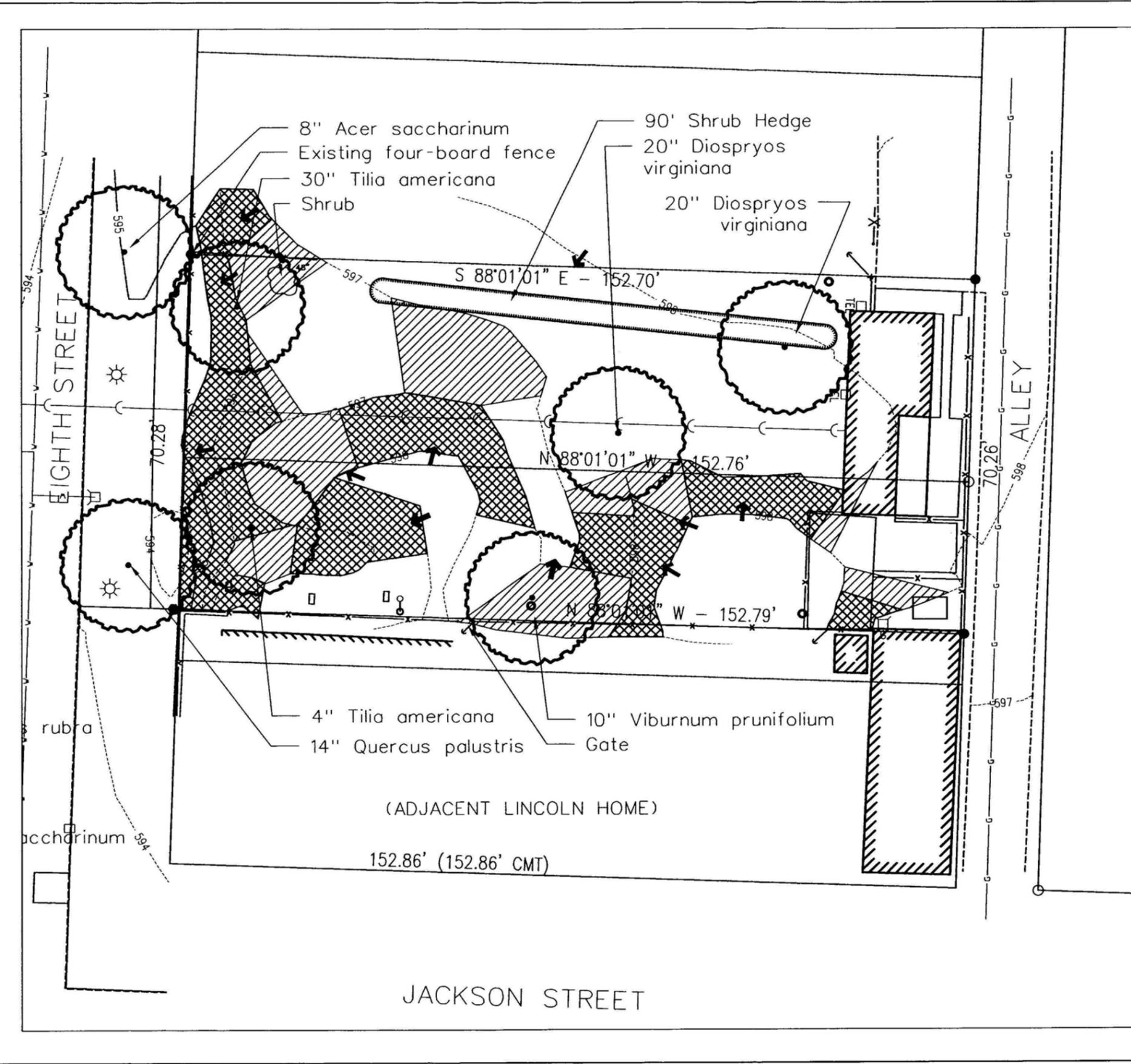
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
GADD	C1	SITE SURVEY	449 80094
TECH. REVIEW:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
DATE:			SHEET OF

LEGEND

●	5/8" REBAR SET	☎	TELEPHONE SPLICE BOX
○	P.K. NAIL SET	⊙	LIGHT POLE
—	IRON PIN OR PIPE FOUND	⊕	INLET
---	EXISTING ROW LINE	⊖	MANHOLE
---	LOT LINE	⊗	WATER VALVE
---	BLOCK LINE	⊘	GAS VALVE
---	FENCE LINE	⊙	DECIDUOUS TREE
---	WATER LINE	⊙	SHRUB
---	GAS LINE	⊙	1,000.00' MEASURED DISTANCE
---	SANITARY SEWER	⊙	999.99' RECORD DISTANCE
---	PAVEMENT EDGE	LL	SUBDIVISION LOT LINE
---	BUILDING LINE		
---	SURVEYED PARCELS		

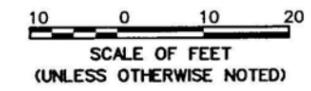


THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY.

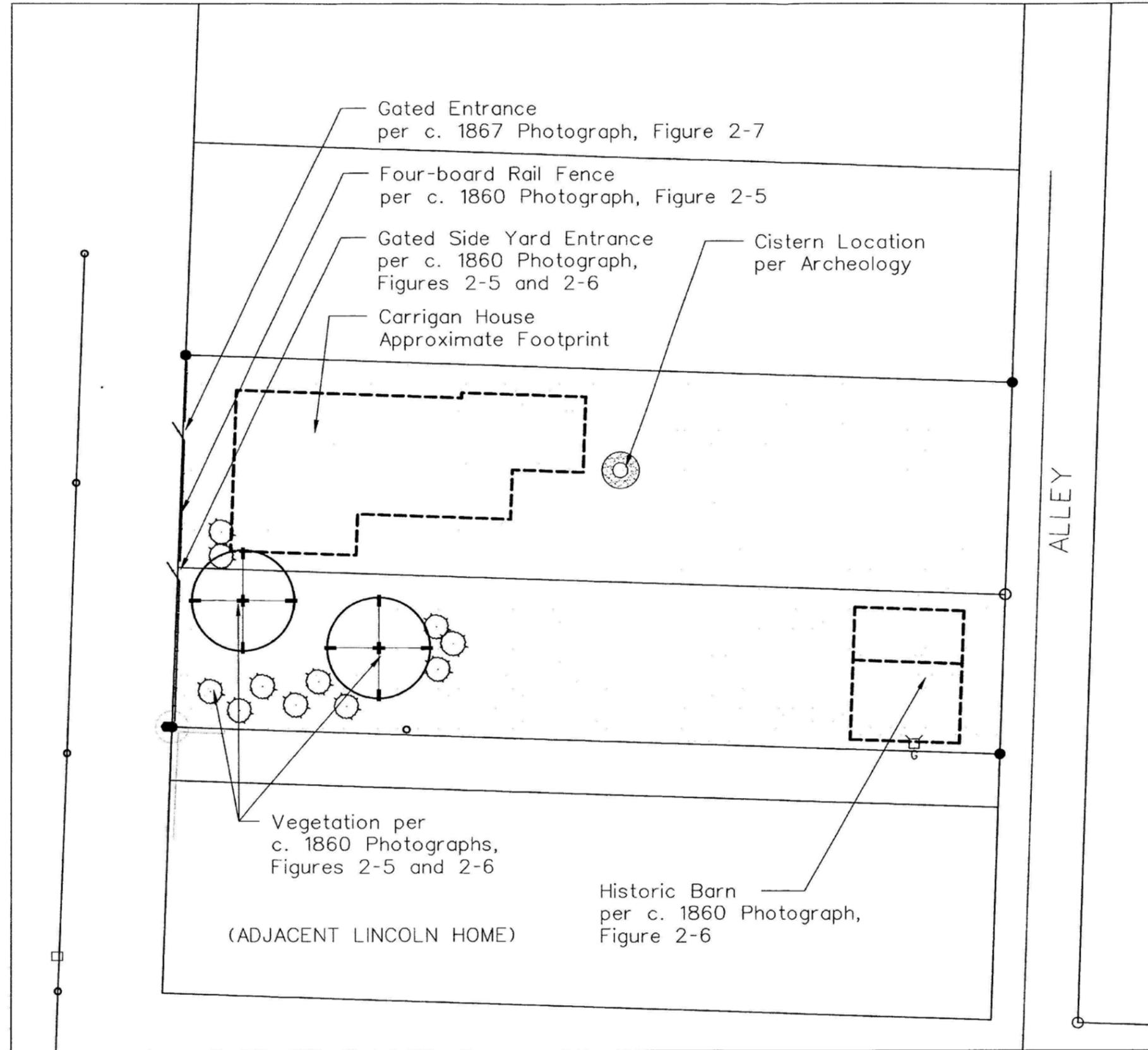


LEGEND

- 5/8" REBAR SET
- P.K. NAIL SET
- IRON PIN OR PIPE FOUND
- EXISTING ROW LINE
- LOT LINE
- BLOCK LINE
- x-x-x- FENCE LINE
- v-v-v- WATER LINE
- g-g-g- GAS LINE
- c-c- SANITARY SEWER
- - - PAVEMENT EDGE
- ▬ BUILDING LINE
- ▨ SURVEYED PARCELS
- ▧ > 8.33% SLOPE
- ▩ 5%-8.33% SLOPE
- ☐ TELEPHONE SPLICE BOX
- ☼ LIGHT POLE
- INLET
- ⊙ MANHOLE
- ⊕ WATER VALVE
- ⊖ GAS VALVE
- ⊙ DECIDUOUS TREE
- ⊕ SHRUB
- 1,000.00' MEASURED DISTANCE
- (999.99') RECORD DISTANCE
- L.L. SUBDIVISION LOT LINE
- ➔ HYDROLOGY
- * species to be field verified



DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	L1	SITE ANALYSIS CARRIGAN HOUSE (HS-25)	449 80095
DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET OF



Gated Entrance
per c. 1867 Photograph, Figure 2-7

Four-board Rail Fence
per c. 1860 Photograph, Figure 2-5

Gated Side Yard Entrance
per c. 1860 Photograph,
Figures 2-5 and 2-6

Carrigan House
Approximate Footprint

Cistern Location
per Archeology

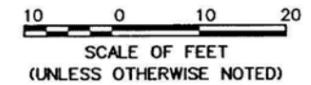
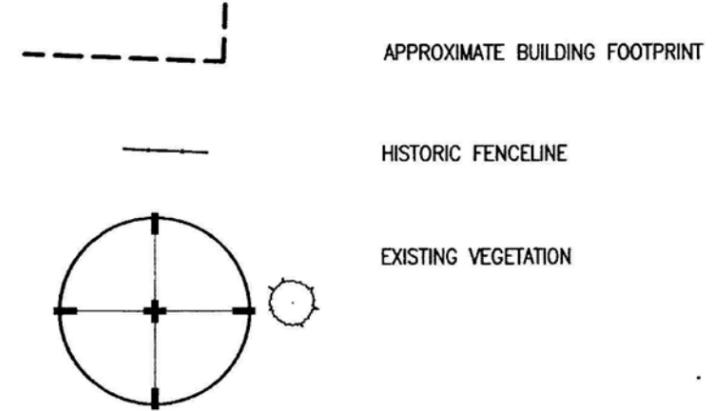
Vegetation per
c. 1860 Photographs,
Figures 2-5 and 2-6

(ADJACENT LINCOLN HOME)

Historic Barn
per c. 1860 Photograph,
Figure 2-6

ALLEY

LEGEND



DESIGNED: GADD	SUB SHEET NO. L2	TITLE OF SHEET HISTORIC SITE PLAN CARRIGAN HOUSE (HS-25)	DRAWING NO. 449
TECH. REVIEW:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. 80095
DATE:			SHEET OF

Historic Map and Archeology Overlay Study

In order to understand the existing conditions in relationship to the evolution of the site, a historic map/archeology overlay study was conducted. In this study, the team overlaid existing historic maps over archeology drawings produced in August of 2005 by the National Park Service. These archeology drawings showed the unearthed features from the Carrigan, Corneau, and Irwin Houses.

Although this sort of overlay study is useful for general comparative purposes, it is difficult to draw any detailed conclusions given that the inherent problems in rectifying the scale of both drawings, the small scale of the original historic maps, the disproportional line widths of some of the maps, among other things. With this in mind, the following is the outcome of the overlay study.

City of Springfield Map – 1854 (See OS-1)

In general, the footprint of the Carrigan House from the 1854 City of Springfield map is fairly accurate with the exception of the easternmost wing, which varies greatly from the archeology. The northern wall of the house aligns fairly well with the assumed foundation line taken from the archeology. Both the western and eastern wall of the main block of the house match the archeology less well, but the south wall of the main block and the south wall of the east ell align more closely. The easternmost block of the house is shifted considerably to the north from the archeological findings.

City of Springfield Map – 1858 (See OS-2)

The 1858 City of Springfield map varies greatly from the 1854 map. In particular, this is evident at the southern extent of the westernmost block of the house, which is considerably north of the line of the archeology. Both the north and south sides of the ell portion align fairly well with the archeology, but once again, the easternmost block of the house is significantly farther north than the archeology reveals.

Sanborn Map – 1884 (See OS-3)

By 1884, the Carrigan House was no longer extant, and the Irwin House had been constructed. Toward the back of the house, archeology revealed stone steps, a brick paver slope that may have underlain wooden steps, and the remnants of brick cheek walls. When overlaid on the 1884 map, the archeology does not in the archeology and thought to be Irwin House features are located logically adjacent to a porch structure at the rear of the house.

Sanborn Map – 1896 (See OS-4)

The Irwin House is still located on the site in 1896, but the footprint on the maps has changed significantly placing the Irwin House steps at the southeast corner of the house.

Sanborn Map – 1917 (See OS-5)

The footprint of the house on the 1917 Map varies little from the 1896 map.

Sanborn Map – 1945 (See OS-6)

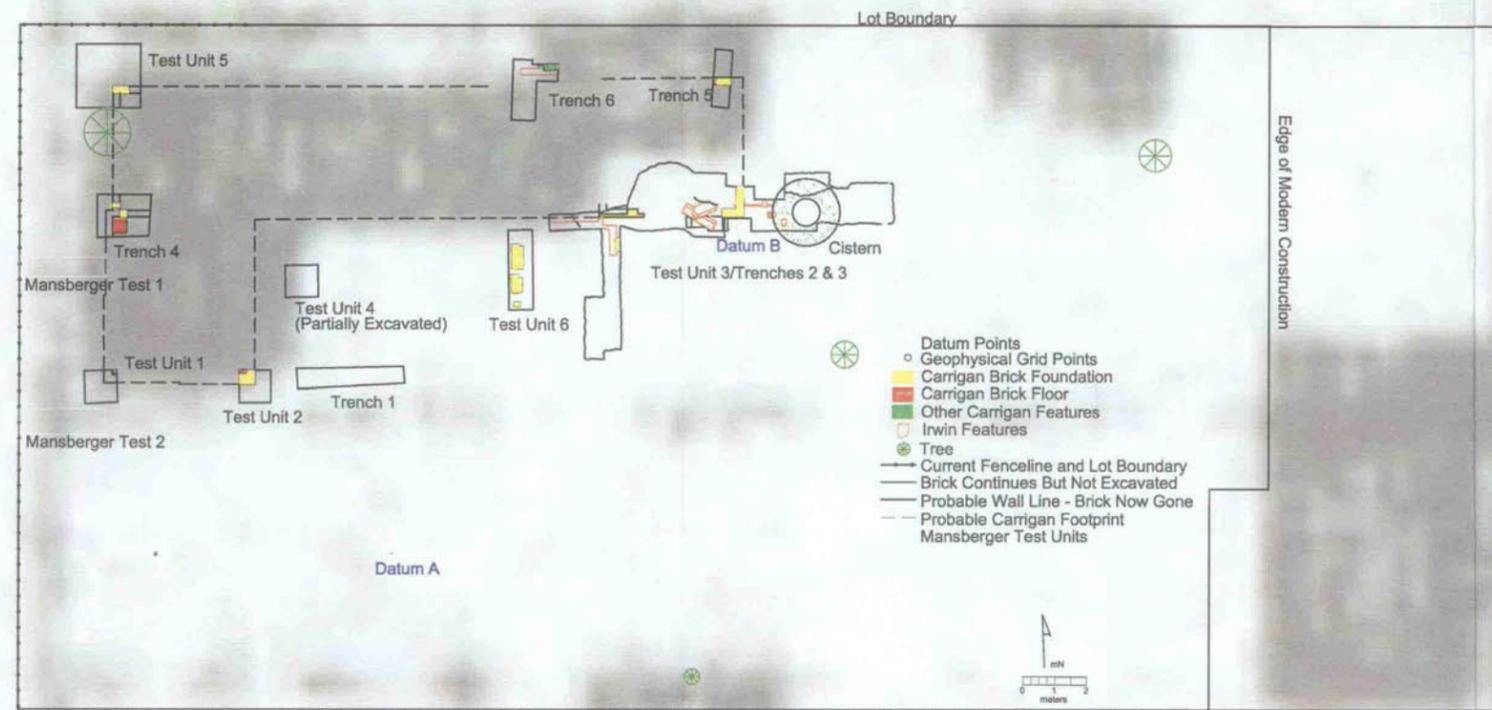
The Irwin House has been demolished

Sanborn Map - 1952 (See OS-7)

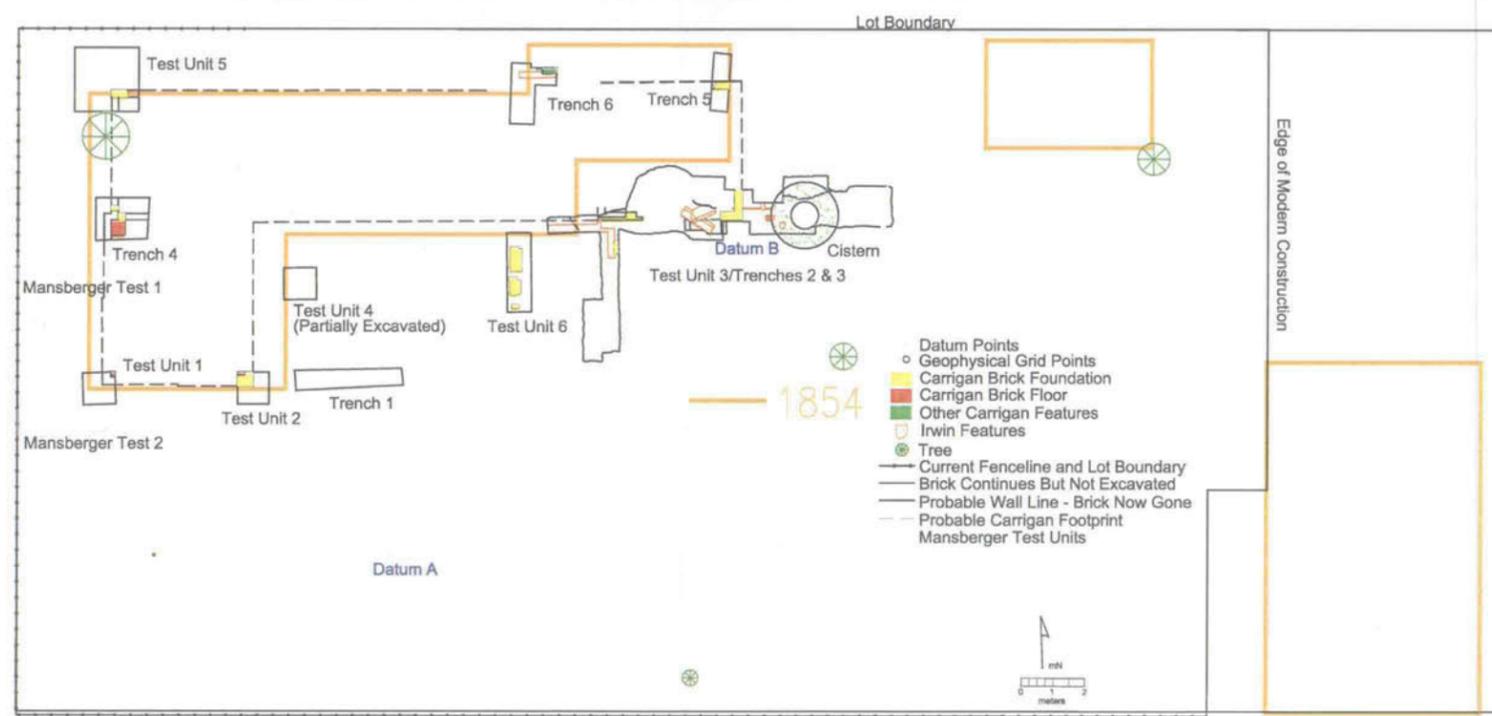
The Irwin House has been demolished

Overlay of 1854 and 1858 City of Springfield Maps (See OS-8)

As is evident from the overlay of the two existing maps showing the Carrigan House, the 1854 map appears to be much closer to the original footprint than the 1858 map. Although there are some fairly substantial differences between the eastern wing of the 1858 map and the archeological findings, the western portion of the map is fairly close to the original footprint.

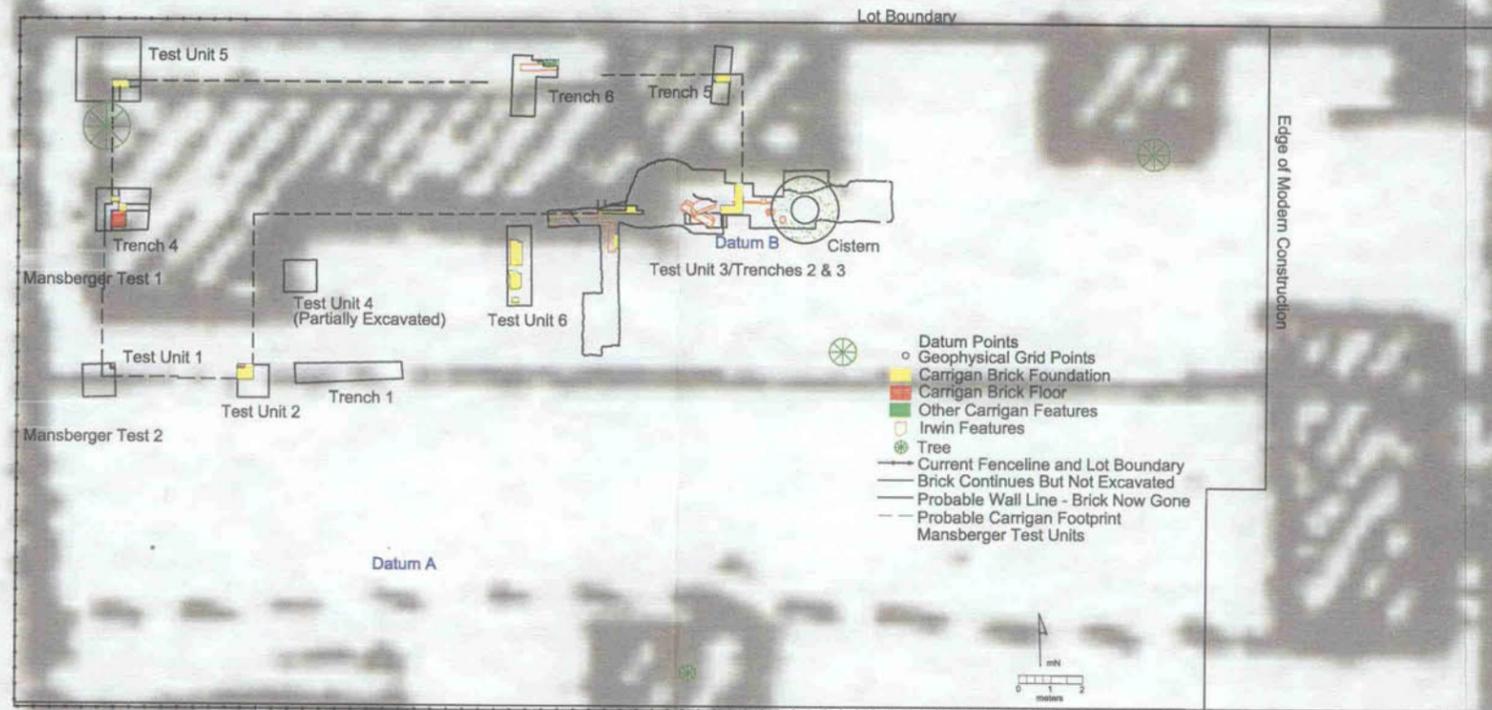


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

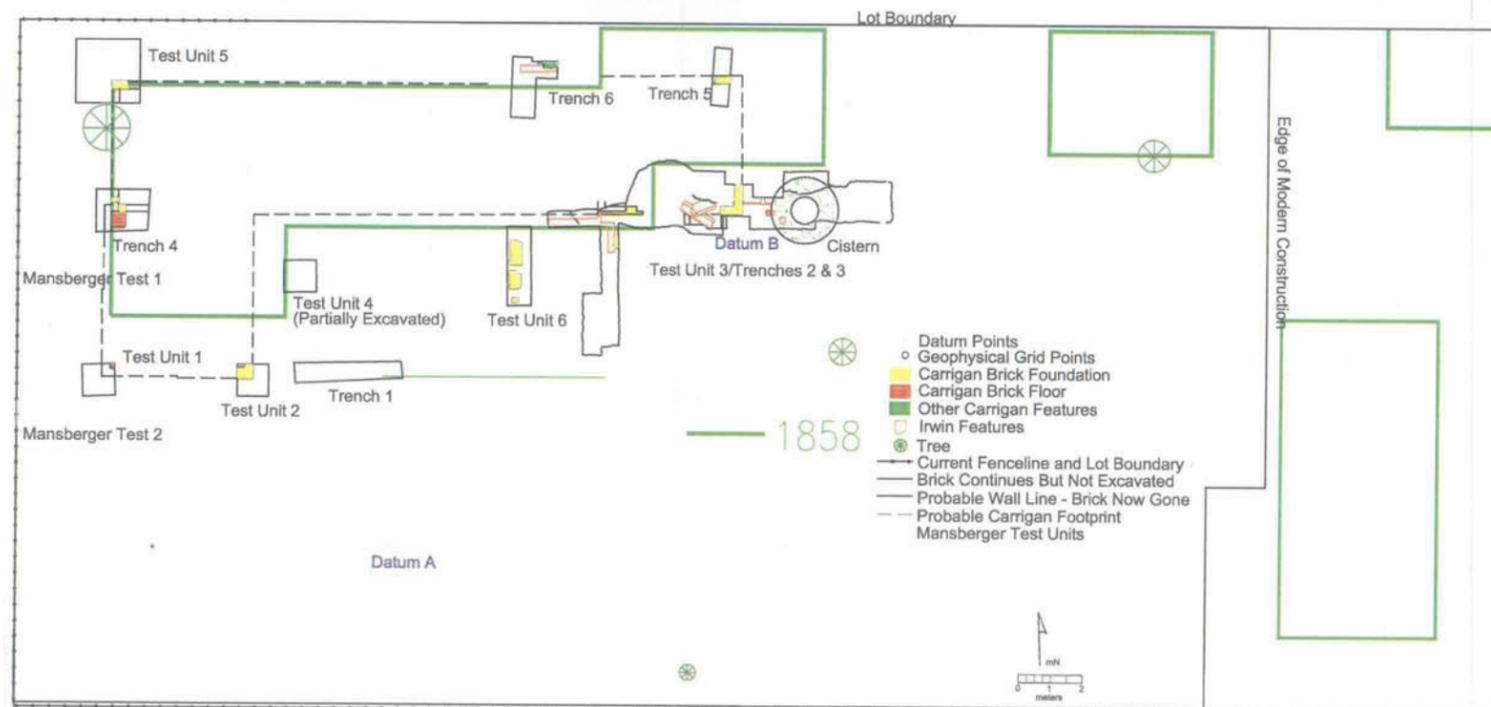


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	OS1	ARCHEOLOGY/ HISTORIC MAP OVERLAY STUDY	449
DATE:			80095
		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF

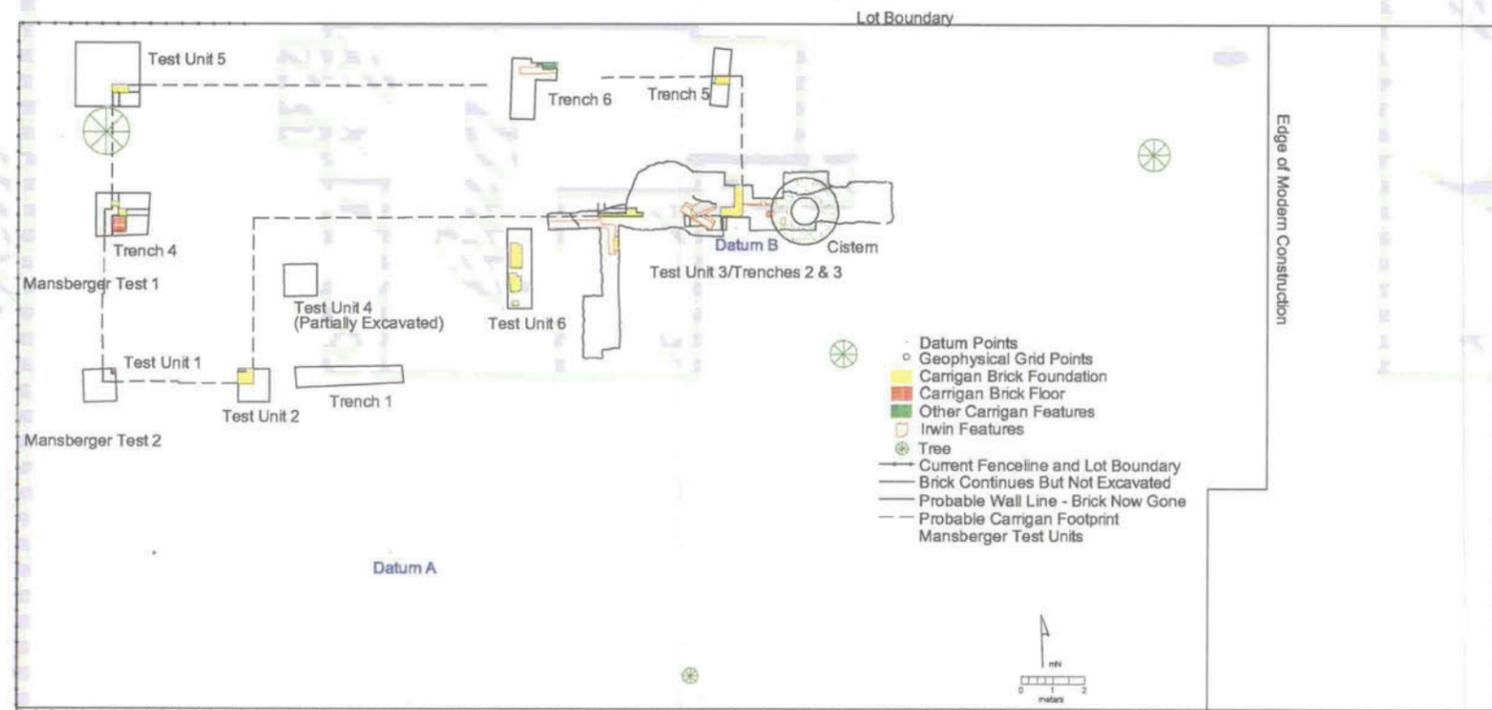


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

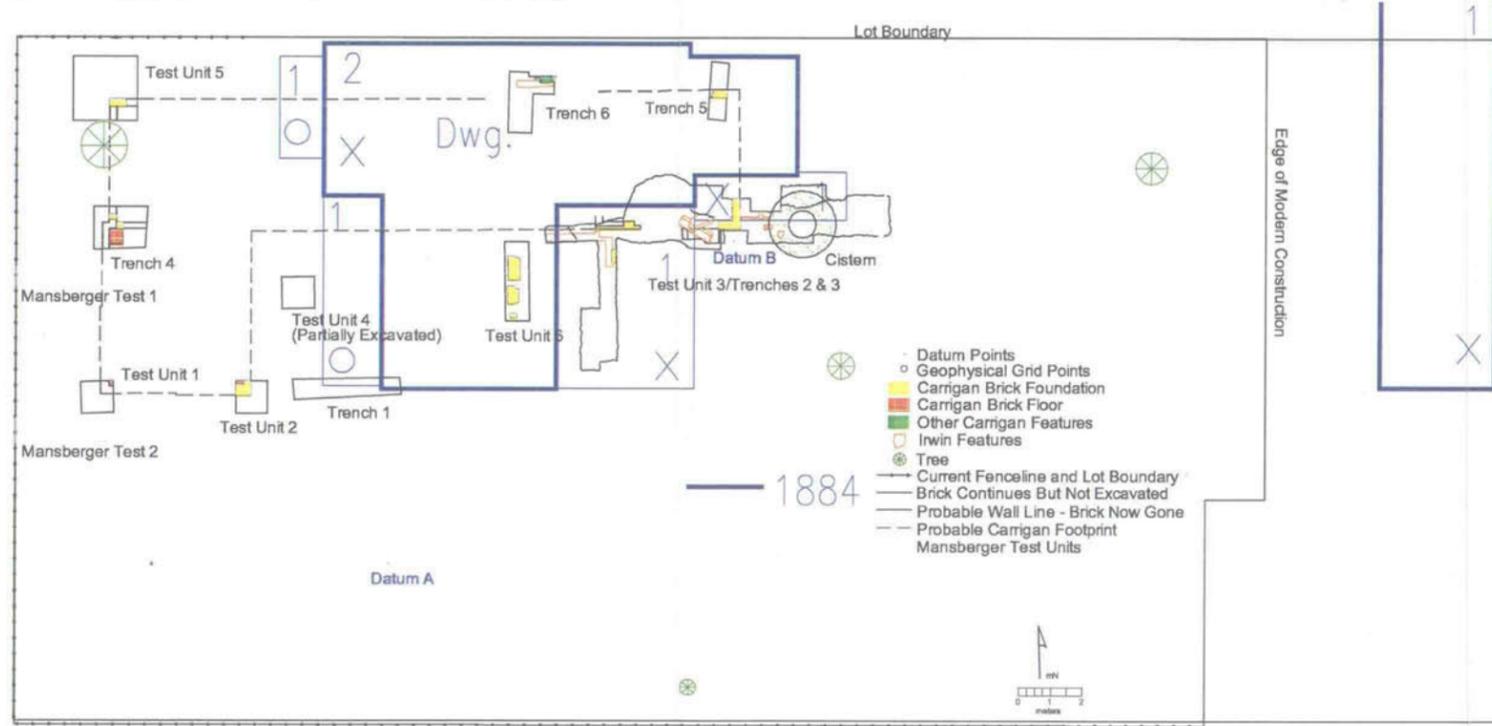


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
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DATE:			80095
		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF

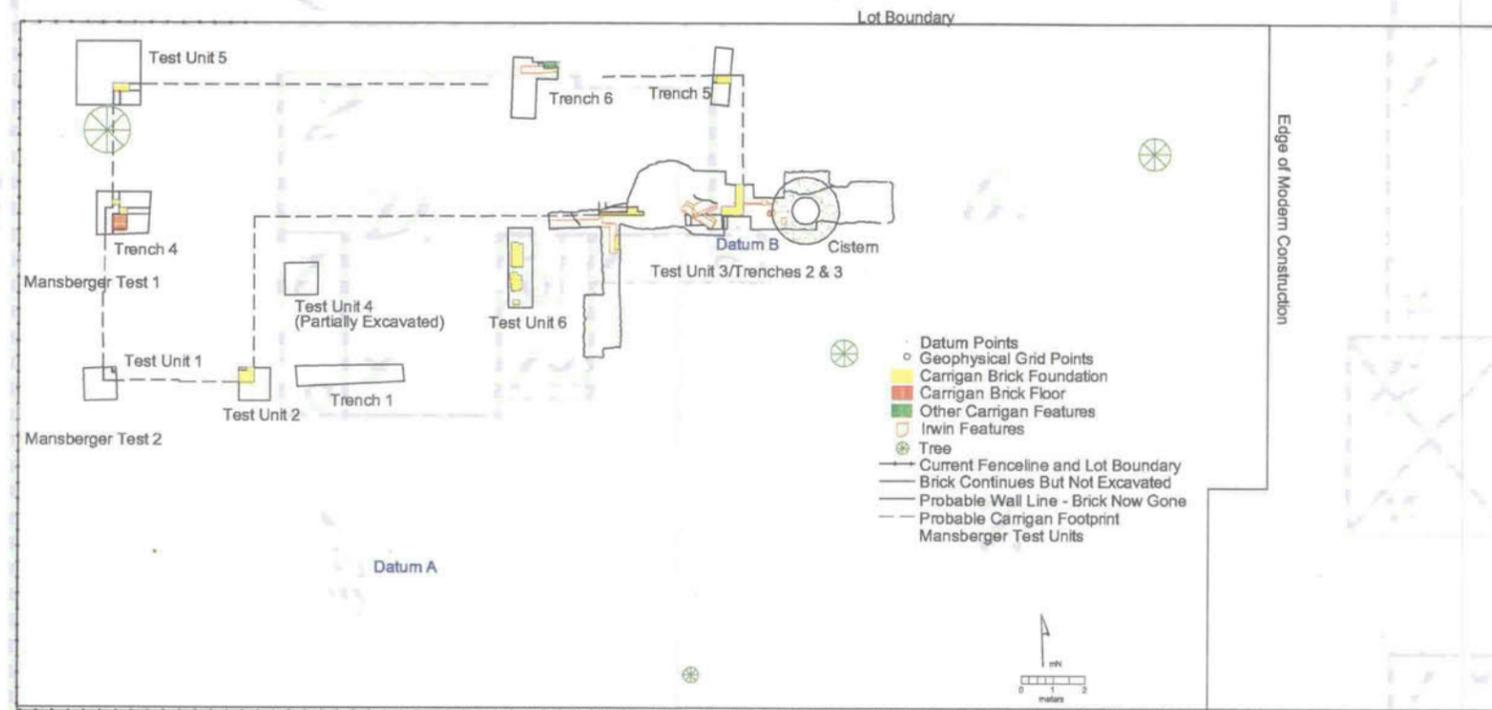


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

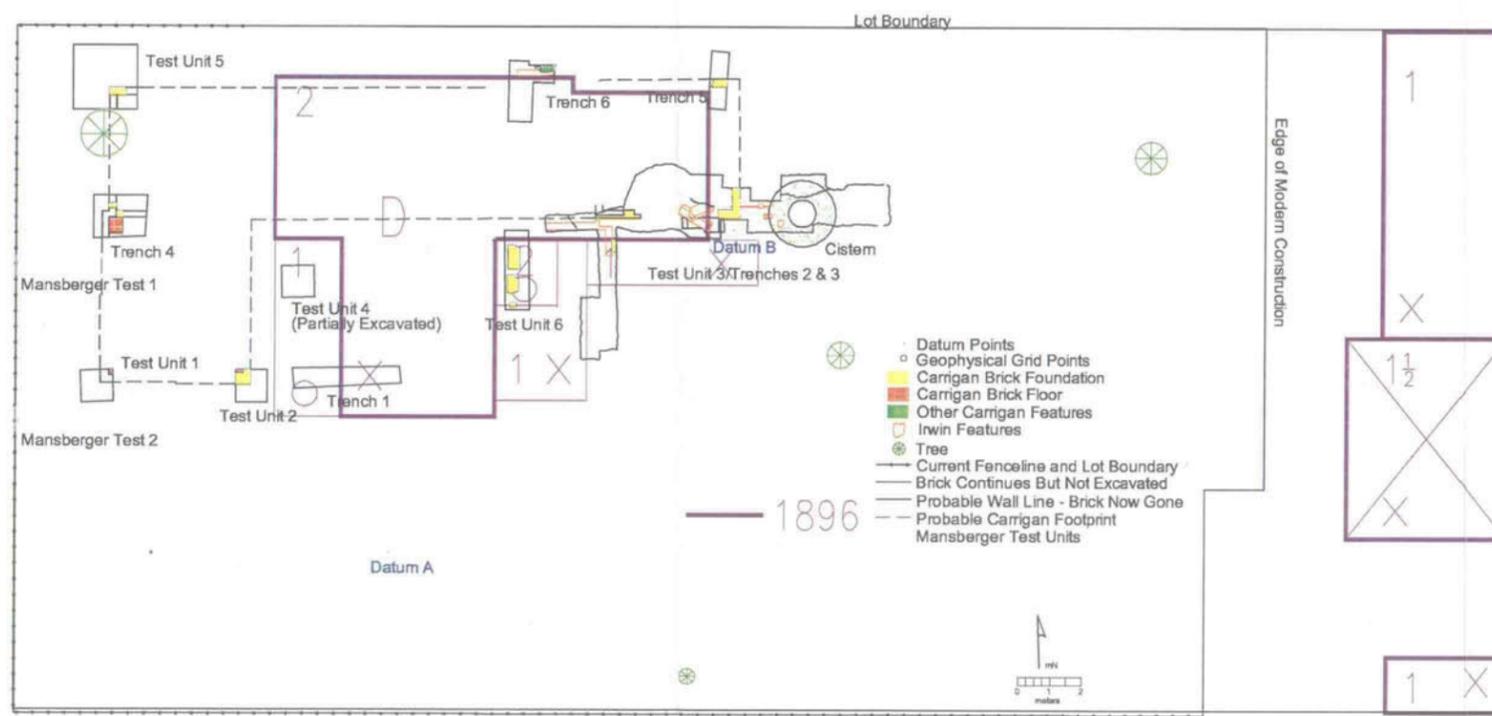


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

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			SHEET
			OF

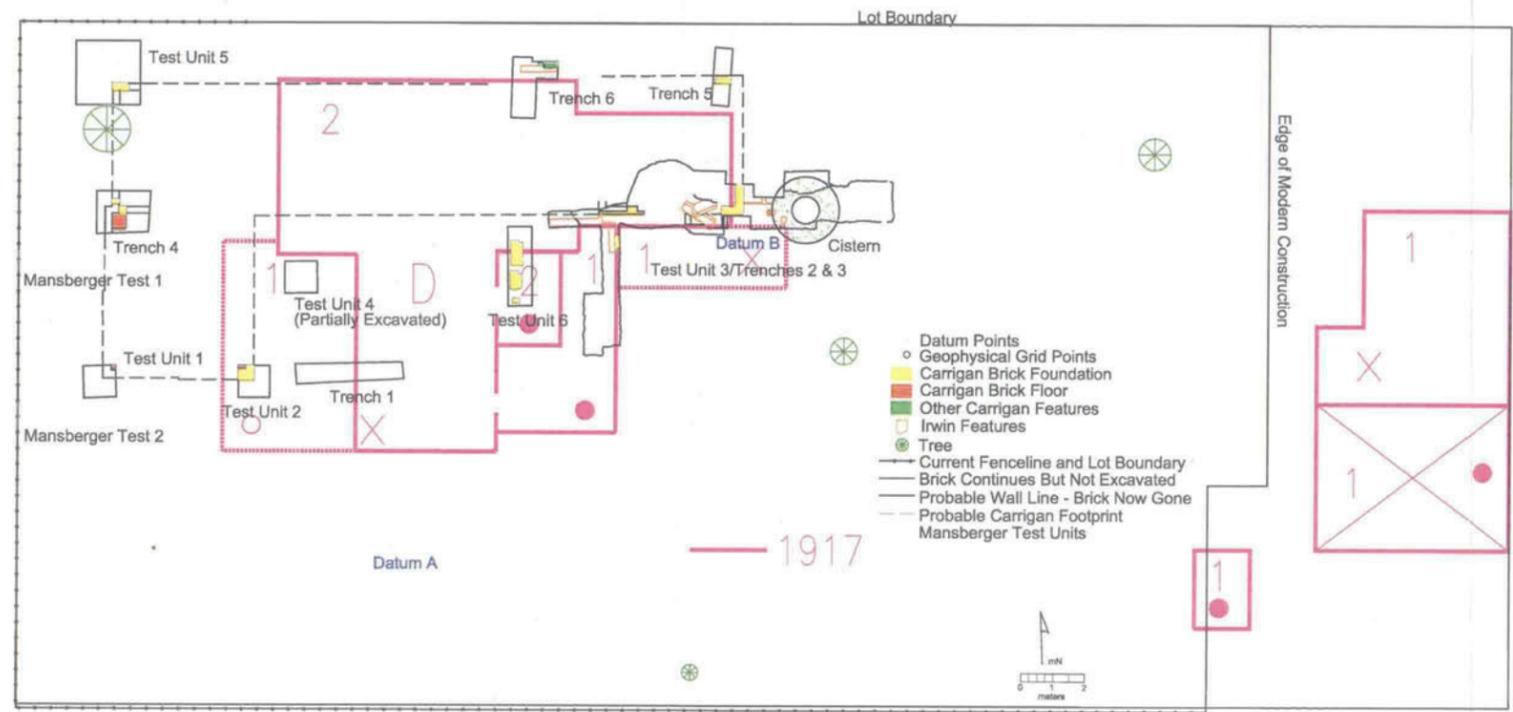
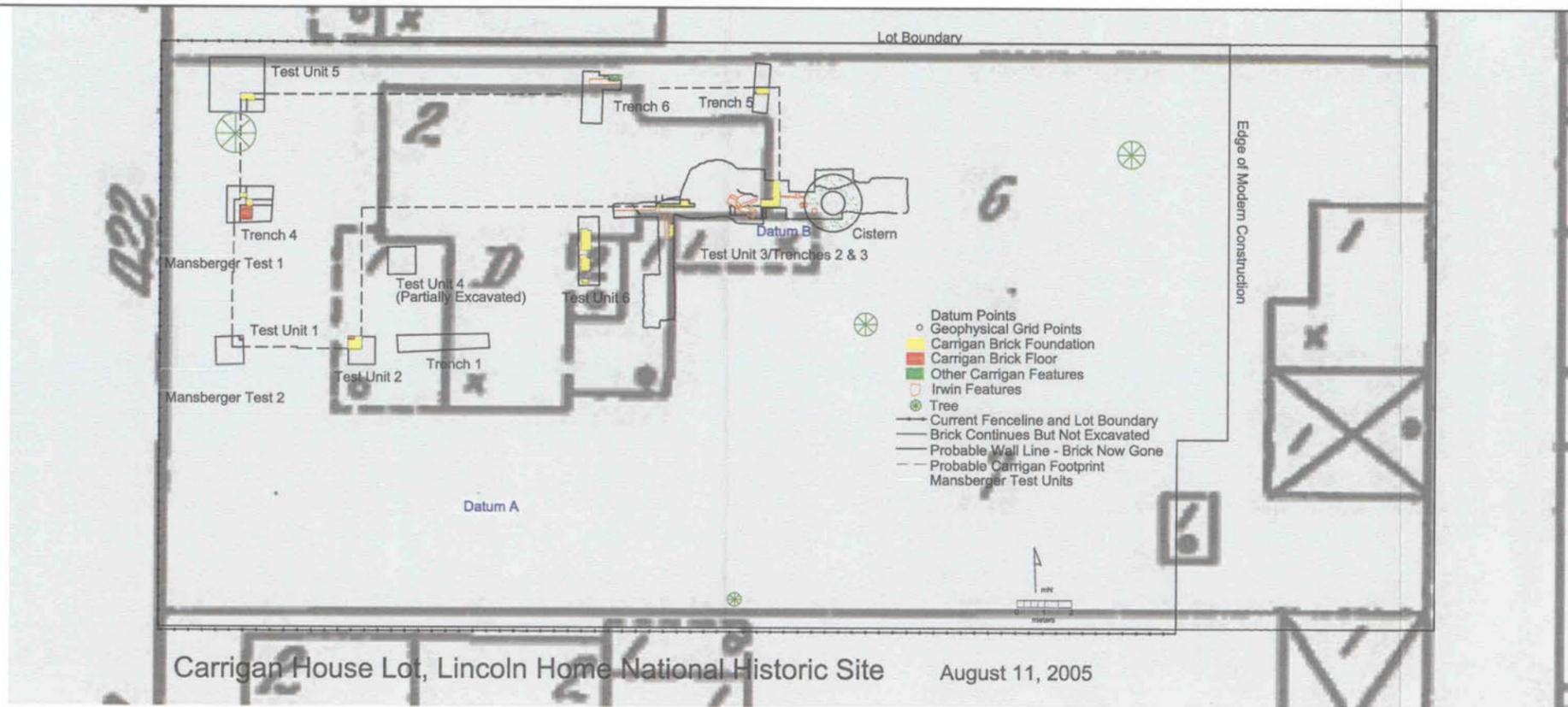


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

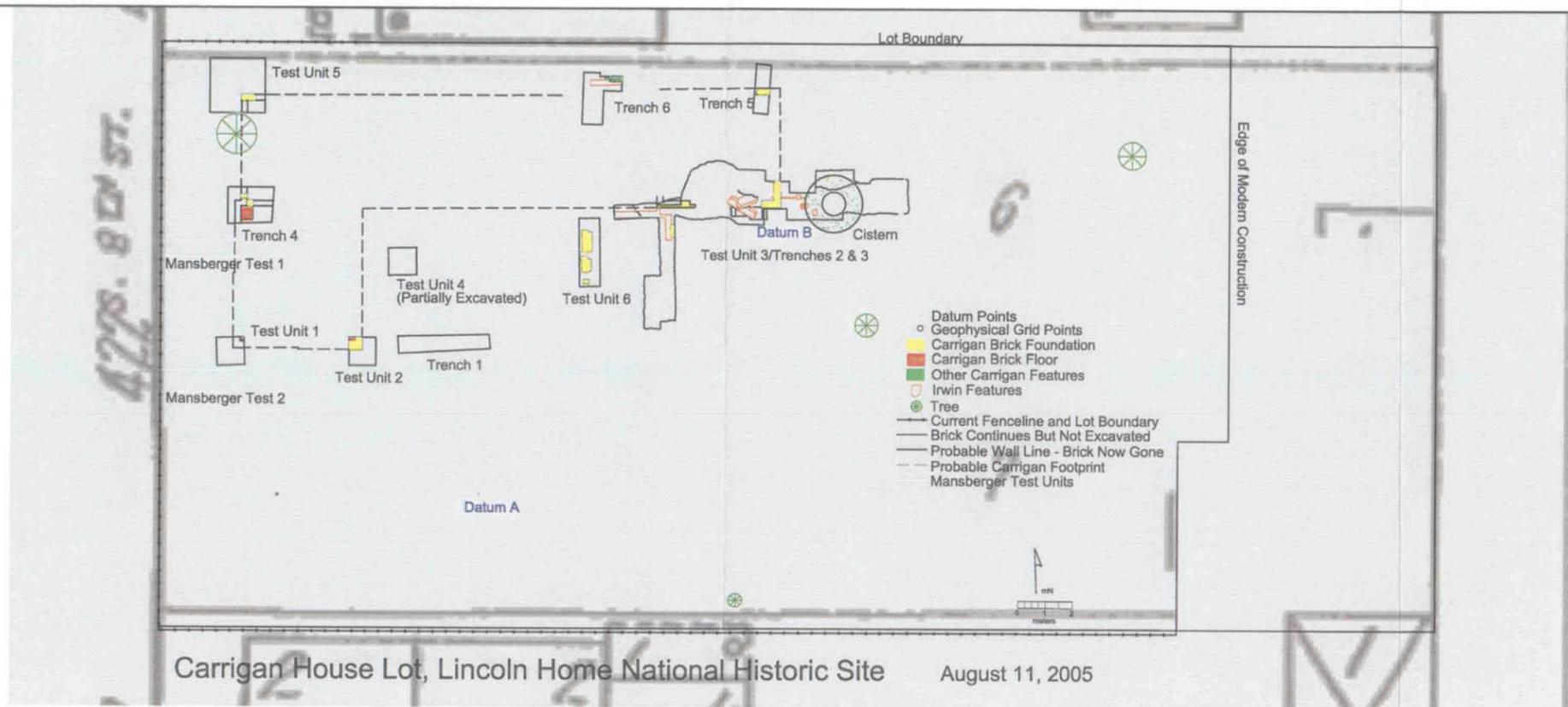


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

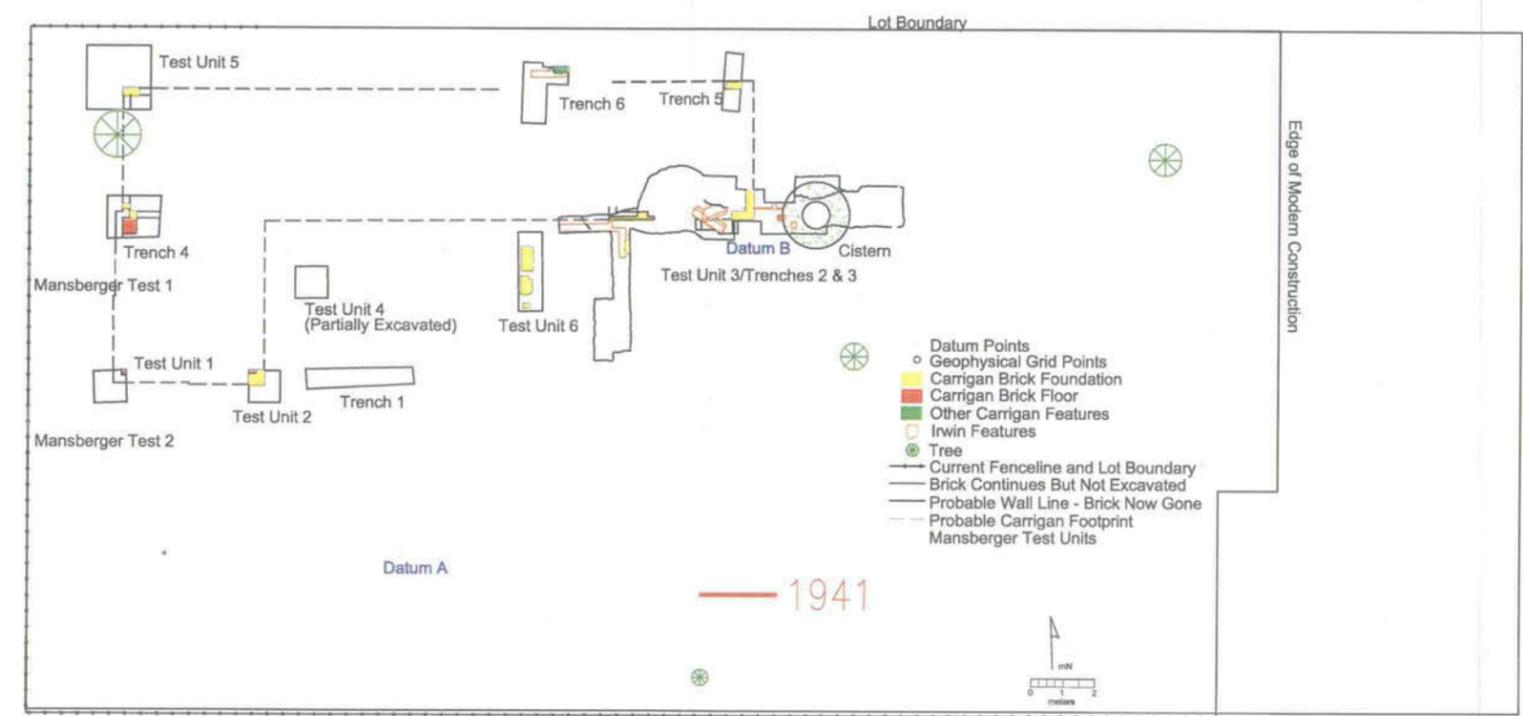
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DATE:			80095
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			SHEET
			OF



DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
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			OF

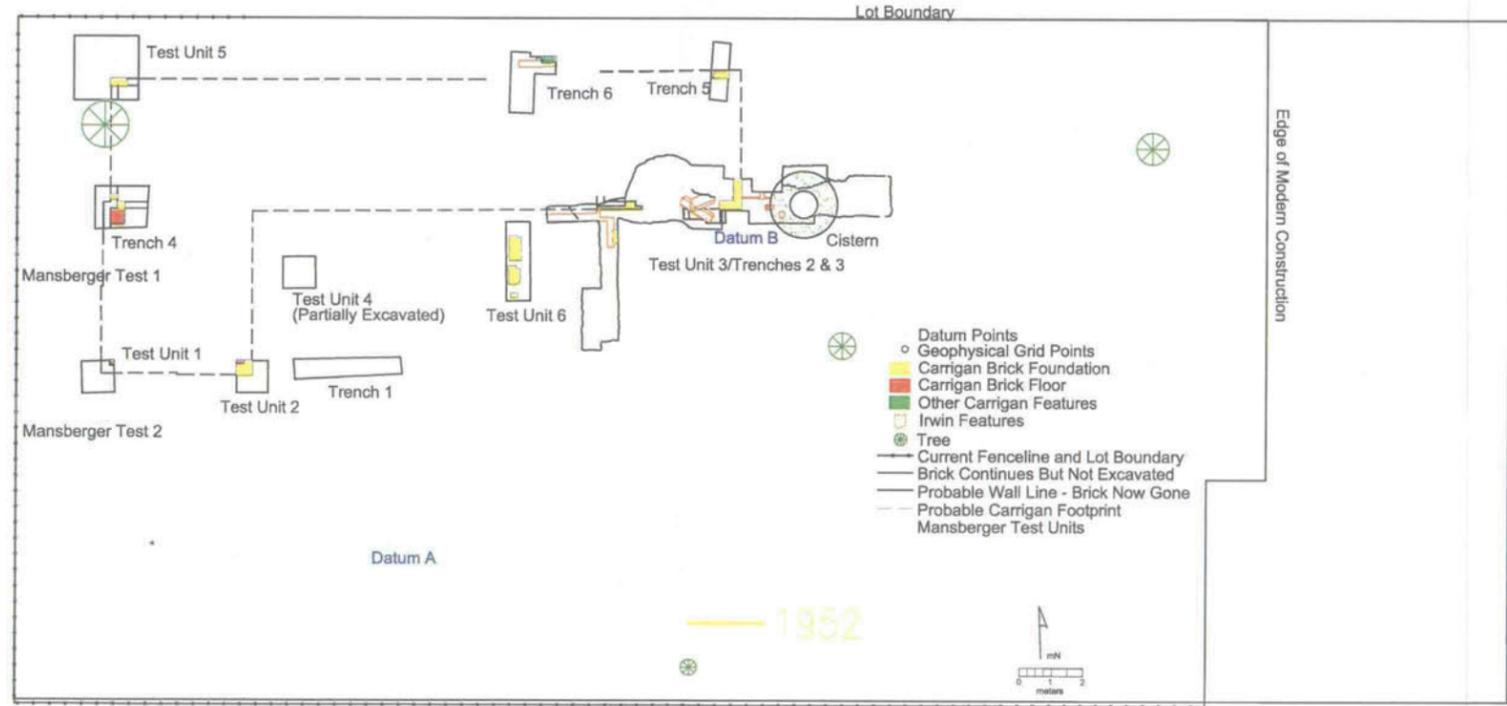
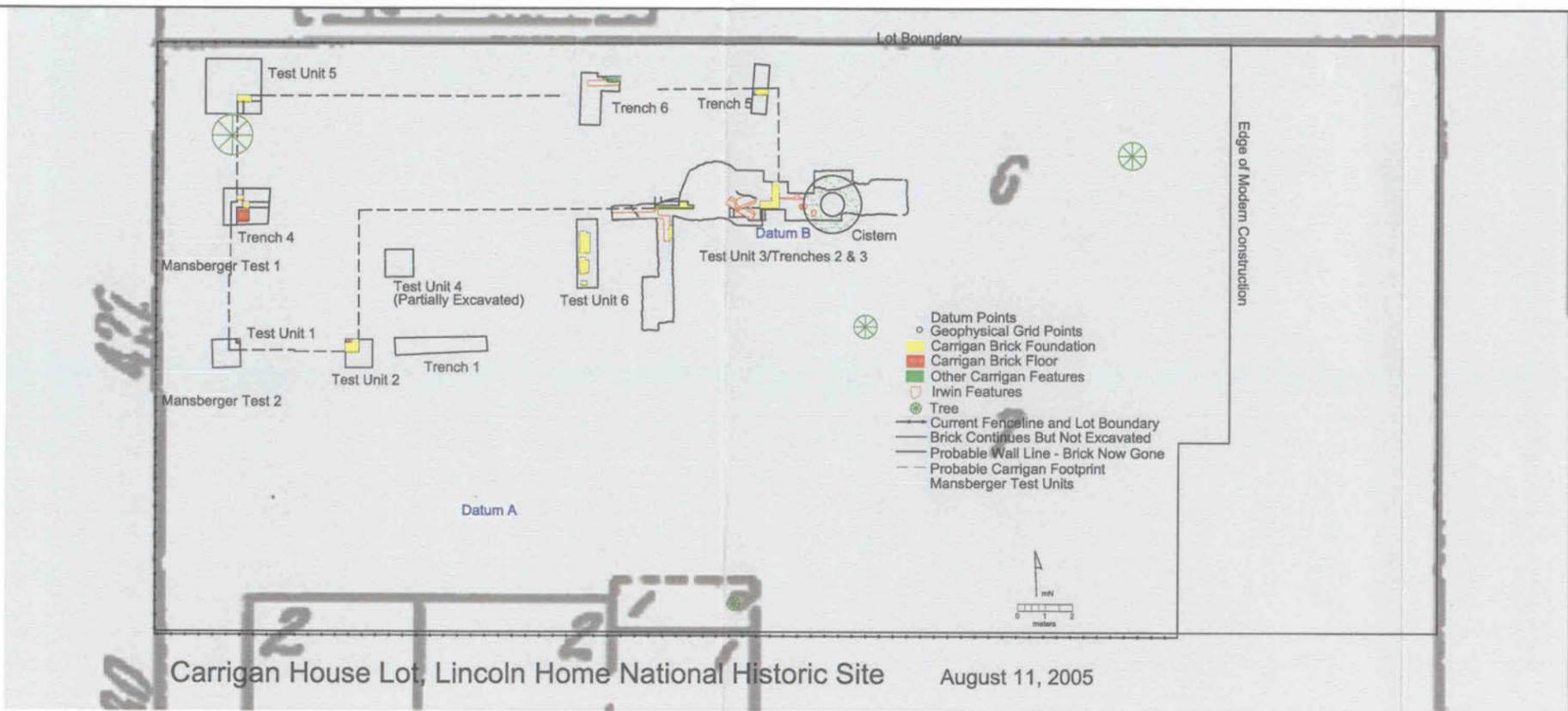


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

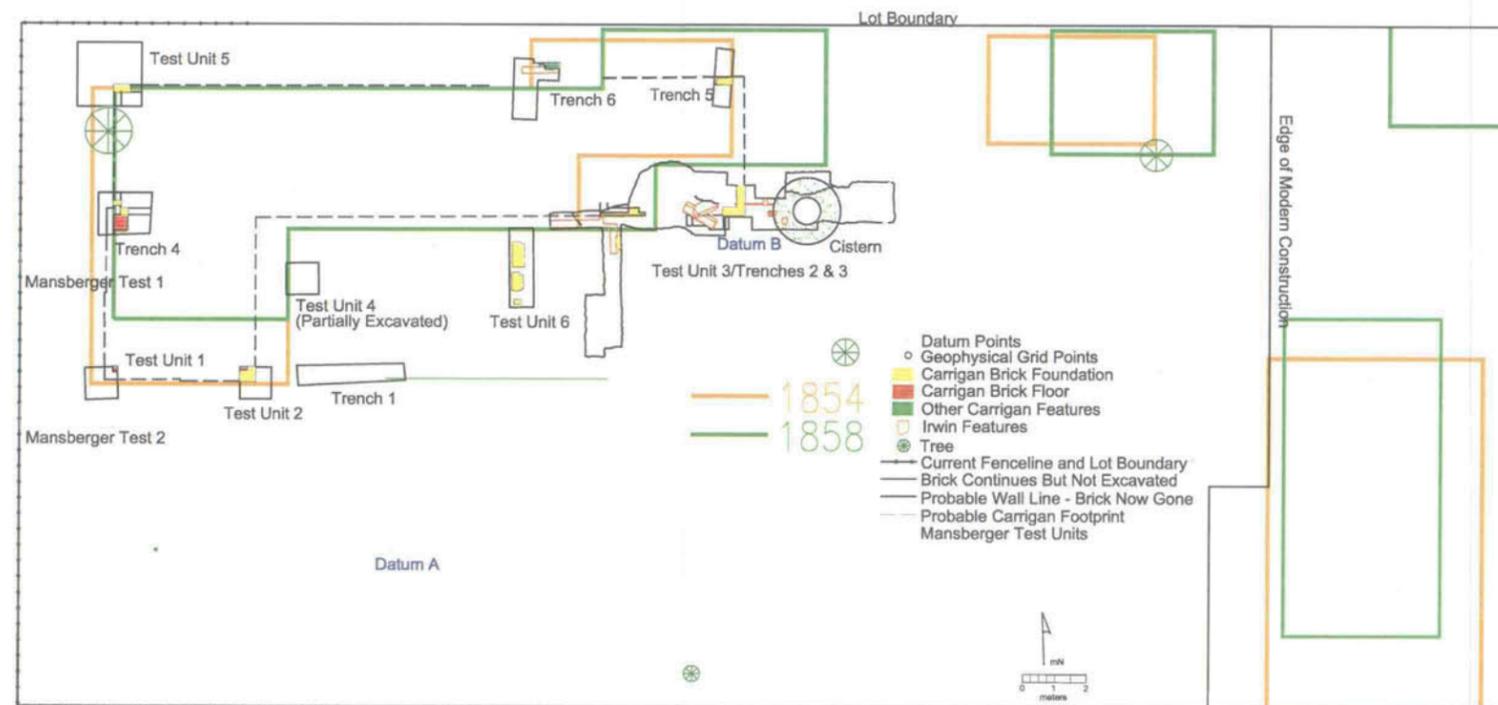


Carrigan House Lot, Lincoln Home National Historic Site August 11, 2005

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
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DATE:			80095
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			SHEET
			OF



DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
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DATE:			80095
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			SHEET
			OF



Carrigan House Lot, Lincoln Home National Historic Site

August 11, 2005

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	0S8	ARCHEOLOGY/ HISTORIC MAP OVERLAY STUDY	449
DATE:			80095
		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF

Materials/Dimensional Analysis

Methodology

Given that the Carrigan House is no longer extant, the material/dimensional analysis was based primarily on photographic analysis and some original materials and dimensions taken during the archeological excavations.

According to NPS staff, the archeological digs determined the brick to be on average 8-1/2" X 4" X 2". In order to determine vertical dimensions of the house, the multiple photographs showing the chimney's exposed brick base and chimneys above the roofline were examined. From those photographs with horizontal coursing visible, the courses were counted. After assuming a 3/8" mortar joint, the team reached an estimated dimension. With this information in hand, the brick size was compared to the clapboard exposure and a dimension for the clapboard was determined from that. This clapboard size was then used to estimate vertical dimensions on the western portion of the house, which led to determining roof pitch at that location. The roof shingle courses were then counted in order to determine an exposure for wood shingles. After the shingle exposure was determined, this same dimension was used to help determine the pitch of the ell portion of the house and subsequently the size of the dormer and dormer windows. These dimensions were then compared to the known archeology, historic maps, and aerial drawings in order to estimate the dimensions and configuration of the missing information.

Masonry

Masonry at the Carrigan House is limited to chimneys and the foundation. The south chimney is exposed at its base and above the roofline and is covered over with clapboard siding in its midsection. At its base, there are approximately 20 brick courses visible in the historic photographs. It is presumed that there is at least one more course that is not visible. This gives a measurement of approximately 4'-8" from the presumed grade level to the top of the brick base. Above the roofline, the brick count is similar, as there are 18 brick courses from the lowest point up to the bottom of the 2-course corbel. The north chimney brick coursing is indeterminate, but it is obvious that the chimney is much more narrow and shorter than the south chimney. The chimney also has corbelling detail at its top two courses and a barrel vaulted hood at the chimney crown. The east chimney is fairly similar in size to the south chimney, but the brick count is indeterminate.

Siding

In comparing the scale of the clapboard with the scale of brick, it was determined that the clapboard's exposure was approximately 5 inches. With a clapboard count of 40, this brings the total vertical dimension from the bottom of the first siding course to the top of the last course to around sixteen and a half feet. The lean-to porch at the east side of the main portion of the house has a smaller siding exposure at its upper extent pointing toward this being constructed or modified a later time. There is also wood siding visible at the sides of the two dormers at the east ell.

Fenestration

On the west elevation, vertical window dimensions were determined by comparing the photographs of the window openings with the visible clapboard siding courses. The shutters could also be determined this way, as they were the same vertical dimension as the window. The three windows on this façade were nine-over-six. All of these windows had louvered shutters, which appear to be a single panel of louvers. The windows at the dormers are six-over-six. The vertical dimensions of the dormers were determined by comparing it to the roof coursing. With this information, the window lights were evenly spaced horizontally and vertically in order to reach a reasonable proportion.

Only one door is visible on the historic photographs and is located on the west facade. It is assumed that this door is a wood paneled door, but the panel configuration is not visible. A transom is visible above the door. The top of the transom aligns with the top of the adjacent windows.

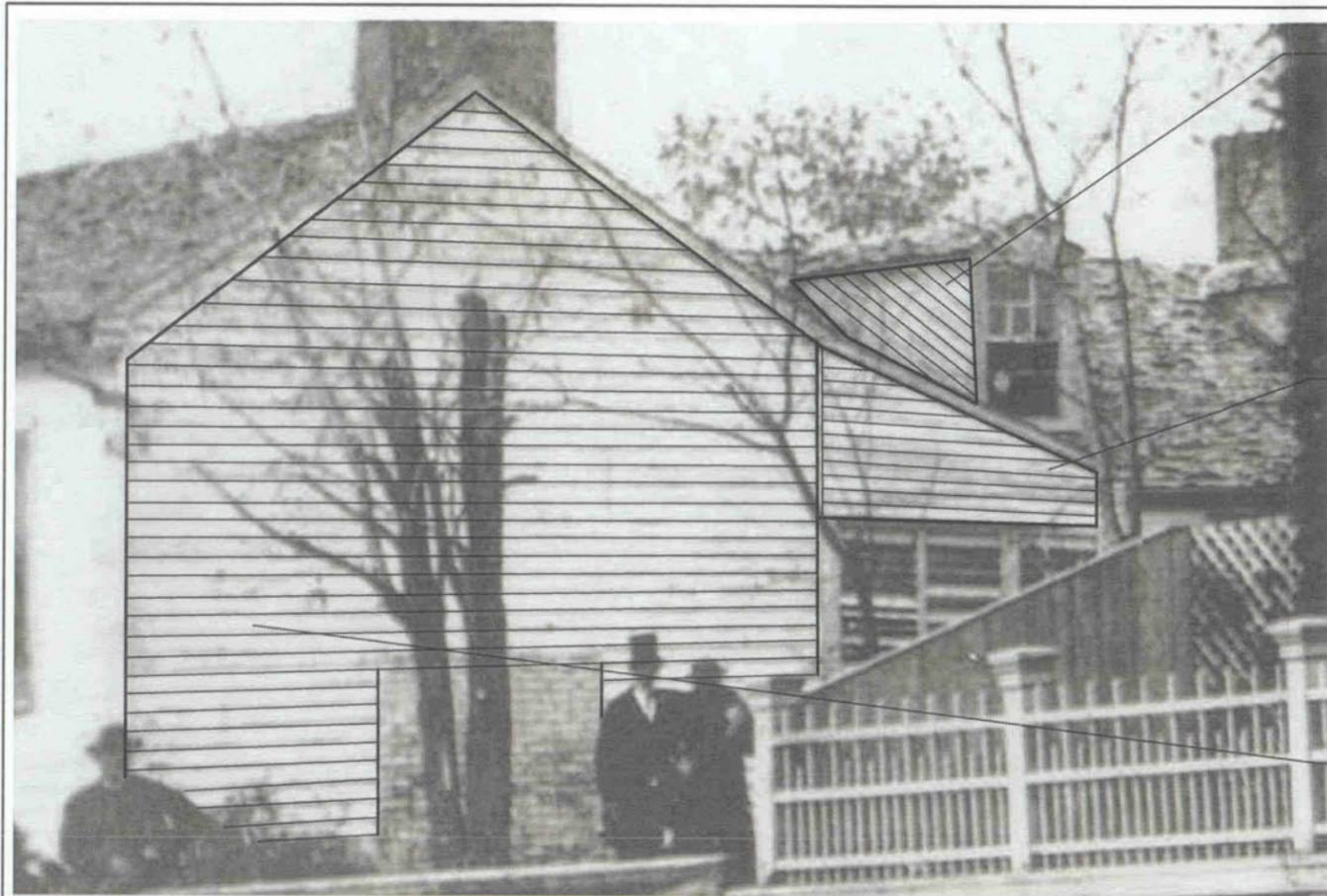
The louvers on the south face of the west porch and the louvers on the south face of the east ell were counted and compared to the known dimensions of the brick and clapboard in order to determine the estimated scale and proportion.

Wood Trim

The wood trim consists of eaves, rakes, trim board, and corner boards. The dimensions of these elements were simply determined by comparing the scale of the trim elements to the scale of the clapboard siding.

Roofing

All of the roofing appears to be of the wood shingle variety where visible. There are 25 shingle courses on the western portion of the house and 35 courses at the east ell. With the slope of the roof determined in the wood clapboard analysis, this would bring the shingle exposure to around four inches.

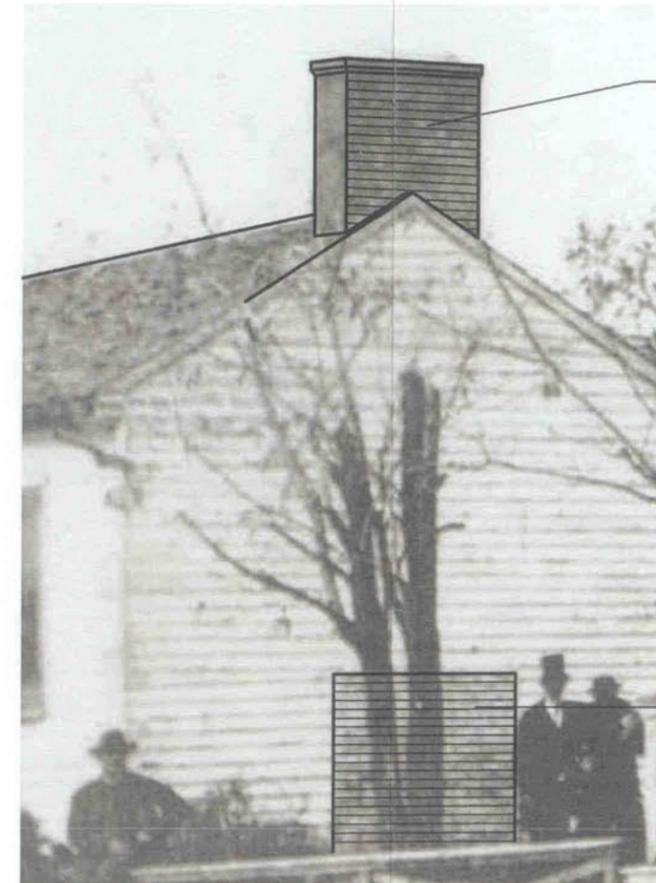


DIAGONAL SIDING ON DORMERS WITH SIDING COUNT OF 10

SIDING ON EXTENSION HAS SMALLER EXPOSURE DIMENSION THAN ADJACENT SIDING WITH A SIDING COUNT OF 12

SIDING COUNT OF 40 +/-2 AT GROUND PLANE

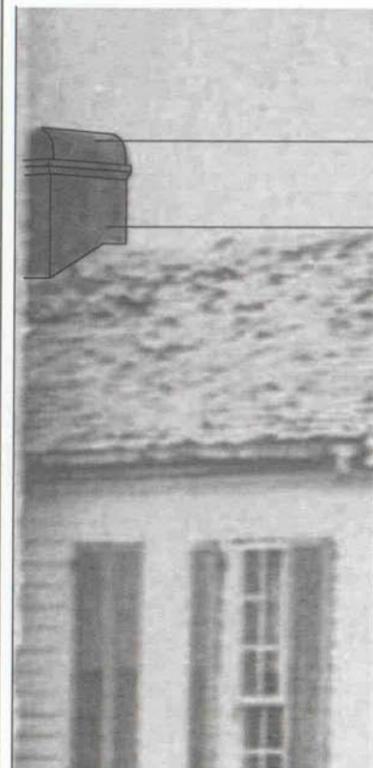
CLAPBOARD SIDING COUNT MA-1a



BRICK COUNT UP TO CORBEL IS 18

BRICK COUNT OF EXPOSED CHIMNEY BASE IS 20 +/-1 AT GROUND PLANE

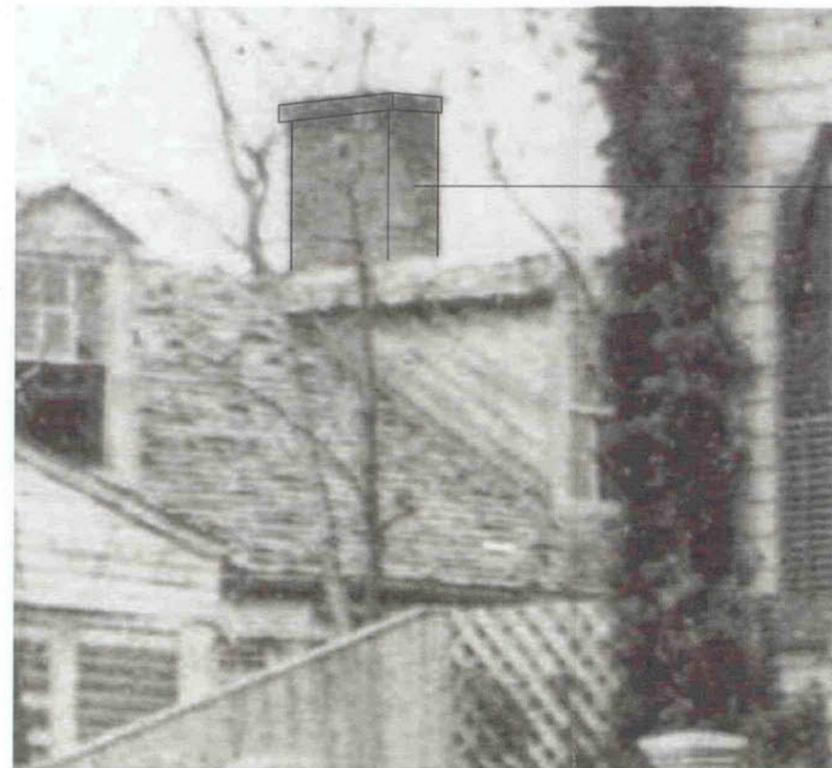
SOUTH CHIMNEY & BRICK MA-1b



HALF ROUND CLAY CHIMNEY CAP

BRICK COUNT INDETERMINATE, SMALLER IN HEIGHT AND WIDTH DIMENSIONS THAN SOUTH CHIMNEY

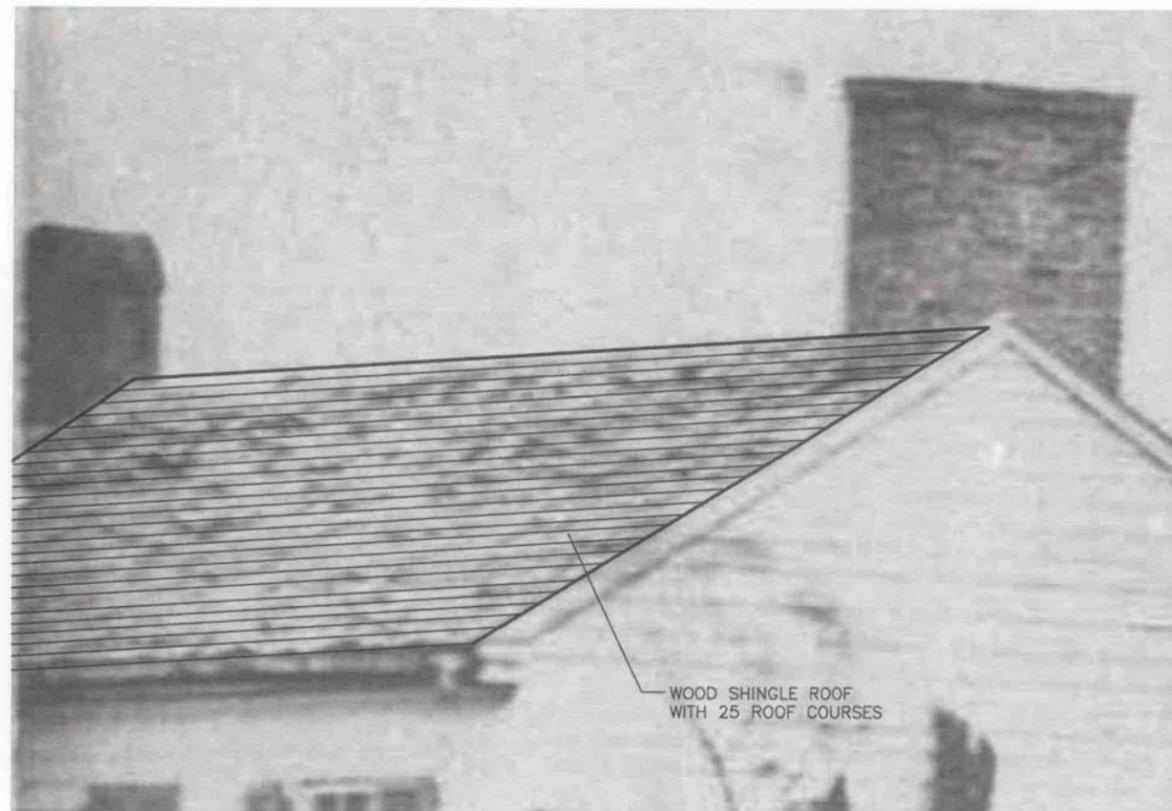
NORTH CHIMNEY MA-1c



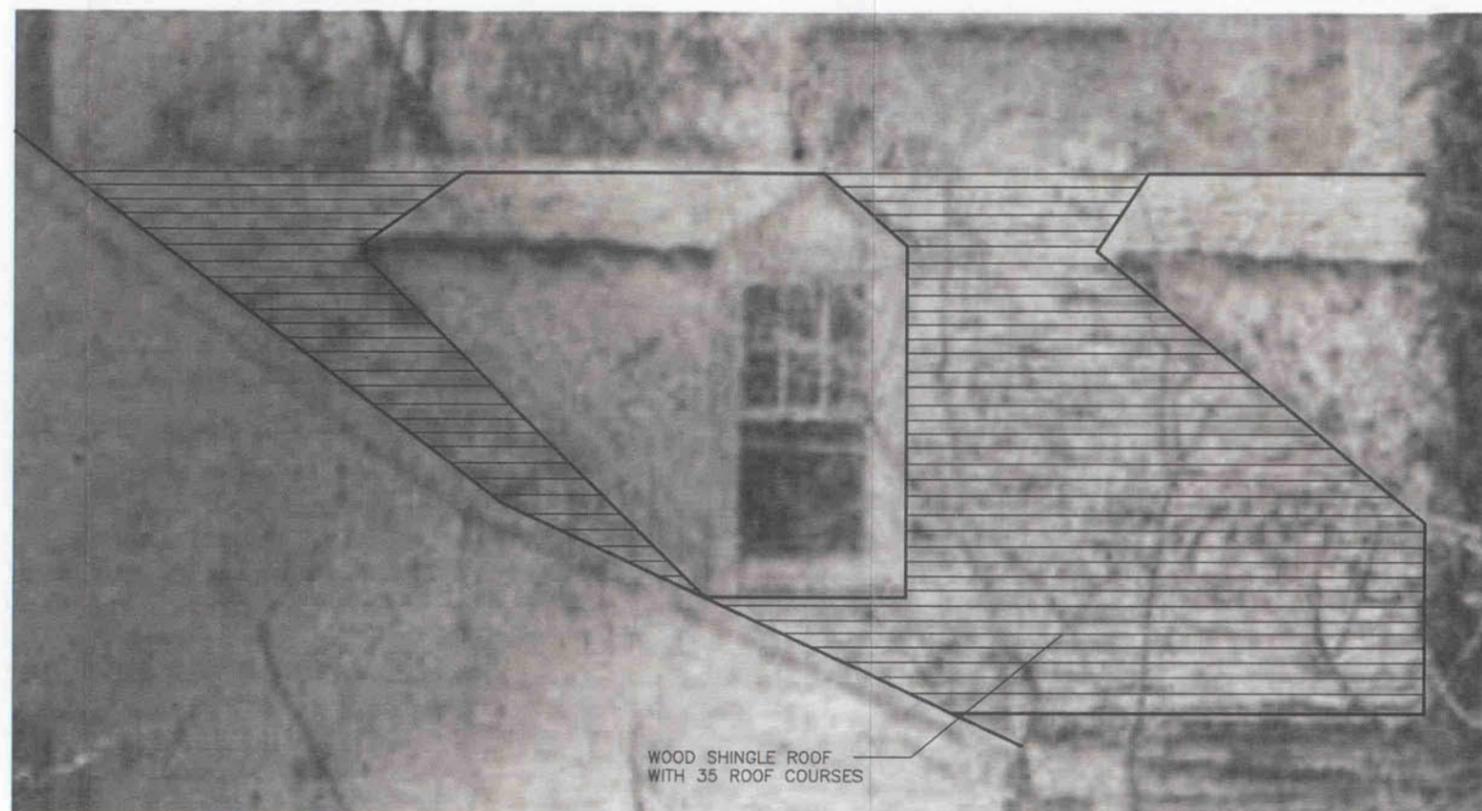
BRICK COUNT INDETERMINATE, LOCATION IS TO THE EAST OF THE EAST DORMER, CORBELED AT TOP

EAST CHIMNEY MA-1d

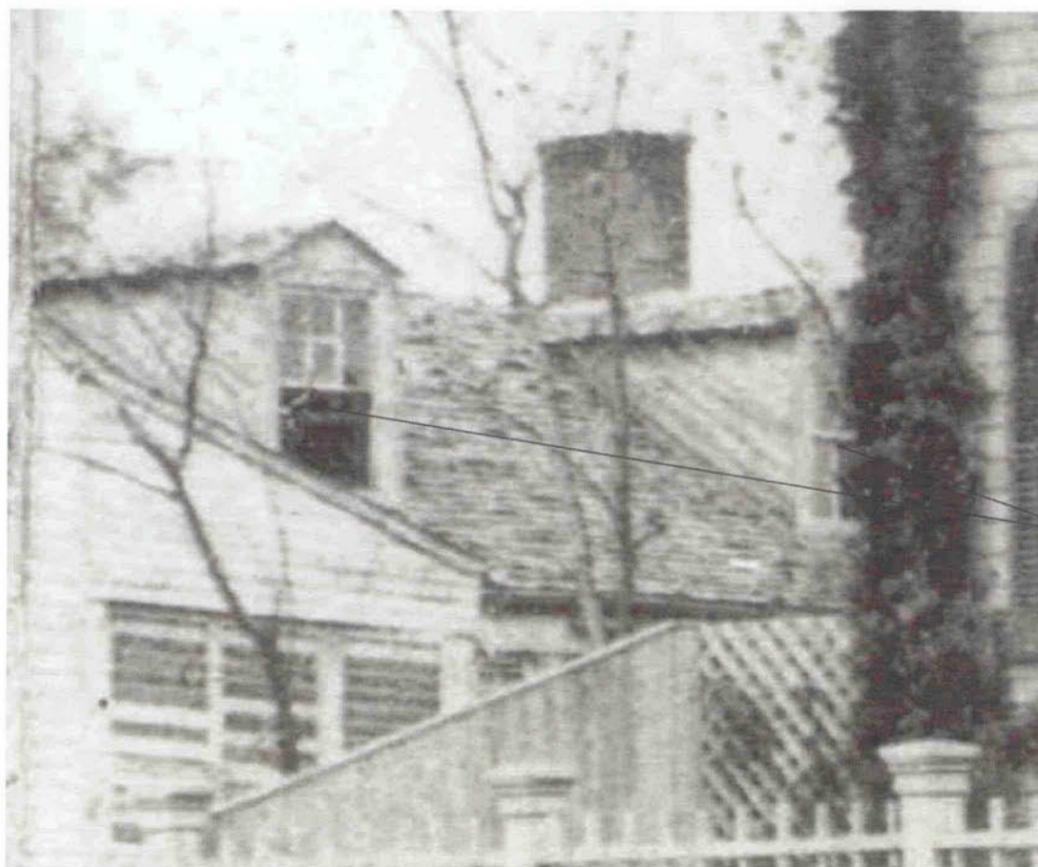
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TECH. REVIEW:		CARRIGAN HOUSE (HS-25)	80095
DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF



ROOFING MA-2a



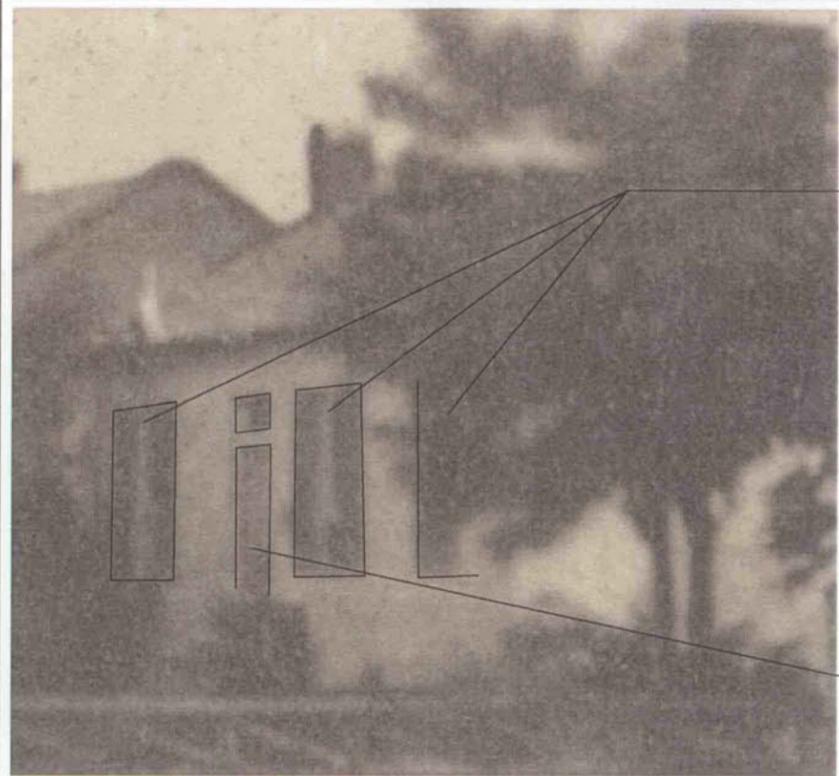
ROOFING COUNT ON ADDITION MA-2b



SOUTH DORMERS ON ADDITION MA-2c

6 OVER 6 DOUBLE HUNG WINDOWS

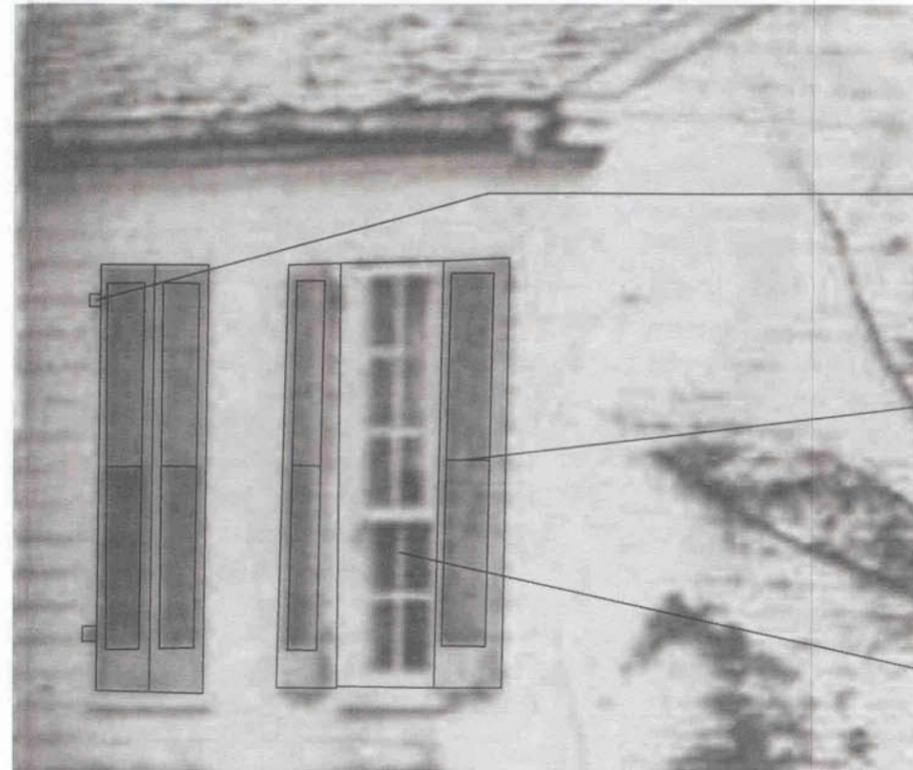
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TECH. REVIEW:	MA2	MATERIALS/DIMENSIONAL ANALYSIS CARRIGAN HOUSE (HS-25)	449
DATE:			80095
		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF



3 WINDOWS ON FRONT
FACADE

DOOR WITH TRANSOM
ABOVE

WEST WINDOWS MA-3a

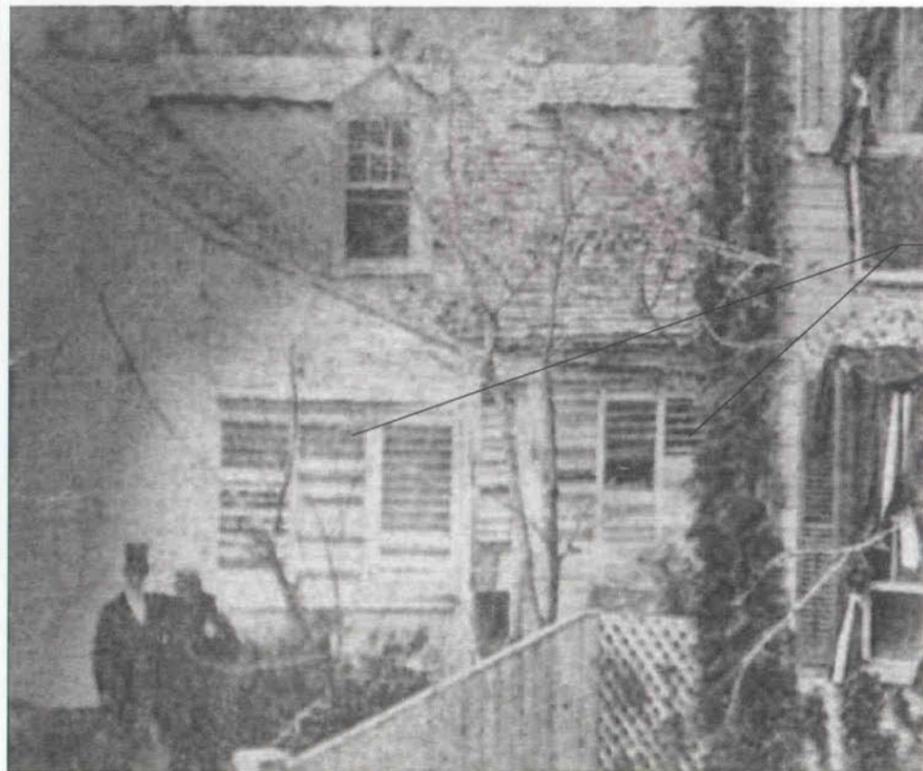


HINGES EVIDENT AT TOP AND BOTTOM

CHANGE IN LOUVER DIRECTION AT
CENTER OF SHUTTER, RAIL AT
CENTER INDETERMINATE

6 OVER 4 DOUBLE HUNG WINDOWS

WEST WINDOWS & SHUTTERS MA-3b



LOUVERED WINDOWS ON SOUTH
FACADE IN SETS OF THREE

SOUTH LOUVER WINDOWS MA-3c

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	MA3	MATERIALS/DIMENSIONAL ANALYSIS CARRIGAN HOUSE (HS-25) LINCOLN HOME NATIONAL HISTORIC SITE	449
DATE:			80095
			PMIS/PKG NO.
			SHEET
			OF

Part 2:
Treatment and Use

TREATMENT OBJECTIVES

Reconstruction as defined by the *Secretary of Interior's Standards for the Treatment of Historic Properties* is "the act or process of depicting, by means of new construction, the form, features, and detailing of non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location." The goal of this type of preservation technique is to make the building appear as it did at its most significant time in history. For the Carrigan House that date is 1860, the year that Abraham Lincoln was nominated and elected to the presidency. Archeological investigation for this treatment is a key element providing vital information essential in making sound decisions. With the available maps, photographs, and historical data an accurate reconstruction is attainable to meet the *Secretary of Interior's Standards for Reconstruction*.

GUIDELINES & STANDARDS FOR TREATMENT

The Secretary of Interior Standards for Reconstruction will be followed for the Carrigan house reconstruction. Those standards are:

1. Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location will be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures will be undertaken.
3. Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction will be clearly identified as a contemporary recreation.
6. Designs that were never executed historically will not be constructed.

It is not yet known if the first standard for reconstruction can be met. The determination will be made based in part upon the results of additional archeological testing scheduled for spring 2006 with the goal to better define the footprint and identify and document features and walls. Archeological investigations to locate physical features of the building and site are essential to an accurate recreation. In conjunction with the historical research, the archeological information will be used to reestablish the location and footprint of the Carrigan House. Any remaining material from the original structure such as the cistern and stone step will be documented and retained to be incorporated where possible into the

reconstruction. The landscape and site will be an integral part of the overall reconstruction. Information is available through photographs, maps and historical data, which provide sufficient detail to address these features.

Accurate information pertaining to the historic interior does not exist and therefore will not be reconstructed. Instead the interior will be used for display and exhibit purposes relating to the interpretive themes as stated in the Lincoln Home NHS's Long Range Interpretive Plan. Several options for the interior layout are offered along with the ultimate treatment. The interior structural and mechanical systems will be of modern design and concealed to the visitor from the exterior. Accessibility, energy efficiency and health and safety considerations will be addressed in the reconstruction without adversely impacting the historic visual continuity. Signage will be included to identify the Carrigan House as a reconstruction. The house will be reconstructed to its 1860 appearance in congruence with the time period of interpretation for Lincoln Home National Historic Site.

The Carrigan House is significant for its historical association with Abraham Lincoln and not its architecture per se. Its architecture is significant only for its contribution to the neighborhood context and its relationship to the Lincoln Home. With many of the original neighborhood houses missing, the Carrigan House will provide a vital link to presenting an enhanced 1860 experience for visitors. It will also allow for additional programming and exhibit space.

ALTERNATES FOR TREATMENT AND USE

Alternate designs were presented at the Value Analysis workshop that was conducted on November 15, 2005 at the Lincoln Home NHS in Springfield, Illinois. The following options were presented at that workshop:

Accessibility

Two alternates were presented for accessible entry into the house. Option #1 proposed cutting an accessible ramp just north of the Lincoln Home in order to mitigate the grade change and access the rear of the house. Option #2 proposed using the existing accessible entry through the alley to access the rear of the house.

Proposed Basement

The basement floor plan was presented as a full basement that would be used for storage and MEP equipment. The proposed basement was intended to work for all of the proposed first and second floor options. Basement access was presented as well consisting of an exterior stairway at the southeast corner of the house that would be designed to appear as a cellar entry.

Option A

Proposed First Floor Plan – Option A

Option A consists of dividing the spaces into three galleries following their presumed original room configuration. This option would have no second floor, as there would be “cathedral” ceilings throughout.

Option B

Proposed First Floor Plan – Option B

Option B has the same first floor plan as Option A with the addition of a second floor. The second floor is accessed through a hatch through Gallery #2.

Proposed Second Floor Plan – Option B

The second floor contains a long narrow room that is supplemented by two dormers on its south side.

Option C

Proposed First Floor Plan – Option C

Option C keeps the three galleries from Option A and B but utilizes the second story. This differs from Option B in that a stair was inserted into Gallery #2 in order to access the second floor.

Proposed Second Floor – Option C

The long narrow room from Option B does not change with the exception of the addition of a stair leading down to the first floor.

PROPOSED USES & RECOMMENDATIONS

General

Because the Carrigan House would be located approximately 30 feet from the Lincoln Home, great care needs to be taken during the construction phase. The 30 feet should provide an adequate buffer zone for construction, but contractors should be directed to keep the building trench in close proximity to the new construction, which should prevent any impact to the Lincoln Home.

Alternate Recommendations

After considering these alternates in the VA session, a hybrid design based on Option B was recommended by the design team. The recommended design incorporates a mix of crawl space and full basement in the below grade portion of the house. The easternmost portion of the basement floor plan would be full height and would house most MEP needs. The westernmost portion would be a crawl space. In addition to this, a small areaway is recommended at the southeast corner of the house. Although a “jog” was uncovered in the archeology, we have seen no evidence from the historic photographs that demonstrate that this “jog” was somehow reflected in the west façade. The “jog” does more or less align with the south wall of the ell and could point to the house originally being a “shotgun” house, which at some point at the westernmost portion was expanded to the south. This would have required the gable to either be extended over as well or if it was a front gabled house, the gable would have had to be reconfigured to a side gabled configuration. Despite this, we are reluctant to recommend a jog in the foundation if it is not reflected on the west façade. This design was recommended based on cost estimates and evaluating the space needs of the building.

On the first floor, it is recommended that the two galleries shown in Option B be combined into one larger space with a second floor above serving as a storage space and accessed by a hatch in the former Gallery #2. The floor elevation of the main portion of the house is higher than that of the ell resulting in differing ceiling heights. Due to these head height considerations, a ramp along the northern wall of the main portion of the house is included to traverse the difference. Accessible circulation to the house would be provided via a ramp on the north side of the house on the adjacent Bugg House property. The house would also be accessible from the backyard of the Lincoln Home. As current archeological evidence recommends, a stair access to the basement from the southeast elevation of the ell is recommended. The second floor would be accessed via a hatch in the ell portion of the house and would be utilized for storage and mechanical system maintenance access as needed.

With the available information delineated in this report, the Carrigan House should be accurately interpreted on the exterior but without further information it is impossible to definitively recreate the interior configuration. The interior can be used for display and exhibit purposes or as a staging area for entry to the Lincoln Home. The latter option is especially applicable, allowing for either an indoor or outdoor staging area. The Master Plan of 1970 proposes that one of the reconstructed houses on Eighth and Jackson be used as a special interpretive facility intended mainly for school and community group use. The plan also recommends that it be utilized as a demonstration study area. The Carrigan House with its convenient location to the Lincoln Home would be the ideal choice.

It is recommended that the Carrigan House be constructed using modern techniques for non-visible features but utilizing materials that will allow its historic appearance to be clearly visible. This will fulfill the goal to accurately depict the exterior and allow for energy efficiency and budget conscious construction. The proposed wall type will utilize wood clapboard siding and rigid insulation vapor barrier and retarder on a wood stud structure. The siding should be wood clapboard to match the documentation and the window and door designs should match that of the historic photographs. The windows should have true divided light sashes and interior piggyback storm windows. The roof will employ sawn cedar shingles, Certigrade if possible and designed with the appropriate ventilation provisions and treated with a fungicide to prevent organic growth.

The site will be addressed historically as well. It is recommended that the historic relationship between the building, site and landscape features be re-established. This includes reconstructing the Carrigan barn and privy. The barn was present in 1860 and would have been a major feature on the Carrigan site. It bordered the Lincoln property and being two-stories in height would have had a large impact upon the neighborhood context. Although not within the scope of this study, the barn should be studied further with the intention of reconstruction.

In the approach to design relating to the current building and safety codes, the Carrigan House should be treated as new construction. The Carrigan House should also be designed to include barrier free access. An accessible path, entry and passageway within the house should be provided to meet UFAS guidelines. Any displays and exhibits should also be designed with these guidelines in mind. Signage should include verbiage identifying the Carrigan House as a reconstruction.

Site

See sheet L1 – Ultimate Treatment for further information

Topography

The site relationship to street level and adjacent properties should be retained to greatest extent possible to maintain the historic fabric of the site. The relationship of the former Carrigan House to the original site topography is not clear through historic data. Further archeological study is recommended to determine building footprint, depth of foundation and sub-terrain structures or site features that may have been associated with the Carrigan House. There should be minimal disturbance to grades during reconstruction of the Carrigan House.

Accessibility

The National Park Service Management Policies state that “the National Park service will provide persons with disabilities the highest feasible level of physical access to historic properties that is reasonable, consistent with the preservation of each property’s significant historic features...However, if it is determined that modification of particular features would impair a property’s integrity and character in terms of the Advisory Council’s regulations at 36 CFR 800.9, such modifications will not be made.” In accordance with this policy, the Carrigan site and house should be made accessible from the public right of way onto the site and into the house itself.

Three alternatives for universal access to this site have been considered. The initial concept routed the visitor from the rear/east side of the property due to the relatively flat (3%) grade in this area. This was least favored primarily due to a compromised user experience.

The two other options were from the front/west side of the property, which contains a significantly steeper (20%) slope. Of these two options, one followed the north side of the Lincoln Home fence from the Eighth Street sidewalk into the side yard of the Carrigan property.

The other option followed the north property line on the adjacent Bugg property around to the rear of the Carrigan House. Both options would require a longer ramp and disturbance to the existing grades. However, after further study, it was determined that the grades along the north property line could accommodate a longer ADA ramp that would not require hand rails, causing less of a visual intrusion to the Lincoln and Carrigan properties.

The later option has proven to be the most feasible in terms of user experience and least impact on the historic fabric of the site. The ramp would bring the visitor along the north side of the property to the rear of the Carrigan House to an ADA ramp enclosed in the rear porch of the house. Opportunities exist along this route for outdoor interpretation. However, this ramp design will require mitigative archeological investigations prior to construction.

Other than the grading required for the proposed ADA ramp, the front slope of the property should be maintained to greatest extent possible, as it is significant to the historic context of the site.

Drainage

There are no apparent drainage issues on site. Roof drainage should flow to downspout and drain into the existing storm system or drain to daylight onto the adjacent Eighth Street and into the existing catch basin.

Circulation & Staging

Circulation recommendations are indicated in **L1 – Ultimate Treatment**. Access from front of property should be limited due to accessibility and grade issues. However it is recommended that the front path and entry gate be reconstructed according to historical data as indicated in **L1 – Ultimate Treatment**. Circulation at rear of site shall connect the Lincoln Home property with the Carrigan property with some consideration given to future connections to the north. A staging area to accommodate 25-30 visitors should be provided at the rear of the property.

Plant Materials

Approximate locations for historic plant materials are indicated in **L1 – Ultimate Treatment**. The removal of some existing plant material will be necessary for further archaeological study and reconstruction of the house and is labeled as such. Unless recommended by further findings, all other existing vegetation shall remain.

Site Elements

The front/west fence line shall remain a four-board rail fence along Eighth Street. Pathway shall be constructed of a permeable and stabilized aggregate or soil surface. There is sufficient historical data from the cited photograph and 1884 Sanborn Map to reconstruct the large frame barn. The historic cistern could be incorporated into the site through installation of a period water pump.

Site Entry

After consideration of several alternatives, the best design solution for providing universal access to the site and house without compromise to the visitor experience would be from Eighth Street along the adjacent Bugg property line to the north. Due to the quick increase in elevation from the boardwalk along Eighth Street to the elevation of the Carrigan site, a ramp will be necessary for universal access. Of the locations considered along the Eighth Street (west) property boundary were the southwest corner of the lot by the Lincoln Home and the center access to the property via the historic gate location. Both of these options would be intrusive to the visual character of the property, requiring a large and overbearing ramp to traverse. This would adversely affect the historic context of the neighborhood and the Lincoln home.

Universal access will then be provided along the north property line of the site on the Bugg site via gradual incline approximately 90' in length to the rear of the Carrigan House. The ramp shall remain at 5% so to not require handrails, but will feature a retaining wall for the first 30' to hold the slope along the property line. The slope on the north side of the ramp should be feathered back to meet the existing grade. Access into the Carrigan House itself could be best achieved from the rear entrance as well as having the least impact to the most visible elevations. A ramp will be concealed within the rear porch of the house to allow for universal access into the building.

Structural Systems

Foundation	Reinforced concrete wall and spread footings.
Basement Walls	Reinforced concrete.
First Floor Framing	2x Dimensional Lumber Framing and ¾" T&G plywood sub-floor. Steel beams and post columns as needed. Live Load Capacity - 100 psf.
Roof Framing	Dimensional lumber framing and ¾" plywood decking. Roof framing supported by internal and external bearing walls. (2x4) Live Load Capacity - Minimum 20 psf.
Exterior Skin	Wood siding over 2x4 wood stud walls.
Steps and Porches	Stone.
Chimneys	Brick with concrete foundation.

It is recommended that the Carrigan House be constructed using modern structural materials. The following structural systems are considered appropriate for the demands of the structure for this house.

Foundation

It is proposed that the house have a partial basement and a crawlspace. The basement walls and crawlspace walls may be constructed of reinforced concrete bearing on a concrete footing, at least 2 feet in width and 1 foot in depth. The basement floor should extend into the sub-grade sufficiently to produce a head clearance in the basement of at least 8 feet with the footings being directly below the floor slab. The basement floor slab may be 4 inches thick and placed over a minimum of 4 inches of compacted granular material. The crawl space footings must extend down to frost depth and pea gravel over vapor barrier can be used to fill the crawlspace to within 2 feet of the bottom of the floor framing. Columns and masonry piers are to bear on square reinforced concrete footing pads, sized to meet the loading requirements.

The soils report, as submitted by PSI, dated September 6, 2005, indicates that the allowable net soil pressure for the Carrigan site is 2,000 pounds per square foot. Exterior footings should extend at least 36 inches below outside final grade to protect against freezing. According to this report, the groundwater table at the time of the field exploration was estimated to be 9 to 11 feet below existing grade. Due to seasonal fluctuations in the water table, it is possible that some water may be encountered during construction of the basement of Carrigan, however, this is not expected to present unusual construction conditions. The site may require some engineered fill to be placed to bring the site to the desired final sub-grade elevation and this will reduce the depth of the excavation of the basement relative to the present existing grade elevation. It is recommended that the basement walls be water-proofed and the crawlspace walls be damp-proofed.

First Floor Framing

It is proposed that the first floor be structured to meet a design live load of 100 pounds per square foot. This can be accomplished with standard dimensional lumber floor joists supported by wood beams along the interior ends and by the foundation wall at the perimeter of the basement. Where required, wood beams may be supported by steel columns bearing on square reinforced concrete column footings. Over the crawlspace, it is proposed that the floor beams and joists be supported by 16-inch square masonry piers, bearing on square concrete footing pads. It is recommended that the floor deck be $\frac{3}{4}$ " tongue and groove plywood, glued and screwed to the floor framing.

Roof Framing

The roof should be structured to meet a design live load of 20 pounds per square foot. It is suggested that the roof framing consist of standard dimensional lumber rafters supported by wood beams along the interior ends and by the exterior stud walls at the perimeter of the house. At the ends of interior beams, double and triple studs should be provided. In certain areas, metal plate, pre-fabricated trusses may be used in lieu of dimensional lumber rafters. Along the outer edge of the southern porch area, the roof framing can be supported by wood beams supported on wood posts. It is recommended that all exterior exposed wood members be pressure treated. It is proposed that the roof sheathing be $\frac{3}{4}$ " plywood panels with spacers.

Walls

All walls above grade may be constructed of standard 2x4 dimensional lumber. The sill plate along the exterior perimeter on the top of the basement wall should be pressure treated. Headers over window and door openings can be double 2x8 members nailed together with a ½ inch plywood spacer. It is recommended that the entire exterior of the house be sheathed with ½ inch nominal plywood or OSB board.

Building Environmental Systems

As described by the Guidelines and Standards for Treatments, the interior mechanical and electrical systems will be of contemporary design and concealed from the visitor from the exterior. The proposed use of the building will be for public display and exhibit purposes relating to the interpretive themes as stated in the Lincoln Home NHS's Long Range Interpretive Plan and shall meet acceptable standards for human occupancy.

Building environmental systems include; heating, ventilation, cooling/dehumidification, humidification, illumination, power distribution, acoustics, and, communications. Fire detection, alarm and suppression, intrusion detection and alarm, and automatic temperature controls are also major building systems that are included in modern facilities. The selection of these systems is dependant on the available infrastructure and the costs to construct the required utilities.

The fire alarm/intrusion detection and automatic temperature controls systems must be compatible with campus-wide monitoring systems. A Honeywell/Ademco Vista 128FB combined fire/security system and an Invensys (Barber Colman) Network 8000 DDC system are the campus systems that must be interfaced to.

The HVAC system serving the Carrigan House should be designed to comply with *ASHRAE Standard 55 – Thermal Environmental Conditions for Human Occupancy*, and not to museum standards. The design winter heating temperature will be 71°F with a range from 68-75°F, while the design cooling temperature will be 76°F with a range from 73-79°F. Relative humidity levels should be designed to a maximum of 45% RH in the summer and a minimum of 30% RH in the winter. The Park does not require any filtration level above 30% efficiency. Any artifacts requiring tighter humidity control will be placed in humidified cases.

The design of the building envelope, HVAC, service water heating, lighting and power distribution systems should be in compliance with *ANSI/ASHRAE /IES Standard 90.1-Energy Standard for Buildings Except Low Rise Residential Buildings*. This standard is the basis for most of today's energy codes, including the International Codes. The standard does allow exceptions for both historic buildings (to allow for single pane glass) and for display lighting energy.

The most common HVAC system in use at the site is a residential gas fired furnace with an add-on DX coil. This type of system requires an outdoor air-cooled condensing unit. The outdoor unit is problematic in two ways; the first is that the unit is exposed to the outdoor elements and typically has a life span of ten to fifteen years, while the second is that it houses

both a compressor and fan which are noisy and limit the use of the adjacent outdoor space. While the *Secretary of the Interior's Standards for Reconstruction* requires that the reconstruction be clearly identified as a contemporary recreation, the intent is to recreate the historic scene of the 1860's. Placing outdoor equipment adjacent to the building adds both a visual and an audible element that did not exist at that time, compromising the visitor's experience.

The system under consideration for use at the Carrigan House is a geothermal heat pump system. Geothermal heat pumps use indoor "air-to-water" heatpumps piped to a series of underground loops or wells. The underground piping is known as a "geo-exchanger", where heat is transferred to and from the relatively stable earth. The average ground temperature for Springfield is approximately 55° F. During the summer cooling season, the heat pumps remove the heat from the air and reject it to the water loop, typically raising the water temperature to 90°. The heat is efficiently rejected to the ground. An air-to-air heat pump would require much higher condensing temperatures; lowering its overall efficiency, to reject the same quantity of heat to 93° air. Conversely, when heating, approximately 40° F water is circulated through the 55° F ground, allowing the heat pumps to extract heat from the water loop and supply it to the space.

The geo-exchanger will consist of five, 300 feet deep, 4" diameter boreholes. Each borehole contains two 1-1/4" diameter polyethylene pipes, grouted in place the entire depth. The boreholes are spaced approximately 20 feet apart to minimize each borehole affecting the others. The top of the boreholes and the horizontal distribution piping will be installed at least 36 to 42" below grade.

Locations for the well field that were considered included to the south of the Carrigan House, adjacent to the Lincoln property and to the property to the north of the Carrigan House. Because of our concerns that resultant vibration caused by the drilling process could damage the Lincoln Home, we selected the property to the north of the Carrigan Home, which is indicated on the mechanical site plan.

Life/Fire Safety Issues

Although the Carrigan House was historically a residence, it will be reconstructed as a public building with gallery functions and should be treated as such. To this end, life safety codes for this occupant group should be followed. This includes adequate headroom in the basement and at the stairs, sufficient rise and run for interior stairs, minimum door and stair width requirements, compliant signage, and two available fire exits. The building should also be sprinklered throughout.

ULTIMATE TREATMENT - CARRIGAN HOUSE (HS-25)

LINCOLN HOME NATIONAL HISTORIC SITE

DRAWING SYMBOLS:

- CONSTRUCTION/DEMOLITION**
- COLUMN GRID
 - NEW CONSTRUCTION-REFERENCE TO PARTITION TYPE
 - ELEVATION DATUM POINT
 - ROOM NAME AND NUMBER
 - DEMOLITION PLAN NOTE
 - WINDOW NUMBER
 - CONSTRUCTION PLAN NOTE
 - ALIGN DESIGNATED SURFACES
 - REVISION REFERENCE
- REFLECTED CEILING PLAN**
- ACOUSTICAL CEILING AND GRID
 - FLUORESCENT LIGHT FIXTURE
 - NIGHT LIGHT/24 HOUR CIRCUIT
 - EMERGENCY LIGHT
 - CEILING MOUNTED FLUORESCENT FIXTURE
 - PENDANT MOUNTED FLUORESCENT FIXTURE
 - COMPACT RECESSED FLUORESCENT FIXTURE
 - PENDANT/CEILING MOUNTED FIXTURE
 - TRACK LIGHTING
 - RECESSED DOWN LIGHT
 - CEILING MOUNTED WALL WASHER
 - WALL MOUNTED FIXTURE
 - LIGHT SWITCH
 - 3-WAY SWITCH
 - DIMMER SWITCH
 - SPRINKLER HEAD
 - EXISTING SPRINKLER HEAD
 - WALL MOUNTED SPRINKLER HEAD
 - ACCESS PANEL
 - SUPPLY DUCT
 - RETURN DUCT
 - LINEAR DIFFUSER
 - EXHAUST FAN
 - SPEAKER
 - SMOKE DETECTOR
 - SECURITY CAMERA
 - MOTION DETECTOR
 - THERMOSTAT
 - PHONE JACK

ARCHITECTURAL ABBREVIATIONS:

- A**
- A/C AIR CONDITIONING
 - A.C.T. ACOUSTICAL CEILING TILE
 - ACOUS. ACOUSTICAL
 - ADJ. ADJUSTABLE
 - ALUM. ALUMINIUM
 - ALT. ALTERNATE
 - ARCH. ARCHITECT/ARCHITECTURAL
 - A.F.F. ABOVE FINISHED FLOOR
 - A.T.A. ADVANCED TECHNOLOGY AUDITORIUM
 - A/V AUDIO/VISUAL
- B**
- BD. BOARD
 - BITUM. BITUMINOUS
 - BLDG. BUILDING
 - BSMT. BASEMENT
- C**
- CAB. CABINET
 - C.T. CERAMIC TILE
 - C.B. CHALKBOARD
 - C.G. CORNER GUARD
 - CLG. CEILING
 - COL. COLUMN
 - CONC. CONCRETE
 - CONST. CONSTRUCTION
 - CONT. CONTINUOUS
 - C.O. CONTRACTING OFFICER
 - CONTR. CONTRACTOR
 - C.J. CONTROL JOINT
 - C.M.U. CONCRETE MASONRY UNIT
- D**
- DEPT. DEPARTMENT
 - DET. DETAIL
 - D.F. DRINKING FOUNTAIN
 - DIA. DIAMETER
 - DIM. DIMENSION
 - DISP. DISPENSER
 - D.M.B. DRY MARKER BOARD
 - DN DOWN
 - DS DOWN SPOUT
 - DWG. DRAWING
- E**
- EA. EACH
 - E.J. EXPANSION JOINT
 - EL. ELEVATION
 - ELEC. ELECTRIC/ELECTRICAL
 - ELEV. ELEVATOR
 - ENGR. ENGINEER
 - EQ. EQUAL
 - EQUIP. EQUIPMENT
 - E.W.C. ELECTRIC WATER COOLER
 - EXIST. EXISTING
 - EXT. EXTERIOR
 - E.I.F.S. EXTERIOR INSUL. FINISH SYSTEM
- F**
- FAB. FABRICATE/FABRICATOR
 - F.D. FLOOR DRAIN
 - F.E. FIRE EXTINGUISHER
 - F.E.C. FIRE EXTINGUISHER CABINET
 - F.H.C. FIRE HOSE CABINET
 - FIN. FINISH(ED)
 - FLR. FLOOR
 - FLUOR. FLUORESCENT
 - F.O.B. FACE OF BLOCK
 - F.O.BR. FACE OF BRICK
 - F.O.C. FACE OF CONCRETE
 - F.O.F. FACE OF FINISH
 - F.O.G. FACE OF GYPSUM BD.
 - F.O.S. FACE OF STUD
 - FPRF. FIREPROOF
 - FT. FOOT/FEET
 - F.V. FIELD VERIFY
- G**
- GA. GAUGE
 - GEN. GENERAL
 - GL. GLASS
 - G.W.B. GYPSUM WALL BOARD
- H**
- H. HEIGHT
 - H.B. HOSE BIBB
 - H.C. HANDICAP
 - HWDR. HARDWARE
 - H.M. HOLLOW METAL
 - HORIZ. HORIZONTAL
 - HVAC HEATING, VENTILATION & A.C.
- I**
- I.C.S. INTERACTIVE CLASSRM. STUDIO
 - I.D. INSIDE DIAMETER
 - INFO. INFORMATION
 - INCAN. INCANDESCENT
 - INSUL. INSULATION
 - INT. INTERIOR
- J**
- JAN. JANITOR
 - JT. JOINT
- L**
- LAV. LAVATORY
 - LB. POUND
 - L.H. LEFT HAND
- M**
- MAX. MAXIMUM
 - M.C.O. MULTIMEDIA COMMUNICATION OUTLET
 - MIPSIT MULTIMEDIA INSTRUCTIONAL PORTABLE SYSTEM (TRADE-MARK)
 - MECH. MECHANICAL
 - MTL. METAL
 - MFR. MANUFACTURER(ING)
 - M.H. MANHOLE
 - MIN. MINIMUM
 - MISC. MISCELLANEOUS
 - M.O. MASONRY OPENING
- N**
- N.A.F. NO APPLIED FINISH
 - N.I.C. NOT IN CONTRACT
 - NO. NUMBER
 - N.P.S. NATIONAL PARK SERVICE
 - N.T.S. NOT TO SCALE
- O**
- O.A. OVER ALL
 - O.C. ON CENTER
 - O.D. OUTSIDE DIAMETER
 - O.H. OPPOSITE HAND
 - OPG. OPENING
- P**
- P. LAM PLASTIC LAMINATE
 - PLAS. PLASTER
 - PWD. PLYWOOD
 - PR. PAIR
 - PREFAB. PREFABRICATED
 - PT. BD. PARTICLE BOARD
 - PTD. PAINTED
- Q**
- Q.T. QUARRY TILE
- R**
- R. RADIUS
 - R.C.P. REFLECTED CEILING PLAN
 - R.D. ROOF DRAIN
 - REF. REFERENCE
 - REFL. REFLECTED
 - REINF. REINFORCE
 - RESIL. RESILIENT
 - R.H. RIGHT HAND
 - RM. ROOM
 - R.O. ROUGH OPENING
- S**
- SCHED. SCHEDULE
 - S.D. SOAP DISPENSER
 - SECT. SECTION
 - SHT. SHEET
 - SIM. SIMILAR
 - SPEC. SPECIFICATION
 - SO. SQUARE
 - S.F. SQUARE FEET
 - S.S. STAINLESS STEEL
 - STD. STANDARD
 - STOR. STORAGE
 - STRUCT. STRUCTURAL
 - SUSP. SUSPEND(ED)
 - SYM. SYMMETRICAL
- T**
- T. THICKNESS
 - T.B. TACKBOARD
 - T&B TOP AND BOTTOM
 - T.C. TOP OF CURB
 - TECH. TECHNICAL
 - TEL. TELEPHONE
 - TEMP. TEMPERED
 - T&G TONGUE AND GROOVE
 - T.P. TOP OF PAVEMENT
 - TYP. TYPICAL
 - T.W. TOP OF WALL
- U**
- UTIL. UTILITY
 - U.N.O. UNLESS NOTED OTHERWISE
 - U.V. UNIT VENTILATOR
- V**
- V.C.T. VINYL COMPOSITION TILE
 - VERT. VERTICAL
 - VEST. VESTIBULE
 - V.I.F. VERIFY IN FIELD
 - V.T.C. VIDEO TELECONFERENCING
- W**
- W. WIDE
 - W/ WITH
 - WD. WOOD
 - W.H. WATER HEATER
 - W/O WITHOUT
 - WT. WEIGHT
- MISCELLANEOUS**
- Ø DIAMETER
 - ∠ ANGLE
 - ⊙ CENTER LINE
 - # NUMBER
 - ⊥ PLATE

DRAWING REFERENCES

- SECTION CUT REFERENCE
- SECTION CUT ON
- PLAN REFERENCE
- PLAN REFERENCE
- ELEVATION REFERENCE
- ELEVATION REFERENCE
- NORTH ARROW

MATERIALS LEGEND:

- EARTH
- FACE BRICK
- GRANULAR FILL
- CUT STONE
- CONCRETE
- WOOD, FRAMING
- GYPSUM BOARD OR PLASTER
- WOOD SHIM
- CONCRETE MASONRY UNIT
- GLASS
- FINISHED WOOD
- GYPSUM BOARD OR PLASTER
- WATERPROOF MEMBRANE
- RIGID INSULATION
- BLANKET INSULATION
- PLYWOOD

INDEX OF DRAWINGS

SHEET	SUB SHEET	TITLE OF SHEET
		COVER SHEET
AL1		ALTERNATE LAYOUTS
AL2		ALTERNATE LAYOUTS
AL3		ALTERNATE LAYOUTS
L1		SITE PLAN
A1		FLOOR PLANS
A2		FLOOR PLANS
A3		EXTERIOR ELEVATIONS
A4		BUILDING SECTION
S1		FOUNDATION PLAN
S2		1ST FLOOR FRAMING PLAN
S3		ROOF FRAMING PLAN
MP1		SITE PLAN
M0		SYMBOLS & ABBREVIATIONS
M1		BASEMENT PLAN
M2		FIRST FLOOR PLAN
M3		HVAC DETAILS
M4		HVAC SCHEMATICS
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P0		SYMBOLS & ABBREVIATIONS
P1		BASEMENT PLAN
P2		FIRST FLOOR PLAN
E0		SYMBOLS & ABBREVIATIONS
E1		BASEMENT PLAN
E2		FIRST FLOOR PLAN

BUILDING CODE DATA/ANALYSIS:

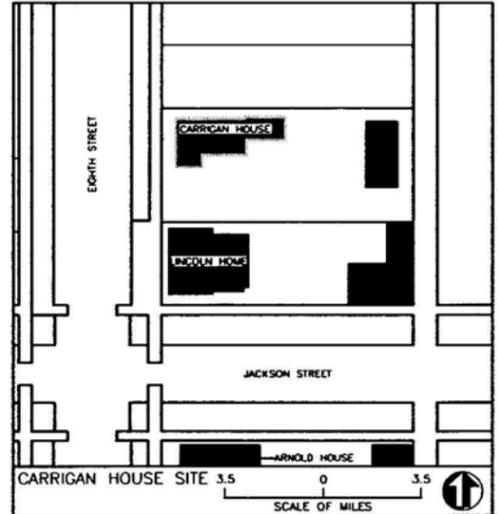
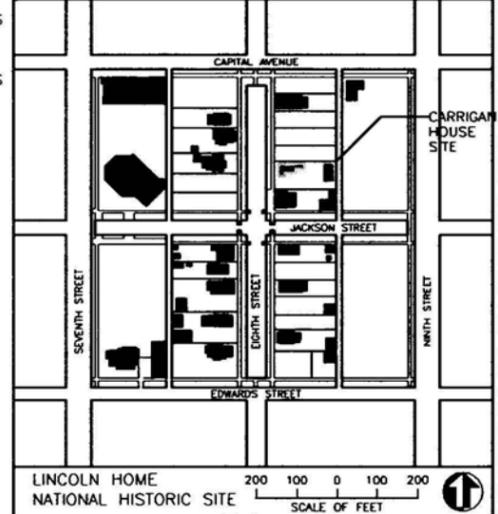
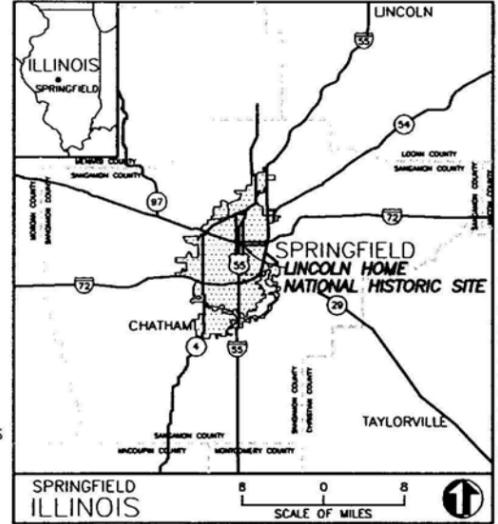
BUILDING:
WOOD FRAME - ASSEMBLY
1 STORY PLUS PARTIAL BASEMENT
FULLY SPRINKLERED

REHABILITATED BUILDING AREA:
415 S.F. - PARTIAL BASEMENT
1029 S.F. - FIRST FLOOR
1444 S.F. - TOTAL

CODE DATA (PER 2000 INTERNATIONAL BUILDING CODE)
USE GROUP
A-3

CONSTRUCTION TYPE
TYPE V-A (PER 602.5)

OCCUPANCY LOAD
207 OCCUPANTS (PER 1003.2.2.2)



DATE	MARK	SHEET	REVISION	DATE	INITIAL

QUALITY DESIGN CERTIFICATION

RECOMMENDED: _____

APPROVED: _____



ULTIMATE TREATMENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

TITLE OF DRAWING
COVER SHEET

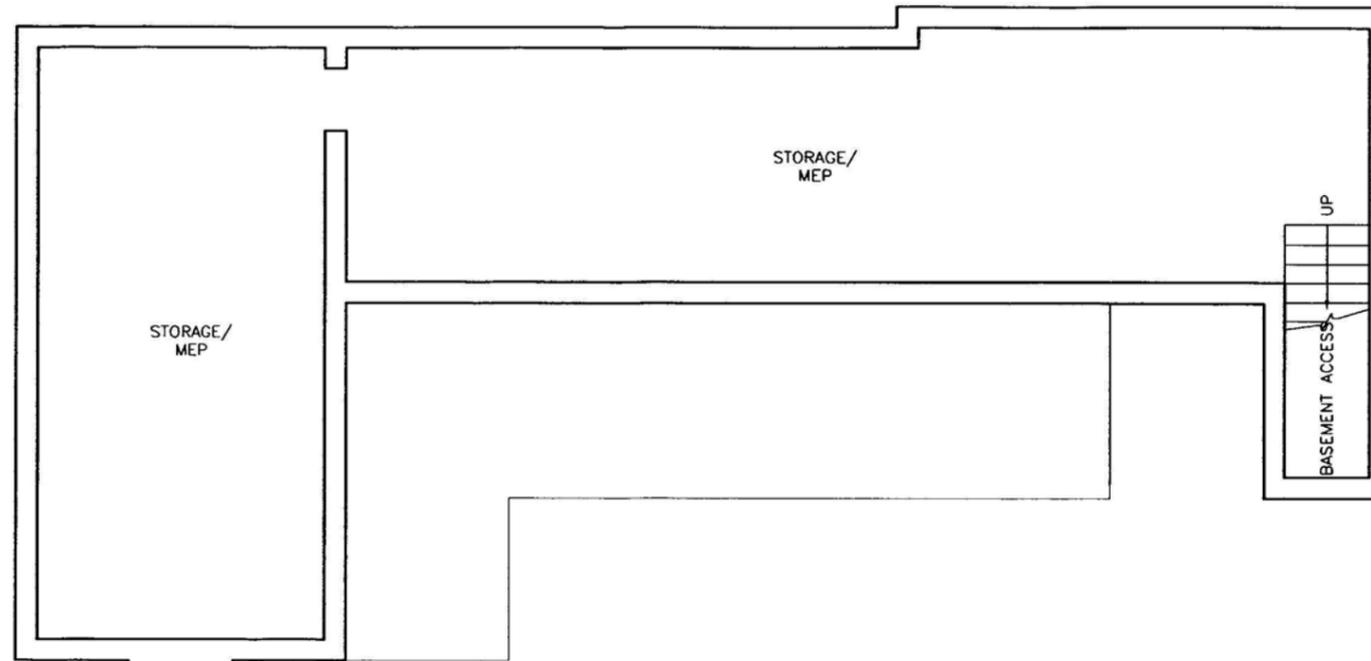
LOCATION WITHIN PARK
CARRIGAN HOUSE (HS-25)

NAME OF PARK
LINCOLN HOME NATIONAL HISTORIC SITE

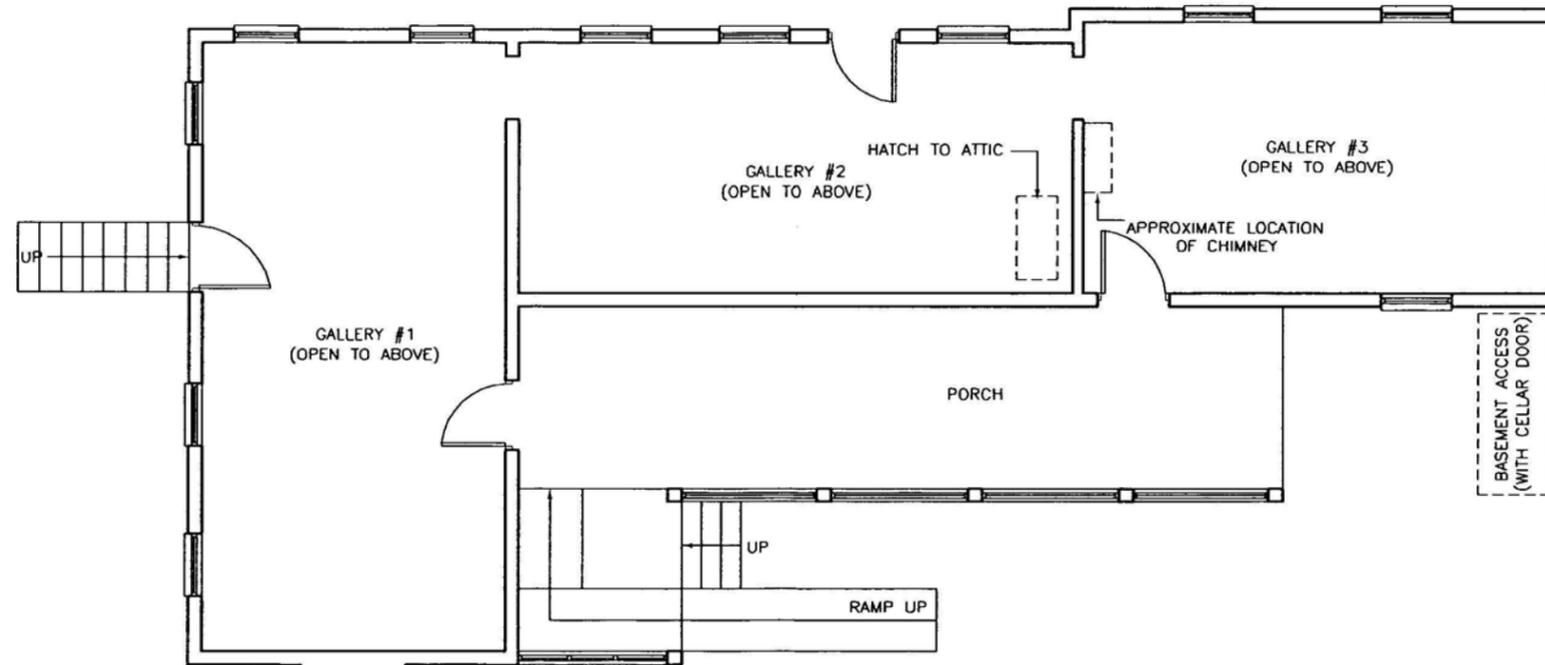
REGION: **MIDWEST** COUNTY: **SANGAMON** STATE: **ILLINOIS**

DRAWING NO. **449**
80095

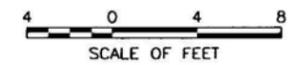
PKG. NO. _____ SHEET _____ OF _____



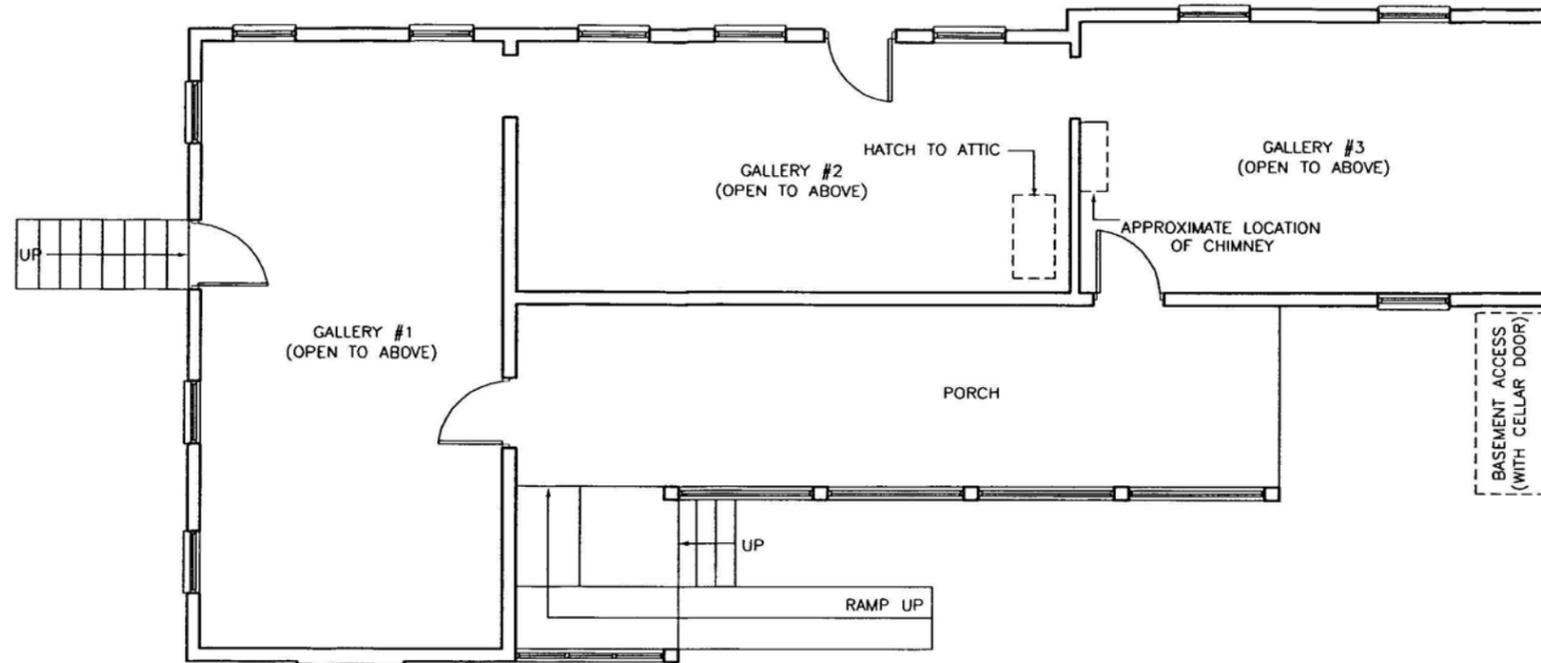
1 AL1 ALTERNATE BASEMENT FLOOR PLAN



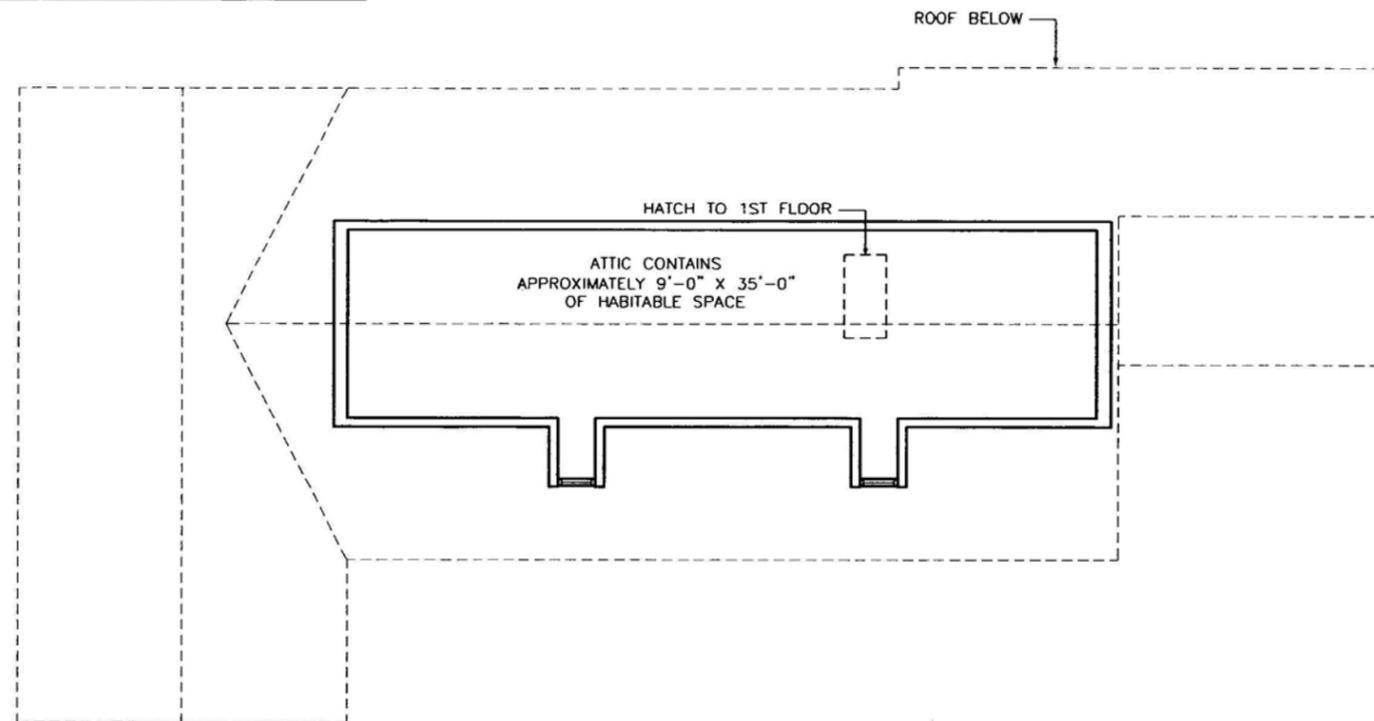
2 AL1 ALTERNATE FIRST FLOOR PLAN - OPTION A



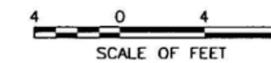
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	AL1	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) ALTERNATE LAYOUTS	449 80095
DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF



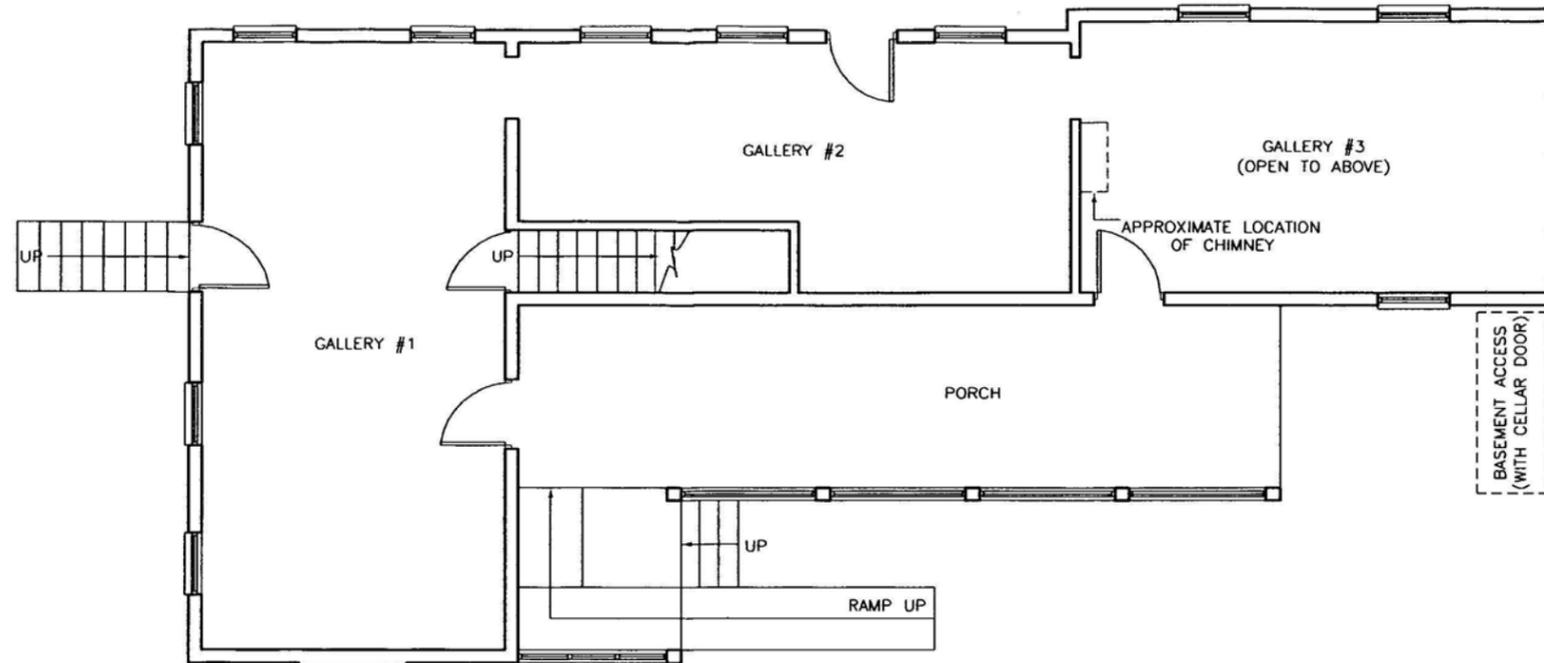
1 AL2 ALTERNATE FIRST FLOOR PLAN - OPTION B



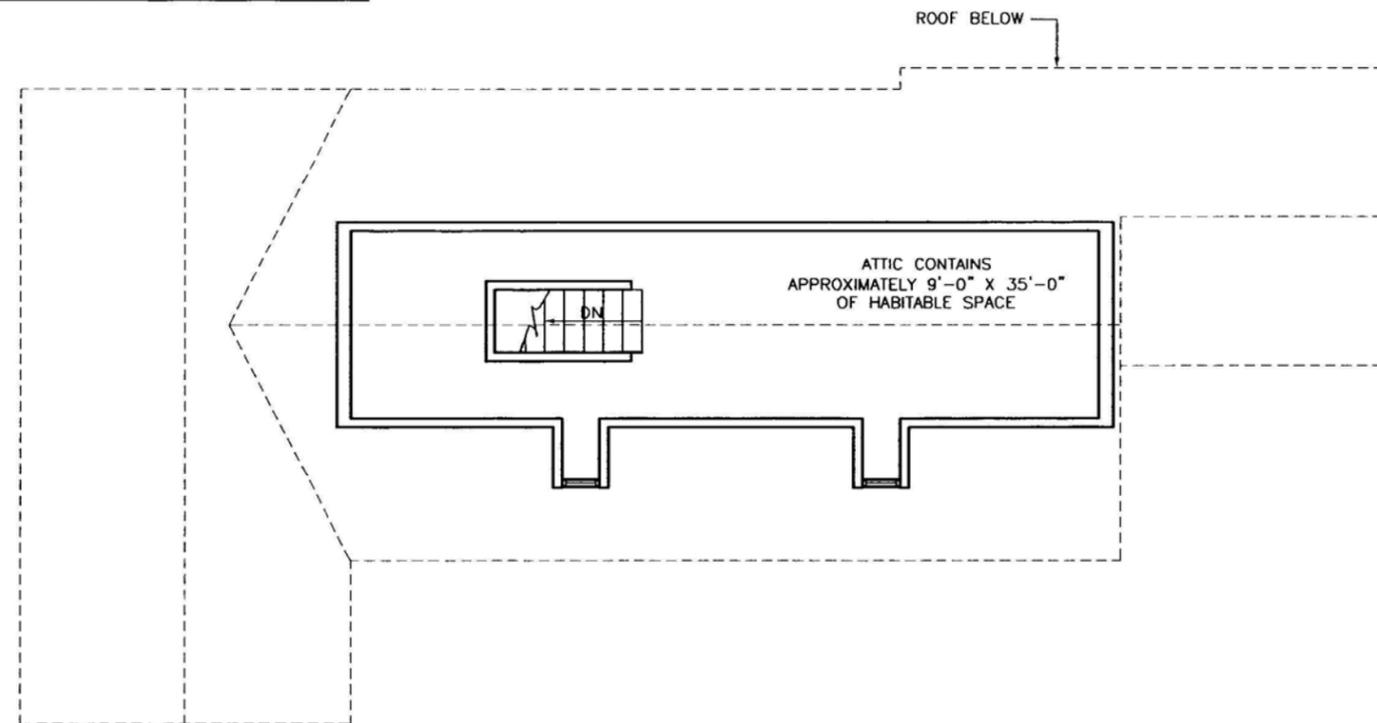
2 AL2 ALTERNATE SECOND FLOOR PLAN - OPTION B



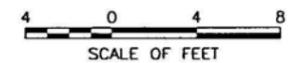
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DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. SHEET OF



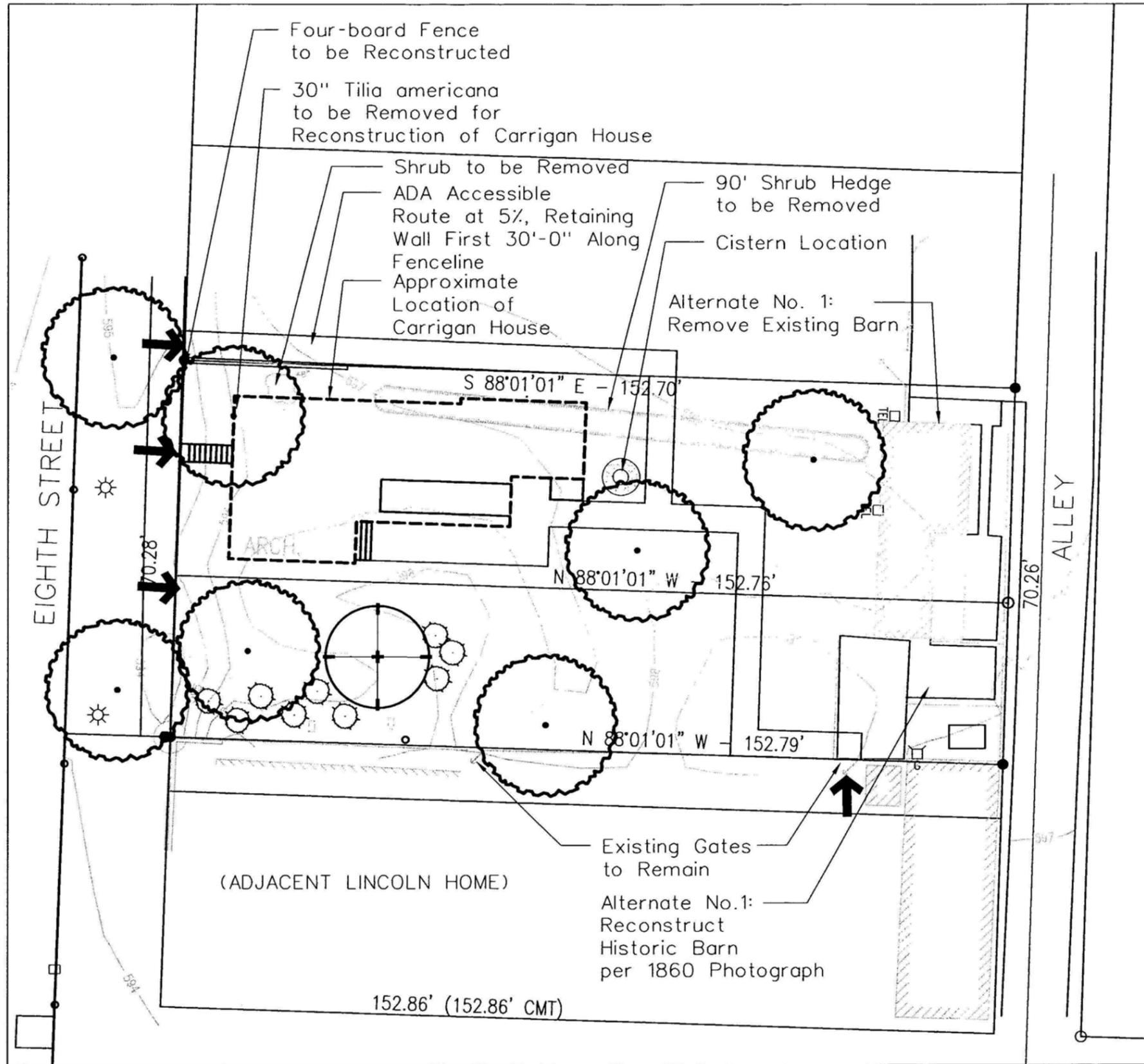
1 AL3 ALTERNATE FIRST FLOOR PLAN - OPTION C



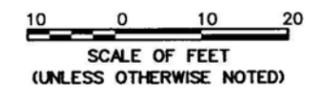
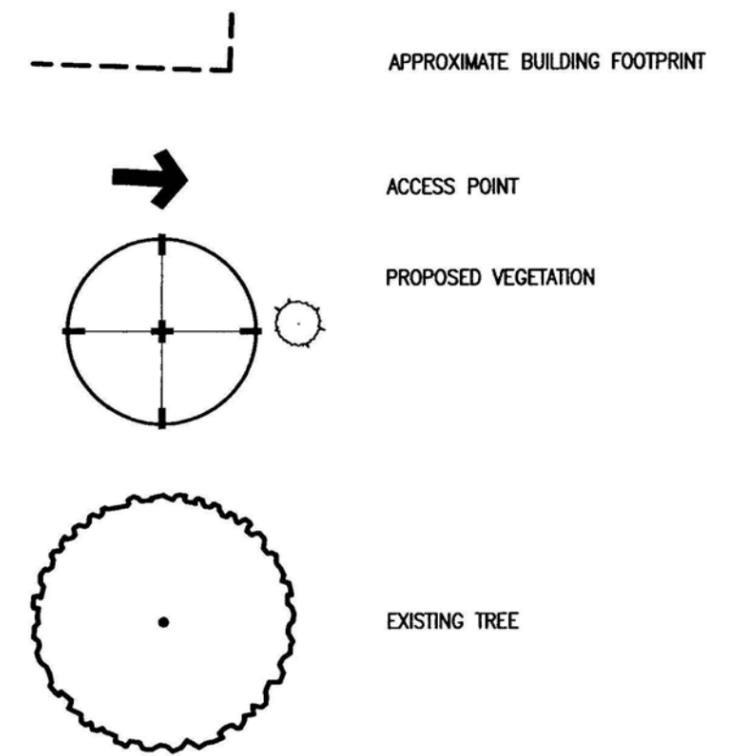
2 AL3 ALTERNATE SECOND FLOOR PLAN - OPTION C



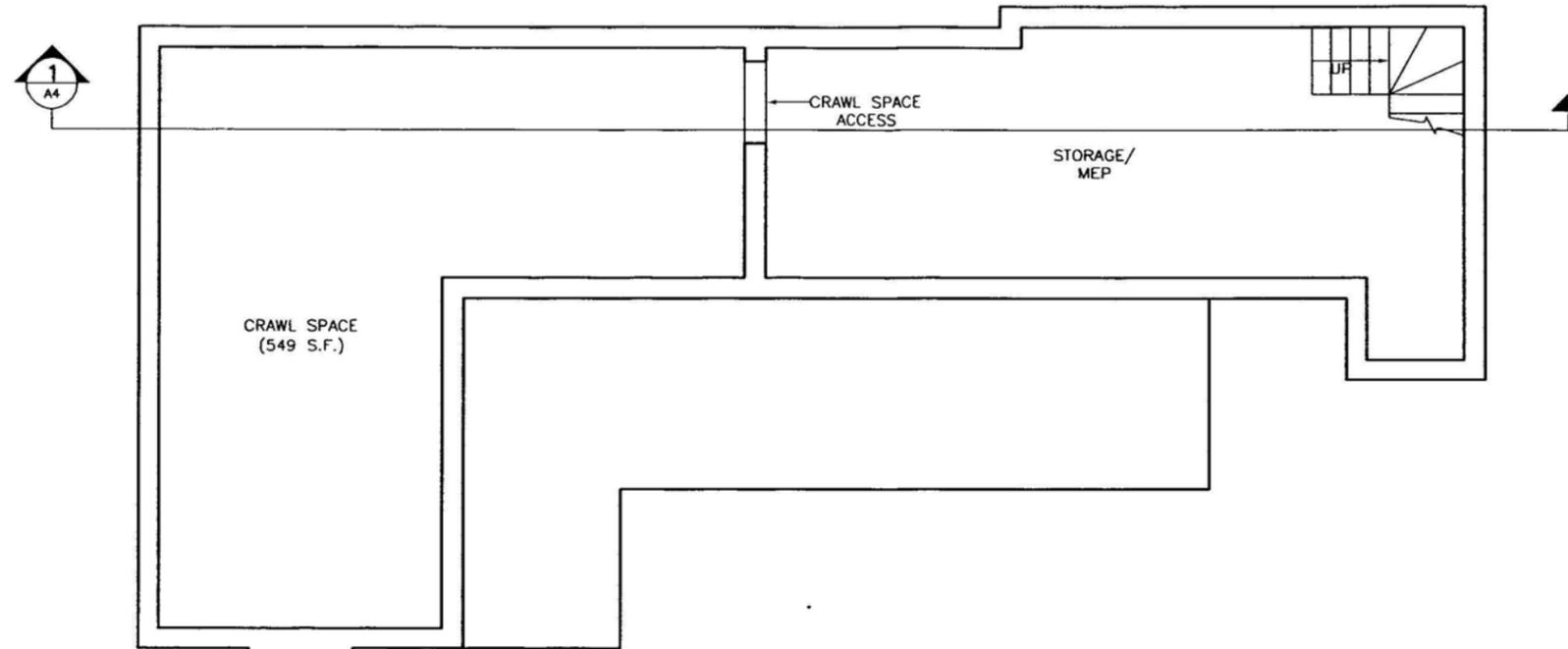
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TECH. REVIEW:	AL3	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) ALTERNATE LAYOUTS	449
DATE:			80095
		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
			SHEET
			OF



LEGEND

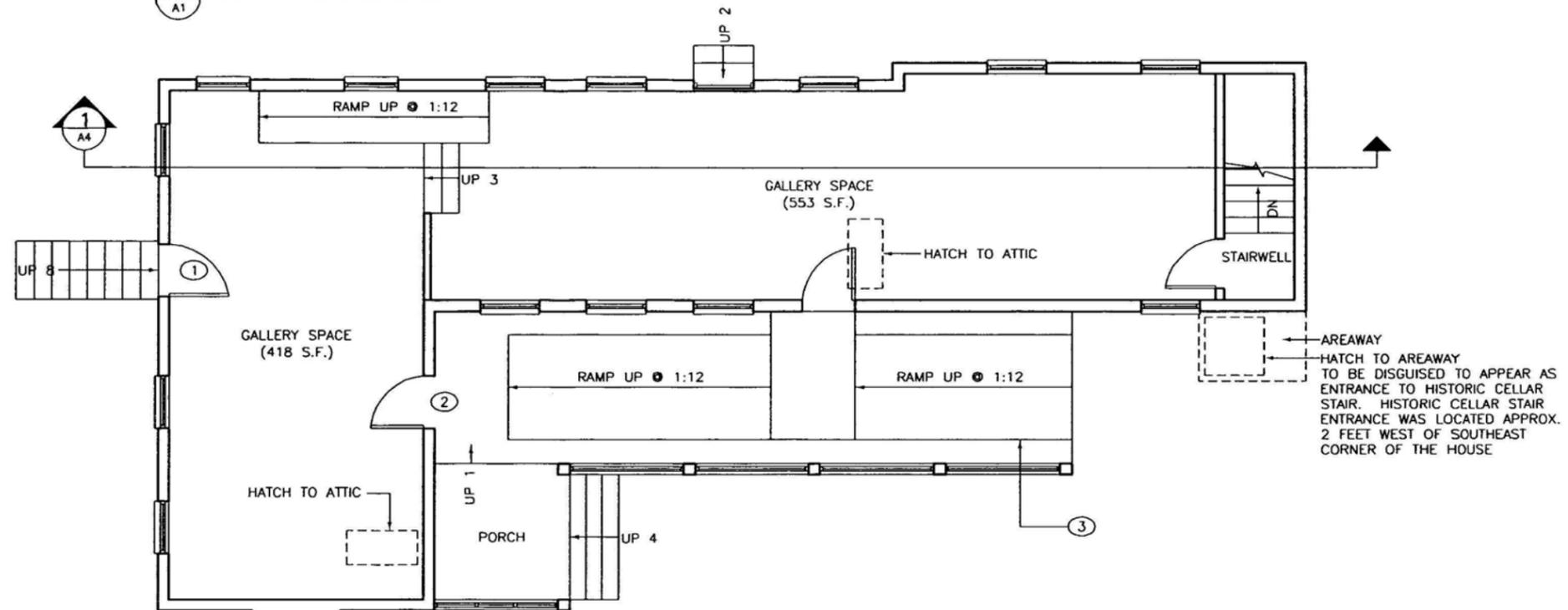


DESIGNED: GADD	SUB SHEET NO. L1	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25)	DRAWING NO. 449 80095
TECH. REVIEW:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
DATE:			SHEET OF



ROOF PLAN

1 BASEMENT FLOOR PLAN



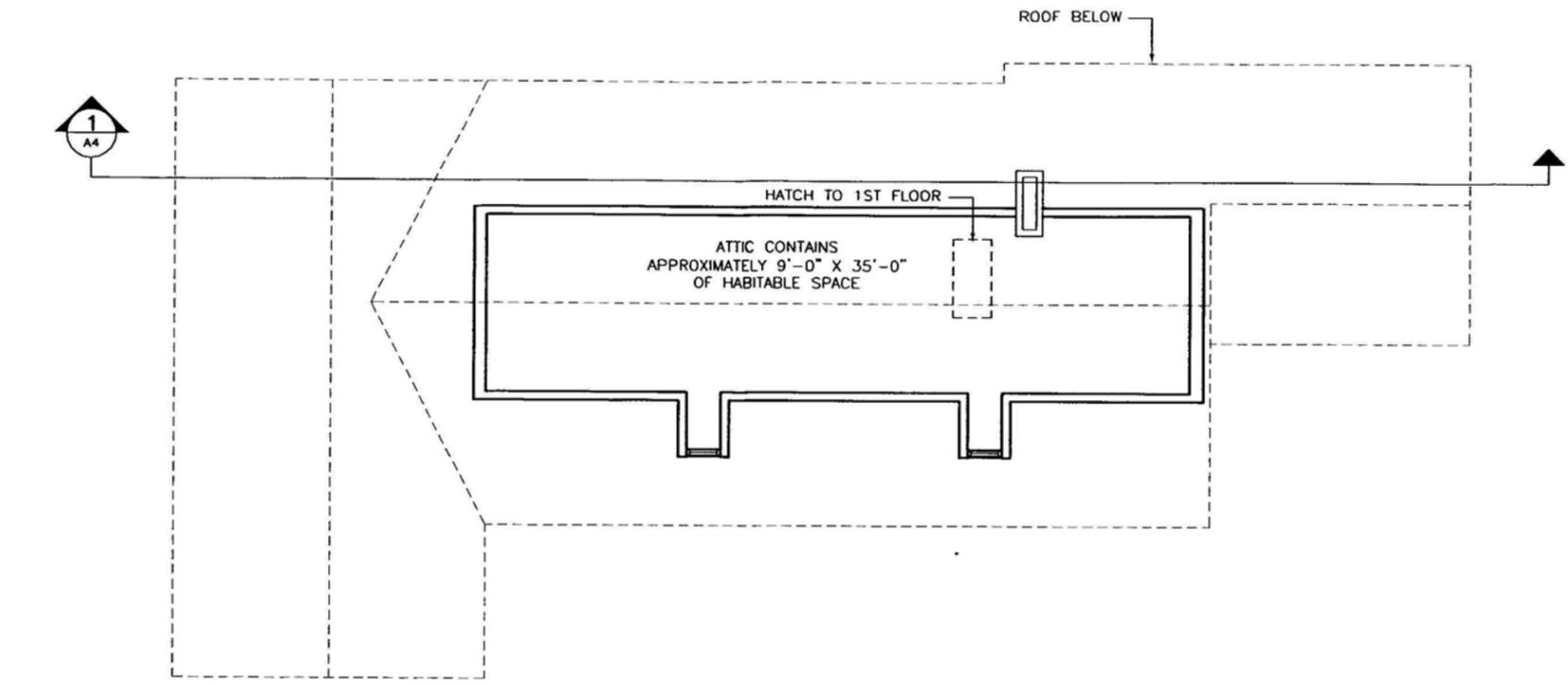
2 FIRST FLOOR PLAN

KEY NOTES

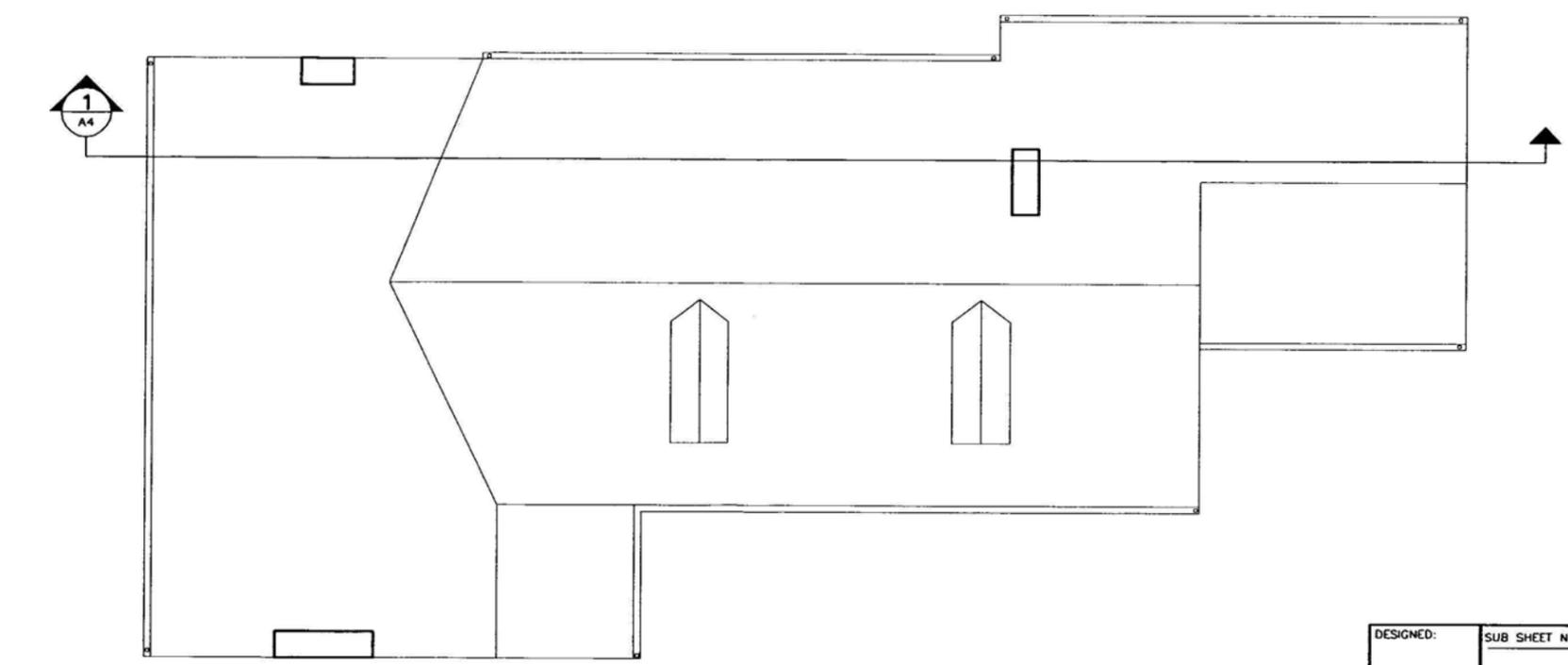
- 1. EXIT ONLY
- 2. HOUSE TO BE ENTERED FROM BACK PORCH
- 3. WOOD PLANK ACCESSIBLE RAMP



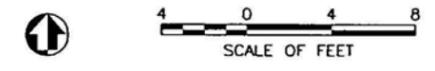
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TECH. REVIEW:			PMIS/PKG NO.
DATE:			SHEET OF



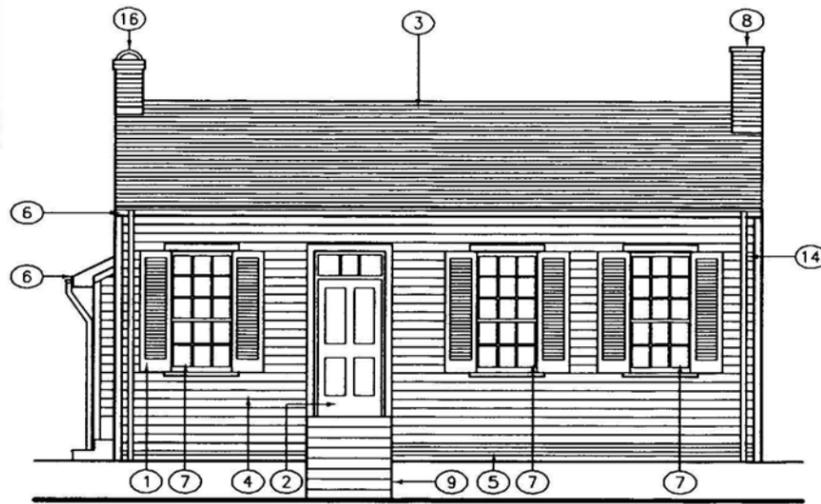
1 ATTIC PLAN
A2



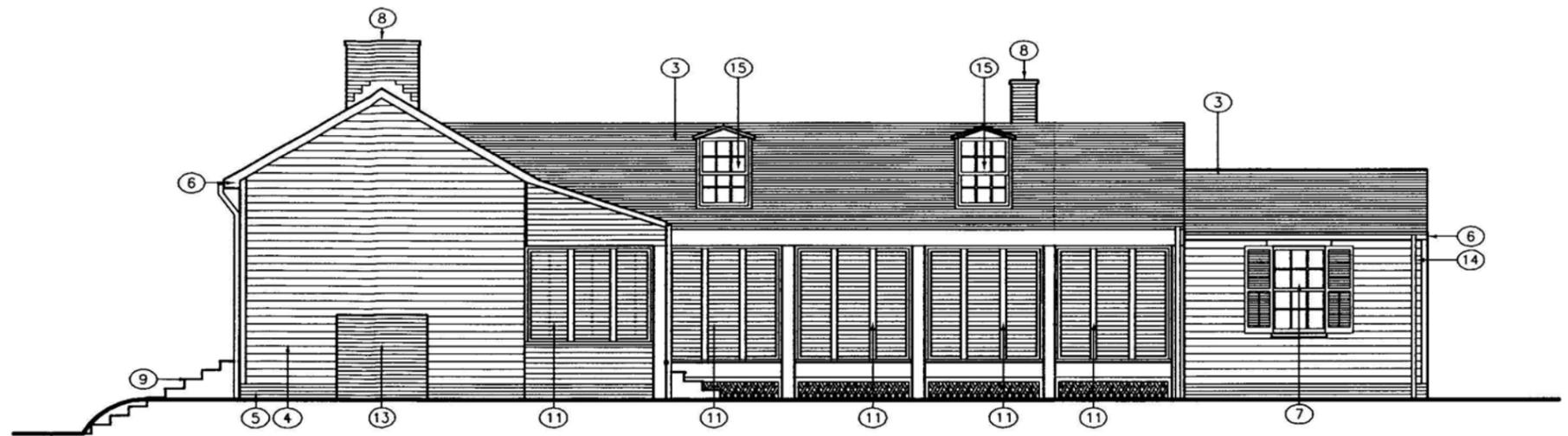
2 ROOF PLAN
A2



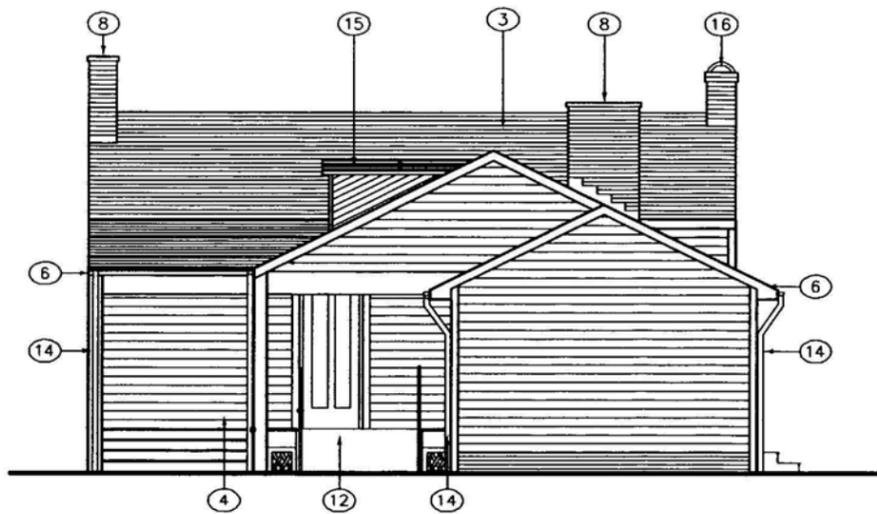
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	A2	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) FLOOR PLANS	449 80095
DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMS/PKG NO.
			SHEET OF



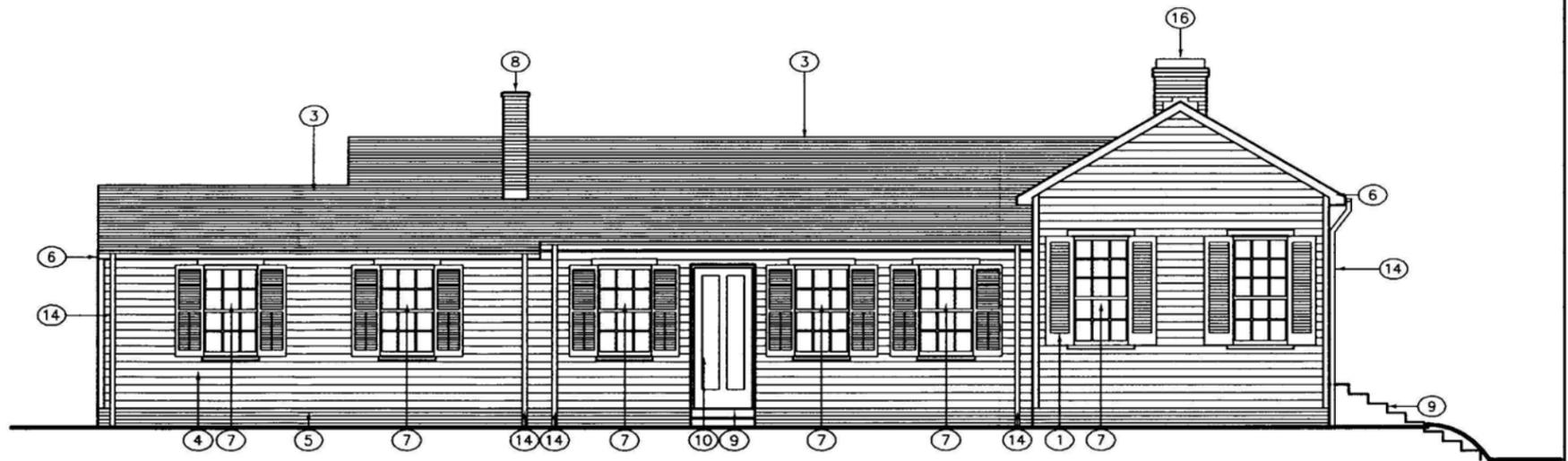
1 WEST ELEVATION
A2



2 SOUTH ELEVATION
A2



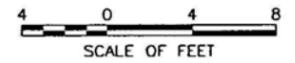
3 EAST ELEVATION
A2



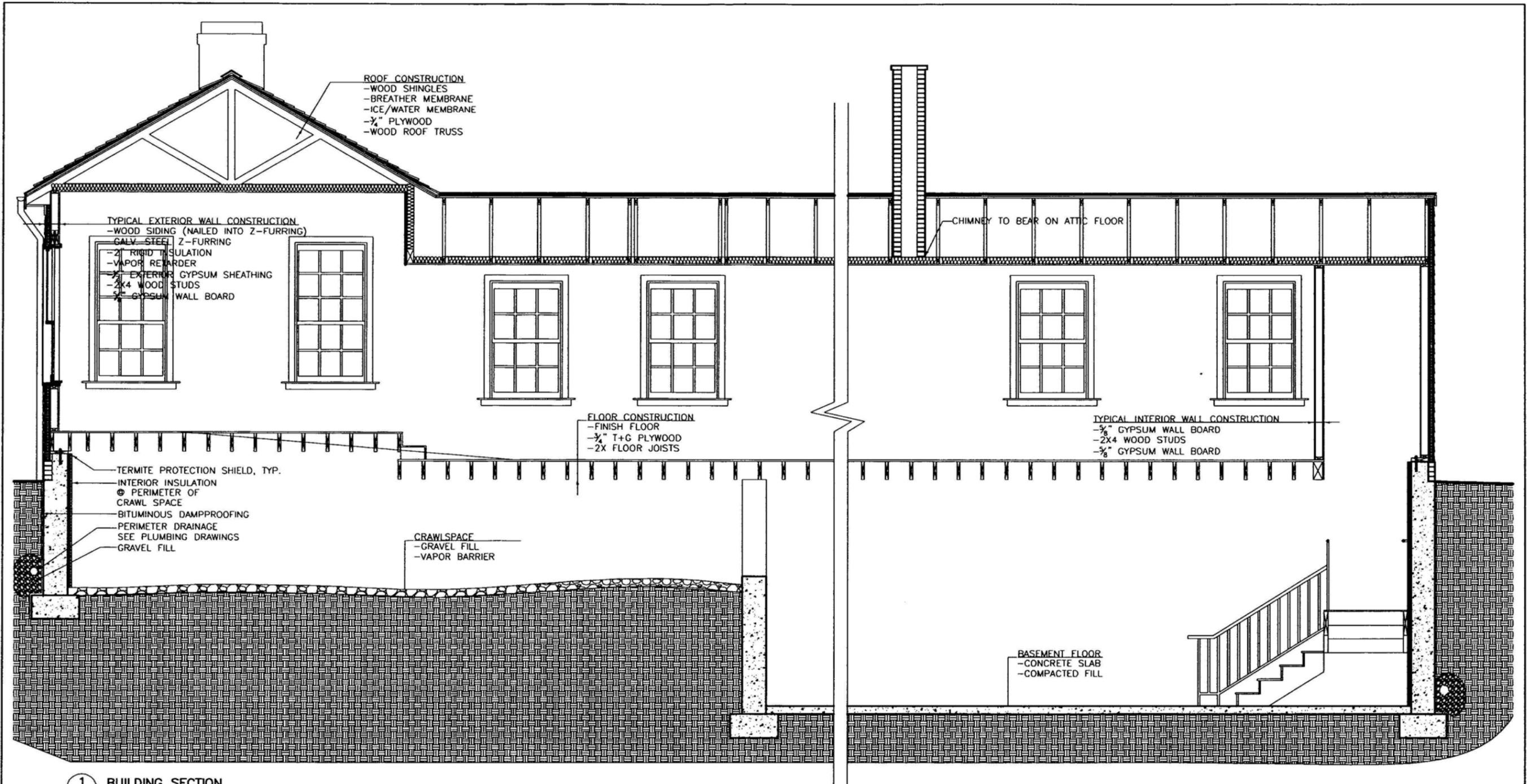
4 NORTH ELEVATION
A2

KEY NOTES

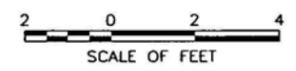
- | | | |
|--|---|--|
| 1. WOOD SHUTTERS, TYP. | 7. WOOD DOUBLE HUNG WINDOW | 13. BRICK CHIMNEY FOUNDATION |
| 2. WOOD FOUR PANEL DOOR WITH TRANSOM ABOVE | 8. BRICK CHIMNEY WITH COPPER CAP AND FLASHING | 14. COPPER GUTTERS AND DOWNSPOUTS |
| 3. WOOD SHINGLE ROOF | 9. STONE OR CONCRETE STEP | 15. DORMER W/ DOUBLE HUNG WINDOW |
| 4. WOOD CLAPBOARD, TYP. | 10. WOOD DOOR | 16. BRICK CHIMNEY WITH CLAY BARREL CAP AND COPPER FLASHING |
| 5. BRICK FOUNDATION, TYP. | 11. LOUVERED WINDOW | |
| 6. WOOD FASCIA BOARD | 12. WOOD PLANK ACCESSIBLE RAMP | |



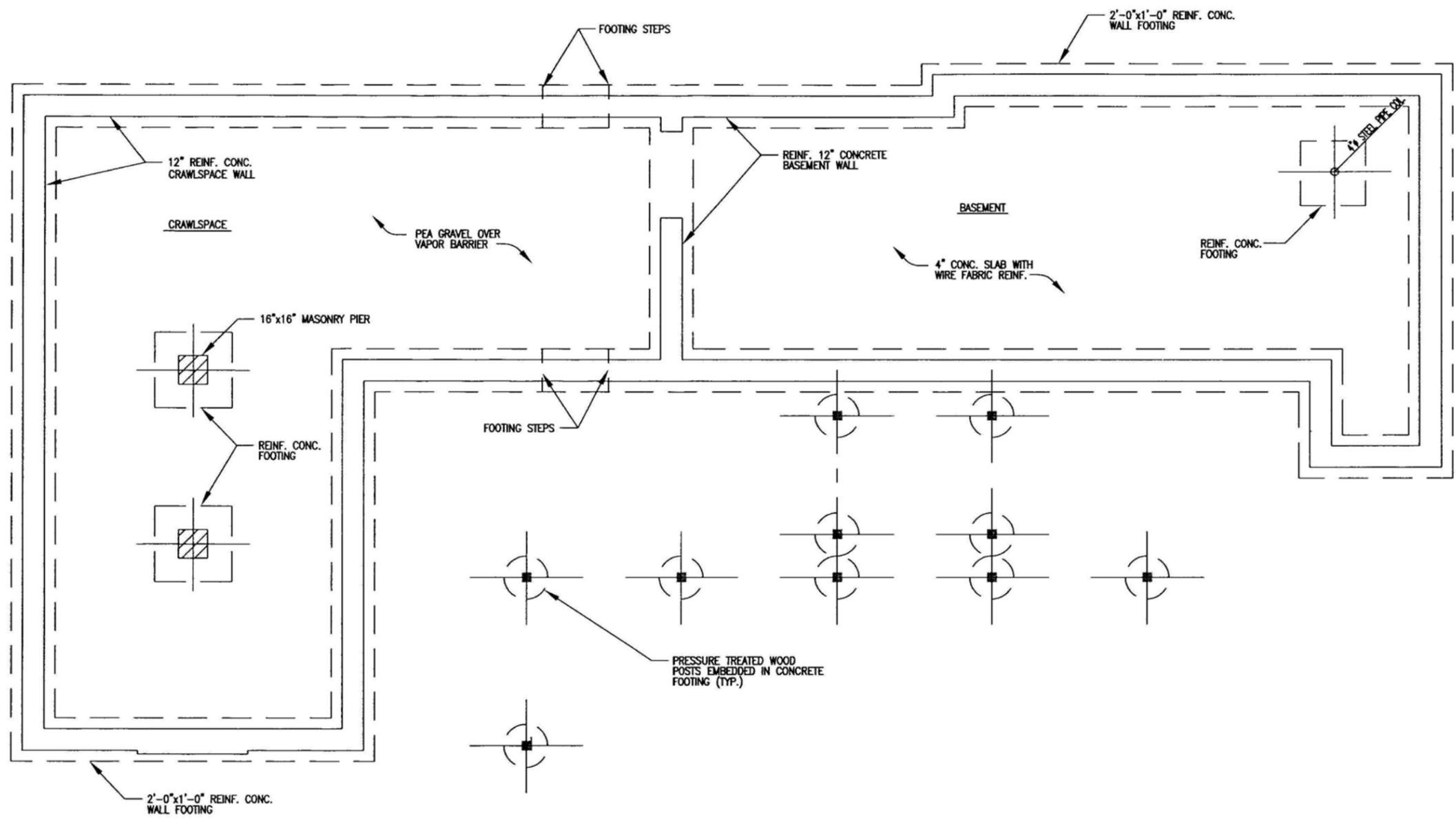
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TECH. REVIEW:	A3	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) EXTERIOR ELEVATIONS	449 80095
DATE:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. SHEET OF



1 BUILDING SECTION
 A4



DESIGNED: @AGD	SUB SHEET NO. A4	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) BUILDING SECTION LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMIS/PKG NO.
TECH. REVIEW:			SHEET OF
DATE:			

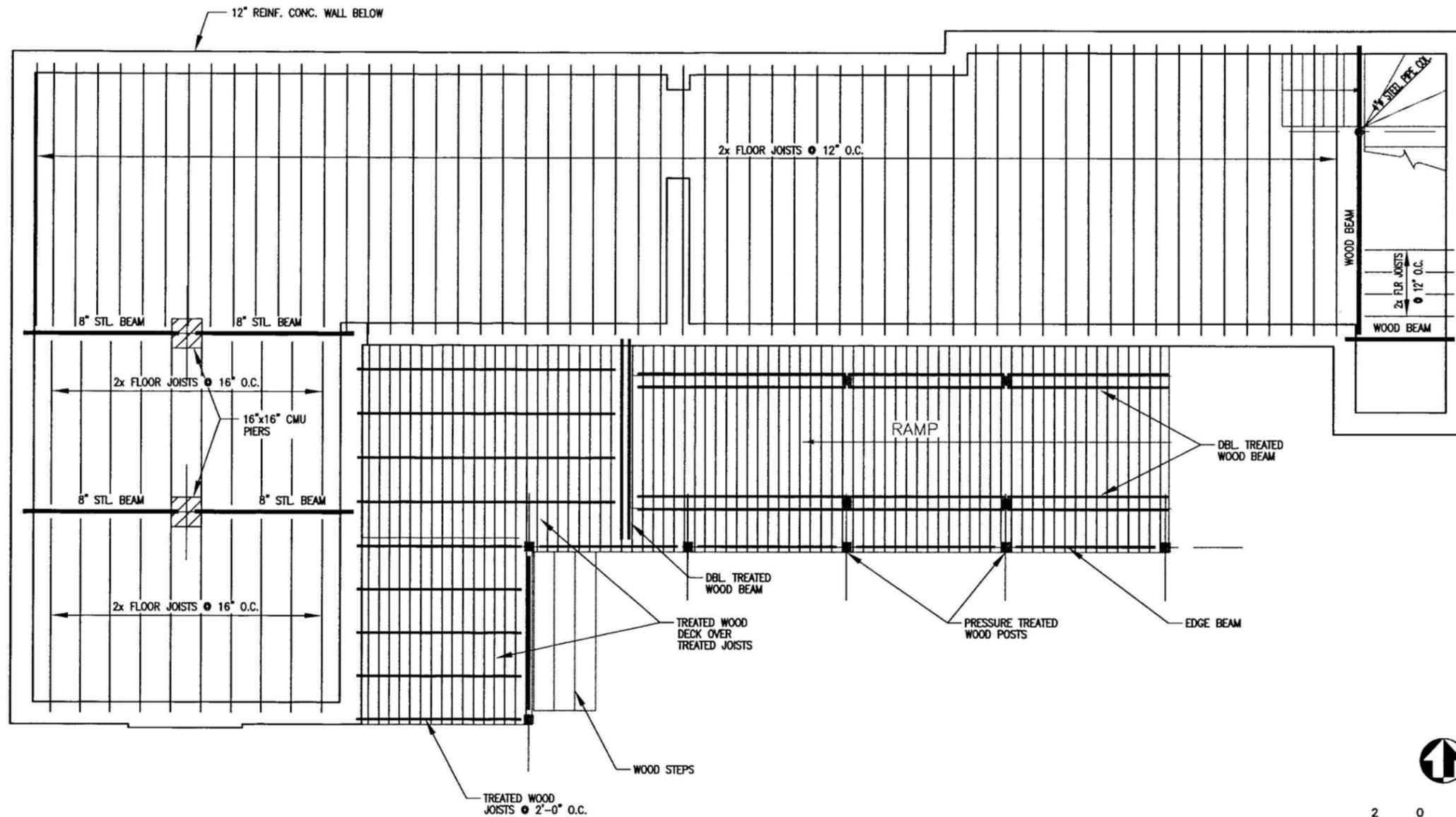


1 FOUNDATION PLAN
S1.1 3/8" = 1'-0"

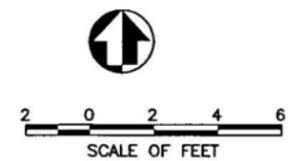


2 0 2 4 6
SCALE OF FEET

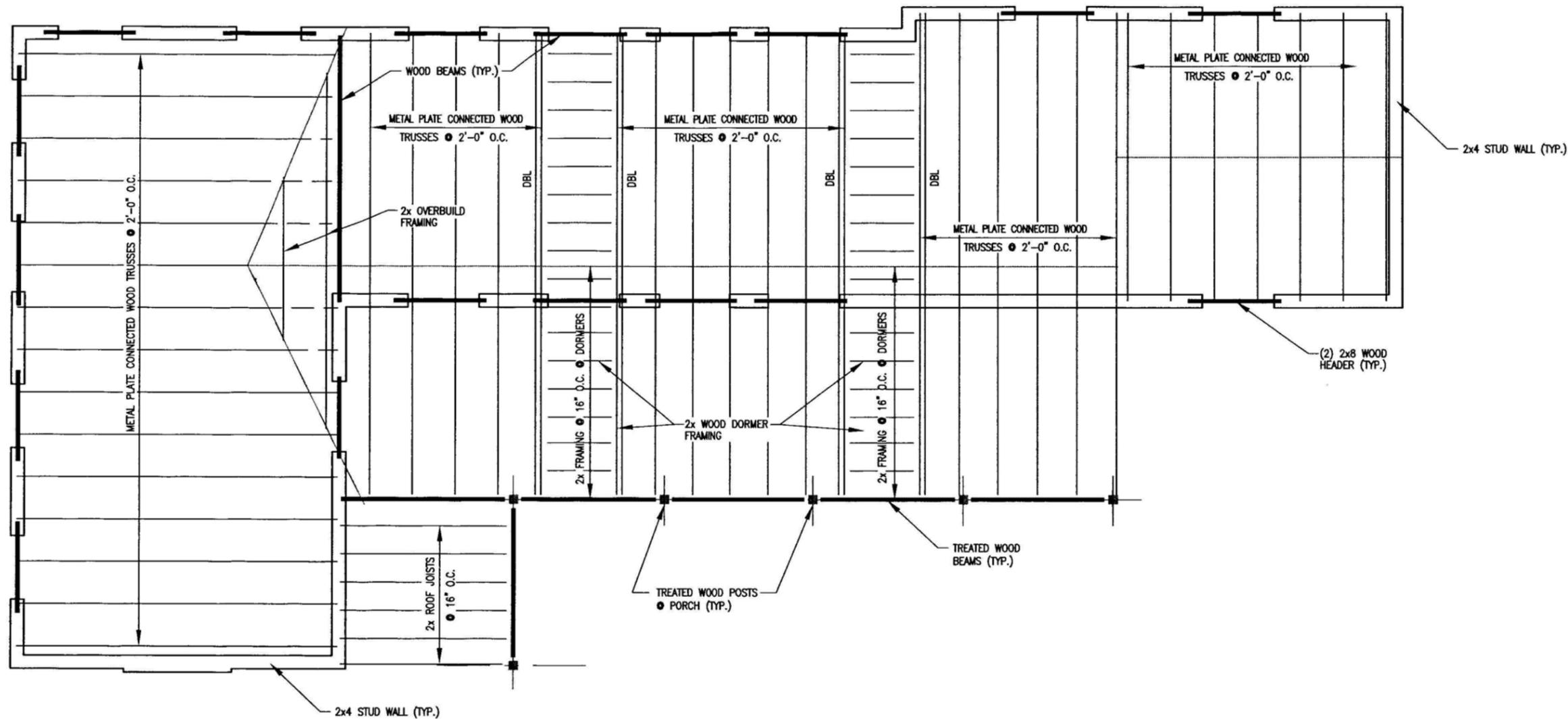
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TECH. REVIEW:			PMIS/PKG NO.
DATE:			SHEET OF



1 1ST FLOOR FRAMING PLAN
 S1.2 3/8" = 1'-0"

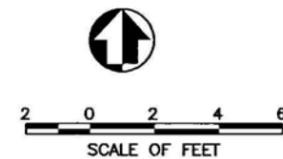


DESIGNED: @ADD	SUB SHEET NO. S2	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) 1ST FLOOR FRAMING PLAN	DRAWING NO. 449
TECH. REVIEW:		LINCOLN HOME NATIONAL HISTORIC PARK	PMIS/PKG NO. 80094
DATE:			SHEET OF



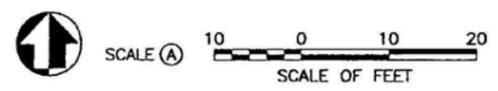
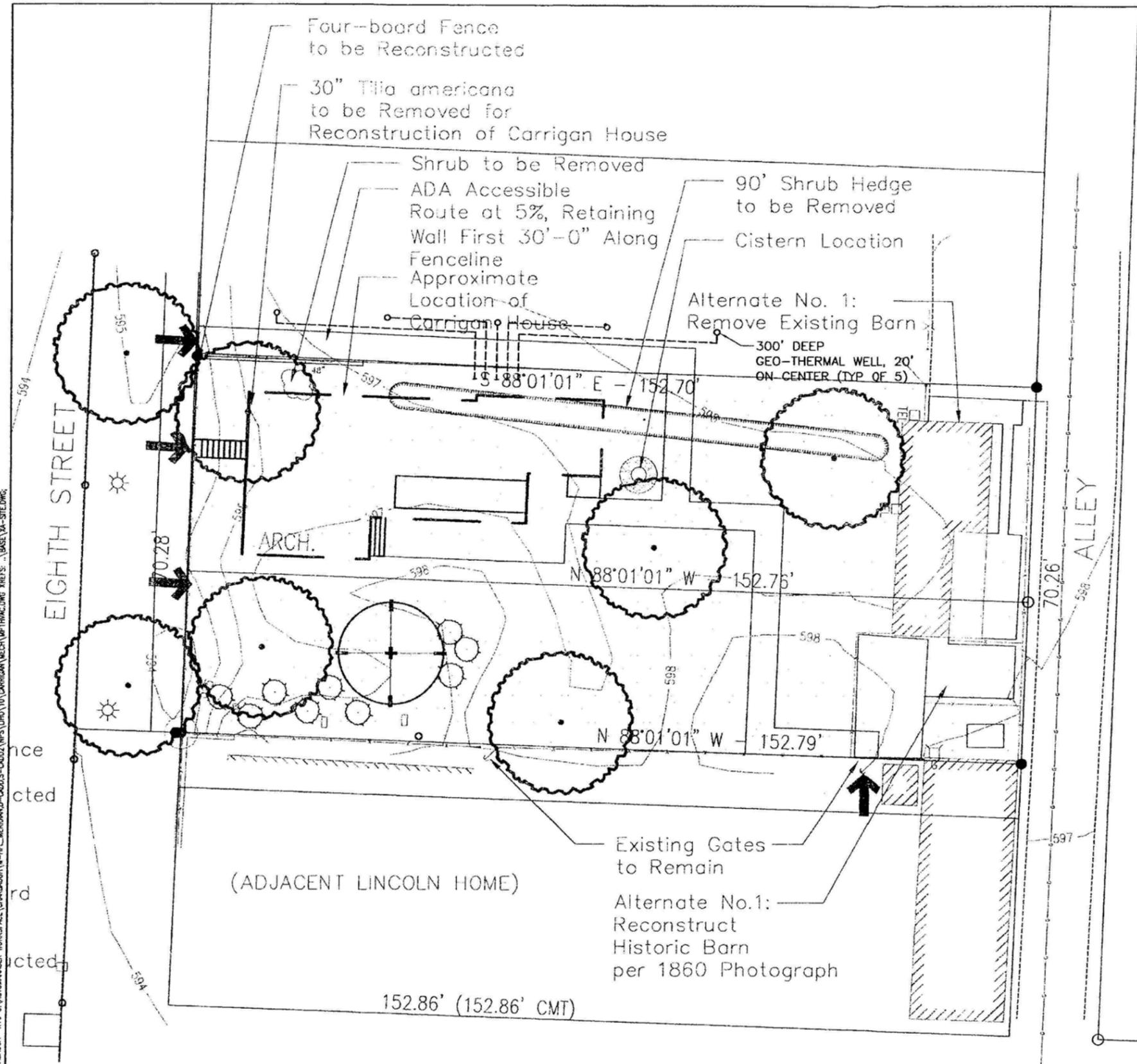
1 ROOF FRAMING PLAN
S1.3 3/8" = 1'-0"

NOTE:
3/4" PLYWOOD SHEATHING



DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW:	S3	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) ROOF FRAMING PLAN	449
DATE:			80094
		LINCOLN HOME NATIONAL HISTORIC PARK	PMIS/PKG NO.
			SHEET
			OF

5/17/06 13:50 CHREBAUGH R16 C:\AUTOMANAGER\WORKSPACE\CHREBAUGH\16-101\CARRIGAN\MECH\MP1\HMC.DWG XREFS: \BASE\VA-SITE.DWG



1 CARRIGAN HOUSE SITE PLAN
MP1 SCALE: A

DESIGNED: PEP @2009 CBH	SUB SHEET NO. MP1	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) SITE PLAN	DRAWING NO. 449 80095
TECH. REVIEW: PEP		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

ABBREVIATIONS

ABV	ABOVE
ADA	AMERICANS WITH DISABILITIES ACT, 1990
BLW	BELOW
BHP	BREAK HORSE POWER
BTUH	BRITISH THERMAL UNIT PER HOUR
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CHAR	CHARACTERISTIC
CO	CLEANOUT
CLG	CEILING
COP	COEFFICIENT OF PERFORMANCE
CW	COLD WATER
CV	CHECK VALVE
DB	DRY BULB
D	DRAIN
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
(E)	EXISTING
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
ELECT	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FAHRENHEIT
FC	FLEX CONNECTION
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FRM	FROM
FREQ	FREQUENCY
FT	FEET, FIN TUBE
GAL	GALLON
GHP-#	GEOTHERMAL HEAT PUMP--(DESIGNATION)
GLS	GROUND LOOP SUPPLY
GLR	GROUND LOOP RETURN
GLS&R	GROUND WATER SUPPLY & RETURN
GPM	GALLONS PER MINUTE
HP	HEAT PUMP, HORSEPOWER
HT	HEIGHT
HTG	HEATING
HW	HOT WATER
IN	INCHES
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAV	MANUAL AIR VENT
MBH	MILLION BTUH
MCA	MAXIMUM CIRCUIT AMPS
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MIN	MINIMUM
MTD	MOUNTED
MTG	MOUNTING
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
OA	OUTSIDE AIR
P	PUMP
PEX	POLYETHYLENE PLASTIC PIPING
PD	PRESSURE DROP
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RGF	RETURN GRILLE FLOOR
RLA	RUNNING LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
S	SUPPLY, SINK
SA	SHOCK ABSORBER, SUPPLY AIR
SAN	SANITARY
SDF	SUPPLY DIFFUSER FLOOR
SGF	SUPPLY GRILLE FLOOR
SGW	SUPPLY GRILLE WALL
SP	STATIC PRESSURE
TGC	TRANSFER GRILLE CEILING
TGW	TRANSFER GRILLE WALL
TH	THERMOMETER
TOT	TOTAL
TYP	TYPICAL
V	VENT
VCD	VOLUME CONTROL DAMPER
WB	WET BULB
WC	WATER CLOSET
W/	WITH

PIPING SYMBOLS

	COLD WATER SUPPLY
	HOT WATER SUPPLY
	GROUND WATER SUPPLY
	GROUND WATER RETURN

HVAC AND PIPING SYMBOLS

	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	DUCT (FIRST FIGURE, SIDE SHOWN AND SECOND FIGURE, SIDE NOT SHOWN) ALL DUCTS DIMENSIONS SHALL BE SHOWN IN INCHES.
	FLEXIBLE DUCT ALL DUCTS DIMENSIONS SHALL BE SHOWN IN INCHES.
	TRANSITIONS
	RECTANGULAR TO ROUND TRANSITION
	STANDARD RECTANGULAR BRANCH FOR SUPPLY OR RETURN
	LINED DUCT
	ROUND DUCT UP
	ROUND DUCT DOWN
	DUCT WITH MANUAL VCD
	THERMOSTAT
	BALANCING VALVE
	BALL VALVE
	FLOW SWITCH
	PUMP
	VALVE
	STRAINER
	PIPE UNION
	HOSE END CONNECTION
	AIR SEPARATOR
	CHECK VALVE
	ECCENTRIC REDUCER
	DIFFUSER TAG
	DETAIL NUMBER
	SHEET WHERE SHOWN

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS IN THE LOCATION OF DUCTWORK, PIPING, ETC.
2. ALL DUCTWORK AND PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE UNLESS NOTED OTHERWISE.
3. DO NOT SCALE DRAWINGS - ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE. NOTIFY CONTRACTING OFFICER OF ANY DEVIATIONS FROM THE DRAWINGS.
4. ALL PIPING, CONDUIT, DUCTWORK, ETC., SHALL BE INSTALLED IN A MANNER WHICH WILL NOT DEFACE OR ALTER ANY AREAS. ROUTING OF THE ABOVE EQUIPMENT SHALL BE APPROVED BY THE CONTRACTING OFFICER PRIOR TO INSTALLATION. CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS TO ILLUSTRATE THIS COORDINATION.
5. ALL WORK PERFORMED ON THIS BUILDING SHALL BE IN COMPLIANCE WITH ALL PERTINENT CODES, RULES, ORDINANCES, AND REGULATIONS OF THE LOCAL STATE AND NATIONAL GOVERNING AUTHORITIES.
6. ALL WORK PERFORMED UNDER AND IN CONNECTION WITH THESE DRAWINGS AND SPECIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH THE LATEST SAFETY AND HEALTH STANDARDS.
7. REPORT ANY DISCREPANCIES FOUND IN THE DRAWINGS AND/OR IN THE SPECIFICATIONS DURING THE BIDDING PROCESS FOR CLARIFICATION BY THE CONTRACTING OFFICER.
8. ALL PIPING AND DUCTWORK TO BE LOCATED AND COORDINATED WITH ARCHITECTURAL PLANS. ALL PIPING AND DUCTWORK TO BE CONCEALED IN FINISHED AREAS.
9. ANY PHYSICAL INSTALLATION MODIFICATIONS, DUE TO FIELD CONDITIONS, SHALL BE RESOLVED BY THE CONTRACTOR IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CONTRACTING OFFICER.
10. THE CONTRACTOR SHALL PAY FOR ALL FEES AND PERMITS AS NECESSARY TO COMPLETE THE INSTALLATION.
11. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF DUCTWORK WITH ALL NEW PIPING BEING INSTALLED. REFER TO SPRINKLER DRAWINGS.
12. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW ONLY THE GENERAL ARRANGEMENTS OF ALL PIPING AND EQUIPMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO SHOW OR INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED TO AVOID EXISTING PIPING OR STRUCTURAL FEATURES.
13. CONTRACTOR TO SUBMIT FOR APPROVAL A DETAILED CONSTRUCTION SCHEDULE FOR COORDINATION OF WORK.

PIPING

1. ALL DOWNFEED BRANCHES AND EQUIPMENT SHALL HAVE DRAIN COCKS INSTALLED AT LOWEST POINT.
2. ALL HORIZONTAL LINES SHALL BE RUN LEVEL WITHOUT POCKETS. WHERE POCKETS OCCUR, AUTO AIR VENTS SHALL BE INSTALLED AT EACH VERTICAL RISE. PROVIDE ACCESS PANELS AT LOCATIONS APPROVED BY THE CONTRACTING OFFICER.
3. ALL UPFEED RISERS SHALL BE MADE WITH TOP CONNECTIONS AT MAIN. ALL DOWNFEED RISERS SHALL BE MADE WITH BOTTOM CONNECTIONS AT MAIN.
4. CHANGES OF PIPE SIZES ON HORIZONTAL RUNS SHALL BE MADE WITH INVERTED ECCENTRIC REDUCERS WITH TOP OF PIPE LEVEL.
5. ARROWS ON SUPPLY AND RETURN LINES INDICATE DIRECTION OF FLOW.
6. PROVIDE VALVE WITH HOSE END ON ALL LOW POINTS OF PIPING SYSTEM AND AUTO AIR VENTS AT ALL HIGH POINTS OF THE PIPING SYSTEM UNLESS NOTED OTHERWISE. PROVIDE ACCESS PANELS AT LOCATIONS APPROVED BY THE CONTRACTING OFFICER.
7. FOR TYPICAL WATER PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD DETAILS.
8. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE SO THERE WILL BE COUNTER FLOW BETWEEN WATER AND AIR.
9. DIELECTRIC UNIONS AND FLANGES SHALL BE USED ON ALL CONNECTIONS BETWEEN DISSIMILAR MATERIALS OR METALS.
10. WHERE WATER LINES ARE RUN IN CRAWL SPACES, RUN LINE HIGH AS POSSIBLE. FINAL LOCATION TO BE APPROVED BY CONTRACTING OFFICER.
11. ALL LINES NOTED "BELOW FLR." OR "ABV. CLG." SHALL BE CONCEALED IN JOIST SPACE, THROUGH JOISTS, OR BETWEEN JOISTS, UNLESS CEILING IS FURRED OR LINES ARE BELOW SLAB ON GRADE.
12. COORDINATE LOCATIONS OF ALL LINES AND EQUIPMENT WITH OTHER CONTRACTORS.

DUCTWORK

1. TOTAL STATIC PRESSURE NOTED IN SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
2. ALL DUCTWORK SIZES NOTED ARE FREE AREA SIZES.

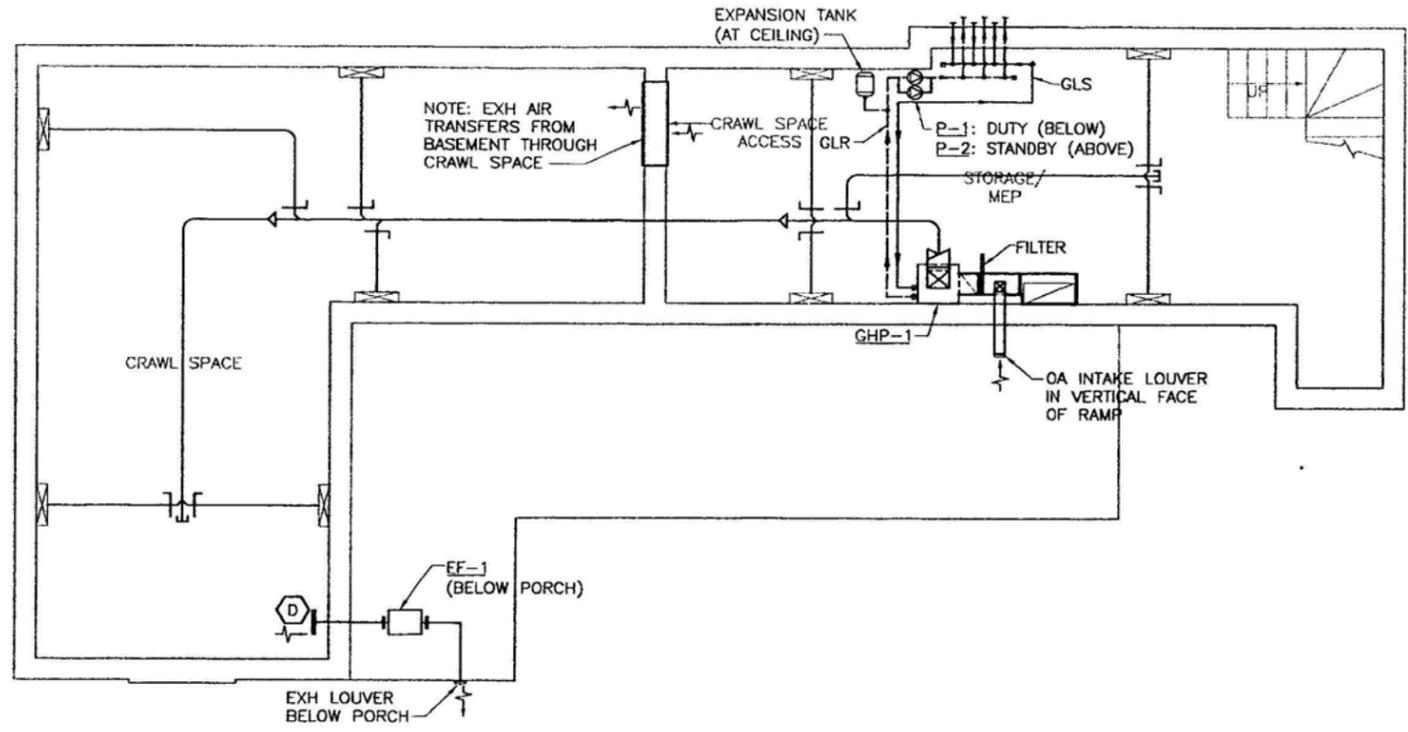
NOTE:

ALL SYMBOLS AND ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED.

DESIGNED: PEP	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
TECH. REVIEW: PEP	MO	ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) SYMBOLS & ABBREVIATIONS	449 80095
DATE: 03/17/06			PMIS/PKG NO. 109130
		LINCOLN HOME NATIONAL HISTORIC SITE	SHEET OF

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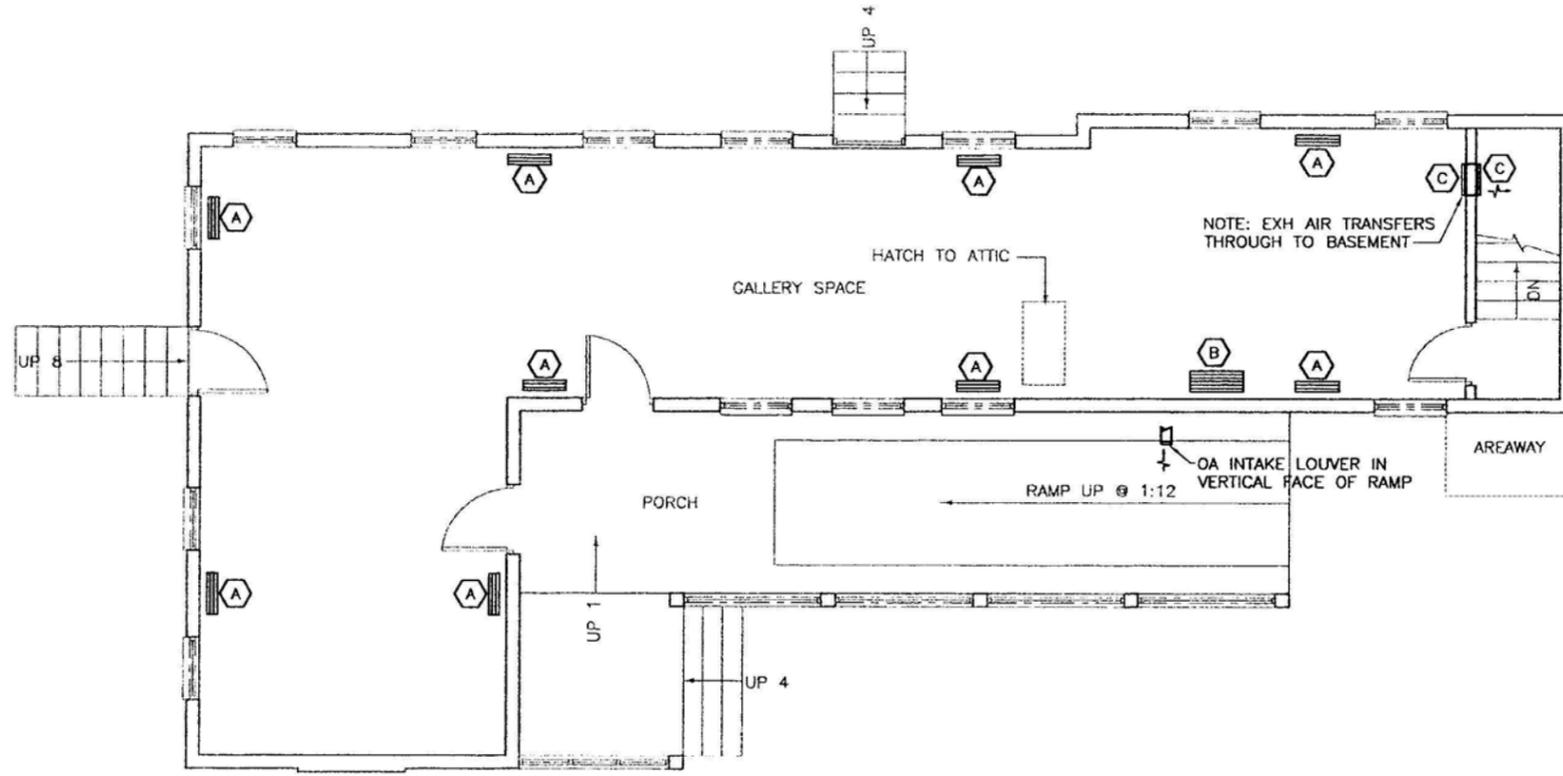


1 BASEMENT PLAN
M1 SCALE: A



DESIGNED: PEP @AEP	SUB SHEET NO. M1	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) BASEMENT PLAN	DRAWING NO. 449 80095
TECH. REVIEW: PEP		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

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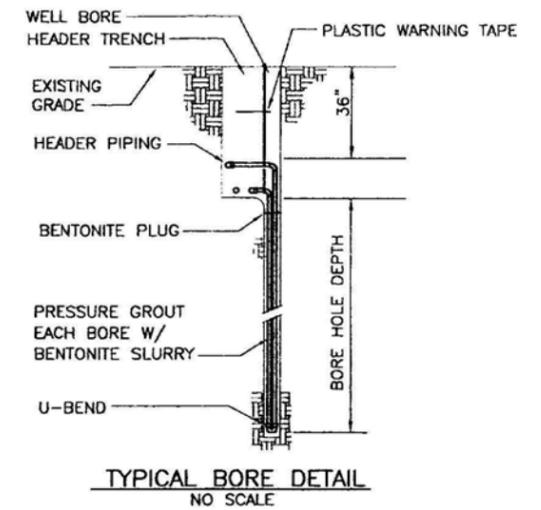


1 FIRST FLOOR PLAN
M2 SCALE: A

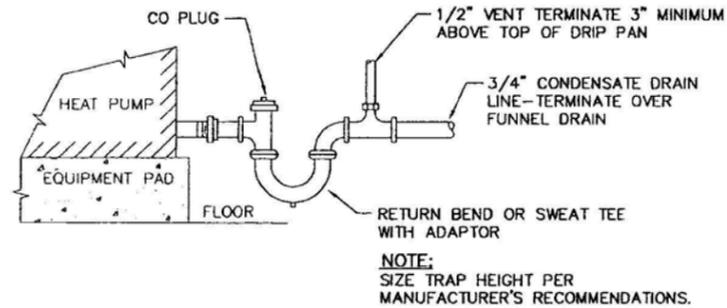


DESIGNED: PEP @/ADP CBH	SUB SHEET NO. M2	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) FIRST FLOOR PLAN LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMS/PKG NO. 109130 SHEET OF
TECH. REVIEW: PEP			
DATE: 03/17/06			

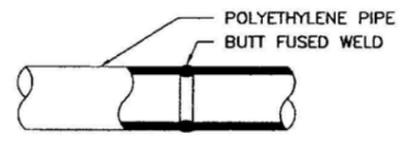
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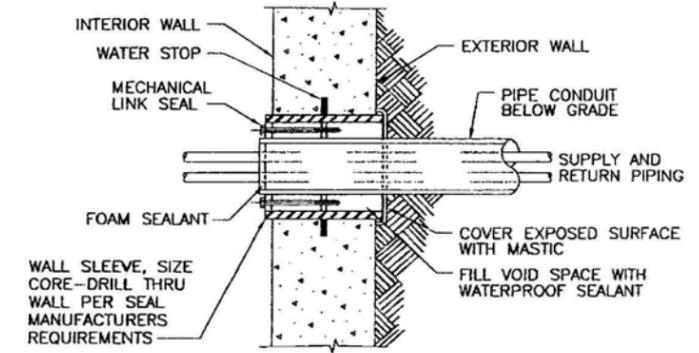
TYPICAL BORE DETAIL
NO SCALE



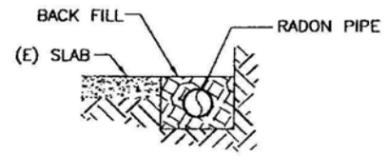
HEAT PUMP DRAIN CONNECTION SCHEMATIC (BASEMENT UNITS)
NOT TO SCALE



GEOHERMAL PIPE JOINT SCHEMATIC
NO SCALE



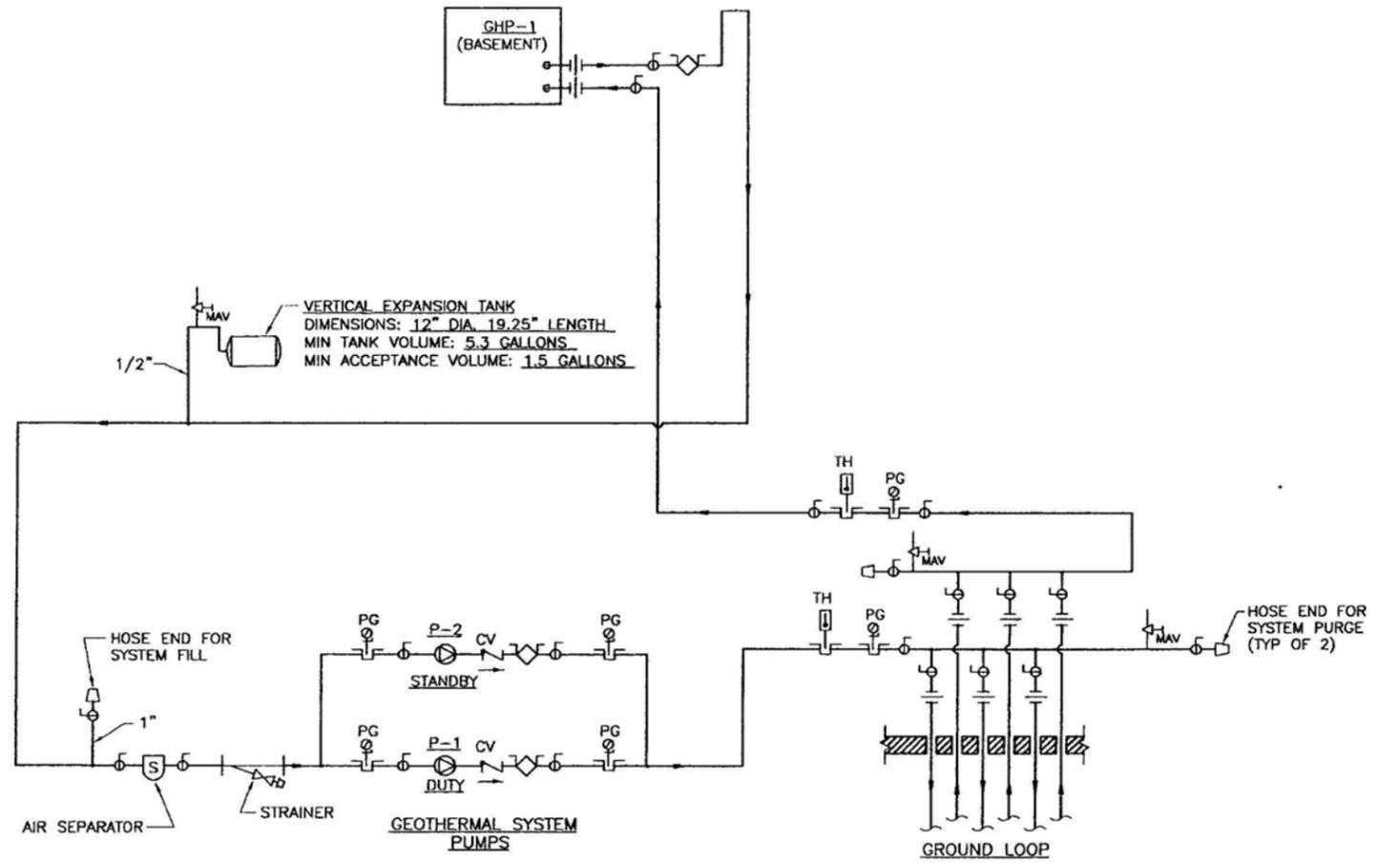
PIPE PENETRATION BELOW GRADE
NOT TO SCALE



RADON MITIGATION TRENCH DETAIL
NO SCALE

DESIGNED: PEP	SUB SHEET NO. M3	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) HVAC DETAILS LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095
TECH. REVIEW: PEP			PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

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GEOHERMAL PIPING SYSTEM SCHEMATIC
NO SCALE

OPERATIONAL NOTES:

1. PROVIDE CIRCULATING PUMP SWITCH HAND-OFF-AUTOMATIC SWITCH. DUTY PUMP SHALL BE SET IN HAND POSITION WHILE STAND-BY PUMP SHALL BE IN OFF POSITION. UPON PUMP FAILURE, SWITCHES SHALL BE MANUALLY REVERSED.
2. SERVICE PERSONAL TO SELECT DUTY PUMP SERVICE ON A MONTHLY BASIS.

DESIGNED: PEP @A000 CBH	SUB SHEET NO. M4	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) HVAC SCHEMATICS LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095
TECH. REVIEW: PEP			PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

GEOHERMAL HEAT PUMP SCHEDULE

UNIT NO	FAN			GROUND WATER				COOLING CAPACITY				HEATING CAPACITY				COIL FACE AREA (IN)	ROWS	COMPRESSOR		UNIT DATA			REMARKS		
	UNIT CFM	FLA	ESP (IN)	GPM	CLG EWT (°F)	HTG EWT (°F)	TOT MBH	SENS MBH	EER	EAT (°F)		LAT (°F)		MBH	COP			EAT (°F)	LAT (°F)	RLA	LRA	FLA		MCA	ELECTRICAL CHAR
										DB	WB	DB	WB												
HP-1	1500	3.9	0.5	12	85	50	47.5	37.0	13.5	80	67	57	56	50.7	4.6	60	91	4.5	3	18.3	109.0	22	28	208/60/1	NOTE: 1

NOTES:
1. UNITS DESIGNED AROUND FLORIDA HEAT PUMP MODEL: GT048.

PUMP SCHEDULE

PUMP NO	PUMP DUTY	GPM	FEET HEAD	EFF %	BHP	MOTOR HP	RPM	ELECTRICAL CHAR	OPERATING CONDITIONS		IMPELLER SIZE
P-1	DUTY	0	25	-	-				GPM	12.0	
P-2	STANDBY	20	17	-	-	1/6	3150	120/60/1	FEET	20	
		45	0	-	-				EFF	-	

NOTES:
1. RACK PUMPS ALONG WALL, PROVIDE WALL MOUNTING HARDWARE.
2. PUMPS DESIGNED AROUND GRUNDFOS - UP75-F.

EXHAUST FAN

SYMBOL	CFM	SP	RPM	WATTS	ELEC CHAR	REMARKS
EF-1	290	0.125	1,050	80	120/60/1	-

DIFFUSER, REGISTER, AND GRILLE SCHEDULE

MARK	TYPE	FACE SIZE	CFM	REMARKS
A	SRF	24x3.5	160	NOTE: 1,3
B	RRF	30x24	1150	NOTE: 1
C	TGW	18x12	290	NOTE: 2
D	EGW	18x14	290	-

NOTES:
1. COORDINATE GRILLE LOCATION WITH FLOOR JOISTS.
2. COORDINATE GRILLE LOCATION WITH WALL FRAMING.
3. ALUMINUM FIXED BAR, 80 CFM/LINEAR FOOT.

5/18/06 07:59 CHARBAUGH R16 C:\AUTOMANGER WORKSPACE\CHARBAUGH\M-HF_MERDM\0-CADD\WPS\1\10\CARRIGAN\MECH\HVAC.DWG

DESIGNED: PEP @AGD CBH	SUB SHEET NO. M5	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) HVAC SCHEDULES LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMIS/PKG NO. 109130 SHEET OF
TECH. REVIEW: PEP	DATE: 03/17/06		

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FIRE PROTECTION SYMBOLS

- FIRE LINE
- - - - - DRY FIRE LINE
- SEMI-RECESSED PENDANT SPRINKLER HEAD
- DRY PENDANT SPRINKLER HEAD
- TEE, OUTLET DOWN
- ∩ ELBOW, TURNED DOWN
- ⊗ FLUSH VALVE WITH 1" PIPE EXTENSION
- └─┬─┘ FIRE DEPARTMENT CONNECTION

FIRE PROTECTION NOTES

1. PROVIDE AND SIZE ALL SPRINKLER DRAINS PER NFPA-13R.
2. SIZE PIPING WITH HYDRAULIC CALCULATIONS PER NFPA-13R.
3. COORDINATE ALL PIPING AND SPRINKLER HEADS WITH OTHER TRADES.
4. ALL SPRINKLERS SHALL BE INSTALLED IN ACCORDANCE WITH COVERAGE CRITERIA SPECIFIED BY NFPA-13R.

ABBREVIATIONS

- CW COLD WATER
- D DOMESTIC WATER
- F FAHRENHEIT
- FP FIRE PROTECTION
- FT FEET
- GPM GALLONS PER MINUTE
- HW HOT WATER
- PD PRESSURE DROP
- SQ SQUARE
- TYP TYPICAL

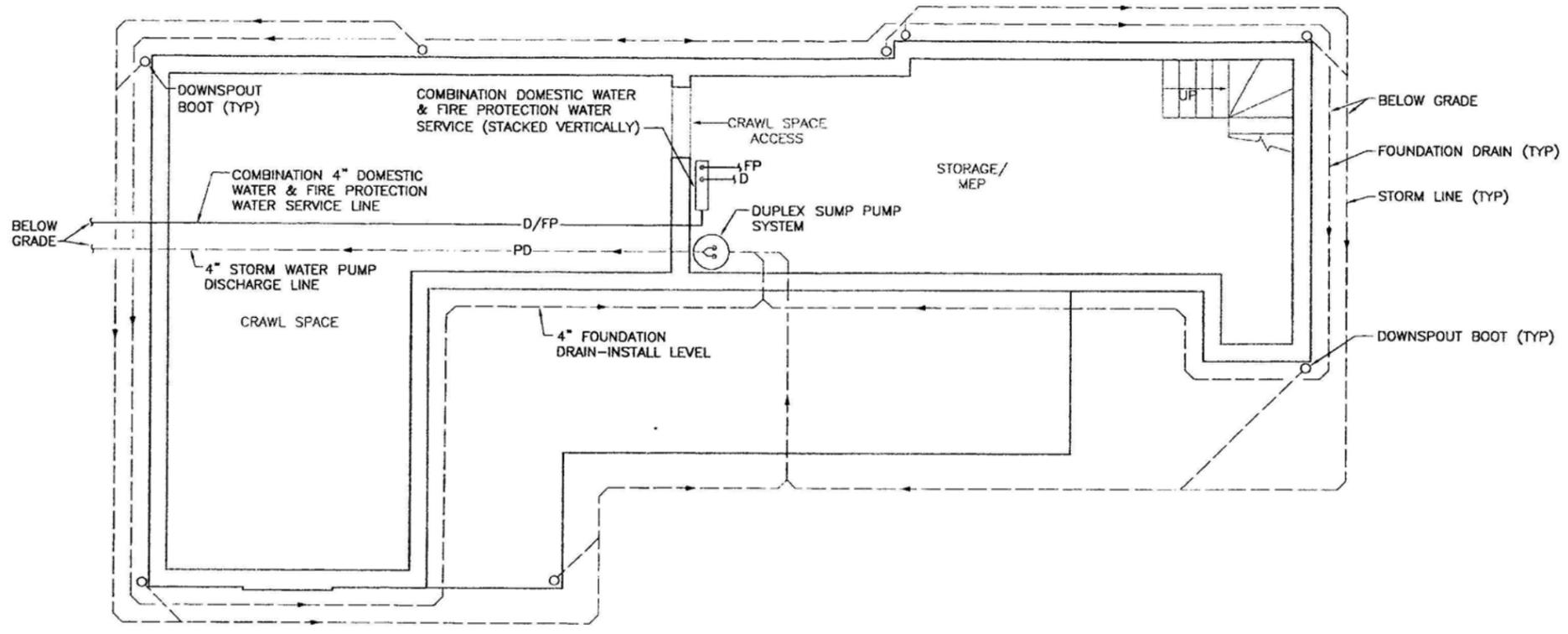
PIPING SYMBOLS

- COLD WATER SUPPLY
- HOT WATER SUPPLY

NOTE:
ALL SYMBOLS AND ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED.

DESIGNED: MKM @2006 CBH	SUB SHEET NO. PO	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) SYMBOLS & ABBREVIATIONS LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMS/PKG NO. 109130 SHEET OF
TECH. REVIEW: PEP	DATE: 03/17/06		

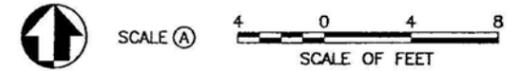
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1 BASEMENT PLAN
P1 SCALE: A

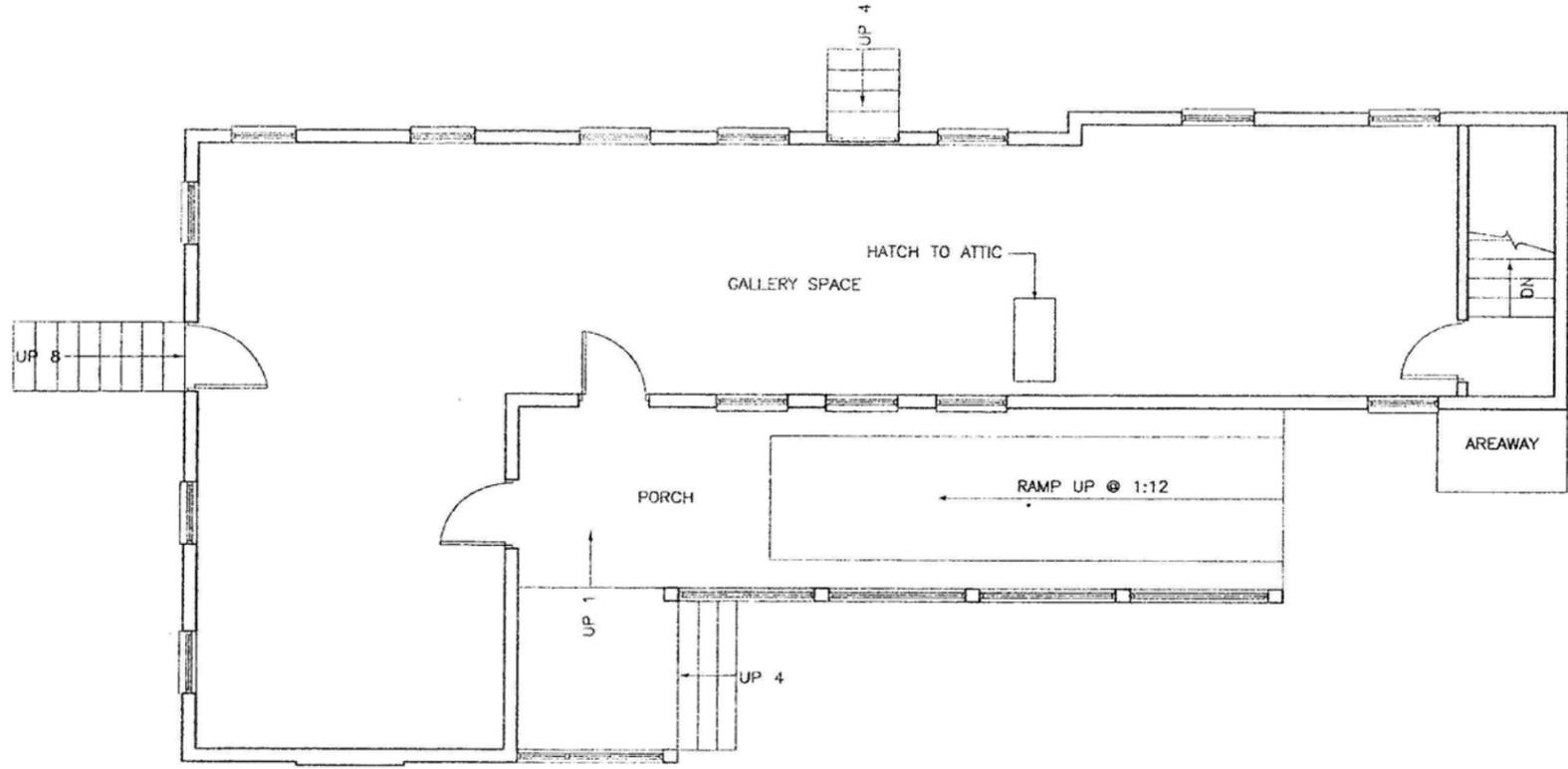
FIRE SPRINKLER DESIGN CRITERIA			
	CATEGORY 1 GALLERY AND PUBLIC SPACES	CATEGORY 2 ATTIC SPACES	CATEGORY 3 STORAGE AND MECHANICAL
OCCUPANCY CLASSIFICATION:	LIGHT	ORDINARY GROUP 1	ORDINARY GROUP 2
TYPE OF SPRINKLER SYSTEM:	WET	DRY	WET
DESIGN AREA OF WATER APPLICATION:	1500 SQ FT	1950 SQ FT	1500 SQ FT
MINIMUM DENSITY:	.10 GPM/SQ FT	.15 GPM/SQ FT	.20 GPM/SQ FT
SPRINKLER TEMPERATURE RATING:	155°F	200°F	155°F (STORAGE), 212°F (MECHANICAL)
SPRINKLER 'K' FACTOR:	K=5.5	K=5.5	K=5.5
SPRINKLER HEAD TYPE:	SEMI-RECESSED PENDENT, QUICK RESPONSE	UPRIGHT, STANDARD RESPONSE	UPRIGHT, STANDARD RESPONSE
HOSE STREAM ALLOWANCE:	100 GPM	250 GPM	250 GPM

NOTE: FIRE SPRINKLER WATER DEMAND INDICATED ABOVE PENDING INSURANCE UNDERWRITER AND AUTHORITY HAVING JURISDICTION APPROVAL.



DESIGNED: MKM LS	SUB SHEET NO. P1	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) BASEMENT PLAN LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMIS/PKG NO. 109130 SHEET OF
TECH. REVIEW: PEP	DATE: 03/17/06		

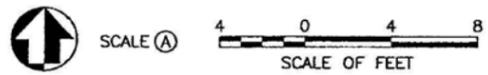
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1 FIRST FLOOR PLAN
P2 SCALE: A

FIRE SPRINKLER DESIGN CRITERIA			
	CATEGORY 1 ¹ GALLERY AND PUBLIC SPACES	CATEGORY 2 ² ATTIC SPACES	CATEGORY 3 ³ STORAGE AND MECHANICAL
OCCUPANCY CLASSIFICATION:	LIGHT	ORDINARY GROUP 1	ORDINARY GROUP 2
TYPE OF SPRINKLER SYSTEM:	WET	DRY	WET
DESIGN AREA OF WATER APPLICATION:	1500 SQ FT	1950 SQ FT	1500 SQ FT
MINIMUM DENSITY:	.10 GPM/SQ FT	.15 GPM/SQ FT	.20 GPM/SQ FT
SPRINKLER TEMPERATURE RATING:	155°F	200°F	155°F (STORAGE), 212°F (MECHANICAL)
SPRINKLER 'K' FACTOR:	K=5.5	K=5.5	K=5.5
SPRINKLER HEAD TYPE:	SEMI-RECESSED PENDENT, QUICK RESPONSE	UPRIGHT, STANDARD RESPONSE	UPRIGHT, STANDARD RESPONSE
HOSE STREAM ALLOWANCE:	100 GPM	250 GPM	250 GPM

NOTE: FIRE SPRINKLER WATER DEMAND INDICATED ABOVE PENDING INSURANCE UNDERWRITER AND AUTHORITY HAVING JURISDICTION APPROVAL.



DESIGNED: MKM @A00 LS	SUB SHEET NO. P2	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) FIRST FLOOR PLAN LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 449 80095 PMIS/PKG NO. 109130 SHEET OF
TECH. REVIEW: PEP	DATE: 03/17/06		

SYMBOLS

	DUPLEX GROUND FAULT INTERRUPTER RECEPTACLE
	DUPLEX RECEPTACLE
	TELEPHONE OUTLET
	SINGLE POLE SWITCH
	THREE WAY SWITCH
	SINGLE PHASE MANUAL MOTOR SWITCH WITH OVERLOADS
	DISCONNECT SWITCH
	COMBINATION DISCONNECT SWITCH/STARTER
	MOTOR STARTER
	MOTOR CONNECTION
	JUNCTION BOX
	FLOOR MOUNTED JUNCTION BOX
	METER
	NEW PANELBOARD
	HOMERUN TO PANELBOARD - 3 #12-3/4°C UNO
	POWER CIRCUIT
	LIGHTING CIRCUIT
	UNDERGROUND OR SUBSLAB CONDUIT OR CIRCUIT
	CAPPED CONDUIT
	SURFACE MOUNTED TRACK LIGHTING

MOUNTING HEIGHTS

1. WALL SWITCH OUTLETS	3'-10" EXCEPT AS HEREINAFTER SPECIFIED
2. BRACKET OUTLETS	7'-0" ABOVE DOORS, OR AS DIRECTED
3. CONVENIENCE OUTLETS	1'-6" UNLESS NOTED OTHERWISE
4. DISTRIBUTION CABINETS	6'-6" TO TOP
5. FIRE ALARM STATIONS	3'-8"
6. FIRE ALARM SOUNDING DEVICES	6'-8" OR 6" BELOW CEILING HEIGHT, WHICHEVER IS LOWER
7. TELEPHONE OUTLETS	1'-6" OR AS DIRECTED
8. TELEVISION OUTLETS	1'-6" OR AS NOTED OR AS DIRECTED
9. MISCELLANEOUS EQUIPMENT OUTLETS	MANUFACTURERS RECOMMENDATIONS
10. EXIT SIGNS	BOTTOM 6" ABOVE DOOR FRAME OR CEILING MOUNT
11. CARD READERS	3'-10" OR AS NOTED
12. LIGHTING FIXTURES IN STAIRWAYS	ABOVE LANDING OR STAIRS OR IN EXISTING BACK BOX 7'-6"

	MOTION DETECTOR INFRARED
	DOOR CONTACTS
	WINDOW CONTACTS
	MAGNETIC DOOR LOCK
	CARD READER
	INTRUSION ALARM HORN/SIREN/SPEAKER
	FLOOD DETECTION
	CLOSED CIRCUIT TV CAMERA WITH LENZ (FIXED POSITION)
	ANNUNCIATOR PANEL
	FIRE ALARM PANEL
	MANUAL PULL STATION
	SMOKE DETECTOR
	FIRE ALARM HORN W/FLASHING STROBE LIGHT
	FIRE ALARM SYSTEM STROBE
	EXIT SIGN

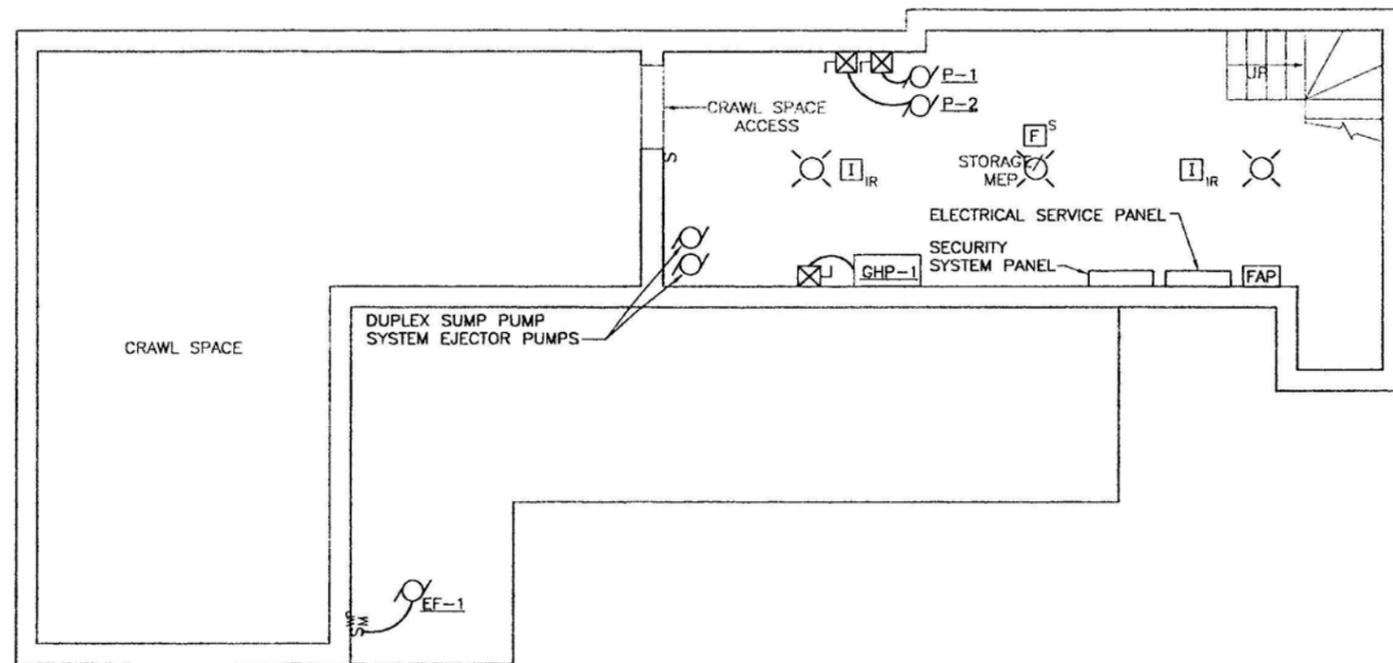
ABBREVIATIONS

A	AMPERE	GC	GENERAL CONTRACTOR	NEC	NATIONAL ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	GEN	GENERATOR	NEUT	NEUTRAL
AHU	AIR HANDLING UNIT	GFI	GROUND FAULT INTERRUPTER	NF	NON FUSED
APPROX	APPROXIMATELY	GHP	GEOHERMAL HEAT PUMP	NIC	NOT IN CONTRACT
AUX	AUXILIARY	GRD	GROUND	∅	PHASE
AWG	AMERICAN WIRE GAGE	HC	HEATING CONTRACTOR	P	PUMP
BFG	BELOW FINISHED GRADE	HP	HORSEPOWER	PC	PLUMBING CONTRACTOR
BATT	BATTERY	HPS	HIGH PRESSURE SODIUM	PLC	PROGRAMMABLE LOGIC CONTROLLER
C	CONDUIT	HUH	HORIZONTAL UNIT HEATER	PNL	PANELBOARD
CA	CARD ACCESS	HOA	HAND OFF AUTO SWITCH	RECP	RECEPTACLE
CB	CIRCUIT BREAKER	HTR	HEATER	REQ'D	REQUIRED
CCTV	CLOSED CIRCUIT TV	HWP	HOT WATER PUMP	REV	REVISION
CKT	CIRCUIT	JB	JUNCTION BOX	RM	ROOM
CL	CENTERLINE	ID	INTRUSION DETECTION	SEC	SECURITY
CLG	CEILING	KCMIL	THOUSAND CIRCULAR MILS	SMR	SURFACE METAL RACEWAY
CORR	CORRIDOR	KV	KILOVOLT	SMY AIR	SYMMETRICAL AMPERE INTERRUPTING RATING
CUH	CABINET UNIT HEATER	KVA	KILOVOLT AMPERES	SPECS	SPECIFICATIONS
CWP	COLD WATER PUMP	KVAR	KILOVAR	STOR	STORAGE
DIA	DIAMETER	KW	KILOWATT	SW	SWITCH
DIST	DISTRIBUTION	KWH	KILOWATT HOURS	SWBD	SWITCHBOARD
DWG	DRAWING	LCP	LIGHTING CONTROL PANEL	TEL	TELEPHONE
EA/	EACH	LTG	LIGHT	TEMP	TEMPORARY
EC	ELECTRICAL CONTRACTOR	LV	LOW VOLTAGE	TP	TWISTED PAIR
EF	EXHAUST FAN	MAX	MAXIMUM	TRP	TUBE ROUTING PANEL
ELEC	ELECTRIC	MCB	MAIN CIRCUIT BREAKER	TV	TELEVISION
ELEV	ELEVATOR	MCM	THOUSAND CIRCULAR MILS	TYP	TYPICAL
EMER	EMERGENCY	MDP	MAIN DISTRIBUTION PANEL	UG	UNDERGROUND
EMT	ELECTRICAL METALLIC TUBING	MECH	MECHANICAL	UNO	UNLESS NOTED OTHERWISE
EX	EXISTING (EXIST)	MIN	MINIMUM	UPS	UNINTERRUPTIBLE POWER SUPPLY
EWG	ELECTRIC WATER COOLER	MISC	MISCELLANEOUS	UV	ULTRA VIOLET
FA	FIRE ALARM	MLO	MAIN LUGS ONLY	V	VOLT
FCU	FAN COIL UNIT	MOD	MOTOR OPERATED DAMPER	VFD	VARIABLE FREQUENCY DRIVE
FDR	FEEDER	MTD	MOUNTED	W	WIRE
FO	FIBER OPTIC	N/A	NOT ACCESSABLE	W/	WITH
FU	FUSE	NE	NORMAL EMERGENCY	WP	WEATHERPROOF
				XFMR	TRANSFORMER

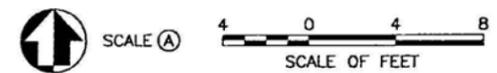
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DESIGNED: SEL @/100 DJB	EO	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) SYMBOLS & ABBREVIATIONS	DRAWING NO. 449 80095
TECH. REVIEW: PEP		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

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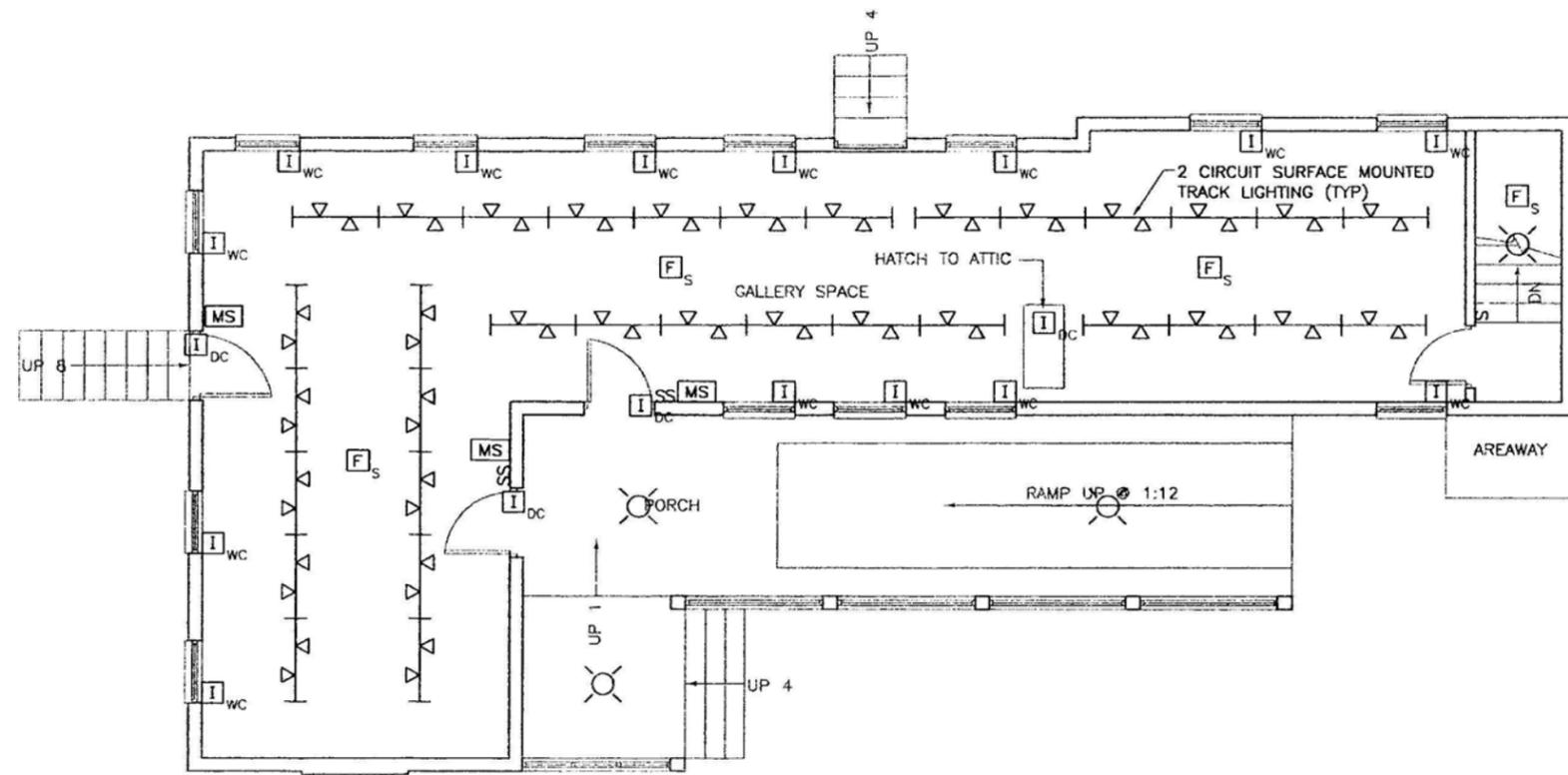


1 BASEMENT PLAN
E1 SCALE: A

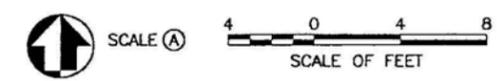


DESIGNED: SEL	SUB SHEET NO. E1	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) BASEMENT PLAN	DRAWING NO. 449
TECH. REVIEW: DBS		LINCOLN HOME NATIONAL HISTORIC SITE	DRAWING NO. 80095
DATE: 03/17/06			PMIS/PKG NO. 109130
			SHEET OF

5/15/06 13:53 CHURBAUGH R16 C:\AUTOMANAGER\WORKSPACE\CHURBAUGH\A--HE_MERIDIAN-D-CDD-S-CDD02\NPS\UHQ\10_CARRIGAN\ELEC\EZLELEC.DWG XREFS: -BASE\A-FLOOR.PLS.DWG;



1 FIRST FLOOR PLAN
E2 SCALE: A



DESIGNED: SEL	SUB SHEET NO. E2	TITLE OF SHEET ULTIMATE TREATMENT CARRIGAN HOUSE (HS-25) FIRST FLOOR PLAN <small>LINCOLN HOME NATIONAL HISTORIC SITE</small>	DRAWING NO. 449
TECH. REVIEW: PEP			PMIS/PKG NO. 109130
DATE: 03/17/06			SHEET OF

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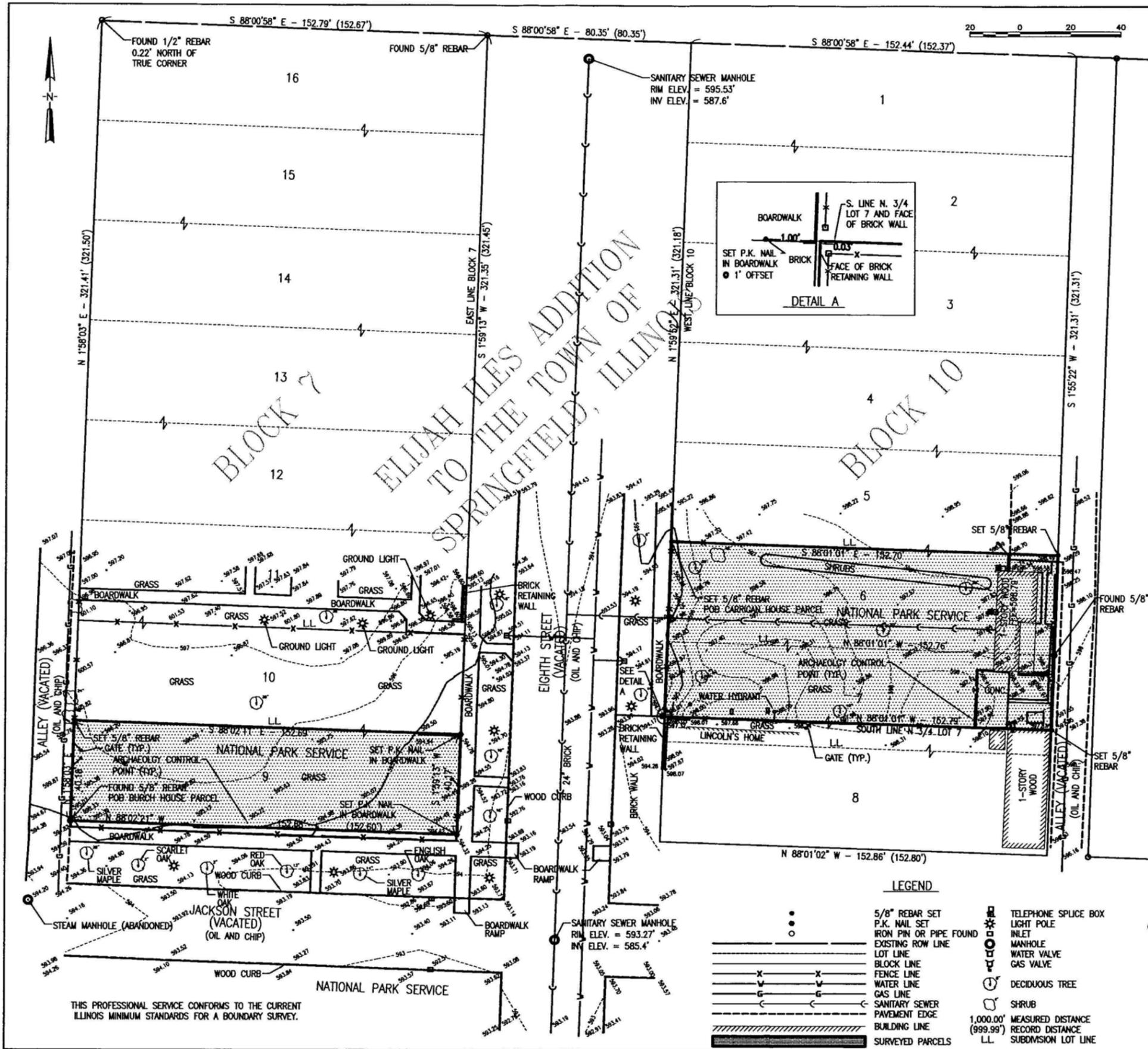
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APPENDIX A



GENERAL NOTES

RECORD DISTANCES PER PLAT OF SURVEY BY JOHN RAYNOLDS, I.L.P.S. # 2054 AND DATED JUNE 1974. ALSO REFERENCE SURVEY INFORMATION COMPILED BY JOHN GARRISON, I.L.P.S. # 1564 AND SHOWN IN A SKETCH DATED JANUARY 28, 1995.

BASIS OF BEARINGS IS GRID NORTH OF THE ILLINOIS STATE PLANE COORDINATE SYSTEM, NAD 83, WEST ZONE AND WAS DETERMINED USING SITE MONUMENTS LIHO 1 AND LIHO 2.

TREE SPECIES WERE IDENTIFIED BY THE JAEGER COMPANY.

PROPERTY PIN #: 14-34-178-024
ADDRESS: 8TH STREET AND JACKSON STREET
SPRINGFIELD, ILLINOIS 62701
OWNER: NATIONAL PARK SERVICE

UTILITY COMPANIES SERVING SITE:

- AMERITECH (TELEPHONE)
555 EAST COOK STREET
SPRINGFIELD, IL 62703
217-753-2973
- CWLP (ELECTRIC)
10TH AND MILLER STREETS
SPRINGFIELD, IL 62702
217-789-2121
- AMEREN/CILCO (GAS)
825 NORTH MACARTHUR AVENUE
SPRINGFIELD, IL 62701
888-672-5252
- CWLP (WATER)
11TH AND MASON STREETS
SPRINGFIELD, IL 62704
217-789-2323
- CITY OF SPRINGFIELD (SEWER)
ROOM 201 MUNICIPAL CENTER WEST
SPRINGFIELD, IL 62701
217-789-2260

RECORD BOUNDARY DESCRIPTION

(AS PROVIDED BY NATIONAL PARK SERVICE)

Burch House
Lot 9 of Block 7 of the Elijah Iles Addition to the City of Springfield, Illinois
- and -
Carrigan House
Lot 6 and the North 3/4 of Lot 7 in Block 10 of the Elijah Iles Addition to the City of Springfield, Illinois

BENCHMARKS

LIHO 1
BRASS DISK SET IN CONCRETE UNDER BOARDWALK ON WEST SIDE OF EIGHTH STREET ON SOUTH RIGHT-OF-WAY LINE OF CAPITAL AVENUE. DISK IS STAMPED "LIHO 1".
ELEVATION 595.21'

LIHO 2
BRASS DISK SET IN CONCRETE UNDER BOARDWALK ON WEST SIDE OF EIGHTH STREET ON NORTH RIGHT-OF-WAY LINE OF EDWARDS STREET. DISK IS STAMPED "LIHO 2".
ELEVATION = 589.01'

UTILITY NOTE

THE LOCATIONS OF THOSE BURIED AND ABOVEGROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVEGROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITIES MUST BE COORDINATED BETWEEN THE CONTRACTOR, UTILITY COMPANY, AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES, REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

STATE OF ILLINOIS
COUNTY OF SANGAMON

I, Darren E. Fargy, do hereby certify that I am a Professional Land Surveyor, licensed in the State of Illinois; that the survey of this plat was made under my direction; that the survey is true and complete as shown to the best of my knowledge and belief; and that all monuments and marks are of the character and occupy the position shown thereon.



CO. LICENSE NO. 184-001084

Date _____ PROFESSIONAL LAND SURVEYOR NO. 3637
LICENSE EXPIRES NOVEMBER 30, 2006

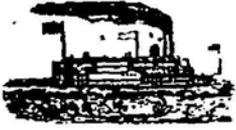
LEGEND

- 5/8" REBAR SET
- P.K. NAIL SET
- IRON PIN OR PIPE FOUND
- EXISTING ROW LINE
- LOT LINE
- BLOCK LINE
- FENCE LINE
- WATER LINE
- GAS LINE
- SANITARY SEWER
- PAVEMENT EDGE
- BUILDING LINE
- SURVEYED PARCELS
- TELEPHONE SPLICE BOX
- LIGHT POLE
- INLET
- MANHOLE
- WATER VALVE
- GAS VALVE
- DECIDUOUS TREE
- SHRUB
- 1,000.00' MEASURED DISTANCE (999.99')
- LL RECORD DISTANCE SUBMISSION LOT LINE

THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY.

DESIGNED: @ADG	SUB SHEET NO. C1	TITLE OF SHEET SITE SURVEY	DRAWING NO. 449
TECH. REVIEW:		LINCOLN HOME NATIONAL HISTORIC SITE	PMIS/PKG NO.
DATE:			SHEET OF

APPENDIX B



FEVER RIVER RESEARCH

FLOYD R. MANSBERGER

ARCHAEOLOGY • HISTORY • PRESERVATION

December 16, 1997 (revised 4/19/98)

Carl Fischer, AIA
FWAI Architects, Inc.
Broadwell Building
One Northwest Old Capitol Plaza
Springfield, Illinois 62701

re: Carrigan/Irwin House archaeological investigations;
Contract No. 1443CX603097002
Delivery Order No. 8

Dear Carl:

This letter report summarizes the results of the archaeological investigations conducted at the Carrigan/Irwin House Site (Lot 6 and the North Three-Quarters Lot 7, Block 16) by Fever River Research for the Lincoln Home National Historic Site. All work at the Carrigan/Irwin House Site was conducted by Floyd Mansberger with the assistance of Charles Wilkins. This work, which was conducted in two phases, was associated with the relocation of the Corneau House from this site (located immediately north of the Lincoln Home) to its original location (fronting Eighth Street at the southwest corner of Eighth and Jackson Streets, on the front of Lot 16, Block 6). The Corneau House was constructed during the middle-nineteenth century on Lot 16, Block 6. During the 1880s, this house was relocated to the rear of that lot, only to be again relocated to the Carrigan/Irwin House Site (Lot 6 and the North Three-Quarters Lot 7, Block 16) during the 1960s. Prior to the presence of the Corneau House at this location (Lot 6 and the North Three-Quarters Lot 7, Block 16), at least one (if not two) dwellings had been constructed on the front of this lot. The limited archaeological investigations described in this letter report documented the remains of these two earlier structures and determined that significant remains of these earlier structures remain below ground.

The first phase of the project consisted of a single day of excavations along the front (west) side of the house in the area that the moving contractor anticipated disturbing during the process of setting the steel girders required for lifting the house. This work was conducted on September 29, 1997 prior to the arrival of the moving contractors. These investigations uncovered the remains of an early-to-middle-nineteenth century porch and steps (see discussion below). After the Corneau House had been removed from the lot, we inspected the area where the house had sat and discovered a series of nineteenth-century foundations. With shovel scraping and very limited excavations, we uncovered the foundation remains from two separate episodes of house construction. These foundations were mapped and numerous artifacts recovered from within the fill. These investigations were conducted on October 22 and 23 with two people (see discussion below).

FINDINGS

Prior to the relocation of the house, we excavated two test trenches in the narrow front yard between the house and the boardwalk. Test 1 uncovered the remains of a stone step, a series of single brick supports for steps, and a short section of brick wall resting upon a shallow stone foundation. The brick wall may represent the remains of short walls (often referred to as "cheek walls") located each side of the frame steps. Additionally, the remains of two round posts were found. An 1885 U. S. silver dollar was recovered from the rubble associated with the demolition of the brick "cheek wall." It is interesting to note that the dressed stone step is located well below the level of the existing boardwalk. The base of the concrete stringers that the boardwalk rests upon sits directly on the top of this stone step (see attached plan and sectional views of these investigations). No significant nineteenth-century remains were found in Test 2.

After the house was relocated, the structural remains of an earlier house became immediately apparent. Shovel scraping and limited excavations uncovered the remains of a two-room cellar (see attached plan view). The disturbed foundation walls were exposed at the scraped surface (which was approximately 2-2.5' below the existing ground surface). Two episodes of brickwork were identified. The earlier brickwork was represented by soft mud, molded brick typical of the early-to-middle-nineteenth century. The latter episode of construction was represented by harder, extruded brick that had been wire-cut on the two opposite surfaces. Although lacking interior holes, many of these bricks had a rusticated face similar to those commonly used during the early-twentieth century. It is our interpretation, based on the limited information presently at hand, that the earlier construction represents the original Carrigan House while the latter construction represents remains of the ca. 1880s replacement house (Irwin). The following discussion focuses on the earlier of the two foundation remains.

The remains of the earlier house consist of a two-room cellar with a rear extension. The south room measures approximately 15'9" (east/west) by 17'9" (north/south). This room had a brick floor laid in a running bond pattern. The north room measures approximately 14'9" (east/west) by an unknown distance. The relatively undisturbed remains of this room extended north into the adjoining yard. This room had a packed dirt floor. A 4-foot wide doorway was present between these two rooms. Whereas the east (or rear) wall of the two rooms appears to have been in line, there appears to have been a jog in the west (or front) wall of the house. It appears that the north room was inset approximately 9". The porch foundation remains uncovered in Test 1 appear to have been centered on the southern of the two wings or rooms. The function of the small rear extension (which measures approximately 4'8" wide by 7'9" long) is unclear. The fill overlying this cellar floor contains a wide range of demolition debris as well as late-nineteenth-century household trash, suggesting that it represents debris deposited after the demolition of the original dwelling and prior to the construction of the ca. 1880s house that was constructed on this site.

SUMMARY AND RECOMMENDATIONS:

In spite of the limited nature of these investigations, we were able to document what appears to be the remains of the original Carrigan House and later Irwin House. These investigations have substantiated that a significant portion of this early structure is intact despite the construction of a second house at this location during the 1880s as well as the relocation of the Corneau House at this site in the 1960s. Of special interest is our ability to locate what

appears to be two corners of the original house with the opposite two corners probably lying intact within the adjacent yard to the north. Future research should assemble the existing documentary information regarding the location, size and configuration of the early Carrigan House and later Irwin House, and attempt to correlate this information with the foundation remains that we uncovered.

With the completion of our investigations, the foundation remains were covered with plastic and the site was backfilled with clean fill dirt. The existing plans call for the landscaping of this yard. Since no further construction activity is planned for this area in the foreseeable future, no further work is recommended at this time. Should future construction activity (such as the reconstruction of the Carrigan House) be planned for this site, more extensive archaeological excavations is recommended.

If you, or the National Park Service should have any questions, please give me a call.

Sincerely,

Floyd Mansberger

✓ cc: Lawrence Blake NPS

enclosures:

field notes, maps and artifacts (including 1885 Silver Dollar)



FEVER RIVER RESEARCH

FLOYD R. MANSBERGER

ARCHAEOLOGY • HISTORY • PRESERVATION

December 16, 1997

Carl Fischer, AIA
FWAI Architects, Inc.
Broadwell Building
One Northwest Old Capitol Plaza
Springfield, Illinois 62701

re: Irwin/Carrigan House archaeological investigations;
Contract No. 1443CX603097002
Delivery Order No. 8

Dear Carl:

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The first phase of the project consisted of a single day of excavations along the front (west) side of the house in the area that the moving contractor anticipated disturbing during the process of setting their steel girders for lifting the house. This work was conducted on September 29, 1997 prior to the arrival of the moving contractors. These investigations uncovered the remains of an early to middle nineteenth century porch and steps (See discussion below). After the Corneau House had been removed from the lot, we inspected the area where the house had sat and discovered a series of nineteenth century foundations. With shovel scraping and very limited excavations, we uncovered the foundation remains from two separate episodes of house construction. These foundations were mapped and numerous artifacts recovered from within the fill. These investigations were conducted on October 22 and 23 with two people (See discussion below).

FINDINGS

Prior to the relocation of the house, we excavated two test trenches within the front of the house. Test 1 uncovered the remains of a stone step, a series of single brick supports for steps, and a short section of brick wall resting upon a shallow stone foundation. The brick wall may represent the remains of a "cheek wall" associated with the frame steps. Additionally, the remains of two round posts were found. An 1885 U. S. silver dollar was recovered from the rubble associated with the demolition of the brick "cheek wall." It is interesting to note that the dressed stone step is located well below the level of the existing boardwalk. The base of the concrete stringers that the boardwalk rests upon sits directly on the top of this stone step (See

attached plan and sectional views of these investigations). No significant nineteenth century remains were found in Test 2.

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Remains of the earlier structure consist of a two-room structure with a rear extension. The south room measures approximately 15'9" (east/west) by 17'9" (north/south). This room had a brick floor laid in a running bond pattern. The north room measures approximately 14'9" (east/west) by an unknown distance. The relatively undisturbed remains of this room extended north into the adjoining yard. This room had a packed dirt floor. A 4-foot wide doorway was present between these two rooms. Whereas the west (or rear) wall of the two rooms appears to have been in line, there appears to have been a jog in the west (or front) wall of the house. It appears that the north room was inset approximately 9". The porch foundation remains uncovered in Test 1 appear to have been centered on the southern of the two wings or rooms. The function of the small rear extension (which measures approximately 4'8" wide by 7'9" long) is unclear. The fill overlying this cellar floor contains a wide range of demolition debris as well as late nineteenth century household trash, suggesting that it represents debris deposited after the demolition of the original dwelling and prior to the construction of the ca. 1880s house that was constructed on this site.

SUMMARY AND RECOMMENDATIONS:

In spite of the limited nature of these investigations, we were able to document what appears to be the remains of the original Irwin/Carrigan House. These investigations have substantiated that a significant portion of this early structure is intact despite the construction of a second house at this location during the 1880s as well as the relocation of the Corneau House at this site in the 1960s. Of special interest is our ability to locate what appears to be two corners of the original house with the opposite two corners probably lying intact within the adjacent yard to the north. Future research should assemble the existing documentary information regarding the location, size and configuration of the early Irwin/Carrigan House and attempt to correlate this information with the foundation remains that we uncovered.

With the completion of our investigations, the site was backfilled with clean fill dirt and the existing plans call for the landscaping of this yard. Since no further construction activity is planned for this area, no further work is recommended. Should future construction activity (such as the reconstruction of the Irwin/Carrigan House) be planned for this site, more extensive archaeological excavations is recommended.

If you, or the National Park Service should have any questions, please give me a call.

Sincerely,

Copy [Original to Carl]

Floyd Mansberger

cc: Lawrence Blake NPS

enclosures:

field notes, maps and artifacts (including 1885 Silver Dollar)

9/29/97

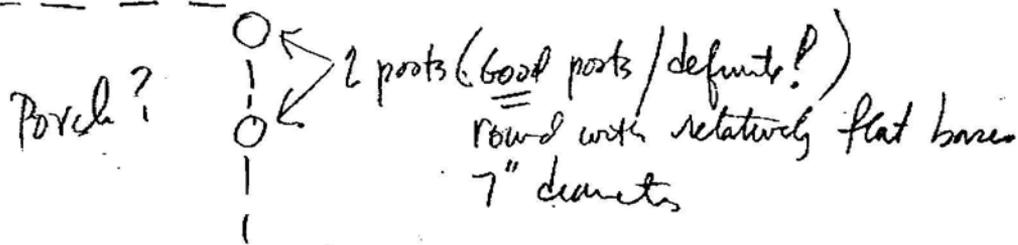
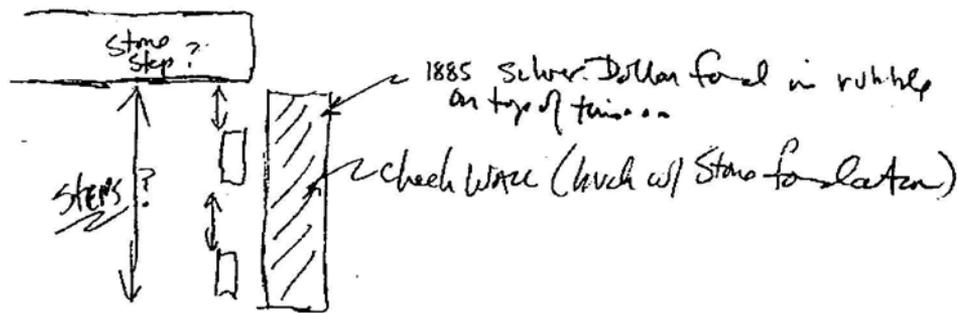
F. Maunberger

Carnean House / Carriga Site

Beautiful, windy, fair day -

- Excavated 2 test units by hand where the house moves intend to place their steel beams to raise the house - no screening; along west side of house.

- Test Unit 1 had several brick & stone features that appear to represent potentially 2 episodes of porch development (or porch/steps with cheek walls?)

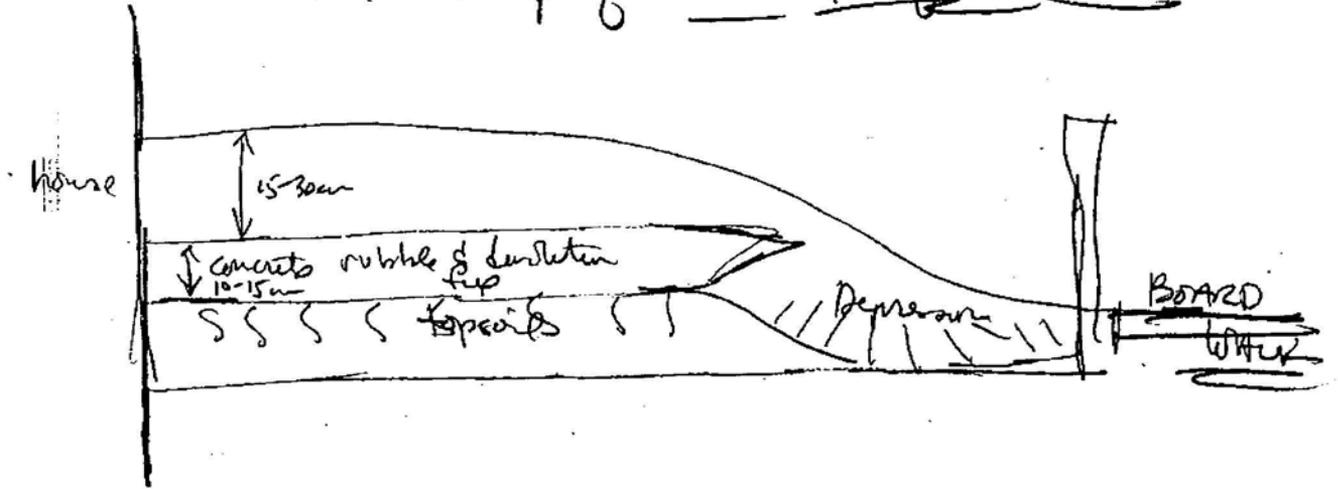


Second lot was clear!

Test 2

NOT to scale

Sketch Map of South profile WATER



No artifacts were collected.

Only artifacts of note in test 1 were 3 $3\frac{1}{2}$ "
machine cut nails & 2 $3\frac{1}{2}$ " wire nails
lying on top of deposition fill adjacent to
north edge of "check wall"

Additionally, small mussel shell found &
saved in haulers trench associated with
the "check wall"

test 2 - whiteware cup fragments (n=c)
milk glass bottle
aquarium panel bottle fragment

All artifacts discarded on-site; not collected

WED (10/22)

Forests evidence for location of house:

1) Trench 7 - should have hit west
wall - didn't p^o

2) Trench 8 - should have hit
south wall - wall line trench
had "destroyed" wall. p^o

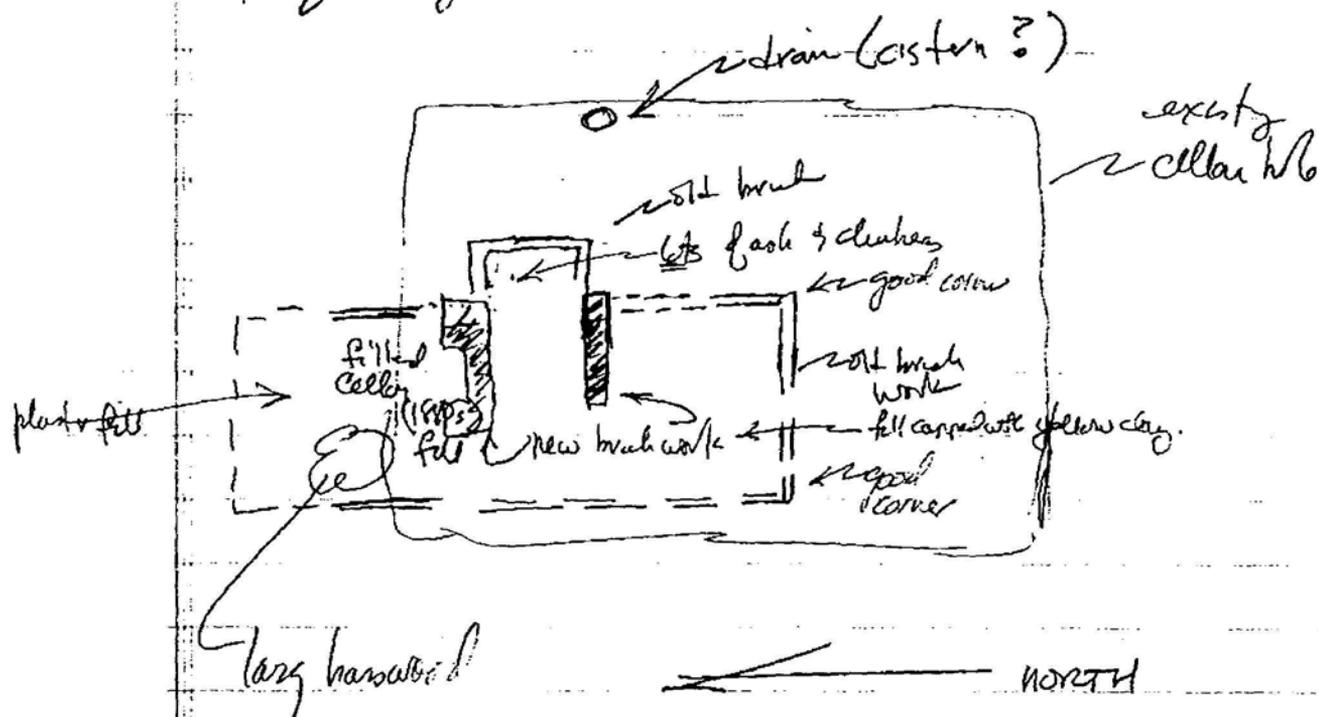
3) No info as to depth Trench 2
& 6 were excavated?

Fig 5 - suggests 140 cm!

Returned to site AT About 3PM. to check on
progress of Cornean Clean up & whether we
could start tomorrow at Cornean Lt.

- We was done with Cornean / Carreaga Clean up &
had uncovered several bottles etc. &
spend next 2 hrs cleaning & scraping
around & defining 2 sets of foundations
that appear to represent the 1840s
& 1880s dwellings. Will work more
on it tomorrow & attempt to get it
mapped. Unfortunately no funds for
this so it's basically a "quick & dirty"
attempt to map the foundations so that

anyone in the future working here will have some clue as to what's going on before they begin the work.



Thursday (10/23)

Chuck & I on site at about 7:15 AM. Much warmer today!

Spent all morning shovel testing at the Farm/Carrigan House site. Exposed foundation & mapped site. Tied it into corner of Lincoln Home retaining wall.

At 1:00 PM we began working at the Corrao site. Spent 2 hours sifting with Vee using the small & medium sized buckets. Lots more to do - just getting started -

Quit at 3:30. —

Friday (10/24)

C. J. Payne —
Chuck Wilkins —

— Working with Vee with backhoe —

— We stopped off the area associated with Forests Trench 1 on the way south to Trench 9. Exposed all of west wall of 1880s house. Encountered the previously located cellar — as well as a potential cistern. & numerous overlapping utility trenches...

A long hard day shoveling to keep up with Vee —

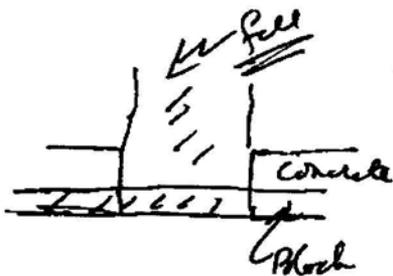
Ingram/Carrigan House Wt

10/06/97

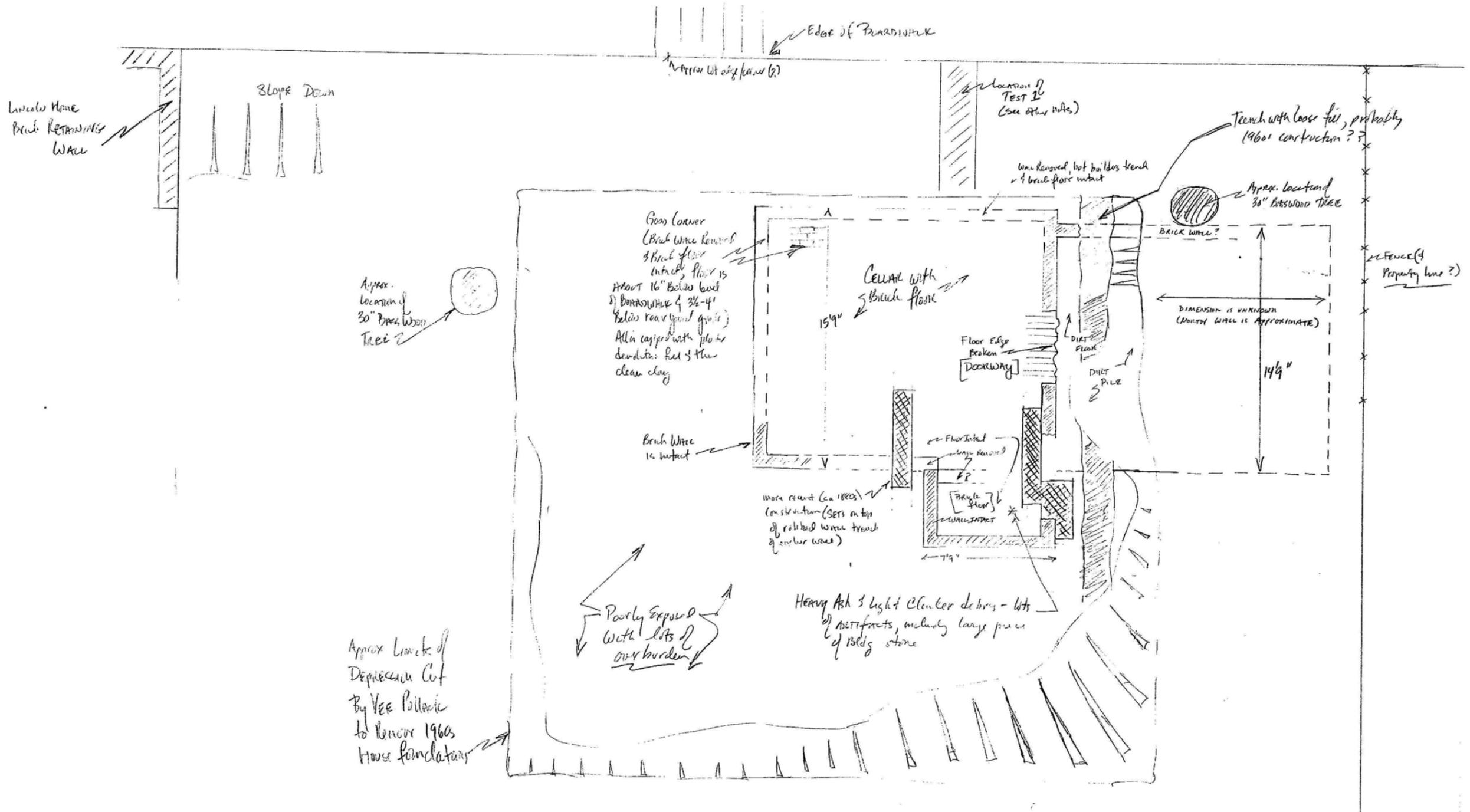
Met at Cornean House - First thing in morning. No sign of house movers. Vee & Bob asked they wouldn't be on site until tomorrow.

10/07/97

Showed up at 7:00 am. No news from the movers. Checked back at 8:30. Again no news. Bob called at 10:15 that they were on site. I got there at 11:00. They were working in front. Returned at 1:15 to observe rear yard work - See notes below

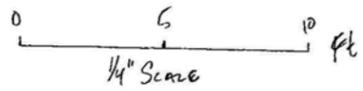


Bob holes had wide foundation (concrete) with old ground surface about 10" b.s. trench lead to opening in wall



The TWIN/CIVILIAN Site

F. Mamboury
10/23/97



NORTH

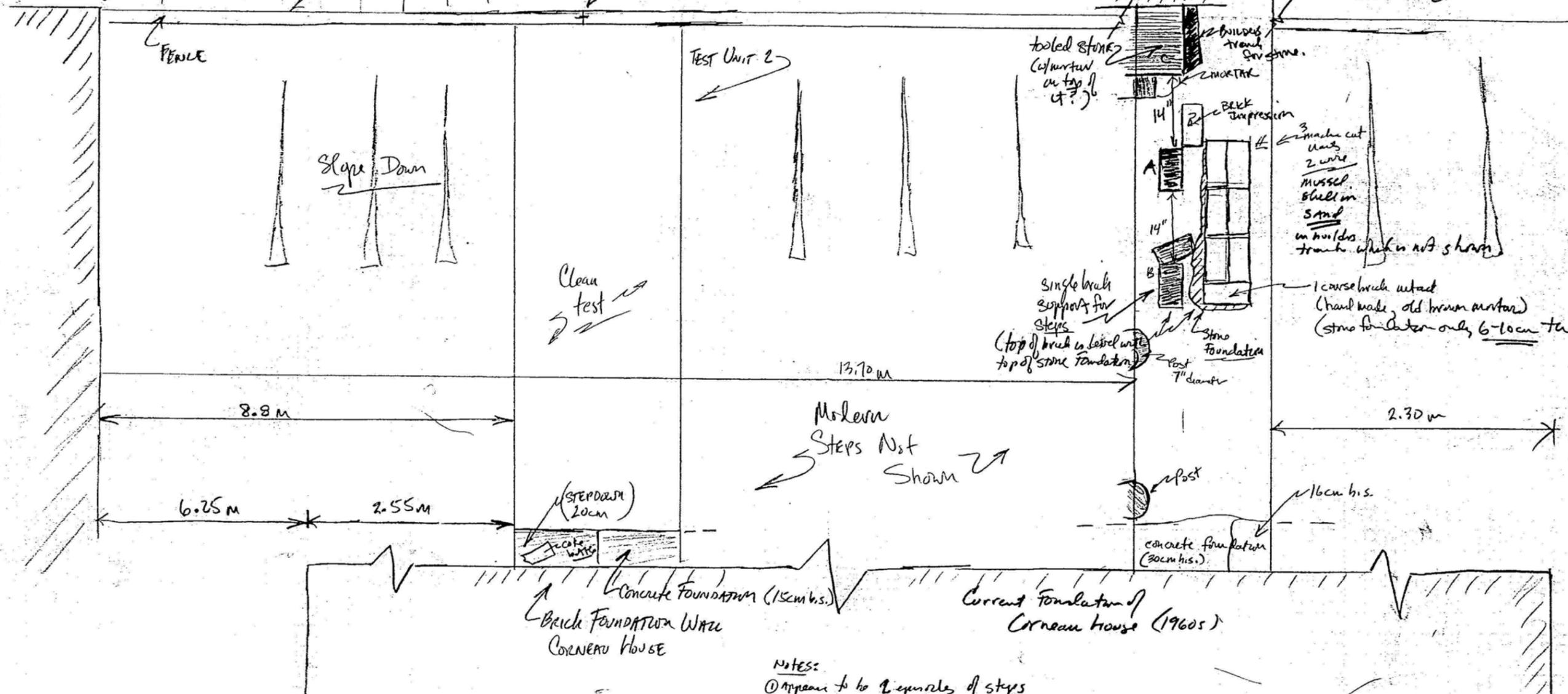
(Litho)

Corner of Brick Retaining Wall

Edge of Boardwalk

Approx location of Left Corner

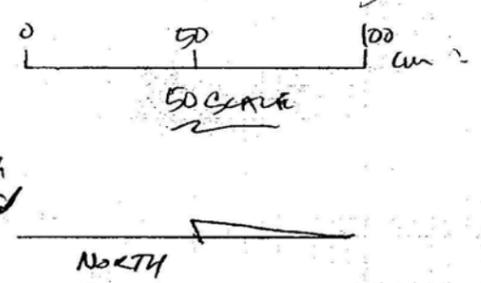
Concrete Stringer for Boardwalk Rests on top of stone "walk" or "step"

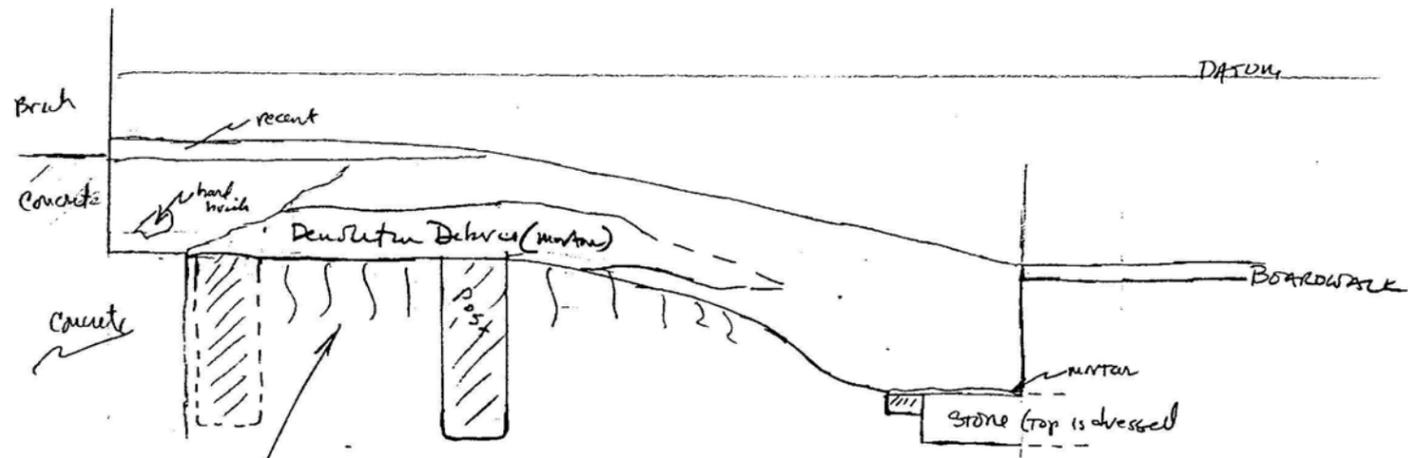


CORNER HOUSE / CAROLAN LOT (PRIOR TO HOUSE MOVE)
 F. Mansburger
 9/29/97

NOTES:

- ① appears to be 2 courses of steps
 - A) first is represented by single bricks, these are slightly covered with debris of soil.
 - B) second set represented by short section of stone foundation wall with brick. On this surface is painted
 - C) bricks A & B are about 15cm higher than stone C





Appears to be ca 1840
ground surface.
Very high compared to over at
Spray's House.

Corneau / Corrigan
50 SCALE

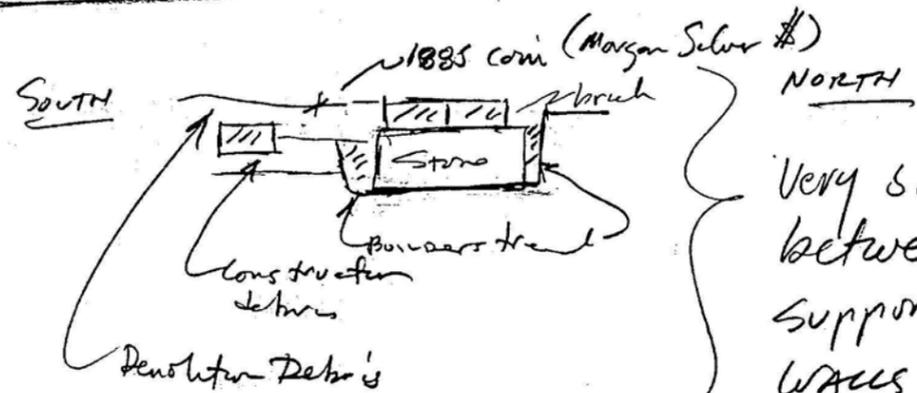
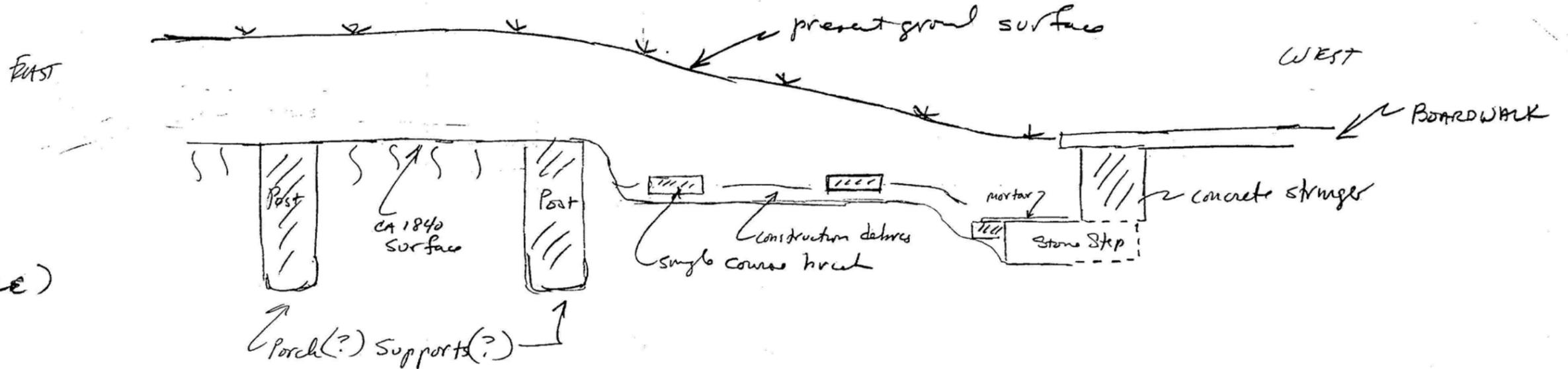
TEST UNIT #1

Fa 9/27/97

CORNEAU/CORRIGAN House LA

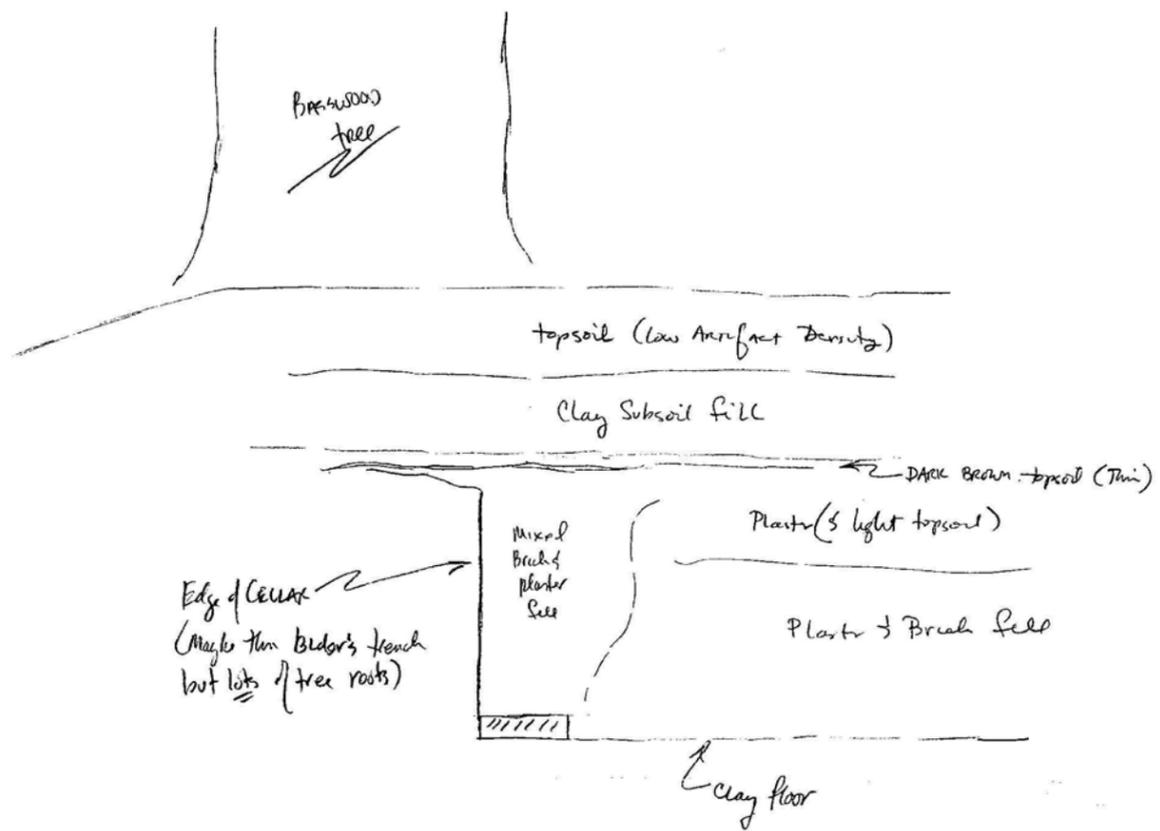
F. Mansinger 9/29/97 TEST #1

Sketch
(not to scale)



Stone was single course only
use of old brown lime mortar.

Very sketchy interpretation of relationship between "check wall" and brick supports. I do believe that "check walls" post date brick supports but this does not mean that these two represent separate components, only that the "wing walls" or "check walls" post date the steps.



1" SCALE

IRWIN/CARRIGAN LOT
Lincoln Home NHS

F. D. M. H. G. / C. WILKINS

10/23/97

APPENDIX C



GEOTECHNICAL ENGINEERING SERVICES REPORT
BURCH HOUSE (H-26) AND CARRIGAN HOUSE (H-25)
LINCOLN HOME NATIONAL HISTORIC SITE
8TH AND JACKSON STREET
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
PSI PROJECT NO. 020-55029

September 6, 2005

Ratio Architects, Inc.
107 S. Pennsylvania Street, Suite 10
Indianapolis, Indiana 46204

Attention: Mr. David Kroll
Associate Principal

Re: Geotechnical Engineering Services Report
Burch House (H-26) and Carrigan House (H-25)
Lincoln Home National Historic Site
8th and Jackson Street
Springfield, Sangamon County, Illinois
PSI Project No. 020-55029

Dear Mr. Kroll:

Professional Service Industries, Inc. is pleased to transmit our Geotechnical Engineering Services Report for the referenced project. This report includes the results of field and laboratory testing, and recommendations for foundation design, as well as general site development.

PSI appreciates the opportunity to perform this Geotechnical Study and look forward to continue participation during the design and construction phases of this project. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Brian R. Haschemeyer
Project Manager



William P. Pongracz, P.E.
District Manager

Copy to: (5) Ratio Architects, Inc.

**GEOTECHNICAL ENGINEERING
SERVICES REPORT**

For the

**BURCH HOUSE (H-26) AND CARRIGAN HOUSE (H-25)
LINCOLN HOME NATIONAL HISTORIC SITE
8TH STREET AND JACKSON STREET
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS**

Prepared for

**RATIO ARCHITECTS, INC.
107 S. PENNSYLVANIA STREET, SUITE 100
INDIANAPOLIS, INDIANA 46204**

Prepared by

**Professional Service Industries, Inc.
480 North Street
Springfield, Illinois 62704
Telephone (217) 544-6663**

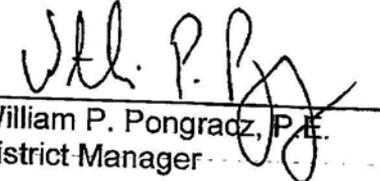
PSI PROJECT NO. 020-55029

September 6, 2005

psi Information
To Build On
Engineering • Consulting • Testing

480 North Street • Springfield, IL 62704
Phone 217/544-6663 • Fax 217/544-6148


Brian R. Haschemeyer
Project Manager


William P. Pongradz, P.E.
District Manager

Information To Build On

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APPENDIX

SITE LOCATION PLAN
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COAL MINE MAP
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BORING LOCATION PLAN
KEY TO SYMBOLS
RECORDS OF SUBSURFACE EXPLORATION
UNCONFINED COMPRESSIVE STRENGTH (QU) RESULTS
ATTERBERG LIMIT RESULTS

1. PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

Professional Service Industries, Inc. (PSI) has completed a geotechnical exploration for the proposed Burch House and Carrigan House to be located at Lincoln Home National Historic Site. Authorization to perform these geotechnical services was given on June 23, 2005 by a signed agreement, between Ratio Architects, Inc. and PSI.

1.2 PROJECT DESCRIPTION

Based on the information provided by Mr. David A. Kroll of Ratio Architects, Inc., it is understood that the proposed project will consist of the following:

Project Location

- The proposed sites are to be located at the intersection of Eighth Street and Jackson Street in Springfield, Illinois.

Building

- The proposed Carrigan House and Burch House will consist of two-story wood-framed structures.
- No structural loading information is available at this time but it is assumed that maximum continuous wall loads will not exceed 2 kips per foot, and maximum column loads will not exceed 25 kips.

Grading

- Based on current site grades, it is estimated that less than 2 feet of cut and/or fill will be required across the site to achieve final grades for the proposed building.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of the noted information is incorrect, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 PURPOSE/SCOPE OF SERVICES

The purpose of this study was to explore the subsurface conditions at the site to enable an evaluation of acceptable foundation systems for the proposed construction. PSI's scope of services included drilling a total of four (4) soil borings. Two (2) borings were performed within the proposed building pad of the proposed Burch House and two (2) borings were performed within the building pad of the proposed Carrigan House to

depths of approximately 25 feet below the existing ground surface. PSI performed an additional profile boring within the proposed Carrigan House to a depth of approximately 10 feet below the existing ground surface to better determine the depths of the fill material. PSI performed split spoon sampling at 2½ foot intervals. Three inch thin wall tube sampling was also performed at select locations and depths. Additionally, select laboratory testing was performed, and preparation of this geotechnical report.

This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- A discussion of subsurface conditions encountered including soil properties.
- An evaluation of the data as it relates to the proposed site development.
- An evaluation of the existing soils on the site.
- Recommendations for the site preparation, including placement and compaction of fill and backfill soils.
- Geotechnical recommendations to support foundation design
- Comments and recommendations relating to other observed geotechnical conditions which could impact development.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater or air, on, or below or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to purchase or development of this site, an environmental assessment is advisable.

2. DRILLING, FIELD AND LAB TESTING PROCEDURES

2.1 DRILLING AND SAMPLING PROCEDURES

The soil borings were performed with a drilling rig equipped with a rotary head. Conventional hollow-stem augers were used to advance the holes. Representative samples were obtained employing split-spoon and thin-wall tube sampling procedures in general accordance with ASTM procedures.

2.2 FIELD TESTS AND MEASUREMENTS

Penetration Tests and Split-Barrel Sampling of Soils - During the sampling procedure, Standard Penetration Tests (SPT) were performed at regular intervals to obtain the standard penetration value of the soil. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer falling thirty (30) inches, required to advance the split-barrel sampler one (1) foot into the soil. The sampler is lowered to the bottom of the drill hole and the number of blows recorded for each of three (3) successive increments of six (6) inches penetration. The "N" value is obtained by adding the second and third incremental numbers. The results of the standard penetration test indicate the relative density and comparative consistency of the soils, and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components. The split-barrel sampler provides a soil sample for identification purposes and for laboratory tests appropriate for soil obtained from a sampler that may produce large shear strain in the sample.

Thin-Walled (Shelby) Tube Geotechnical Sampling of Soils - This practice is utilized as to obtain a relatively undisturbed specimen suitable for laboratory tests of structural properties or other tests that might be influenced by soil properties. A relatively undisturbed sample is obtained by pressing a thin-walled metal tube (typically 3 inches in diameter) into the in-situ soil, removing the soil-filled tube, and sealing the ends to prevent the soil disturbance or moisture loss. These samples may be utilized in the laboratory to obtain the following information or perform the following tests: Unconfined Compressive Strength (q_u), Laboratory Determination of Water Content, Wet and Dry Density, Void Ratio, Porosity, Percent Saturation, Atterberg Limits, and Grain Size.

Strength Tests - During the field boring operations, samples of the cohesive soil from the split-spoon sampling device were frequently tested by use of a calibrated soil penetrometer, which was used as an aid in determining the strength of the soil. The values of the unconfined compressive strength, as determined on samples of soil from the split-spoon sampling, must be considered recognizing the manner in which they were obtained because the split-spoon sampling techniques provide a representative, but somewhat disturbed, soil sample.

Water Level Measurements - Water level observations were made during and upon completion of the boring operation and are noted on the boring logs presented

herewith. In relatively impervious soils, the accurate determination of the groundwater elevation may not be possible even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the groundwater table and volumes of water will depend on the permeability of the soils.

Ground Surface Elevations - Elevations of the existing ground surface were determined from Benchmark (Sanitary Sewer Manhole located in the intersection of Eighth Street and Jackson Street, Rim Elevation 593.27') as shown on the plans provided to PSI. Based on this benchmark, PSI determined the ground surface elevation at each boring location using conventional leveling techniques. These elevations are indicated on the attached boring logs that are located in the appendix of this report. Approximate elevations for sites range from 595 to 598 feet above mean sea level.

2.3 LABORATORY TESTING PROGRAM

In addition to the field investigation, a supplemental laboratory-testing program was conducted to determine additional pertinent engineering characteristics of the foundation materials necessary in analyzing the behavior of the proposed structures.

The laboratory-testing program included supplementary visual classification and water content determinations on all samples. The shear strengths of the various cohesive soils were determined from unconfined compressive strength tests on disturbed samples obtained from split-spoon samplers. Atterberg limit tests were performed on select samples to determine the expansion potential of soils. Additionally several 3-inch thin wall tubes were sampled for unconfined compressive strength test, density determination, moisture content determination, and percent saturation.

All phases of the laboratory testing program were conducted in general accordance with applicable ASTM specifications. The results of these tests are to be found on the accompanying boring logs located in the Appendix.

3. SITE AND SUBSURFACE CONDITIONS

3.1 SITE LOCATION AND DESCRIPTION

The site consists of the proposed Carrigan house site which is located immediately north of the Lincoln home and the Burch house which is located on northeast corner of Eighth Street and Jackson Street (across the street to west of the Lincoln home). At the time of the field operation the site surface was covered with grass and our truck mounted drill rig experienced no difficulty moving about the site.

Photographs showing the proposed site, a Site Location Plan, USGS Topographic Map and an Aerial Photograph are provided in the Appendix.

3.2 GENERAL AREA GEOLOGY

The geology of this region has been greatly influenced by several major land-forming factors including bedrock formation and tectonic movements prior to the Pleistocene Period on the geological time scale, and the action of water and wind. A mantle of wind-deposited and water-worked loessial material overlies a deposit of Illinoian glacial drift on much of the region in which the site is located.

In this region the glacial drift has been deposited in terminal glacial moraines or intermediate ground moraines composed of compact glacial till, which is often times overlain by glacio-fluvial outwash deposits of variable texture, but consist predominately of coarser grained soils such as silts, sands and gravel. The underlying glacial till may also be variable textured, but is primarily a heterogeneous mixture of sands, gravels, and pebbles bound in a compact clay to silty matrix. Boulders may exist within the glacial till.

The Illinoian glacial drift and underlying older drift extend to bedrock, which generally consists of interbedded limestone, sandstone, coal and shale. Bedrock generally exists more than 20 to 40 feet below the existing ground surface.

Coal Mine - A cursory review of the Directory of Coal Mine Maps in Illinois issued by Illinois Geological Survey (ISGS) for Sangamon County in May 2000 indicates that the proposed sites are not undermined.

3.3 SUBSURFACE CONDITIONS

The site subsurface conditions were explored with a total of drilling a total of five (5) soil borings. Two (2) borings were performed within the proposed building pad of the Burch House and two (2) borings were performed within the proposed building pad of the Carrigan House to depths of approximately 25 feet below the existing ground surface. PSI also performed an additional profile boring within the proposed Carrigan House area to a depth of approximately 10 feet below the existing ground surface to better determine the depths of the fill material. PSI in consultation with National Park Service

personnel selected the boring locations and PSI located the borings in the field by measuring from known existing structures, using a 100-foot tape. The locations should be considered accurate only to the degree implied by the means and methods used to define them. The borings were advanced utilizing hollow stem auger drilling methods and soil samples were routinely obtained during the drilling process. Drilling and sampling techniques were accomplished generally in accordance with ASTM procedures. Select soil samples were tested in the laboratory to determine material properties for our evaluation. Laboratory testing was accomplished generally in accordance with ASTM procedures.

During PSI's investigation the site was generally covered with a grass with heavy organic material (root and plant fibers) extending to depths of approximately 6 inches below the existing ground surface. Below the upper organic topsoil was a layer of fill material that consists of brown/black silty clay with various amounts brick fragments that extended to depths of up to approximately 3 to 8 feet below the ground surface.

Below the stratum of fill material is layer of stiff brown mottled gray silty clay that extends to depths of approximately 20 feet below the existing ground surface

Underlying the layer of stiff brown silty clay is a stratum of weathered sandstone and shale that extends to the depths explored of approximately 25 feet below the existing ground surface.

The following table briefly summarizes the range of results from the field and laboratory testing programs. Please refer to the attached boring logs and laboratory data sheets for more specific information:

SUBSURFACE SOIL STRATA TYPES & PROPERTIES								
PROPERTY DESCRIPTION	APPROXIMATE ELEVATIONS NOTE ¹ , ft.	RANGE OF PROPERTY VALUES						
		Standard Penetration, N	Water Content, % of Dry Weight	Dry Unit Weight, pcf	Unconfined Compressive Strength, Qu (tsf)	Liquid Limit, %	Plastic Limit, %	
SOIL STRATA TYPE								
Medium Plastic Clay (Fill Material)	590 - 584	6 - 14	8 - 24	82 - 91	0.5 - 1.6	43	22	
Low to Medium Plastic Silty Clay	584 - 578	3 - 9	21 - 29	-	1.0 - 3.3	-	-	
SANDSTONE / SHALE	578 - 570	>50	10 - 16	-	-	-	-	

NOTE 1 - Elevations of the existing ground surface were determined from Benchmark (Sanitary Sewer Manhole located in the intersection of Eighth Street and Jackson Street, Rim Elevation 593.27') as shown on the plans provided to PSI

The subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the appendix should be reviewed for specific information at individual boring locations.

These records include soil descriptions, stratifications, penetration resistances, locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on these boring logs. The samples, which were not altered by laboratory testing, will be retained for 60 days from the date of this report and then will be discarded.

3.4 GROUNDWATER CONDITIONS

Free groundwater entered the borings and was measured at depths between approximately 16 to 22 feet below the ground surface ½ to 4 hours after removal of the augers in the borings. Based on these observations, PSI's experience in the area, and on laboratory moisture content measurements, the groundwater table at the time of the field exploration was estimated to be approximately 9 to 11 feet below the existing ground surface. The water level measurements presented in this report are the levels that were measured at the time of PSI's field activities. Although free water was encountered at this time, longer-term observations in cased holes or piezometers would be necessary for a more accurate evaluation of the groundwater conditions at the site.

Fluctuations in the groundwater level should be anticipated throughout the year depending on variations in climatological conditions and other factors not apparent at the time the borings were performed. Additionally, discontinuous zones of perched water may exist within the soils. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project. We recommend that the Contractor determine the actual groundwater levels at the site at the time of the construction activities.

A summary of the observed groundwater conditions is presented on the following table. These observations are based upon measurements during PSI's field operation on July 19, 2005 and were measured using a conventional measuring tape.

GROUNDWATER OBSERVATIONS					
(FEET BELOW THE EXISTING GROUND SURFACE)					
Boring No.	Ground Surface Elevations (above mean sea level)	Groundwater During Drilling	Groundwater Upon Auger Removal	Groundwater Delayed Readings	Delayed Ground-water Elevations (Above mean sea level)
B-1	595.5	23 ½'	Caved at 22'	16' after 4 hrs	579 ½'
B-2	595.7	None Observed	Caved at 23'	19' after 3 hrs	576 ½'
B-3	598.4	None Observed	Caved at 22'	18' after 2 hrs	580'
B-4	597.5	None Observed	Caved at 21'	22' after ½ hr	575 ½'

4. EVALUATION AND RECOMMENDATIONS

4.1 GEOTECHNICAL DISCUSSION

The primary concerns related to foundation construction on these sites are:

- Presence of fill material within the proposed building areas to depths up to approximately 3 to 8 feet below the existing grades.

As discussed previously in Section 3.3 "Subsurface Conditions", fill materials are present on the site. Based on the visual classification, the fill consists of several types of materials. Soft or improperly compacted fill material present the possibility of settlement under sustained loads, especially under loads such as those imposed by building foundations. It should be noted, however, that settlement could occur over time even under lighter loadings such as under floor slabs. Settlement could possibly be occurring in the fill soils due to the weight of the fill material above. Due to the variable nature of the soils encountered, accurate settlement estimates are very difficult to develop.

To entirely eliminate the possible detrimental effects of settlement of structural elements (foundations, slabs, etc.) placed on these fill materials, the fills should be removed in their entirety and replaced with an engineered backfill, or the loads of these elements should be transferred below the fill. If all or some of the fill is left in place, and foundations/slabs, etc. are placed upon them, the owner/developer would be assuming some degree of risk of detrimental settlement of these structural elements. It should also be considered that the proposed additional engineered fill to be placed on this site will add further load to the underlying existing fill, inducing the potential for additional settlement.

4.2 SITE PREPARATION AND FILL REQUIREMENTS

It is PSI's understanding that an estimated 1 to 2 feet (from existing grades) of engineered fill will be required in the building areas to achieve final subgrade elevation. Before engineered fill is placed, PSI recommends that all significant vegetation and roots, and any soft soils and fill materials in the construction areas, be stripped from the site and either wasted or stockpiled for later use in landscaping. As discussed previously, the heavily organic soils appear to be limited to the upper 5 to 7 inches of the site. However, fill material was encountered in the borings, and this fill extends to depths up to of approximately 3 to 8 feet below the existing grade. Based on the information from these soil borings, an over-excavation of up to approximately 3 to 8 feet is anticipated to remove the fill material.

A qualified representative of the PSI should determine the actual depth of stripping at the time these operations are carried out. The building subgrade areas should then be compacted with a sheeps-foot roller until a stable base is achieved. The areas should

then be proof-rolled with a loaded tandem axle dump truck or similar rubber tired vehicle, weighing at least 18 tons (9 tons/axle). Proof-rolling aids in providing a firm base for compaction of fill, and help to delineate soft or disturbed areas that may exist below subgrade level. Soils that are observed to rut or deflect excessively (typically >1 inch) under the moving load should either be scarified and re-compacted or undercut and replaced with properly compacted, fill. The proof-rolling and undercutting activities should be witnessed by a representative of the geotechnical engineer and should be performed during a period of dry weather.

Silty soils were encountered below the upper organic topsoil on the site. These soils are easily disturbed by construction activity. A stable base for compaction of structural fill is extremely important, as both building foundations and floor slabs may be partly supported by newly placed fill. Where soft subgrade soils are encountered, it is recommended that these materials be removed to underlying higher strength soils. Another alternative for providing a stable subgrade would be lime-treatment of the clayey subgrade soils.

New fill and/or backfill material for the project should be a well-graded granular or non-expansive (Liquid Limit (LL)<50 and Plasticity Index (PI) <25) cohesive material free of organic debris. The first layer of fill material should be placed in a relatively uniform horizontal lift and adequately keyed into the subgrade soils. All fill materials should have a Proctor maximum dry density greater than 100 pcf; be essentially free of organic or other deleterious materials and have a maximum particle size of 2 inches. Soils classified as CL, ML, CL-ML, SM, SC-SM, SW, GW, GP and SP will generally be suitable for use as structural fill. Soils classified as OL, OH, MH, CH and PT should be considered unsuitable. An example of suitable fill material would be a granular fill that is a well-graded sand and gravel mix with a fairly small percentage of fines (typically 5 to 10%). This material would be suitable for use as structural fill or backfill for the project. A crushed limestone (IDOT gradation CA-6 or similar) would also be a suitable granular fill/backfill.

Fill/backfill should be placed in maximum lifts of 8 inches of loose material. The type and size of compaction equipment used would likely determine maximum lift thickness. Suitable cohesive fills should be compacted to a minimum dry density of 97% of the maximum, as determined by ASTM D 698 (Standard Proctor test). The material should be compacted between -2% and +3% of the optimum moisture content value as determined by the standard Proctor test. If a fine-grained silt or clay (cohesive) soil is used for fill, close moisture content control will be essential to achieve the recommended degree of compaction. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted-engineered fill should be tested by a representative of PSI prior to placement of subsequent lifts. The following tables summaries the recommended compactive effort for various types of engineered fills.

RECOMMENDED COMPACTIVE EFFORT				
(FOR VARIOUS TYPES OF ENGINEERED FILL/BACKFILL)				
MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	MOISTURE CONTENT RANGE	RECOMMENDED FREQUENCY OF TESTING
Structural Fill (Cohesive)	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Structural Fill (Granular)	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Base Under Slab (Cohesive)	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Base Under Slab (Granular)	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Landscape Fill (non-load bearing)	Standard	90%	-2 to +3%	1 per 5,000 sf of fill placed
Utility Trench / Wall Backfill	Standard	97%	-2 to +3%	1 per 200 lf of backfill placed

The top of compacted structural fill, if higher than the existing grades outside the building, should extend horizontally at least 5 feet beyond the outside edge of the structural foundations before sloping. PSI recommends that all permanent fill slopes be constructed at 3(H) on 1(V) or flatter and be properly compacted. The surfaces of the slopes should be protected from erosion by seeding, sodding, or other acceptable means.

Based on the boring information, the underlying clayey silt soils appear suitable for use as structural fill. However, based on the in-situ moisture contents of these materials, significant drying of the cohesive on-site soils should be anticipated to facilitate compaction. Drying is typically achieved by spreading the material in a relatively thin lift and aerating the soil by continuous disking. This process works best during periods of warm, dry weather. If earthwork activities are carried out during wetter months, when drying conditions are not optimal, it may be beneficial to incorporate a hydrated lime, or similar additive, into the soil to promote drying if cohesive soils are used. Off-site soils used as fill should be evaluated by adequate laboratory testing prior to their use as fill.

If over excavation of the foundations is required to remove soft or unsuitable soils. The excavation should extend outward horizontally from the edge of the footing for a distance equal to the depth of fill removed below the footing (outward 45° from the bottom edge of footing). A representative of PSI should be present on site to verify proper excavation depths. Backfilling and compaction procedures, as described above, could then be implemented to the bottom of footing elevation. In lieu of soil backfill, a controlled low strength flowable fill material with a minimum 28-day specified compressive strength of 700 psi could also be used as backfill.

4.3 FOUNDATION RECOMMENDATIONS

PSI recommends that the proposed building be supported on a shallow footing foundation system consisting of conventional spread and continuous wall footings. These foundations should extend to a minimum depth of 36 inches below the final grade for frost protection. Footings should bear on the undisturbed stiff brown mottled

gray silty clay extending through the upper fill material or bear on newly compacted fill that extends to the undisturbed stiff brown mottled gray silty clay (which is tested and observed by a PSI representative). Conventional spread and continuous wall foundations bearing on these soils can be designed for a maximum net allowable soil bearing pressure of 2,000 pounds per square foot (psf), based on dead load plus design live load. The net pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation.

It is recommended that soils at footing design elevation be observed and tested by a representative of PSI prior to concrete placement to evaluate the suitability and uniformity of the soils for support of the design foundation loads. If unsuitable bearing soils are encountered in a footing excavation, the footing should be deepened to competent bearing soil, or an over-excavation and backfill procedure could be performed. If an over-excavation and backfill procedure is utilized, it would require widening the deepened excavation in all directions at least 8 inches beyond the edges of the footing for each 12 inches of over-excavation depth. The over-excavation should then be backfilled in maximum 8-inches thick loose lifts with suitable, well-graded granular fill material, and compacted to at least 97 percent of the maximum standard Proctor dry density (ASTM D 698). Another alternative is to undercut to suitable soils, and backfill with lean concrete or flowable fill (with a minimum 28-day specified compressive strength of 700 psi) up to the design elevation of the bottom of footings.

Exterior footings should be located at a depth of at least 36 inches below the outside final exterior grades to provide adequate frost protection. If the building is constructed during winter months or if the footings will likely be subjected to freezing temperatures after construction is completed, then all footings should be protected from freezing.

In order to minimize the effects of any slight differential movement that may occur due to variations in the character of the supporting soils and any variations in seasonal moisture contents, it is recommended that the continuous footings be suitably reinforced to make them as rigid as practical. Minimum dimensions of 30 inches for column footings and 16 inches for continuous footings should be used in foundation design to reduce the possibility of a local bearing capacity failure.

Clayey silt soils to silty clay soils were encountered at this site, and these soils will be susceptible to disturbance from construction activity, particularly if perched water is present near the subgrade level. Care should be taken during excavation and construction of footings to minimize disturbance of the bearing soils. The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed as soon as possible after excavating to minimize bearing soil disturbance. Should the soils at bearing level become saturated, desiccated or disturbed, the affected soil should be removed prior to placing concrete.

Laboratory consolidation testing was beyond the scope of this exploration. Based on the known subsurface conditions and site geology, laboratory testing and past

experience, PSI anticipates that properly designed and constructed footings for the proposed structures supported on the recommended, inspected and approved natural soils, or properly compacted structural fill should experience maximum total and differential settlements between adjacent columns of less than 1 inch and 3/4-inch, respectively.

4.4 EARTHQUAKE AND SEISMIC DESIGN CONSIDERATIONS

The 1996 BOCA National Building Code requires a site coefficient for the calculation of minimum earthquake design forces. This coefficient is a function of soil type (i.e., depth of soil and strata types). Based on the (estimated) depth of rock and the consistency of the soil at the boring locations, the soil-profile type is S_1 and a site coefficient (S) of 1.0 is recommended.

The 2003 International Building Code requires a Site Class for the calculation of the earthquake design forces. The effect of soil amplification on earthquake ground motions is taken into account by adjusting the earthquake spectral response accelerations for the soil and rock conditions at the site. The code groups soil or rock conditions into five sites as defined in Table 1615.1.1, with site coefficients of F_a and F_v increasing from Site Class A through F. The site class is based on a weighted average of known or estimated soil properties for the upmost 100 feet of subsurface profile.

Soil borings at the project site extended to depths of 25 feet. Based on regional geological mapping, we anticipate that the subsurface conditions below the explored depth may generally consist of layers of sandstone, shale and bedrock. Based on our review of the available data, and knowledge of regional geology, PSI evaluated the Site Class using the weighted average of known and estimated Standard Penetration Test (SPT) N-values and soil shear strengths estimated from the field and laboratory tests and regional geological information. Based on this evaluation, we recommend that the seismic design for this project be based on Site Class "C". The USGS-NEHRP probabilistic ground motion values near latitude 39.7972° and longitude -89.6451° are as follows:

Period (seconds)	2% Probability of Event in 50 years (%)	Site Coefficient F_a	Site Coefficient F_v
PGA	11.50	---	---
0.2 (S_s)	26.84	1.20	---
0.3	---	---	---
1.0 (S_1)	10.54	---	1.69

The Site Coefficients, F_a and F_v were interpolated for IBC 2003 Tables 1615.1.2(1) and 1615.1.2(2) as a function of the site classifications and the mapped spectral response acceleration at the short (S_s) and 1 second (S_1) periods.

4.5 FLOOR SLAB RECOMMENDATIONS

As noted previously, the existence of approximately 3 to 8 feet of miscellaneous fill material presents a possibility of detrimental settlements of fills and floor slabs placed upon them. To entirely alleviate this potential, the miscellaneous fill materials should be removed in their entirety and replaced with an engineered backfill. If all or some of the fill is left in place, and slabs or engineered fill are placed upon them, the owner would assume some degree of risk of detrimental settlement of these structural elements. Again, acknowledging that the floor slab loads would generally impose significantly less loading to the fill materials, it may be desirable, from a standpoint of economics, to remove only a portion of the fill under the floor slab areas. *It should be stressed, however, that removing only a portion of the fill might reduce the occurrence of detrimental settlement, but would not alleviate it.*

It is PSI's understanding that the floor slab for the proposed Burch House and Carrigan House will **not** support loads greater than "typical" floor slab loads. If sections of the floor slab will support loads greater than "typical" floor slab loads (>125 psf), underlying subgrade soils below these sections may need to be removed and replaced with compacted/engineered fill. PSI recommends that if the proposed building will include heavily loaded floor slab sections, PSI should be provided the opportunity to review the final design plans and specifications to determine if the underlying subsurface soils can adequately support the heavily loaded floor slab sections. The following recommendations assume "typical" floor slab loads.

Proof-rolling, as discussed earlier in this report, should be accomplished to identify soft or unstable soils that should be removed from the floor slab area prior to fill placement and/or floor slab construction.

It is recommended that the floor slab be grade supported on crushed limestone or sand/gravel mix of IDOT gradation CA-6 or similar. Where additional drainage capabilities are desired, a more open-graded material may be used. Crushed limestone of IDOT gradation CA-7 would be suitable for this use. A thickness of six (6) inches is recommended. If the floor slab is to be supported on IDOT CA-7 crushed limestone or other open-graded material, PSI recommends utilizing a geo-textile fabric between the subgrade soils and this base material to prevent the migration of the subgrade soil into the voids of the open graded "clean" crushed limestone.

PSI recommends that the soil surface be graded to drain away from the building without low spots during construction, and before the placement of the granular base material. Polyethylene sheeting should be placed to act as a vapor retarder where the floor will be in contact with moisture sensitive equipment or product such as tile, wood, carpet, etc., as directed by the design engineer. The decision to locate the vapor retarder in direct contact with the slab or beneath the layer of granular fill should be made by the design engineer after considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions and the potential effects of slab curling and cracking. The

floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage.

For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, k value, of 150 pounds per cubic inch (pci) may be used in the grade slab design based on a 1 ft. x 1 ft. plate load test. However, depending on how the slab load is applied, the value will have to be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

Modulus of Subgrade Reaction, $k_s = \left(\frac{k}{B}\right)$ for cohesive soil and

$$k_s = k \left(\frac{B+1}{2B}\right)^2 \text{ for cohesionless soil}$$

where: k_s = coefficient of vertical subgrade reaction for loaded area,
 k = coefficient of vertical subgrade reaction for 1x1 square foot area, and
 B = width of area loaded, in feet

5. CONSTRUCTION CONSIDERATIONS

5.1 QUALITY CONTROL CONSIDERATIONS

It is recommended that PSI be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept any responsibility for any conditions, which deviate from those, described in this report, nor for the performance of the foundation if not engaged to also provide construction observation and testing for this project.

5.2 DRAINAGE AND GROUNDWATER CONSIDERATIONS

Groundwater was encountered in the borings at the time the field exploration was conducted, however is not expected to have an impact on construction operations. Based on these observations, PSI's experience in the area, and on laboratory moisture content measurements, the groundwater table at the time of the field exploration was estimated to be approximately 9 to 11 feet below the existing ground surface. Groundwater infiltration into trench excavations above approximately 9 feet below existing grades is not likely, however fluctuations in the groundwater level should be anticipated throughout the year depending on variations in climatological conditions and other factors not apparent at the time the borings were performed. Additionally, discontinuous zones of perched water may exist within the soils. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project.

Groundwater infiltration could be controlled with normal sump pumping or the use of perimeter trenches to collect and discharge the water away from the work area should be used. Should excessive and uncontrolled amounts of seepage occur, the Geotechnical engineer should be consulted. It is recommended that all excavations be backfilled as soon as possible in order to reduce the period in which groundwater is lowered, which could result in areas of settlement. The method, means and sequence of dewatering should be the responsibility of the general contractor, who should be experienced in this type of construction.

Furthermore, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the buildings and beneath the floor slabs. Grades should be sloped away from the buildings and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the buildings.

5.3 FEDERAL EXCAVATION REGULATIONS

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person," as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6. GEOTECHNICAL RISK & REPORT LIMITATIONS

Geotechnical Risk

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and reference during this evaluation, and PSI's experience in working with these conditions.

Report Limitations

The recommendations submitted are based on the available subsurface information obtained by PSI and design details furnished by Ratio Architects, Inc. for the proposed Burch House and Carrigan House for the Lincoln Home National Historic Site. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At this time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of Ratio Architects, Inc. for the specific application to the proposed Burch House and Carrigan House for the Lincoln Home National Historic Site located 8th Street and Jackson Street in Springfield, Sangamon County, Illinois.

APPENDIX

SITE LOCATION MAP

SOURCE:

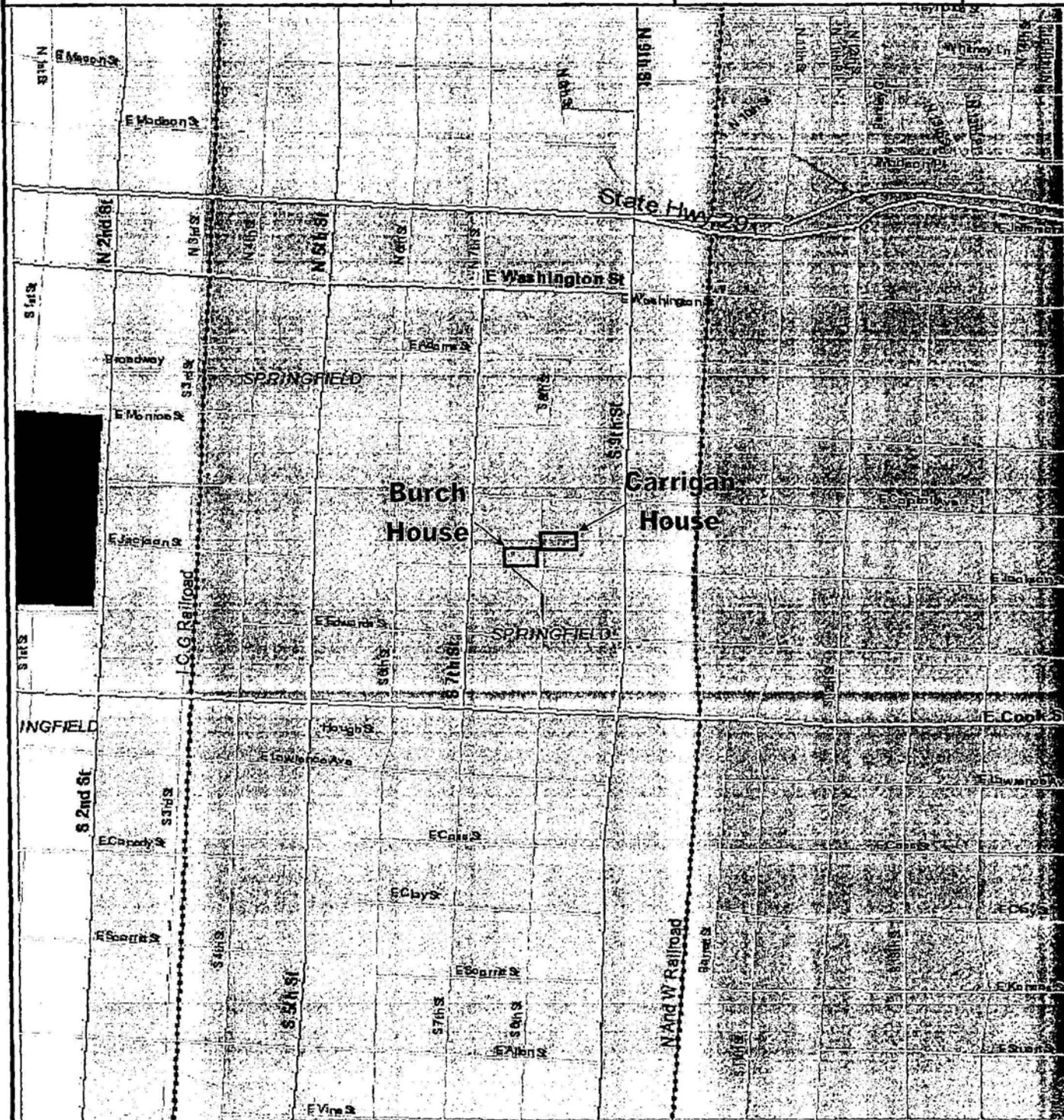
Topozone.com

YEAR:

NA

SCALE:

1" = approx. 1,550'



psi Information
To Build On
 Engineering • Consulting • Testing
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SITE LOCATION MAP

PSI PROJECT No.: 020-55029
 Project: Burch and Carrigan Houses
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

AERIAL PHOTOGRAPH

SOURCE:

United States Department
of Agriculture (USDA)

YEAR:

1998

SCALE:

1" = approx. 350'



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AERIAL PHOTOGRAPH

PSI PROJECT No.: 020-55029
Project: Burch and Carrigan Houses
Location: Lincoln Home National Historic Site
8th Street and Jackson Street
Springfield, Sangamon County, Illinois

TOPOGRAPHICAL MAP

SOURCE:

United States Geological Survey (USGS)

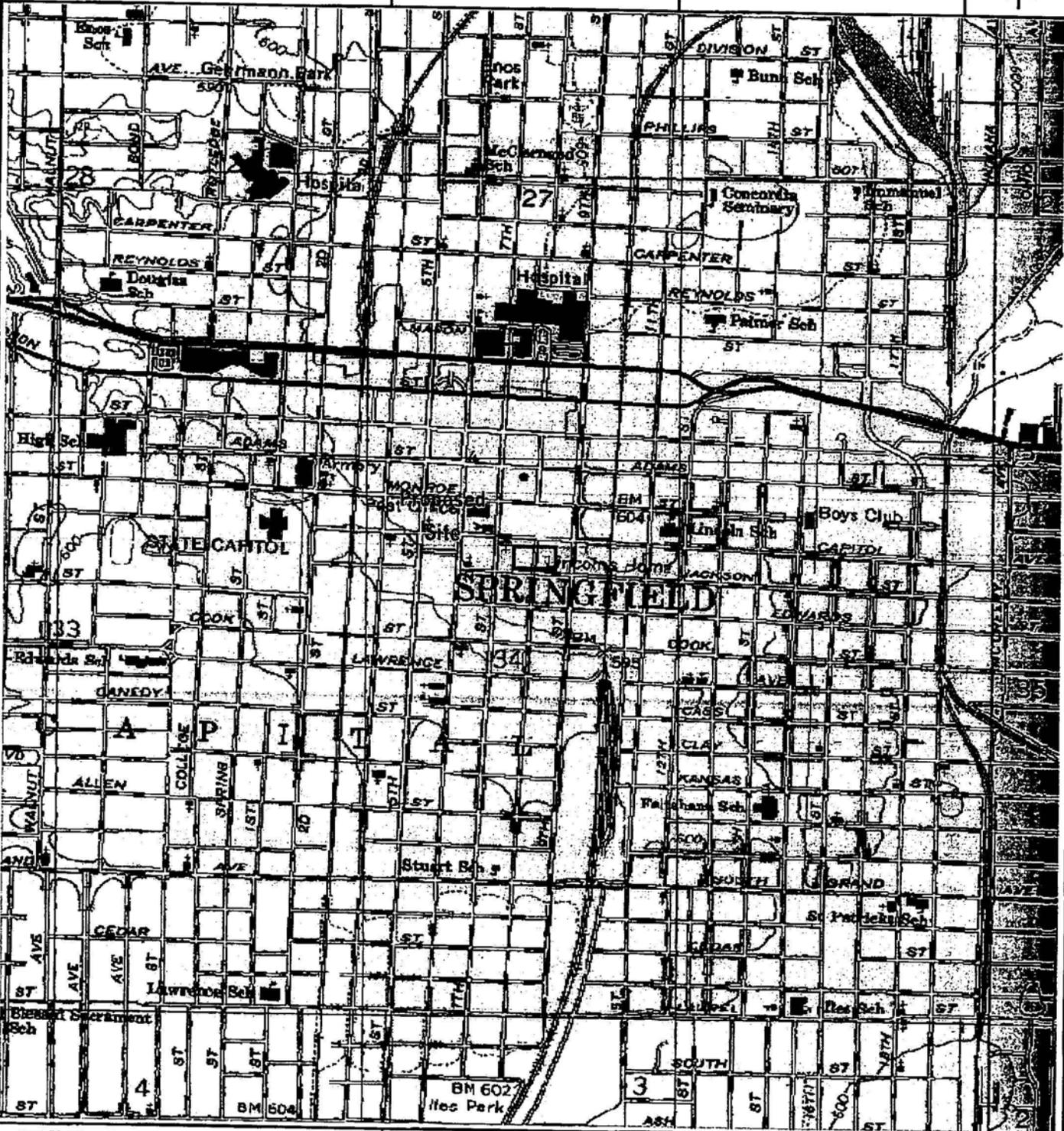
YEAR:

1998

SCALE:

1" = approx. 1,550'

7.5 Quadrangle: Springfield West, IL



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TOPOGRAPHICAL MAP

PSI PROJECT No.: 020-55029
 Project: Burch and Carrigan Houses
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

COAL MINE MAP

SOURCE:

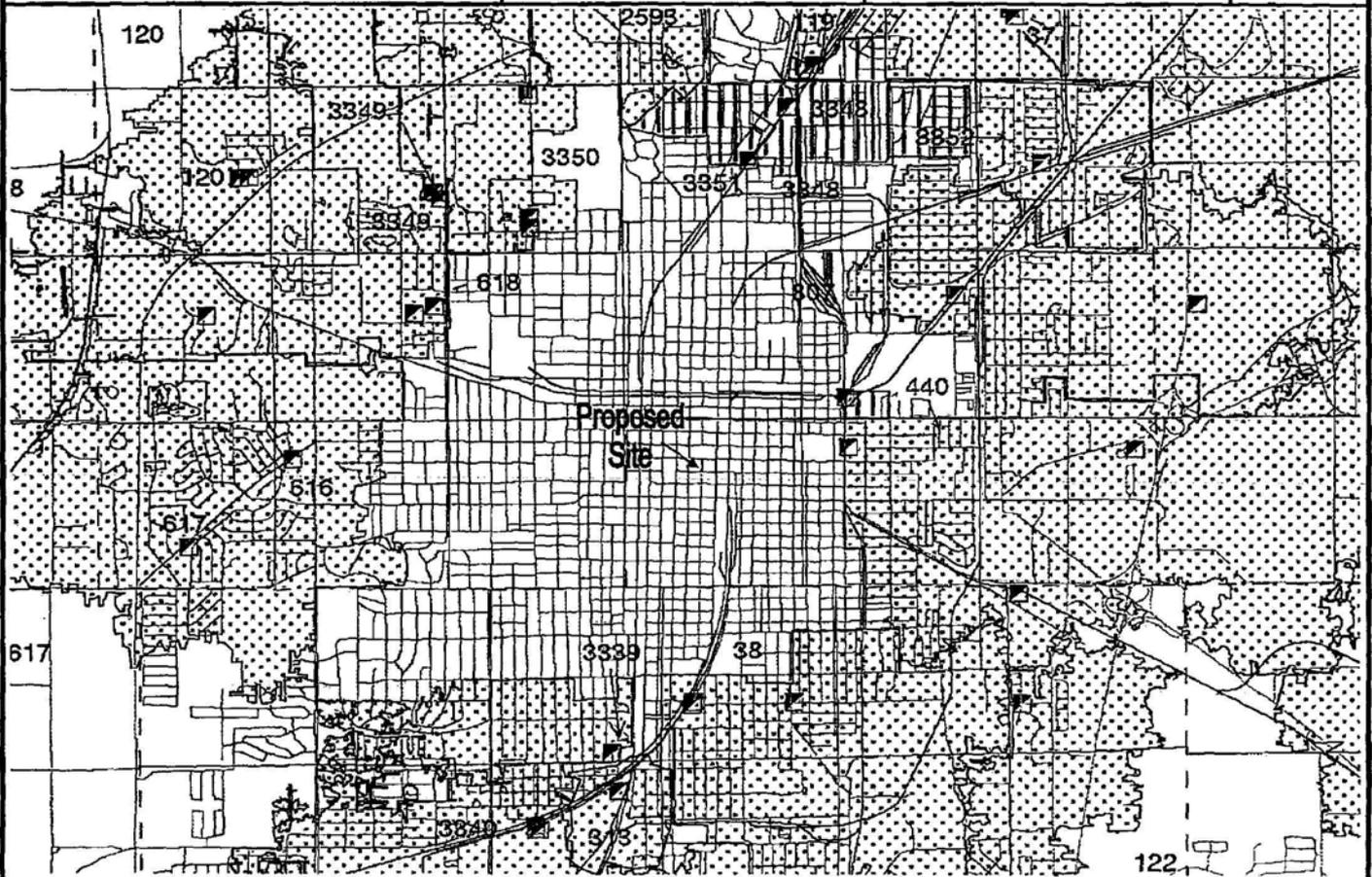
Illinois States Geological Survey (ISGS)
Sangamon County

YEAR:

May 2000

SCALE:

Not to scale



LEGEND:

- | | | |
|---|---|--|
|  Active strip mine tippie |  Abandoned shaft |  Underground mine |
|  Abandoned strip mine tippie |  Active slope |  Surface mine |
|  Active shaft |  Abandoned slope |  Indefinite mine boundary |
|  Active drift | — Section lines | |
|  Abandoned drift | - - - Township and Range lines | |
|  Uncertain type or location |  Roads | |
|  Mine index number |  Railroads | |

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COAL MINE MAP

PSI PROJECT No.: 020-55029
Project: Burch and Carrigan Houses
Location: Lincoln Home National Historic Site
8th Street and Jackson Street
Springfield, Sangamon County, Illinois

SITE PHOTOGRAPHS

Photograph Date: June 2005

Page 1 of 7

PHOTO 1



PHOTO 1

View of the Burch House site looking east from the western edge of the site.

PHOTO 2



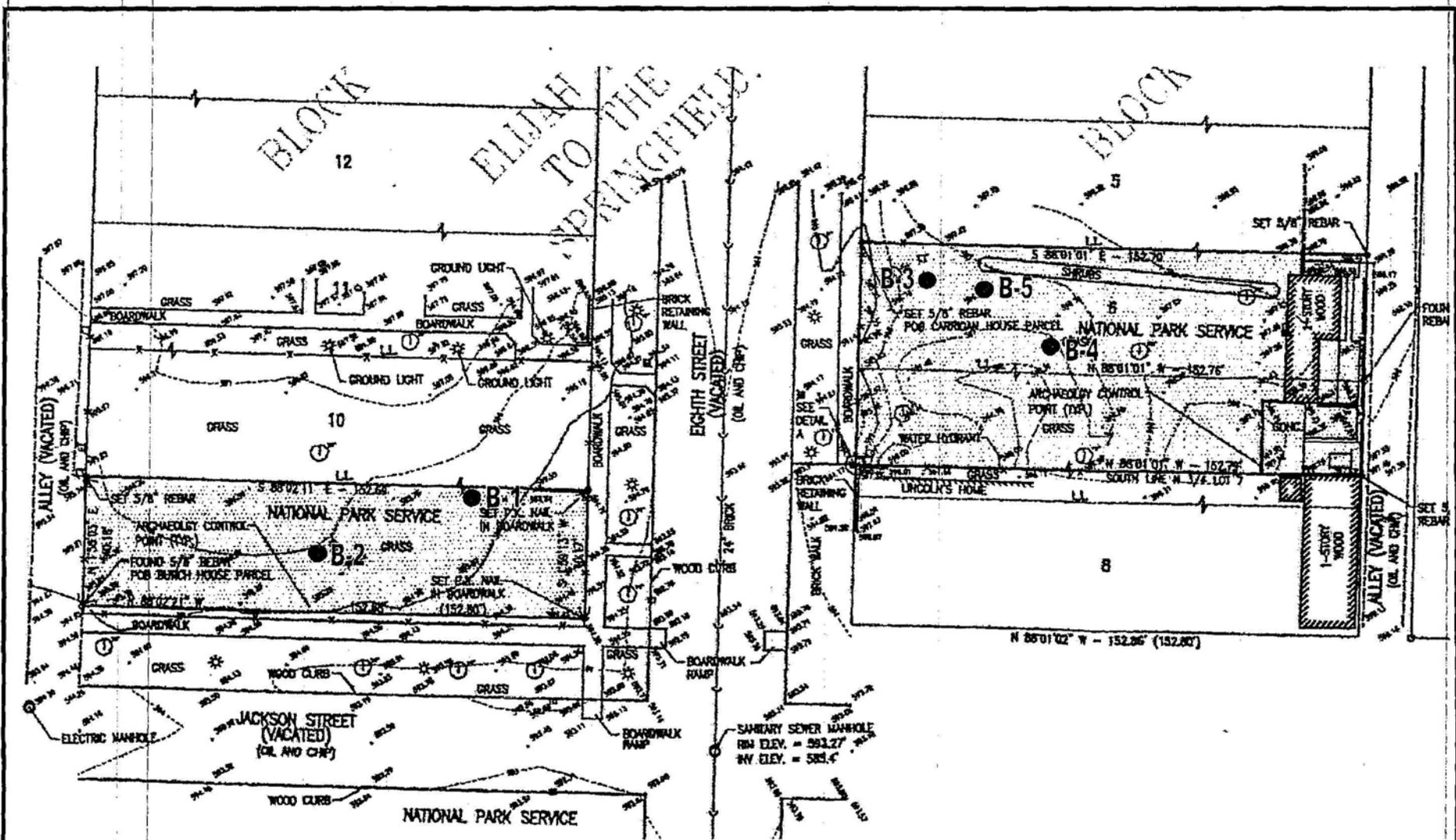
PHOTO 2

View of the Carrigan House site looking east from Eighth Street (Lincoln Home Shown on Right).

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SITE PHOTOGRAPHS

PSI PROJECT No.: 020-55029
Project: Burch and Carrigan Houses
Location: Lincoln National Historic Site
8th Street and Jackson Street
Springfield, Sangamon County, Illinois



● Boring Location

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Project: Burch and Carrigan Houses
 Lincoln Home National Historic Site
 Springfield, Sangamon County, Illinois
 Client: Ratio Architects, Inc.
 107 S. Pennsylvania Street, Suite 100
 Indianapolis, Indiana 46204

BORING LOCATION PLAN

PSI Project No.: 020-55029

Date: August 2005

Project Manager: BH

Checked By: WP



KEY TO SYMBOLS



Topsoil



Fill (made ground)



USCS Low Plasticity Clay



Sandstone



Shale

HSA = Hollow Stem Auger

CFA = Continuous Flight Auger

SS = Split-spoon Sampler

ST = Shelby Tube Sampler

RC = Rock Core

DD = Dry Density

LL = Liquid Limit

PL = Plastic Limit

Qu = Unconfined Compressive
Strength

Qp = Pocket Penetrometer

RQD = Rock Quality Designation

REC'D = Rock Core Recovery Percentage

PID = Photo Ionic Detector (ppm)

MR* = Unable to determine depth of water
due to mud rotary drilling methods

The borings were advanced into the ground using hollow stem augers. At regular intervals throughout the boring depths, soil samples were obtained with either a 1.4-inch I.D., 2.0-inch O.D., split-spoon sampler or a 3-inch diameter Shelby tube. The split-spoon sampler was first seated 6-inches to penetrate any loose cuttings and then driven an additional foot where possible with blows of a 140 pound hammer falling 30-inches. The number of hammer blows required to drive the sampler each 6-inch increment is recorded in the field. The penetration resistance "N-value" is redesignated as the number of hammer blows required to drive the sampler the final foot and, when properly evaluated, is an index to cohesion for clays and relative density for sands. The split-spoon sampling procedures used during this exploration are in general accordance with ASTM Designation D 1586.

Relatively undisturbed Shelby tube samples were obtained by forcing a section of 3-inch diameter steel tubing into the soil at the desired sampling levels. This sampling procedure was in general accordance with ASTM Designation D 1587. Each tube, together with the encased soil, was carefully removed from the ground, sealed and transported to the laboratory for testing.



PSI Job No.: 020-55029

Project: Burch House and Carrigan House

Location: Lincoln Home National Historic Site

8th Street and Jackson Street

Springfield, Sangamon County, Illinois



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LOG OF BORING B-1

Sheet 1 of 1

PSI Job No.: 020-55029
 Project: Burch House and Carrigan House
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

Drilling Method: 3 1/4" Hollow Stem Auger
 Sampling Method: Split Spoon and Shelby Tube
 Hammer Type: Automatic
 Boring Location: See location plan
 Burch House

WATER LEVELS	
▽ While drilling	23.5 ft
▽ Upon compl.	caved 22 ft
▽ 4 hr Delay	16 ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6 inches (N - Blows per 12 inches)	Moisture, %	STANDARD PENETRATION TEST DATA		Additional Remarks		
										N in blows/ft @	Moisture		PL	LL
						Approximate Surface Elev.: 595.5 ft								
595	0	Surface: Grass (heavy organics to -7")					CL							
		Brown silty CLAY (FILL)					CL							
		Brown silty CLAY; little gray sand; trace gravel (FILL)		1	14		CL	6-5-2 N=7	10	⊗		>>*		
				2	23		CL	S. Tube	16		×	DD = 91 pcf		
590	5													
		Dark gray silty CLAY; trace coal and brick fragments (FILL)		3	8		CL	2-1-2 N=3	22	⊗	▲	*	Qu = 1.6 tsf	
		Light gray mottled brown silty CLAY		4	18		CL	2-1-3 N=4	23	⊗	*	▲	×	Qu = 1.2 tsf
585	10													
				5	18		CL	1-1-2 N=3	24	⊗	*	▲	×	Qu = 1.6 tsf
				6	18		CL	1-2-2 N=4	27	⊗	*	×	▲	Qu = 3.3 tsf
580	15													
		Brown silty CLAY; trace fine sand		7	18		CL	4-5-9 N=14	21	⊗		×	>>*	
		Brown SANDSTONE		8	17		SANDSTONE	9-38-50/3'	13			×	>>⊗	
575	20													
				9	5		SANDSTONE	50/5"	11			×	>>⊗	
		Gray SHALE		10	5		SHALE	50/5"	16			×	>>⊗	
		End of boring at -25'												

Completion Depth: 25.0 ft
 Date Boring Started: 7/19/05
 Date Boring Completed: 7/19/05
 Logged By: Harry Waters
 Drilling Contractor: PSI, Inc.

Sample Types:
 Auger Cutting
 Split-Spoon
 Rock Core
 Shelby Tube
 Hand Auger

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.



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LOG OF BORING B-2

Sheet 1 of 1

PSI Job No.: 020-55029
 Project: Burch House and Carrigan House
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

Drilling Method: 3 1/4" Hollow Stem Auger
 Sampling Method: Split Spoon
 Hammer Type: Automatic
 Boring Location: See location plan
 Burch House

WATER LEVELS
 ∇ While drilling none observed
 ∇ Upon compl. caved 23 ft
 ∇ 3 hr Delay 19 ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6 inches (N - Blows per 12 inches)	STANDARD PENETRATION TEST DATA		Additional Remarks
									N in blows/ft	Moisture, %	
						Approximate Surface Elev.: 595.7 ft					
595	0	Surface: Grass (heavy organics to -6")				Dark gray silty CLAY; some cinders and brick fragments (FILL)	CL	14-9-5 N=14	8	⊗	
				1	8	Brown silty CLAY	CL	3-3-3 N=6	24	⊗	*
590	5			2	18	Brown mottled gray silty CLAY	CL	2-2-4 N=6	27	⊗	▲ ⊗ *
				3	18		CL	2-1-2 N=3	24	⊗	* ▲ ⊗
				4	18		CL	1-2-3 N=5	27	⊗	* ▲ ⊗
585	10			5	18	Gray mottled brown silty CLAY	CL	1-2-2 N=4	28	⊗	* ▲ ⊗
				6	18		CL	1-3-5 N=8	24	⊗	* ▲ ⊗
580	15			7	18		CL	19-41-50/2"	12	⊗	>>*
				8	14	Brown weathered SANDSTONE	SANDSTONE	50/5"	10	⊗	>>⊗
575	20			9	5		SHALE	50/5"	10	⊗	>>⊗
				10	6	Gray SHALE	SHALE	50/5"	10	⊗	>>⊗
	25					End of boring at -25'					

Completion Depth: 25.0 ft
 Date Boring Started: 7/19/05
 Date Boring Completed: 7/19/05
 Logged By: Harry Waters
 Drilling Contractor: PSI, Inc.

Sample Types:
 Auger Cutting Shelby Tube
 Split-Spoon Hand Auger
 Rock Core

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.



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LOG OF BORING B-3

Sheet 1 of 1

PSI Job No.: 020-55029
 Project: Burch House and Carrigan House
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

Drilling Method: 3 1/4" Hollow Stem Auger
 Sampling Method: Split Spoon and Shelby Tube
 Hammer Type: Automatic
 Boring Location: See location plan
 Carrigan House

WATER LEVELS
 ▽ While drilling none observed
 ▽ Upon compl. caved 22 ft
 ▽ 2 hr Delay 18 ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6 inches (N - Blows per 12 inches)	STANDARD PENETRATION TEST DATA			Additional Remarks	
									N in blows/ft				
						Approximate Surface Elev.: 598.4 ft							
	0					Surface: Grass (heavy organics to -5") Brown silty CLAY; some brick fragments (FILL)	CL	6-4-4 N=8	9				
595	5			2	20	Brown silty CLAY	CL	S. Tube	25				LL = 43 PL = 22 DD = 82 pcf Qu = 0.5 tsf
	10			3	18	Brown mottled gray silty CLAY	CL	2-2-2 N=4	25				Qu = 1.2 tsf
590	15			4	18		CL	2-2-4 N=6	23				Qu = 1.9 tsf
	20			5	18	Gray mottled brown silty CLAY		1-1-2 N=3	25				Qu = 1.0 tsf
585	25			6	18			1-1-2 N=3	26				Qu = 1.6 tsf
	30			7	18		CL	2-2-3 N=5	27				Qu = 1.2 tsf
580	35			8	18			3-4-5 N=9	21				Qu = 3.5 tsf
	40			9	17	Brown weathered SHALE	SHALE	17-28-50/5"	12				>>⊙
575	45			10	10	End of boring at -25'		32-50/4"	13				>>⊙

Completion Depth: 25.0 ft
 Date Boring Started: 7/19/05
 Date Boring Completed: 7/19/05
 Logged By: Harry Waters
 Drilling Contractor: PSI, Inc.

Sample Types:
 Auger Cutting
 Shelby Tube
 Split-Spoon
 Hand Auger
 Rock Core

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.



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LOG OF BORING B-4

Sheet 1 of 1

PSI Job No.: 020-55029
 Project: Burch House and Carrigan House
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

Drilling Method: 3 1/4" Hollow Stem Auger
 Sampling Method: Split Spoon
 Hammer Type: Automatic
 Boring Location: See location plan
 Carrigan House

WATER LEVELS
 ▽ While drilling none observed
 ▽ Upon compl. caved 21 ft
 ▽ 1/2 hr Delay 22 ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6 inches (N - Blows per 12 inches)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft		Additional Remarks
										Moisture	Strength	
						Approximate Surface Elev.: 597.5 ft						
	0					Surface: Grass (heavy organics to 7")	CL					
	0			1	4	Black silty CLAY (FILL)	CL	4-2-2 N=4	16	X	*	
595	5			2	6	Dark gray silty CLAY; some brown medium sand (FILL)	CL	3-4-5 N=9	23	▲	*	Qu = 1.2 tsf
	5			3	18	Brown mottled gray silty CLAY	CL	2-4-6 N=10	23	◎	*	
590	10			4	18		CL	4-5-5 N=10	23	◎	▲*	Qu = 1.6 tsf
	10			5	18		CL	1-2-2 N=4	24	◎*	▲ X	Qu = 1.2 tsf
585	15			6	18		CL	1-2-2 N=4	26	◎	▲*	Qu = 1.4 tsf
	15			7	18		CL	2-3-3 N=6	29	◎	▲*	Qu = 1.0 tsf
580	20			8	18	Brown weathered SHALE	SHALE	4-9-14 N=23	17	X	◎	Qu = 3.1 tsf
	20			9	11		SHALE	16-50/5"	13	X		>>◎
575	25			10	6	End of boring at -25'		50/6"	12	X		>>◎

Completion Depth: 25.0 ft
 Date Boring Started: 7/19/05
 Date Boring Completed: 7/19/05
 Logged By: Harry Waters
 Drilling Contractor: PSI, Inc.

Sample Types:
 Auger Cutting
 Split-Spoon
 Rock Core

Shelby Tube
 Hand Auger

Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.



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LOG OF BORING B-5

Sheet 1 of 1

PSI Job No.: 020-55029
 Project: Burch House and Carrigan House
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

Drilling Method: 3 1/4" Hollow Stem Auger
 Sampling Method: Auger
 Hammer Type: NA
 Boring Location: See location plan
 Carrigan House

WATER LEVELS
 ∇ While drilling none observed
 ∇ Upon compl. none observed
 ∇

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6 inches (N - Blows per 12 inches)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft @				Additional Remarks
										X	Moisture	PL	LL	
0	0	Surface: Grass (heavy organics to -3") Black silty CLAY (FILL)					CL							
		Brick fragements and debris (FILL)					FILL							
	5	Brown/gray silty CLAY					CL							
	10	End of boring at -10'												

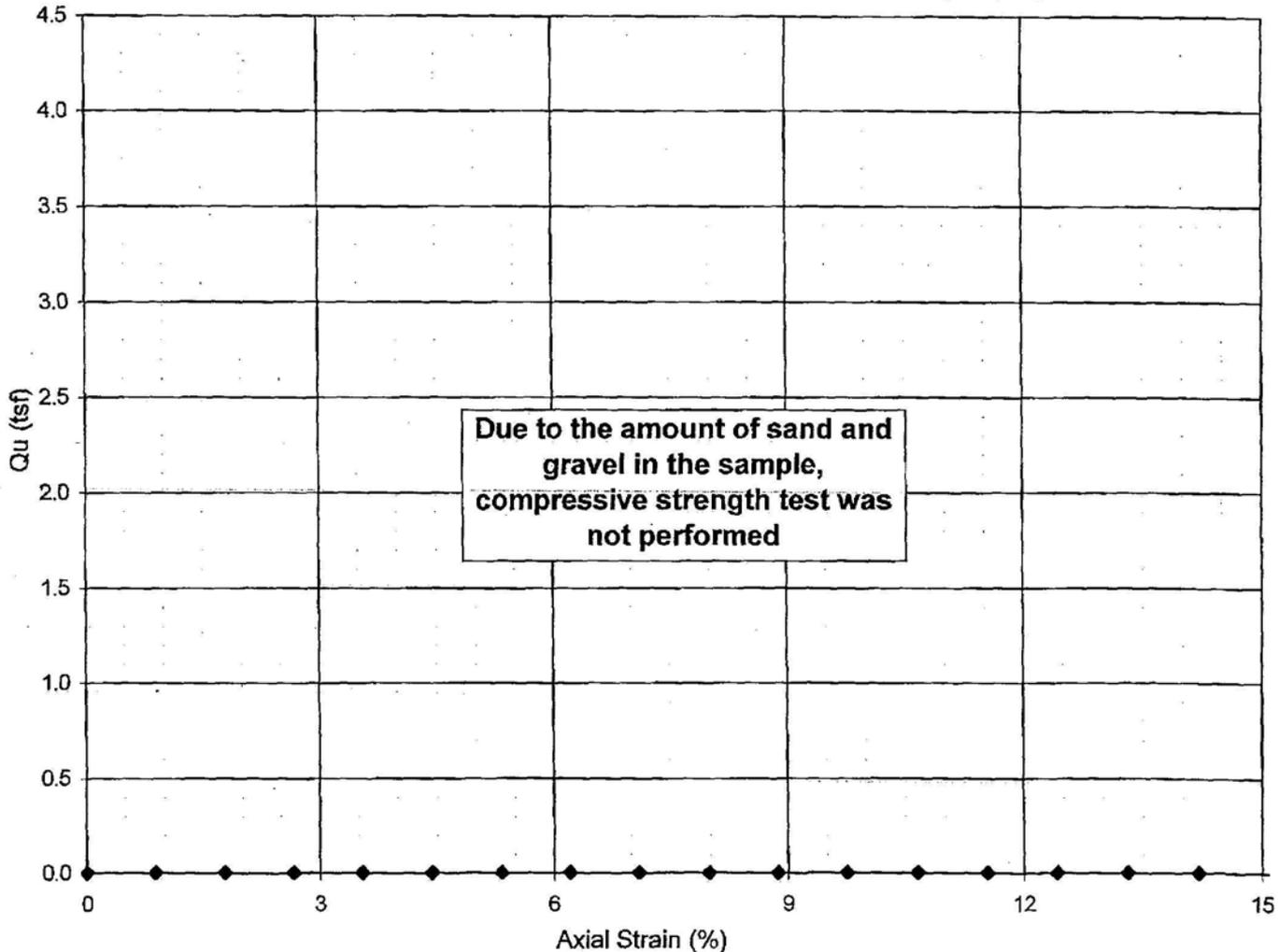
Completion Depth: 10.0 ft	Sample Types:	Remarks:
Date Boring Started: 7/19/05	<input type="checkbox"/> Auger Cutting	
Date Boring Completed: 7/19/05	<input checked="" type="checkbox"/> Split-Spoon	
Logged By: Harry Waters	<input type="checkbox"/> Rock Core	
Drilling Contractor: PSI, Inc.	<input type="checkbox"/> Shelby Tube	
	<input checked="" type="checkbox"/> Hand Auger	

The stratification lines represent approximate boundaries. The transition may be gradual.

SHELBY TUBE SAMPLE
(3-INCH UNDISTURBED SAMPLE)

BORING No. B-1
 SAMPLE No. 2 (-3' to -5')

Axial Strain, % vs. Unconfined Compressive Strength (Qu), tsf



Physical Properties

Unconfined Comp. Strength (Qu) =	NP	tons/ft ²	Liquid Limit (LL) =	NP
Water Content (% of dry wt) =	16	%	Plastic Limit (PL) =	NP
Wet Density =	106	lb/ft ³	Passing No. 200 Sieve =	NP %
Dry Density =	91	lb/ft ³	Specific Gravity (Gs) =	NP Unitless
*Degree of Saturation (S%) =	52	%	Notes:	
*Void Ratio (e _v) =	0.81	unitless	NP = Test Not Performed	
*Porosity (n) =	0.45	unitless	*If Specific Gravity (Gs) not determined in laboratory then calculations are based on an estimated G _s of 2.65 based on PSI experience with the soils in the area.	

Description: Brown/black silty CLAY trace sand, gravel and brick fragements (FILL)

Test Method: ASTM D-2166
 Sample Method: Shelby Tube
 Tested By: PSI - Jud Carter
 Load Ring: SN 15225; Calibrated May 2005

Remarks: None

psi Information
 To Build On
 Engineering • Consulting • Testing
 480 North Street, Springfield, Illinois 62704
 phone 217/544-6663 fax 217/544-6148

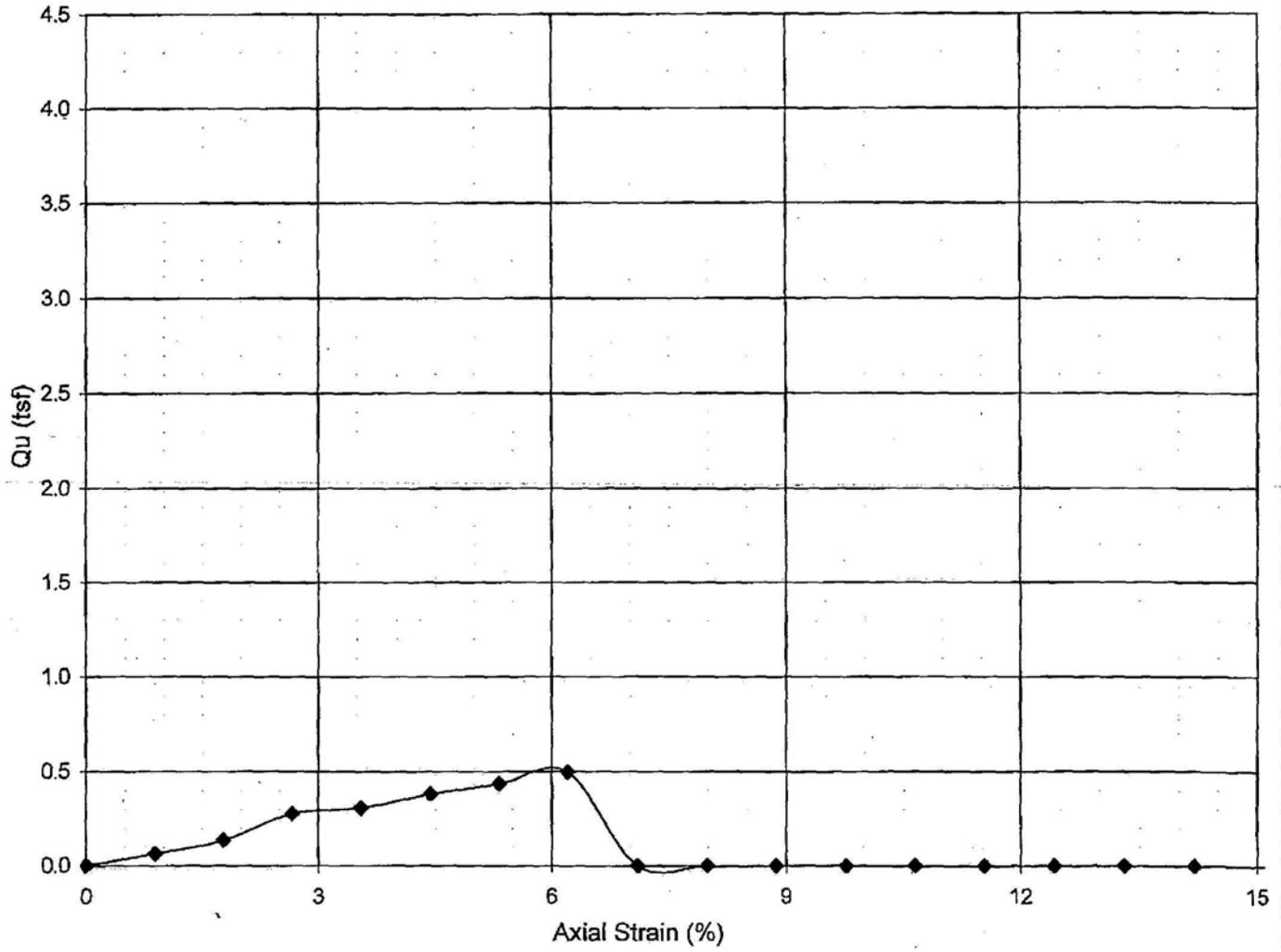
SHELBY TUBE SAMPLE

PSI PROJECT No.: 020-55029
 Project: Burch and Carrigan Houses
 Location: Lincoln Home National Historic Site
 8th Street and Jackson Street
 Springfield, Sangamon County, Illinois

SHELBY TUBE SAMPLE
(3-INCH UNDISTURBED SAMPLE)

BORING No. B-3
SAMPLE No. 2 (-3' to -5')

Axial Strain, % vs. Unconfined Compressive Strength (Qu), tsf



Physical Properties

Unconfined Comp. Strength (Qu) =	0.5	tons/ft ²	Liquid Limit (LL) =	43
Water Content (% of dry wt) =	25	%	Plastic Limit (PL) =	22
Wet Density =	103	lb/ft ³	Passing No. 200 Sieve =	NP %
Dry Density =	82	lb/ft ³	Specific Gravity (Gs) =	NP Unitless
*Degree of Saturation (S%) =	66	%	Notes:	
*Void Ratio (e _o) =	1.02	unitless	NP = Test Not Performed	
*Porosity (n) =	0.50	unitless	*If Specific Gravity (Gs) not determined in laboratory then calculations are based on an estimated G _s of 2.65 based on PSI experience with the soils in the area.	

Description: Brown silty CLAY (FILL)	Test Method: ASTM D-2166
Remarks: None	Sample Method: Shelby Tube
	Tested By: PSI - Jud Carter
	Load Ring: SN 15225; Calibrated May 2005

PSI Information
To Build On
Engineering • Consulting • Testing
480 North Street, Springfield, Illinois 62704
phone 217/544-6663 fax 217/544-6148

SHELBY TUBE SAMPLE

PSI PROJECT No.:	020-55029
Project:	Burch and Carrigan Houses
Location:	Lincoln Home National Historic Site 8th Street and Jackson Street Springfield, Sangamon County, Illinois

APPENDIX D

Of the sale thereof be after all the notes were due then the Proceeds taken
 first to the discharge of last named note then the surplus of any to be applied
 the discharge of the other notes and after that the surplus of any after all
 all the notes and expenses attending or arising from said sale to be paid
 to said Webster and said Trust should convey said premises to the purchaser
 by deed. It was further provided that said Webster might at any time or
 of said premises for such price and terms as said Trust might deem
 and proper and on Condition that the proceeds arising from said
 be placed in the hands of said Trust to be applied to the discharge of
 notes as therein set forth, and whereas the said Francis Webster
 failed to pay to the said M. Bennett the interest for thirty days
 fell due on to pay any part thereof and to pay the notes or either or
 thereof for thirty days after the maturity of the last due and the
 not having made sale of said premises according to the direction
 said deed contained and the said Samuel H. Treat having given
 days notice of the time and place of said sale by publication in the
 State register a public journal published in the City of Springfield
 County and State of Illinois and on the twenty day of December
 between the hours of nine o'clock in the forenoon and four o'clock in
 afternoon of the said day at the door of the Court Room in the
 Springfield in Sangamon County sell to the highest bidder for cash
 hand all the tracts and parcels of land hereinbefore described
 the said date either M. Bennett being the highest and best bidder
 the purchaser of said lands at the sum of twelve hundred Dollars
 the said either M. Bennett having satisfied and paid to said
 Trust as aforesaid the said sum of twelve hundred Dollars
 solution of the same in the notes aforesaid. Now therefore the
 Samuel H. Treat in consideration of the premises aforesaid and
 of the Power and authority aforesaid and as Trustee aforesaid
 give great bargain and sell and convey unto the said M.
 Bennett all the lands hereinbefore described with all and singular
 the privileges and appurtenances thereto belonging or in any
 appertaining.

To have and to hold the said lands hereinbefore described
 with all and singular the privileges and appurtenances thereto
 any or in anywise appertaining to the only proper use of him
 either M. Bennett his heirs and assigns forever.
 In testimony whereof the said Samuel H. Treat has hereunto
 hand and affixed his seal this day and year first above written.

Samuel H. Treat

State of Illinois
 Notary Public at Springfield
 and William Wilson Chief Justice of the County of Sangamon

APPENDIX E

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM
FOR FEDERAL PROPERTIES

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DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC

Lincoln Home National Historic Site

AND/OR COMMON

2 LOCATION

STREET & NUMBER

In an irregular pattern centered
at Eighth and Jackson Streets

CITY, TOWN

Springfield

VICINITY OF

--NOT FOR PUBLICATION

CONGRESSIONAL DISTRICT
20th

STATE

Illinois

CODE

17

COUNTY

Sangamon

CODE

167

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input checked="" type="checkbox"/> DISTRICT	<input checked="" type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input checked="" type="checkbox"/> UNOCCUPIED	<input checked="" type="checkbox"/> MUSEUM
<input type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input checked="" type="checkbox"/> WORK IN PROGRESS	<input checked="" type="checkbox"/> PARK
<input type="checkbox"/> SITE	<input type="checkbox"/> PUBLIC ACQUISITION	<input type="checkbox"/> ACCESSIBLE	<input type="checkbox"/> PRIVATE RESIDENT
<input checked="" type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input checked="" type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> ENTERTAINMENT
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input checked="" type="checkbox"/> GOVERNMENT
		<input type="checkbox"/> NO	<input type="checkbox"/> INDUSTRIAL
			<input type="checkbox"/> MILITARY
			<input type="checkbox"/> OTHER:

4 AGENCY

REGIONAL HEADQUARTERS: (If applicable)

United States National Park Service, Midwest Regional Office

STREET & NUMBER

1709 Jackson Street

CITY, TOWN

Omaha

VICINITY OF

STATE

Nebraska

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,

REGISTRY OF DEEDS, ETC. Midwest Regional Office

United States National Park Service

STREET & NUMBER

1709 Jackson Street

CITY, TOWN

Omaha

STATE

Nebraska

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

National Survey of Historic Sites and Buildings

DATE

1960

 FEDERAL STATE COUNTY LOCALDEPOSITORY FOR
SURVEY RECORDS

Heritage Conservation and Recreation Service

CITY, TOWN

Washington

STATE

D.C.

(See Continuation Sheet, Page 1)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

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CONTINUATION SHEET

ITEM NUMBER

6

PAGE

1

TITLE: LIST OF CLASSIFIED STRUCTURES

DATE: 1976

FEDERAL

DEPOSITORY FOR SURVEY RECORDS: United States National Park Service,
Midwest Regional Office, Omaha, Nebraska

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input checked="" type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input checked="" type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The district nominated to the register includes all land and historic structures located in the Site's historic zone, which is delineated on a map submitted as part of this nomination. The District includes 14 structures with Lincoln association, and 3 structures that do not have Lincoln association. Also included within the boundaries of the district are boardwalks streets, fences, and plantings.

The centerpiece of the district is the Lincoln Home itself. It sits on the northeast corner of Jackson and Eighth Streets. It was build in 1839 for the Reverend Mr. Charles Dresser, from whom Lincoln later bought the home, and who married Abraham and Mary Todd Lincoln. Although he was not able to document it, Edwin Bearss, in the Lincoln Home Historic Structure Report, speculates that Henry Dresser, the Reverend Mr. Dresser's brother and the architect of several structures in Springfield, may have built the original house.

Dresser's one and one-half story house has been called Greek Revival in style. Its framing was rough-sawn oak with hand-hewn oak sills. Pine was used for exterior trim and weatherboarding with laths of split hickory. Walnut was used for interior trim and doors. Floors were random-width oak. Wooden pegs and hand-wrought nails were used in the construction. The lumber was probably purchased from the Portland Steam Mill at Portland Landing on the Sangamon River north of Springfield.

Lincoln bought the house in 1844 for \$1,200 cash plus another lot valued at \$300. In 1856, Lincoln had the house remodeled. Hannan & Ragsdale, in remodeling the structure, took the roof of the front part of the house loose at the header and raised it nine feet. Two-by-six pine studding was inserted and fastened to the existing rough-sawn oak studding of the original walls. When complete, the ceilings of the two half-story bedrooms at the front of the house (where formerly a person of average height could stand erect only in the middle under the peak of the gable) had been raised to a height of 11 feet. The ceilings of the three rooms at the rear of the house were raised about a foot and an entire story (containing four rooms) added above them rounding out the house to a two-story dwelling. For the remodeling northern pine was used. The upstairs woodwork was given an artificial walnut stain to continue the walnut decor found downstairs.

The house was deeded over to the State of Illinois in 1887 by Robert Todd and Mary H. Lincoln. Since then the house has been continuously maintained and, over the years, much work has gone into restoring both the exterior and interior to their appearances during Lincoln's life in the house.

From 1952 through 1955, the State of Illinois completed a major restoration of the house, which brought it to its present appearance and included the addition of the outbuildings at the rear of the house.

(See Continuation Sheet, Page2)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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INVENTORY -- NOMINATION FORM**

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ITEM NUMBER 7

PAGE 2

As it stands today, the Lincoln home is a two-story, wood frame structure. Although neither its general proportions, nor its decorative detailing support the stylistic analysis, it has been called Greek Revival in style. There are Greek Revival elements in the design, but a rigorous, stylistic attribution is not really possible. It sits on brick foundation, has clapboard siding painted "Quaker Brown," and wood-shingle roofing.

In the rear of the Lincoln home are an 1846, 6-foot-by-6-foot, three-hole privy donated by Mrs. Charles H. Crawford, in 1953; an adaptive reconstruction of the Lincoln carriage house, which is used for curatorial storage; and, attached to the carriage house, a reconstruction of the Lincoln woodshed, which houses public toilet facilities.

The house sits on an elevated lot surrounded by a brick retaining wall surmounted by a picket fence in the front and a board fence in the rear.

The S-shaped district includes all the properties on both sides of Eighth Street, plus adjoining properties on the corner of Seventh and Edwards Streets and on the corner of Ninth and Capitol Streets.

Inventoried below are the Lincoln period historical structures in the district followed by the historical structures within the district that do not date from the Lincoln period. Numbering relates to buildings shown on the accompanying district map.

Lincoln Period Historic Structures Located within District

- HS-1 Lincoln Home (430 South 8th Street; Block 10, Lot 8 and south 10 feet of Lot 7) Two-story, wood frame structure.
- HS-2 Corneau House (426 South 8th Street; Block 10, Lots 6 and 7): One-story, wood frame structure. Originally located at the southwest corner of Jackson and 8th Streets (Block 6, Lot 16), where it stood in 1860; it was moved to its present site in 1962.
- HS-8 Lyon House (413 South 8th Street; Block 7, Lot 13, north half of Lot 12, and south 10 feet of Lot 14): Two-story, wood frame structure. Restored.
- HS-9 Morse House (818 East Capitol Street Block 10, Lots 15 and 16): Two stories, built circa 1845. One of two houses that were built on these lots in 1860. Both were owned by Morse.
- HS-10 Robinson House (520 South 8th Street; Block 11 Lots 6 and 7): Two story, wood frame structure. Built between 1863 and 1866.
(See Continuation Sheet, Page 3)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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CONTINUATION SHEET 7 ITEM NUMBER PAGE 3

- HS-11 Sprigg House (507 South 8th Street; Block 6, Lot 15): Two-story, wood frame structure.
- HS-12 Beedle House (411 South 8th Street; Block 7, Lot 14): Two-story wood frame structure.
- HS-13 Dean House (421 South 8th Street; Block 7, Lot 11 and south half of Lot 12): Two-story wood frame structure.
- HS-14 Miller House (511 South 8th Street; Block 6, Lot 14): Two-story wood frame structure.
- HS-15 Dubois House (519 South 8th Street; Block 6, Lot 12): Two-story, wood frame structure.
- HS-17 Shutt House 525 South 8th Street; Block 6, Lot 10 and south 10 feet of Lot 11): Two-story, wood frame house.
- HS-19 Cook House (508 South 8th Street; Block 11, Lot 3): Two story, wood frame structure.
- HS-20 Arnold House (810 East Jackson Street; Block 11, rear of Lots 1 and 2): 1½-story, wood frame structure, with brick veneer and brick additions. Originally on the front of the lot, it was moved to its present site when 500 South 8th Street was built, around the turn of the century. Reoriented when moved to its present location.
- HS-21 Allen Barn (Rear, 538 South 8th Street, Block 11, Lot 7): 1½-story wood frame barn.
- HS-24 Lincoln Home Privy (Behind Lincoln Home; Block 10, Lot 7): Antique, 1846, wood, 6' x 6' three-hole privy. Moved from another location.

Post-Lincoln Period Historic Structures located within District

- HS-5 Stuve House (526 South 7th Street; Block 6, Lots 7 and 8): Three-story, brick, Italianate structure. Built circa 1870.
- HS-7 Stuve Carriage House (Block 6, Lots 6,7,8): Brick, painted, one-story structure, gabled, half-hipped roof.
- HS-16 Aitken Barn (519 South 8th Street; Block 6, rear of Lot 12): 1½-story, wood frame structure. Dates from about 1900.

(See Continuation Sheet, Page 4)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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NON-HISTORIC STRUCTURES LOCATED WITHIN THE DISTRICT

Building 4 (Block 10; Lots 7 and 8): Curatorial Storage, Public Toilet Facilities.

Building 28 (Block 7; Lot 12): Maintenance Storage.

Building 30 (406 South 8th Street, Block 10; Lot 2): Educational Center

Building 32 (Block 6, Lot 11): Maintenance Storage

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input checked="" type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input checked="" type="checkbox"/> POLITICS/GOVERNMENT	<input checked="" type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		U.S. President

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The Lincoln Home derives its significance through its association with the 16th President. It is the only home he ever owned. Abraham Lincoln came to Springfield as a young lawyer, one of the state legislators who had led the successful fight to move the capital from Vandalia to a more central location. It was in Springfield that he met, courted, and married Mary Todd. In 1844, soon after the birth of their first son, Lincoln purchased the house and lot at the northeast corner of Eighth and Jackson Streets. Here he and his family lived until February 1861, when he left Springfield enroute to his inauguration as President of the United States.

This was Lincoln's home during the fruitful years that saw his emergence from the local onto the national scene. A former legislator and small town lawyer, Lincoln, in 1846, was elected to the United States House of Representatives. After two years in Congress, he returned to his law practice. Because of his "spot resolution," his association with the "Free Soil" wing of the Whig party, and his support of Henry Clay, he was better known than most one-term congressmen. During the next seven years a successful legal practice and popularity as a stump speaker made Lincoln a force in the new Republican party. Here he lived in 1858, when as the Republican candidate for U.S. Senator, he engaged in the debates with Stephen A. Douglas. Although defeated by Douglas, Lincoln was thrust firmly onto the national scene. Two years later, he was nominated and elected to the Presidency.

The other historic buildings within the district derive their principal significance from their association with Lincoln's life and their existence at the time of his residence in Springfield. The district is important in preserving the setting of the President's home.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Bearss, Edwin C., Historical Base Map, Proposed Lincoln Home National Historical Park, Springfield, Illinois. National Park Service, 1969
 ---, Historic Structure Report, Lincoln Home National Historic Site, Illinois. National Park Service, 1973.
 National Park Service, Master Plan, Proposed Lincoln Home National Historic Site, Illinois. National Park Service, 1970

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 7.76

UTM REFERENCES

A	1,6	27,356,0	4,40,839,0	B			
	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
C				D			

VERBAL BOUNDARY DESCRIPTION

Starting at the corner of Capitol and Ninth Streets in Springfield, Illinois, the district first runs south along the curb line approximately 103 feet to the northeast corner of Lot 14, Block 10; thence west, approximately 167 feet, to the northeast corner of Lot 3, Block 10; thence south, along the west side of the alley and across Jackson Street, approximately 670 feet, to the curb line at the corner of the
 (See Continuation Sheet, Page 7)

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

Revised by: Jill York Historian
 Midwest Regional Office 9/5/80

NAME/TITLE

Richard I. Ortega, Architectural Historian (Engineer)

ORGANIZATION

U.S. National Park Service, Midwest Regional Office 5/14/76

STREET & NUMBER

1709 Jackson Street

TELEPHONE

402-221-3426

CITY OR TOWN

Omaha

STATE

Nebraska

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES ___ NO ___ NONE ___

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is ___ National ___ State ___ Local.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST

DATE

KEEPER OF THE NATIONAL REGISTER

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

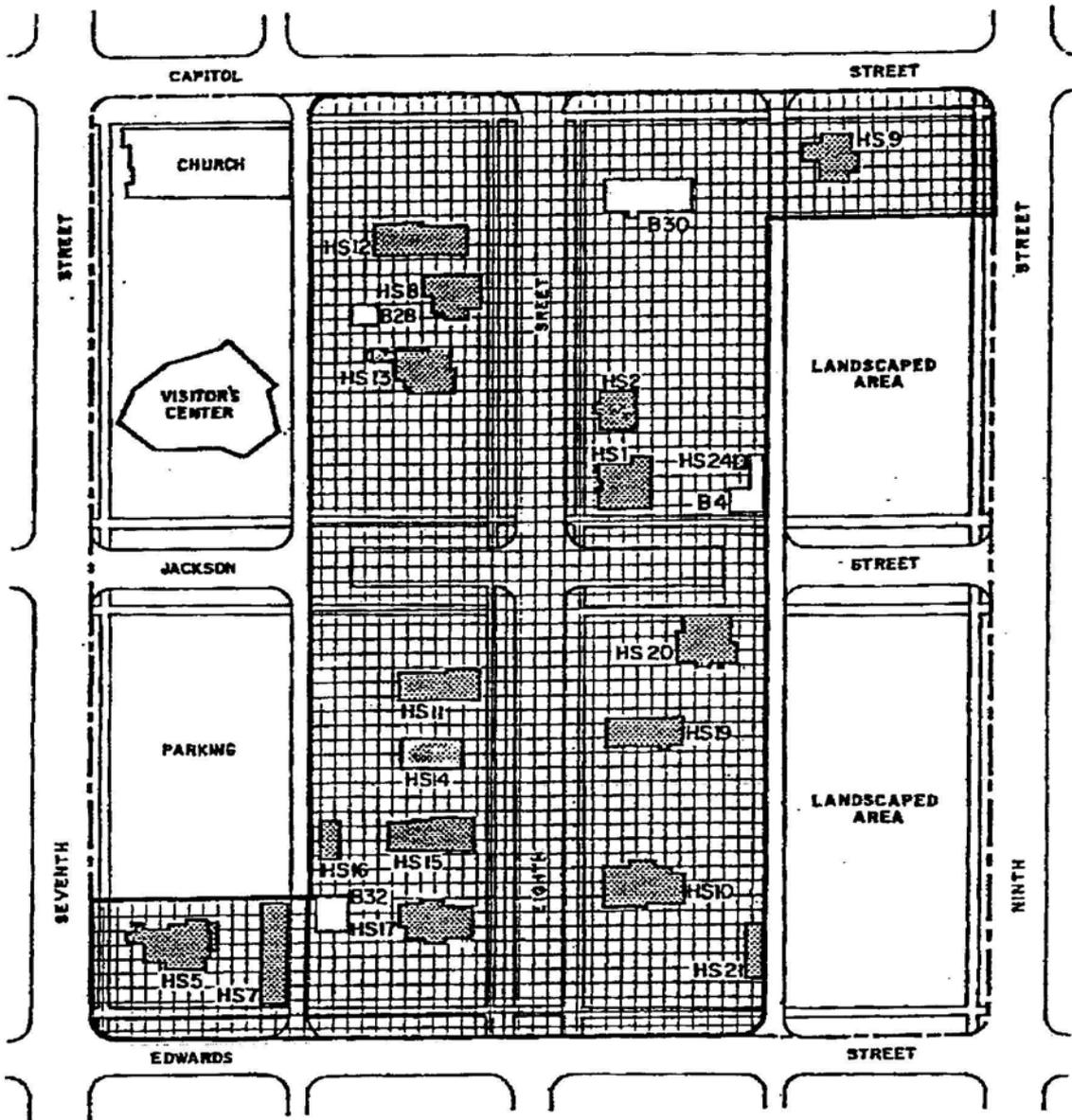
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CONTINUATION SHEET

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alley and Edwards Street; thence west, approximately 567 feet, along the curb line to the corner of Seventh and Edwards Streets; thence north, approximately 135 feet, along the curb line; thence east approximately 167 feet, to the rear property line of Lot 11, Block 6; thence north, along the east side of the alley and across Jackson Street, approximately 635 feet, to the curb line at the corner of the alley and Capitol Street; thence, approximately 567 feet, along the curb line to the point of beginning.



PART OF THE E. ILES ADDITION TO THE CITY OF SPRINGFIELD

-  NOMINATED AREA
-  HISTORIC STRUCTURES
-  NONHISTORIC STRUCTURES



EXISTING BUILDINGS

LINCOLN HOME NATIONAL HISTORIC SITE

APPENDIX F

PROJECT COST SUMMARY

Kirk Associates

Project No.: **80094.00**
 Project Name: **National Park Service - Carrigan House** Date: **1-Mar-06**
 Project Location: **Springfield, IL** Building type: **Historical**
 Estimate Type: **Class B Estimate** Bid Date: **Spring 07**

A. Construction:				\$367,300
			\$/GSF	
Total Building Construction	2,058	GSF	\$163.02	\$335,500
Design Refinement Contingency		3.50%		\$11,700
Escalation		4.00%		\$13,400
Contractor's Bond		2.00%		\$6,700 (included in GC, OH&P)
Subtotal Carrigan House	2,058	GSF		\$367,300
				\$164,000

B. Design and Review:				\$0
A/E Fees & Expenses	1	LS		\$0 In Other Budget
Special Consultants		0.00% LS		\$0 In Other Budget
Technology Designer	1	LS		\$0 In Other Budget
Testing, Surveys, Soil Borings	1	LS		\$0 In Other Budget
State Admin. Costs		0.00%		\$0 In Other Budget

C. Management & Inspection:				\$0
Construction Management	1	LS		\$0 Not included
Owner Admin. Costs	1	LS		\$0 In Other Budget
Building Permits, Agency Reviews		0.00%		\$0 In Other Budget

D. Site Acquisition:				\$0
Building / Land Purchase	1	LS		\$0 Not required
Legal Fees, etc.		0.00%		\$0 Not required
Real Estate Fees		0.00%		\$0 Not required

E. Reservations:				\$0
Construction / Phasing Contingency		0.00%		\$0 In Other Budget
Asbestos / Hazardous Material Abatement	1	LS		\$0 In Other Budget
Furniture & Equipment	1	LS		\$0 In Other Budget
Reimbursables	1	LS		\$0 In Other Budget
AV Equipment	1	LS		\$0 In Other Budget
Move-in/Reloc. Costs		0.00%		\$0 In Other Budget

Total Project Estimate: \$367,300

Net Construction (escalated) Budget \$164,000
 Delta \$203,300

CONSTRUCTION DIVISIONS COST SUMMARY

Kirk Associates

Project Number: **80094.00** Date: **1-Mar-06**
 Project Name: **National Park Service - Carrigan House** Building type: **Historical**
 Project Location: **Springfield, IL** Bid Date: **Spring 07**

Bldg.Constr.Type: Historical GSF: 2,058
 Bldg. Cost Index - Current: 1.000 Orig: 1.000 City Cost Mod: 1.000

Quantity Survey Costs (x) City Cost Modifier = System Costs

CSI DIVISION	QUANTITY	UNIT	SYS.COST	COST/GSF
01 General Requirements 20.0%	2,058	GSF	\$55,914	\$27.17
02 Site Work	0.14	Acre	\$34,474	\$16.75
03 Concrete	2,058	GSF	\$26,962	\$13.10
04 Masonry	447	WSF	\$15,847	\$7.70
05 Metals	2,058	GSF	\$7,774	\$3.78
06 Woods & Plastics	2,058	GSF	\$78,830	\$38.30
07 Thermal & Moisture Protection	2,058	GSF	\$18,964	\$9.21
08 Doors & Windows	588	XDA	\$19,330	\$9.39
09 Finishes	2,058	GSF	\$15,238	\$7.40
10 Specialties	2,058	GSF	\$0	\$0.00
11 Equipment	2,058	GSF	\$1,300	\$0.63
12 Furnishings	2,058	GSF	\$715	\$0.35
13 Special Construction	2,058	GSF	\$0	\$0.00
14 Conveying Systems	2,058	GSF	\$0	\$0.00
15 Mechanical	2,058	GSF	\$45,017	\$21.87
16 Electrical	2,058	GSF	\$15,119	\$7.35

ESTIMATE SUBTOTAL: \$335,483 \$163.01

PROJECT NOTES / ABBREVIATIONS**Kirk Associates**Project Number: **80094.00**Project Name: **National Park Service - Carrigan House**Date: **1-Mar-06**Project Location: **Springfield, IL**Building type: **Historical**Component: **NOTES**Bid Date: **Spring 07****NOTES :**

- Unit cost is based on KIRK Historical Database of similar facilities.
- Contractor's performance bond is based on 100% of total project cost.
- Labor rates are based on prevailing union wages.
- An allowance for undeveloped design details is usually included in construction cost estimates. As the design of each system is further developed, details which historically increase cost become apparent and must be incorporated into the estimate. The design contingency of 3.5% is intended to cover this cost.
- Unit costs included here are reflective of current costs. For the purpose of calculating construction cost at the time of bidding an escalation rate of 4% has been used.
- General Conditions, contractor's overhead and profit have been included at 20% in line item #1.
The general Contractor will provide the required supervision/coordination. If this is not the case, additional costs must be added to the Construction Management allowance, and be deducted from the General Conditions.
An additional 2% has been added to cover the Contractor's Bond.
- It is prudent for all project budgets to include an allowance for change orders which may occur during construction.
An allowance of 0% has been included in calculating the Total Project Cost. This is carried by the owner.
- Kirk Associates has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, competitive bidding and market conditions. A 0% bid contingency is included to reflect this uncertainty.
- This opinion of the probable cost of construction is made on the basis of experience, qualifications, and best judgment of our qualified staff familiar with the construction industry. Kirk Associates, however, can not and will not guarantee that actual construction costs will not vary from this estimate.
- Kirk Associates also utilize a city cost index to represent local Ashland market conditions. In this case, a 0% increase in the total construction costs have been included in the "City Cost Modified."
Note: the calculation summarizes the system subtotals and then increases them by 0%.
- Kirk Associates professional cost estimators have prepared this estimate in accordance with generally accepted estimating principles and practices. This staff is available to discuss its contents with any interested party.

ABBREVIATIONS :

ACR	Acre	KW	Kilowatts Connected	SF	Square Feet
AP	Area Protected	LO	Landing Opening	TBD	To Be Determined
BCF	Basement Cubic Feet	LS	Lump Sum	TFA	Total Finish Area
BWA	Basement Wall Area	MOS	Months	TON	12000 Btuh
FLT	Stair Flight	MP	Metal Pan	UFA	Upper Floor Area
FPA	Footprint Area	NO	Number/None	XDA	Exterior Door &
FXT	Fixture Count	PCT	Percent		Window Area

Construction Systems Quantity Survey

Project Number: 80094.00	Date: 1-Mar-06
Project Name: National Park Service - Carrigan House	Building type: Historical
Project Location: Springfield, IL	Bid Date: Spring 07
Component: Class B Estimate	

DIVISION	SECTION	QUANTITY	UNIT	UNIT COST	SYS.COST
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.....These are the "=SUM(X1:Xn)" boundaries

 \$0These are building system cost subtotals which feed into the
Building & Sitework Summaries (less the City Cost Modifier of 2%)

01 GENERAL REQUIREMENTS	2,058	GSF	27.17	\$55,914
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GENERAL REQUIREMENTS	1	LS		\$55,914
General conditions, overhead & profit (OH&P)	20.0%			\$55,914

02 SITE WORK	0.14	Acre		\$34,474
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SITE PREPARATION - EARTHWORK	0.14	Acre		\$9,653
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General Excavation	286	CY	12.00	\$3,436
Excavation Removal - Haul away	172	CY	6.00	\$1,031
Dewatering	Not Required	SF		
Backfill & Compaction	86	CY	18.00	\$1,546
Finish Grading	9,101	CY	0.40	\$3,640

SITE UTILITIES	0.14	Acre		\$11,700
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Sanitary	90	LF	20.00	\$1,800
Water	90	LF	25.00	\$2,250
Sewer	0	LF	30.00	\$0
Electrical Service	90	LF	55.00	\$4,950
Fire Protection	90	LF	30.00	\$2,700

SITE IMPROVEMENTS	0.14	Acre		\$13,121
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Topsoil, Seed	348	SY	4.15	\$1,446
Plank Sidewalk / Concrete base	40	LF	25.00	\$1,000
Permiabile walkways	120	LF	5.50	\$660
Street Repair (asphalt, coat)	60	SF	35.00	\$2,100
Allowance Landscaping	1	ALW	3,500.00	\$3,500
Allowance Picket Fence (reconstructed)	75	LF	15.00	\$1,125
Allowance Four Board Fence (reconstructed)	110	LF	11.00	\$1,210
Allowance Accessible Ramp	40	LF	25.00	\$1,000
Allowance Porch Ramp	60	LF	18.00	\$1,080
Allowance Ramp Railing	-	LF	30.00	\$0

03 CONCRETE	2,058	GSF		\$26,962
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CAST-IN-PLACE CONCRETE				
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Foundations	2,058	SF		\$26,962
Trench Footings	21	CY	345.00	\$7,079

Construction Systems Quantity Survey

Project Number: 80094.00	Date: 1-Mar-06
Project Name: National Park Service - Carrigan House	Building type: Historical
Project Location: Springfield, IL	Bid Date: Spring 07
Component: Class B Estimate	

DIVISION	SECTION	QUANTITY	UNIT	UNIT COST	SYS.COST
	Basement Walls	43	CY	395.00	\$16,881
	Vapor Barrier	1,539	SF	0.80	\$1,231
	Drain Tile	1,539	SF	1.15	\$1,770
04 MASONRY		447	WSF		\$15,847
	Masonry Assemblies	447	WSF		\$15,847
	Brick Veneer at foundation	447	WSF	21.00	\$9,397
	Brick Chimney	2	ALW	2,400.00	\$4,800
	Stone Step (porch)	4	EA	300.00	\$1,200
	Chimney Cap	2	EA	225.00	\$450
05 METALS		2,058	GSF		\$7,774
STRUCTURAL STEEL					
	Structural Steel - Floor	2,574	EA	3	\$7,774
Allowance	Steel columns	2	EA	350.00	\$700
	Wall Framing (metal stud)	2,572	WSF	2.75	\$7,074
06 WOODS AND PLASTICS		2,058	GSF		\$78,830
CARPENTRY					
	Miscellaneous Carpentry	2,125	LF	27.71	\$58,878
	Clapboard siding	2,125	WSF	4.60	\$9,775
	Floor Framing 1st Floor	1,539	SF	3.20	\$4,925
	Roof Truss	1,539	SF	5.00	\$7,695
	Sheathing (dens glass) Wall	2,587	WSF	2.20	\$5,691
	Sheathing Floor	1,539	SF	6.50	\$10,004
	Sheathing Roof	1,744	SF	10.50	\$18,312
	Sheathing Exhibit Walls	586	SF	3.10	\$1,817
	Stair	11	Riser	60.00	\$660
	Architectural Woodwork	1	LS	19,951.20	\$19,951
Allowance	Wood baseboards	492	LF	2.50	\$1,231
Allowance	Door Moldings	4	EA	55.00	\$220
Allowance	Window Moldings	16	EA	75.00	\$1,200
	Wood Louver (porch)	15	EA	750.00	\$11,250
Allowance	Shutters	11	Pair	550.00	\$6,050
07 THERMAL AND MOISTURE PROTECTION		2,058	GSF		\$18,964
EXTERIOR / THERMAL PROTECTION		4,316	WSF		\$4,473
	Insulation Wall	2,572	WSF	0.50	\$1,286
	Insulation Ceiling	1,744	RSF	1.00	\$1,744

Construction Systems Quantity Survey

Project Number: 80094.00	Date: 1-Mar-06
Project Name: National Park Service - Carrigan House	Building type: Historical
Project Location: Springfield, IL	Bid Date: Spring 07
Component: Class B Estimate	

DIVISION	SECTION	QUANTITY	UNIT	UNIT COST	SYS.COST
	Damproofing	1,154	SF	1.25	\$1,442
ROOFING		17	SQ		\$14,491
	Cedar Shake Roof	17	SQ	575.00	\$10,028
	Membranes (Shake, Ice)	17	SG	115.00	\$2,006
Allowance	Lead Coated Copper flashing	75	LF	10.00	\$750
	Wood Fascia	145	LF	3.50	\$508
Allowance	Sealants	1	LS	1,200.00	\$1,200
08 DOORS AND WINDOWS		1,113	XDA		\$19,330
DOORS, WINDOWS, HARDWARE		53	EA		\$19,330
	Wood Double Hung Window-lg	11	EA	900.00	\$9,900
	Wood Double Hung Window-sm	2	EA	600.00	\$1,200
	Windows (custom, not historic inside porch)	3	EA	450.00	\$1,350
	Window Hardware	13	EA	25.00	\$325
	Window Hardware	3	EA	90.00	\$270
	Wood Door, 2 panel w/ Transom	1	EA	1,200.00	\$1,200
	Wood Door, 2 panel	3	EA	900.00	\$2,700
	Wood Window Sill	13	EA	45.00	\$585
	Door Hardware	4	EA	450.00	\$1,800
09 FINISHES		2,058	GSF		\$15,238
Interior		2,369	SF		\$15,238
	Gypsum Wallboard (wall, ceiling)	2,369	WSF	2.20	\$5,213
	Paint	2,369	SF	0.65	\$1,540
Allowance	Carpet, Pad	171	SY	35.00	\$5,985
Allowance	Visitor Restroom	1	ALW	2500.00	\$2,500
10 SPECIALTIES		2,058	GSF		\$0
11 EQUIPMENT		2,058	GSF		\$1,300
	Dummy Hatch	1	ALW	1,300	\$1,300
12 FURNISHINGS		13	EA		\$715
	Window treatment	13	EA	55.00	\$715
13 SPECIAL CONSTRUCTION					\$0

Construction Systems Quantity Survey

Project Number:	80094.00	Date:	1-Mar-06
Project Name:	National Park Service - Carrigan House	Building type:	Historical
Project Location:	Springfield, IL	Bid Date:	Spring 07
Component:	Class B Estimate		

DIVISION	SECTION	QUANTITY	UNIT	UNIT COST	SYS.COST
14 CONVEYING SYSTEMS					\$0
15 MECHANICAL					\$45,017
		2,058	GSF		
PLUMBING		1,539	SF	-	\$19,456
Allowance	Geothermal Piping (piping, valves, tanks, pumps, etc.)	1,539	SF	3.50	\$5,387
Allowance	Geothermal Wells	3	EA	4,100	\$12,300
Allowance	Radon Mitigation System	1,539	SF	0.65	\$1,000
Allowance	Domestic Water	1,539	SF	0.50	\$770
	Natural Gas		not used		
	Sanitary		not used		
HVAC		4	TONS	-	\$14,542
Allowance	Ductwork	462	LBS	5.10	\$2,355
Allowance	Ductwork insulation	2,058	SF	0.50	\$1,029
Allowance	Ductwork accessories	9	EA	40.00	\$360
Allowance	Grilles	12	EA	35.00	\$420
Allowance	Electric Humidifier	1	EA	1,800	\$1,800
Allowance	Controls, DDC	1,539	SF	2.00	\$3,078
Allowance	Heat Pump	1	EA	5,500	\$5,500
FIRE PROTECTION		3,078	SF	-	\$11,019
	Dry Pipe Fire Protection Wet System	3,078	SF	3.58	\$11,019
16 ELECTRICAL					\$15,119
		2,058	GSF		
SERVICE & DISTRIBUTION		2	KVA		\$5,309
Allowance	Service (interior)	1,539	SF	1.50	\$2,309
Allowance	Panelboards	2	EA	1,500	\$3,000
LIGHTING & POWER		2,058	SF		\$7,310
Allowance	Wiring / Devices	1,539	SF	0.90	\$1,385
Allowance	Mechanical Connections	1,539	SF	1.10	\$1,693
Allowance	Lighting	1,539	SF	2.10	\$3,232
Allowance	Telephone / Data	1,539	SF	0.65	\$1,000
SPECIAL ELECTRICAL SYSTEMS		1,516	SF	-	\$2,500
Allowance	Security System	1	ALW	2,500.00	\$2,500
Sub Total					\$335,483

APPENDIX G



Burch and Carrigan Houses
Lincoln Home National Historical Site, Springfield, IL

VALUE ANALYSIS (VA) WORKSHOP AGENDA

November 15-16, 2005

Day 1 – November 15 – Burch House

8:00 a.m. INTRODUCTION TO WORKSHOP/ INFORMATION PHASE

Welcome & Opening Remarks
Team Member Introductions
Workshop Objectives, Organization & Agenda

PROJECT DESIGN REVIEW

Project Goals & Required Functions to be achieved (by NPS)
Current Design Review (Design Team)
Project Budget / Current Cost Information / Pareto Diagram
VA Team Questions

CREATIVITY & EVALUATION PHASE (CBA & Focus Areas)

Function Logic Diagram, Stakeholders
Discuss Focus Areas: 1. Internal and External Circulation; 2. Exterior Walls;
3. Well Field location
Generate / Brainstorm Ideas / Define CBA Alternatives
(Ideas to Achieve Best Balance of Life Cycle Cost, Performance,
Sustainability, and Durability, while meeting Required Functions)
Define Evaluation Factors (CBA, Ideas)
Evaluate & Select Proposals / Alternatives for CBA (Possible 2nd Floor)

12:00 p.m. LUNCH (working lunch)

CHOOSING BY ADVANTAGES

Identify Attributes & Advantages, Score Importance of Advantages
Determine Total Importance of Each Alternative
CBA / LCC / Importance to Cost Graph Updates
Consensus of Preferred Alternative

DEVELOPMENT PHASE

Document CBA Recommendations & VA Proposals
(Original Design, Proposed Idea, Sketches, Cost Changes, LCC)

PRESENTATION PHASE

Summary of CBA, Improvements / Cost Savings, VA Proposals
Comments & Discussion
Next Steps (VA Implementation), Closing Remarks

5:00 ADJOURN



Burch and Carrigan Houses
Lincoln Home National Historical Site, Springfield, IL

VALUE ANALYSIS (VA) WORKSHOP AGENDA

November 15-16, 2005

Day 2 – November 16 – Carrigan House

8:00 a.m. PROJECT DESIGN REVIEW

Project Goals & Required Functions to be achieved (by NPS)
Current Design Review (Design Team)
Project Budget / Current Cost Information / Pareto Diagram
VA Team Questions

CREATIVITY & EVALUATION PHASE (CBA & Focus Areas)

Function Logic Diagram, Stakeholders (review from 1st day)
Discuss Focus Areas: 1. Internal and External Circulation; 2. Potential
Access to Lincoln Home; 3. Well Field location
Generate / Brainstorm Ideas / Define CBA Alternatives
(Ideas to Achieve Best Balance of Life Cycle Cost, Performance,
Sustainability, and Durability, while meeting Required Functions)
Define Evaluation Factors (CBA, Ideas)
Evaluate & Select Proposals / Alternatives for CBA (Access to Site and
Building)

12:00 p.m. LUNCH (working lunch)

CHOOSING BY ADVANTAGES

Identify Attributes & Advantages, Score Importance of Advantages
Determine Total Importance of Each Alternative
CBA / LCC / Importance to Cost Graph Updates
Consensus of Preferred Alternative

DEVELOPMENT PHASE

Document CBA Recommendations & VA Proposals
(Original, Proposed, Sketches, Cost Changes, LCC Impacts)

PRESENTATION PHASE

Summary of CBA, Improvements / Cost Savings, VA Proposals
Comments & Discussion
Next Steps (VA Implementation), Closing Remarks

5:00 p.m. ADJOURN / CELEBRATION!

APPENDIX H

Geophysical Investigations of the Burch and Carrigan Lots at Lincoln Home National Historic Site, Sangamon County, Springfield, Illinois

Steven L. De Vore
Midwest Archaeological Center
National Park Service
Federal Building, Room 474
100 Centennial Mall North
Lincoln, Nebraska 68508-3873
September 2005

Submitted to Superintendent, Lincoln Home National Historic Site, Springfield, Illinois.

Introduction

The geophysical survey of the William S. Burch and Henry Carrigan house lots at Lincoln Home National Historic Site, Springfield, Illinois, was conducted between April 25 and April 29, 2005, by Midwest archeologists Jan Dial-Jones and Steven De Vore. The Burch House occupied Lot 9 of Block 7 (Banton et al. 1987:235-244). The Burch lot was located to the west of the Lincoln Home across Eighth Street. The Carrigan House occupied Lot 6 and ¼ of Lot 7 of Block 10 (Barton et al. 1987:56-68). The house sat in the adjacent lot to the north of the Lincoln Home facing Eight Street. Located in Section 34, Township 16 North, Range 5 West, of Sangamon County, Illinois (Figure 1), the geophysical investigations were conducted in advance of the Midwest Archeological Center's preliminary evaluative archeological testing (under the direction of Jan Dial-Jones) of the two lots for a proposed reconstruction project. The geophysical investigations of both lots included a magnetic gradient survey with a fluxgate gradiometer, a resistance survey with a resistance meter and twin probe array, a conductivity survey with a ground conductivity meter, and a ground penetrating radar survey with a ground penetrating radar cart system and 400 mHz antenna. General background and additional information of previous archeological and geophysical investigations are detailed in the park's archeological overview and assessment by Alan J. Osborn (2001).

The Lincoln Home National Historic Site commemorates the 17-year period (1844 to 1861) that Abraham Lincoln lived in the house on the corner of Eighth Street and Jackson Street prior to his leaving Springfield for the White House and the Presidency. A four block historic neighborhood forms the core of the neighborhood that Lincoln would have recognized (Figure 2). Over the years, the National Park Service has continued to restore the neighborhood to the 1850s/1860s appearance. The archeological and geophysical investigations of the two house lots represent the continuation of the National Park Service's restoration/ reconstruction efforts to restore the Lincoln neighborhood to its mid-nineteenth century appearance.

Originally built between 1845 and 1854, the Burch House was an irregularly shaped house with the northern elevation along the property line (LANDSCAPES et al. 1997:93). By 1884, the Burch house on Lot 9 was a two story brick house with a one story brick area and combination frame and brick addition to the back of the house. A two story barn with an attached single story shed was located in the southwest corner of the lot (Banton et al. 1987:239). By 1896, the house was only one and a half stories. The barn was also reduced in height to one and a half stories (Banton et al. 1987:240). By 1917, the Burch House had been razed and a two story brick store was built on the southeast corner of the lot. Part of the rear of the building served as a garage (Banton et al. 1987:240). Additional area was added to the north side of the store by 1941. The garage area was also converted to an apartment building. A second apartment building was built on the west portion of the lot (Banton et al. 1987:240). Today, the Burch lot is a grassy lawn (Figure 3)

The Carrigan House was originally a single story frame house which was razed by 1884 (LANDSCAPE et al. 1997:101). A two story frame structure replaced the one story house by 1884 (Banton et al. 1987:62). A small rectangular shed was located behind the house near the eastern lot line. During the next six years, two outbuildings were added to the lot (Banton et al. 1987:62). A small area at the ell of the house was raised to two stories. The two story outbuilding was reduced to a one and half story stable by 1896 (Banton et al. 1987:62-63). By 1917, the porch was enlarged (Banton et al. 1987:63). The small outbuilding was moved, and the stable received an addition to its north side. By 1924, the Carrigan House was removed (Banton et al. 1987:63). The Corneau house was relocated to the vacant Carrigan lot in 1962 from its original location Lot 16 of Block 6 (Banton et al. 1987:58). The Corneau House was later removed and restored its original location in Lot 16 of Block 6. Today, the Carrigan lot is a grassy lawn with a row of bushes forming the northern boundary of the lot (Figure 4).

Survey area: The park is located in the Till Plains section of the Central Lowland province of the Interior Plains division of the North American continent (Fenneman 1931:499-518). The loess mantled plains are dissected by the Sangamon River and the South Fork of the Sangamon River (Steinkamp 1980:1). The area also lies within the Illinoian biotic province (Dice 1943:21-23). The climate is continental with hot summers and cold winters (Steinkamp 1980:1). The project area lies within the Ipava-Tama-Sable soil association of *nearly level to strongly sloping, somewhat poorly drained, well drained, and poorly drained, moderately permeable and moderately slowly permeable soils; on uplands* (Steinkamp 1980:3-4). The geophysical survey is located within the Urban land soil mapping unit (533). This unit consists of nearly level to gently sloping soil material that has been severely impacted from the construction of streets, buildings, parking lots, and other structures (Steinkamp 1980:38). Originally, the soils formed in calcareous loess, which covered the uplands.

The present geophysical survey is located within the Burch and the Carrigan lots at Lincoln Home National Historic Site (Figure 5). The Burch lot is bounded on the east by Eighth Street and on the south by Jackson Street. The lot is surrounded on the west, south, and east side by wooden fencing (includes vertical boards, horizontal boards and

picket boards). The lawn contains several low spots as well as an elevated area near middle of the eastern half of the lot. An elevated area is also along the northern property line separating the Burch lot from the adjacent Ira Brown, Jr., House lot (Lot 10 of Block 6). The Carrigan lot is bounded on the west by Eighth Street (Figure 6). A row of bushes along the north side separate the Carrigan lot from the adjacent Bugg House lot (Lot 5 of Block 10). A vertical board fence separates the lot from the Lincoln Home on the south side. A horizontal board and picket board fence occur on the west side. At the rear of the lot to the east, there is a storage building and concrete pad. In the lot, there are five randomly spaced trees.

Surface features: The construction of other buildings during the late 19th and early 20th centuries, as well as, more recent National Park Service lawn leveling activities have removed any surface manifestations of the two houses.

Subsurface features: The extent of buried features is presently unknown but there appears to be buried or filled in remnants of the Carrigan House. Other archeological features identifying the location of historic outbuildings may exist, as well as, more recent structural features and building foundations from the 20th century. A number of buildings and other structures are indicated in the historic record. Archeological investigations connected with the removal of the Corneau House from the Carrigan lot identified the remains of *early-to middle-nineteenth century porch and steps* (Mansberger 1997) in front of the Corneau House. After its removal, the archeologists also *uncovered the foundation remains from two separate episodes of house construction. These foundations were mapped and numerous artifacts recovered from within the fill* (Mansberger 1997). Mansberger noted a stone step, a section of brick wall resting upon a shallow stone foundation, two round posts, and a series of brick supports for the step at the front area of the Carrigan House. The structural remains of the Carrigan House and its successor, the Irwin House, included the disturbed brick foundation walls with two different types of brick, a two-room cellar with rear extension, and wide range of demolition debris and late nineteenth century trash. No archeological investigations have been conducted in the Burch lot.

Survey Methodology

The geophysical survey was conducted at the request of Lincoln Home National Historic Site staff. In order to identify any buried archeological resources in the proposed project area, the Midwest Archeological Center (MWAC) staff applied magnetic gradient, resistance, conductivity, and ground penetrating radar survey techniques to investigate and identify the extent and location of possible archeological features associated with the two house lots. Wooden stakes were placed at the 20-meter grid unit corners where possible. Otherwise, the wooden stakes were placed at the end of the geophysical grid baseline. A 13 meter north-south by 44 meter east-west geophysical survey area was established within the boundary of the Burch lot and extending into the Brown lot to the north. Three partial 20 meter by 20 meter grid units were set out in grassy lawn of the Burch lot. The geophysical grid in the Carrigan lot measured 20 meters north-south by

37 meters east-west. One complete 20 m by 20 meter grid unit and one partial 20 meter by 20 meter grid unit were established in the grassy lawn of the Carrigan lot.

Twenty-meter ropes were placed along the east-west base lines connecting the grid unit corners. These ropes formed the north and south boundaries of each grid unit during the data collection phase of the survey. Additional ropes were placed at one-meter intervals across the grid unit in a north-south orientation. These ropes serve as guides during the data acquisition. The ropes were marked with different color tape at half-meter and meter increments designed to help guide the survey effort. Sketch maps were completed for each survey location. The data were acquired across the grid units beginning in the lower left hand corner of each grid unit.

Survey grids: One complete 20 meter by 20 meter grid unit and four partial 20 meter by 20 meter grid units (1,299 m² or 0.32 acres) were surveyed.

Magnetic Gradient Survey

Instrument: Geoscan Research FM36 fluxgate gradiometer (Geoscan Research 1987)

Specifications: 0.05 nT (nanotesla) resolution, 0.1 nT absolute accuracy.

Survey type: magnetic gradient

Operators: Steven De Vore

A magnetic gradient survey is a passive geophysical survey (see Bevan 1998:18-29; Clark 2000:64-98; David 1995:17-20; Gaffney and Gater 2003:36-42,61-72; Gaffney et al. 1991:3-5,2002:7-9; Heimmer and De Vore 1995:7-20,2000:55-58; Kvamme 2001:357-358,2003:441; Lowrie 1997:229-306; Milsom 2003:51-70; Mussett and Khan 2000:139-180; Scollar et al. 1990:375-519; and Weymouth 1986:341-370 for more details of magnetic surveys). The Geoscan Research FM36 fluxgate gradiometer (Figure 7) is a vector magnetometer, which measures the strength of the magnetic field in a particular direction. The sensors must be accurately balanced and aligned along the direction of the field component to be measured. Reference points for balancing and aligning the gradiometer and for zeroing the conductivity meter were selected on each side of the creek. The two magnetic sensors in the instrument are spaced 0.5 meters apart. The instrument is carried so the two sensors are vertical to one another with the bottom sensor approximately 30 cm above the ground. Each sensor reads the magnetic field strength at its height above the ground. The gradient or change of the magnetic field strength between the two sensors is recorded in the instrument's memory. This gradient is not in absolute field values but rather voltage changes, which are calibrated in terms of the magnetic field. The fluxgate gradiometer does provide a continuous record of the magnetic field strength.

The magnetic gradient survey was designed to collect 8 samples per meter along 0.5-meter traverses or 16 data values per square meter. The data were collected in a parallel

fashion with the surveyor maintaining the same direction of travel for each traverse across the grid. A total of 6,400 data values were collected for each complete 20 by 20 meter grid unit surveyed during the project. The magnetic data were recorded in the memory of the gradiometer and downloaded to a laptop computer at the completion of the survey. The magnetic data were imported into Geoscan Research's GEOPLOT software (Geoscan Research 2001) for processing. Both shade relief and trace line plots were generated in the field before the instrument's memory was cleared. Upon completion of the survey, the data were processed in GEOPLOT. The grid data file was transformed into a composite file and a zero mean traverse was applied to remove any traverse discontinuities that may have occurred from operator handling or heading errors. Upon completion of the zero mean traverse function, the data were interpolated by expanding the number of data points in the traverse direction and by reducing the number of data points in the sampling direction to provide a smoother appearance in the data set and to enhance the operation of the low pass filter. This changed the original 8 x 1 data point matrix into a 4 x 4 data point matrix. The low pass filter was then applied over the entire data set to remove any high frequency, small scale spatial detail. This transformation may result in the improved visibility of larger, weak archeological features. The data were then exported as an ASCII dat file and placed in the SURFER 8 contouring and 3d surface mapping program (Golden Software 2002). An image map of the magnetic gradient data was generated for both survey grid areas. The magnetic data from the geophysical survey area at the Burch lot ranged from -205.80 nT to 220.83 nT with a mean of 0.027 nT and a standard deviation of 33.548 nT (Figure 8). The magnetic data from the geophysical survey area at the Carrigan lot ranged from -265.51 nT to 229.32 nT with a mean of -0.244 nT and a standard deviation of 49.119 nT (Figure 9).

Conductivity Survey

Instrument: Geonics EM38 electromagnetic conductivity meter (Geonics 1992) with an Omnidata DL-720 polycorder (Geonics 1998)

Specifications: apparent conductivity of the ground in millisiemens per meter (mS/m); measurement precision $\pm 0.1\%$ of full scale deflection; 100 and 1000 mS/m conductivity ranges (4 digit digital meter).

Survey type: conductivity in the quadrature phase operating mode

Operators: Steven De Vore

The conductivity survey is an active geophysical technique, which induces an electromagnetic field into the ground (see Bevan 1983,1998:29-43; Clark 2000:171; Clay 2001:32-33,2002; Davenport 2001:72-88; David 1995:20; Gafney and Gater 2003:42-44; Gaffney et al. 1991:5,2002:10; Heimmer and De Vore 1995:35-41,2000:60-63; Kvamme 2001:362-363,2003:441-442; Lowrie 1997:222-228; Mussett and Khan 2000:210-219; Scollar et al. 1990:520-590; Weymouth 1986:317-318,326-327 for more details of conductivity surveys). This survey technique measures the apparent soil conductivity. The present survey is conducted with a Geonics EM38 ground

conductivity meter (Geonics 1992). The instrument is lightweight and 1.45 meters in length (Figure 10). The self-contained dipole transmitter (primary field source) and self-contained dipole receiver (sensor) coils are located at opposite ends of the meter. The intercoil spacing is 1 meter.

An electromagnetic field is induced into the ground through the transmitting coil. The induced primary field causes an electric current flow in the earth similar to a resistivity survey. In fact, a conductivity survey is the inverse of a resistivity survey. High conductivity equates to low resistivity and vice versa. The materials in the earth create secondary eddy current loops, which are picked up by the instrument's receiving coil. The interaction of the generated eddy loops or electromagnetic field with the earthen materials is directly proportional to terrain conductivity within the influence area of the instrument. The receiving coil detects the response alteration (secondary electromagnetic field) in the primary electromagnetic field. This secondary field is out of phase with the primary field (quadrature or conductivity phase). The in-phase component of the secondary signal is used to measure the magnetic susceptibility of the subsurface soil matrix.

Changes result from electrical and magnetic properties of the soil matrix. Changes are caused by materials buried in the soil, differences in soil formation processes, or disturbances from natural or cultural modifications to the soil. EM instruments are also sensitive to surface and buried metals. Due to their high conductivity, metals show up as extreme values in the acquired data set. On occasion, these values may be expressed as negative values since the extremely high conductivity signal of the metals cause the secondary coil to become saturated.

In archeology, the instrument has been used to identify areas of compaction and excavation as well as buried metallic objects. It has the potential to identify cultural features that are affected by the water saturation in the soil (Clark 2000; Heimmer and De Vore 1995:35-41). Its application to archeology results from the ability of the instrument to detect lateral changes on a rapid data acquisition, high resolution basis, where observable contrasts exist. Lateral changes in anthropogenic features result from compaction, structural material changes, buried metallic objects, excavation, habitation sites, and other features affecting water saturation (Heimmer and De Vore 1995:37). The conductivity survey can sometimes detect the disturbed soil matrix within the grave shaft. It can also locate large metal objects. Metallic trash on the surface and other small objects buried in the upper portion of the soil can degrade the search of the graves (Bevan 1991:1310).

The meter was connected to the DL720 Polycorder for digital data acquisition (Geonics 1998). The conductivity survey was designed to collect in the continuous or automatic mode with readings collected every 0.25 second resulting in 4 samples per meter. The data were collected in a parallel fashion or unidirectional mode with the surveyor conducting the data acquisition in the same the direction of travel for each traverse across the grid. The data and header files stored in the polycorder were downloaded into the laptop computer at the end of the survey. The survey of the grid unit began in the lower

left hand or southwest corner of the grid. The EM38 was used in the quadrature or conductivity phase, the vertical dipole mode, and one orientation parallel to the direction of travel along the traverses. It provided an exploration depth of approximately 1.5 meters with its effective depth around 0.6 meters in the vertical dipole mode. The instrument was nulled and calibrated at before the start of the survey at the same point used to balance and align the fluxgate gradiometer.

The data were downloaded to a laptop computer at the end of the survey of the geophysical project. The data were processed using the DAT38W software (Geonics 2002). After the transfer of the data and header files to the laptop computer, the files were automatically converted from the raw EM38 format to DAT38 format with the extension name of G38 (Geonics 2002:12-14). The data were then displayed as data profile lines (Geonics 2002:14-15). The individual EM38 data file was then converted to XYZ coordinate file in the Surfer data format. To create the XYZ file, the orientation or direction of the survey line was selected in the DAT38W program along with the data type and format (Geonics 2002:20-23). The resulting XYZ data file was transfer to the SURFER 8 mapping software (Golden Software 2002). The conductivity data were reviewed and an image plot was generated in SURFER 8. To further process the conductivity data, it was transferred to GEOPLOT. The conductivity data were stripped of the X and Y coordinates and then the Z values (measurements) were imported into GEOPLOT for further processing (Geoscan Research 2001). The resulting grid was formatted to form a composite file in GEOPLOT. The interpolation routine was applied to the data set to arrange the data in an equally spaced 4 x 4 square matrix. A high pass filter was then applied over the composite data set. The high pass filter was used to remove low frequency, large scale spatial detail such as a slowly changing geological 'background' trend. The data were then exported as an ASCII *.dat file and placed in the SURFER 8 mapping program. The Northing and Easting coordinates were corrected to actual grid location values. Finally, the data were presented in a gray scale image plot and a contour plot.

The conductivity data were collected along every 0.5-meter traverse at a sampling density of 4 samples per meter or 8 samples per square meter in the two geophysical survey areas. A total of 4,702 data measurements were collected during the survey of the Burch lot and 5,531 data measurements were collected during the survey of the Carrigan lot. The mean for the conductivity data from the Burch lot was 32.670 mS/m with a standard deviation of 7.063 mS/m (Figure 11). The minimum value was -47.61 mS/m and the maximum value was 57.19 mS/m. The mean for the conductivity data from the Carrigan lot was 48.649 mS/m with a standard deviation of 20.560 mS/m (Figure 12). The minimum value was -46.26 mS/m and the maximum value was 141.97 mS/m.

Resistivity Survey

Instrument: Geoscan Research RM15 resistance meter with PA5 multiprobe array (Geoscan Research 1996)

Specifications: 0.05 ohms resolution, 0.1 ohms absolute accuracy.

Survey type: resistance

Operators: Steven De Vore

The resistance survey is an active geophysical technique, which injects a current into the ground (see Bevan 1998:7-18; Carr 1982; Clark 2000:27-63; David 1995: 27-28; Gafaney and Gater 2003:26-36; Gaffney et al. 1991:3-5,2002:7-9; Heimmer and De Vore 1995:29-35,2000:59-60; Kvamme 2001:358-362,2003:441-442; Lowrie 1997:203-219; Milsom 2003:83-116; Mussett and Khan 2000:181-232; Scollar et al. 1990:307-374; and Weymouth 1986:318-341 for more details of resistivity surveys). The voltage is measured and by Ohm's Law, one may compute the resistance at any given point ($R=V/I$ where R is resistance, V is voltage, and I is current). Due to the problem of contact resistance between two electrodes in the ground, a typical resistance survey makes use of four electrodes or probes. The current passes through two electrodes and the voltage is measured between the other two probes. The configuration of the electrodes also varies (see Milsom 1996:73 and Weymouth 1986:324 for common configurations).

Resistance or resistivity changes result from electrical properties of the soil matrix. Changes are caused by materials buried in the soil, differences in soil formation processes, or disturbances from natural or cultural modifications to the soil. In archeology, the instrument is used to identify areas of compaction and excavation, as well as, buried objects such as brick or stone foundations. It has the potential to identify cultural features that are affected by the water saturation in the soil, which is directly related to soil porosity, permeability, and chemical nature of entrapped moisture (Clark 2000; Heimmer and De Vore 1995:30). Its application to archeology results from the ability of the instrument to detect lateral changes on a rapid data acquisition, high resolution basis, where observable contrasts exist. Lateral changes in anthropogenic features result from compaction, structural material changes, buried objects, excavation, habitation sites, and other features affecting water saturation (Heimmer and De Vore 1995:37). The resistivity survey may sometimes detect the disturbed soil matrix within the grave shaft.

The Geoscan Research RM15 resistance meter uses the PA5 multiple probe array (Geoscan Research 1996). Arranged as a twin probe array, a current and voltage probes are located on a mobile frame, which is moved around the site (Figure 13). Two additional probes are located away from the survey area, which also consist of a current probe and voltage probe. The remote probes are set a distance 30 times the mobile probe separation. The probes on the frame are located at a fixed distance apart. A general rule of thumb for the depth investigation of resistance survey is the depth is equal to the distance of probe separation. This value is not a unique number but an average for the volume of soil 0.5 meters depth and a surface radius of 0.5 meters under the center point of the instrument frame. The probes are connected to the resistance meter, which is also on the frame. Wings may be added to the frame to expand the separation distance of the probes; however, this requires the resurvey of the grid for each change in the probe separation distance. The measurement is taken when the mobile probes make contact

with the ground and complete the electrical circuit. The readings are stored in the resistance meter's memory until downloaded to a lap-top computer.

The resistance survey was designed to collect 2 samples per meter along 0.5-meter traverses or 4 data values per square meter. The data were collected in a zigzag fashion with the surveyor maintaining the alternating the direction of travel for each traverse across the grid. A total of 1,600 data values were collected for each complete 20 by 20 meter grid unit surveyed during the project. The resistance data were recorded in the memory of the resistance meter and downloaded to a laptop computer at the completion of the survey. The resistance data were imported into Geoscan Research's GEOPLOT software (Geoscan Research 2001) for processing. Both shade relief and trace line plots were generated before the instrument's memory was cleared. Upon completion of the survey, the data were processed in GEOPLOT. The grid files were combined to form a composite file and further processed in GEOPLOT. The composite file for the Burch lot resistance data was first despiked to remove any erroneous measurements. Despiking may be accomplished with the processing routine in GEOPLOT or manually by editing each individual grid file. The search and replace routine was first applied to the composite file for the Carrigan resistance data to remove the erroneous 204.7 value for the dummy value which was 2047.5. The 2047.5 dummy value was recognized in the processing software and allowed the subsequent processing routines to be applied to the composite data set without using the dummy values in the calculations. The despike function was then applied to the Carrigan resistance data. A high pass filter was applied to the composite data set to remove low frequency, large scale spatial detail such as a slowly changing geological 'background' trend. The data from the Burch lot resistance data after despiking ranged from 13.05 ohms to 29.25 ohms with a mean of 17.131 ohms and a standard deviation of 2.162 ohms (Figure 14). The data from the Carrigan lot resistance data after despiking ranged from 17.10 ohms to 64.75 ohms with a mean of 24.765 ohms and a standard deviation of 4.916 ohms (Figure 15). The data were then exported as an ASCII *.dat file and placed in the SURFER 8 mapping program. The data were gridded and both an image map and a contour map were generated for the Burch lot resistance data and the Carrigan lot resistance data.

Ground Penetrating Radar Survey

Instrument: Geophysical Survey Systems Inc. (GSSI) TerraSIRch SIR System-3000 ground penetrating radar cart system with a 400 mHz antenna (GSSI 2003).

Specifications: SIR 3000: System hardware contains a 512 mb compact flash memory card as its internal memory. Accepts industry standard compact flash memory card up to 2 gb. Processor is a 32-bit Intel StrongArm PISC 206 mHz processor with enhanced 8.4" TFT display, 800 x 600 resolution, and 64k colors. The processor also produces linescan and O-scope displays. The gpr system uses one channel. It also uses the GSSI Model 623 survey cart with survey wheel for mounting the antenna and control unit. The 400 mHz Model 5103 ground coupled antenna has a depth of view of approximately 4 m assuming a ground dielectric constant of 8 with a range of 50 ns, 512 samples per scan,

16 bit resolution; 5 gain points, 100 MHz vertical high pass filter, 800 MHz vertical low pass filter, 64 scans per second, and 100 kHz transmit rate.

Survey type: ground penetrating radar

Operator: Steven De Vore

The ground-penetrating radar (gpr) survey is an active geophysical technique (see Bevan 1998:43-57; Clark 2000:118-120; Conyers 2004; Conyers and Goodman 1997; David 1995:23-27; Gaffney and Gater 2003:74-76; Gaffney et al. 1991:5-6,2002:9-10; Goodman et al. 1995; Heimmer and De Vore 1995:42-47,2000:63-64; Kvamme 2001:363-365,2003:442-443; Lowrie 1997:221-222; Milsom 1996:131-140; Mussett and Khan 2000:227-231; Scollar et al. 1990:575-584; and Weymouth 1986:370-383 for more details of ground penetrating radar surveys). The gpr unit operated an antenna at a nominal frequency of 400 megahertz (MHz). The antenna was mounted in a cart that recorded the location of the radar unit along the grid line (Figure 16). The gpr profiles were collected along 0.5 meter traverses beginning in the southwest corner of the grid block. The data were collected in a zigzag or bidirectional fashion with the surveyor alternating the direction of travel for each traverse across the grid. A total of 81 radar profiles were collected across the project survey area.

Ground penetrating radar surveys generally represent a trade-off between depth of detection and detail. Lower frequency antennas permit detection of features at greater depths but they cannot resolve objects or strata that are as small as those detectable by higher frequency antennas. Actual maximum depth of detection also depends upon the electrical properties of the soil. If one has an open excavation, one can place a steel rod in the excavation wall at a known depth and use the observed radar reflection to calibrate the radar charts. When it is not possible to place a target at a known depth, one can use values from comparable soils. Reasonable estimates of the velocity of the radar signal in the site's soil can be achieved by this method (Conyers and Lucius 1996). Using one of the hyperbolas on a radargram profile (Goodman 2005:76), the velocity was calculated to be approximately 0.07 cm per nanosecond (ns). For a time slice between 5 and 15 ns with the center at 10 ns (two way travel time), the approximate depth to the center of the gpr slice would be 35 cm. With a time window of 100 ns, the gpr profile extended to a depth of 3.5 meters

The survey cart contained a data-logger (SIR 3000) with a display that allowed the results to be viewed almost immediately after they were recorded. The SIR 3000 was set to collect gpr data with the 400 MHz antenna at an antenna transmit rate of 100 MHz and the distance mode selected for use of the survey wheel on the cart. The scan menu was set with 512 samples, 16 bit format, 100 ns range or window, a dielectric constant of 8 (the default value), a scan rate of 100, and 50 scans per meter. In the gain menu, the gain was set to manual with a default value of 3. The gpr system was moved around the grid prior to the start of the survey to adjust the gain. If a location caused the trace wave to go off the screen, the gain was set to auto and then back to manual. The position was set to the manual mode with the offset value at the factory default and the surface display option

set to zero. The filters were left at the default settings. With the setup completed, the run/stop button at the bottom of the display screen was selected and the collect mode was initiated. The gpr unit was moved across the grid and at the end of the traverse, the next file button was selected and data acquisition was halted. The gpr unit was placed at the start of the next line before saving the profile. Once the profile data was saved, the gpr unit was ready to collect the next profile line. The gpr data were recorded on a 512 mb compact flash card and transferred to a lap-top computer at the end of the survey.

The gpr radargram profile line data are imported into GPR-SLICE (Goodman 2005) for processing. The first step in GPR-SLICE is to create a new survey project under the file menu. This step identifies the file name and folder locations. The next step is to create the information file. The number of profiles are entered, along with the file identifier name, .dzt for GSSI radargrams, the profile naming increment of 1, the first radargram name (generally this is 1), direction of profiling, x and y beginning and ending coordinates, units per marker (set to 1), the time window opening in nanoseconds (100 ns), samples per scan (512 s/scn), the number of scans per meter (these profiles were collected at 50 scans per meter), type of data (16 bit). Selecting the create info file button completes the information file for the project. The information file can be edited if necessary to correct profile lengths. The 16-bit GSSI radargrams are imported into the GPR-SLICE project folder for further processing. The 16-bit data are then converted to remove extraneous header information and to regain the data. During the conversion process, the signal is enhanced by applying gain to the radargrams. Once the conversion process is completed, the next step is to reverse the profile data. Since the radargrams were collected in the zigzag mode, every even line needs to be reversed. The reverse map button shows the radargrams that are going to be reversed. The next step is to insert navigation markers into the resample radargrams. The GSSI SIR 3000 and the artificial markers button are selected to apply markers based on the total number of scans in the radargram. The show markers button allows one to view an example of a radargram with the artificial markers in place. The next step is to create the time slices of the profile data (Conyers and Goodman 1997; Goodman et al. 1995). The program resamples the radargrams to a constant number of scans between the markers and collects the time slice information from the individual radargrams. The number of slices is set to 20 slices. The slice thickness is set to 30 to allow for adequate overlap between the slices. The offset value on the radargram where the first ground reflection occurs is viewed in the search 0 ns subroutine. This value is used to identify the first radargram sample at the ground surface. The end sample is 512. The offset value is entered in the samples to 0 ns box. The cut parameter is set to square amplitude with the cuts per mark set to 4. The slice/resample button is selected for processing the radargrams. The final step in the slice menu is to create the XYZ data file. The grid menu is entered next in the processing steps. The beginning and ending values for the x and y coordinate are entered. The help set button is selected to set the x search radius, y search radius and the blanking radius. The grid cell size is set to 0.1 and the search type is rectangular. The number of grids equal 20 for the number of slices, and the starting grid number is 1. The Kriging algorithm is utilized to estimate the interpolated data. The Varigram button is selected to set the Kriging range, nugget and sill parameters. The start gridding button is selected and the gridded dataset is created. In this menu, a low pass filter may be applied to the

dataset to smooth noisy data in the time slices. At this point, one may view the time sliced radar data in the pixel map menu. Figure 17 and 18 illustrate the time slices from the Burch lot and the Carrigan lot, respectively. In addition, the original processed grid slices and the low pass filtered grid slices can be exported in the Surfer grid format. The surfer grid file is transformed into an image plot in Surfer. Generally, one time slice is selected for further display and analysis. Time slice 3 (Figure 19) was selected from the Burch lot gpr data and time slice 6 (Figure 20) was selected from the Carrigan gpr data. The gain may be readjusted for any time slice. This is done in the transforms submenu. The interpolations value is set to 5 and the interpolate grids routine is selected. The new interpolated grids are all normalized. The next step is to create the 3D dataset in the grid menu. The number of grids is now equal to 95 $((20-1)*5)$. The 3D database is created under the create 3D file routine. The 3D data may be displayed as a series of z slices in the creation of a 3D cube with a jpeg output for animating the 3D cube.

Interpretations

Andrew David (1995:30) defines interpretation as a “holistic process and its outcome should represent the combined influence of several factors, being arrived at through consultation with others where necessary.” Interpretation may be divided into two different types consisting of the geophysical interpretation of the data and the archaeological interpretation of the data. At a simplistic level, geophysical interpretation involves the identification of the factors causing changes in the geophysical data. Archeological interpretation takes the geophysical results and tries to apply cultural attributes or causes. In both cases, interpretation requires both experience with the operation of geophysical equipment, data processing, and archeological methodology; and knowledge of the geophysical techniques and properties, as well as known and expected archeology. Although there is variation between sites, several factors should be considered in the interpretation of the geophysical data. These may be divided between natural factors, such as geology, soil type, geomorphology, climate, surface conditions, topography, soil magnetic susceptibility, seasonality, and cultural factors including known and inferred archeology, landscape history, survey methodology, data treatment, modern interference, etc. (David 1995:30). It should also be pointed out that refinements in the geophysical interpretations are dependent on the feedback from subsequent archeological investigations. The use of multiple instrument surveys provides the archeologist with very different sources of data that may provide complementary information for comparison of the nature and cause (i.e., natural or cultural) of a geophysical anomaly (Clay 2001). Each instrument responds primarily to a single physical property: magnetometry to soil magnetism, electromagnetic induction to soil conductivity, resistivity to soil resistance, and ground penetrating radar to dielectric properties of the soil to (Weymouth 1986:371).

Burch Lot Geophysical Survey Results. The magnetic gradient data from the Burch lot contains numerous dipole and monopole magnetic anomalies (Figure 21). These anomalies are spread across the lot with a major concentration in the eastern half. The western portion of the geophysical survey area contains a lighter density of magnetic anomalies. It should also be noted that the west, south, and east edges of the survey area

contain numerous magnetic anomalies; however, the vast majority of these reflect effects of iron spikes or nails in the board fences that surround the lot in these areas.

A few point conductivity anomalies are present in the conductivity data from the Burch lot (Figure 22). The point conductivity anomalies are associated with metal artifacts. The conductivity anomalies also appear to be concentrated in the eastern half of the geophysical survey grid. Comparing the conductivity anomalies with the magnetic gradient anomalies, one can make several observations. For the overlapping magnetic gradient and conductivity anomalies, it is probable that these anomalies represent ferrous or iron based artifacts. In the cases where there is no corresponding magnetic gradient anomaly, the conductivity point anomaly typically represents a metal object but is not a ferrous based metal (i.e., it does not contain iron nor is it magnetic in nature). In the cases where there is no corresponding conductivity anomaly to the magnetic gradient anomaly, it is generally assumed that the magnetic gradient anomaly represents a non-metal object that contains ferrous compounds (e.g., bricks or fired clay), a thermal related feature (fire hearth, burned structure, etc.), or a disturbed area of soil (e.g., a pit, trench, or other type of soil disturbance).

The resistance data from the Burch lot appears to be the result of moisture concentrations in surface depressions or low spots (Figure 23). A linear depression is located along the north side of the survey area. It appears to represent the location of the property boundary between the Burch lot and the adjacent Brown lot. Two smaller resistance areas are located in the middle and eastern portion of the lot. These occur in low areas noticed during the survey. It is possible that these anomalous areas may relate to buildings that were once present on the lot.

The ground penetrating radar data from the Burch lot indicates the presence of a few high amplitude strength anomalies (Figure 24). The time slice 3 from 6.4 to 10.5 ns (22 cm to 36 cm) was selected as a representative gpr layer. Some of these occur in the same location as the magnetic gradient and conductivity anomalies, which suggest that these ground penetrating radar anomalies represent the location of metal objects. The central portion of the lot seems to consist of a polyhedral area of lower amplitude strength. The exact cause of this anomaly is presently unknown but may be the result of natural factors or more recent park landscaping activities.

By combining the four complementary data sets, it appears that the Burch lot contains a relatively dense sheet midden of cultural materials. However, there is no direct evidence of building foundations or outlines related to the Burch House or subsequent buildings known to have been constructed on the lot. It is still possible that such features exist but lack sufficient change in the measured geophysical properties for the instruments to detect.

Carrigan Lot Geophysical Survey Results. The magnetic gradient data from the Burch lot contains numerous dipole and monopole magnetic anomalies, as well as, linear concentrations of magnetic gradient anomalies (Figure 25). A small portion of the lot along the northern edge of the geophysical survey grid was not surveyed due to the dense

row of bushes separating the Carrigan lot from the Bugg lot. The major concentrations of magnetic gradient anomalies occur in four areas. One area near the north central portion of the lot appears to be associated with the location of the Carrigan House. This includes the portion of the grid that was not surveyed. The three other concentrations appear to be related to buried utility lines including the fire suppressant water line and electrical lines. It should also be noted that the west and south edges of the survey area contain numerous magnetic anomalies; however, the vast majority of these reflect effects of iron spikes or nails in the board fences that surround the lot in these areas and other recent features (i.e., concrete pads, electrical outlets, etc.) associated with the Lincoln Home in the lot to the south of the Carrigan lot. The eastern side of the survey area is also affected by ferrous materials in the concrete pad and storage building. The rear of the lot along the southern and eastern side of the survey area, which would have been the historical yard, appears to contain a light scattering of historic materials.

A few point and linear conductivity anomalies are present in the conductivity data from the Carrigan lot (Figure 26). The point conductivity anomalies are associated with metal artifacts. Comparing the conductivity anomalies with the magnetic gradient anomalies, one can make several observations. For the overlapping magnetic gradient and conductivity anomalies, it is probable that these anomalies represent iron based artifacts. In the cases where there is no corresponding magnetic gradient anomaly, the conductivity point anomaly typically represents a metal object that is not a ferrous based metal (i.e., it is not magnetic in nature). In the cases where there is no corresponding conductivity anomaly to the magnetic gradient anomaly, it is generally assumed that the magnetic gradient anomaly represents a non-metal object (e.g., bricks or other house demolition debris), a thermal related feature (fire hearth, burned structure, etc.), or a disturbed area of soil (e.g., a pit, trench, or other type of soil disturbance). In the north central portion of the survey grid where magnetic gradient anomalies suggested the location of the Carrigan House, a concentration of conductivity highs and lows also suggest the former house location. The conductivity data provides excellent identification of buried utility lines as noted in the data. At least seven buried utility lines or portions of lines are present. These include the water suppressant line, electrical lines, and possibly gas lines. Concrete pads along the southern edge of the lot are visible in the data. There also appear to be some related edge effects from the two fence lines.

The resistance data from the Carrigan lot contains a few conductivity anomalies which appear associated with the former location of the Carrigan House and with the buried utility lines (Figure 27). The house location is identified by a high resistance anomaly. This anomaly may indicate the presence of foundations and demolition debris. Some of the utilities lines are indicated by linear resistance lows.

The ground penetrating radar data from the Carrigan lot indicates the presence of a few high amplitude strength anomalies (Figure 28). A small portion of the lot along the northern edge of the geophysical survey grid was not surveyed due to the dense row of bushes separating the Carrigan lot from the Bugg lot. The time slice 6 from 16.2 to 20.2 ns (56 cm to 70 cm) was selected as a representative gpr layer. Some of these occur in the same location as the magnetic gradient and conductivity anomalies, which suggest

that these ground penetrating radar anomalies represent the location of metal objects. Two areas in the north central part of the grid are located in the area identified as the location of the Carrigan House. These may be related to foundations, walls, cellar, or other structural features. Two areas in the southwest corner and along the east side of the survey grid occur in the same location as buried utility lines identified in the other geophysical surveys. Finally, a small high amplitude gpr anomaly is located in the northwest corner of the grid. It is possible that this is a relatively large piece of metal. But its exact nature is presently unknown.

By combining the four complementary data sets, it appears that the Carrigan lot contains a relatively dense concentration of geophysical anomalies. Several of these occur in the north central portion of the survey area where the Carrigan House was formerly located. Other linear anomalies and concentration of anomalies represent the locations of buried utility lines. Numerous magnetic gradient dipoles in the eastern section of the survey area may also represent the discard of historic materials during the occupation of the Carrigan House, and later, the Corneau House. It is still possible that other structural related features of outbuildings may exist but lack sufficient changes in the measured geophysical properties for the instruments to detect.

Conclusions

During May 2005, Midwest Archeological Center staff conducted geophysical investigations at the Burch and Carrigan lots at Lincoln Home National Historic Site in Springfield, Illinois. The lots were selected for the present project to gather information on the possible location of house structural modifications and outbuilding locations in advance of the Midwest Archeological Center's preliminary evaluative archeological testing of the two lots for a proposed reconstruction project. The geophysical investigations included a magnetic gradient survey with a fluxgate gradiometer, a resistance survey with a resistance meter and twin probe array, a conductivity survey with a ground conductivity meter, and a ground penetrating radar survey with a ground penetrating radar cart system and 400 mHz antenna on both lots. A total of 1,299 square meters or 0.32 acres were surveyed with the geophysical instruments. The surveys resulted in the identification of numerous subsurface anomalies. At the Burch Lot, the results of the geophysical survey indicated the presence of an extensive sheet midden but did not identify any buried building or structural features. Examination of the Carrigan Lot geophysical data suggest the location of buried structural features associated with the Carrigan House and a possible historic sheet midden. In addition, numerous buried utility lines were also identified. Analysis of the geophysical data from both lots also indicated substantial modification to the original historic deposit from later 19th and 20th century building episodes, as well as, more recent park related landscaping and utility excavation activities.

This report has provided a cursory review and analysis of the geophysical data collected during the geophysical investigations of the Burch lot and Carrigan lot project areas. This information will be used by the Midwest Archeological Center and the Lincoln Home National Historic Site staffs to guide further archeological inquiry into the nature

of the site and help direct future National Park Service archeological excavations in both lots at Lincoln Home National Historic Site.

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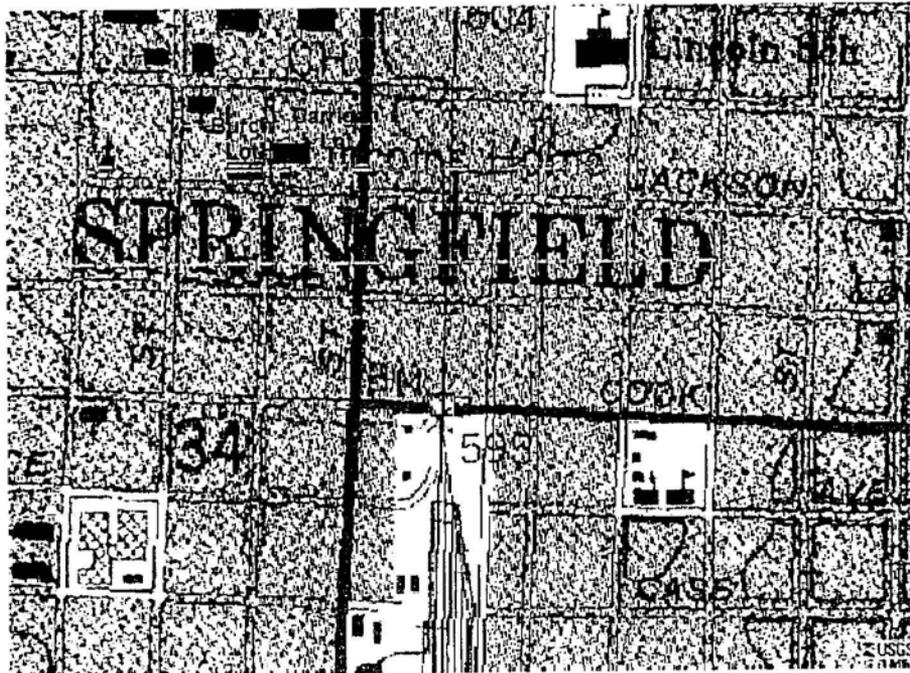
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Figures



a) Springfield, Illinois quadrangle (USGS 7.5 minute topographic series 01 July 1994).



b) Springfield, Illinois, United States (USGS aerial photograph, 14 April 1998).

Figure 1. Location of the project area at the Lincoln Home National Historic Site, Springfield, Illinois.

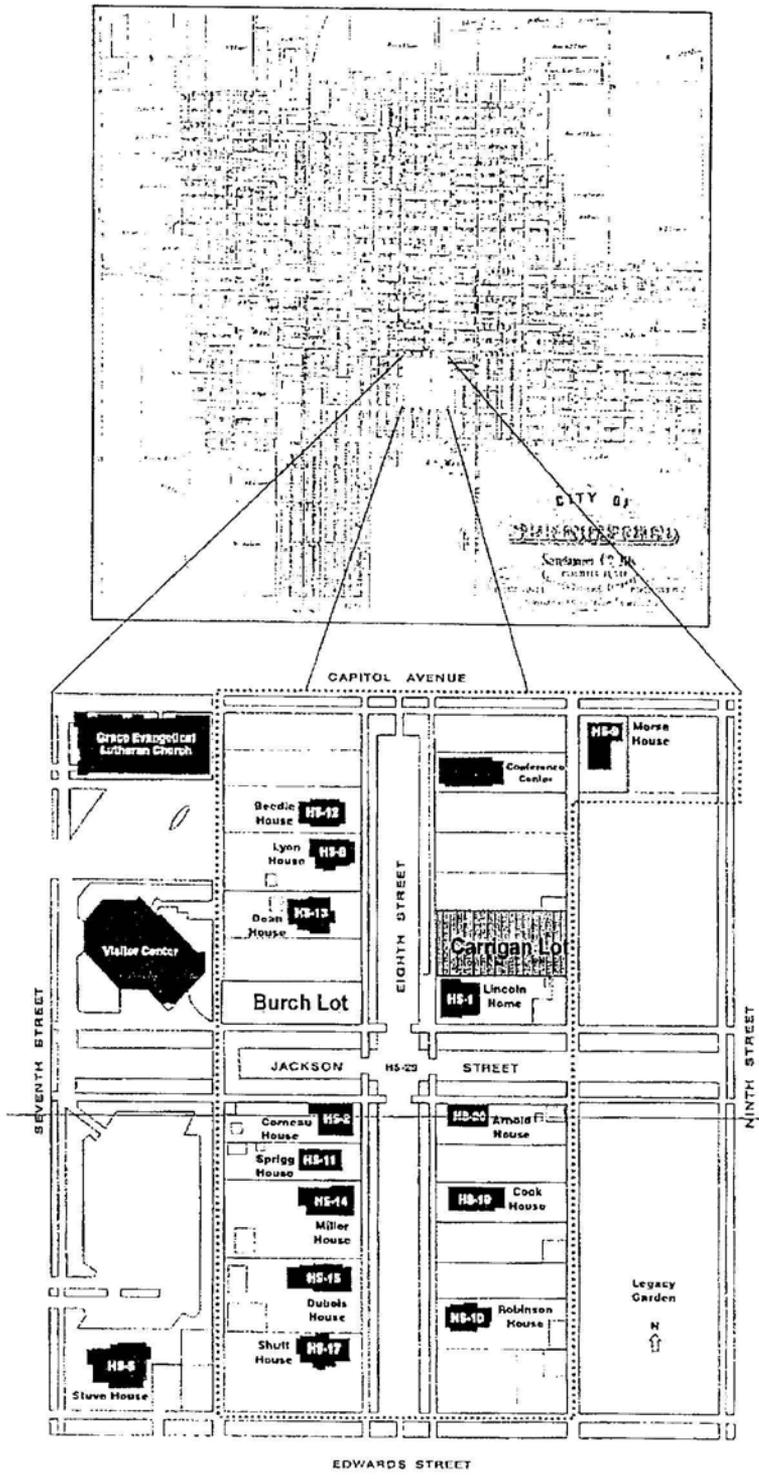


Figure 2. Location of the Burch and Carrigan lots at Lincoln Home National Historic Site (adapted from Angle 1935 and Osborn 2001).

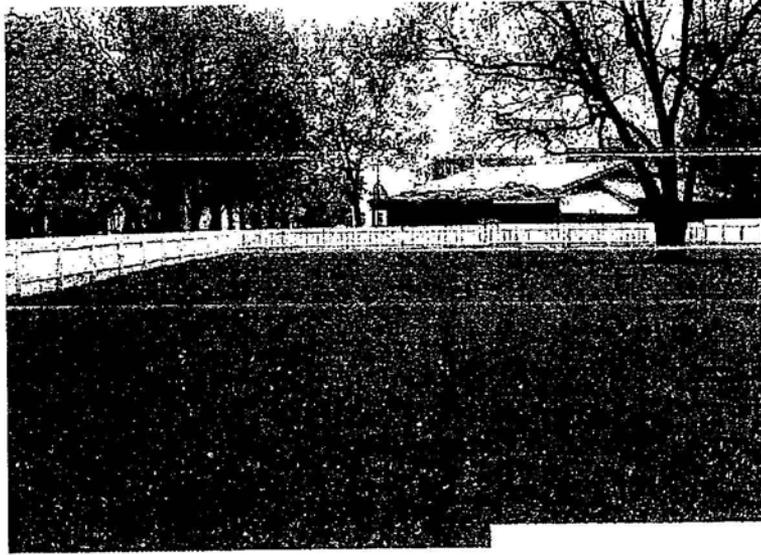


Figure 3. General location of the Burch lot (view to the west).

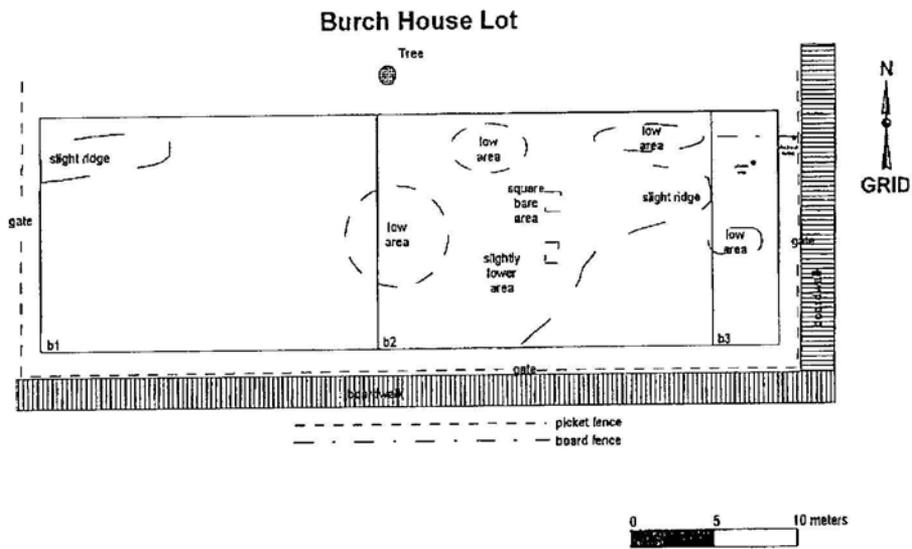


Figure 4. Sketch of natural and cultural surface features in the Burch lot.

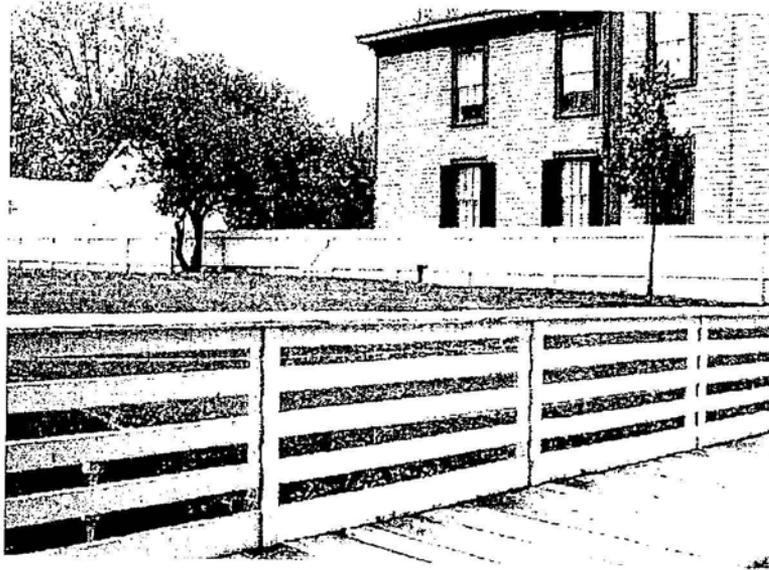


Figure 5. General location of the Carrigan lot (view to the southeast).

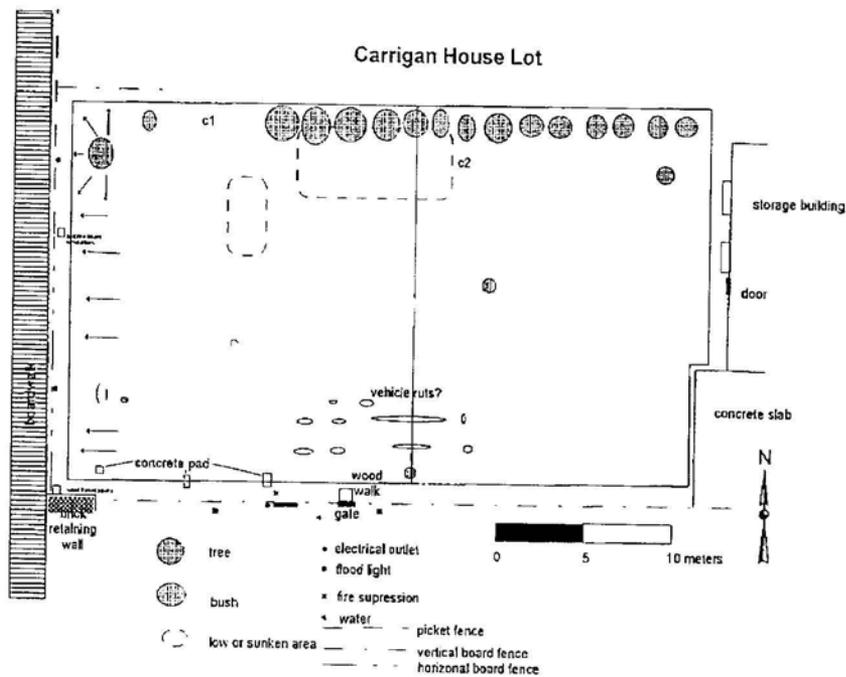


Figure 6. Sketch of natural and cultural surface features in the Carrigan lot.



Figure 7. Conducting magnetic gradient survey with fluxgate gradiometer (view to the south).

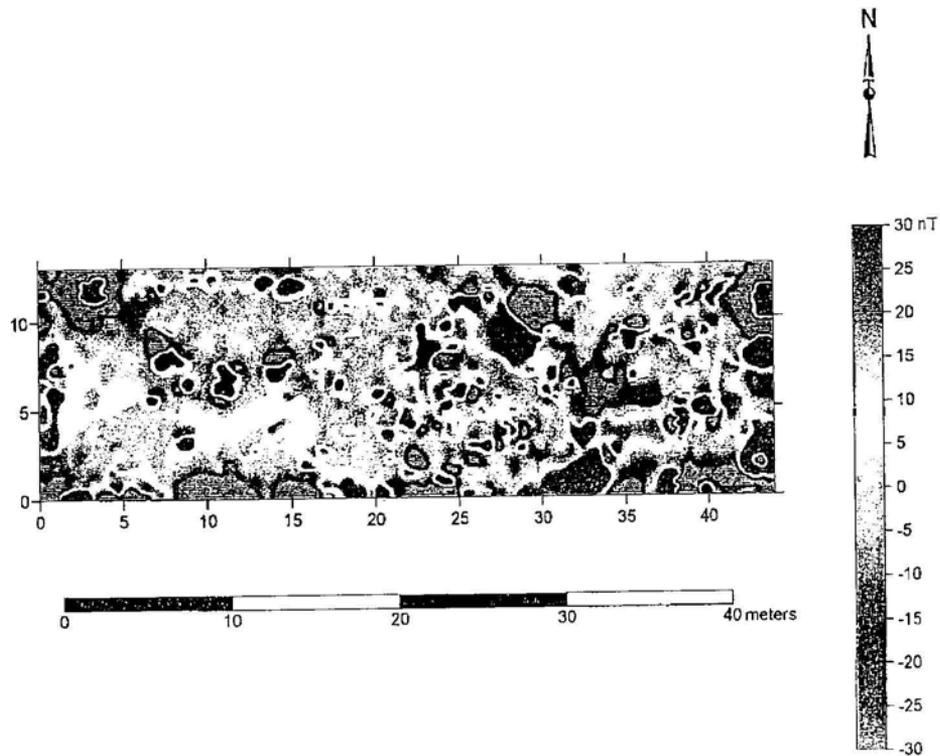


Figure 8. Image plot of magnetic gradient data from the Burch lot.

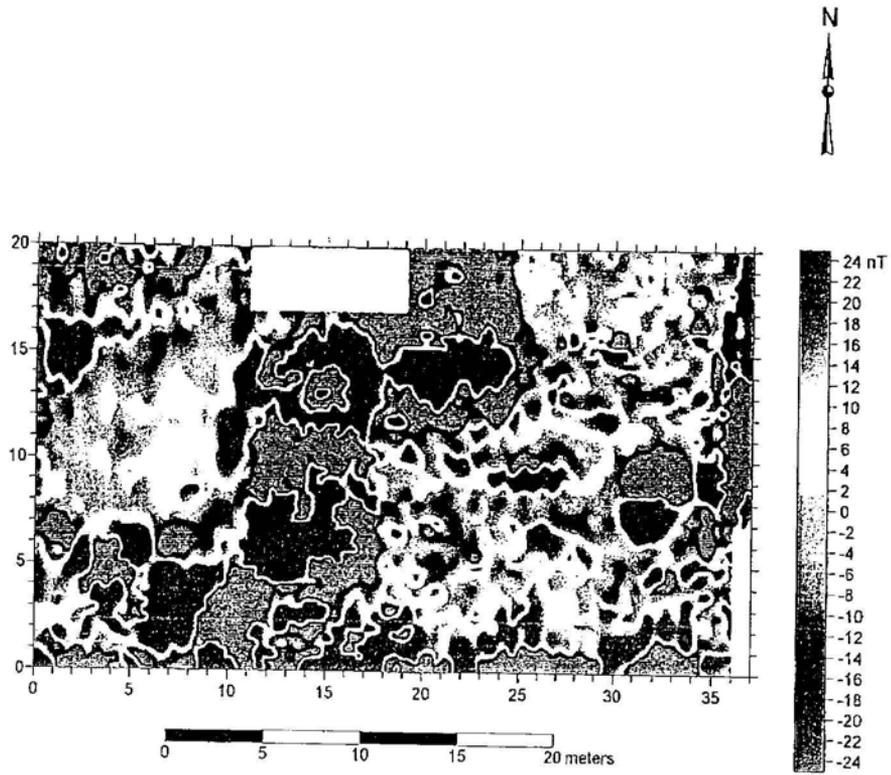


Figure 9. Image plot of magnetic gradient data from the Carrigan lot.



Figure 10. Conducting conductivity survey with ground conductivity meter (view to the southwest).

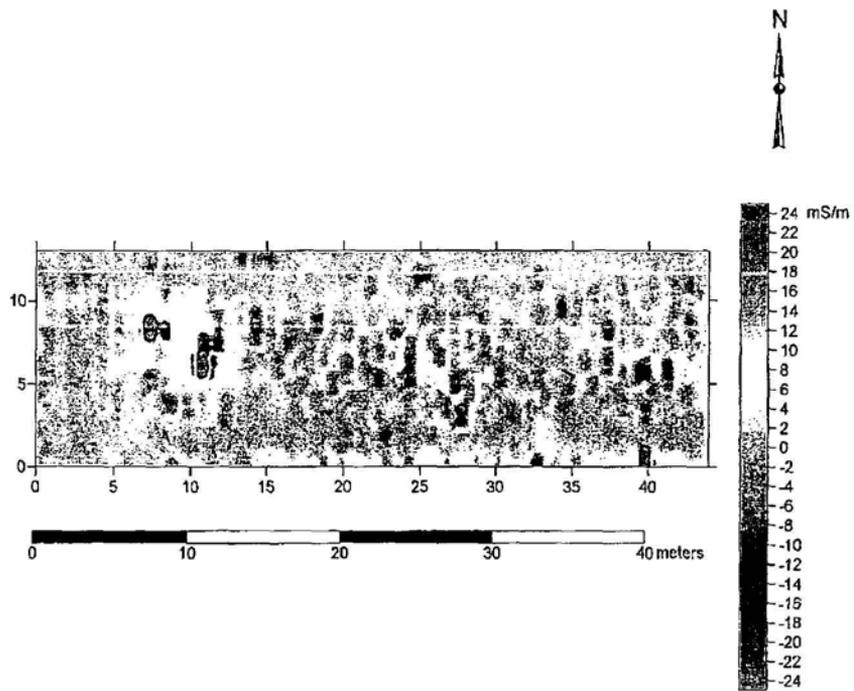


Figure 11. Image plot of conductivity data from the Burch lot.

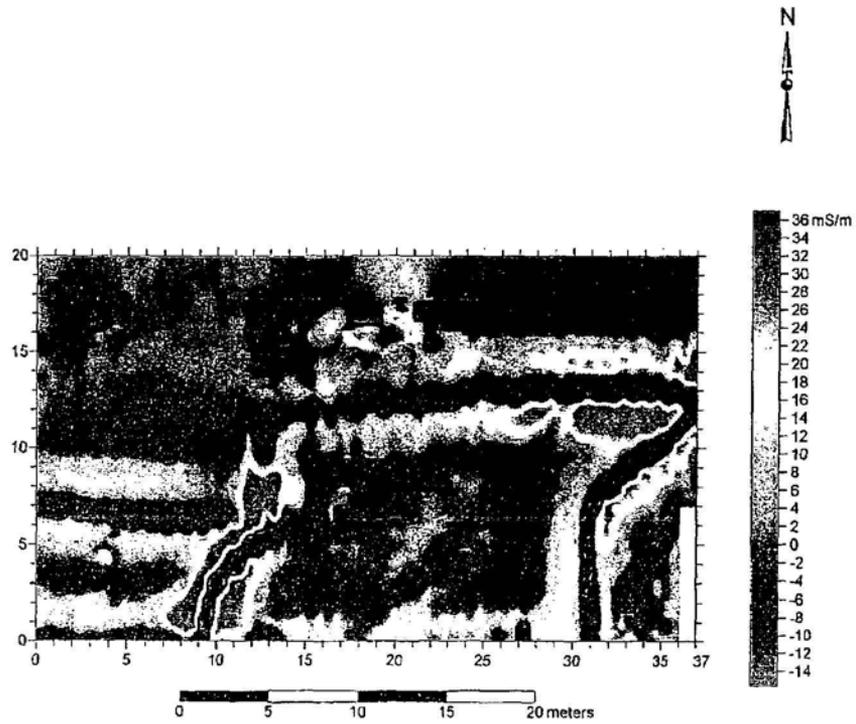


Figure 12. Image plot of conductivity data from the Carrigan lot.

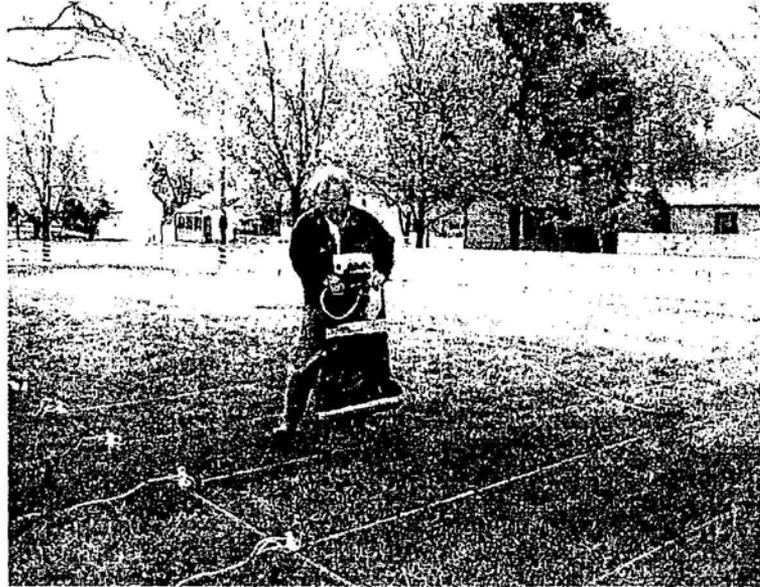


Figure 13. Conducting resistance survey with resistance meter and twin probe array (view to the east southeast).

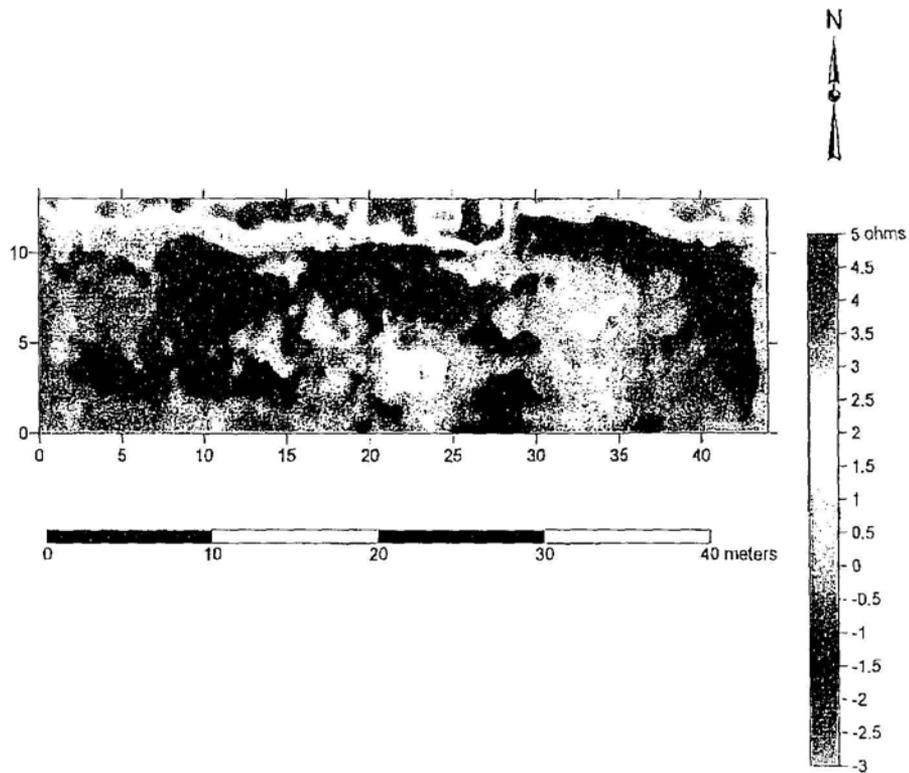


Figure 14. Image plot of resistance data from the Burch lot.

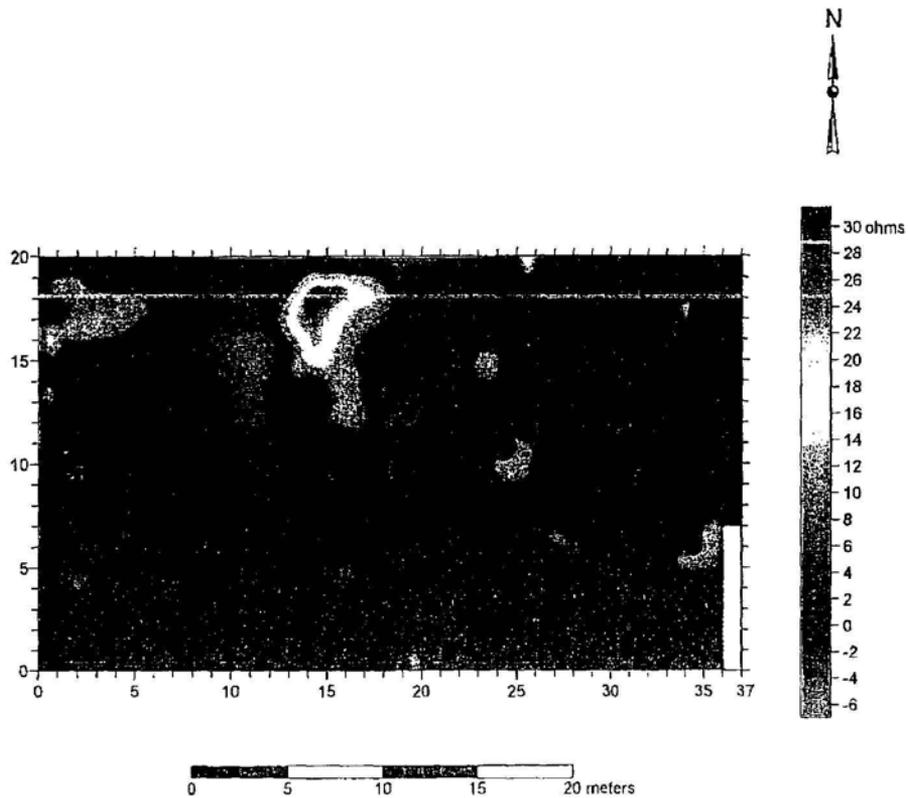


Figure 15. Image plot of resistance data from the Carrigan lot.

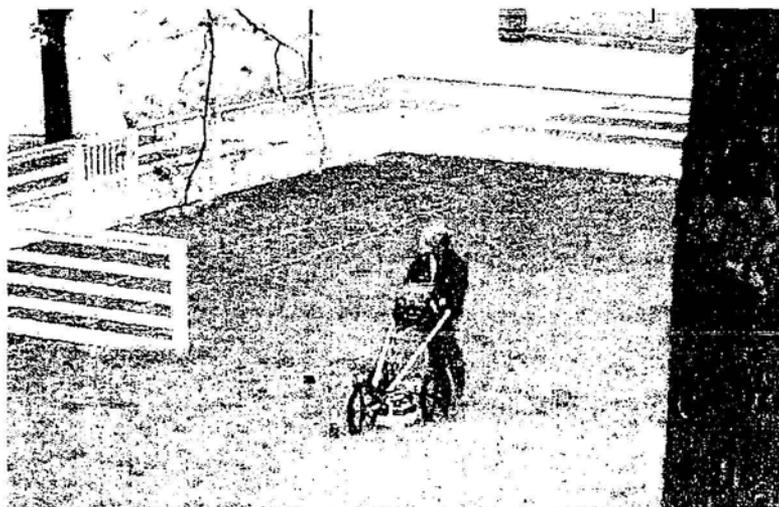


Figure 16. Conducting ground penetrating radar survey with gpr cart system and 400 mHz antenna (view to the southeast).

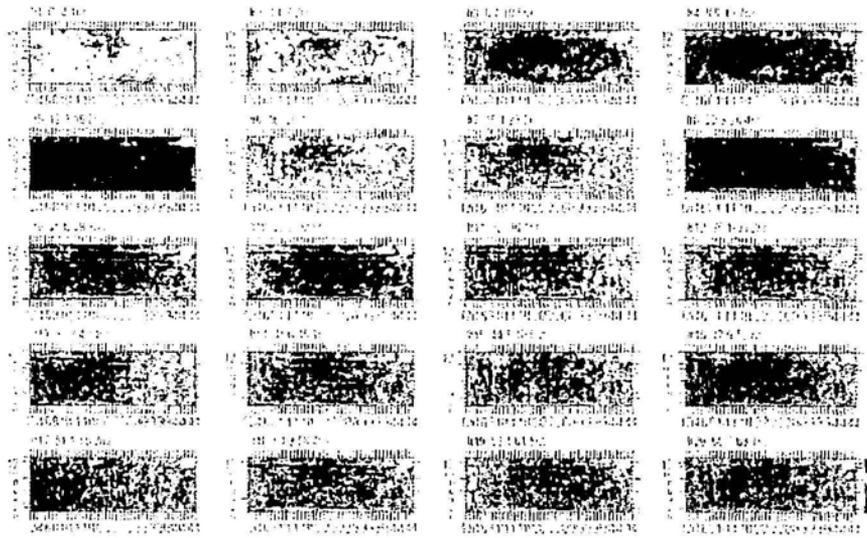


Figure 17. Time slices of ground penetrating radar data from the Burch lot.

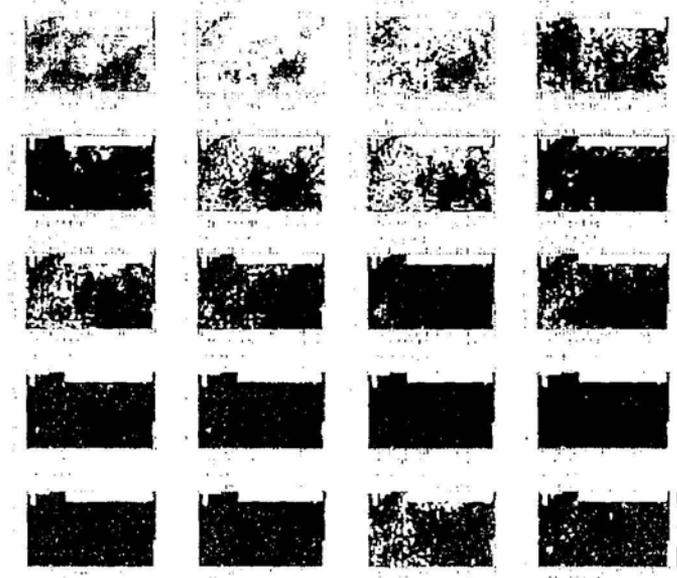


Figure 18. Time slices of ground penetrating radar data from the Carrigan lot.

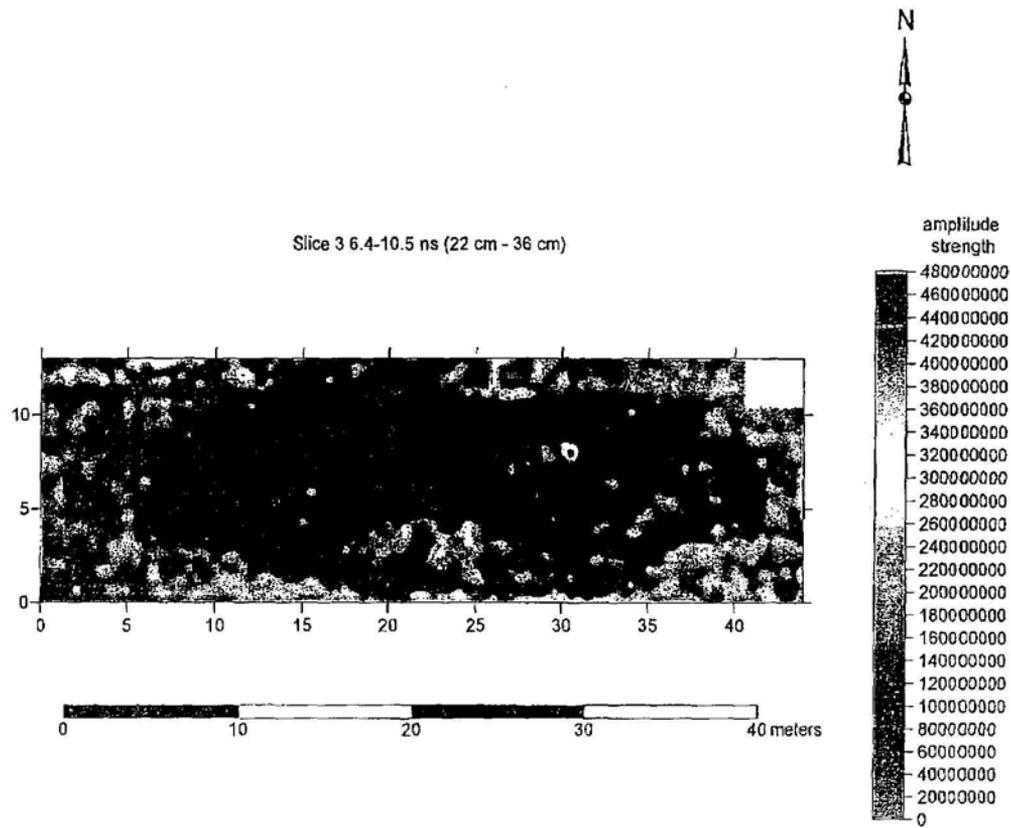


Figure 19. Image plot of time slice 3 data from the Burch lot.

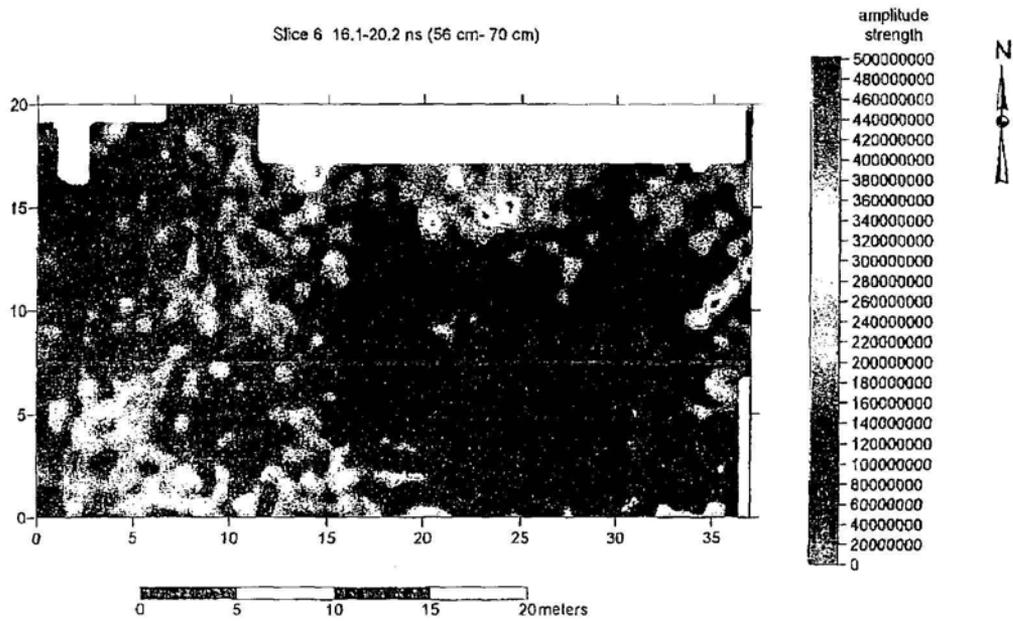


Figure 20. Image plot of time slice 6 data from the Carrigan lot.

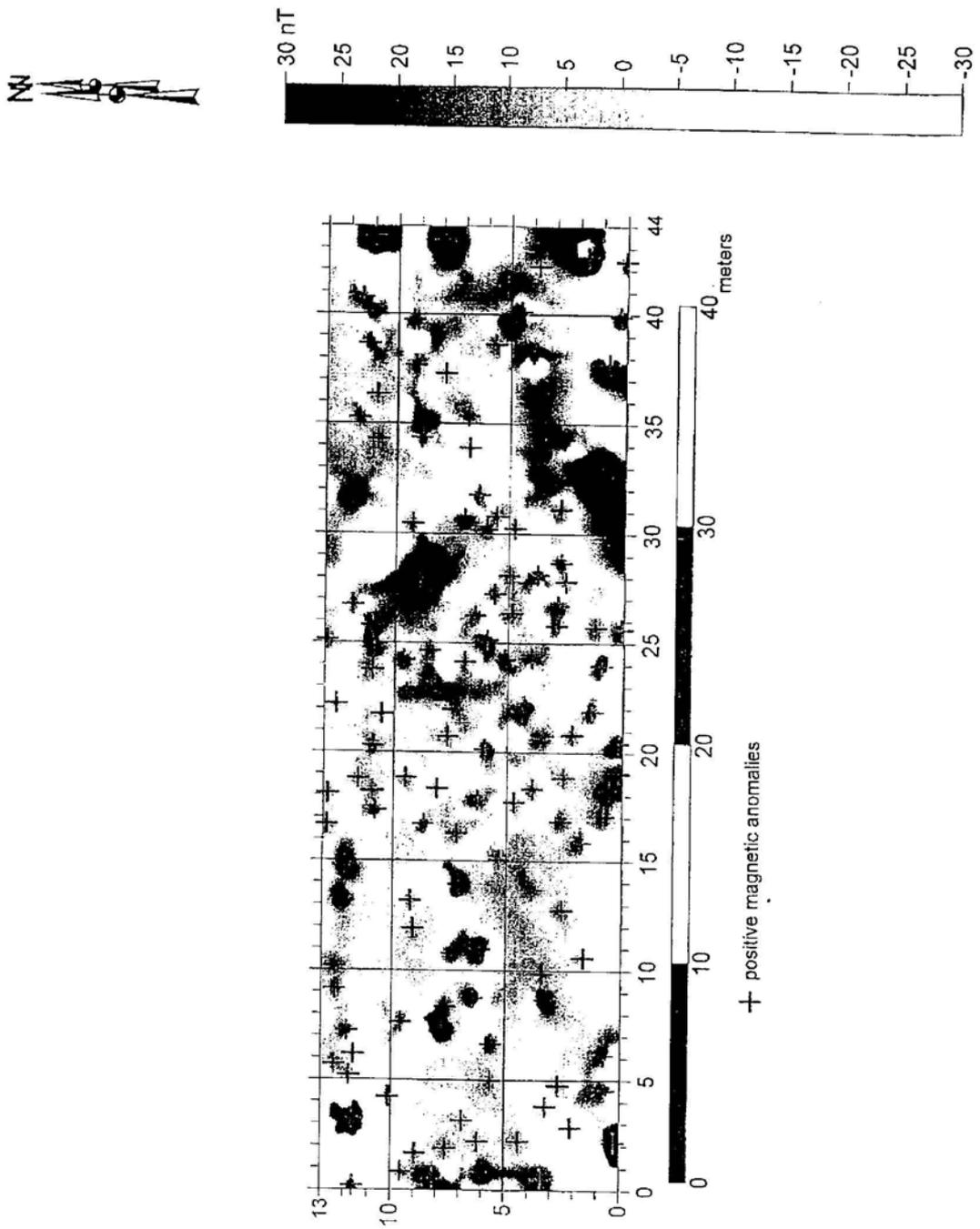


Figure 21. Interpretative map of magnetic gradient data from the Burch lot.

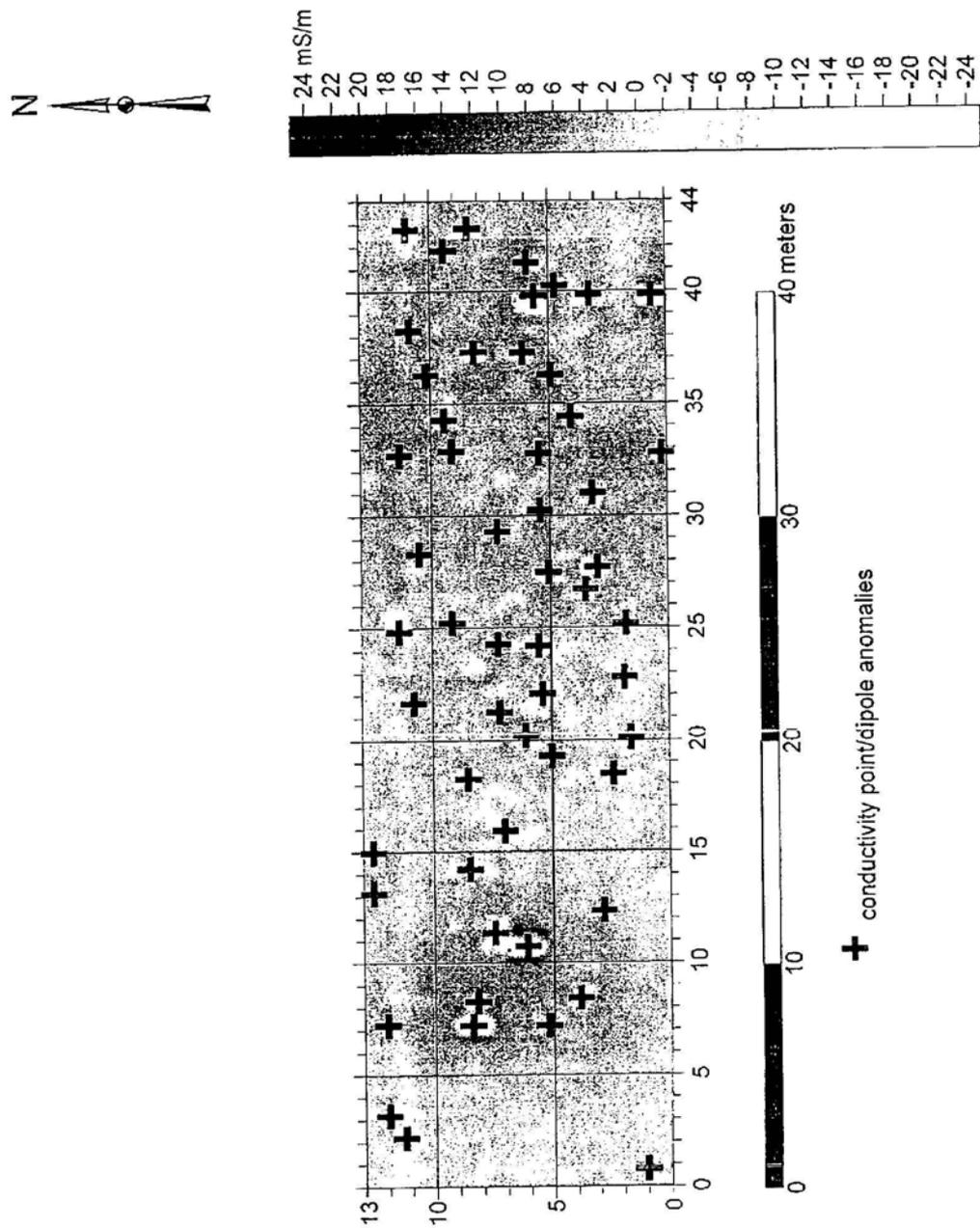


Figure 22. Interpretative map of conductivity data from the Burch lot.

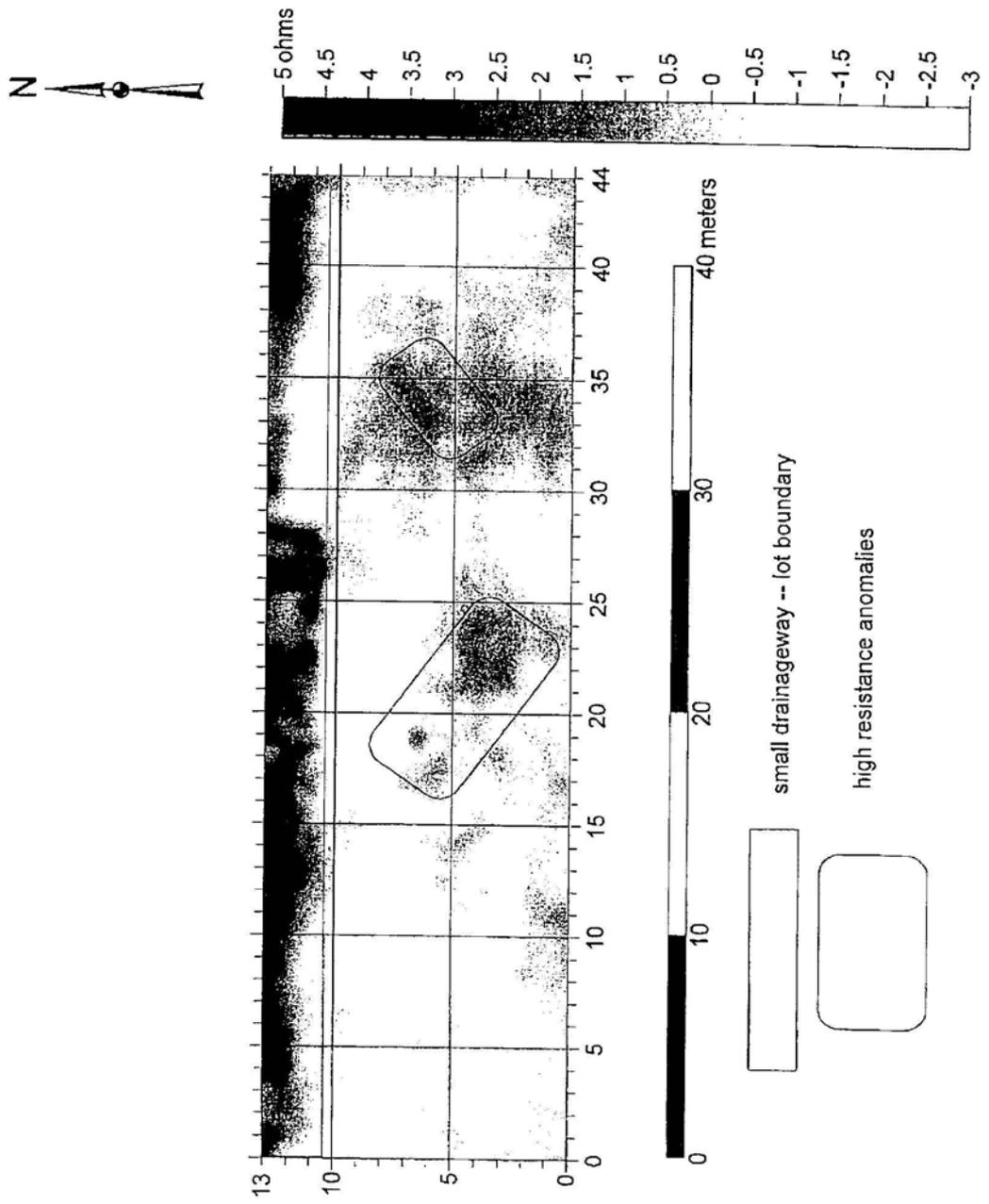


Figure 23. Interpretative map of resistance data from the Burch lot.

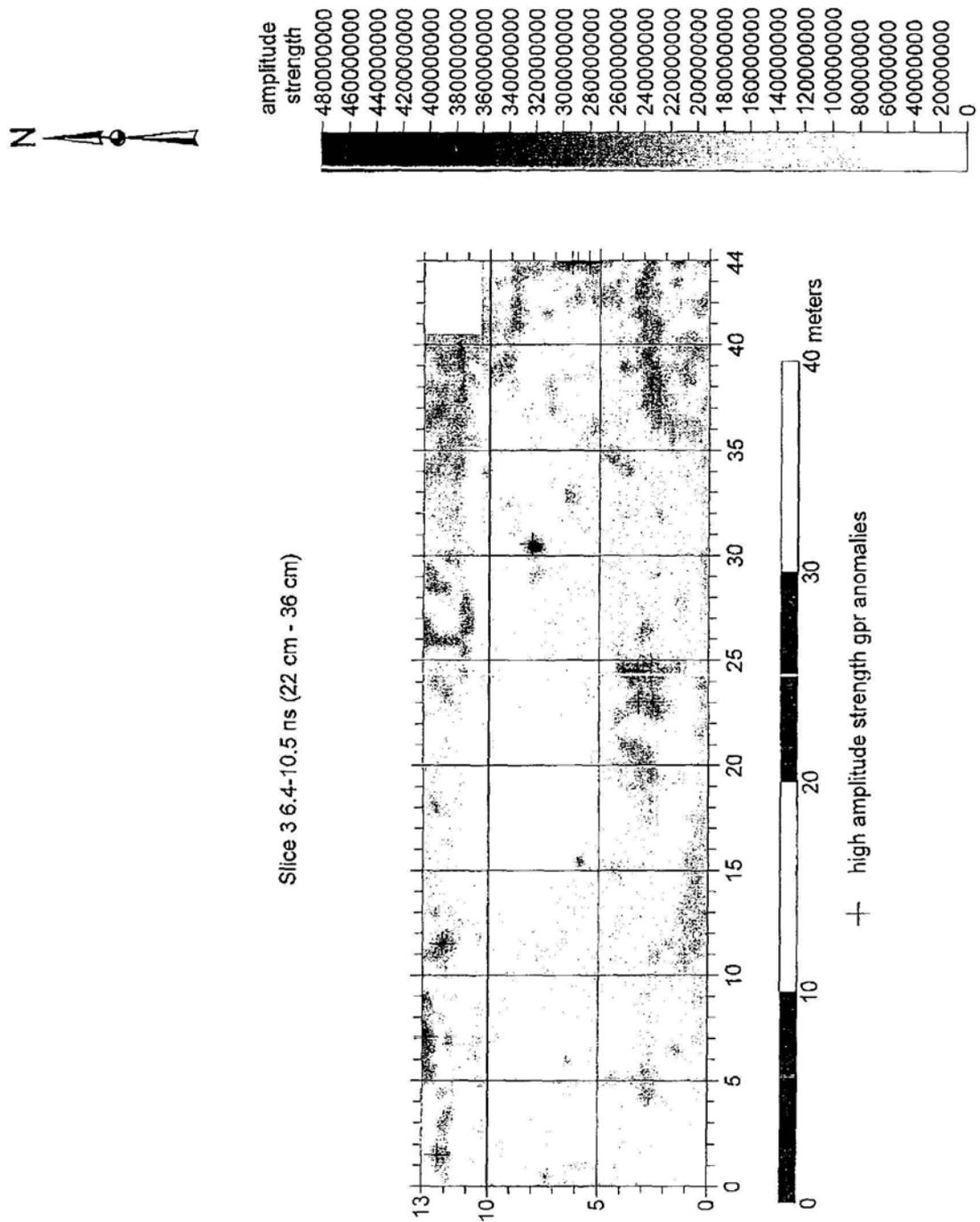


Figure 24. Interpretative map of time slice 3 gpr data from the Burch lot.

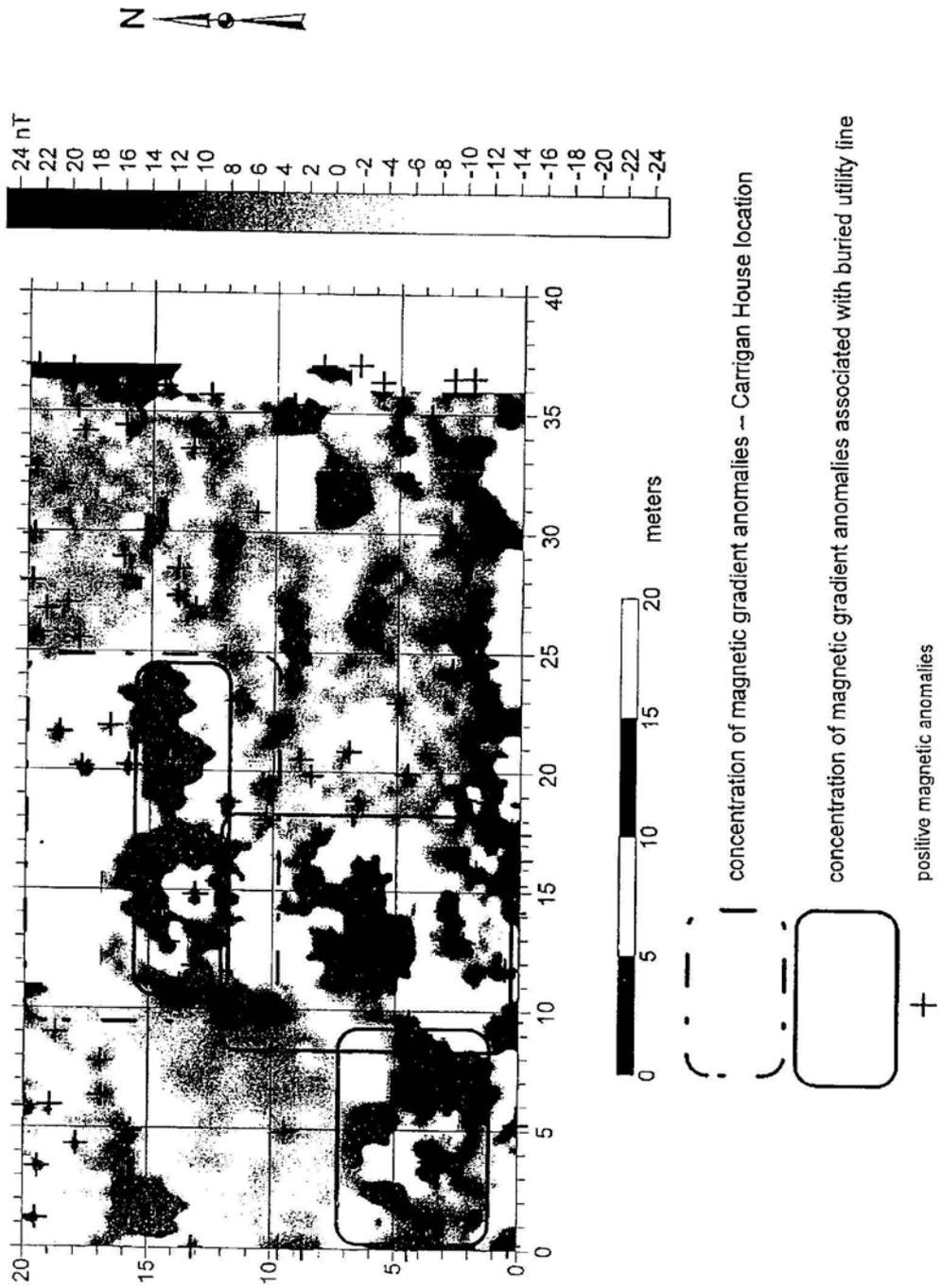


Figure 25. Interpretative map of magnetic gradient data from the Carrigan lot.

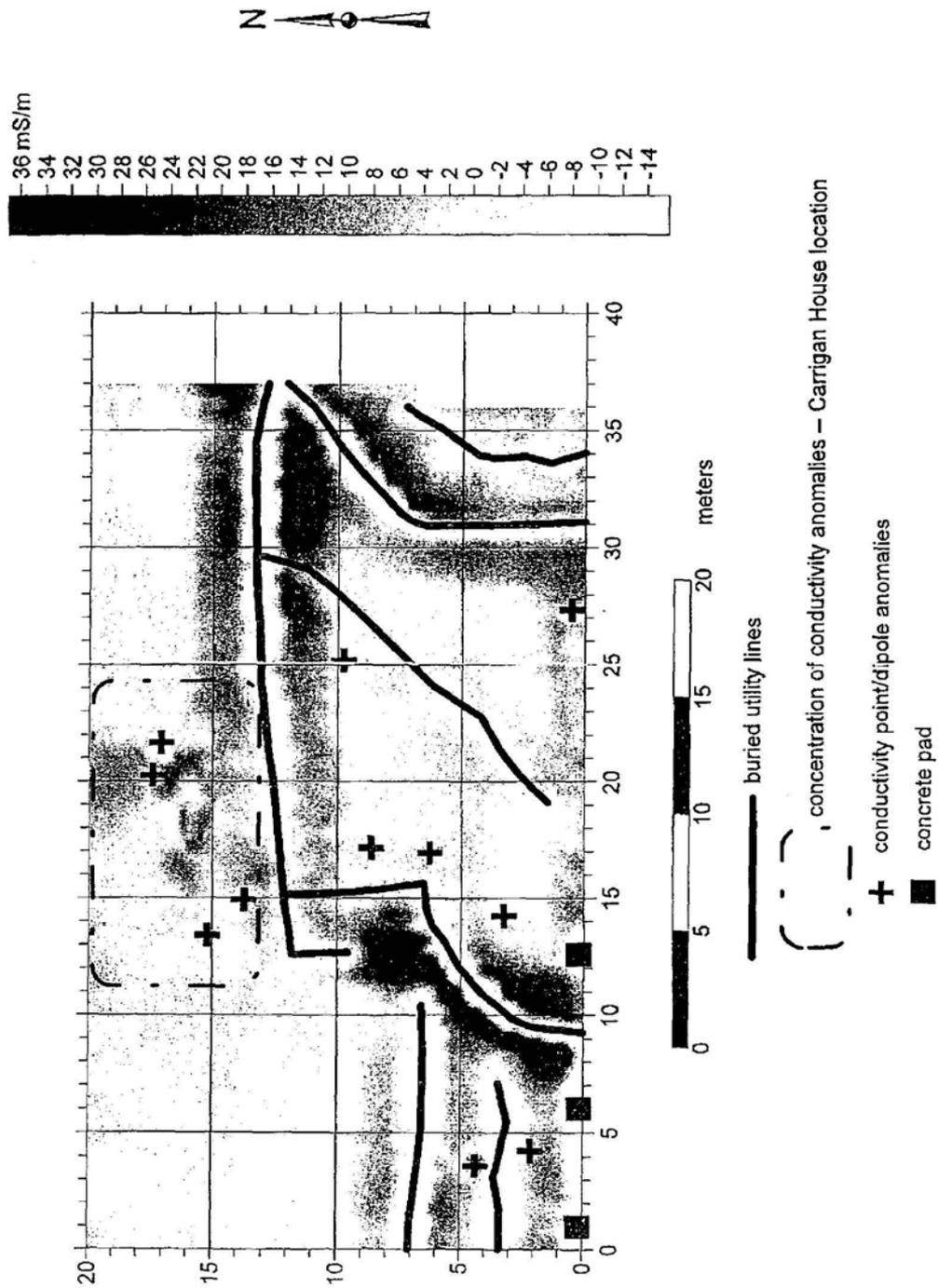


Figure 26. Interpretative map of conductivity data from the Carrigan lot.

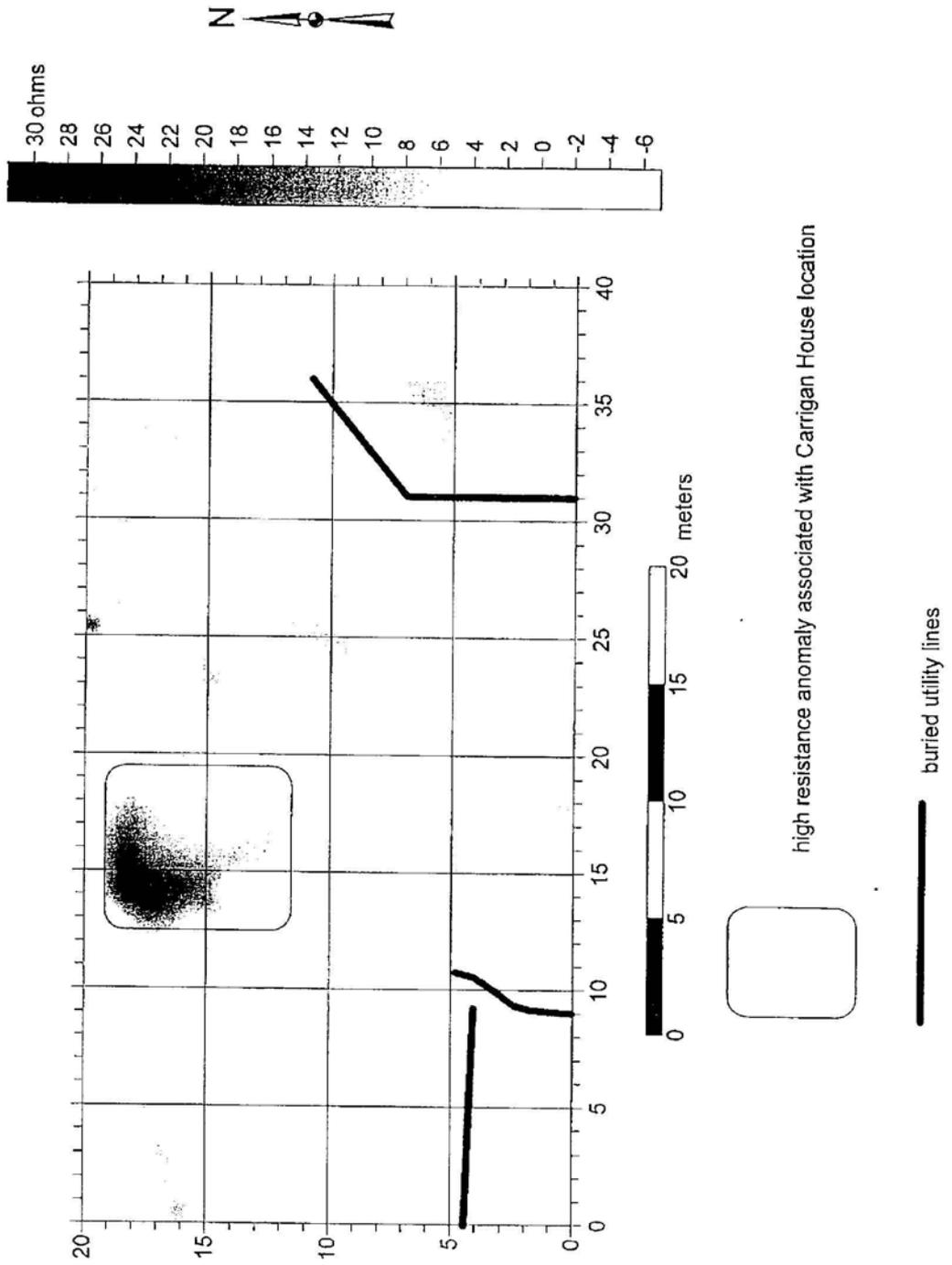


Figure 27. Interpretative map of resistance data from the Carrigan lot.

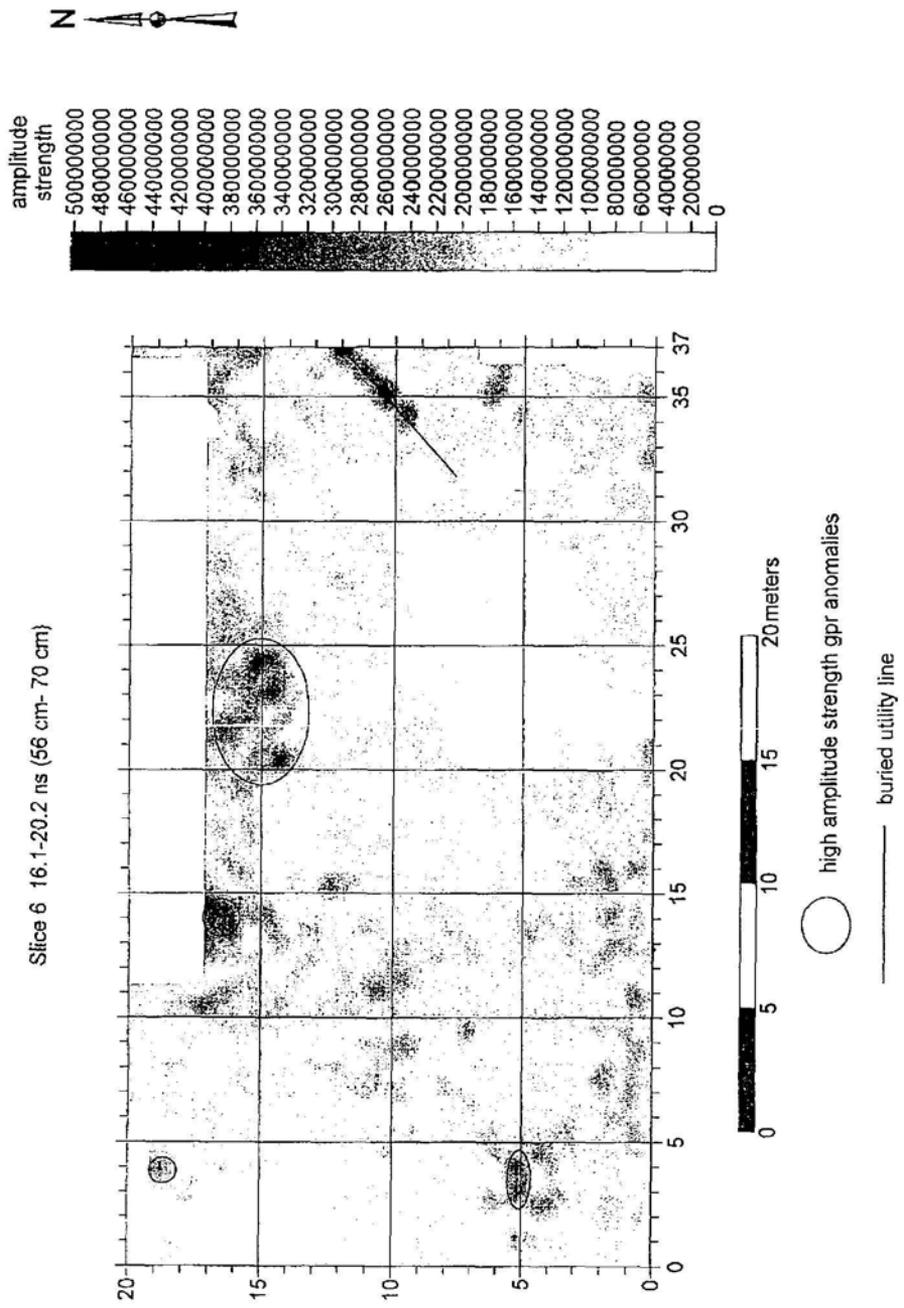


Figure 28. Interpretative map of time slice 6 gpr data from the Carrigan lot.

APPENDIX I



United States Department of the Interior

NATIONAL PARK SERVICE
Midwest Archeological Center
Federal Building, Room 474
100 Centennial Mall North
Lincoln, Nebraska 68508-3873

IN REPLY REFER TO:

A2624(MWAC)

June 9, 2005

Memorandum

To: Manager, Midwest Archeological Center

From: Supervisory Archeologist, Midwest Archeological Center

Subject: Travel to Lincoln Home National Historic Site, Springfield, Illinois,
May 16-27, 2005



I traveled to Lincoln Home National Historic Site (LIHO) on May 16th with a Midwest Archeological Center crew of three employees to conduct archeological test excavations at the Carrigan and Burch house lots to collect information needed to prepare an Historic Structure Report (HSR) and plan the proposed reconstruction of those two houses. The Center crew members included Museum Technician Lisa Stanley and Archeological Technicians Jennifer Lahowetz and Tyrel Moss. We were assisted in the fieldwork by MWRO Historical Architect Al O'Bright and LIHO Maintenance Mechanic Supervisor Vee Pollock. O'Bright will serve as the COTR on the contract to be written with an A/E firm for preparation of the HSR. The archeological project was coordinated with LIHO Superintendent Dick Lusardi and Historian Tim Townsend. The related curatorial issues were coordinated with Museum Curator Susan Haake.

The primary focus of our work, as reaffirmed with O'Bright at the outset of fieldwork, was to try to identify the actual location and footprint of each house based upon any intact remnants of the original foundations and associated architectural features such as cellars, cisterns, etc. This task was known in advance to be complicated by the construction of later structures on both properties, and we were consequently unsure how much evidence from the original buildings may have survived. Limited archeological investigations at the west end of the Carrigan lot in 1997, conducted by archeologist Floyd Mansberger of Fever River Research, indicated that several structural features from the Carrigan house were partially intact, including disturbed foundation walls, a two-room cellar with a rear extension, front porch foundations, a stone step, and brick step supports. Mansberger believed that he had identified two corners of the Carrigan house (Mansberger 1997 and related field records on file at LIHO). The Burch lot was more

problematic in that there were no known prior archeological investigations there by which to judge the condition of the original structure.

The primary structures built on the Carrigan and Burch properties over the years are depicted on several historic maps of the area, most usefully on two City of Springfield maps dating to 1854 and 1858, and a series of Sanborn fire insurance maps dating from 1884 through 1941. The Carrigan house is thought to have been built in the 1840s on Lot 6 in Block 10 of the Elijah Iles Addition to the City of Springfield. Lot 6 and the northern three-quarters of adjacent Lot 7 were combined under single ownership and managed as one residential property, which was immediately north of the Lincoln home lot itself. The Carrigan house was present on the property throughout the Lincoln era, but was replaced by the Irwin house in the 1880s. The Irwin house was demolished in the 1920s. The lot then apparently remained vacant until the 1960s, when the nearby Corneau house was moved to this property. The Corneau house was relocated back to its original site in the 1990s.

The Burch house is also believed to have been built in the 1840s, on Lot 9 in Block 7 of the Elijah Iles Addition directly across Eighth Street from the Lincoln home. Sometime between 1896 and 1917, the Burch house was removed and a commercial building was constructed on the front (east end) of the property and later enlarged. A two-story apartment building was also constructed on the rear (west end) of the property sometime prior to 1941.

Prior to the current episode of fieldwork, Center Archeologist Steve DeVore and I traveled to LIHO April 25-29 and conducted geophysical surveys of the two house lots using fluxgate gradiometer, conductivity meter, resistivity meter, and ground penetrating radar equipment. The initial archeological test units were thus placed to investigate the house locations indicated on historic maps of the two properties, to investigate the origin of several geophysical anomalies, and to re-expose certain features identified during the previous archeological work by Mansberger. Hand excavation was combined with excavation by a backhoe operated by Pollock. Given the depth at which many architectural features lie at the two sites (over 1 m below ground surface), use of the backhoe became critical to the successful completion of the project within the allotted timeframe.

Carrigan Lot – Five archeological test units and six backhoe trenches were excavated at the Carrigan lot, within which were exposed a number of intact architectural features interpreted as the remains of the Carrigan house and later Irwin house. The Carrigan house foundations were exposed in several areas and represented most of the footprint of the building, including the northwest and southeast corners of the front portion of the house, a short section of foundation along the front (west) side of the house at an apparent jog in the wall line, two sections of the north foundation toward the back of the house (one of which appeared to have been extended or repaired when incorporated into the Irwin house), the southeast corner of the ell, and a short section along the south wall

of the ell. Two other brick features also identified along the south wall of the ell are interpreted as supports for the porch that originally extended from this wall of the house, per an historic photo (original in possession of the Illinois State Historical Library, Old State Capitol, Springfield, IL). Unfortunately, portions of these features were missing due to subsequent construction of the Irwin house and later trenching of utility lines across the lot, so that the southern edge of the porch could not be identified within the time limits of our excavations. Efforts to identify evidence of the porch that extended off the back side of the front portion of the house were unsuccessful.

It was discovered that the Carrigan house had a second cellar under the back portion of the ell, as indicated by several partially intact cellar entry features including the finished break in the foundation that formed the east entry jamb, sloped brick paving that may have underlain wooden entry steps, the remnants of brick cheek walls on either side of the paving, and two large displaced stone steps. An intact cistern that appeared to be constructed of the same basic type of brick and mortar used in the construction of the Carrigan house was also identified immediately off the southeast corner of the ell. The cistern had clearly been modified for subsequent use in conjunction with the Irwin house. In fact, it appeared that the far back (east) portion of the Carrigan house ell was reused as part of the later Irwin house. A separate section of foundation thought to relate to the Irwin house was aligned in part along and actually mortared to one set of Carrigan house porch supports.

Once exposed, these features were left largely intact. Brick and mortar samples were collected in selected cases. All features and the base of excavation in all test units and trenches were covered with plastic prior to backfilling. While much was learned about the history of house construction on this lot during our investigations, many questions about the Carrigan house and its associated outbuildings and features remain to be answered, presumably during future research at the site. Many Carrigan-related architectural features were identified during the course of this project, and the potential is high that additional intact features and related artifactual deposits exist elsewhere on the property.

Other features previously identified by Mansberger that are thought to relate to the front portion of the Carrigan house were not re-investigated at this time since some documentation on them is already available for use in the HSR.

Burch Lot – Three archeological test units and five backhoe trenches were excavated at the Burch lot. A single 14 ½ ft intact section of the Burch house foundation was identified along the north property line at a depth of approximately 31 cm below ground surface which appeared to include the northwest corner of the house and one interior wall intersection, together with nearly half of an interior brick-lined well. An intact portion of the base of a cistern was also identified at a depth of 68-125 cm below surface at a location that was probably originally immediately outside the southwest corner of the house.

Most of the east end of the lot appears to have been severely impacted by the construction and subsequent demolition of the commercial building mentioned above. A light yellow brown soil was apparently brought to the site to fill much of the void after removal of the commercial building which is quite distinctive from the surrounding natural soil profile. One short intact section of the commercial building foundation was also identified at a depth of approximately 1.27 m below surface. Given the extent of fill, it appears that the commercial building may have had a subterranean or basement level, construction of which would have destroyed much of the Burch house foundation. However, the western edge of the soil fill was identified in two locations, so that the possibility exists that Burch-related features may be present further back on the lot. Since there is no known historic documentation of major Burch-related outbuildings at the far back end of the property, no testing was conducted in that area. The section of Burch-related foundation, the well, and the cistern were left intact and covered with plastic prior to backfilling.

The success of this project was in large part due to the outstanding support provided by the LIHO park personnel, particularly Superintendent Lusardi, Tim Townsend, Vee Pollock, Susan Haake, and other maintenance and ranger staff. It was a pleasure to work in a park setting with such active interest in archeology on the part of the staff and visiting public. As always, the project was enhanced by the invaluable contributions of Al O'Bright.

We returned to Lincoln on May 27th.



Janis L. Dial-Jones

References Cited

Mansberger, Floyd

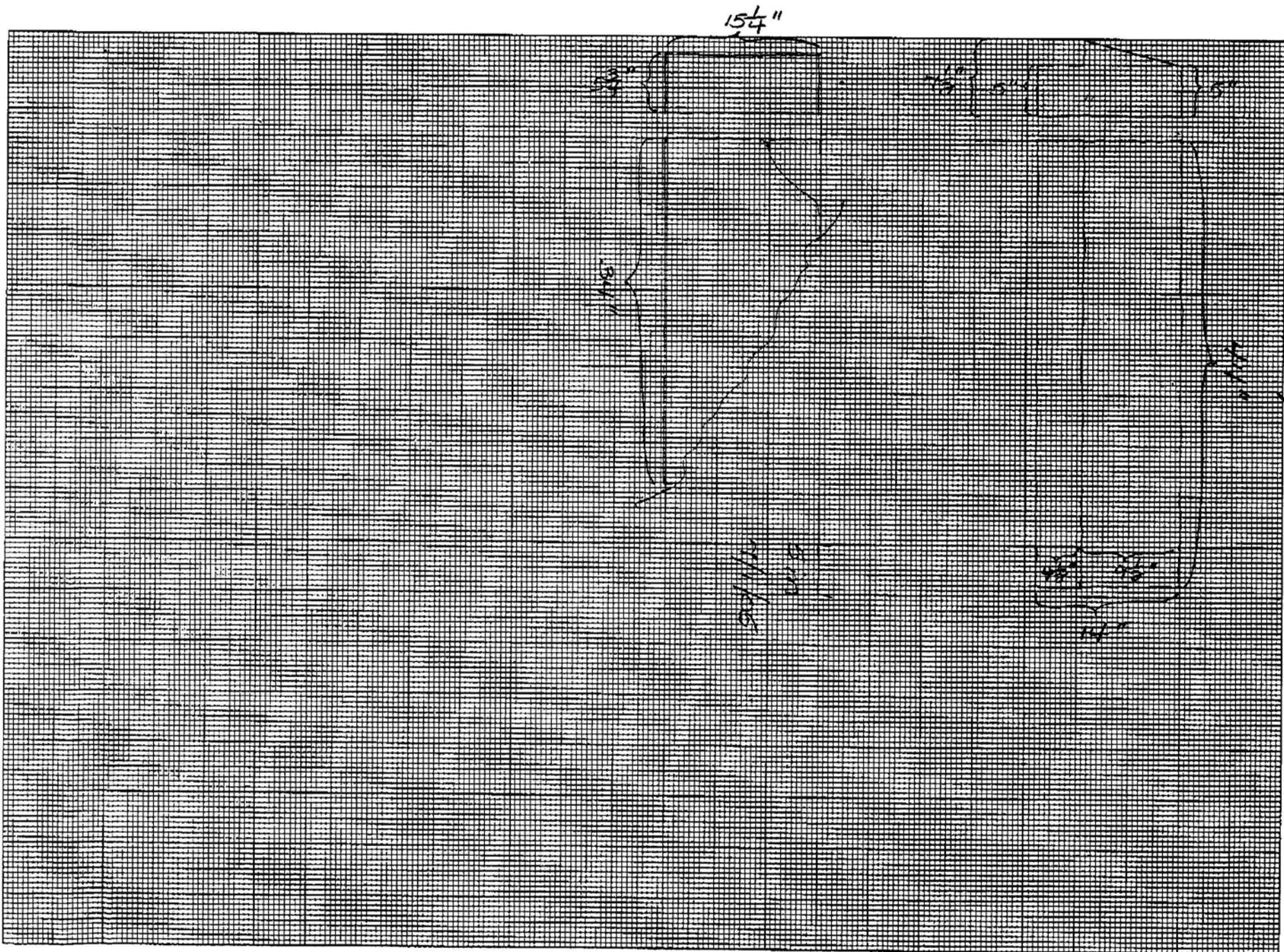
- 1997 Letter report dated December 16, 1997 (revised 4/19/98) to Carl Fischer, FWAI Architects, Inc. re: Carrigan/Irwin House archaeological investigations; Contract No. 1443CX603097002, Delivery Order No. 8. On file, Lincoln Home National Historic Site, Springfield, Illinois.

Cleared for distribution:

Bonnie D. Hayes, Acting -
Manager, Midwest Archeological Center

6-9-05
Date

cc: Superintendent, Lincoln Home National Historic Site
Tim Townsend, LIHO
Craig Kenkel, MWRO
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