Oak Cottage

Cultural Resource Evaluation

Greene Valley Forest Preserve
23W171 Hobson Road
Naperville, Illinois

FINAL REPORT
March 7, 2025
WJE No. 2024.2442

PREPARED FOR:
Forest Preserve District of DuPage County
3S580 Naperville Road
Wheaton, Illinois 60189

PREPARED BY:
Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
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INTRODUCTION

At the request of the Forest Preserve District of DuPage County (District), Wiss, Janney, Elstner Associates, Inc. (WJE) has completed a Cultural Resource Evaluation of Oak Cottage, located at 23W171 Hobson Road, within the Greene Valley Forest Preserve in unincorporated DuPage County, Illinois. The purpose of the Cultural Resource Evaluation is to determine the cultural significance of the property based upon the District's *Policy on the Management of Historical and Cultural Resources for Historic Structures*, following guidance provided by the National Register for evaluation of significance and integrity. In addition, the Cultural Resource Evaluation includes a review of historical documentation, preparation of a condition assessment based on a visual review of the building, and development of recommendations for treatment approaches outlined in the *Policy on the Management of Historical and Cultural Resources for Historic Structures* (Preservation, Rehabilitation, Restoration, and Demolition), together with conceptual costs associated with the treatment approaches. Conceptual recommendations have been developed based on guidance offered in the District's *Policy on the Management of Historical and Cultural Resources for Historic Structures*, and in accordance with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties, published by the National Park Service.

As part of the condition assessment, an assessment of the structural systems and a preliminary structural analysis were performed to determine if alterations are necessary to accommodate a potential change to public use.

Information about the history of the building, for reference in assessing significance and integrity, has been derived from previously prepared reports, published historical material, and other documentation provided to us by the District. The condition assessment was conducted by representatives of WJE on July 10, 2024, and August 14, 2024, and included review of the interior and exterior of the structure. Prior to the site visit on August 14, 2024, the District made inspection openings in the wood flooring of the southeast bedroom on the second floor and the wall in the east bedroom on the first floor. The openings were made in support of the preliminary structural analysis. WJE removed small wood samples from wood framing in the house to help identify the wood species for reference in the structural analysis.

HISTORICAL CONTEXT AND DEVELOPMENT AND USE

Context History

Early Inhabitants and Exploration

In the days before European explorers traveled through Illinois, inhabitants of the region belonged to the Algonquian linguistic family, closely related to the Chippewa. Specific tribes in the northeast Illinois region included the Miami (located on sites near the Calumet River, the junction of the Des Plaines and Kankakee Rivers, and the Fox River) and the Illinois (present throughout the rest of modern-day Illinois). "Illinois" was a native word signifying "men" or "people." By the early to mid-1700s, the Potawatomi moved into the area from the regions of Michigan and northern Wisconsin.

In 1673, the expedition of Father Jacques Marquette and Louis Jolliet traveled primarily along the Mississippi River and up the Illinois River to the area that would become Cook and Will Counties. This expedition claimed the region for France. In 1678, an expedition led by Robert de La Salle with Henry Tonti and Father Hennepin explored the region along the Mississippi River and adjacent territory on behalf of France. A Jesuit mission was established at Chicago in 1696 by Father Pierre Pinet, but lasted only a year. Over the next several decades, the French centered their principal activities in the middle Mississippi valley, well to the south and east of the upper Illinois Valley, focusing on Fort de Chartres near Kaskaskia and its connections with Québec via the Ohio, Maumee, and Wabash Rivers and the Great Lakes,.

During this period, the American Indians were undergoing migrations, often leading to conflict among the various tribes. The Sauk, Fox, Kickapoo, and Potawatomi displaced the Miami and Illinois in the Chicago region. The Potawatomi, followed by the Sauk and the Fox, were the predominant peoples in the northeastern Illinois by the later 1700s. Also present in the region were the Winnebago and Shawnee.

Illinois in the English Colonial Period and Revolutionary War

French influence in the Illinois territory began to wane by the mid-1700s. Québec, on the St. Lawrence River, fell to the British in September 1759 during the French and Indian War, opening a route for the British through the Great Lakes to the middle part of the continent. In 1763, the French ceded land east of the Mississippi to the British. In October 1765, the British took possession of Fort Chartres (and briefly renamed it Fort Cavendish), extending British authority across the continent east of the Mississippi River. Unchallenged British control of the Illinois region lasted until the American Revolutionary War. In 1778, at the direction of the Governor of Virginia, George Rogers Clark led an expedition against the British and captured their posts in the frontier northwest. Clark marched across southern Illinois, and by July 1778 had disarmed the British-held frontier forts of Kaskaskia, Cahokia, and Vincennes, claiming the region for the newly independent American colonies.

Establishment of the Illinois Territory

In 1801, Illinois, then part of the Northwest Territory, became part of the Indiana Territory, which had been created in 1800. In 1809, the Illinois Territory was formed, including the regions that would become the states of Illinois and Wisconsin, as well as part of Minnesota and Michigan. By 1800, fewer than 5,000 settlers lived in the territorial region, with most located in the southern portion of what would become the state of Illinois, along the Mississippi, Ohio, and Wabash Rivers. The northern portion of the state was more sparsely populated, as European settlers did not begin to enter this area until the early 1800s.

At this time, the Shawnee tribal leader Tecumseh organized the tribes of the Northwest Territory against European settlers. Although defeated in the Battle of Tippecanoe of 1811, Tecumseh remained active throughout the War of 1812 and aided British forces in capturing many European-settled areas. These reverted to American control at the end of the war. A series of treaties with American Indians populations influenced the future of northeast Illinois. In 1795, the Treaty of Greenville with the Wyandot and the Delaware included the ceding of ". . . one piece of land, six miles square, at the mouth of the Chicago River, emptying into the southwest end of Lake Michigan, where a fort formerly stood."[1] It was on this land that Fort Dearborn was established in 1803, where a settlement of French traders and their American Indian wives developed. The site grew initially from the fur trade, and despite the Fort Dearborn Massacre of 1812, more settlers came to the area.

Naper Settlement

As more European Americans settled in the Northwest Territory, the land along the Des Plaines River was particularly sought after; proximity to the waterway provided fertile soil, water for irrigation, and access to transportation. Joseph Naper along with his brother John and a dozen other families arrived at Chicago's Fort Dearborn in 1831 and traveled 30 miles west from there to the west branch of the Des Plaines River, a tributary known as the DuPage River. There they established a gristmill. In defense of the increasing number of pioneers at Naper Settlement, Fort Payne was constructed in 1832. Captain Joseph Naper was given command of the stockade.[2] Buildings soon followed, with the first frame home constructed in 1833. The Pre-Emption House, a hotel that provided a place to stay and also conduct official business, was built in 1835. By this time, the first sawmill was operational. When DuPage County was established on February 9, 1839, Naper Settlement was named county seat.[3] Joseph Naper would be the first to survey the city, which was located in both Lisle and Naperville Townships. As surveyed, the city was situated "on the south-east corner of Section 13, Township 38, Range 9, East." On February 14, 1842, Naper Settlement became Naperville. The city was incorporated in 1857.[4]

Architectural Context

Greek Revival

The Greek Revival style was popular in the United States beginning in the 1820s but fell out of favor after the Civil War. Inspired by archaeological excavations and measured drawings of ancient Greek temples, the style was developed by America's first trained architects and popularized by pattern books that influenced carpenters and builders across the relatively young United States. American culture found an

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1 As quoted by A. T. Andreas in *History of Chicago, from the Earliest Period to the Present Time* (Chicago: A. T. Andreas, 1884), 79.

2 Neil Gale, Ph.D., "The History of Fort Payne (1832) in the Naper Settlement, Today's Naperville, Illinois," September 10, 2018, https://drloihjournal.blogspot.com/2018/09/history-of-fort-payne-1832-in-the-naper-settlement-todays-naperville-illinois.html.

3 Gale, "Captain John Stevens, Naperville Illinois' First Professional Builder."

4 Newton Bateman, *Historical Encyclopedia of Illinois* (Chicago: Munsell Publishing Company, 1913), 691-692.

identification with the democracy of ancient Greece. Greek Revival buildings have simple rectilinear forms, prominent classical ornament, molded cornices and window lintels, and other ornamental motifs inspired by classical architecture. The style's simple massing and details were compatible with the sometimes limited materials and resources available for construction in rural areas.

The original portion of Oak Cottage exhibits characteristics of the Greek Revival style, including the decorative door surround at the front door and cornice returns.

Side Hallway and Upright and Wing

Side Hallway houses are typically simple rectilinear volumes, two stories in height, often with gable roofs oriented to the front or the side. The entry is located within one of the end bays of the front elevation, and the front entrance opens into the main stair hall. Adjacent to the hall is the main parlor, with additional rooms at the rear of the house. The form was popular until the 1880s.[5] The original portion of Oak Cottage is an example of the Side Hallway type.

Oak Cottage has evolved into an Upright and Wing type house with the addition of the east and west wings. The Upright and Wing type consists of an upright portion with a gable end, usually one-and-one-half to two stories, and a one to one-and-one-half story wing. The gable end of the wing is usually at or below the eave of the upright portion.

Development of Balloon Framing

The initial settlement of DuPage County coincided with one of the most revolutionary developments in American building construction: the introduction of the balloon frame. Described as "that most democratic of building technologies," the balloon frame allowed the construction of a house with a minimum of labor and a moderate amount of carpentry skills.[6] The key to the success of the balloon frame was the proper construction and erection sequence of its components. Prior to the development of the balloon frame, builders using timber for the construction of houses and other structures used structural systems such as the box frame or braced frame. Braced frame construction utilized heavy timbers to form posts, girts, girders, braces, and rafters, all fastened together with traditional carpentry joining such as mortise and tenons, splices, dovetails, and others. This type of structural system required the builder to have a crew of five or six men to raise and set the heavy timbers.[7] The materials used in construction of a balloon frame structure consisted of milled lumber that was much lighter in weight than heavy timbers, and could be more easily erected and by fewer workers. Advances in milling techniques in the early 1800s, and the invention and development of machinery to produce nails from iron in the late 1700s and early 1800s, preceded the development of the balloon frame.

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5 Newton Bateman, *Historical Encyclopedia of Illinois*, 126.

6 Michael P. Conzen, "The Birth of Modern Chicago," *1848: Turning Point for Chicago, Turning Point for the Region* (Chicago: The Newberry Library, 1998), 22.

7 For a thorough discussion of the early architectural history of Illinois, see Thomas Edward O'Donnell, "An Outline of the History of Architecture in Illinois," *Transactions of the Illinois State Historical Society* (Springfield, Illinois, 1931); and Thomas Edward O'Donnell, "Recording the Early Architecture of Illinois in the Historic American Buildings Survey," *Illinois State Historical Society, Transactions for the Year 1934* (Springfield, Illinois, 1934).

Credit for the development of the balloon frame is usually given to George Washington Snow of Chicago.[8] Others consider the originator of the system to have been Augustine Taylor, a carpenter with whom Snow built one of the first structures known to have used balloon frame construction, St. Mary's Church in Chicago, in 1833.[9] At that time Chicago lacked a sawmill to produce cut lumber, although mills were present in Indiana and in Plainfield, Illinois, in northwestern Will County.[10] These mills were relatively far away, and transportation of milled heavy timbers was difficult and expensive. Therefore, it was necessary to develop a more economical construction system.

As is typical with any new construction system or technique, there was a period of transition in which older framing methods were used alongside balloon framing.

The classic balloon frame consists of the following elements (Figure 1 through Figure 3):

- Sill, made from a large section of milled lumber (e.g., 4x8) or two or more smaller pieces (two 2x8s), set on a masonry or concrete foundation
- Floor joists (2x10, 2x12, etc.), typically at 16 inches on center, reinforced by diagonal bridging, nailed to the sill[11]
- Studs (2x4 or 2x6), also set at 16 inches on center, running the full height of the building wall
- Ledgers, nailed to the studs to support the second floor joists
- Exterior wall sheathing attached to the studs, consisting of wood boards (1x8), often set at a diagonal to create a structural diaphragm
- A top plate on the stud wall
- Roof rafters (2x10, 2x12, etc.) set at 16 to 24 inches on center on the top plate, to which roof sheathing consisting of wood boards are nailed, followed by wood roofing shingles
- Flooring nailed to the wood joists, consisting of two layers of wood boards (a rough board subfloor followed by a finished wood strip surface)
- Exterior wall siding
- Interior wall finish, consisting of wood lath nailed to the wood studs, covered by two to three layers of plaster.

[8] Paul E. Sprague, "Chicago Balloon Frame: The Evolution during the 19th Century of George W. Snow's System for Erecting Light Frame Buildings from Dimension Lumber and Machine-made Nails," *The Technology of Historic American Buildings,* H. Ward Jandl, ed. (Washington, D.C.: Foundation for Preservation Technology of the Association for Preservation Technology International, 1983), 36.

[9] Fred W. Peterson, *Homes in the Heartland: Balloon Frame Farmhouses of the Upper Midwest, 1850–1920* (Lawrence, Kansas: University Press of Kansas, 1992), 14.

[10] Sprague, "Chicago Balloon Frame," 37.

[11] Platform framing, also called Western framing, developed from balloon framing and allowed floor joists to be spaced up to 24 inches on center. Platform framing involved setting each floor level as a platform on the stud walls, allowing the use of shorter stud walls.

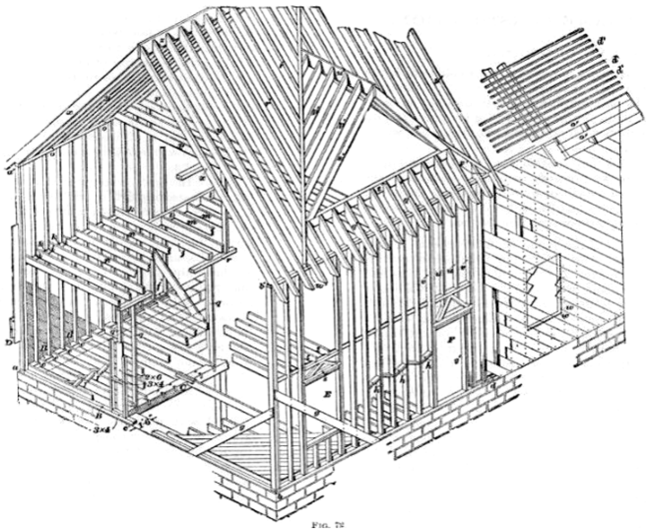

Figure 1. The balloon frame derived its name from the lightweight framing that allowed a large volume of space to be enclosed economically. The drawing shown above was published nearly sixty years after the system was developed. (Source: *Masonry, Carpentry, Joinery*, International Library of Technology, volume 30 (1889; reprint, Chicago: Chicago Review Press, 1980), "Carpentry," 101–102)

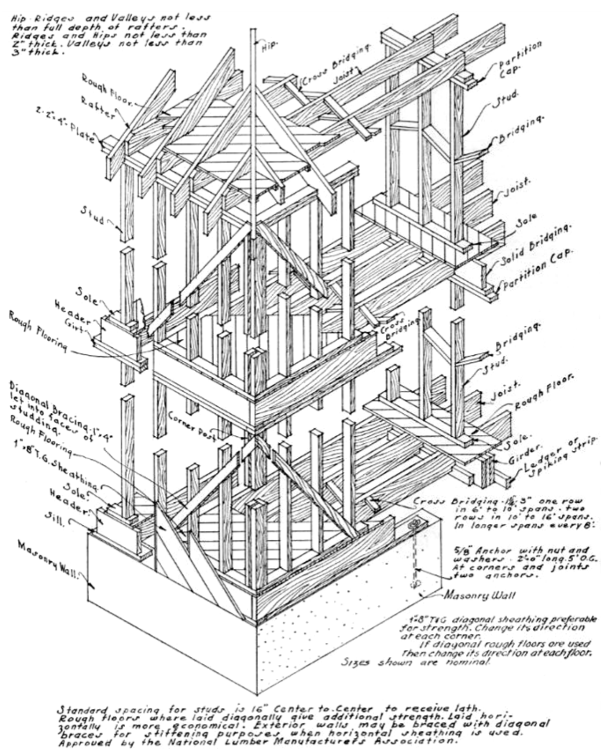

Figure 2. Drawing of balloon framing from 1894. (Source: William E. Bell, *Carpentry Made Easy, or the Science and Art of Framing* (Philadelphia: Ferguson Bros. & Co., 1894), plate 5)

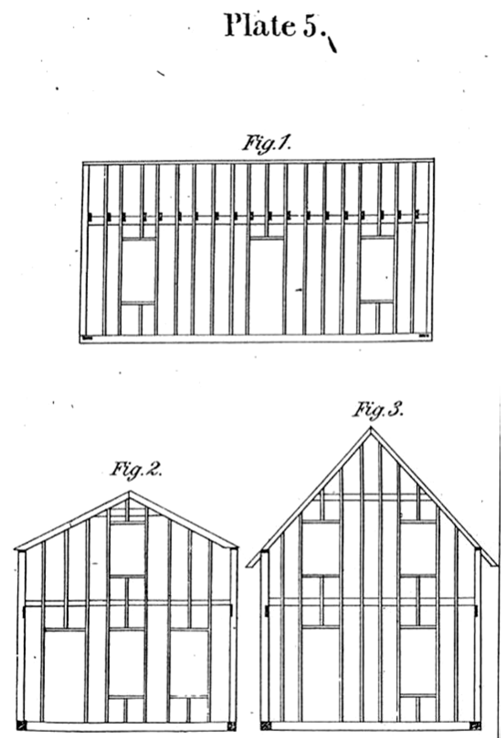

Figure 3. Drawing of platform or Western framing construction, a development from balloon framing, published in the 1930s. (Source: Charles George Ramsey and Harold Reeve Sleeper, *Architectural Graphic Standards*, 3rd ed. (New York: John Wiley and Sons, 1941))

Since a carpenter with one or two helpers could frame and sheath a small, one-story house in one week, the balloon frame system allowed settlers to construct a dwelling on their land in a short amount of time. In addition, there was a 40 percent savings in the amount of material required to enclose the same volume as compared to the braced frame.[12] Additions were as easy to construct as the original house and easier to frame into than if braced framing was used.

Farming trade publications touted the benefits of the balloon frame.[13] Its inherent advantages led American farmers to adopt the balloon frame as the standard structural framing system for houses by the end of the century. Although many ethnic groups brought their own techniques of constructing houses and farm buildings with them to the United States, they often adopted balloon framing techniques in whole or in part and adapted these techniques to their traditions.[14]

The original portion of Oak Cottage is an example of a balloon framed house. An inspection opening in the east wall between the central portion of the house and east wing revealed studs that extended the full height of the wall and ledgers, nailed to the studs to support the second floor joists.

Greene Family and Development of the Greene Farm and Oak Cottage, 1850–1983

William B. Greene (1818–1903) came to DuPage County from Wallingford, Vermont, in 1841. Upon arrival, he worked as a schoolteacher at Goodrich School. In 1843, Greene purchased 200 acres of land adjacent to property owned by his uncle, Daniel Moon Greene, along the eastern branch of the DuPage River. Daniel Moon Greene had come west from Rochester, New York, in 1835, and had purchased 250 acres of land that straddled present-day Route 53.[15] William Greene purchased the land for $1,000 from Thankful S. Goodrich, widow of Henry Goodrich. A log cabin was present on the land. In 1845, Greene returned to Wallingford, Vermont, where he married Harriet Elizabeth Meeker. The couple immediately returned to DuPage County and lived in the log cabin. By 1850, Greene began construction of a new home, the original portion of Oak Cottage. Six children would be born to the couple at Oak Cottage, but only three would live to adulthood.[16]

Greene played a pivotal role in the development of the area, particularly in what became known as Greenville, and was instrumental in the establishment of the first store and post office in the town. This small community became a center for trade and agriculture, supporting the needs of settlers who were establishing farms in the area. In addition to his role in community building, Greene was a significant landowner. His holdings helped lay the groundwork for the economic development of the region. Greene was also known for his work in organizing the early government and infrastructure of the area, which would become part of DuPage County after its establishment in 1839.

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[12] Peterson, *Homes in the Heartland: Balloon Frame Farmhouses of the Upper Midwest, 1850–1920*, 9, 11.

[13] Peterson, 15–24.

[14] One example was German-Russian farmers from Eastern Europe: "German-Russians eventually combined *Batsa* brick with balloon-frame construction, placing clay brick in walls between the studs to stabilize and insulate the dwelling." Refer to Michael Koop, "German-Russians," *America's Architectural Roots: Ethnic Groups that Built America,* Dell Upton, ed. (New York: Preservation Press, John Wiley & Sons, 1986), 131.

[15] William Bertram Greene, *The Greenes on the East Branch of the DuPage,* (1966), 11.

[16] Greene, *The Greenes on the East Branch of the DuPage*, 59–63.

A son, William Spencer Greene (1857–1932), took over management of the farm in 1880. He lived at Oak Cottage with his wife, Jessie Hibbard Greene. The east wing was expanded at this time, allowing his parents to continue to reside at Oak Cottage. In total, five additions were constructed at Oak Cottage, all of which comprise the east and west wings. The exact dates at which the additions were constructed are unknown.

In addition to the expansion of Oak Cottage, William Spencer Greene also constructed the nearby Greene Farm Barn. The exact date of the barn's construction is unknown. Greene built some of the first silos in DuPage County. The silos, which no longer survive, were low, insulated structures that were filled with green corn known as silage. The silage was used to feed the herd of almost 100 cows that lived at the farm.[17] The property continued to evolve; in time the outbuildings included a carriage house, windmill and well, icehouse, woodshed and smoke house, and chicken coop. Orchards were also planted on the property.[18]

Grace Margaret Greene (1903–1981) and her husband Everett Brown moved into Oak Cottage following the death of Jessie Hibbard Greene. Grace's brother Arthur Richie Greene (1891–1939) took over the farm operations from his father. The property ceased to be an operating farm in 1965, at which time the last dairy herd was sold and a portion of the land remaining was rented for sod farming. In 1970, the property was sold to the Aurora Foundation, with the understanding that the Forest Preserve District of DuPage County would then purchase the property from the Aurora Foundation. The Forest Preserve District purchased the property with the stipulation that Grace could continue to reside at Oak Cottage until her death. Following the death of Grace Margaret Greene in 1981, the Forest Preserve District of DuPage County took possession of Oak Cottage in 1983, following a last family reunion on July 4, 1982.[19]

Forest Preserve District of DuPage County Ownership and Ongoing Maintenance, 1983–Present

The Forest Preserve District of DuPage County took possession of Oak Cottage in 1983 and has maintained the house since that time. Oak Cottage has remained vacant during this time, with routine maintenance and other repairs undertaken as needed. Repairs have been made during this period to exterior wood siding and trim, as well as to wood windows. Elements of the wood porch railing have been replaced. Wood boards were also placed at basement windows to prevent wildlife from accessing the interior of the structure.[20]

The exterior of Oak Cottage has been regularly painted, most recently in 2012. The roof of the house was replaced in 2007, when the current asphalt shingle and EPDM membrane roofing was installed. Based on observations made during this study, the front porch appears to have been partially reconstructed with

[17] Greene, *The Greenes on the East Branch of the DuPage*.

[18] Greene, *The Greens on the East Branch of the DuPage*, 125–126.

[19] Revati Natesan, *Naperville's Greene Barn and Oak Cottage* (Charleston: Arcadia Publishing, 2022), 115.

[20] Greene Valley Oak Cottage Work Orders 2002–2012, Facilities Management, Forest Preserve District of DuPage County; Greene Valley Oak Cottage Work Orders 2019–2024, Facilities Management, Forest Preserve District of DuPage County.

new concrete foundation piers, wood framing, wood rails, and wood decking installed during the early twenty-first century.[21]

The interior of Oak Cottage has remained largely undisturbed during this period, with cleaning completed as needed. Asbestos abatement at the interior of the house was conducted circa 2017–2018.

[21] Greene Valley Oak Cottage Work Orders 2002–2012, Facilities Management, Forest Preserve District of DuPage County; Greene Valley Oak Cottage Work Orders 2019–2024, Facilities Management, Forest Preserve District of DuPage County.

PHYSICAL DESCRIPTION AND CONDITION ASSESSMENT

Measured drawings developed as part of this study are included in Appendix A.

Site

Oak Cottage is located at the southeast corner of Greene and Hobson Roads within the Greene Valley Forest Preserve. The house is located directly south of Hobson Road. A circle drive extends east from Greene Road, west of Oak Cottage, and north of the Greene Farm Barn. The house and barn are situated at the north end of the forest preserve. A remnant of a concrete-paved drive is present directly west of the house, with a series of concrete-paved walks leading from the remnant drive to the entrances of the house on the north and west facades (Figure 4). A concrete mounting block, which historically would have been used to access a carriage or to mount a horse, is located adjacent to the remnant drive (Figure 5).

Figure 4. Concrete-paved walks adjacent to house. (Source: All photographs by WJE, 2024, unless otherwise noted)

Figure 5. Concrete-paved walks and concrete mounting block (at right) adjacent to house.

Exterior

The original portion of Oak Cottage, constructed in 1850, is a side hallway type structure, two stories in height, with a gable roof oriented to the front of the house. The entry is located at the west end bay of the front elevation (Figure 6 and Figure 7). The east and west wings were added following initial construction of the house, likely in the late nineteenth century. Five additions in total were constructed.

The exterior walls of Oak Cottage are clad with wood clapboard siding, painted white. The house has asphalt shingle gable roofs. Two inset gabled dormers are present on the east elevation of the second floor (Figure 8). The cottage sits on a stone foundation (Figure 9). The foundation along the west facade and at the southwest addition is covered with a cementitious parge coating.

A wraparound wood porch with a concrete pier foundation runs along the north and east facades (Figure 10 and Figure 11). Wood lattice is present at the base of the porch, covering the wood structure and concrete pier foundation. Based on the condition of the wood structure and concrete piers, it appears the porch was likely rebuilt in recent years. A set of wood stairs at the north side of the porch provides access to the porch from the adjacent concrete walk. The porch roof is a low-slope roof covered with an EPDM membrane (Figure 12).

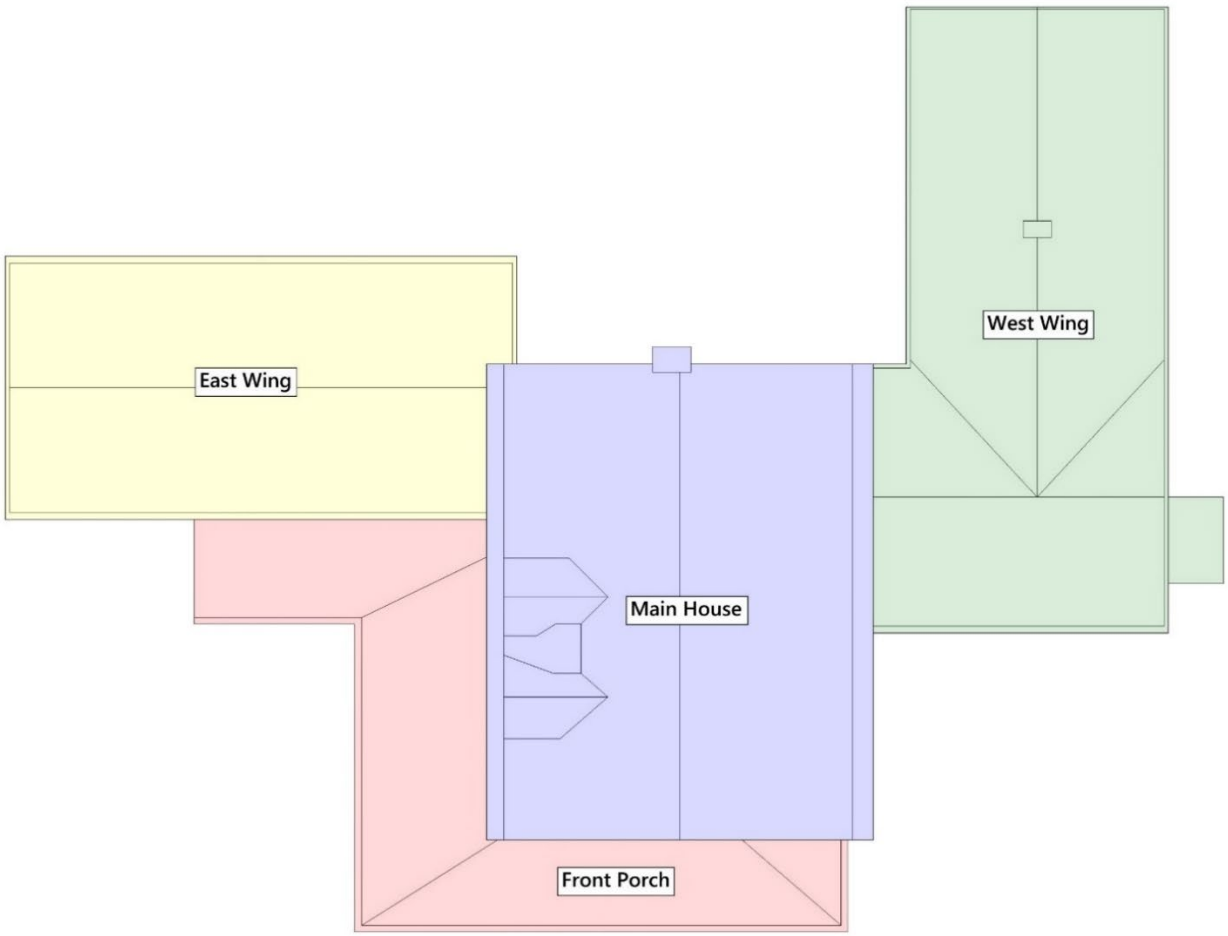


Figure 6. Roof plan of Oak Cottage showing different components of the house. (Source: WJE, 2024)

Figure 7. Partial north elevation of Oak Cottage.

Figure 8. Inset dormers at east elevation of house.

Figure 9. Stone foundation.

Figure 10. Wrap-around porch at north elevation.

Figure 11. Wood framing and concrete piers at wrap-around porch.

Figure 12. EPDM roof at wrap-around porch.

A brick chimney is centered on the south gable end of the two-story portion of the house (Figure 13). A second brick chimney sits atop the gable on the southwest addition roof (Figure 14).

The main entrance to the house is located off the porch, on the north facade at the west end of the two-story portion of the house. This entrance consists of a single-entry door with sidelights (Figure 15).

The majority of the windows in the house are six-over-six double-hung wood windows with a two-over-two wood storm windows and painted wood shutters (Figure 16). The second-floor windows and the windows at the east addition are two-over-two double-hung wood windows with two-over-two wood storm windows (Figure 17).

Typical exterior doors along the front porch and on the south elevation of the two-story portion of the house consist of two wood framed doors with divided glass panels on the interior side and a wood framed storm door on the exterior side (Figure 18).

Figure 13. Brick chimney at south elevation.

Figure 14. Brick chimney at west wing.

Figure 15. Main entrance to house.

Figure 16. Typical six-over-six wood window with two-over-two storm window.

Figure 17. East elevation of east wing, showing typical two-over-two wood window and matching wood storm window.

Figure 18. Typical wood door leading from house to porch at the first floor.

The north facade of the two-story portion of the house contains the main entrance, a secondary entrance off the porch on the first floor, and two typical double-hung wood windows with wood storm windows at the second floor (Figure 19). The east facade of the main house features two typical double doors at the first floor and two typical double-hung wood windows at the inset gabled dormers at the second floor (Figure 20). The south facade of the two-story portion of the house contains a pair of two typical wood double doors flanking the central chimney, with two typical double-hung wood windows at the second floor. (Figure 21). There are no storm windows at the second floor windows. The west elevation of the two-story portion house contains a one-light window at the second floor and a two-light window at the basement (Figure 22).

Figure 19. North facade of Oak Cottage.

Figure 20. Partial view of east facade of the main house.

Figure 21. South facade of the main house.

Figure 22. North end of the east facade of the main house.

The north facade of the east wing contains a door off the porch, two typical double-hung wood windows with wood storm windows at the porch, and another double-hung wood window and wood storm window at the east end of facade (Figure 23). The east facade of the east wing features a typical wood double-hung window and a wood storm window over a wood louver at the basement level. A louvered metal vent is centered on the gable end of the facade. The south facade of the east wing contains two typical double-hung wood windows flanking a multi-panel wood door with nine-light window and wood storm door (Figure 24). The door is accessed by a set of stone steps.

The north facade of the west wing contains a wood door with a single glazed opening and wood storm door and two typical double-hung wood windows with wood storm windows (Figure 25). The east facade of the west wing features a multi-panel wood door with nine-light glazed panel and two typical wood windows with wood storm windows (Figure 26). There are no window or door openings on the south facade of the west wing, except for a wood door opening with a louvered metal vent centered on the gable end (Figure 27). A wood-plank-infilled window opening is present at the basement. The west facade of the west wing contains two doors, one at the north end and the other near the south end (Figure 28). Both doors are multi-panel wood doors with glazed openings. Wood storm doors are present at each door. Concrete stoops lead to both doorways from grade. A shed roof supported by wood framing is located over the northern door. There are three typical double-hung wood windows with wood storm windows at the south half of the facade.


Figure 23. North facade of the east wing.


Figure 24. South facade of the east wing.


Figure 25. North facade of the west wing.


Figure 26. East facade of the west wing.


Figure 27. Partial view of south facade of the west wing showing the wood door with louver at the gable end.


Figure 28. West facade of the west wing.

Interior

Oak Cottage is comprised of the original two-story house and one-story east wing and west wing, with a basement under the main house (refer to Figure 6). Typical finishes at the interior include plaster walls and ceilings over wood lath, wood trim, and wood plank flooring, which are present throughout the house. The wood planks used as flooring vary in size between rooms. Multi-panel wood doors with 4-inch wood trim are present throughout.

First floor

The main entrance of Oak Cottage is located at the northwest corner of the main house and leads from the wrap-around porch into the front hall. The main portion of the house is composed of the front hall and stair, parlor, and living room. Wood plank flooring throughout the main house is 2-1/4-inch-wide planks running east to west. Louvered wood bifold doors connect the hall to the parlor and living room (Figure 29 and Figure 30). Wood double doors with divided glass panels and a single wood storm door provide access from the parlor and living room to the front porch and south patio (Figure 31 and Figure 32).

Figure 29. Louvered wood bifold door leading to parlor.

Figure 30. Louvered wood bifold door leading to living room.

Figure 31. Wood double doors with divided glass panels and single wood storm door to front porch.

Figure 32. Wood double doors with divided glass panels and single wood storm door to back porch.

The front hall is in the northwest corner of the main house (Figure 33 and Figure 34). A wood stair with decorative wood balustrade runs along the west wall (Figure 35 and Figure 36). A single-pane wood window is situated above the stair. A chase is located on the south wall of the hall, between the bifold wood door and staircase (Figure 37).

The parlor comprises the northeast corner of the main house. A chase is located in the southeast corner, next to a rectangular opening leading to the living room on the south (Figure 38).

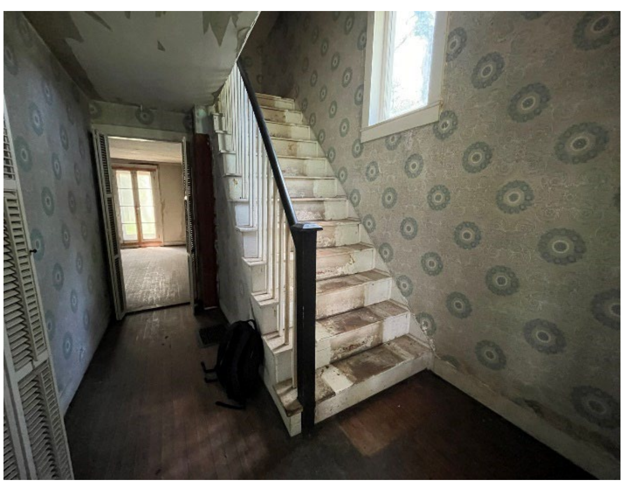


Figure 33. Front hall from northeast corner.

Figure 34. Front hall from southeast corner.


Figure 35. Wood stair in front hall.


Figure 36. Decorative balustrade at wood stair in front hall.


Figure 37. Chase on south wall of front hall.


Figure 38. Chase in southeast corner of parlor.

The living room is located at the south end of the main house. A white marble fireplace is present on the south wall. A chase is located in the southeast corner (Figure 39). A single wood door on the east wall leads to the east wing, and a single wood door on the west wall leads to the west wing (Figure 40 and Figure 41).

Figure 39. Fireplace and chase on south wall of living room.

Figure 40. Wood door leading from living room to west wing.

Figure 41. Wood door leading from living room to east wing.

East Wing

The east wing connects to the living room at the east end of the house and includes the east room, the first floor bathroom, and the east bedroom and closet. The wood plank flooring in the east bedroom and the east room is 2-1/4-inches wide, running east to west. The closet off the east bedroom has 5-inch-wide wood plank flooring, running north to south. The east room and the closet have six-over-six double-hung wood windows, while the east bedroom has two-over-two double-hung wood windows.

The east bedroom comprises the west end of the east wing and is directly adjacent to the living room (Figure 42). A wood double door with divided glass panels on the north wall leads to the porch. Two wood single doors on the east wall lead to the closet on the north and the bathroom on the south (Figure 43). An inspection opening was made in the west wall of the east room where plaster damage was present to allow for review of the existing building structure as part of this study (refer to Figure 42).

The first floor bathroom consists of 9-inch-by-9-inch star-patterned composite tile. A knee wall extends between the bathtub and sink on the north wall. The southeast corner has a built-in wood shelving unit.

Red square composite tile with a wood chair rail is on the north and west walls. There is a single wood door leading to the east room on the east wall, with two-panel door leading into the east bedroom to the west (Figure 44). A two-panel half-light single wood door is located on the south wall leading to the exterior.

The east room comprises the east end of the east wing. Built-in wood storage cabinets and shelving are situated along the south wall (Figure 45). There are two-over-two double-hung wood windows located on the south, east, and north wall. An abandoned stair to the basement under the east room is present on the south end of the room. The flooring over the stair matches the wood flooring in the rest of the room.

Figure 42. The east bedroom with doors leading to the front porch at right. An inspection opening was made as part of this study at the area of missing plaster at the left.

Figure 43. The closet at the east end of the east bedroom.

Figure 44. First floor bathroom, with exterior door at left and door to east bedroom at center.

Figure 45. The east room with built-in cabinets along the south wall.

West Wing

The west wing connects to the living room and comprises the dining room, kitchen, back kitchen, maid's room, and men's room. The west wing has six-over-six double-hung wood windows. Other than the kitchen and back kitchen, the rooms in the west wing have wood plank flooring. The dining room has 1-1/2-inch-wide planks running east to west; the men's room has 5-inch-wide planks running east to west;

and the maid's room has 5-1/2-inch-wide planks running north to south. The kitchen and back kitchen have decorative vinyl tile flooring (Figure 48).

The dining room is located in the northeast corner of the west wing and has 36-1/2-inch-tall wood wainscoting (Figure 46). Built-in wood cabinets are present in the southeast and southwest corners (Figure 47). There is one, two-panel single wood door on each wall, leading to the basement, living room, back kitchen, and kitchen. Access to the exterior is through a two-panel half-light single wood door on the south wall and a three-quarter glass single wood door on the north.

The kitchen is at the northwest corner of the west wing (Figure 49). Stamped tin panels extend halfway up the plaster walls (Figure 50 and Figure 51*)*. The ceiling of the kitchen consists of painted, non-original gypsum board. Built-in countertops, wood cabinets, and a painted cast iron sink are located along the east wall (Figure 52*,* Figure 53 and Figure 54). The cabinet in the southeast corner connects to the cabinet in the dining room and offers a through passage (Figure 55 and Figure 56). Built-in wood shelving is present on the south and west walls. A three-panel half lite single wood door leads to the exterior and a wall opening leads to the back kitchen.

Figure 46. Dining room. Not built-in corner cabinet

Figure 47. Built-in wood cabinets at east wall of dining room.


Figure 48. Decorative vinyl flooring in kitchen.


Figure 49. The kitchen with wood cabinets at right.


Figure 50. Stamped tin paneling at north wall of kitchen.


Figure 51. Stamped tin paneling at northwest corner of kitchen.

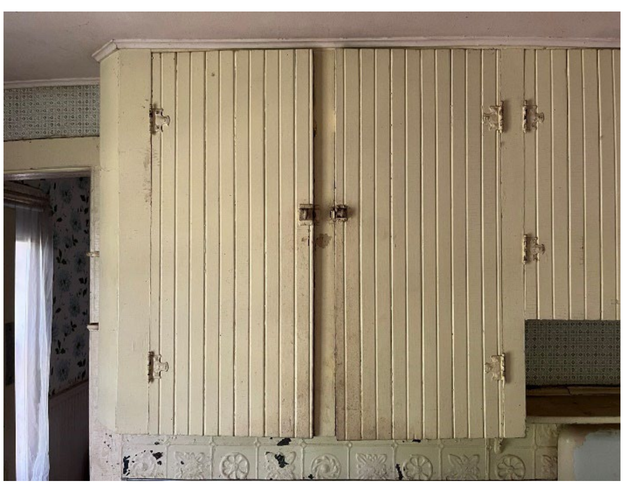


Figure 52. Wood cabinets in kitchen.


Figure 53. Built-in countertops, wood cabinets, and painted sink.

Figure 54. Built-in countertops, wood cabinets, and painted cast iron sink.

Figure 55. Through passage cabinet from kitchen to dining room.

Figure 56. Through passage cabinet from kitchen to dining room.

Figure 57. Wood beadboard and brick fireplace at south wall of back kitchen.

The back kitchen comprises the center of the west wing. Horizontal wood beadboard and brick fireplace are present on the south wall (Figure 57). Built-in wood cabinets and a sink are present on the north wall. A wood table attached to a built-in wood cabinet is located in the northwest corner (Figure 58). Two-panel half-light single wood doors lead to the exterior. Two five-panel single wood doors on the south wall connect to the men's room and maid's room.

Figure 58. Wood table and built-in cabinet at northwest corner of back kitchen.

Figure 59. Men's room.

The men’s room and maid’s room are located at the south end of the west wing (Figure 59 and Figure 60). There is a projection in the plaster wall from the back of kitchen fireplace chimney at the north wall in both rooms. The center of the maid’s room has a decorative linoleum tile laid over the wood flooring.

Figure 60. Maid's room.

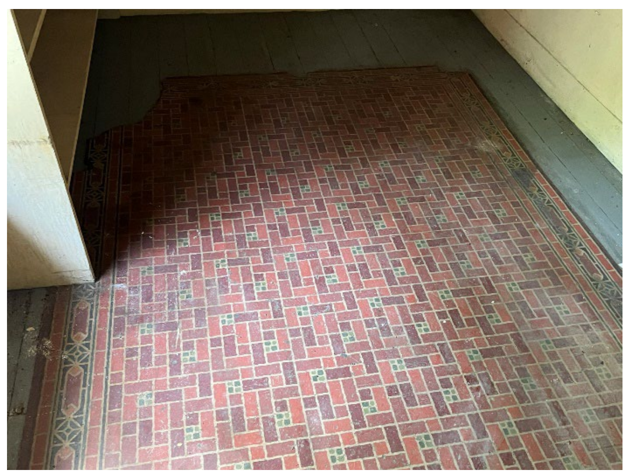


Figure 61. Decorative linoleum tile in maid's room.

Second Floor

The second floor matches the footprint of the main house and includes three bedrooms, a hallway, and a bathroom. The wood plank flooring is 1-1/4 inches wide running east to west, and the windows are typically two-over-two double-hung wood windows (Figure 62 and Figure 63). Two-panel wood doors provide access to the rooms from the hall.

Figure 62. 2-over-2 Double-hung windows at second floor.

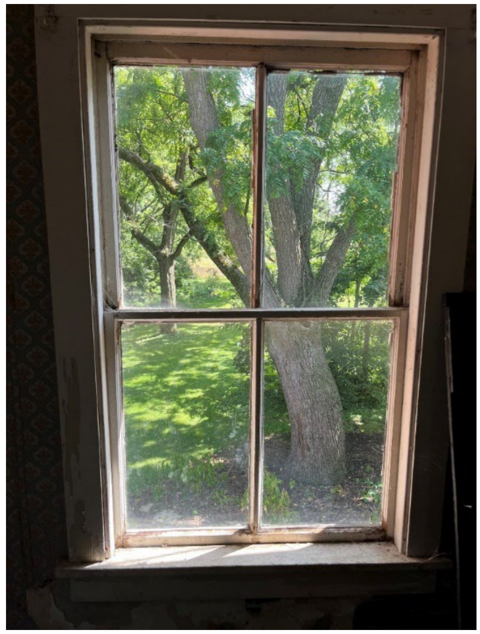


Figure 63. Two-over-two double-hung windows at second floor.

The stairs on the northwest wall of the house lead to a second story hall running east to west (Figure 64). Built-in wood cabinets and a small closet line the north wall. A wood access hatch door leading to the attic is present at the ceiling at the east end of the hall (Figure 65). There are four two-panel wood doors leading from the hall to the closet, bathroom, and bedrooms.

The front bedroom is located at the north end of the second floor and has a closet in the northwest corner (Figure 66). Two bedrooms are present at the south end of the second floor (Figure 67 and Figure 68). A built-in wood closet is located in the northeast corner of southwest bedroom. No closet is present in the southeast bedroom.

The second-floor bathroom is situated between the front bedroom and southeast bedroom (Figure 69). The flooring in the bathroom is a 9-inch-by-9-inch star-patterned composite tile.

Figure 64. Second story hall.

Figure 65. Wood access hatch in hall leading to attic.


Figure 66. Front bedroom from northwest corner.


Figure 67. Bedroom 2 from north.


Figure 68. Bedroom 3 from northwest corner.


Figure 69. Second floor bathroom from west.

Basement

The basement is located under the original portion of the house and consists of concrete flooring and stone foundation walls (Figure 70). A wood stair leads from the first floor to the basement (Figure 71). The original wood timber framing is exposed. Additional steel framing and columns are present, likely added by the Forest Preserve District at unknown date. The wood stair and fixed two-pane window are located on the west wall. Access to a crawl space beneath the west wing is located in the southwest corner of the basement.


Figure 70. Basement from northwest corner.


Figure 71. Wood stair leading to basement.

There is a small basement area under the east end of the east wing. This area was not accessed as part of this study.

Condition Assessment

Several conditions were observed as part of the limited condition assessment conducted for this study. While these conditions do not pose an immediate threat to the integrity of the structure, they should be remedied to prevent further damage from occurring.

The following notable conditions were observed at Oak Cottage:

Masonry

- Cracking was observed at mortar joints at the masonry stone foundation. The cracking had a stepped pattern and typically extended from the corner of the structure (Figure 72).
- Open and deteriorated mortar joints at the stone masonry foundation. The deteriorated joints were observed on the exterior walls and at the interior of the basement. In general, the joint deterioration at the exterior appears to be less severe than what is seen at the interior. Extensive deterioration is visible at the interior basement walls. The parge coat at the bottom of the interior basement wall has completely deteriorated, leaving the masonry exposed with mortar joints open. A majority of the observed deterioration is located at areas with water damage and efflorescence. These include the bottom courses of stone for the entire perimeter of the wall, stone units beneath windows, and stone units adjacent to downspouts. (Figure 73 through Figure 76)
- Deteriorated mortar joints were observed at the brick masonry chimneys located on the south wall of the main house and centered over the west wing (Figure 77).
- Minor displacement was observed at the chimney over the west wing, causing it to lean slightly toward to the north (Figure 78).
- Cracking and biological growth were observed on the parge coating on the masonry stone foundation of the west wing addition. The cracking is primarily located near corners of the foundation and below doors. Biological growth is generally located adjacent to downspout locations (Figure 79 and Figure 80).

- Settlement was observed at the masonry foundation walls of the main house. Movement and displacement of the interior finishes and flooring is present at the exterior walls in dining room, living room, and parlor (Figure 81 and Figure 82). Alterations have been made to the exterior door where the settlement has occurred and interior finishes appear intact, which suggests there is no active movement.
- Biological growth was observed on the concrete window wells (Figure 83).

Figure 72. Step cracking in masonry mortar joints at northeast corner.

Figure 73. Deteriorated parge coat and open mortar joints at interior masonry stone foundation wall.

Figure 74. Water damage and efflorescence at interior masonry stone foundation wall.

Figure 75. Open mortar joints at interior masonry stone foundation wall.

Figure 76. Water damage and efflorescence at interior masonry stone foundation wall.

Figure 77. Deteriorated mortar joints at chimney on south wall.

Figure 78. Minor masonry displacement at chimney over west wing.

Figure 79. Biological growth and cracking at parge coat on west wing foundation (yellow box).

Figure 80. Biological growth and corner cracking at parge coat on west wing foundation.

Figure 81. Evidence of past settlement at interior finishes in dining room.

Figure 82. Evidence of movement and displacement at door frame in dining room

Figure 83. Biological growth on the concrete window wells (yellow arrow).

Roofing

- Biological growth is present on the asphalt shingle roof. Most of the biological growth is concentrated on the south side of the main gable (Figure 84 and Figure 85).
- Staining is present at the edge of the EPDM roof and along seams in the membrane. Miscellaneous debris has collected at the southeast corner of the roof and biological growth was observed at the north (Figure 86 and Figure 87).

Figure 84. Biological growth on south side of gable roof at the west wing (yellow box).

Figure 85. Biological growth on south side of west wing gable roof.

Figure 86. Miscellaneous debris in gutter at the southeast corner of the house.

Figure 87. Biological growth on north roof over porch.

Wood

- Deterioration of exterior wood trim along the end grain was observed at some wood window and door components.
- Peeling and flaking paint was observed at the exterior wood soffits, window and door framing, louvered openings, wood plank siding, and porch railing and flooring. Paint failure is typical throughout all exterior wood components of the building (Figure 88 and Figure 89).
- Extensive deterioration of window glazing putty was observed at the south facing second-floor windows (Figure 90 and Figure 91).

Figure 88. Paint failure at exterior wood components.

Figure 89. Paint failure at window framing.


Figure 90. Deterioration of window glazing putty at second floor windows.


Figure 91. Deterioration of window glazing putty at second floor windows.

Interior Finishes

- Cracked, deteriorated, and missing plaster at walls and ceilings is present throughout the building, but particularly at exterior walls adjacent to doors and windows (Figure 92 through Figure 98). At some locations the plaster has fallen from the wall or ceiling, exposing the underlying wood lath (Figure 99 and Figure 100). The wood lath is damaged in some locations, particularly at the second floor bathroom, where past water infiltration was reported (Figure 101).
- Peeling and flaking paint at interior finishes including wood trim, plaster walls, and door and window sash and frames (Figure 103). Paint failure was prevalent throughout the house.
- Signs of damage related to past water infiltration were observed on plaster walls and ceilings along exterior walls (Figure 104). There were no signs or reports of active water infiltration.
- Water damage and deterioration of the second floor bathroom floor. Extensive floor damage is located around the bathtub and is likely due to past water leakage (Figure 105)
- Peeling wallpaper was observed on the plaster walls throughout the house, particularly at locations where plaster damage was present (Figure 106).
  - Apparent biological growth was observed at plaster wall and ceiling (Figure 107). Dark-colored biological growth was observed at the south wall in the kitchen and the ceiling in the living room (Figure 108 and Figure 109).

Figure 92. Cracked and deteriorated plaster at front bedroom ceiling.

Figure 93. Cracked and deteriorated plaster at living room ceiling.

Figure 94. Cracked and deteriorated plaster at ceiling.

Figure 95. Missing plaster and exposed wood lath at wall.

Figure 96. Cracked, deteriorated, and missing plaster at ceiling.

Figure 97. Cracked, deteriorated, and missing plaster at front bedroom wall.


Figure 98. Cracked, deteriorated, and missing plaster at front bedroom ceiling.


Figure 99. Missing plaster and exposed wood lath.


Figure 100. Damaged wood lath at plaster ceiling.


Figure 101. Extensive plaster damage and exposed wood lath at second floor bathroom.


Figure 102. Peeling and flaking paint at interior finishes.


Figure 103. Water damage and deteriorated plaster wall.

Figure 104. Water damage at second floor bathroom.

Figure 105. Water damage and deterioration at floor. Of second floor bathroom.

Figure 106. Peeled and missing wallpaper at cracked and damaged plaster at bedroom.

Figure 107. Biological growth on plaster at kitchen wall.

Figure 108. Biological growth at plaster ceiling in living room.

Figure 109. Biological growth at plaster ceiling in living room.

Preliminary Structural Analysis

Information used in the preliminary structural analysis is based on visual observation of accessible areas including but not limited to the attic of the original portion of the house, the basement under the original house and crawlspace under the east wing, and all rooms accessible on the interior. Two inspection openings were created to provide additional information: an opening in the wall in the east bedroom on the first floor, and an opening in the top of the wood flooring of the southeast bedroom on the second floor. From this information, likely typical conditions are extrapolated and analyzed below. Please note that portions of the structural framing were concealed behind finishes including but not limited to the majority of the framing for the first and second floor walls, the second floor floors (and ceiling attached to the bottom of these joists), and the first floor and roof framing in the west wing.

The analysis discussed below is not exhaustive of all existing conditions at Oak Cottage, but rather a preliminary analysis of the most common, typical conditions. The primary aim of the preliminary structural analysis was to determine if any alternation is necessary to accommodate a potential occupancy change, specifically in regard to opening the building for public use. Should a change in use for the building be determined, a comprehensive analysis would be required to address specific conditions and issues presented by the proposed reuse.

Description of Structural Systems

As described in previous sections of the report, Oak Cottage consists of a main two-story house constructed using ballon frame methods, one-story east and west wings, and a front porch.

The roof system typically consists of rafters and ceiling joists/rafter ties clad on the exterior with planks, plywood, and asphalt shingles. The floors consist of wood decking running perpendicular to joists that span between either walls or wood beams. Wood lath and plaster ceilings are typically attached to the underside of the floor joists. Where the joists are supported by beams, there is often an end notch where the joist is pocketed into the beam.

Where the joists are supported at walls, a ledger is cut into the stud with an approximately 1-inch-deep notch into the stud. The studs likely run continuously from the foundation wall to the top plate for the rafters. The studs are clad on the exterior with wood clapboard siding and on the interior with plaster and wood lath. Windows and window openings are located in the exterior walls. Verification of the framing around the windows was not a part of this inspection and should be considered in a comprehensive analysis. The foundation walls are typically masonry.

In the basement of the main building, steel beams and columns have been installed to supplement the wood framing for the first floor.

Relevant Codes, Occupancy Category and Use, and Live Load

As Oak Cottage is located in unincorporated DuPage County, the relevant code is the DuPage County Building Code (effective January 1, 2024), which references the 2021 International Existing Structures [sic] Code and the 2021 International Building Code (IBC). It is assumed that the reference to the 2021 International Existing Structures Code is a typographical error and should instead reference the common standard 2021 International Existing *Building* Code (IEBC).

Section 8-103.2 of the DuPage County Building Code states that "It shall be unlawful to make any change in use . . . which would subject [a structure or portion thereof] to any special provisions of this Code without approval of the Building Official . . . that such structure meets the intent of the provisions of law governing building construction for the proposed new use . . . and that such change does not result in any greater hazard to public safety or welfare." Therefore, if Oak Cottage is to undergo a change in use, it must meet the relevant building code provisions for the new occupancy classification.

Oak Cottage, if used as a single dwelling unit, would be considered a Residential Group R-3 occupancy classification per IBC Section 310.4. Per IEBC Section 1201.3, the code official is authorized to determine that the occupancy is Group B for a building in Group R-3 used for purposes such as museum tours, exhibits, and other public assembly activities (provided a report by a registered design professional per Section 1021.2 is filed with the code official). Although the District will likely seek to meet the code as possible if the building use is changed, some discretion by the code official may be allowed, if the building is used as a house museum in the future.

Absent specific code accommodations due to its historic nature, the most likely new occupancy classification for public use of Oak Cottage is Assembly Group A-3 per IBC Section 303.4. This occupancy classification includes "other assembly uses not classified elsewhere in Group A." The IBC provides examples of uses of this occupancy classification including art galleries, libraries, and museums.

Regardless of the use classification, the live load required for "other assembly areas" per IBC Table 1607.1 is 100 pounds per square foot (psf). All analysis was completed initially assuming a live load of 100 psf. However, per IEBC Section 1205.1, Exception 1, "The code official shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor." Therefore, if a member is not able to resist a live load of 100 psf, the allowable distributed live load is provided as well.

Wood Samples, Species Identification, and Assumed Properties

All wood samples were taken from the main house and were representative of basement columns, beams, and joists. Samples of the joist and stud at their respective inspection opening were also taken. A total of eight samples was sent to Lingo Logic LLC (Lingo Logic) for species identification so that proper material properties could be utilized in analysis. Three distinct wood species were identified by Lingo Logic:

- Basement columns: Red Oak
- Basement beams: White Oak
- Joists and studs: Red Pine

The IBC references the 2018: National Design Specification (NDS) for Wood Construction – With 2018 NDS Supplement. In lieu of historical properties, contemporary properties from the supplement are conservatively utilized. Based on the infrequency of knots and straight slope of grain observed during the field observations, the grade of assumed for Red Pine was Select Structural. Values for Red Pine are published for members with a cross-section larger than 5 inches by 5 inches, and for decking. As the dimensions of the joists and studs fall between these cross-sections, the smaller values for the larger cross-sections are utilized.

Member Analysis

As the proposed new occupancy is primarily related to a change in the live load, only the gravity system affected by interior live load was analyzed in this preliminary analysis. Analysis of the lateral load system, roof/rafters, and other elements can be completed as part of a comprehensive analysis.

The results of the structural analysis are reported as demand-to-capacity ratios (DCRs). "Demand" refers to the forces placed on the system by the environment, such as the self-weight of the structure or the weight of occupants. "Capacity" refers to the ability of the element to resist a force, such as a beam's ability to resist moment or a stud's ability to resist a compression force. A DCR is calculated by dividing the demand by the capacity. A DCR under 1.0 indicates that the member has sufficient capacity to resist code-prescribed demands, and therefore meets code requirements. A DCR over 1.0 indicates that the demand on a member is greater than its capacity and therefore the member does *not* meet code requirements. It should be noted that a DCR over 1.0 does not necessarily indicate that the member has failed or will fail when subject to the code-prescribed load, but rather that the code-prescribed *probability* of failure is greater than what is allowed by the code. Substantial variability in a natural material like wood and transient loads such as occupant or "live" load lead to code provisions that require a higher factor of safety against failure.

All DCRs are calculated based on self-weight, superimposed dead load, and a live load of 100 psf.

Wood Decking

The wood decking is approximately 5 inches wide by 1-1/4 inch deep, and spans between wood joists. Although no samples were taken, Red Pine was assumed for the species. Given the low moment DCR of 0.1 at a joist spacing of 20 inches, no further wood species identification or analysis is required to conclude that additional strengthening is not required for the wood decking.

Main House Basement First-Floor Framing

Wood Joists

The approximately 2-1/2-inch-wide by 7-inch-deep wood joists for the main house first-floor framing are typically three-span continuous in the north–south direction over the supplemental steel beams and columns. Atypical framing exists starting at the west wall and extending 3 feet to the east, as well as at the south wall extending 1 foot 1 inch to the north. These atypical framing conditions should be considered in a comprehensive analysis.

Conservatively, the wood joists were assumed to cantilever at the end and the middle span was assumed to act as simply supported. A moment DCR of 0.99 controls for the simply supported middle span, thus no strengthening is required for the typical joist.

It should be noted that a significant notch exists at the end of the tension side of the joists where they frame into the wood beam. If, instead of a cantilever assumption for the joist ends, the joist–wood beam connection was required, the notches would limit the joist capacity to approximately 50 psf.

Wood Columns and Beams

Due to the assumption that the joists are cantilevered on the exterior spans, the wood columns and beams are no longer required to carry load from the joists and thus no analysis for that load is required. It can be assumed that joist load that would have been resisted by the wood columns and beams is now resisted by the supplemental steel beams and columns.

The wood beam and columns currently support the upper end of the stairs to the basement with a moment DCR of 0.36. No additional strengthening for the staircase header is required. However, a temporary shoring post is currently positioned where the stringer frames into the beam. The shoring post does not appear to be necessary to meet code requirements.

Supplemental Steel Columns and Beams and Soil Bearing

As the yield stress in the steel is not known, a conservative assumption of 36 kips per square inch was assumed. The DCRs are sufficiently low that no further investigation of the yield stress is required.

The steel W5x16 beams are three-span continuous in the east/west direction and span over two columns. The exterior spans of the steel beams are cantilevered. A moment DCR of 0.46 for the cantilever portion of the beam controls.

The approximately HSS3.5X0.203 columns can conservatively be considered fixed-free, and the resulting axial DCR is 0.63. An additional moment equal to an eccentricity of 3 inches could be applied prior to achieving an interaction ratio of 1.0. This is sufficient for the applied loads. A column thickness of approximatly 0.2 inches was confirmed using ultrasonic pulse velocity measurements. The connections, including the baseplate and column/beam connection, should be considered in a comprehensive analysis.

The thickness of the footings was not confirmed, but a modified area of the basement slab under the column measuring at least 28 inches square was observed. Assuming that this modified area of the slab is evidence of a footing with adequate strength to transfer the forces to the full footing area, and assuming a soil bearing capacity of 3,000 psf, the soil bearing DCR is 0.46. Additional investigation of the footings should be considered in a comprehensive analysis.

Lateral forces are assumed to be resolved at the foundation walls and thus no lateral load is considered on the supplemental steel beams and columns.

Stairs

The notched 2x12 stair stringers for the stairs from the basement to the to the first floor have a moment DCR of 4.24 and are not sufficient for a 100 psf live load. A DCR of 1.0, and thus the required code-prescribed safety factor against failure, is achieved when the distributed live load is 18 psf. This element may be reinforced by fastening additional members to the existing stringer (sistering) or by the installation of additional notched stringer(s) between the treads/risers. The connection of the stringer to the header should be considered in a comprehensive analysis.

Main House Second-Floor Framing

Second-floor Joists

The east support for the 2-3/8-inch-wide-by-11-inch-deep second-floor joist viewed in the inspection opening was the main house east wall. The west support for this joist could not be viewed from the inspection openings created for this study. It is reasonable to assume that this joist either bears on an interior wall or that the joist is supported in a similar manner on the west exterior wall. Though likely not necessary, a comprehensive analysis may include confirmation of the west support for this joist.

For purposes of this analysis, the joist was assumed to span from foundation wall to foundation wall. A moment DCR of 1.0 was calculated for these joists, and no further strengthening is likely required.

Stud

The stud that supports the second-floor framing has an axial compression DCR of 0.61 (neglecting the roof load). Given the conservative assumptions for the joist span, the studs are unlikely to require strengthening. The notched-in ledger and roof loads should be considered in a comprehensive analysis.

East Wing First-Floor Framing

Unlike the main house basement first-floor framing, there is no supplemental steel to support the wood framing of the east wing. The first-floor framing is divided into a system under the downstairs bedroom and a system under the east room.

East Bedroom

An off-center north–south beam is flanked to the east and west by 2-inch-wide-by-8-inch-deep joists. Similar to the main house basement joists, these joists have a significant notch at the end of the tension side of the joist where they frame into the wood beam. However, as there is no alternate load path, the notch must support the gravity load and limits the capacity of the joist.

The west side of the west span is supported on a ledger attached to the main house framing and the east side is notched and supported by the off-center beam. The moment DCR is 1.53 and the shear DCR is 3.21. A DCR of 1.0 is achieved with a uniform load of 28 psf. To support a live load of 100 psf, two lines of north–south steel shoring could be installed for a repair that is similar to that in the basement of the main house.

The west side of the east span is notched and supported by the off-center beam and the east side is supported on a beam that bears on the foundation wall. The moment DCR is 0.52 and the shear DCR is 1.82. A DCR of 1.0 is achieved with a uniform load of 52 psf. To support a live load of 100 psf, the ends of the joists can be strengthened or two lines of north–south steel shoring could be installed for a repair that is similar to that in the basement of the main house.

As strengthening of the joists is required to achieve the full live load of 100 psf, the off-center beam, the ledger, and foundation wall beam (which spans a gap up to 4 feet long in the foundation wall) were not analyzed as part of this report but should be considered in a comprehensive analysis.

Additionally, there is likely settlement of the south portion of the downstairs east bedroom. A gap of approximately 2 inches has opened up between the top of the downstairs bedroom wall and the south wall of the main house, which is indicative of rotation, likely due to settlement. This should be considered in a comprehensive analysis.

East Room

The 2-inch-wide-by-8-inch-deep east room joists span in the north–south direction and are supported with metal face-mounted joist hangers attached to a single 2x header at the south end of the joists. These joists are not notched. The joist moment DCR is 0.96 and the header moment DCR is 2.25. A DCR of 1.0 is achieved with a uniform load of 40 psf. The header can be strengthened by fastening another member to the header (sistering).

Support of the header and framing near the covered, abandoned staircase in the southeast corner of the room should be considered in a comprehensive analysis.

EVALUATION OF SIGNIFICANCE

Significance Criteria

The Criteria for Evaluation for listing in the National Register of Historic Places state:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
> B. That are associated with the lives of persons significant in our past; or
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> D. That has yielded, or may be likely to yield, information important in prehistory or history.
>
> **Criteria Considerations**
>
> Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> a. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
> b. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
> c. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
> d. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
> e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
> f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
> g. A property achieving significance within the past 50 years if it is of exceptional importance.[22]

[22] *Code of Federal Regulations, Title 36, Part 60,* "The National Register Criteria for Evaluation."

Significance Evaluation

Based on the research and analysis conducted for this study, Oak Cottage is locally significant based on several criteria for evaluation for listing in the National Register of Historic Places. Although many additions were made to the house in the latter half of the nineteenth century, these additions do not detract from the significance of Oak Cottage, as this practice was typical at the time; houses were often expanded to meet the needs of a growing family or to accommodate multiple generations.

Character-Defining Features

The historic nature of significant buildings and structures is defined by their character, which is embodied in their identifying physical features. Character-defining features can include the shape of a building; its materials, craftsmanship, interior spaces, and features, and the different components of its surroundings. There are several interior and exterior elements that contribute to the historic character of Oak Cottage.

Assessment of Integrity

Assessment of integrity is based on an evaluation of the existence and condition of the physical features which date to a property's period of significance, taking into consideration the degree to which the individual qualities of integrity are present. The seven aspects of integrity as defined in the National Register Criteria for Evaluation are location, design, setting, materials, workmanship, feeling, and association. As noted in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*:

> Location is the place where the historic property was constructed or the place where the historic event occurred. . . . Design is the combination of elements that create the form, plan, space, structure, and style of a property. . . . Setting is the physical environment of a historic property. . . . Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . . Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. . . . Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. . . . Association is the direct link between an important historic event or person and a historic property.[23]

The property must retain the essential physical features that enable it to convey its historical significance. The essential physical features are those features that define both why a property is significant (National Register criteria) and when it was significant (period of significance). The National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*, defines integrity as "the ability of a property to convey its significance."[24] Based on the research and analysis conducted for this study, Oak Cottage possesses and retains several physical features that contributes to its integrity.

[23] National Register Bulletin, *How to Apply the National Register Criteria for Evaluation* (Washington, DC: Government Printing Office, 1997), 44–45.

[24] National Register Bulletin, *How to Apply the National Register Criteria for* Evaluation, 44–45.

TREATMENT AND RECOMMENDATIONS

Treatment Approaches

The U.S. National Park Service has developed definitions for the four major treatments that may be applied to historic structures: preservation, rehabilitation, restoration, and reconstruction. The three definitions that the Forest Preserve District of DuPage County has requested be addressed by this study are preservation, rehabilitation, and restoration, which are defined in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* as follows:

> **Preservation** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code- required work to make properties functional is appropriate within a preservation project.
>
> **Rehabilitation** is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.
>
> **Restoration** is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.[25]

The National Park Service also defines the overarching treatment ***Reconstruction***, which is not relevant to the current study. Instead, the Forest Preserve District of DuPage County has included a fourth treatment alternative of ***Demolition***.

The Forest Preserve District of DuPage County's *Policy on the Management of Historical and Cultural Resources for Historic Structures*, defines the treatment approaches of preservation, rehabilitation, restoration, and demolition as follows:

> **Preservation** maintains the authenticity of a property's historic identity/appearance and prominent or distinctive characteristics by arresting or retarding deterioration caused by natural forces and normal use.
>
> **Rehabilitation** improves the utility or function of a historic structure through repair or alteration to make possible a *compatible, contemporary, or adaptive use* while preserving those portions or features that define its significance.
>
> **Restoration** accurately presents the form, features, and character of a historic property as it appeared at a specific period.

[25] Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, D.C.: National Park Service, Historic Preservation Services, 2017).

Demolition is any act or process that destroys in part or in whole a historic structure.[26]

Recommendations and Opinion of Probable Costs

The following repair measures are recommended for Oak Cottage at Greene Valley Forest Preserve, based on the limited survey conducted for this study. In terms of prioritization as described below, high priority work should be performed within approximately the next one to two years; medium priority work should be performed within approximately the next two to five years; and low priority work should be performed within approximately the next five to ten years. Recommendations have been provided for each treatment approach defined above, with some recommended repairs listed under multiple approaches.

The recommendations provided are limited to repairs to address distress conditions noted during this limited survey. They do not take into account alterations or improvements that may be needed to accommodate a new use.

Included with the recommendations are opinions of probable cost for the recommendations associated with each treatment approach. The costs are intended to provide preliminary guidance to the Forest Preserve District in developing near-term project budgets for the recommended repairs. The prices have been developed based on our in-house experience with other similar projects and published construction cost data, adjusted for the project scope and location of this building. A more detailed estimate of costs can be developed once a repair design and more specific scope of work have been prepared.

The general costs are estimated for recommended repairs described under each treatment approach, to address distress conditions noted during this limited survey. These costs assume a prevailing wage rate and also include costs relating to design fees and permits, as well as a 10 percent contingency.

Preservation

Preservation involves the maintenance and repair of historic structures and materials in their existing form. At Oak Cottage, this would entail retaining the original portion of the house as well as the various nineteenth-century additions that comprise the east and west wings. *Preservation* does allow for limited alterations required by code to permit continued use of the property. The *Policy on the Management of Historical and Cultural Resources for Historic Structures* notes the following management strategies for the preservation of historic structures: maintenance, stabilization, or planned conservation (mothballing). *Preservation* may require additional consideration if extensive alterations are required to accommodate a new use for the building.

The following recommendations apply to the treatment approach *Preservation*. These repairs focus on stabilizing the exterior envelope while also making repairs to distress conditions noted at the building's interior to prevent further deterioration.

Masonry

- Repoint cracked, deteriorated, and open joints at both the interior and exterior stone masonry foundation walls. Repointing should occur at mortar joints where deterioration is observed. Sound

[26] *Policy on the Management of Historical and Cultural Resources Purpose*. Forest Preserve District of DuPage County, January 27, 2015.

mortar should remain in place, where possible. If extensive deterioration is present, consideration should be given to repointing an overall area rather than spot pointing localized areas of deterioration. New mortar should match the existing mortar in color, texture, and composition. (high priority)

- Repoint cracked and deteriorated mortar joints at the brick masonry chimneys. Repointing should occur at mortar joints where deterioration is observed. Sound mortar should remain in place, where possible. If extensive deterioration is present, consideration should be given to repointing an overall area rather than spot pointing localized areas of deterioration. New mortar should match the existing mortar in color, texture, and composition. (high priority)
- Remove cracked parge coating at the west wing foundation. Do not remove sound parge coating. Examine exposed masonry substrate and perform necessary repairs, including repointing of cracked or deteriorated mortar. Sound mortar should remain in place, where possible. New mortar should match the existing mortar in color, texture, and composition. Following masonry repairs, apply new parge coating to match the existing coating in color, texture and finish, and composition. (high priority)
- Regularly monitor west wing chimney for any movement or distress that may be caused by ongoing movement included cracks in brick and mortar joints. (high priority) If movement is ongoing, investigate conditions and implement repairs.

Wood

- Repaint exterior of house including wood elements such as siding, trim, windows, doors, and shutters. Implement wood repairs outlined below in conjunction with repainting project. Wood should be scraped to remove loose material and properly prepared prior to application of primer and paint. (medium priority)
- Replace deteriorated wood trim in kind. Cut out and remove deteriorated sections of trim and replace with new boards that match the material and profile of the existing wood trim. Prime and paint new wood to match existing. (high priority)
- Replace deteriorated wood window and door elements in kind. Cut out and remove deteriorated wood elements and replace with new wood that matches the profile of the existing. Prime and paint new wood to match existing. (high priority)
- Deteriorated glazing putty at wood windows should be removed and the sash reglazed using an oil-based glazing putty. Note that based on testing previously conducted by the District, the existing glazing putty contains asbestos and should be properly abated. (high priority)

Roofing

- Although limited distress was noted at the roof, given its age, the roof may require replacement in the next five years to ten years. The roof should be regularly monitored, and the District should plan for future roof replacement during this time period. (low priority)

Interior Finishes

- Consideration could be given to delaying minor repairs to interior finishes such as the repair of smaller cracks and repainting of the interior walls if the building will be mothballed. If the building is mothballed, the interior should be regularly monitored to determine if any existing conditions are worsening, or new conditions have developed.

- Larger cracks, particularly those associated with delamination of the finish plaster coat from the base coat or separation from the wood-lath substrate appear to have been caused by past moisture intrusion. Repair plaster cracks in accordance with NPS *Preservation Brief No. 21: Repairing Historic Flat Plaster Walls and Ceilings*. Where delamination of the plaster has occurred, remove the smallest area of existing plaster necessary to achieve proper re-keying of new plaster to the existing wood lath or new metal lath attached to the wood lath. Apply new plaster to the delaminated area and repaint the entire wall or ceiling from corner to corner with an alkaline-resistant primer and compatible acrylic latex paint. (medium priority)
- Repair damaged wood floors. New wood should match existing flooring in size and color. Consideration could be given to refinishing floors in conjunction with wood floor repair. (medium priority)

Miscellaneous

- Mothballing of the building could be undertaken until an appropriate use for the structure is found. If this approach is taken, the National Park Service's *Preservation Brief 31: Mothballing Historic Buildings*, should be referenced. If the building is mothballed, it is important to maintain a consistent temperature and avoid moisture accumulation and freezing while managing humidity on the interior of the building.
- Continue to perform cyclical maintenance on the property, particularly at the exterior envelope to ensure the building remains watertight.

Opinion of Probable Costs

The following opinion of probable costs for the *Preservation* treatment approach has been developed based upon the limited condition survey completed for this project. It is intended to provide preliminary guidance to the Forest Preserve District of DuPage County in developing near-term project budgets for the recommended repairs. The prices have been developed based on our in-house experience with other similar projects and published construction cost data, adjusted for the project scope and location of this building. A more detailed estimate of costs can be developed once a repair design and more specific scope of work have been prepared.

The following general costs are estimated for recommended repairs described above focus on stabilizing the exterior envelope, while also making repairs to address distress conditions noted at the building's interior to prevent further deterioration. . These costs assume a prevailing wage rate and also include costs relating to design fees and permits, as well as a 10 percent contingency.

Repair Category	Opinion of Costs
Masonry	$ 25,000
Wood	45,000
Roofing	30,000
Select Interior Finishes	25,000
Miscellaneous (cyclical maintenance; annual)	4,000
Total	**$ 129,000**

Restoration

Restoration would return the residence to its appearance to the time during a particular period, such as immediately following the building's original construction or during the period when the Greene family owned and occupied the house. While allowed, work done to satisfy code requirements must be assessed for its impact on the historic structure. While *Restoration* could be considered, sufficient archival documentation does not exist to properly restore the house to its original or historic appearance. Recommendations for this treatment approach were therefore not developed as part of this study.

Rehabilitation

Rehabilitation provides greater latitude to replace deteriorated, damaged, or missing features than the other treatment approaches and also allows alterations to be made to Oak Cottage to permit continued use of the structure by the District. As a treatment approach, *Rehabilitation* would allow repairs to be made to the house to accommodate reuse, as well as to meet universal accessibility codes as necessary. *Rehabilitation* would also permit selective restoration of character-defining elements where missing or altered, if appropriate archival documentation is available. With repairs and continued maintenance, *Rehabilitation* would allow for adaptive reuse of the structure.

Masonry

- Repoint cracked, deteriorated, and open joints at both the interior and exterior stone masonry foundation walls. Repointing should occur at mortar joints where deterioration is observed. Sound mortar should remain in place, where possible. If extensive deterioration is present, consideration should be given to repointing an overall area rather than spot pointing localized areas of deterioration. New mortar should match the existing mortar in color, texture, and composition. (high priority)
- Repoint cracked and deteriorated mortar joints at the brick masonry chimneys. Repointing should occur at mortar joints where deterioration is observed. Any sound mortar should remain in place, where possible. If extensive deterioration is present, consideration should be given to repointing an overall area rather than spot pointing localized areas of deterioration. New mortar should match the existing mortar in color, texture, and composition. (high priority)
- Remove cracked parge coating at the west wing foundation. Do not remove sound parge coating. Examine exposed masonry substrate and perform any necessary repairs, including repointing of cracked or deteriorated mortar. Sound mortar should remain in place. New mortar should match the existing mortar in color, texture, and composition. Following masonry repairs, apply new parge coating to match the existing coating in color, texture and finish, and composition. (high priority)
- Regularly monitor west wing chimney for any movement or distress that may be caused by ongoing movement included cracks in brick and mortar joints. (high priority) If movement is ongoing, investigate conditions and implement repairs.
- Clean biological growth at masonry foundation and concrete window wells. Cleaning should be undertaken using the gentlest means possible, including low-pressure water and detergent with a natural bristle brush. Consideration can be given to using a mild biocide to limit recurrence of biological growth. (low priority)

Roofing

- Clean biological growth at roof areas. Cleaning should be undertaken using the gentlest means possible, including low-pressure water and detergent. Consideration can be given to using a mild biocide to limit recurrence of biological growth. (low priority)
- Although limited distress was noted at the roof, given its age, the roof may require replacement in the next five years to ten years. The roof should be regularly monitored, and the District should plan for future roof replacement during this time period. (low priority)

Wood

- Repaint exterior of house including wood elements such as siding, trim, windows, doors, and shutters. Implement wood repairs outlined below in conjunction with repainting project. Wood should be scraped to remove loose material and properly prepared prior to application of primer and paint. (medium priority)
- Replace deteriorated wood trim in kind. Cut out and remove deteriorated sections of trim and replace with new boards that match the material and profile of the existing wood trim. Prime and paint new wood to match existing. (high priority)
- Replace deteriorated wood window and door elements in kind. Cut out and remove deteriorated wood elements and replace with new wood that matches the profile of the existing. Prime and paint new wood to match existing. (high priority)
- Deteriorated glazing putty at wood windows should be removed and the sash reglazed using an oil-based glazing putty. Note that based on testing previously conducted by the District, the existing glazing putty contains asbestos and should be properly abated. (high priority)

Interior Finishes

- Hairline cracks in plaster walls and ceilings (generally less than 1/16 of an inch wide) do not require repair, but these minor cracks should be monitored and repaired if they widen over time because of interior environmental changes, moisture intrusion, or structural problems.
- Linear cracks in plaster walls and ceilings that are wider than 1/16 inch should be patched with a compatible patching plaster mixture, sanded, and painted. Patching plaster can be reinforced with fiberglass glass mesh when repairing cracks that tend to reappear. Patching should only be done after the condition(s) causing the crack are addressed. Repair plaster cracks in accordance with NPS *Preservation Brief No. 21: Repairing Historic Flat Plaster Walls and Ceilings*. (low priority)
- Larger cracks, particularly those associated with delamination of the finish plaster coat from the base coat or separation from the wood-lath substrate, appear to have been caused by past moisture intrusion. Repair plaster cracks in accordance with NPS *Preservation Brief No. 21: Repairing Historic Flat Plaster Walls and Ceilings*. Where delamination of the plaster occurred, remove the smallest amount of existing plaster necessary to achieve proper re-keying of new plaster to the existing wood lath or new metal lath attached to the wood lath. Apply new plaster to the delaminated area and repaint the entire wall or ceiling from corner to corner with an alkaline-resistant primer and compatible acrylic latex paint. (medium priority).
- Remove stained, loose, cracked, and blistered paint, sand as needed to prepare the surface, prime, and repaint. (medium priority)

- Repair damaged wood floors. New wood should match existing flooring in size and color. Consideration could be given to refinishing floors in conjunction with wood floor repair. (medium priority)

Structural

- Add steel shoring under the east bedroom if a new occupancy that allows public use is selected. (medium priority; high priority if building takes on new use)
- Strengthen header under the east room by sistering a new wood member to the existing header. (medium priority; high priority if building takes on new use)

Miscellaneous

- If the building takes on a new compatible public use, alterations to make Oak Cottage accessible should be explored during the design phase, if required by code. New ramps to allow for access could be considered on the west facade of the west wing. Additional alterations relating to fire protection and life safety may also be required by code, depending on the new use.
- Continue to perform cyclical maintenance on the property.

Opinion of Probable Costs

The following opinion of probable costs for the *Rehabilitation* treatment approach has been developed based upon the limited condition survey completed for this project. It is intended to provide preliminary guidance to the Forest Preserve District of DuPage County in developing near-term project budgets for the recommended repairs. The prices have been developed based on our in-house experience with other similar projects and published construction cost data, adjusted for the project scope and location of this building. A more detailed estimate of costs can be developed once a repair design and more specific scope of work have been prepared.

The following general costs are estimated for recommended repairs described above. A range of costs has also been provided related to potential adaptive reuse of the building. This cost range includes installation of new mechanical systems, interior improvements, accessibility improvements, and site improvements, but does not include costs associated with upgrades for energy conservation measures, such as new windows or additional insulation, or any upgrades needed to bring utilities to the building. Actual costs will depend on the extent of alterations made to the building. All costs assume a prevailing wage rate and also include costs relating to design fees and permits as well as a 10 percent contingency.

Repair Category	Opinion of Costs
Masonry	$ 28,000
Roofing	32,000
Wood	50,000
Select Interior Finishes	40,000
Structural	50,000
Miscellaneous (cyclical maintenance; annual)	4,000
Total	**$204,000;**
Potential Adaptive Reuse Costs (range)	**75,000 to 150,000**
Total with Potential Adaptive Reuse Costs	**$ 279,000 to 354,000**

Demolition

Demolition would result in the removal of the house. Given the condition of the house, the lack of identified use and available resources to support the structure, and unsuccessful past attempts by the District to identify an outside group to take on restoration and management of Oak Cottage, demolition could be considered. If demolition were to proceed, the District should document the structure in consultation with the Illinois Department of Natural Resources, Historic Preservation Division. For example, narrative, drawing, and photographic documentation in accordance with Historic Illinois Building Survey (HIBS) standards could be prepared to provide a record of the historic structure.

Opinion of Probable Costs

The following opinion of probable costs for the *Demolition* treatment approach is intended to provide preliminary guidance to the Forest Preserve District of DuPage County in developing a budget for the demolition of the building, should this treatment approach be followed. The prices have been developed based on our in-house experience and published construction cost data, adjusted for the project scope and location of this building. Costs relating to any mitigation effort required by the State of Illinois, such as documentation of the house to HIBS standards, have also been included.

The following general costs are estimated for demolition of the house. These costs assume a prevailing wage rate and also include costs relating to design fees and permits as well as a 10 percent contingency.

Repair Category	Opinion of Costs
Demolition (including hazardous material abatement)	$ 60,000
Mitigation (documentation of house prior to demolition)	20,000
Total	**$ 80,000**

BIBLIOGRAPHY

Andreas, A. T. *History of Chicago, from the Earliest Period to the Present Time*. Chicago: A. T. Andreas, 1884.

Bateman, Newton. *Historical Encyclopedia of Illinois.* Chicago: Munsell Publishing Company, 1913.

Code of Federal Regulations, Title 36, Part 60, "The National Register Criteria for Evaluation."

Conzen, Michael P. "The Birth of Modern Chicago," *1848: Turning Point for Chicago, Turning Point for the Region*. Chicago: The Newberry Library, 1998.

DuPage County Building Code, effective January 1, 2024.

Forest Preserve District of DuPage County. *Policy on the Management of Historical and Cultural Resources.* Purpose. January 27, 2015.

Forest Preserve District of DuPage County, Facilities Management. Greene Valley Oak Cottage Work Orders 2002–2012.

________. Greene Valley Oak Cottage Work Orders 2019–2024.

Gale, Neil, Ph.D. "The History of Fort Payne (1832) in the Naper Settlement, Today's Naperville, Illinois," September 10, 2018, https://drloihjournal.blogspot.com/2018/09/history-of-fort-payne-1832-in-the-naper-settlement-todays-naperville-illinois.html.

________. "Captain John Stevens, Naperville Illinois' First Professional Builder."

Greene, William Bertram. *The Greenes on the East Branch of the DuPage*. 1966.

Grimmer, Anne E. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings.* Washington, D.C.: National Park Service, Historic Preservation Services, 2017.

Koop, Michael. "German-Russians," *America's Architectural Roots: Ethnic Groups that Built America*, Dell Upton, ed. New York: Preservation Press, John Wiley & Sons, 1986.

National Register Bulletin, How to Apply the National Register Criteria for Evaluation Washington, D.C.: Government Printing Office, 1997.

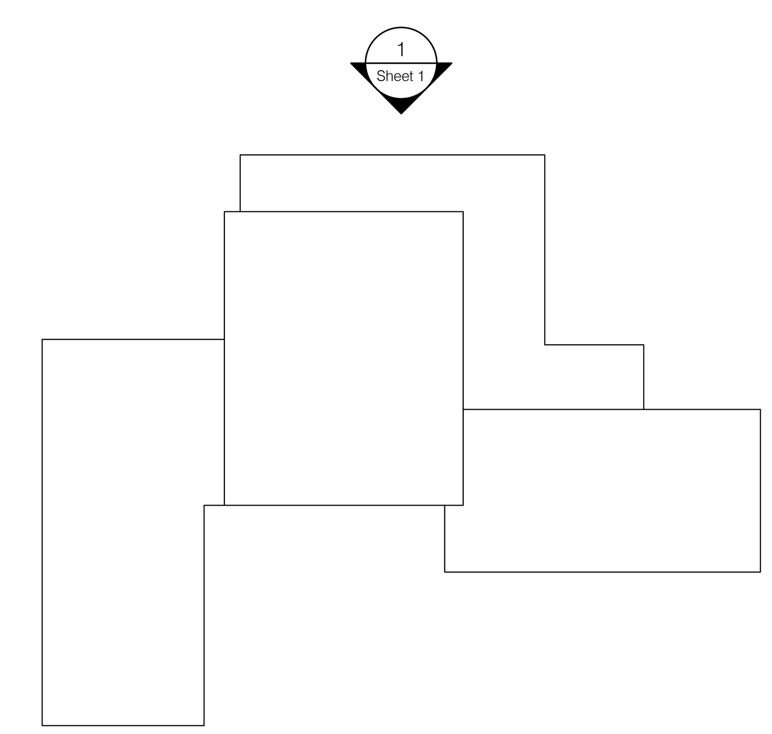
Natesan, Revati. *Naperville's Greene Barn and Oak Cottage*. Charleston: Arcadia Publishing, 2022.

Peterson, Fred W. *Homes in the Heartland: Balloon Frame Farmhouses of the Upper Midwest, 1850–1920*. Lawrence, Kansas: University Press of Kansas, 1992.

Sprague, Paul E. "Chicago Balloon Frame: The Evolution during the 19th Century of George W. Snow's System for Erecting Light Frame Buildings from Dimension Lumber and Machine-made Nails," *The Technology of Historic American Buildings*, H. Ward Jandl, ed. Washington, D.C.: Foundation for Preservation Technology of the Association for Preservation Technology International, 1983.

APPENDIX A: MEASURED DRAWINGS

1 North Elevation
Scale: 1/4" = 1'-0"



2 Key Plan
Scale: 1/16" = 1'-0"

SHEET NUMBER 1

CULTURAL RESOURCE EVALUATION

NAPERVILLE, ILLINOIS

OAK COTTAGE

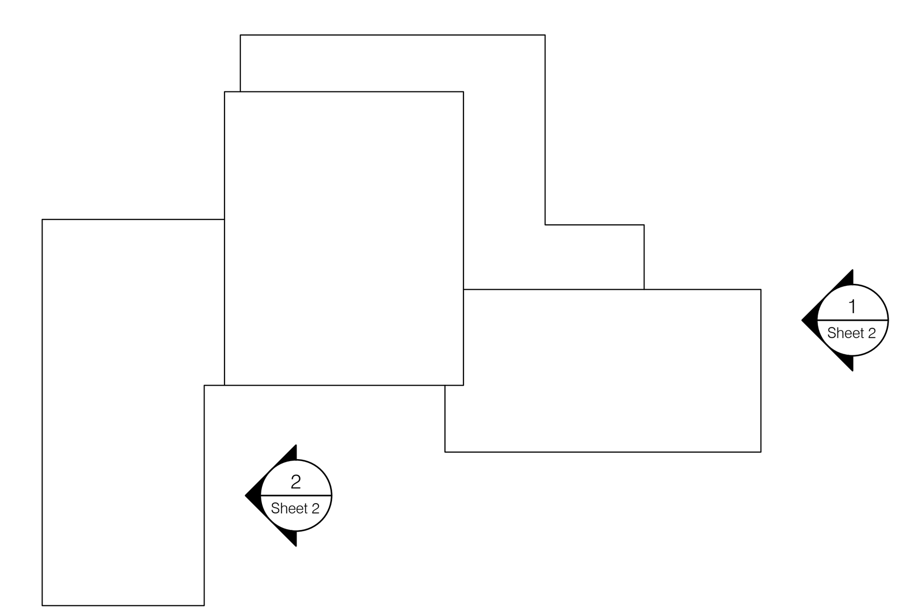
GREENE VALLEY FOREST PRESERVE

FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, 2025

1 East Elevation
Scale: 1/4" = 1'-0"

2 Partial East Elevation
Scale: 1/4" = 1'-0"



3 Key Plan
Scale: 1/16" = 1'-0"

OAK COTTAGE

CULTURAL RESOURCE EVALUATION

NAPERVILLE, ILLINOIS

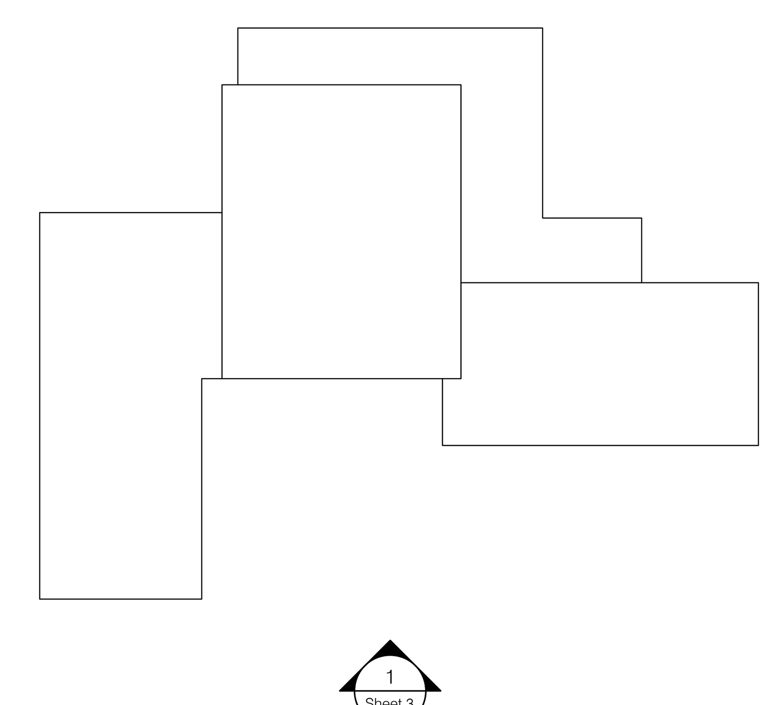
GREENE VALLEY FOREST PRESERVE

FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, 2025

2

1 South Elevation
Scale: 1/4" = 1'-0"



2 Key Plan
Scale: 1/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, 2025

3

CULTURAL RESOURCE EVALUATION

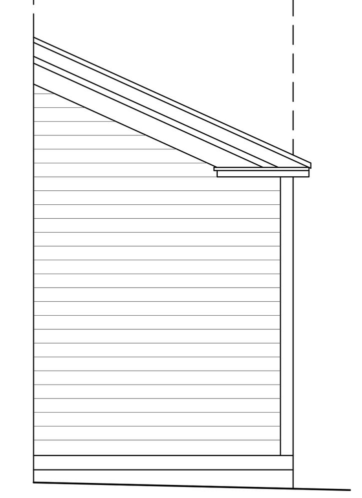
NAPERVILLE, ILLINOIS

OAK COTTAGE

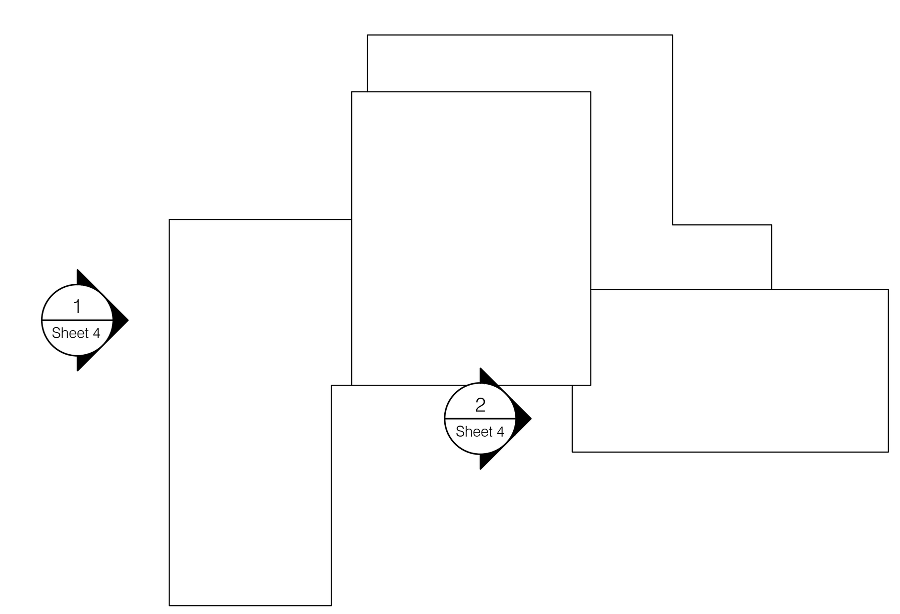
GREENE VALLEY FOREST PRESERVE

FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

1 East Elevation
Scale: 1/4" = 1'-0"



2 Partial West Elevation
Scale: 1/4" = 1'-0"



3 Key Plan
Scale: 1/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, 2025

FOREST PRESERVE DISTRICT
OF DUPAGE COUNTY

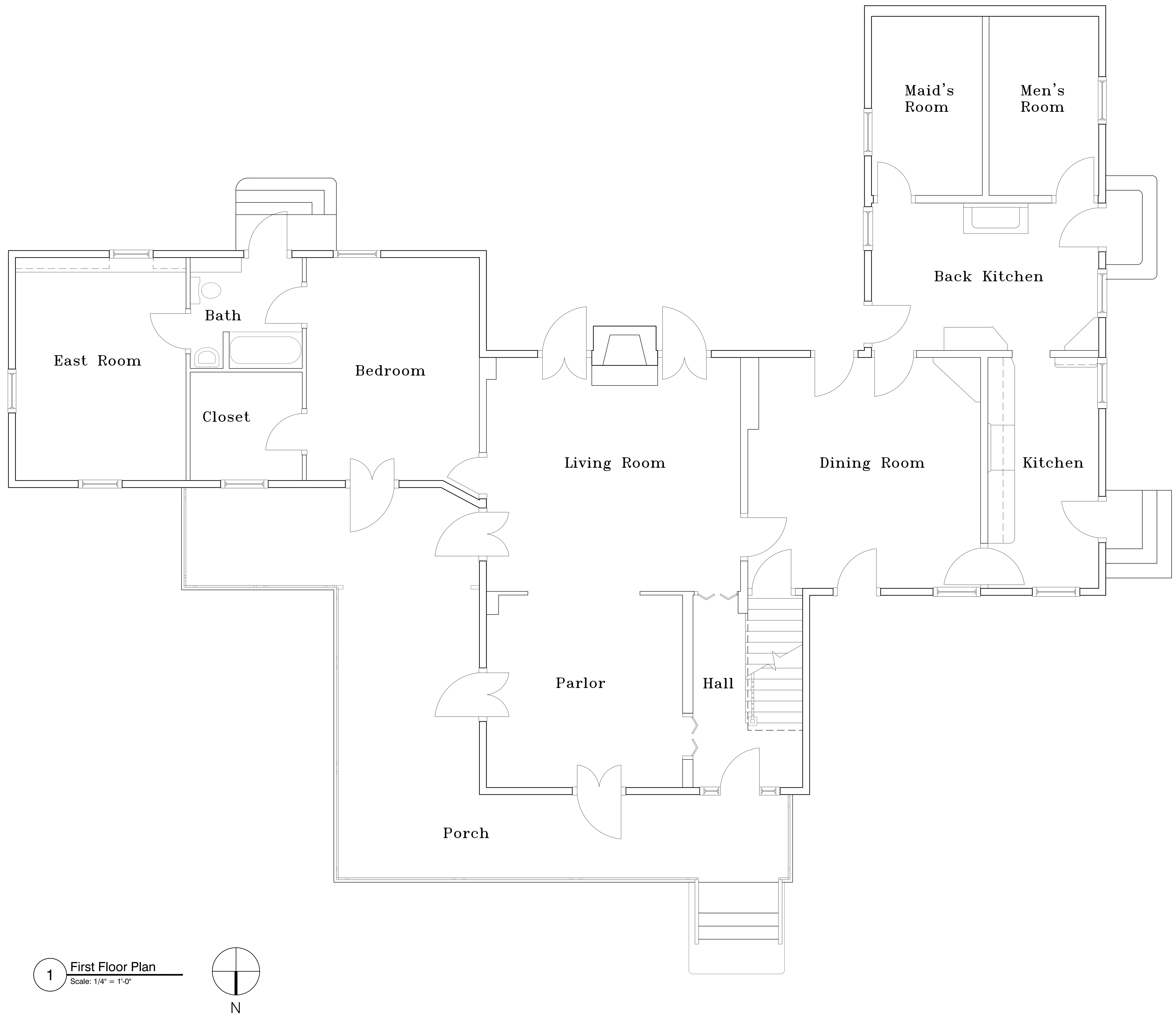
GREENE VALLEY FOREST PRESERVE

OAK COTTAGE

NAPERVILLE, ILLINOIS

CULTURAL RESOURCE
EVALUATION

SHEET NUMBER
4



1 First Floor Plan
Scale: 1/4" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, 2025

OAK COTTAGE

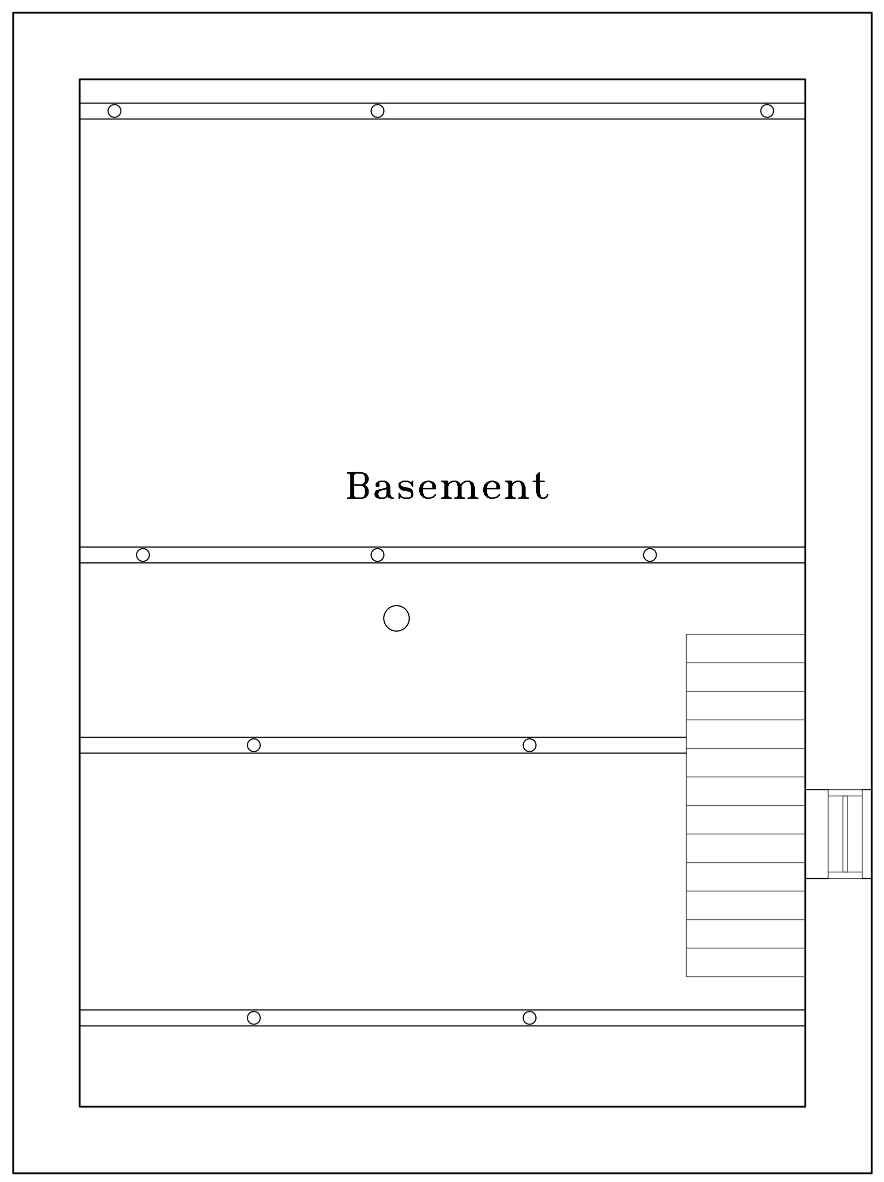
CULTURAL RESOURCE EVALUATION

NAPERVILLE, ILLINOIS

GREENE VALLEY FOREST PRESERVE

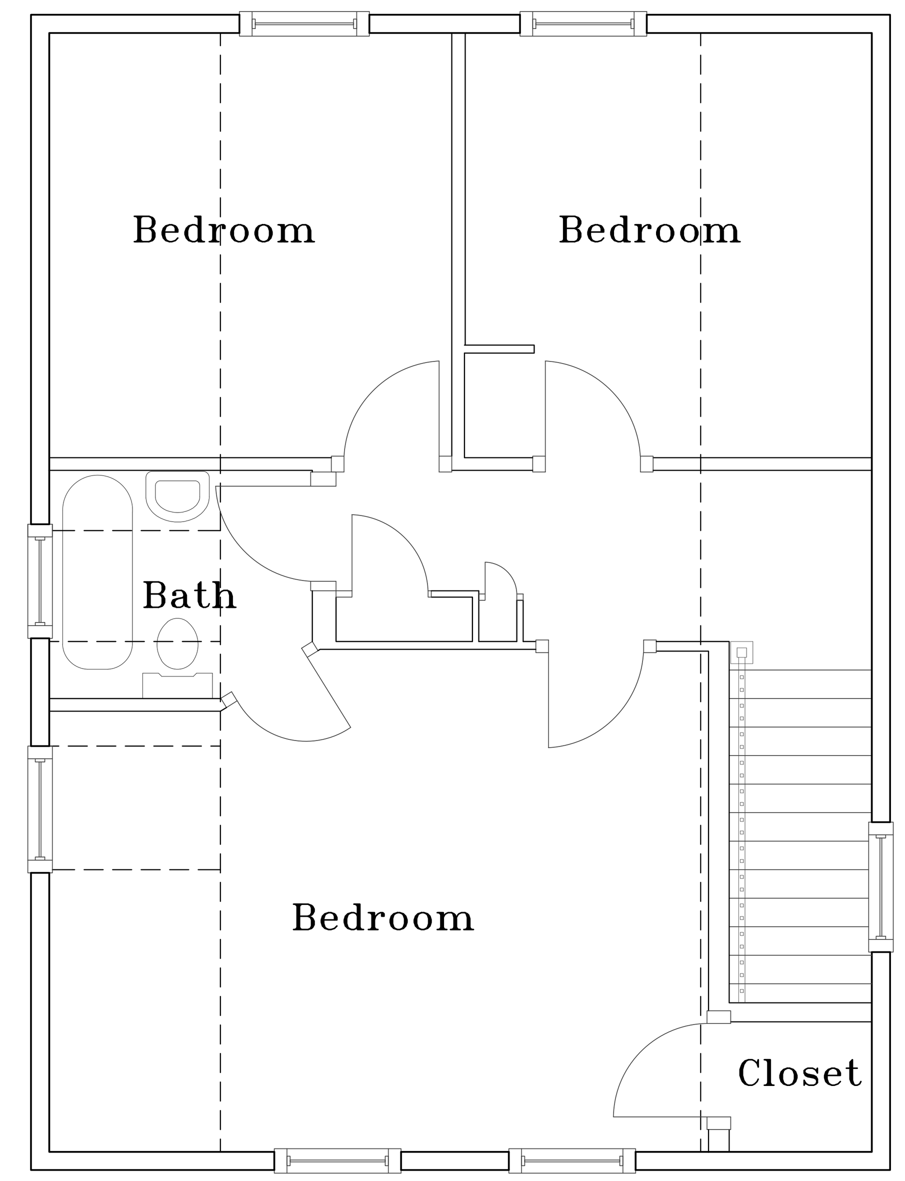
FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

5



1 Lower Level / Basement Floor Plan
Scale: 1/4" = 1'-0"

N



1 Second Floor Plan
Scale: 1/4" = 1'-0"

N

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FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

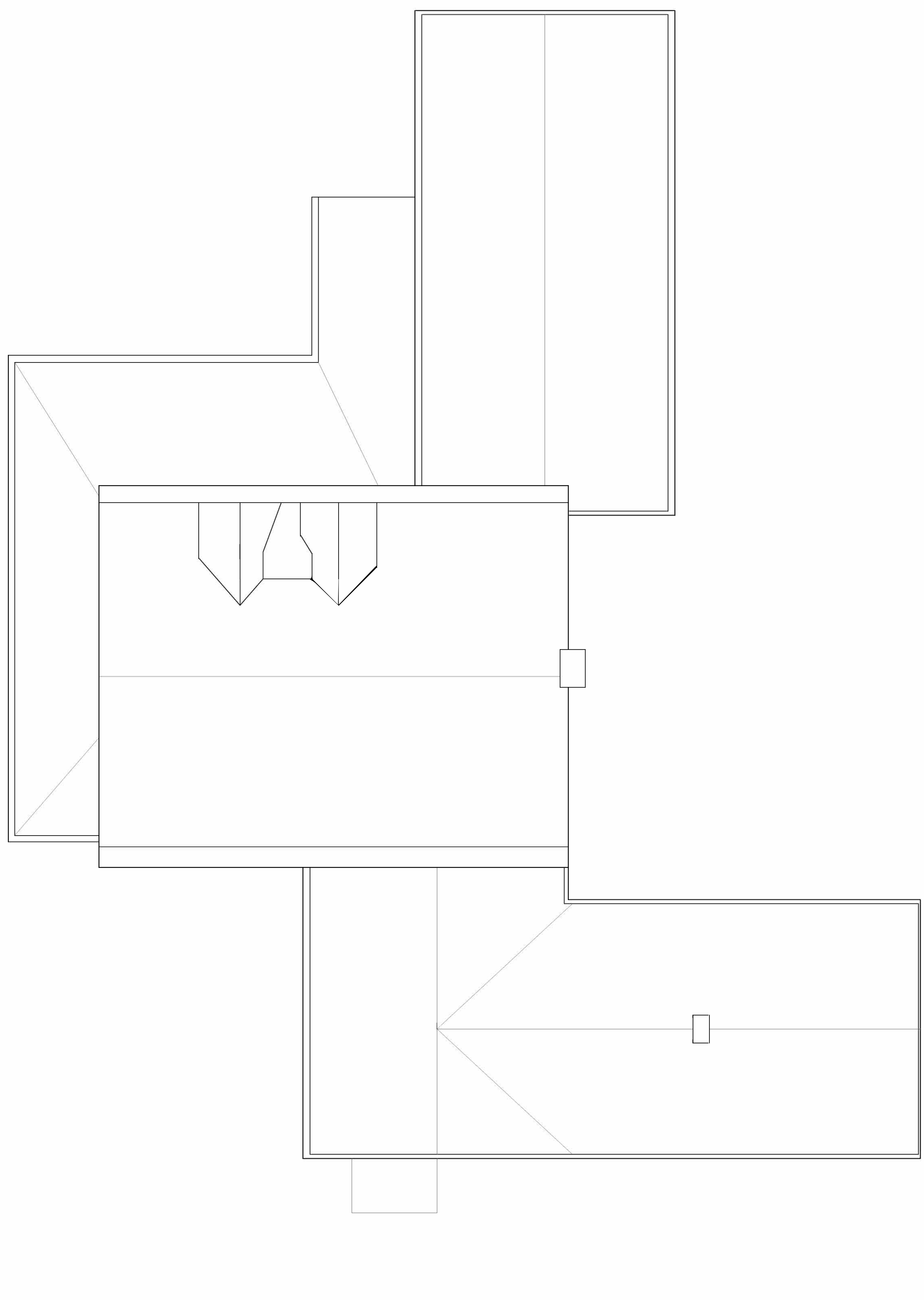
GREENE VALLEY FOREST PRESERVE

OAK COTTAGE

NAPERVILLE, ILLINOIS

CULTURAL RESOURCE EVALUATION

SHEET NUMBER 6



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FOREST PRESERVE DISTRICT OF DUPAGE COUNTY	OAK COTTAGE GREENE VALLEY FOREST PRESERVE	NAPERVILLE, ILLINOIS	CULTURAL RESOURCE EVALUATION	SHEET NUMBER 7