



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

September 12, 2016

MEMORANDUM

TO: Vanessa Patrick
Human Environment Unit
NC Department of Transportation

FROM: Renee Gledhill-Earley
Environmental Review Coordinator

SUBJECT: Historic Structures Survey Report, Replacement Bridge 140 on SR 1138 over the
Dan River, B-5716, PA 16-01-0087, Rockingham County, ER 16-1529

Thank you for your memorandum of August 25, 2016, transmitting the above-referenced report. We have reviewed the report and have two questions, which we would like answered before providing a determination on the eligibility of the Pine Hall Brick Plant 3A (RK1648)

1. Are the tunnel kilns intact on the interior of Resource #1 (Plant 3A)? Are the kilns separate equipment kept inside the building? Or, were the individual arched roof buildings each a kiln in itself? We believe it is important to understand this technological aspect of the older manufacturing buildings.
2. Given that the oldest resources at Plant 3 date from the 1950s, what is the period of significance for the industrial complex? If the period of significance extends to 1966, then all resources, additions, and alterations that date up to 1966 should be considered part of the integrity of the complex.

Once we receive answers to the above, we will be happy to offer our comments on the property's eligibility for listing in the National Register of Historic Places.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number

cc: Mary Pope Furr, NCDOT, mfurr@ncdot.gov

HISTORIC ARCHITECTURAL RESOURCE REPORT INTENSIVE EVALUATION FOR THE PINE HALL BRICK PLANT

Replace Bridge No.140 over Dan River on SR 1138 (Lindsay Bridge Road)
Rockingham County
WBS# 45672.1.1
B-5716

Prepared for:
Human Environment Section
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699

Prepared by:
 CALYX
CALYX Engineers and Consultants
6750 Tryon Road
Cary, North Carolina, 27518

AUGUST 2016

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AUGUST 2016



Sarah Woodard David, Principal Investigator

August 5, 2016

Date

Mary Pope Furr, Supervisor
Historic Architecture Group
North Carolina Department of Transportation

Date

Management Summary

The North Carolina Department of Transportation (NCDOT) proposes replacing Bridge No. 140 on Lindsey Bridge Road (Secondary Road 1138) over the Dan River in Rockingham County. The NCDOT defines this project's Area of Potential Effects (APE) as 100 feet on either side of Bridge No. 140 and 300 feet from each end of the structure, north and south, along Lindsay Bridge Road. NCDOT architectural historians reviewed the properties within the APE and determined that one property greater than 50 years of age warranted further evaluation: the Pine Hall Brick Plant (RK1648). Architectural surveys of the Town of Madison, overseen by the State Historic Preservation Office, were undertaken in 1978 with a county-wide survey in 2001-2003. The Pine Hall Brick Plant was not documented in any past architectural survey. It is possible that it was not surveyed previously because it was outside Madison's town limits during the 1978 survey, but by the time of the county-wide survey, it was inside Madison's limits.

This project is subject to review under the *Programmatic Agreement for Minor Transportation Projects* (NCDOT/NCHPO/FHWA, revised and reauthorized 2015). NCDOT architectural historians established an APE for the project and conducted a preliminary investigation, identifying one resource warranting additional study and eligibility evaluation.

There were no other properties within the APE that are greater than 50 years of age, and none which appear to meet Criteria Consideration G for properties that have achieved significance within the last fifty years. This report does not address Bridge No. 140. Built in 1957, the span is a common bridge type that does not have the engineering or aesthetic significance for National Register eligibility under any criterion (North Carolina Historic Bridge Inventory, 2005).

In May 2016, NCDOT requested that CALYX Engineers and Consultants (CALYX) complete research, an intensive-level historic field survey, and a National Register of Historic Places (NRHP) evaluation of the Pine Hall Brick Plant.

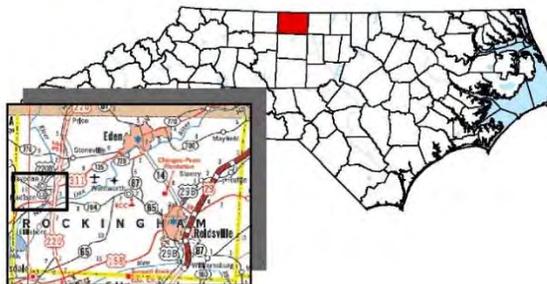
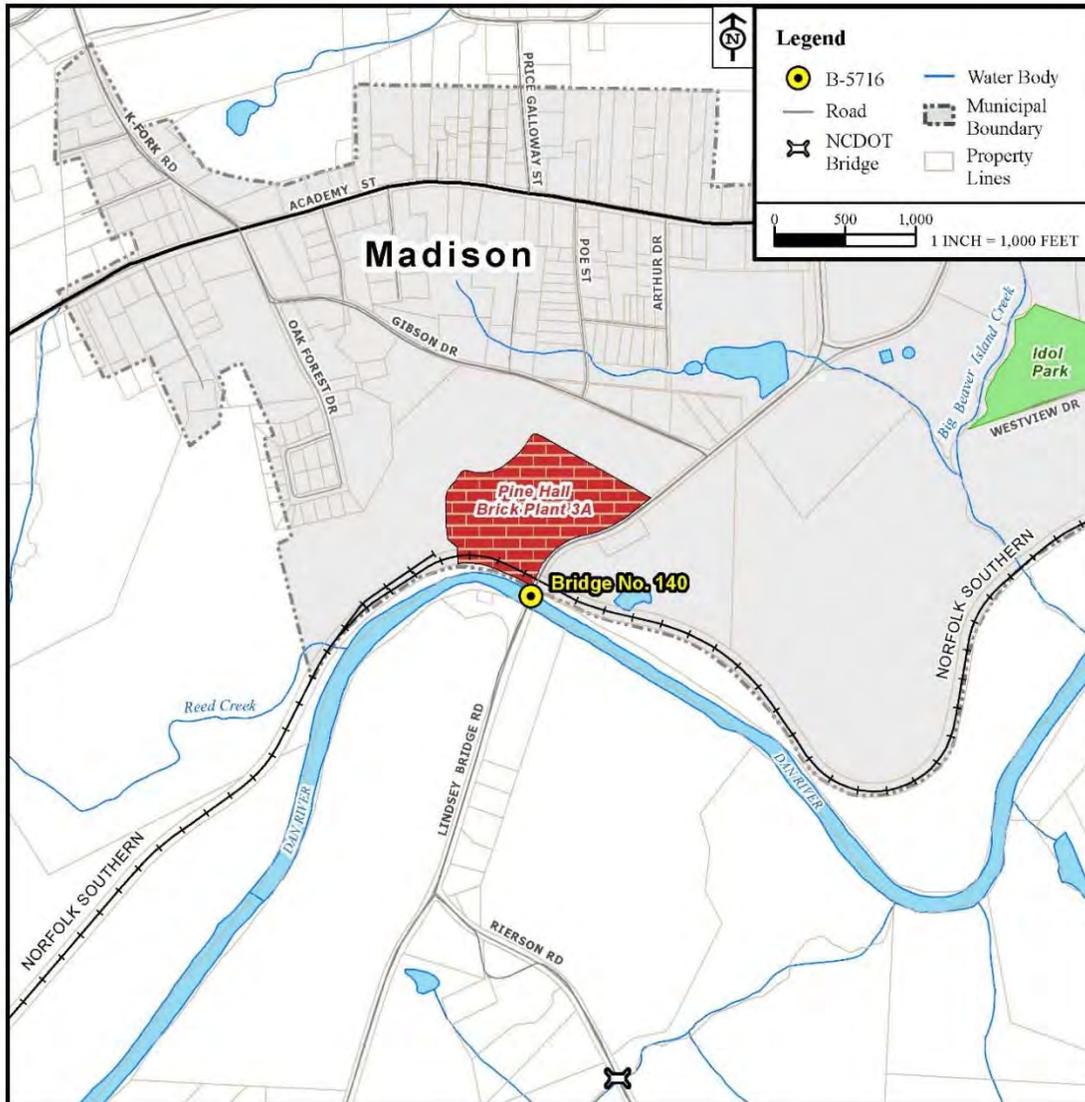
Based on the field survey, background research, and the evaluation documented in this report, the Pine Hall Brick Plant 3A, which is a portion of the Pine Hall Brick Plant that includes Plant 3A and Plant 4, is recommended eligible for the NRHP.

Property Name	NCHPO Survey Site Number	Eligibility Determination	Criteria
Pine Hall Brick Plant 3A	RK1648	Eligible	A and C

Contents

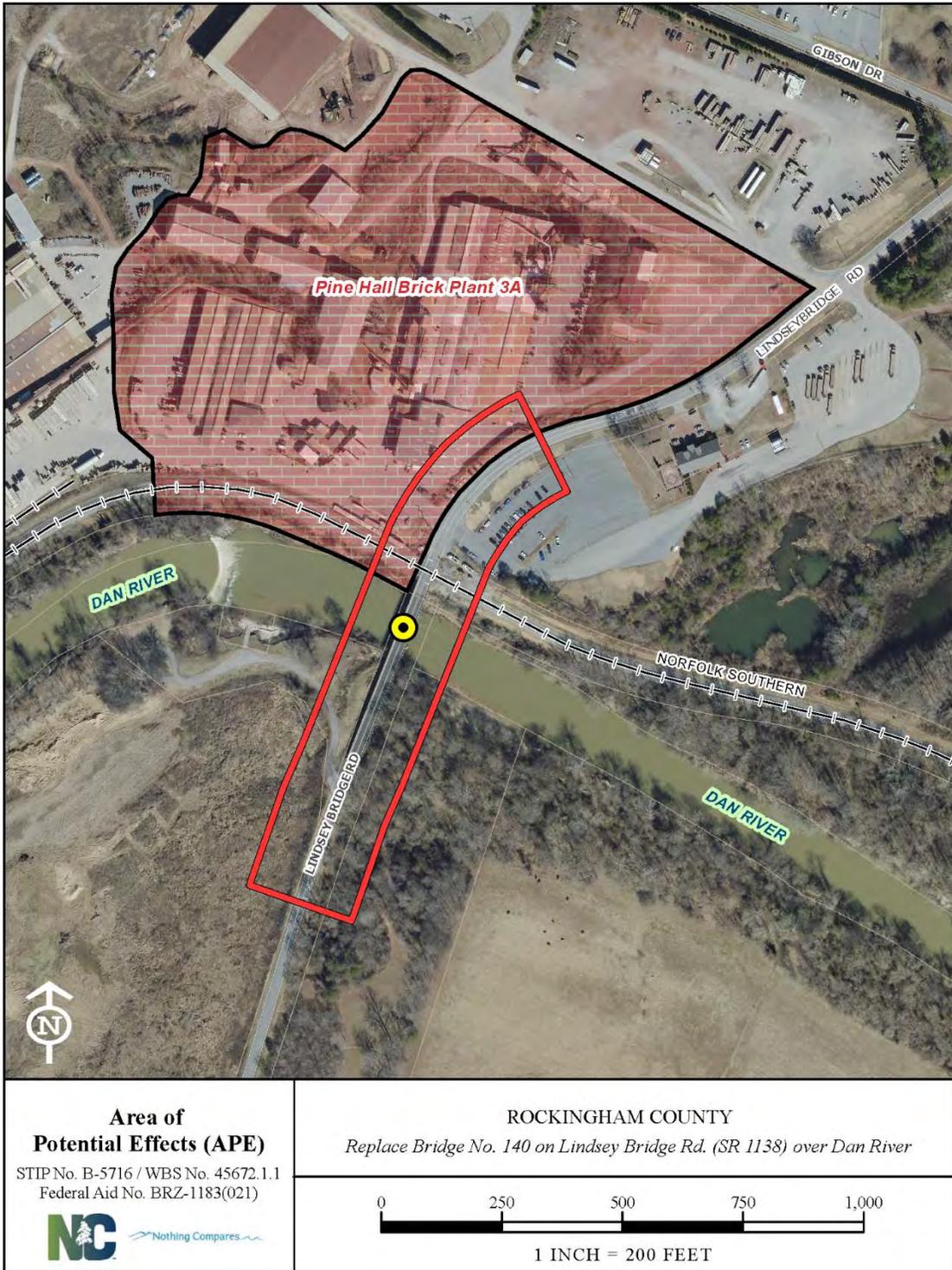
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	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
	<p align="center"> ROCKINGHAM COUNTY <i>Replace Bridge No. 140 on Lindsey Bridge Rd. (SR 1138) over Dan River</i> STIP No. B-5716 / WBS No. 45672.1.1 Federal Aid No. BRZ-1183(021) </p>
<p align="center">Project Vicinity</p>	

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Methodology

On June 7, 2016, CALYX Architectural Historian Sarah Woodard David visited the Pine Hall Brick Plant, completed photo documentation, interviewed plant manager Preston McMillian, and interviewed Rockingham County historian Robert Carter. The investigator undertook research at the North Carolina State Historic Preservation Office and the North Carolina State Archives. The investigator also used online research tools and resources, including the Rockingham County Register of Deeds online index, Rockingham County GIS Mapping, the website findagrave.com, and the web-based subscription services ancestry.com and newspapers.com.

CALYX conducted all fieldwork, research, and evaluations to meet the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800, as well as NCDOT's *Guidelines for the Survey Reports for Historic Architectural Resources*.

Evaluation: Pine Hall Brick Plant

Resource Name	Pine Hall Brick Plant
HPO Survey Site Number	RK1648
Street Address	634 Lindsey Bridge Road
PIN	790500664907
Construction Dates	1955 1950s, 1960s, 1970s
NRHP Recommendation	Plant 3A eligible



Property Description

Dates in this description are based on interviews with a former plant manager, a current plant manager, newspaper articles, and aerial photography. Specific sources for dates are footnoted in the Historic Context section.

Pine Hall Brick Plants 3A and 4 (called more simply as the Pine Hall Brick Plant in this report) are situated on the Dan River near Madison in western Rockingham County. Brick plants were often sited near rivers because a river usually suggested the presence of good clay. Additionally, as is the case here, railroad lines often paralleled rivers and a rail connection was essential to a plant's success. At the Pine Hall Brick Plant, a dam crosses the Dan River, but the town of Madison built the dam in the late 1950s or early 1960s to supply the town with water and it is not related to the brick factory.

The Pine Hall Brick Plant stands on a modest bluff so that it is somewhat protected from flooding. The plant is organized on a slight slope from higher ground on the north to lower ground closer to the river on the property's south side. To the plant's east is Lindsay Bridge Road and, across the road, the company maintains a parking area and a modern showroom. Immediately southeast of the plant is Bridge No. 140, known more commonly as Lindsay Bridge. Woodlands lie to the west, and woods on the property's north side separate residential areas from the factory.

The plant can be divided into two primary groups of buildings: Plant 3A and Plant 4. Plant 3A incorporates the facility's oldest buildings and is situated close to Lindsay Bridge Road. To the west of Plant 3A is Plant 4, which was built in 1974 and is considerably larger than Plant 3A.

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At the highest point on the property, a large yard is used for storing finished bricks. Just to the southwest is a large, open pavilion with a shallow gable roof where raw clay is stored (noted as 17 on Figure 1). Immediately south of the storage yard and east of the raw materials shed is a paved lot with brick and metal buildings that housed machinery to sort and prepare sawdust used to fire the kilns (noted as 2 on Figure 1). The sawdust for Plant 3A was stored in two silos situated immediately downhill from the sawdust preparation area.

South of the sawdust preparation area is Plant 3A (noted as 1 on Figure 1). This group of buildings was shuttered in 2008, at which time it still housed all the operations for brick-making: mixing (where water and clay are mixed), extruding (where the mud is compacted into a long snake-like brick and then cut to size with wire cutters), a holding room (where brick dries for about 24 hours), a drying room which is warmed at a controlled rate up to about 425 degrees Fahrenheit, a long tunnel kiln that reaches a top temperature of 1,980 degrees Fahrenheit, and a cooling room where the bricks are cooled at a controlled rate. Today, the buildings are mostly empty with sections used for sand storage and sifting.

Plant 3A was built in 1955.¹ The original section consists of a group of three arched-roofed buildings with brick knee-walls up to a height of about four feet. Above the knee-walls, the walls are constructed of corrugated metal. Plant 3A has been expanded and modified several times. A relatively early addition lengthened the middle section of the building so that it was as long as the eastern section. Before 1959, a square tower was added to the south end of Plant 3A's western section along with a new conveyor belt (noted as 4 on Figure 1) connecting this tower to the storage building immediately to the west. Other late 1950s or early 1960s additions are located along the west elevation. The plant was significantly expanded in the 1960s with an addition that runs along the east side of Plant 3A. Another section was attached to Plant 3A's south elevation in 2009. Figure 2 is a plan of the building indicating its evolution and labeled with dates.

A conveyor belt (noted as 4 on Figure 1) connects Plant 3A to a storage building where ground and sifted clay was stored. This storage building appears to be contemporary with Plant 3A. Additions have been made to both the north and south ends. Another conveyor belt extends from this building's west elevation to the east end of another large, prefabricated storage building (noted as 7 on Figure 1) built in the 1960s or possibly the 1970s.

Yet another conveyor belt connects the west end of this storage building to the plant's grinding operation (noted as 8 on Figure 1). Machinery in this building grinds, crushes, and sifts

¹ Current plant manager, Preston McMillian, suggested that Plant 3A is actually Plant 3 and Plant 3A combined. Plant 3, however, is an earlier facility that has been torn down.

clay. For decades, plants had to use the best quality clay, but as machinery improved, companies could be less selective and use stiffer and harder-to-grind clay. The grinding building is another large, modern, prefabricated metal building dating from about 1970.

South of these larger buildings are a collection of smaller buildings: a small brick gate house (noted as 3 on Figure 1) near the Lindsay Bridge Road entrance; a brick office (noted as 10 on Figure 1) and a group of small brick and metal buildings (noted as 5 on Figure 1). The office can be seen on the 1950s aerial photograph, but it was expanded significantly before the 1970s.

To the immediate west and north of the above are a cluster of long sheds (noted as 9A-C on Figure 1). These predate 1957, and they may be remnants of the 1947 Plant 3 complex. All are currently used for parts storage. One is an open pavilion while the other two have brick knee walls and corrugated metal walls above the brick.

In 1974, Pine Hall added Plant 4 (noted as 15 on Figure 1) to this property. This is a significantly larger facility composed of standard modern metal buildings. It is connected to one of the oldest storage buildings used for storing ground and sifted clay by a long L-shaped conveyor belt (noted as 11 on Figure 1) housed in corrugated metal on stilts. A parallel conveyor belt formerly connected Plant 3's sawdust sorting facility to two silos at Plant 4, but this belt has been removed.

No buildings remain from the plant's earliest days in the 1920s and 1930s.

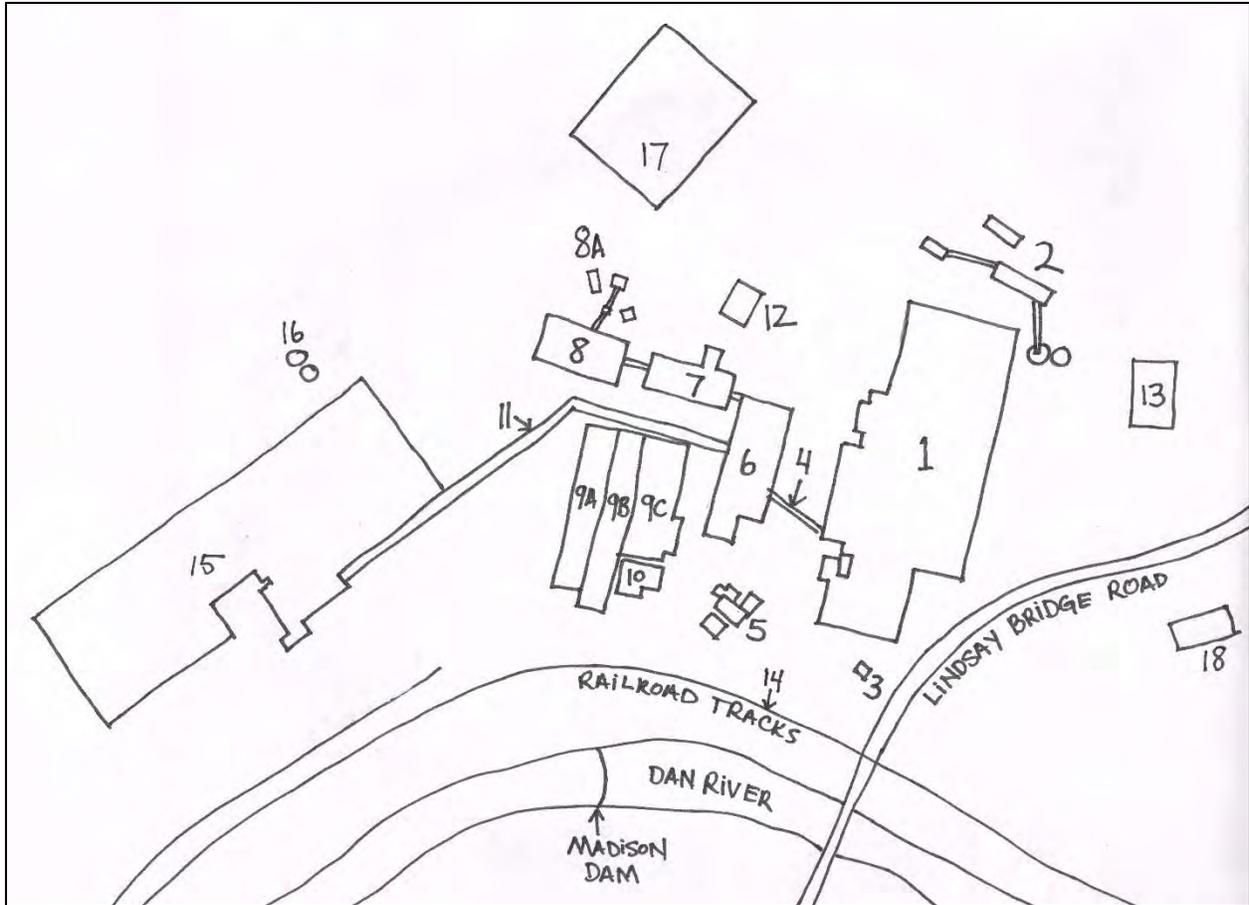


Figure 1: Pine Hall Brick Plant Site Plan

Inventory List

Keyed to Figure 1: Pine Hall Brick Plant Site Map

Buildings 1-14 are within the proposed boundary for Pine Hall Brick Plant 3A.

1. Plant 3A, 1955, ca. 1965, ca. 2009

Contributing

Three one-story buildings abutting one another date from 1955 (Figure 2-5). The buildings have brick knee walls approximately four feet in height from which rise corrugated metal walls. All three roofs are slightly arched barrel vaults. This plant was expanded early in its life with an addition to the middle section and via other small additions on the west elevation. In the mid-1960s, a long, metal-clad addition (Figures 6 and 7) was added to the east elevation, and in 2009, another expansion (Figure 8) was made to the south.

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Figure 2: Plant 3A with phases of construction shaded

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Figure 3: Plant 3A, south elevation with newer section to the right or east



Figure 4: Plant 3A, west elevation

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Figure 5: Plant 3A, north elevation



Figure 6: Plant 3A, east elevation with 2009 section in background

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Figure 7: Plant 3A east elevation



Figure 8: Plant 3A west elevation of 2009 addition

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2. Sawdust Sorting and Silos, ca. 1965

Contributing

Small brick and metal buildings (Figures 9 and 10) that house machinery to sift and prepare sawdust for use in firing the kilns. The kilns were originally coal-fired, but the plant switched to sawdust from logging operations in the 1960s. The factory still uses sawdust, but a more refined sawdust that is waste from flooring manufacturing. Two corrugated metal silos (Figure 11) store the sawdust.



Figure 9: Sawdust sorting area, facing south

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Figure 10: Sawdust sorting area, facing southeast



Figure 11: Sawdust silos with Plant 3A to the left or west

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3. Gatehouse, ca. 1970

Non-contributing

Small, brick, gable-roofed building with a sliding window on the south elevation and a single-leaf door on the north elevation.

4. Plant 3A Conveyor Belt, ca. 1958

Contributing

A braced, metal-framed structure supporting a conveyor belt sheltered by half-round, corrugated metal piping. (Visible in Figure 3)

5. Storage Buildings, ca. 1950s and 1960s

Contributing

A group of small, plain, gable-roofed, rectangular-plan, metal and brick storage buildings. The largest and most substantial is the hip-roof building in Figure 12. The other buildings are prefabricated metal structures.



Figure 12: Largest and most substantial of a group of 1950s and 1960s storage buildings

6. After-Grinding Storage 1, 1955

Contributing

An imposing corrugated metal building with a gabled roof on a brick foundation that appears to have been built at the same time as Plant 3A. (Figures 13 and 14)

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Figure 13: After-Grinding Storage 1, south elevation behind smaller brick building; the white building between these two is a lower-level addition to After-Grinding Storage 1.



Figure 14: After-Grinding Storage 1, southeast corner

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7. After-Grinding Storage 2, ca. 1970

Noncontributing

A prefabricated, metal-clad storage building with a gable roof.

8. Grinding Room, ca. 1970

Noncontributing

A prefabricated, metal-clad storage building with a gable roof. (Figure 15)



Figure 15: Grinding Room, south elevation, in background with conveyor belt to Plant 4 in the mid-ground

8A. Sifting and Storage Buildings, ca. 1970

Noncontributing

Small metal buildings used for storage and sifting of raw clay, connected to the adjacent Grinding Room (8) via an enclosed conveyor belt.

9A-C. Parts Storage Buildings, 1950s and 1960s

Contributing

A group of connected, gable-roofed buildings and structures. The two outer buildings (9A, Figure 16, and 9C, Figure 17) are clad with corrugated metal, while the structure in the middle

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(9B) is an open-sided pavilion. Buildings 9A and 9B occupy a similar footprint to buildings that were here by 1955 suggesting that they may be older, contemporary with the 1947 Plant 3, which stood immediately west of 9A. However, the comparisons of aerial photographs suggest that the current buildings are slightly wider than the ca. 1947 structures. Thus, the more conservative estimate of 1955 is more safely applied to 9A and 9B. Based on the same aerial photos, 9C was built after 1960.



Figure 16: South elevation of Parts Storage Building 9A

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Figure 17: Parts Storage Buildings 9B and 9C behind (to the north and west) the brick office building

10. Office, ca. 1955 with later additions

Contributing

A one-story, brick, hip-roof building with plate glass windows. The office started as a small, square, flat-roofed building, but was expanded in the 1960s and possibly again in the 1970s. (Figure 17)

11. Plant 4 Conveyor Belt, 1974

Noncontributing

This conveyor belt is enclosed in a metal, gable-roof structure, and it connects one of the after-grinding buildings to Plant 4. (Figure 15)

12. Storage Building, ca. 1980

Noncontributing

One-story, open-air storage pavilion.

13. Sand Storage, ca. 1980

Noncontributing

One-story, gable-roof building enclosed on three sides, open to divided storage areas on the east elevation. (Figure 18)

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Figure 18: Sand Storage, east elevation

14. Railroad Tracks, 1891

Contributing

Constructed between 1887 and 1891, this railroad was original called the Roanoke and Southern Railroad and it linked Roanoke, VA, and Winston-Salem. It became part of the Norfolk and Western Railroad in 1892 and it is now a Norfolk Western line.

Other buildings and structures on the property, excluded from the National Register-eligible boundary, include:

15. Plant 4, 1974

A large, metal factory building with several additions. (Figure 19)

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Figure 19: Plant 4, facing west from National Register eligible area

16. Plant 4 Sawdust Silos, 1974

Two metal-clad silos built to store sawdust used to fuel the kilns.

17. Raw Materials Storage Shed, ca. 1980

Large, open pavilion with metal pipe poles and a shed roof. (Figure 20)

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Figure 20: Raw Materials Storage Shed, northeast elevation

18. Pine Hall Brick Showroom, 1993

One-story, brick, house-like building with a side-gable roof and dormers.

Historical Background

Brick-making has been integral to North Carolina's history and architectural history from the earliest periods of European colonization.² Some of the state's oldest surviving houses are of brick, including the Newbold-White House (ca. 1730) and the Charlton-Jordan House (ca. 1738), both in Bertie County in the northeastern section of the state. European settlers in the Piedmont region also used brick construction beginning in the mid-1700s.

In the eighteenth century and for most of the nineteenth century, bricks were produced by hand. A mud-mixture of clay and sand was pressed into a brick mold, dried, and then fired in a kiln. Given North Carolina's clay soil, bricks could be made almost anywhere. Many plantations had their own on-site brick production, and builders would often set up a brick yard near jobs.

² Clegg M. Furr, "Brick Making," in William Powell, *Encyclopedia of North Carolina* (Chapel Hill: The University of North Carolina Press, 2006), 147.

This process did not change significantly until the late nineteenth century when improving machinery and access to railroads expanded opportunities for mechanization and created opportunity for larger scale production.³ In 1889, a relatively small-scale brick manufacturer in Statesville patented a new brick-making method. His name was J. C. Steele, and he eventually abandoned brick-making for the manufacture of new and constantly improving brick-making equipment. Steele's innovations were integral to North Carolina's eventual rise in brick manufacturing.⁴

In Madison, information about brick makers is scarce. James Foust appears in Branson's Business Directories in the late nineteenth century as a brick maker in Madison, but nothing more is known about his operations. Allen Searcy appears as a brick manufacturer in Madison for only one year (1915). Neither man owned land in the vicinity of the Pine Hall factory.

In 1912, J. C. Steele turned his company over to his four sons, and J. C. Steele & Sons became one of the most successful manufacturers of clay-working machinery in the world. In 1922, the sons purchased a dormant brick factory on the banks of the Dan River in Pine Hall, N.C., in Stokes County, and incorporated Pine Hall Brick and Pipe Company. J. C.'s son, Flake Steele, Sr., headed the new operation from its Winston-Salem headquarters, and the company soon expanded



Figure 21: Beehive kilns at Pine Hall Brick Plant 1 in Stokes County; Photo from *The Heritage of Stokes County*.

³ Catherine Bishir, *North Carolina Architecture*, portable edition (Chapel Hill, University of North Carolina Press, 2005), 328.

⁴ Furr, 147; Laura A. W. Phillips, "Academy Hill Historic District," National Register Nomination, 1990, section 8, page 9; and Maria Johnson, "Forged from the Soil," *Our State Magazine*, August 18, 2011, via www.ourstate.com/north-carolinas-brick-industry/.

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to Plant 2, also on the Dan River, downstream from Pine Hall.⁵

Meanwhile, farther downstream on the Dan and on the western edge of near-by Madison, father and son J. A. and Emery L. Hedgecock and J. W. Stanley, Jr. established Madison Shale Brick Company in 1928. The company started manufacturing brick, tile, pipe, and pottery with \$50,000 in capital.⁶

Soon after Madison Shale Brick formed, however, the owners began mortgaging the property, and by 1932, under receivership, the company, its land, and equipment were on the auction block. J. A. Hedgecock, one of the founders of Madison, purchased the factory. The 1932 deed describes the facility as a "modern, up-to-date, five-kiln brick plant." Apparently, J. A. Hedgecock restarted operations under the name Madison Face Brick, but in 1937 he sold the facility to Flake Steele and the Pine Hall Brick and Pipe Company. Here, just down river from Pine Hall's original factory in Stokes County, Pine Hall Brick installed Plant 3.⁷

At that point, North Carolina brick manufacturing was on the cusp of its golden age. Home-building began a slow rebound before World War II, but following the war, a true building boom ensued, and the state emerged as the leading brick producer in the nation.⁸

North Carolina's brick factories were usually located next to a river because rivers generally suggested the presence of usable clay in the surrounding region, and the rail lines that transported (and continue to transport) the finished product often followed rivers.⁹ In fact, the descendant of one brick-producing family noted that "if you followed a railroad long enough to cross a river, you'd probably find a brick plant."¹⁰

⁵ "J. C. Steele History," via the J. C. Steele Company website: www.jcsteele.com/about-us/history/; and John R. Woodard, ed., *The Heritage of Stokes County* (Winston-Salem: Hunter Publishing Company, 1981), 123-124.

⁶ Greensboro *Daily News*, October 1928, reprinted in the *Greensboro News and Record*, October 2, 2003.

⁷ Madison Shale Brick Company to J. A. Hedgecock, at auction, June 20, 1932, Rockingham County Deed Book 275, page 552, and J. A. and India Hedgecock to Pine Hall Brick and Pipe Company, September 7, 1937, Rockingham County Deed Book 299, page 79. For deeds related to mortgages prior to 1932, see Rockingham County Deeds as follows: book 251, page 210; book 260, page 560; book 271, page 63, and book 275, page 390.

⁸ Johnson, "Forged from the Soil."

⁹ Preston McMillian, Pine Hall Brick Plant Manager, interview with the author, June 7, 2016.

¹⁰ Johnson, "Forged from the Soil."



Figure 22: Ca. 1955 photo showing a large building that has been torn down. This seems to be Plant 3. The sheds to the right may be the storage buildings labeled on the site plan as 9A and 9B



Figure 23: Ca. 1955 photo showing Plant 3A

By the early twentieth century, brick factories were increasing in size with improving automation. Operations typically included buildings to house grinding and sifting operations, mixing and molding (later extruding), and drying. Bricks were fired in multiple round, domed, coal-fired, beehive kilns, and then stored for shipment.¹¹

In the 1940s, owners began abandoning beehive kilns for modern “tunnel” kilns, which made a significant visual and architectural impact on the plants, as the kilns changed from round domes to long, usually metal buildings. As the post-war building boom continued, brick makers expanded and modernized all their operations. This was certainly the case at Pine Hall.¹²

In 1947, the company constructed Plant 3 at their Madison facility. Former plant manager John Dowdle believes that was also when the Madison plant’s brick beehives were demolished. The new facility included a long brick building and several other long buildings, some with exterior walls and some that were open pavilions. The new facility featured

¹¹ McMillian interview, “J. C. Steele History” via www.jcsteele.com/about-us/history/, and “A Century of Brick Innovations,” via www.pinehallbrick.com/page/about.

¹² Furr, 147, and John Dowdle, interview with the author, June 13, 2016.

the latest and best equipment that J. C. Steele & Sons had to offer, and, over several years, the company consolidated all their operations to Plant 3.¹³

Just a few years later, business was still booming, necessitating another major expansion. In 1955, the company completed Plant 3A, with the A standing for "after."¹⁴ The new facility doubled the plant's production. By 1959, some of the storage buildings and structures that probably housed grinding and mixing equipment for Plant 3 had been demolished.¹⁵ It is unclear when the largest section of Plant 3 was torn down.

In 1974, the company expanded again with the construction of Plant 4, immediately west of the site of Plant 3. During the economic recession of 2008, Pine Hall stopped using Plant 3A and began using part of building to store and sift sand. The current plant manager does not expect to reopen the facility.¹⁶

Today, the Steele family continues to own Pine Hall Brick and Pipe Company. The company continues to mine clay in Stokes and Rockingham counties, produce brick at the Madison facility, and ship them by rail or truck. The company is still a significant brick producer and its Plant 5, in Georgia, produces the most clay pavers in the country.¹⁷

Pine Hall Brick is also part of a still-thriving statewide industry. After World War II, North Carolina emerged as the leading brick-producing state in the country with thirty plants in twenty counties. Today, the number of makers stands at thirteen, of which seven remain in North Carolina family ownership, but the state still churns out bricks, ranking second in the country behind Texas.¹⁸

¹³ Dowdle interview. Additionally, Plant 1, the company's original facility, located at the town of Pine Hall in Stokes County closed in 1970 and demolished. Plant 2, on the Dan River between Pine Hall and Madison, closed in the 1960s and was scavenged for bricks before being demolished in the 1970s.

¹⁴ *Statesville Record and Landmark*, February 22, 1955, page 36.

¹⁵ Ca. 1955 aerial photograph of Plant 3, located at Pine Hall Brick Plant, Madison, N.C., and 1959 North Carolina Geological Survey Aerial Photograph, Raleigh, N.C.

¹⁶ *Statesville Record and Landmark*, August 3, 1972, page 25; *Statesville Record and Landmark*, October 3, 1974, page 14; and McMillian interview.

¹⁷ Pine Hall Brick Company website, and McMillian interview.

¹⁸ Furr, 147, and Johnson, "Forged from the Soil."



Figure 24: 1992 photo facing southwest with Plant 3A in foreground, Plant 4 in top right

Architectural Context

The architecture at Pine Hall Brick is utilitarian in nature. Unlike impressive brick cotton mills or sprawling tobacco warehouses, brick companies were usually situated in rural areas where owners may have felt less need for architectural embellishment. Some early buildings at Pine Hall Plants 1, 2, and 3, and at other older factories in the state appear to have been constructed from brick, and the beehive kilns were certainly impressive brick structures. However, overarchingly, these buildings were not ornamented, and they were more utilitarian than other nineteenth-century manufacturing facilities.

By the early and mid-twentieth century, industrial buildings were becoming simplified and stripped-down. In the brick industry, the beehive kilns gave way to larger tunnel kilns housed in long, low buildings usually built of corrugated metal that reinforced the utilitarian landscape of the typical, large-scale brick factory. A 1930s deed mentions Pine Hall's five kilns. They are not expressly described as brick beehives, but they almost certainly were, and a former plant

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manager stated that brick kilns were present at Plant 3 until the late 1940s. By the mid-1950s, when an aerial photograph of the plant was made, all traces of those kilns were gone.

Based on scattered photographic evidence in State Historic Preservation Office Survey Files, beehive kilns were uniform in their design: round brick buildings with domed, brick roofs (see Figure 21). Based on current aerial photographs and street-view mapping of existing brick factories, all thirteen currently- operational factories in North Carolina have a similar pattern of building retention: few, if any, structures appear to date from a company's earlier years, while most buildings are modern, prefabricated, utilitarian, metal buildings, mixed with small brick office buildings and showrooms of varying ages. At Statesville Brick Company, which is the state's oldest brick manufacturer still operating, the oldest building is a 1940s kiln building. All of that company's other buildings are more modern facilities.¹⁹

At Pine Hall, the plant uses the slope to organize the site, with raw clay entering the plant at the top of the hill and emerging as finished bricks toward the bottom of the hill. At other plants, such as Lee Brick and Tile Company in Sanford and at Statesville Brick, the facilities are situated on flatter ground. The layout, however, remains consistent: a series of buildings and structures, usually connected with conveyor belts, through which the clay moves before emerging as a brick. The process starts with grinding clay. Ground clay is mixed with water and then extruded and cut to the correct length. The bricks are dried, warmed slowly, fired, and then cooled slowly.

Unlike other traditional North Carolina industrial buildings, such as textile or tobacco factories that housed workers as well as machinery in a town or city setting, brick plant buildings were built simply to house machinery and are part of a literally-muddy process usually located close to the raw materials rather than to a town. The resulting architecture, therefore, is exceptionally utilitarian and is visually more closely related to agricultural processing and storage buildings such as the twentieth century cotton gins and peanut processing facilities seen across eastern North Carolina. Those buildings are, essentially, metal structures that house machinery in a rural setting.

Brick factories in North Carolina usually retain few vestiges of their built history, and with the exception of a few beehive kilns, brick plants have received little attention in the state's architectural record. Pine Hill Brick Plant 3A represents a rare situation in which a working factory retains some of its historic, albeit altered, archetypal, mid-twentieth-century buildings at a classic brick-making location on a river next to a rail line.

¹⁹ Interview with a plant manager at Statesville Brick Company, by the author, June 13, 2016.

Comparable Examples

No other brick manufacturer achieved the size or scale of Pine Hall Brick in either Stokes or Rockingham County.

At the statewide level, comparable working factories include Statesville Brick Company in Statesville, Triangle Brick Company, based in Durham, and Lee Brick and Tile Company near Sanford. Statesville Brick was established by the Steeles in 1904. Based on aerial photography and an interview with a plant manager, the buildings date from the 1970s and later with one exception. The exception is a long metal building that housed tunnel kilns and was built in 1947. Today, it is used for sand storage. As at Pine Hall, the earliest brick kilns were demolished decades ago.

Other working factories that are more than fifty years old are not as old as Pine Hall. Triangle Brick dates from 1959, but its original location has been demolished. Lee Brick and Tile dates from 1951, but it too consists entirely of new buildings. Old Carolina Brick Company was established near Salisbury in 1965, but that company focuses on hand-made brick using less automation with an eye toward historic replication. As a result, its buildings are built less as shelters for machinery than Pine Hall's.

The Harnett/Senter Brick Company site (HT141) was determined eligible for the National Register in 2013.²⁰ This site is ruinous, but it retains beehive kilns and several associated buildings in various states of neglect.

Pine Hall Brick Plants 1 (SK 150) and 2 have been demolished. Both were located upstream along the Dan River only a few miles from Plants 3 and 4.

Sanford Brick and Tile appears to be mostly demolished, with only four small buildings and none of the larger kiln or production buildings remaining. Of the four standing buildings, one is a company store (LE 695) and the other is a small building called the "little plant" (LE 693). Nearby, a brick kiln was recorded in 1978 (LE 378), but it cannot be located in current aerial photographs.

A ruinous brick kiln (SP 482) in Sampson County was documented in 1979 and cannot be seen on aerial photographs today.

Fletcher Brick Works (HN 1142) in Henderson County retained one brick beehive kiln as recently as 2001, but that structure is no longer standing.

²⁰ Jeroen van der Hurk, et al., "Historic Architecture Resources Survey Report: Improve U.S. 401," TIP R-2609, 2013, page 157.

National Register Evaluation

This report evaluates Pine Hall Brick Plants 3A and 4, but Plant 4 is forty-two years old and does not meet Criterion Consideration G for properties that have achieved significance in the last fifty years.

The material integrity of Pine Hall Brick Plant 3A has been lessened through additions to the oldest buildings. However, it retains integrity of location, feeling, setting, design, association, and workmanship as a mid-twentieth-century brick factory on an earlier factory site adjacent to a river and railroad in North Carolina's Piedmont.

Pine Hall Brick Plant 3A is eligible for the National Register of Historic Places under Criterion A for its association with events that have made a significant contribution to the broad patterns of our history. Brick-making in North Carolina is an important part of the state's architectural and industrial history from small-scale brick yards where bricks were made by hand to the large-scale factories that operated in twenty counties across the state during the mid-twentieth-century. Pine Hall Plant 3A has undergone alterations, but it clearly communicates its association with the historic manufacture of brick in the state as a mid-twentieth-century factory that evolved from an early twentieth-century plant.

Pine Hall Brick Plant 3A is not eligible for the National Register of Historic Places under Criterion B for its association with the lives of persons significant in our past. Pine Hall Brick is associated with the Steele family, and with Flake Steele in particular, but the family's significance is derived primarily from patriarch J. C. Steele and his innovations, which are well documented in the Academy Hill National Register Historic District, which is eligible for listing under Criterion B for its association with Steele. The district includes Steele's house (ID 382) and his equipment manufacturing building (ID 383).

Pine Hall Brick Plant 3A is eligible for the National Register of Historic Places under Criterion C because it embodies the distinctive characteristics of a mid-twentieth-century brick factory. No other modern brick factory in North Carolina is known to retain as much historic fabric as Pine Hill Brick Plant 3A. The Harnett/Senter Factory retains many of its earliest buildings, but it represents the late-nineteenth and early-twentieth century history of brick making when the process was far less automated. Pine Hall is a good representative of the architecture, design, and layout of a post-World War II factory that incorporated modern tunnel kilns and extruders, which required long, low buildings. Because few similar factories remain, the best comparison is with the Statesville Brick Company, which only retains a single historic building: a long, corrugated metal building similar in construction to Plant 3A. Additionally, based on scant historic photographs available online, this type of building (a metal building on a brick knee-

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walk with either a barrel roof or gabled roof) was the typical brick factory building, making Pine Hall's buildings the embodiment of the distinctive characteristics of a brick factory.

Pine Hall Brick Plant 3A is not eligible for the National Register of Historic Places under Criterion D because it has not yielded nor is it likely to yield information important to prehistory or history.

Boundary Description and Justification

The boundary for Pine Hall Brick Plant 3A incorporates all remaining historic buildings at the factory (see Figure 25). On the south, the boundary follows the southern edge of the railroad right-of-way. On the east, it follows the parcel line along Lindsay Bridge Road. At the intersection of Lindsay Bridge Road and an unnamed road that is part of the plant, the boundary turns west and follows the southern edge of the unnamed road. From that road, the boundary turns south to follow a dirt road and then a pavement edge to the east of Plant 4 until it rejoins the southern boundary. This incorporates all the historic buildings associated with Plant 3A and the railroad, which was integral to the plant's success. The river is excluded because it was an indicator of good clay and forms the corridor the rail line follows, but it does not have an actual role in the factory's function.

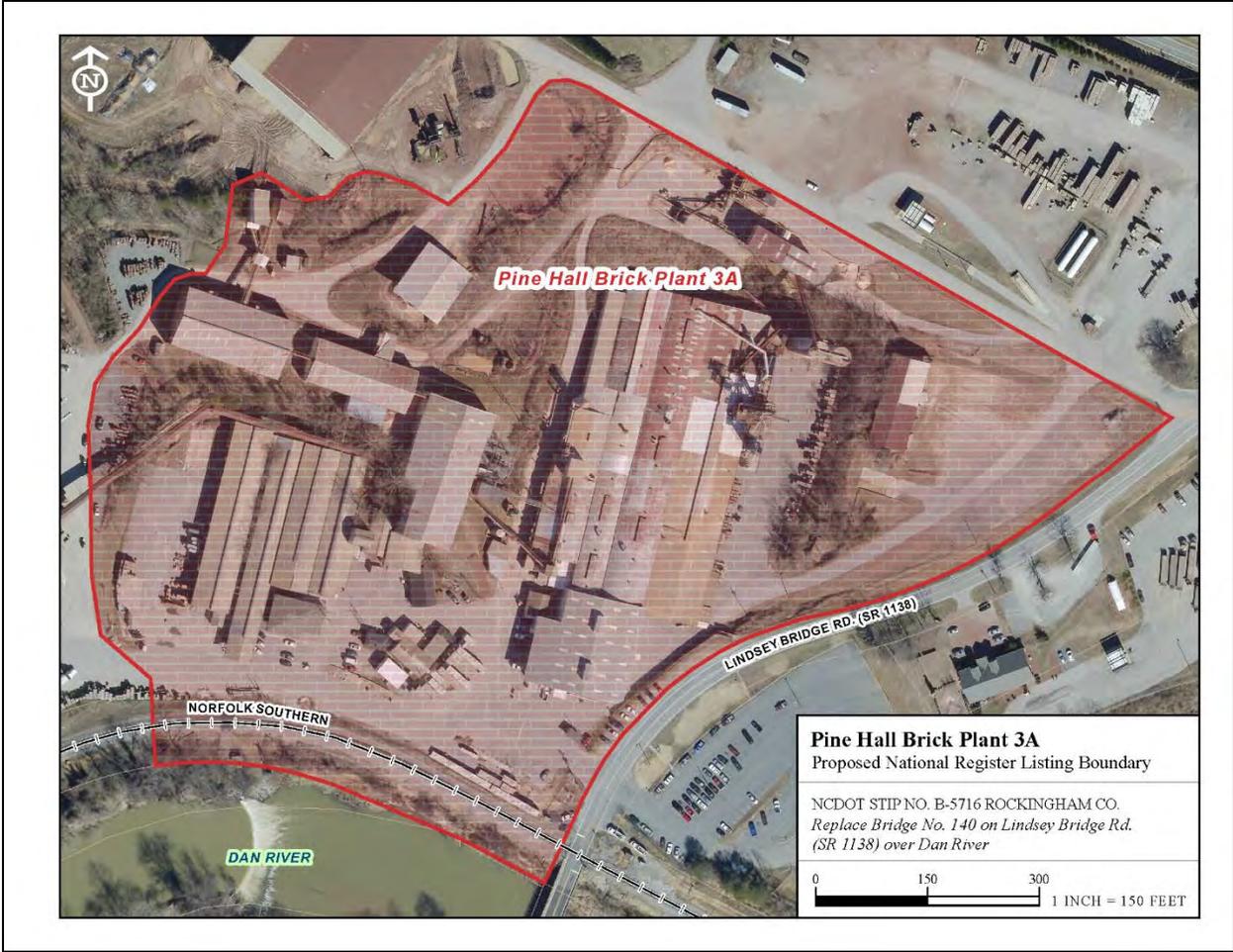


Figure 25: Pine Hall Brick Plant 3A Proposed Boundary

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