

**PHASE I ARCHAEOLOGICAL REPORT
FOR THE PROPOSED REHABILITATION OF THE
NORTH MARKET STREET BRIDGE (#575)
OVER BRANDYWINE CREEK,
WILMINGTON, DELAWARE**

Parent Agreement #909

Prepared for:

THE DELAWARE DEPARTMENT OF TRANSPORTATION

Prepared by:

Daniel Eichinger and Madeleine Scheerer

and

Richard M. Affleck,
Principal Investigator

URS CORPORATION
561 Cedar Lane
Florence, New Jersey 08518
(609) 499-3447

December 2000

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ABSTRACT

A Phase I archaeological survey has been completed for the proposed rehabilitation of the North Market Street Bridge (#575) over Brandywine Creek in the City of Wilmington, Delaware. This work was necessitated by the proposed construction of a temporary access/construction path adjacent to the bridge's northwestern abutment and wingwall. The purpose of the survey was to determine the presence or absence of archaeological resources in the project's area of potential effect (APE) and to establish, in preliminary fashion, the extent, age, integrity, and National Register eligibility of any such resources.

Background research indicated that the project area, situated at the extreme western end of the National Register-listed Brandywine Park, probably contained the remnants of a millrace that once supplied water to the William Lea & Sons mill, located to the east of the bridge. The millrace was evidently abandoned and filled during the early twentieth century. Archaeological field investigations documented no surficial evidence for this mill-related feature, particularly since much of the APE was covered by boulders and large rocks, possibly originating with the demolition of an earlier bridge or retaining wall. The surface inspection and limited shovel testing located no other archaeological resources in the project area.

Because the remains of the millrace appear to be deeply buried beneath rock and earth fill, any attempt to locate the feature would, in all likelihood, be more destructive than the construction of the proposed access/construction path. On this basis, and on the lack of evidence for any other archaeological remains in the project area, no further archaeological investigations are recommended.

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I. INTRODUCTION

URS Corporation (URS) completed a Phase I archaeological resources study for the proposed rehabilitation of the North Market Street Bridge (#575) over Brandywine Creek in the city of Wilmington, Delaware (Figure 1). This work was necessitated by the proposed construction of a temporary access/construction path adjacent to the bridge's northwestern abutment and wingwall. The purpose of the survey was to determine the presence or absence of archaeological resources in the project's area of potential effect (APE) and to establish, in preliminary fashion, the extent, age, integrity, and National Register eligibility of any such resources.

The proposed access path will extend from North Market Street westward for a short distance along an abandoned rail line before turning south. From this point the access path will extend along the abutment and wingwall from the top of the bank, down the steep slope, to the edge of Brandywine Creek (Figure 2). The path will allow for construction of a temporary trestle bridge across the creek that will facilitate repairs to the substructure of Bridge 575. The proposed path will be approximately 15 to 20 feet in width, with slightly wider limits of construction (LOC). Geotextile mats will be used as a base for the path and will be covered with gravel to ensure stability and proper grading.

All work was performed pursuant to the National Historic Preservation Act of 1966, as amended; the Advisory Council on Historic Preservation's *Protection of Historic Properties* (36 CFR 800), the Department of Transportation Act of 1966 and 23 CFR 771. This work also followed the Delaware State Historic Preservation Office's *Guidelines for Architectural and Archaeological Surveys in Delaware*, and the *Secretary of the Interior's Standards and Guidelines for Archaeological Documentation* (48FR44734-37). The archaeologists who performed this work satisfy the qualifications specified in 36 CFR 66.3 (6)(2).

Background research was conducted in August and September 2000 by Madeline Scheerer. Archaeological fieldwork was performed on October 24, 2000, and consisted of a pedestrian walkover, photographic documentation, and limited subsurface testing. The fieldwork was supervised by Mr. Daniel Eichinger, with the assistance of Mr. Anthony McNichol. Mr. Richard Affleck served as Principal Investigator for the project.

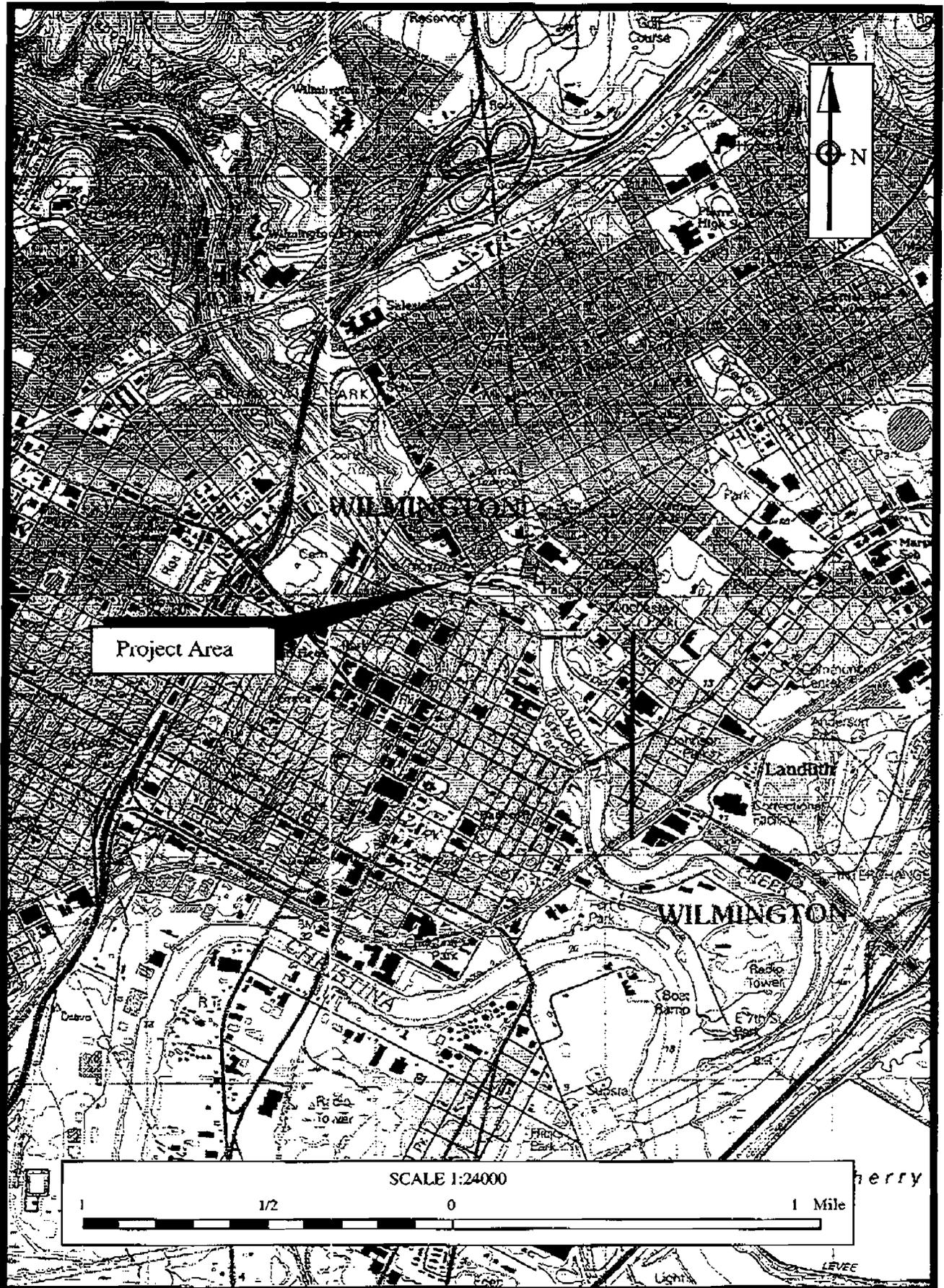


Figure 1 North Market Street Bridge Project Area Map (Source: Portion of 7.5 min USGS Topographic Map Wilmington South, Delaware Quadrangle).

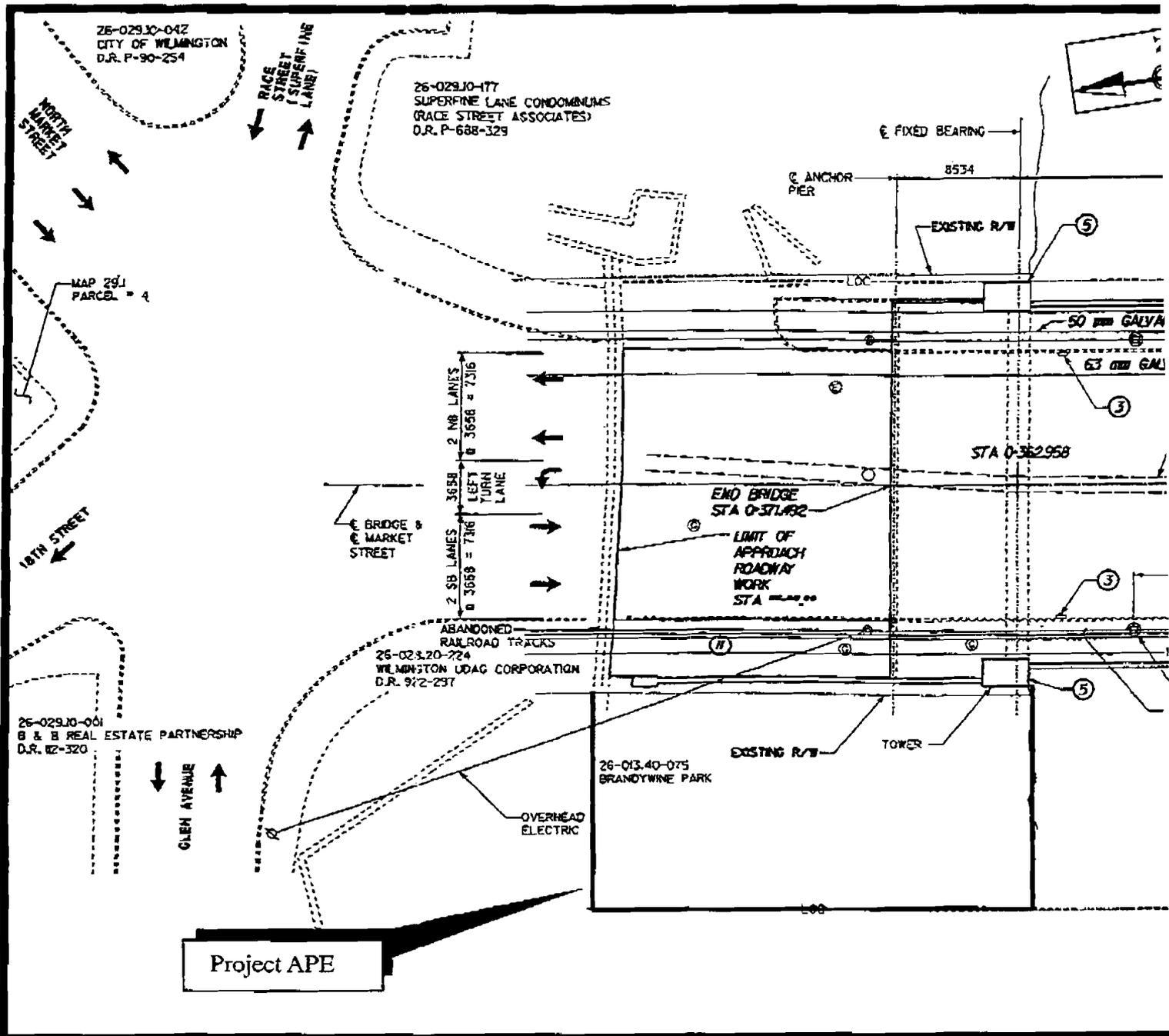


Figure 2 North Market Street Bridge, Area of Potential Effect.



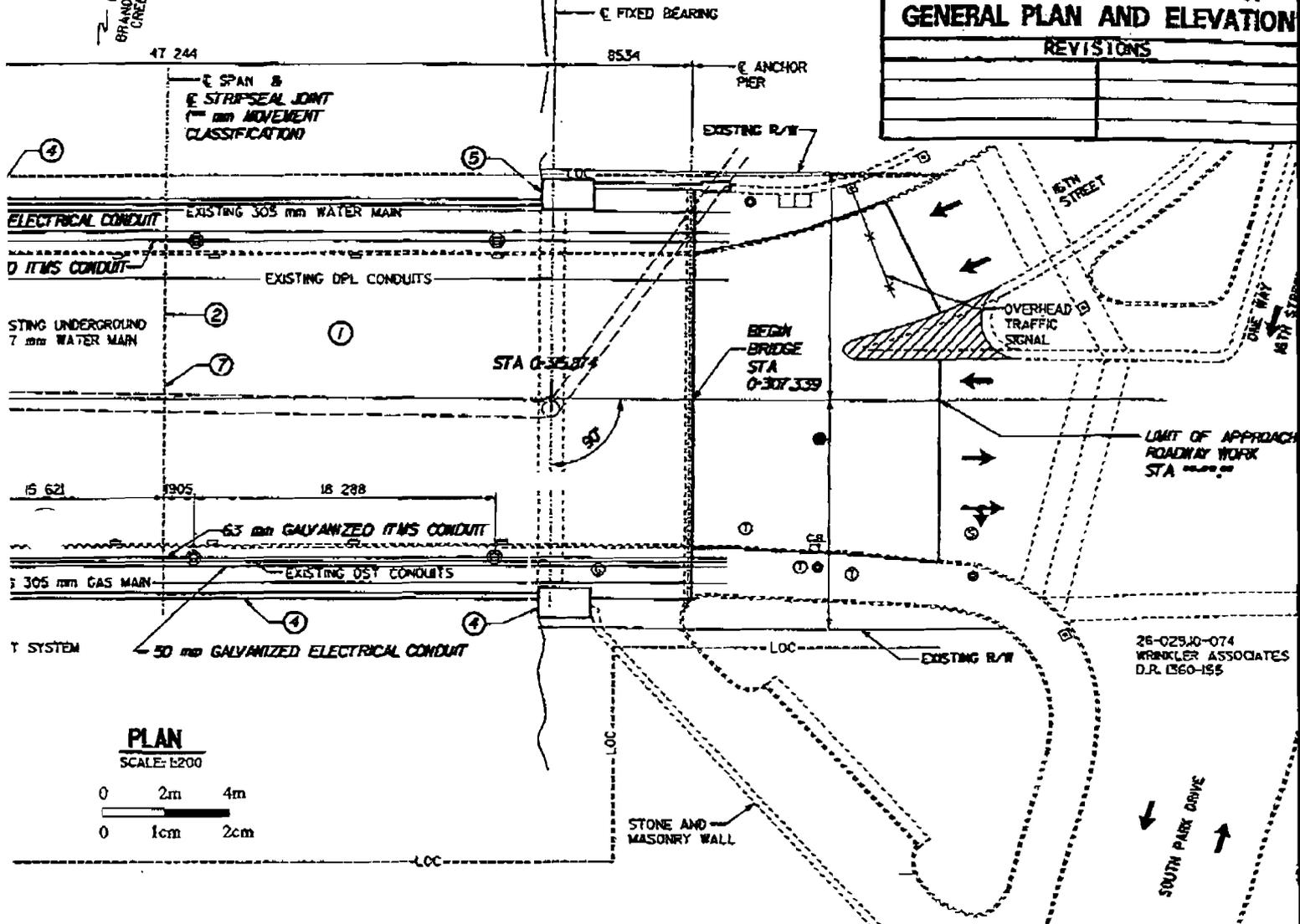
26-0910-167
WATER DEPARTMENT
OF WILMINGTON

BR 1-575
METRIC

CONTRACT	COUNTY	PROJ. AND SHEET NO.	SHEET NO.	TOTAL SHEETS
99-074-02	NEW CASTLE	BRN-1024 (G)	4	31

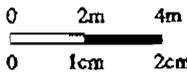
**NORTH MARKET STREET
OVER BRANDYWINE CREEK
GENERAL PLAN AND ELEVATION**

REVISIONS



PLAN

SCALE: 1:200



II. ENVIRONMENTAL SETTING

The North Market Street Bridge project area consists of a 90-foot APE adjacent to the northwestern abutment of the bridge. The northern edge of the project area contains a disused alignment of the Pennsylvania Railroad (Plate 1; plates 1 through 5 follow the report text). South of the railroad, the ground surface slopes severely (<15 degrees) down to the Brandywine Creek. The slope is littered with large angular boulders (Plate 2) that are either associated with the construction of the bridge or with the demolition of a retaining wall similar to the one located on the opposite, southern bank of the Brandywine. A five-foot diameter concrete culvert, which marks the location of a former spillway, is located 25 feet west of the bridge's northwestern abutment (Plate 3). A large (25 feet wide) uneven levee formation or flood deposit is located along the northern bank of the Brandywine, approximately 15 feet south of the base of the aforementioned slope (Plate 4).

The project area is located in the Coastal Plain Physiographic Province, within the Neshaminy-Talleyville-Urban land association. This land association is characterized by level to moderate slopes, well-drained and well-textured soils, and widely varying amounts of disturbance. Specific soils in the project area belong to the Othello-Falsington-Urban land complex. These soils are described as poorly drained, nearly level sections of mostly Othello soils and some Falsington soils that have been disturbed during commercial, residential, or industrial development (Matthews and Lavoie 1970).

The typical Othello soil series profile consists of a dark greyish brown (10YR 4/2) silt loam Ap-horizon, which caps a pale brown (10YR 6/3) very fine sandy loam A2-horizon. This A2-horizon caps grey or light grey (5Y 6/1) heavy silt loam B-horizons that in turn cap a yellowish brown (10YR 5/6) very fine sandy loam C-Horizon (Matthews and Lavoie 1970).

Vegetation in the project area consists of open, relatively mature deciduous woodland and patches of dense undergrowth. The latter is concentrated mainly along the railroad alignment and the low-lying floodplain/levee.

The principal drainage in the project area is Brandywine Creek, which is a tributary of the Christina River. The Christina River drains into the Delaware River, which ultimately reaches the Atlantic Ocean via Delaware Bay.

III. CULTURAL CONTEXTS, IDENTIFIED RESOURCES, AND ARCHAEOLOGICAL POTENTIAL

Introduction

In order to determine the prehistory and history of the project area, URS conducted general and specific research at a number of local and regional repositories during August and September 2000. Repositories included: the Delaware State Archives, the Greater Wilmington Public Library, Delaware State Historic Preservation Office, Wilmington Department of Planning and Development, the University of Delaware, the Hagley Museum, the Historical Society of Delaware, the Friends of Brandywine Park Resource Center, Eleutherian Mills Historical Society Library, the Free Library of Philadelphia, and the Library of Congress.

Prehistoric Context

The regional Delmarva chronology will be employed in the following discussion of the prehistoric background for the project area because most of the existing data for the state of Delaware, as well as settlement patterns, was a result of the work conducted by Dr. Jay F. Custer and his associates (Custer 1984, 1989, and 1996).

Paleo-Indian (13,000 – 6500 BC): The Paleo-Indian cultural period covers the Paleo-Indian and Early Archaic periods of the traditional eastern chronology. This period begins with the first evidence of humans in northern Delaware. During this period the glacial ice sheet had fully receded and the first 5,000 years of the Paleo-Indian period are characterized by a cold and wet climate. Vegetation consisted of a mosaic of grasslands, deciduous forests, and boreal forests. After 8000 BC a general drying trend is evident, as spruce and pine boreal forests with small amounts of deciduous trees dominated the mixed forest and grasslands.

New Castle County, like much of the Middle Atlantic region, was characterized by a relatively complex set of overlapping environmental zones, providing a variety of subsistence resources for prehistoric peoples entering the area. Throughout this period the occupants of northern Delaware practiced hunting and gathering life ways focused around sources of stone for tools. Archaeological sites from this time period are usually identified by the presence of well-crafted stone projectile points usually made of high quality crypto-crystalline stone including chert and jasper. The points are characterized by a single long channel flake, or flute, removed from both sides of the point. These point styles are commonly accompanied by various scrapers and flake tools.

Archaic (6500 BC – 3000 BC): In the traditional chronology there is a break in cultural patterns beginning at approximately 8000 BC that corresponds with a general warming trend. Pine and northern hardwoods, particularly oak, replaced boreal forests and open grasslands. In the Delmarva regional chronology, the Paleo-Indian and Early Archaic periods are combined under the single rubric of Paleo-Indian. Archaic populations continued the basic life ways of the previous period.

Hunting and gathering continued as the basic subsistence pattern. Populations remained highly mobile in the archaic period, but there is a noticeable change in the types of lithic materials being utilized. As people expanded into new environments, the focus on high quality lithic resources was lost. Tool kits of this period typically tended to be made from material that was expedient and locally available. Diagnostic stone tools include points with bifurcated bases, side-notched points, and various stemmed points. The Delmarva Regional Archaic period incorporates the Middle Archaic chronological period of the Traditional Eastern Chronology.

Woodland I (3000 BC – 1000 AD): Around 3000 BC, the rate of sea level rise slowed and as a result riverine and estuarine environments began to stabilize enough to support significant and seasonally predictable populations of shellfish and anadromous fish. An increase in the number of sites from this time period indicates a population increase. The development of sedentism, inferred from the number of complex sites found in this period, forms the basis of distinguishing the Archaic from the Woodland I Periods in the Delmarva region. The Woodland I Period incorporates the Late Archaic, Early, and Middle Woodland Periods of the Traditional Eastern Chronology.

Container technology evolves through this time period, beginning with steatite bowls and evolving into a ceramics industry. At first vessels were thick walled, undecorated, and mirrored the shape of stone bowls. Through time ceramic vessels became rounded, more refined, and often decorated. Net sinkers, stone axes, spear thrower weights, and a wide range of stone points and blades were made during this period. Common point styles were stemmed, side-notched, and triangle points.

Native Americans adopted a more sedentary existence in the warmer and drier climate of the Middle Holocene. The oak and hemlock forests evolved into mixed vegetation of grassland, oak forest, and hickory forests. Settlement during this period commonly consists of repeated reuse of campsites and semi-sedentary to sedentary small village sites along major drainages.

Woodland II (1000 AD – 1600 AD): Chronologically this part of prehistory is known as the Late Woodland. During the five hundred years of Native American life before their contact with Europeans many Native Americans gathered in small villages or hamlets. Most villages lay adjacent to major streams and rivers. By approximately 900 AD, horticulture began to achieve an important role in the subsistence pattern across the Middle Atlantic region, but little evidence of these practices have been found in Delaware.

Smaller settlements probably continued to rely on intensive food gathering as the main route of subsistence. Temporally diagnostic artifacts of this late period include small triangular arrow and/or dart points, and various styles of ceramics. Ceramic vessels of this period are often highly decorated and were made in a wide range of shapes.

The disappearance of non-local influences on mortuary practices and absence of tools made from non-local stone imply a breakdown in extensive trade networks during the early portion of the Woodland II Period. The main Woodland II cultural complex is known as Minguannan and is distinguished by a ceramic type of the same name.

Regional and Local Historic Context

A charter for land in present day Delaware was granted to a group of Swedish settlers by the King of Sweden in 1631. Seven years later Swedish Lutherans landed in the vicinity of Lewes Delaware, migrated north towards Philadelphia, and founded a settlement that they named New Sweden. That same year Governor Peter Minuit erected Fort Christine and established the village known as Christineham (Thomas, Regensburg and Basalik 1980:II – 1). During the eighteenth century Christineham joined the village of Willingtown (Wilmington) at present day French and Shipley Streets. The Swedish settlers did little to establish a central government, preferring instead to live in an agricultural hamlet system that afforded religious freedom. In 1651 Dutch settlers established Fort Casimir and New Amstel (New Castle) with the latter being used as their economic/commercial center. In a quest for land expansion and ownership, under the leadership of Governor Stuyvesant, the Dutch seized control of New Sweden in 1655 (Munroe 1979). Dutch rule of New Sweden ended in 1664 when the English expanded into New Sweden (Sharf 1888). William Penn, a Quaker, received a charter for land in Delaware circa 1682 and almost immediately proceeded to issue patents to those English Quakers seeking religious freedom.

One of the first English settlers to the area was Thomas Willing, who in 1731 established a settlement named Willingtown. His property was located west of French Street between High (Fourth) and Water Streets and in 1732 erected the settlement's first house at Front and Market. When Willing left the settlement several years later, his house was converted into a tavern. In 1735, William Shipley, an English Quaker from Ridley, Pennsylvania, and his wife Elizabeth settled in Willingtown. The Shipleys erected a mansion house at High and Shipley Streets and shortly thereafter William laid plans to establish the village as a borough (Smiley 1894). In 1739 borough status was granted and the village was renamed Wilmington for the Earl of Wilmington. Under Shipley's supervision a central government was established, a street system similar to Philadelphia's was laid out, and the borough laid the foundations for port trade with Philadelphia (Lemon 1967). One of the first streets to be laid was Market Street, beginning at the Christiana River, the thoroughfare extended to Fourth Street by the third decade of the eighteenth century. In 1736, William Shipley erected a market house near his mansion. The market, open on Wednesdays and Saturdays, remained Wilmington's only market house until 1737 when a group of residents erected a second market house at Second and Market Streets. In an attempt to placate both factions, the local government decided that Shipley's market house would be used on Saturdays and the lower market on Wednesdays (Rendle 1998).

During the eighteenth century, Delaware was divided into political divisions referred to as "hundreds." By the period 1800 – 1830 there were 26 hundreds (the project area is part of the Brandywine Hundred). This division was originally included in the land granted to William Penn by the Duke of York in 1682. In 1700, Penn granted a 30,000-acre tract, consisting of a portion of the Brandywine Hundred and Mill Creek Hundred, to his children William and Letitia. Eventually, this large tract was divided into smaller plantations and farms.

In 1793, Wilmington experienced a population increase due to a yellow fever outbreak in Philadelphia. In an attempt to escape the epidemic, Philadelphia residents fled the city and moved to Wilmington. Unfortunately, five years later Wilmington also suffered an outbreak of yellow fever (Munroe 1979). With the increase in population came the need for a more adequate water system. In 1796 there was an effort to erect a public water works. It wasn't until 1803, however, that this project became reality with the construction of the Spring Water Company. The company was renamed the Wilmington Spring Water Company in 1804 and used a fountain spring at Fourth Street between West and Tatnall Streets for its water source. The Borough of Wilmington purchased the water company in 1810 and shortly thereafter new wooden pipes were constructed to supply homes with water. A reservoir was built in 1815 and by 1820 water was being supplied by the Brandywine Creek. Iron pipes replaced the wooden pipes in 1825 and eventually fire hydrants were installed throughout the borough. Two years later, the borough purchased the John Cummings Mill on the south bank of the Brandywine Creek. Here a double-acting pump house was erected that was later replaced in 1902 by a larger water pumping station that housed "two Holly vertical, three-cylinder triple-expansion steam pumping engines" (National Register Nomination Form 1976). By 1832 a city government had been formed; in that year the City of Wilmington was comprised of 7,000 inhabitants.

Development of the Project Area Vicinity

Native American trails, and water routes such as the Brandywine Creek, linked the early borough and the Brandywine Hundred's towns. Early in the eighteenth century, a flour milling industry evolved along the banks of the Brandywine Creek, followed by cotton manufacturing and a small shipbuilding industry (Zebly 1940). The project area is part of the former 535-acre Jacob Vandever tract. Vandever, a Dutch sea captain, arrived in the area circa 1637. He was granted a land patent in 1669 by the Duke of York and shortly thereafter erected a log house (National Register Nomination Form 1976). The southern portion of Brandywine Village was part of the former Stidham tract (Brinton 1801). In the latter part of the seventeenth century Tyman Stidham, a Swedish colonist, purchased approximately 300 acres on the south sides of the Brandywine Creek between the tidewater and Rattlesnake Run (Hoffecker 1974). In 1687, Stidham erected the first known mill in Brandywine Village, a barley mill located near West Street.

In the 1720s, Samuel Kirk purchased a portion of Stidham's land and erected a dam and mill known as Kirk Company Mill along the Brandywine Creek at West Street. Two decades later, Oliver Canby, a Quaker from Bucks County, purchased shares in the Kirk Company. An ambitious businessman, Canby built a millrace and mill at Orange Street and by 1743 owned three mill sites along the south bank of the Brandywine Creek (Hoffecker 1974:24). In 1760 two millers, Daniel Byrne and William Moore, erected a mill at French Street and started a ferry service across the Brandywine Creek. That same year a bridge was built across the Brandywine Creek at the tidewater. The bridge, located at King's Highway (King Street) was 40-feet wide with three stone pillars, six feet thick. The King's Highway replaced the old post road located a quarter of a mile upstream.

The first mill erected on the north side of the Brandywine Creek was a bolting mill built by William and James Marshall. The year 1770 marked the beginning of Brandywine Village's golden age

when Joseph Tatnall, an industrialist, constructed a millrace along the north bank. Along with the construction of the millrace other mills were soon erected, so that by 1820 their number had increased from eight to fourteen (Hoffecker 1974). Tatnall, who had purchased shares in the mills on the south bank, sold those shares and became a partner with his sons-in-law, Thomas Lea and James Price. Tatnall also purchased land from Jacob Vandever and built a stone house on North Market Street (1803 Market Street) next door to his partner Thomas Lea (1801 Market Street). Between 1788 – 1790, local inventor Oliver Evans approached Tatnall about automating his mills with a mechanical milling system. Once Tatnall and Lea had the new process installed their mill became one of the most prosperous mills along the Brandywine.

The milling industry continued to prosper especially during the Revolutionary War when Tatnall and others supplied flour and meal to Washington's troops. During the Battle of Brandywine, Washington, Lafayette, and Wayne headquartered in Brandywine Village. By the first decade of the nineteenth century, the Brandywine Village millers had established a powerful financial base within the borough of Wilmington (Matuszewski 1988). The millers were influential in establishing five turnpikes within the area during 1805 – 1815, and their Bank of Delaware (started in 1796) was the state's main financial institution until the middle of the nineteenth century.

In 1781, James Canby inherited the Canby mills on the south bank of the Brandywine Creek. President of the Bank of Wilmington and Brandywine, Canby was a railroad enthusiast who took the lead in organizing the Wilmington and Susquehanna Railroad. The railroad later merged to form the Philadelphia, Wilmington & Baltimore Railroad (PW&B).

Censuses from the second decade of the nineteenth century indicate that the village had continued to prosper after the Revolutionary War. In 1814 there were 113 heads of household with 65 on the north bank and 47 on the south. The trades of these householders break down as follows: 32 were coopers, 22 millers, six carpenters and millwrights, five blacksmiths and waterman, four shipbuilders, four machine makers, four laborers, four shoemakers, a butcher, a carpenter, a cabinet maker, a tailor, a huckster, a teacher, and two innkeepers (Hoffecker 1974:56). During this period the shipbuilding industry had evolved along the Brandywine Creek with shipyards located along the north bank below the mill sites (Anonymous 1822). These yards constructed sloops, barks, and schooners. One shipbuilder, an African American, built the only brig ever constructed on the Brandywine (Hoffecker 1974:59).

By the last decade of the nineteenth century, cotton manufacturing had merged as an industry within Brandywine Village. There had been earlier attempts at textile manufacturing in the second decade of the nineteenth century when the Borough of Wilmington leased unused portions of a water pumping mill to Rodgers and Reeves for installation of their cotton spinning equipment. In 1831, Thomas Garrett and Jacob Pusey bought out Rodgers and Reeves. Renamed the Wilmington Cotton Factory, the mill remained in operation until 1837. The next major textile factory to be constructed was the Eagle Mills, circa 1850. The owner, named Lammat, was the son-in-law of Alfred du Pont and owner of the Lenni Cotton Mills in Chester County. Lammat erected a large mill complex at Vandever Lane east of the Philadelphia Pike; the addition of steam powered engines enlarged and improved the mill in 1855.

The milling industry within Brandywine Village, of course, required mill workers, and by 1857 Brandywine Village's population had increased to 880 persons. This trend would continue so that by the 1860s the Borough of Wilmington, seeking to enlarge its Democratic Party base, proposed extending the borough into Brandywine Village. In answer to the borough, Tatnall, Lea, and others who held large open tracts of land divided their lands into residential lots. By the 1870s Brandywine Village became part of the new Ninth Ward.

The second half of the nineteenth century saw the Tatnall and Lea mills along the north bank still thriving, supplied with water by two races (Figures 3 and 4). By 1864, Thomas Lea had passed the firm of Tatnall and Lea to his son William who brought his two sons Henry and Preston into the family business, renamed William Lea & Sons. Between 1876 and 1887 the William Lea & Sons mills, just to the east of the Market Street Bridge, were provided with direct access to the regional rail system. Sometime during that period, the PW&B constructed its Brandywine Branch along the north bank of the creek, allowing products to be shipped to consumers much more quickly than before.

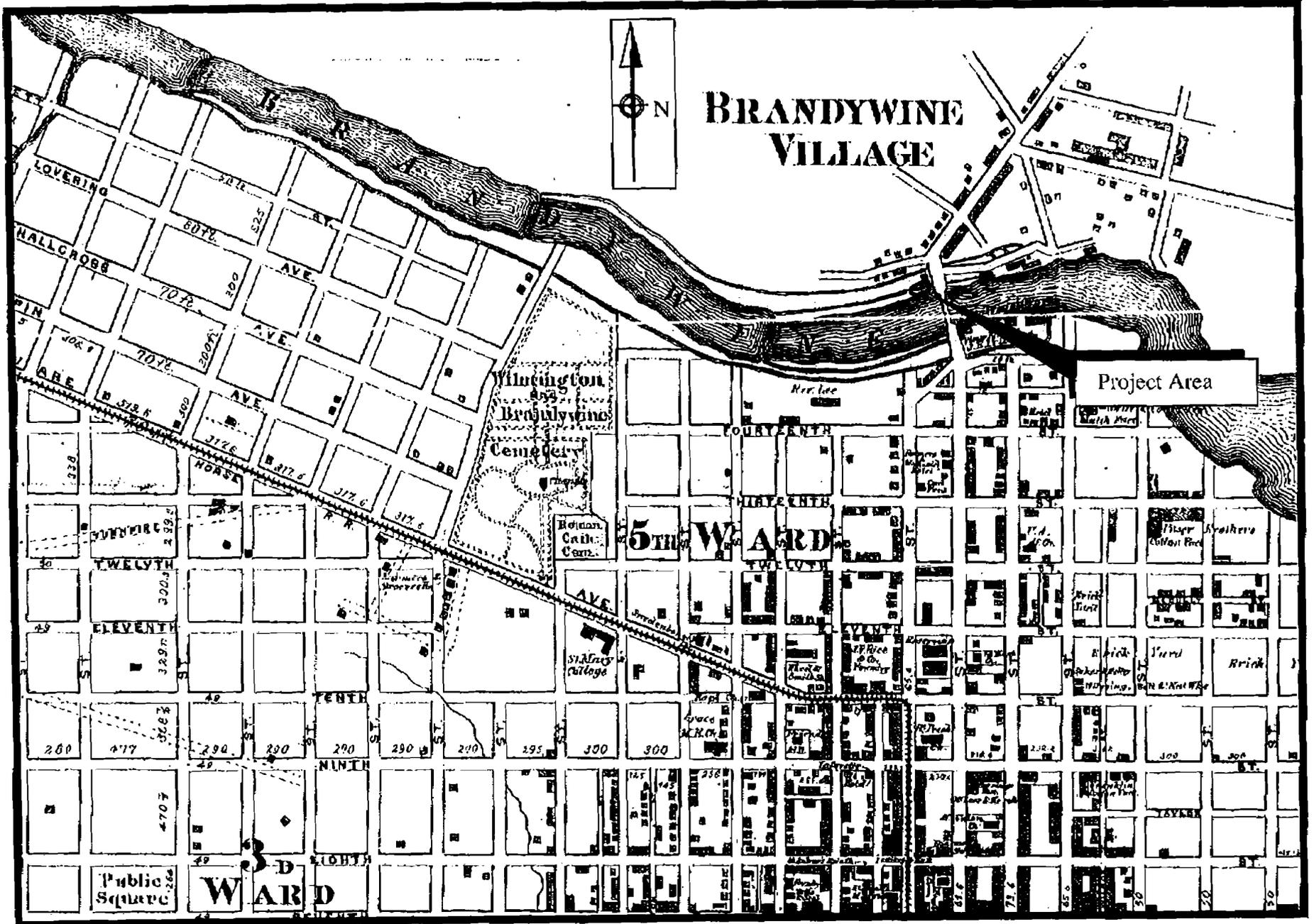
The transportation revolution also benefited intra-urban travel as the Wilmington City Railway, a horse drawn street car system that had run along Market Street from the Christiana River to Tenth Street, made plans to extend its line northward along North Market Street. The new line from Tenth Street to the Riverview Cemetery was completed in 1888 and the horse drawn trolleys had been replaced by electric trolley cars. The line was further extended in 1892 to Shellpot Creek ending at an amusement park/resort area built by the railway company (Hoffecker 1974).

As part of the ongoing attempts to upgrade the transportation network in the city, six different bridges were built to carry Market Street across the Brandywine. The first structure, built in the 1760s, was destroyed some 50 years later by a freshet and replaced by a chain suspension bridge that lasted only 12 years, demolished by the flood of 1822. The third bridge, a covered structure, suffered a similar fate during the winter of 1839; its replacement, a wooden covered bridge resting on massive stone abutments, carried foot and vehicular traffic across the Brandywine until 1887. The fifth bridge, a steel truss structure that could carry much more weight than its predecessor, was replaced by the current bridge in 1928 (Hoffecker 1974:83 – 85).

Previously Identified Cultural Resources

Prior to conducting a field survey of the project area, URS visited the Delaware State Historic Preservation Office (DSHPO), where it was determined that two previously identified cultural resources in place adjacent to or within the project area. The project APE extends into the extreme western portion of Brandywine Park, listed in the National Register in 1976. The park was built in 1886 and was designed by Samuel Canby. Frederick Law Olmsted, who along with Calvert Vaux was responsible for creation of Central Park in New York City, apparently served as consultant for the Brandywine Park design (Norton 1976).

The project area is located just outside of Brandywine Village, a National Register-listed eighteenth-century milling community, the southern boundary of which extends along the north side of Glenn Avenue.



11

Figure 3 1868 Pomeroy and Beers Map Showing Project Area.

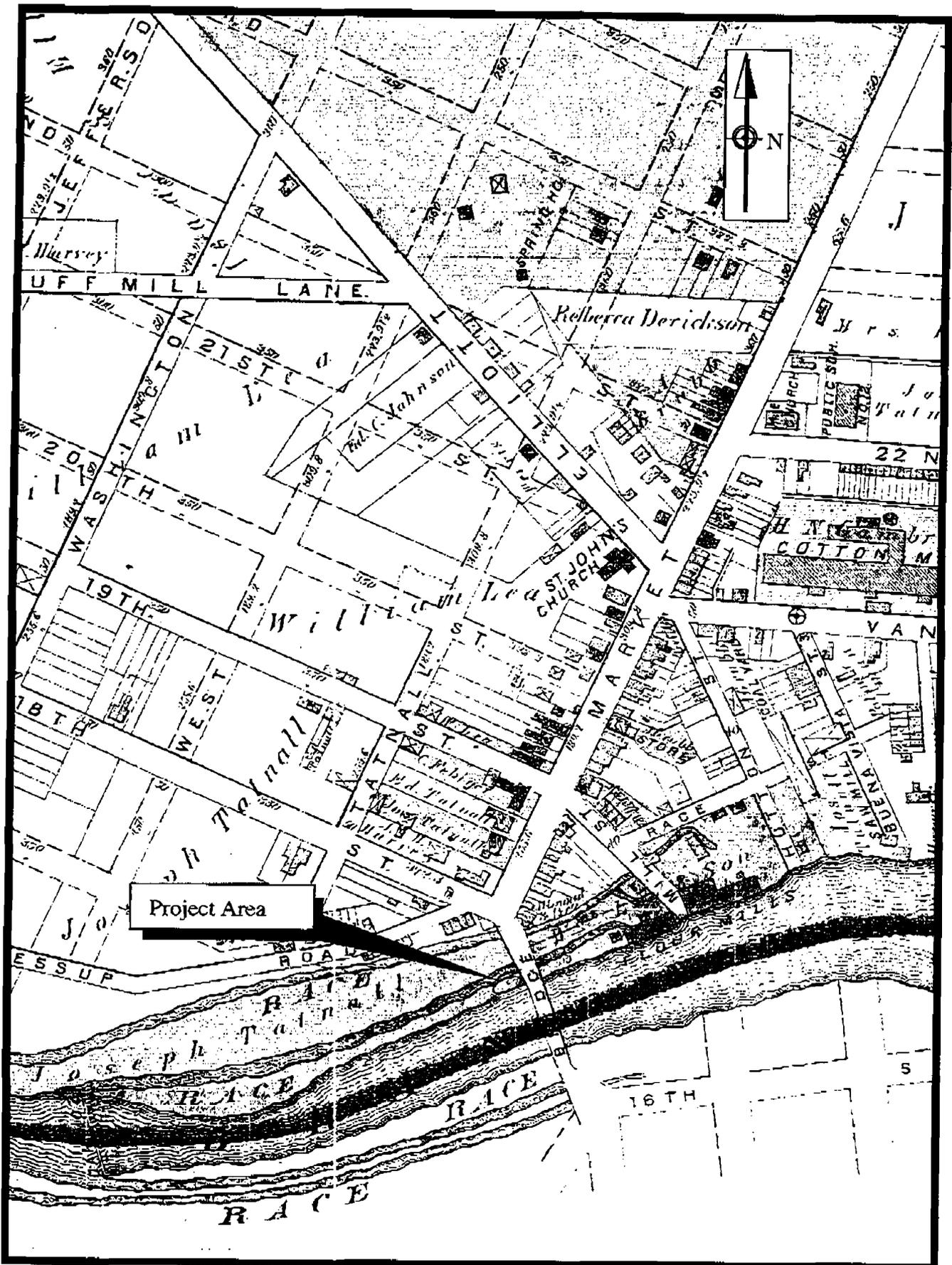


Figure 4 1876 Hopkins Map Showing Project Area.

Archaeological Potential

According to the DSHPO, there are no surveyed or recorded prehistoric or historic archaeological sites within the project area. While high ground in close proximity to a watercourse are locations favored by prehistoric Native American groups, the project area is considered to have a low to moderate potential for prehistoric archaeological resources. This assessment is based on the probable disturbance of any such resources by later activities, particularly the construction of the bridge abutment and installation of the large concrete culvert to the west during the twentieth century.

As for historical archaeological resources, the potential appears to be low to moderate. Although historic maps do depict a number of buildings and mill-related features in the vicinity, except for a raceway that supplied water to one of the William Lea & Son flourmills downstream, none are in the project APE. The raceway, one of two on this side of the Brandywine, appears to have been in place by the 1820s, passing beneath the abutment of one or more of the earlier bridges at this location via a tunnel. By the early twentieth century, the raceway west of the bridge appears to have been abandoned and filled in. In addition to the raceway, the 1868 Pomeroy and Beers map also shows a building located between the lower raceway mentioned above and the upper raceway located just to the south of present-day Glen Avenue (formerly Jessup Road)(see Figure 3). This structure appears to have been demolished during construction of the Philadelphia, Wilmington & Baltimore (PW&B) Railroad's Brandywine Branch between 1876 and 1887 (subsequently acquired by the Pennsylvania Railroad). A spillway, possibly for flood control purposes, appears on the 1928 construction plans for the existing bridge, located roughly 25 feet west of the present structure.

IV. RESULTS OF FIELDWORK

Fieldwork

Fieldwork consisted of an initial pedestrian walkover, photographic documentation, and limited subsurface testing. Phase I investigation methods followed the guidelines outlined in the Delaware State Historic Preservation Office's *Guidelines for Architectural and Archaeological Surveys in Delaware*. All shovel tests were excavated stratigraphically according to natural or cultural soil horizons. All soil was screened through ¼-inch hardware mesh. Profiles were drawn upon completion of each shovel test. Soils were described using standard USDA textural classifications. Black and white photographs were taken of the general project area (see Figures 1 through 5).

Except for the upper (northern) portion of the APE, along the top of the bank where the abandoned PW&B alignment is located (see Plate 1), the project area slopes down steeply toward the Brandywine. The surface of the slope is littered with large rocks and boulders, some of which may have been originally part of the earlier masonry bridge abutment and wing walls, or, as noted earlier, part of a bankside retaining wall (see Plates 2 and 3). Where the spillway had been is a large concrete pipe that apparently serves the same function (see Plate 3). At the base of the slope is a narrow (15 – 20 feet) floodplain, separated from the Brandywine by a natural levee.

The pedestrian walkover did not identify any obvious surface evidence for the millrace that once supplied the William Lea & Sons mills, nor was any trace of the building that stood near the railroad/Market Street intersection found. The latter, as noted earlier, had been demolished to make way for the PW&B Brandywine Branch. The millrace was apparently abandoned and filled sometime after the turn of the century, its course now covered by the same large boulders that litter the slope.

The surface reconnaissance did identify one portion of the project area that was not obviously disturbed or subject to steep slopes (<15 degrees). This portion of the APE was located on the floodplain of the Brandywine Creek, between the base of the very steep slope and the levee formation, about 15 feet west of the culvert (Figure 5; see Plate 5), and measured approximately 45 feet long by 15 feet wide. Three shovel tests were excavated within this section (see Figure 5). These shovel tests exhibited multiple layers of fill, which capped deposits associated with the Brandywine Creek. Shovel Test Three (described below) is representative of the tests excavated within the project area (Figure 6).

Shovel Test Three

Stratum I (0 – .9 feet)	a very dark grey (10YR 3/1) silty sand fill horizon with large amounts of railroad bedding stone, medium to large angular cobbles (probably associated with former retaining wall), and modern trash.
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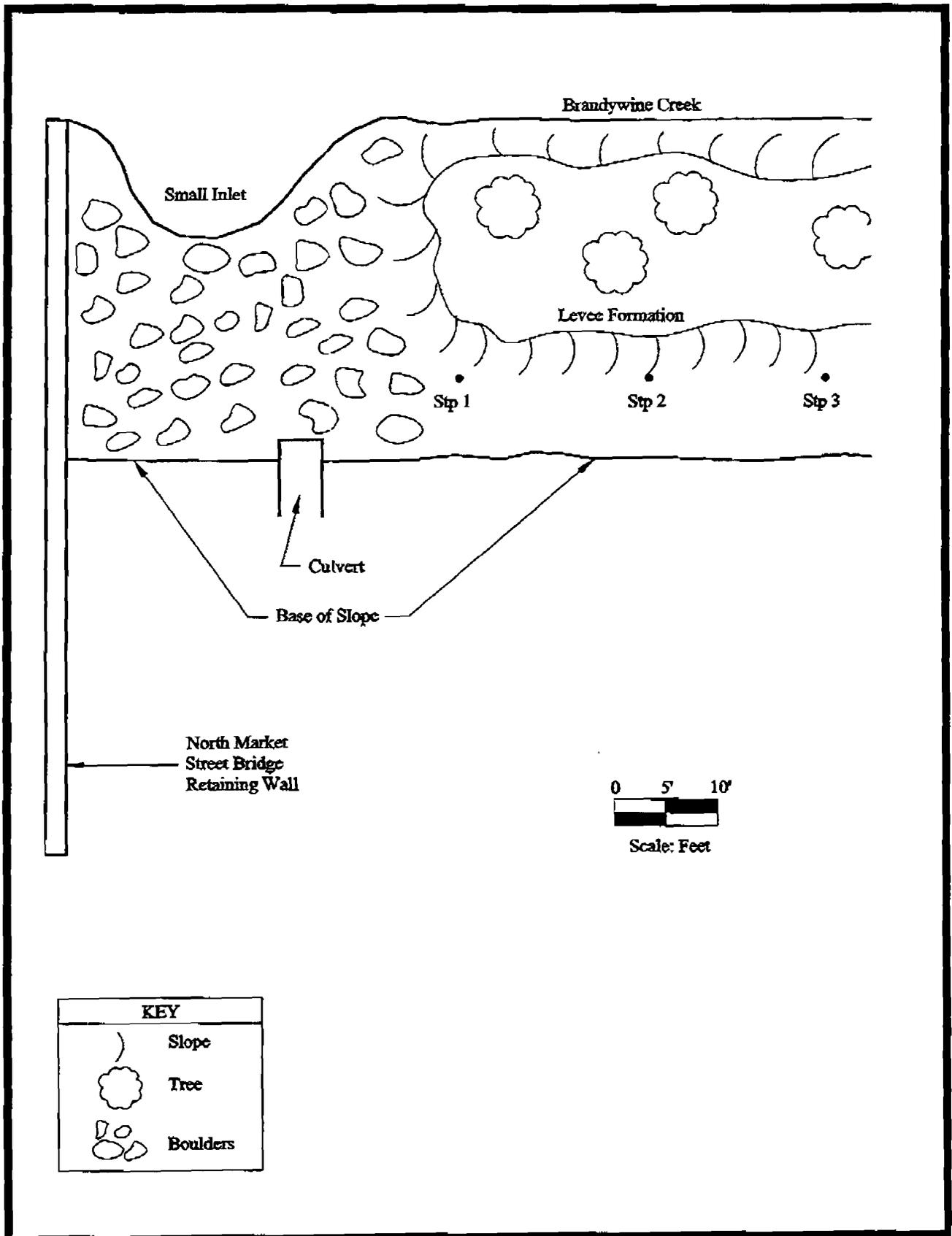


Figure 5 North Market Street Bridge, Plan Map of Testable Area and Location of Shovel Tests.

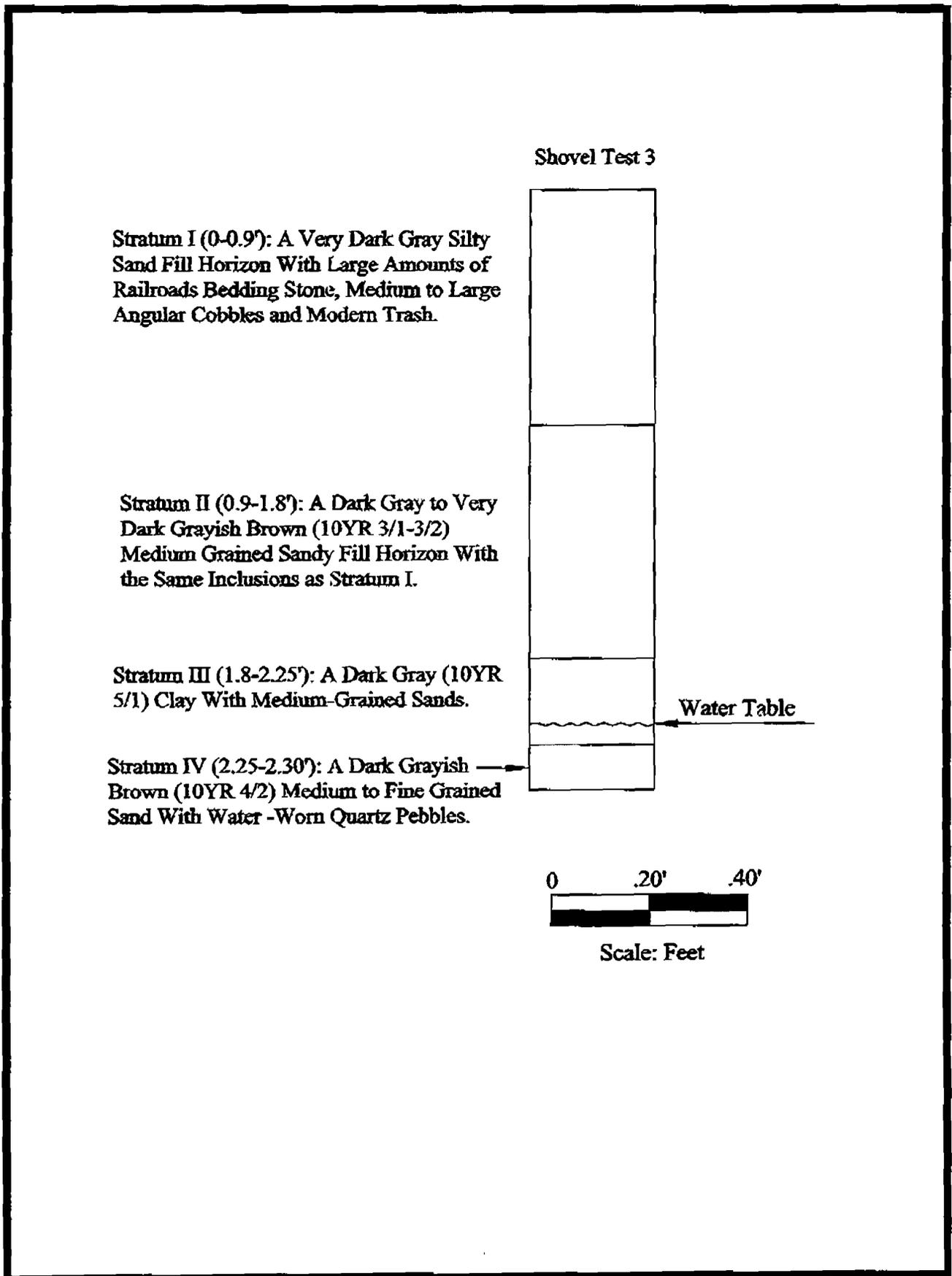


Figure 6 Profile of Shovel Test 3.

- Stratum II (.9 – 1.8 feet) a dark grey to very dark greyish brown (10YR 3/1-3/2) medium-grained sandy fill horizon, with the same inclusions as Stratum I.
- Stratum III (1.8 – 2.25 feet) a dark grey (10YR 5/1) clay with medium-grained sands (possible B-horizon). The water table was reached at approximately 2.15 feet below ground level.
- Stratum IV (2.25 – 2.30 feet) a dark greyish brown (10YR 4/2) medium to fine grained sand with water-worn quartz pebbles.

The above profile exhibits approximately two feet of fill that caps natural subsurface soils. The fill strata (Strata I and II) are associated with the railroad bed located at the top of the slope, the destruction of a possible retaining wall, erosion, and subsequent in-filling or dumping activities. Strata III is similar to the B-horizon soils attributed to the Othello soil series, although it is less reddish in color. Stratum IV probably represents either flood or river bottom deposits associated with Brandywine Creek, as evidenced by the presence of water-worn pebbles within the soil matrix. No archaeological resources of any kind were encountered in any of the shovel tests.

V. EVALUATIONS AND RECOMMENDATIONS

Conclusions

Phase I archaeological investigations for the access path and trestle bridge associated with the North Market Street Bridge rehabilitation effort documented a disturbed landscape along the Brandywine Creek. The bulk of the project area consisted of steep boulder-strewn slopes and a large levee formation. The only testable area was located between the base of the slope and the levee. Within this area, approximately two feet of fill capped natural, sterile subsoil deposits. No archaeological resources of any kind were identified during these Phase I investigations.

Recommendations

Based on the results of the Phase I investigations, no further archaeological work is recommended for the North Market Street Bridge project. Although remnants of the mill race are almost certainly located beneath the rock, boulders, and earth fill, heavy machinery would be required to expose them, a process that would be, in all likelihood, more destructive than the filling necessary to create the pathway.

Although beyond the scope of an archaeological survey, it should be noted that the project APE extends into a National Register-listed park. Therefore, any ground-clearing or other activities that could alter the appearance of this portion of the park may result in an adverse effect to this resource. An assessment of adverse effects study may be required.

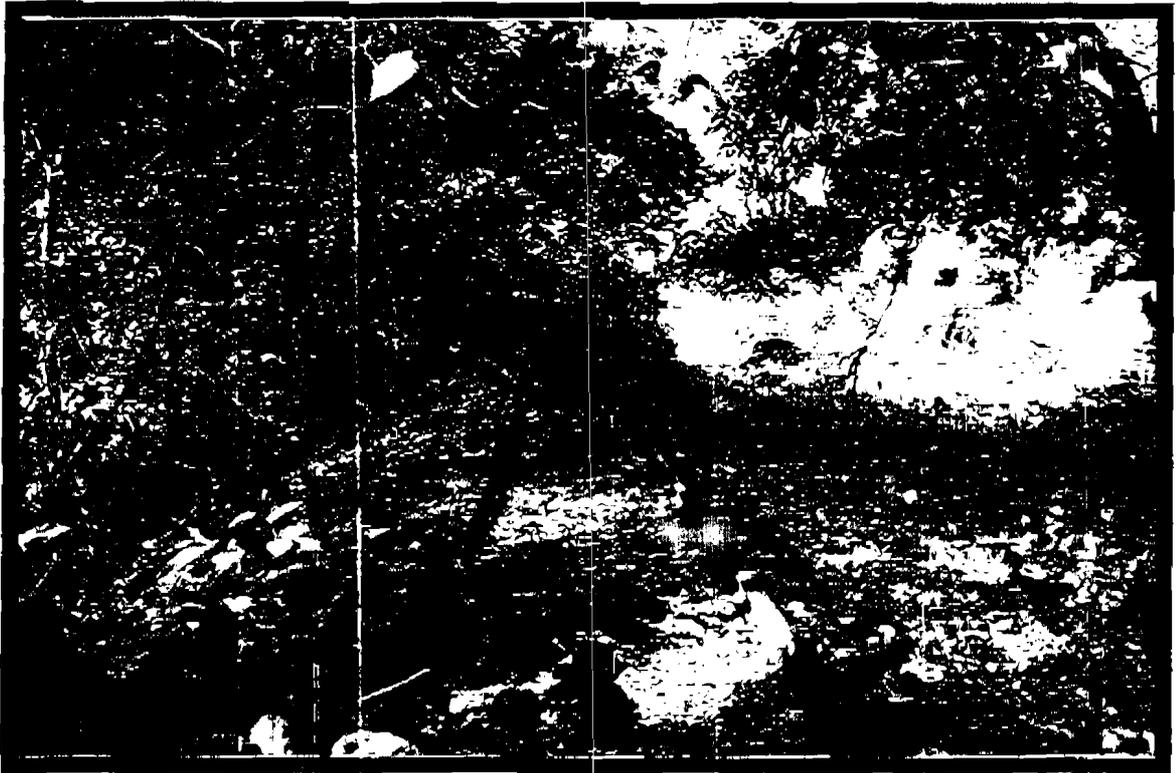


Plate 1 View Down Abandoned Pennsylvania Railroad Line, Facing West.



Plate 2 View of Slope Leading to Brandywine Creek, Facing West.



Plate 3 View of Former Spillway/Culvert, Facing West.

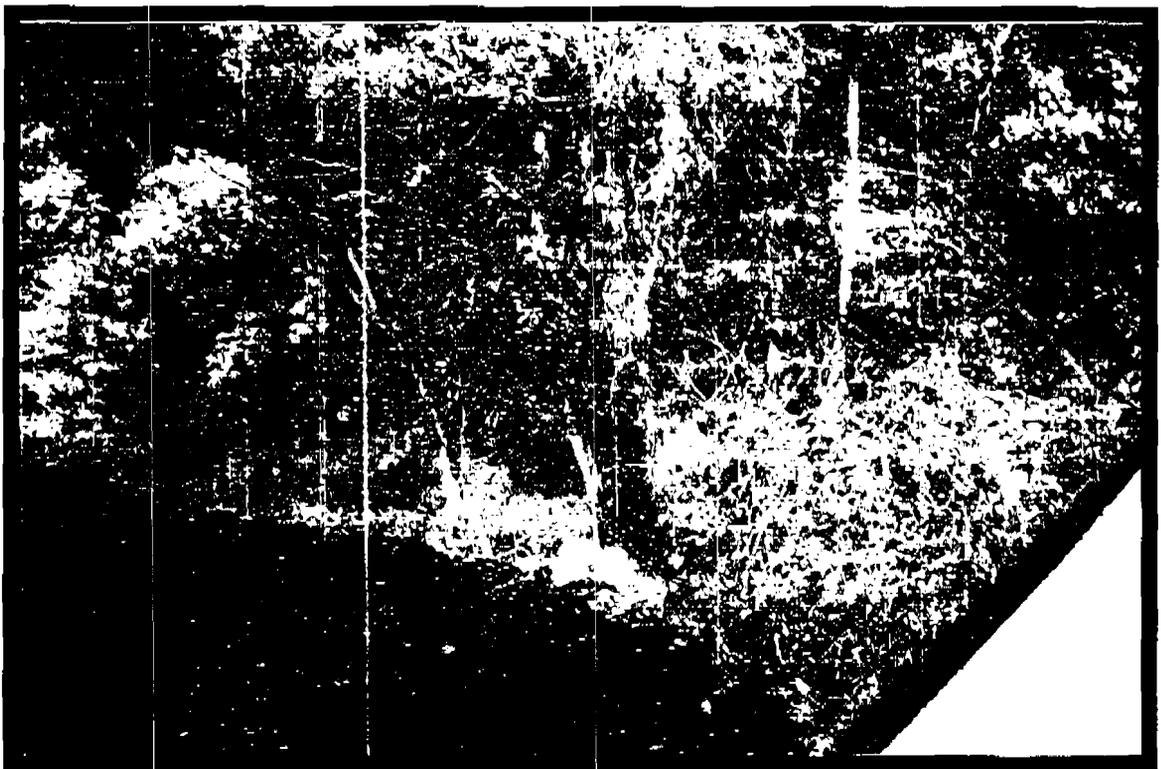


Plate 4 View of Levee Formation/Northern Bank of Brandywine Creek, Facing Northwest.



Plate 5 View of Testable Portion of Project APE, Facing East.

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