CULTURAL RESOURCES INVESTIGATIONS NEAR

MOORE'S LAKE

IN CONNECTION WITH WIDENING OF U. S. ROUTE 113A
DOVER AND NORTH MURDERKILL HUNDREDS, KENT COUNTY, DELAWARE

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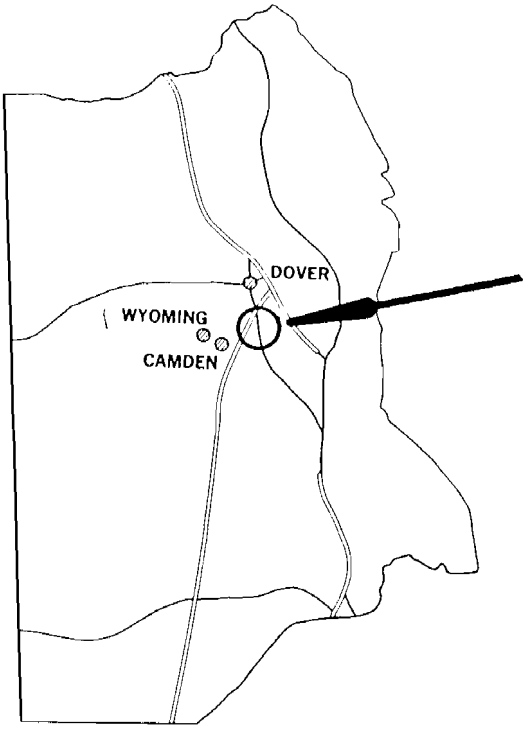
ABSTRACT

This is a report of a cultural resources survey of U. S. Route 113a between U. S. Route 13 and State Route 10, Kent County, Delaware. Since most of the project involves widening the roadway within the existing right-of-way, impact on new areas will be minimal or nonexistent.

The widening project will pass through the historic milling and commercial complex known as Moore's Lake, or Mount Vernon Mills. The mill complex is eligible for the National Register, but the project will have no effect on the historic resource.

KENT COUNTY



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LOCAL INFORMATION ABOUT THE SITE was generously provided by three longtime residents. Mrs. June Butler, who owns the 1881 miller's house, was most helpful with a guided tour and considerable background information on the property and its former owners. James B. Jackson of Dover, whose scholarship on Cæsar Rodney was useful to this project, also provided insights gleaned from visits to his great-uncle, the second Henry Moore of Mount Vernon Mills. William P. Maag, longtime resident of the neighborhood, shared his vast knowledge of local history.

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1. Introduction

Delaware Department of Transportation proposes to widen and upgrade part of South State Street, Route 113A, south of Dover, in East Dover and North Murderkill hundreds, between routes 10 and 13, on both sides of Moore's Lake.

In order to comply with Section 106 of the National Historic Preservation Act and other applicable regulations, the Department commissioned the author to conduct Phase I cultural resource investigations in the proposed construction area.

Natural Environment

Isaac's Branch is the principal natural feature of the project area. This freshwater tributary of the St. Jones River becomes tidal and brackish about a half-kilometer downstream from the project area.

Soils in the project area belong to the Sassfras series of well-drained sandy loams. Except in stream valleys, the ground is generally level (Soil Conservation Service 1971). Sassafras soils are not only excellent for agriculture, they traditionally are preferred for town and subdivision locations. Virtually every town established in the Delaware coastal plain during the eighteenth century was built on Sassafras soils.

Built Environment

Since first European settlement, this has been a rich agricultural neighborhood, with a gristmill at its center. During the past half-century, suburban development has spread across the project area. The last farmland along this road between Route 13 and Route 10 is now under development.

Moore's Lake and its associated structures are the principal man-made features of the project area. Structures include the dam, the headrace, part of the mill, a dwelling, state fish-rearing ponds, boat ramps, and a footbridge. The original industrial purpose of the site is still evident, but most of the standing structures belong to the post-industrial period in the site's history.

West of the highway, between the bridge and the dam, is a small state-owned park containing a footbridge (K-6653) that stands on the abutments of the nineteenth-century bridge replaced in 1920.

The bridge over Isaac's Branch, structure 27B (K-6466), was evaluated in the cultural resource survey of Delaware bridges (Spero 1991:239) and found to be ineligible for the National Register on account of compromised integrity. The headrace bridge (K-6655) has not been evaluated.

South of the headrace are the state-owned fish rearing ponds (K-6652), established *circa* 1936 and still in use by private fish farmers. These ponds are said to have been hand-dug by the Civilian Conservation Corps.

A house on the west side of the highway, just north of the headrace, 1614 South State Street (K-1013), is historically connected with the mill. Farther north, a house on the east side of the highway has been inventoried (K-1014) in the state cultural resources survey, but not identified as significant.

East of the highway is a large commercial building (K-6649) that formerly was the temporary home of the Kent County [now Terry] campus of Delaware Technical and Community College between 1972 and 1975. Before its use as a college, this building was a store. It was originally part of the same commercial complex as the chicken houses, owned by the mill operator.

South of the former college building are a mini-storage facility, a sandwich shop, and a convenience store. Chicken houses stand behind the stores.

South of Moore's Lake, inside the intersection of Route 113A and Old Mill Road, is the former Delaware State Highway Department maintenance yard (K-6654). Three new houses, recently moved to the site, now occupy the former highway yard.

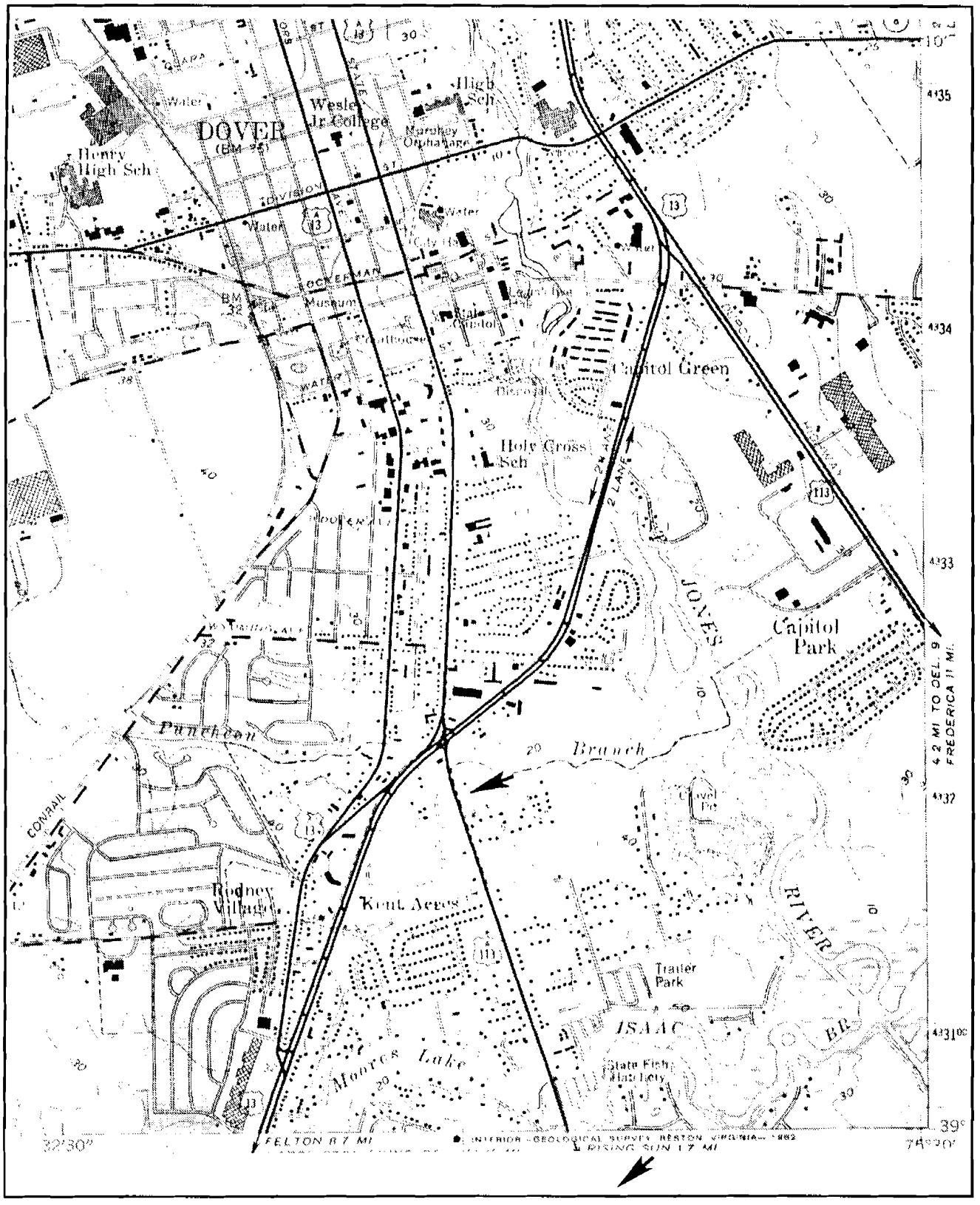


Figure 1
Project Area
Detail of USGS Dover quadrangle, 1956, 1981. Arrows indicate beginning and end of the project area.

2. Research Orientation and State Plan

PREVIOUS ARCHÆOLOGICAL research in the region has provided valuable insights into the locations of human activities through time. In some cases, as in the project area, settlement models are so well developed that sites can be predicted with uncanny accuracy, but there is yet much to be learned about human utilization of this part of Kent County.

Theoretical Orientation

The research for this project reflects a cultural materialist theoretical orientation. Cultural materialism refers to the study of the effects of technology and environment on human behavior. Culture is viewed as a form of adaptation to both the natural environment and the social environment that results from the interaction of human individuals and groups (Custer 1986:2; cf. Harris 1968:240-41; Harris 1979).

This theoretical approach is explicitly incorporated into the Delaware management plan for prehistoric archæological resources (Custer 1986:2). The state plan for historic archæological resources (DeCunzo and Catts 1990:8), on the other hand, stresses the need to compare and evaluate interpretations resulting from different theoretical approaches. The plan emphasizes the need to "allow archæologists with different theoretical perspectives to address their own questions through the resource base in Delaware ... ."

A cultural materialist approach is implicit in the development of models which use features of the natural environment (such as soil types or topography) or elements of the cultural environment (such as roads, landings, or farmsteads) to predict the locations of a variety of property types, including prehistoric settlements, cemeteries, and industrial sites.

Using this theoretical position, local researchers have developed a strategy designed for the efficient identification of both prehistoric and historic sites. The research strategy consists of the identification and application of models that predict the locations of the major historic property types which can be expected within the project area. These property types include both prehistoric settlements and historic tofts and are of particular concern because they can provide information on a wider range of research questions than other properties considered in this study. Such an approach can be considered an empirical test of the positive statements of the models. It should be kept in mind, however, that this does not constitute a formal test of any model.

Consistent with the cultural materialist approach is an approach to sites of the historic period which emphasizes commercial networks, transportation, and settlement patterns. For the interpretation of spatial relationships between places and their regional significance, the insights of geographers are particularly useful.

While prehistoric settlement patterns may smack of central-place theory, historic settlement patterns can be explained almost entirely by application of the central-place paradigm.

A systematic, top-down approach to material culture demands that each element be viewed as part of a system, further divisible into subsystems and, in turn, sub-subsystems.

If one follows this line of reasoning, a house or object cannot be considered in isolation, but as part of a toft. Each toft, in turn, is part of an agricultural or domestic system that includes production, consumption, disposal, and governmental systems, all of which in turn are belong to larger regional or national systems.

In more immediate terms, the systems approach demands interdisciplinary survey strategies that will identify all parts of the system, past and present, buried and visible, built and natural, tangible and intangible.

Prehistoric Background

People arrived in the Delaware Valley near the end of the last (Wisconsin) glaciation

(Kraft 1986:31). Glaciers entrapped so much water that the ocean lay fifty miles east of the present Sandy Hook, New Jersey. As glaciers retreated and the ocean advanced, area ecology changed.

During the twelve millenia before European settlement, Delaware's climate evolved from glacial tundra to temperate hardwood forest. Man's adaptation to the changing climate was marked by gradual cultural evolution. Custer and DeSantis (1986) have provided a useful table that correlates human and climatic change:

TABLE OF PREHISTORIC CHRONOLOGY

Dates	*Environmental Episode*	*Cultural Period*
8080 BC	Late Glacial	Paleo-Indian /Early Archaic
6540 BC	Pre-Boreal/Boreal	
	Atlantic	Middle Archaic
3110 BC	Sub-Boreal	Late Archaic
810 BC	Sub-Atlantic	Woodland I
AD 1000		Woodland II
AD 1600		

These environmental changes over the millenia have forced changes in man's subsistence strategies, family structure, and social organization.

HISTORICAL BACKGROUND

Roads and dams defined the geography of inland Delaware from earliest settlement to the present century. The great period of mill-building in Kent County was the eighteenth century, when Delaware became a major grain producer. Every available mill seat was claimed and developed, as the counties on the Delaware exported flour and other grain products.

Dominant historical features of the project area are the highway and the mill complex, both of which have existed since the earliest European colonization.

In the political history of Delaware, the project area is potentially significant because it traverses the home farms of two governors who were also notable Revolutionary patriots: Cæsar Rodney and Henry Molleston.

PLANNING CONSIDERATIONS

The Delaware prehistoric cultural resources management plan identifies the Dover area as a region with "high/medium significant site potential with development pressure" that deserves special attention (Custer 1986:206). The project area itself is located in the Mid-Drainage Management Unit (Custer 1986:178).

The study of sites in this zone which are likely to have been occupied during the Archaic Period has been identified as a priority research topic (Custer 1986:174). The study of Woodland I and Woodland II procurement and micro-band base camp sites is also important (Custer 1986:174-6).

The Delaware Comprehensive Historic Preservation Plan (Ames et al. 1989:33) places the project area in the Upper Peninsula geographic zone. European settlement had taken place near the project area by the middle of the seventeenth century, so that all but the earliest of the time periods established by the comprehensive plan are likely to be represented (Ames et al. 1989:37). Two of the historic themes defined by this study, Agriculture and Settlement Patterns and Demographic Change, are represented by historic properties within the project area. Agriculture has been identified as the highest priority historic context for the Upper Peninsula zone for the periods 1770 to 1830 and 1830 to 1880 (Ames et al. 1989:83-4).

Settlement Patterns and Demographic Change are defined as the second highest priority historic context for this zone during the same periods of time.

EXPECTED PROPERTY TYPES

The number of property types which can be expected in the project area is quite limited, since the project is confined to an existing highway. For the prehistoric period, procurement sites are the most likely property type in all time periods (Custer and Galasso 1983:10). These sites can be identified by their small size and the limited range of tool types. A limited number of micro-band base camps may also have existed in the project area. These sites are larger than procurement

sites and a wider range of tool types is present.

However, the places where these sites should be expected are the very places where the most disturbance has taken place. Deep road cuts on both sides of Isaac's Branch have almost certainly destroyed any prehistoric sites along the stream.

For the historic period, four property types can be expected. The first of these is the toft, defined as "a homestead; the site of a house and its outbuildings" in the *Oxford English Dictionary*. In the catalogue of historic property types provided as Appendix C in the Delaware Comprehensive Historic Preservation Plan, the less precise term "plantation and rural farm sites" appears to be roughly equivalent to the toft (Ames et al. 1989:146).

THE TOFT AS A PROPERTY TYPE

Systems-oriented researchers tend to favor the term "toft" because it commonly is construed to refer to all the land, buildings and artifacts related to the homestead, not merely to the random collection of buildings that might happen to survive above ground at the time of a cultural resource survey .

In an agricultural holding, the toft is distinguished from the croft, a term which refers to the fields, meadows, woodlots, and other parts of the holding not in immediate use by the homestead. Kenneth Lewis, who used the toft as the sampling unit in his study of the frontier town of Camden, South Carolina, pointed out the importance of considering the toft as a unit of all the physical evidence immediately associated with the household (1977:175).

AGRICULTURAL FIELDS OR CROFTS

A second historic period property type is the agricultural field, one element of the croft and the locus of a particular variety of human activity. In the catalogue of property types for the Agriculture historic context (Ames et al. 1989:141), fields are seen as exemplifying the products of agriculture, specifically fruits and vegetables and textiles. In this study, agricultural fields are seen as providing evidence of agricultural practices, particularly the use of soil additives, or "amendments." Not only archæology, but soil science, chemistry, and farm-equipment history resources can be used to interpret the croft.

Third, and potentially most significant, of the property types is the mill seat. Since the mill itself stood far beyond the project boundaries, only one part of the mill complex will be impacted.

MILL SEATS AS A PROPERTY TYPE

Mill seats contain much more than just structures in which milling takes place. A mill seat consists of a power source, usually a dam, a headrace, a tailrace, waste gate, granaries, housing, and miscellaneous associated outbuildings and roads. Many mill seats also include public highways, including bridges that were built across mill dams (Heite 1991).The highways, of course, were essential to the business of the mill, in addition to being a historic property type in their own right.

Mill dams might be the largest and most expensive part of a mill system, consuming much of the miller's money and effort to maintain them. As in the case of Moore's Mill, a dam might stand a considerable distance upstream from the mill. In some systems, there might be several mills or several dams, all interconnected through a system of raceways and gates. A proper survey of any part of a mill system will necessarily involve the entire system, without which an understanding of the mill operation is impossible.

A mill's horsepower, its location, and its ability compete are likely to be dictated by the water supply. The first consideration in this department is the reliability of the supply. A dam should be located on a stream that flows regularly, even in dry seasons. The milling season is generally during the wetter part of the year, but the miller relied upon stored water in his pond to provide steady power. Some millers even went so far as to build ponds upstream to store extra water for the pond (Heite 1991).

The second consideration is head, or elevation, of the water. A water wheel or turbine is turned by the force of gravity impelling water across it. Power systems use different methods to convert the energy of

falling water into rotary energy that powers rotating mill machinery.

If a stream has sufficient flow and head, it is said to be a good mill seat. Downstate Delaware is rich in strong flowing streams, but has little relief to provide heads. A copious but relatively level stream like Isaac's Branch, which powered three mill seats in two miles, would have been best suited to turbine or undershot wheels, which depend upon flow and do not need high heads.

Mill seats typically were occupied for a hundred or more years, often by successions of mills and millers. Not uncommonly, millers rebuilt their plants to improve the power source, the machinery, or the variety of products (Heite 1992).

HIGHWAY-RELATED PROPERTY TYPES

The fourth expected property type is the highway system elements within the project area. These include borrow pit, roadway, bridges (PLATE 1), abandoned bridges, footways, cuts, and fills.

Abandoned or superseded roadways (PLATE 2) are potentially significant cultural resources if one seeks to understand past transportation patterns or property boundaries.In the project area, the main road to the south end of Delaware has been routed through at least three different rights-of-way since the time of the American Revolution.

EVALUATION CRITERIA

A primary purpose of any Phase I survey is to identify the locations of historic properties. If any historic properties are found, it will be necessary to evaluate them in terms of possible eligibility for listing on the National Register of Historic Places. This evaluation function normally is part of the Phase II evaluation, but Phase I projects commonly make a "first cut" or triage, dividing sites among those that are clearly eligible or ineligible, and those which require further study.

In a group of planning documents for the Route 13 Relief Route corridor studies, Custer and his associates have developed a framework for evaluating both prehistoric and historic sites (Custer, Jehle, Klatka, and Eveleigh 1984:113-129; Custer and Bachman 1986:192-194; Custer, Bachman, and Grettler 1986:178-180). The framework for prehistoric sites can be summarized as follows, in descending order of significance:

1. All unplowed sites, regardless of period of occupation or site type, are of high potential significance.

2. Late Paleo-Indian and Archaic sites which have been plowed, but which are otherwise undisturbed, are of high potential signi-ficance.

3. Plowed base camps of all time periods are considered potentially highly significant.

4. Plowed sites which are not procurement sites and are associated with bay/basin features are potentially of medium significance.

5. Plowed, disturbed, and eroded sites of all types are potentially of low significance.

6. Plowed procurement sites are also potentially of low significance.

Criteria for evaluating historic period sites developed in the planning studies cited above apply primarily to toft sites. The characteristics of significant sites are summarized as follows (derived from Custer and Bachman 1986:194):

1. Sites containing well preserved remains are highly significant.

2. Sites which display a range of well-defined activity areas are highly significant.

3. Sites which contain dense deposits of cultural material are highly significant.

4. Sites in which temporally distinct occupation loci can be identified, either as part of a long term occupation of the site or as a single short term occupation, are highly significant.

Because these criteria were defined for application to tofts, they are not readily applicable to other rural historic property types defined for the project area.

Plate 1
Highway Bridge

Photograph by the author of the Route 113 bridge over Isaac's Branch, looking northeast. The guardrail dates from the widening 35 years ago.

VALUE OF PREDICTIVE MODELS

Because they are imposed artificially by researchers, survey strategies, by definition, will skew results. Today's site surveyors attempt to minimize subjective errors by using predictive models, random samples, and fixed interval tests. None of these strategies can conclusively demonstrate the absence of sites; nor can they guarantee identification of all sites that exist in a given study area.

Short of 100% excavation, any strategy is nothing but an educated guess, tempered with statistics. However, experience over the last 20 years has shown that the use of an informed strategy is the most effective way to maximize site identification, that is to say, to identify the largest number of sites with the least amount of effort.

The oldest strategy is the predictive model, used intuitively for decades and most recently codified and quantified on the basis of non-exclusive random surveys. Predictive models attempt to identify and quantify factors that help determine site locations, based upon data derived from surveys.

Too often, however, underlying surveys have been either subjective or less than exhaustive, causing models to be skewed. A good predictive model, to be accepted as more or less reliable, must be based entirely upon data that was not generated in a subjective manner.

Such a model exists for the St. Jones drainage (Custer and Galasso 1983) and has been incorporated into the state management plan for prehistoric resources (Custer 1986).

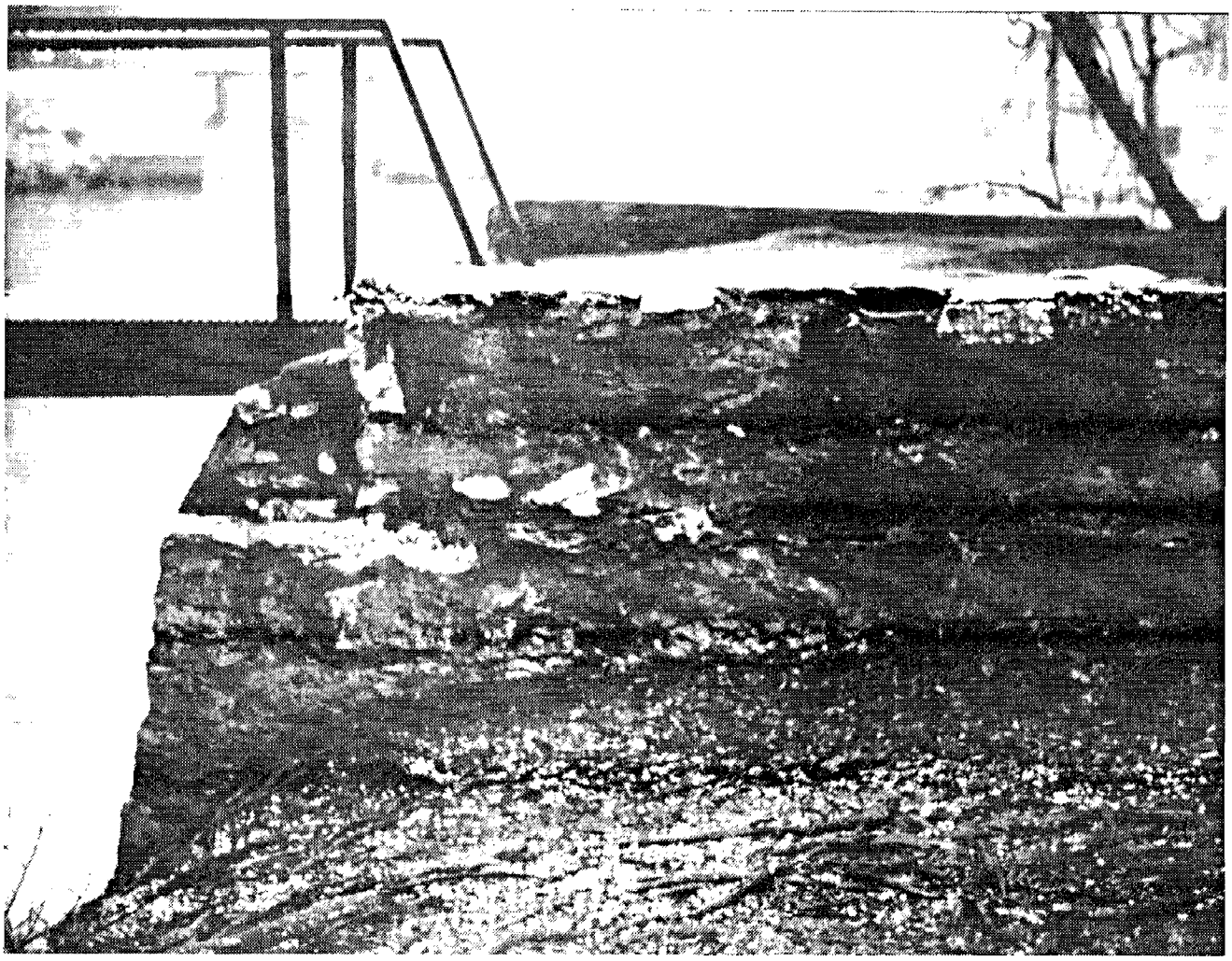


Plate 2
Former Highway Bridge

Photograph by the author of the footbridge that rests on the abutments of the old road to Milford, now Old Mill Road, replaced during the 1920 reconstruction project by the present Isaacs Branch bridge.

At the same time, regional surveys in Kent and New Castle Counties have made it possible to quantify some of the relationships between site location and ecological factors (Custer, Bachman, and Grettler 1986; Custer and Bachman 1986).

Since historically most major sites have been identified by means other than random or non-exclusive surveys, it is difficult to justify using models based upon the whole corpus of survey data in many localities. This difficulty should not exist in the study area.

APPROACH AND METHODS

Survey consisted of intensive primary documentary research followed by field reconnaissance, culminating in field testing.

One toft immediately north of Isaac's Branch had been identified as potentially significant during preliminary review by the Bureau of Archæology and Historic Preservation. This residential property was historically associated with the nearby milling system, and is evaluated as an element of that system.

3. Background History

THE PROJECT AREA is a stretch of highway between Route 13 and Route 10 in North Murderkill Hundred (FIGURES 1-3). Improvements will be confined to the existing right-of-way .

PREHISTORY

Mammoths, musk ox, horses, caribou, and walrus provided food for dire wolf, short-faced bear, and other predators. Man was among the smaller competitors in the tundra food chain, but his skills compensated for his physical shortcomings. Nomadic people of this Paleo-Indian period were among the most skilled makers of stone tools in the world. They would travel great distances to quarry the best flinty cobbles from which they made exquisite spearpoints, knives, and small tools.

Paleo – Indian hunting – gathering society lasted until about 6,500 BC, when the Atlantic climate episode and the Archaic period of prehistory began (Custer 1984:31). Northern hardwood forests had replaced the tundra, the ocean had risen, and the climate was warmer. Pleistocene megafauna were replaced by smaller game, which required different hunting techniques and tools.

Archaic people fashioned tools made of quartz, a material that is less tractable than the flinty materials that Paleo people had favored. Ground stone axes and other heavy tools appear during this period.

By 3,000 BC, prehistoric society was decidedly different. Because people had stopped moving around so much, regional cultural differences began to appear in the artifact assemblages. Sedentary lifestyles ultimately led to horticulture, complex religious practices, and the accumulation of more, less portable, material goods.

The last prehistoric period, the Woodland, is characterized by larger groups of people living together in villages, using pottery and other heavy or fragile goods that would have been difficult to move from place to place. Woodland people tended to form more or less permanent settlements at places with abundant multiple resources. They sent out hunting parties, but they seldom dispersed whole populations to live off the land in the manner of their hunter-gatherer ancestors.

People of the Woodland period were the ones who met the first European settlers on the Delaware coast. Unaware of the natives' long history, descendants of these European settlers long assumed that the Woodland period culture reflected native lifestyles throughout prehistory.

Only during the present century has archæology revealed the rich variety and long time-span of Delaware's prehistoric cultures during the twelve millenia from glacial times to contact. After European contact, native culture faded away, until little remained in the consciousness of the people.

CONTACT PERIOD

The contact period is the time of initial interaction between European colonists and Native American residents. It begins with the first, indirect experience of Delaware Native Americans with European trade goods and diseases and ends with near-disappearance from Delaware of Native Americans as recognizable cultural groups.

It is likely that contact sites will not be easily distinguished from sites of the Woodland II period and European-American sites of a slightly later period. Less than ten confirmed or suspected contact-period sites have been catalogued in Delaware.

COLONIZATION

The area now known as Kent County was part of the Dutch Zwaanendael patroonship grant of 1630, which extended from the mouth of Delaware Bay to Bombay Hook. On this huge tract, the Dutch erected only tentative settlements, most concentrated near the mouth of the Bay. By the time the Dutch lost their colony to the English in 1664, the St. Jones watershed remained unsettled.

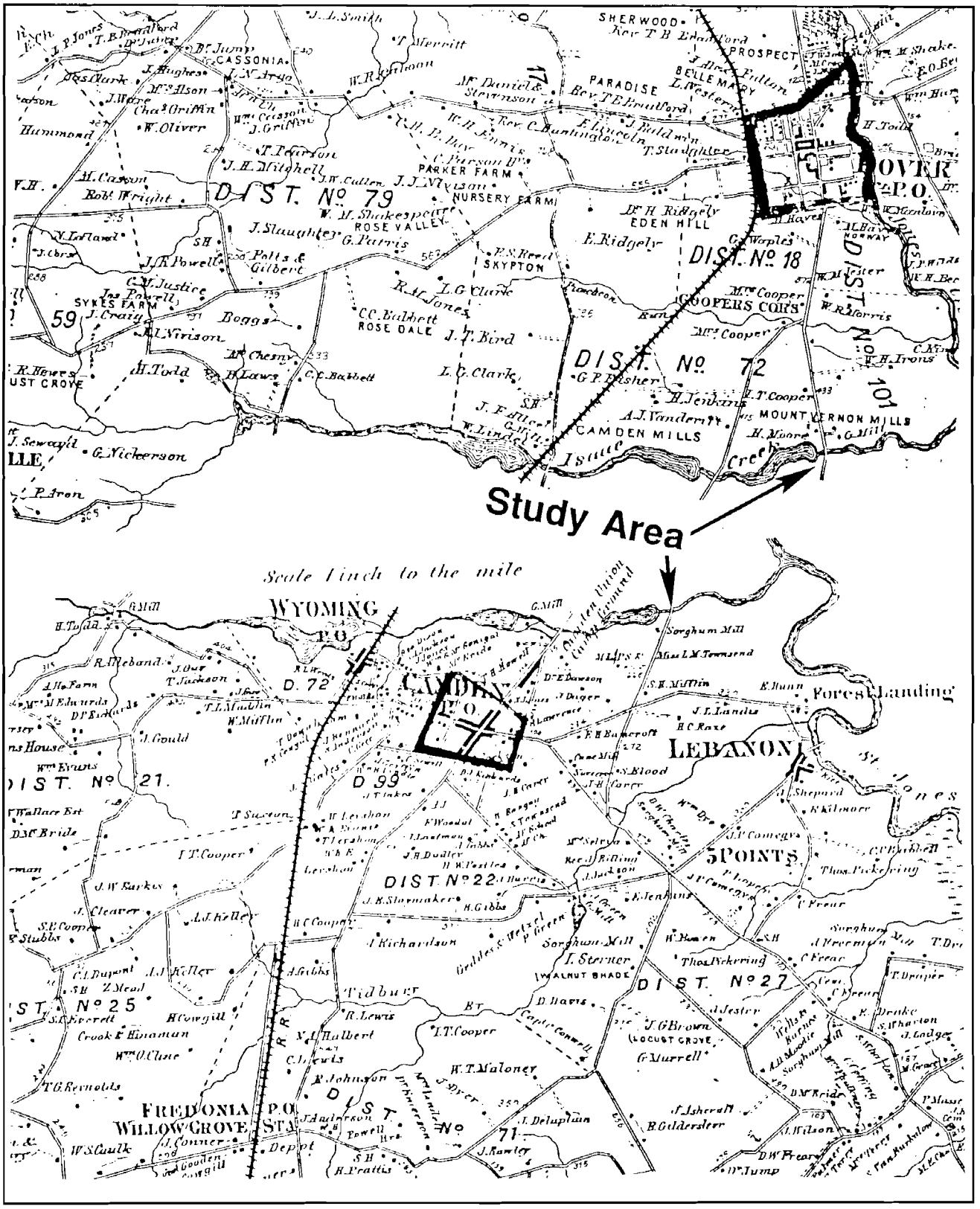


Figure 2
Project Vicinity
Details from D.G. Beers *Atlas of the State of Delaware*, 1867, spliced from plates 44-45 and 52-53

Even though the area was not colonized during the Dutch period, several of the leading families in the vicinity bore Dutch ancestry, including such families as Loockerman, Comegys, and Boyer.

After the English takeover, settlers from Virginia and New England came into Kent County; among the Virginians were some who proposed around 1670 to establish a town at the mouth of St. Jones River. Their effort failed, and Kent County was without a proper central place settlement for another fifty years, and forty years after the county's court was established in 1680.

William Penn's accession in 1682 sparked a new land rush, as his Quaker associates moved into the Delaware Valley in large numbers.

Under the Dutch and the Duke of York, local courts had taken charge of parcelling out the unclaimed land, but the new proprietor soon concentrated authority in his own land office at Philadelphia. The ensuing period was marked by large grants to Philadelphia merchants and speculators, including members of the Penn family, who effectively controlled the interior of Kent County for another century.

The area now encompassed by North Murderkill Hundred has been settled by European-Americans since the third quarter of the seventeenth century. Settlement began along Wolf Creek, later renamed St. Jones, soon after the English takeover.

By 1680, claimants had taken up land along St. Jones Creek [Dover River] as far up as the head of tidewater at the present site of Dover. According to a census taken at that time, the sixteen families living along the St. Jones included 45 people, the largest population of any valley in the new jurisdiction. One of these settlers was Isaac Webb, with two persons in his family. His property, Shoemaker's Hall, became the mill lands known later as Mount Vernon or Moore's mill.

MILLING ALONG ISAAC'S BRANCH

Although it is only about five miles long, Isaac's Branch has driven as many as four mills simultaneously (FIGURE 2). Two of the four former water power impoundments survive, one with a mill complex still in place.

The next mill above Moore's Lake was Howell's Mill, across the branch from the present Rodney Village.

In 1746, John Hill applied to the court for permission to build a mill near his house on Isaacs Branch. He owned a house on the north bank, where he wished to build the mill, but required condemnation of land on the south side. He was allowed to condemn two acres, for which he had to pay £3 (Record Group 3805, Delaware Archives).

According to secondary sources, this became the Howell mill seat, which was based in a mill on the south bank of the stream (Angermeier and Goggin 1984:42).

The mill seat was deeded by James Clayton to Thomas Hanson and Joshua Gregg, millers, in 1761, for the purpose of building a mill. Gregg signed over his share in the mill to Hanson, whose heirs, the Howells, have owned it ever since.

After the dam washed out in a storm, the mill seat was abandoned about 75 years ago. The mill was demolished and the machinery sold during a wartime scrap drive. The last Hanson descendant has granted the site to the county for park purposes, and there are proposals to redevelop the pond as a park.

The Camden Mill, now known as Wyoming Mill, is said to have been built in 1734 by John Clayton, who gave it to his son, John, in 1738 (Angermeier and Goggin 1984:42). A tract called "Mill Square" was claimed by John Clayton in 1735.

It was later owned by well-known persons, including Dr. Isaac Jump. William Lindale, who owned the mill during the middle nineteenth century, introduced considerable modernizations (Scharf 1888:1086).

Above the Wyoming Mill was Allaband's mill. William Allaband bought 307 acres of the Long Reach tract in 1767 from Hillary Herbert; Wharton's [now Wyoming] pond was then already in existence downstream from it (Scharf 1888:1086).

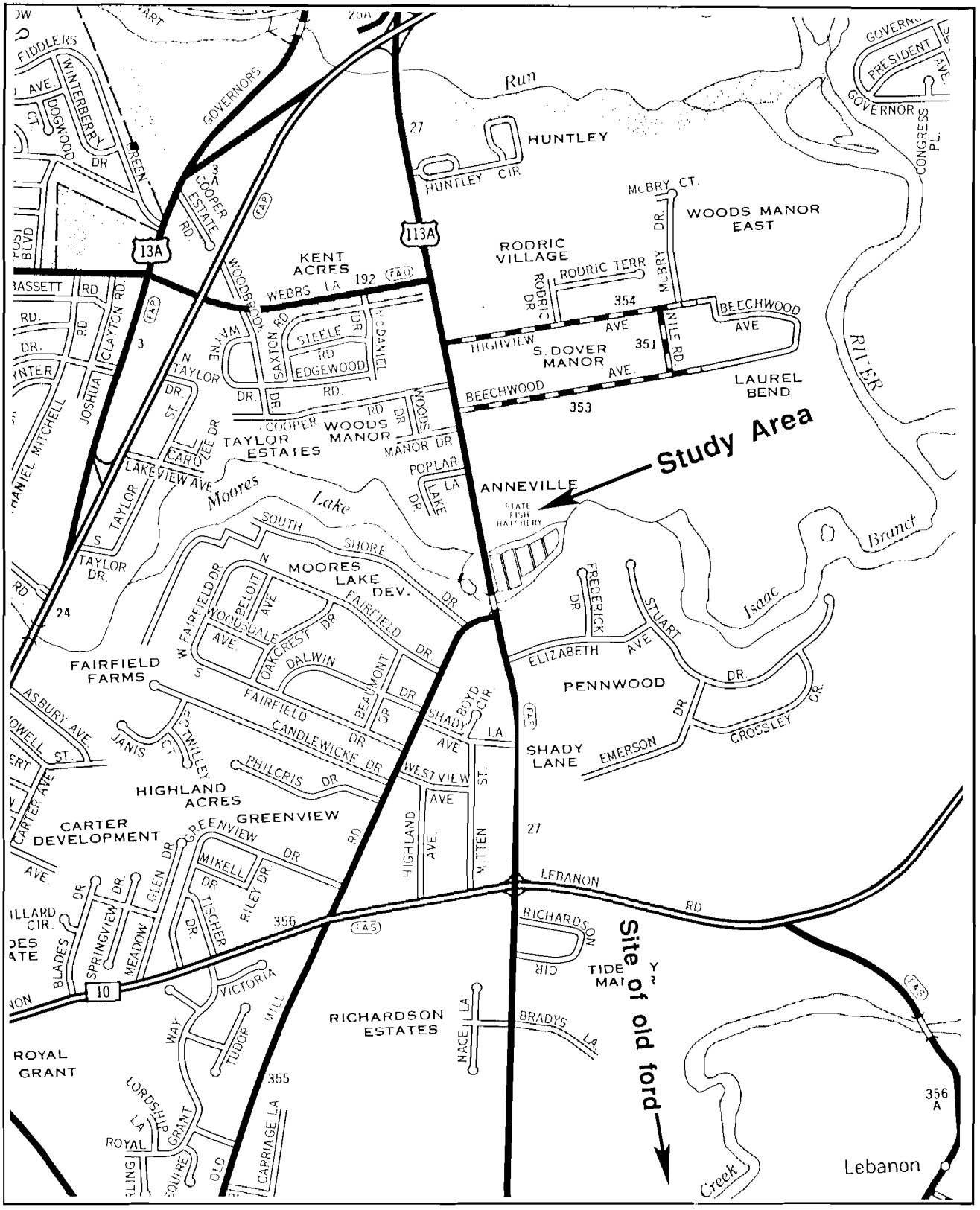


Figure 3
Project Vicinity
Detail from Delaware Department of Transportation Dover, Camden, and Wyoming city map, 1972

On December 1, 1785, Richard Mason sold part of Long Reach, north of Isaac's Branch to William Allaband (Scharf 1888:1086). He operated a gristmill, fulling mill, and distillery; his descendants continued the gristmill business, which they sold in 1868 to Henry Todd. After it washed out in 1880, it was not rebuilt.

Not all bids to build mills on Isaac's Branch were successful. In 1761, James Rash, who owned land on the south bank, asked the Court to condemn land on the north bank for the use of a mill.

Freeholders appointed to evaluate the petition recommend against permiting the mill. The committee stated: "And we do further adjudge that notwithstanding the valuation as above that the building and erecting a mill in the place above mentioned will greatly injure the three mills already erected on said branch that it will also be greatly injurious to the Publick and be contrary to the good indended by the Act of Assembly for the incouragement of Building Mills in this Government." (Kent County Mill Petition, 1761)

History of the Project Area

Isaac Webb's plantation, called Shoemaker's Hall, consisted of 400 acres on the north bank of the stream that would thereafter bear his name: Isaac's Branch. A house on the Shoemaker's Hall tract was the last home of Cæsar Rodney, who changed the name of the place to Rodneysburg and planned to develop a townsite (Frank and Hancock 1979:70).

It has been suggested that the first mill at this seat was built in 1685 (Angermeier and Goggin 1984:42). There was a gristmill on the Reserve tract, which adjoins Isaac's Branch here, in 1711. In 1749, John Vining bought the Reserve tract, together with two acres on the north side of Isaac's Branch, condemned for building a mill (Kent County Deed Book O-1, folio 4)

Thomas Dawson sold 500 acres, part of the Brecknock tract, to John Vining in 1753 (Kent County Deed Book O-1, folio 249) In 1759, after the Dawson's death, his part of Shoemaker's Hall was also sold to Vining (Kent County Deed Book P-1, folio 108). John Vining was a native of Salem, New Jersey. He came to Delaware as a lad when his widowed mother married the wealthy Nicholas Ridgely of Delaware. He assembled a massive portfolio of the best Kent County land. He was in an excellent position to accumulate landed wealth through family connections and offices as a trustee of the loan office, speaker of the assembly, colonel of the militia, prothonotary and a member of the county court. In 1764 he became Delaware's second chief justice (Scharf 1888:139, 140, 526).

Vining's mill pond appears on a survey of 1761, in which he claimed a small tract near the head of Shoemaker's Hall and Smyrna tracts (Hopkins survey book, folio 8, Delaware Archives). Vining died in 1770, leaving vast estates to be divested.

A sawmill and gristmill existed here in 1772, when John Pennell bought the seat from Vining's executors. Pennell may have already occupied the site, for he was described in the deed as a miller of Kent County. The property was described as $47\frac{3}{4}$ acres on both sides of Isaac's Branch, parts of Reserve and Shoemaker's Hall (Kent County Deed Book V-1, folio 113).

Pennell added to the holding in 1783, when he bought a tract from John Dickinson. The addition was next to Pennell's home place, adjoining the river, the mill gut, and the land where Cæsar Rodney then dwelt (Kent County Deed Book X-1, folio 13).

After Pennell died, the mill and houses fell to his heirs. His eldest son, Thomas, was entitled to a double share, or $\frac{2}{7}$. He was entitled to $\frac{1}{5}$ of the $\frac{1}{7}$ share of his deceased brother, John, Jr. Thomas' shares were seized by Sheriff Henry Molleston to satisfy a debt to Ann Ridgely.

The sheriff sold the share to Nicholas Ridgely, who immediately conveyed it back to Molleston in his own right (Kent County Deed Book F-2, folios 201-202). Molleston was connected by marriage to the Pennell family, who conveyed the rest of the interest to him in 1799 and 1801. Molleston was elected governor in 1819, but died before he could take office (Kent County Deed Books F-2, folio 202 and G-2, folio 91).

Plate 3
Project Area

Ærial photograph of Route 113A just north of Moore's Lake with the miller's house (1) and the headrace bridge (2), looking northwest. In the foreground are a convenience store (3) and the sandwich shop (4) built recently.

The next operator, Jonathan Elliott, added a wool carding machine to the mill. He rented the mill from Molleston's brother-in-law, Nathaniel Coombe (Scharf 1888:1085). After Molleston's death, Joseph Turner sued his estate in the Court of Common Pleas. The first tract sold by the sheriff was the plantation, mill, mill seat, and "commodious" dwelling. In 1826, former sheriff William Saulsbury made a deed to Turner's stepson, Jonathan Mifflin, who had purchased the site at auction (Kent County Deed Book Z-2,

page 136). Mifflin died, leaving a widow but no children. His heirs were his wife, his mother, and her husband Joseph Turner, who sold the property to William K. Lockwood, Caleb H. Sipple, and Robert O. Penniwell, Dover merchants (Kent County Deed Book C-3, page 202). Lockwood sold his interest to his partners in 1837 (Kent County Deed Book L-3, page 216).

David D. Lewis, who had been the miller, bought the mill seat and 100 acres from Sipple and Penniwell in 1846. The deed also included a six-acre tract on the road from Forest Landing to Camden (Kent County Deed Book U-3, folio 258). Lewis had bought 180 acres in the vicinity from John Manlove in 1836 (Kent County Deed Books C-3, folio 216, I-3, folio 211, and M-3, folio 39).

In 1858 and 1859 Henry Moore of Montgomery County, Pennsylvania, bought the mill seat from the Lewis heirs and began immediately to extensively rebuild the mills, using the newest roller technology.

Because David Lewis had left nine children, the title was split. Moore bought one share from Timothy Killen in December 1858 and later perfected his claim (Kent County Deed Book O-4, folio 462). The place has since been known commonly as Moore's Mill, even though he and his son called it Mount Vernon Mills.

Moore must have been confident that he had perfected his title by February 1859, when he applied for fire insurance on the mill and two houses (Kent County Mutual declaration 873). The mill was described as a three-story timber mill house on a brick foundation, measuring 28' by 36'. There was also a two-story frame house, 24' by 28' with a two-story kitchen measuring 16' by 32', all heated by open fireplaces. A third building on the policy was a story-and-a-half frame dwelling, 16' by 16', with a single-story attached building 16' by 18'. On December 31 of the same year, Moore insured $600 worth of repairs and new machinery in the mill house.

The two-story dwelling probably was the one shown on the west side of the road in the 1867 Beers *Atlas* map (FIGURE 2). It may have been the same "commodious" dwelling cited in earlier deeds.

In 1874, Moore insured his new two-story frame dwelling on the east side of the road. This new building had a tin roof, and was heated by stoves (Kent County Mutual declaration 4792). Henry E. Moore, son of the owner, was married in 1876 and succeeded to the mill after his father died in 1886. This may have been the tall "peach" style house recently demolished along the road from Route 113A to the mill (K-6650).The site is now covered by a mini-storage facility

In 1881, Moore insured a two-story frame dwelling house, on the west side of the road. The wood-shingled main dwelling was 16' by 20', with a 16' by 16' kitchen and a shed attached, as well as porches. It was heated by stoves (Kent County Mutual declaration 7141). Additional structures and a piano appear in a new declaration issued in 1883 (Kent County Mutual declaration 8758). This house (K-1013) was occupied during the present century by the younger Henry Moore (PLATE 3).

The 1881 insurance declaration also included additional mill machinery. A new insurance declaration in 1883 described the same size mill building as had existed 24 years earlier. It was powered by a water wheel and heated by a coal stove. Half the roof was shingled, the rest covered with sheet iron (Kent County Mutual declaration 8486).

Since 1823, Isaac's Branch has been the north boundary of Murderkill Hundred, which was later divided to create North Murderkill Hundred (Scharf 1888:1077). Most of the mill system lay in Dover Hundred, now East Dover Hundred (FIGURE 4).

In 1936, the seat was bought by the State of Delaware, which built a fish hatchery and rearing ponds (K-6652) between the mill and the dam, east of Route 113A.

Ownership of the pond and stream were thereby separated from the historic mill farm. The state owns the water, but the mill site is owned by others. A dwelling (K-6651) now stands on the mill foundation, with the tailrace running below.

PROJECT AREA HIGHWAY HISTORY

The original King's Road south from Dover forked at Puncheon Run, just north of the project area. The upper road, now roughly the course of Route 13, went south near the peninsular divide. It was a relatively level road, with only minor stream crossings The lower road, including the project area, crossed streams very close to the head of tidewater. It was the shortest route from Dover to Lewes, but it contained relatively deep fords and long bridges. The original course of the lower road lay near the present alignment of Route 113A from Cooper's Corner to Isaac's Branch. It crossed Tidbury Branch somewhat south of the present bridge, in the current county park.

At that crossing was a planked ford for horses and vehicles and a footbridge for pedestrians.

Remains of the ford reportedly can still be seen in the bed of Tidbury Branch (FIGURE 3).

In 1793, the General Assembly authorized Nathaniel and Jonathan Hunn to dam Tidbury Branch near its mouth to power a mill. Since this dam would flood the highway crossing, they were also obliged to relocate the public road farther upstream. The relocated road, now Old Mill Road (FIGURE 4), was to serve more than a century as the main highway.

When the current, more direct, route was chosen, it followed closely the abandoned Colonial-era road from Isaac's Branch to Five Points, now called Rising Sun (Heite and Heite 1989:18).

The present road was created in 1920, part of the massive highway upgrading spurred by recently-enacted state and federal road-reform laws (Spero 1991: 183) The present Route 113A was then identified as Route K-1 (DelDOT Contract 16, 1920). A widening project in 1957 obliterated surface indications of the the original bridges and pavement, but major structures remain in their original locations (DelDOT Contract 1551, 1957).The young highway department established a maintenance yard in the borrow pit between the new and old roads (K-6654) on a site now occupied by three houses.

On the north bank of Isaac's branch, the old mill was replaced by a residence and an array of chicken houses was built in front of Henry Moore's big house.

A trailer sales lot replaced the chicken farm, and agricultural lands became mobile home parks. For a time, Delaware Technical and Community College operated a temporary campus in the old chicken farm, to be followed at the site by a furniture store.

More recently, a mini-storage facility has replaced the Moore house and another house along the former county road that formerly paralleled the headrace.

4. Description of Cultural Resources

THE PROPOSED HIGHWAY PROJECT lies in the vicinity of several historic structures (FIGURE 4, PLATE 4), some of which already have been identified in cultural resource surveys. Most significant are features associated with water power on Isaac's Branch.

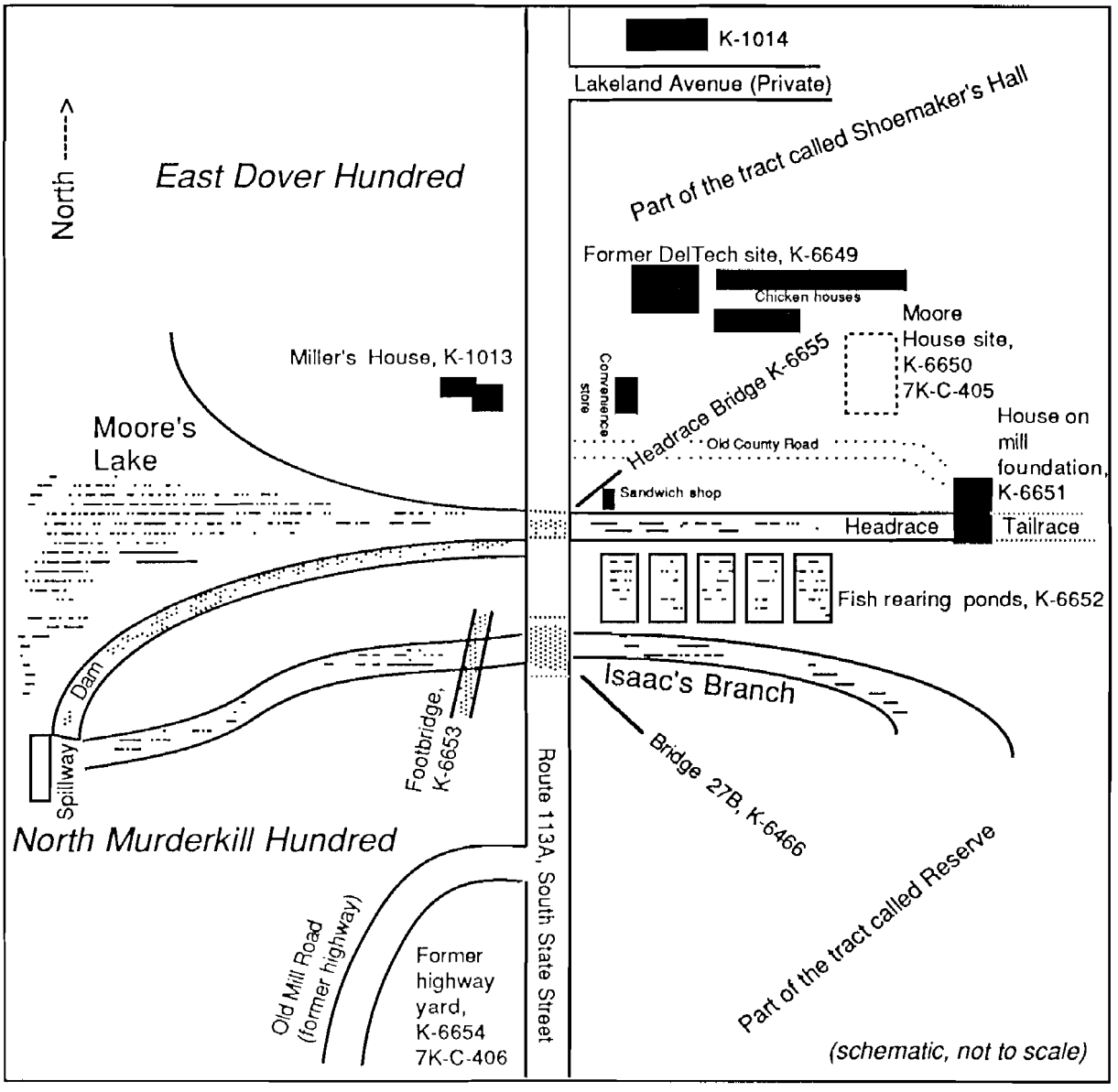
Although the valley has been occupied for thousands of years, prior construction has certainly removed any archæological features that might have existed in the roadway itself. There is, therefore, no probability that the project will affect prehistoric resources.

OLD BRIDGE ABUTMENTS, K-6653

Inside the park is a footbridge that rests on the abutments of a nineteenth-century highway bridge that was replaced by the present Bridge 27B. The original bridge here was a girder structure.

Figure 4

Cultural resources in the project area



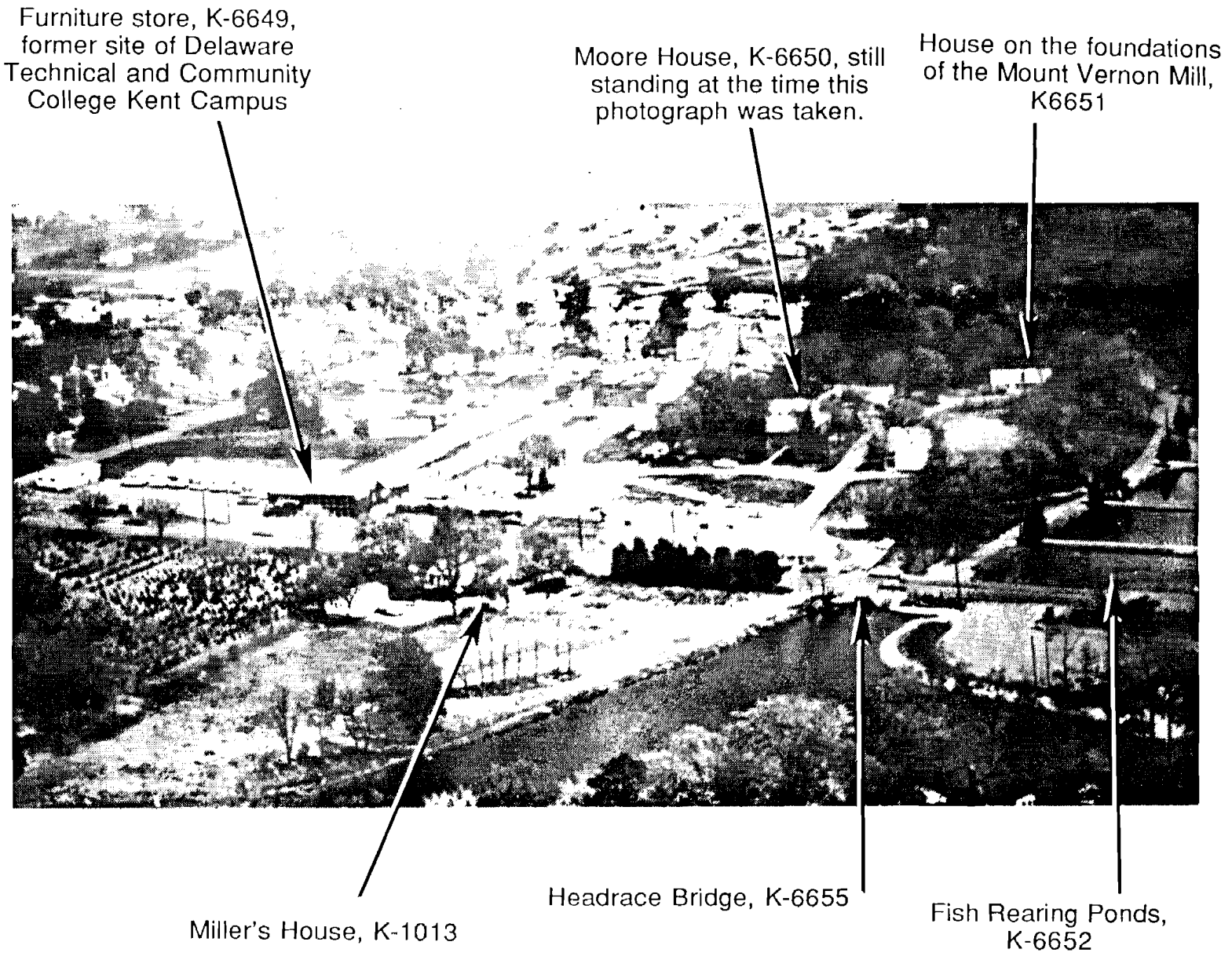


Plate 4

Project area from the west

Photograph of the project area, about 25 years old, looking east, courtesy of the management of Lakeland and Beechwood mobile home parks. The present convenience store is under construction, and the sandwich store has not been rebuilt in its present flat-roofed configuration.

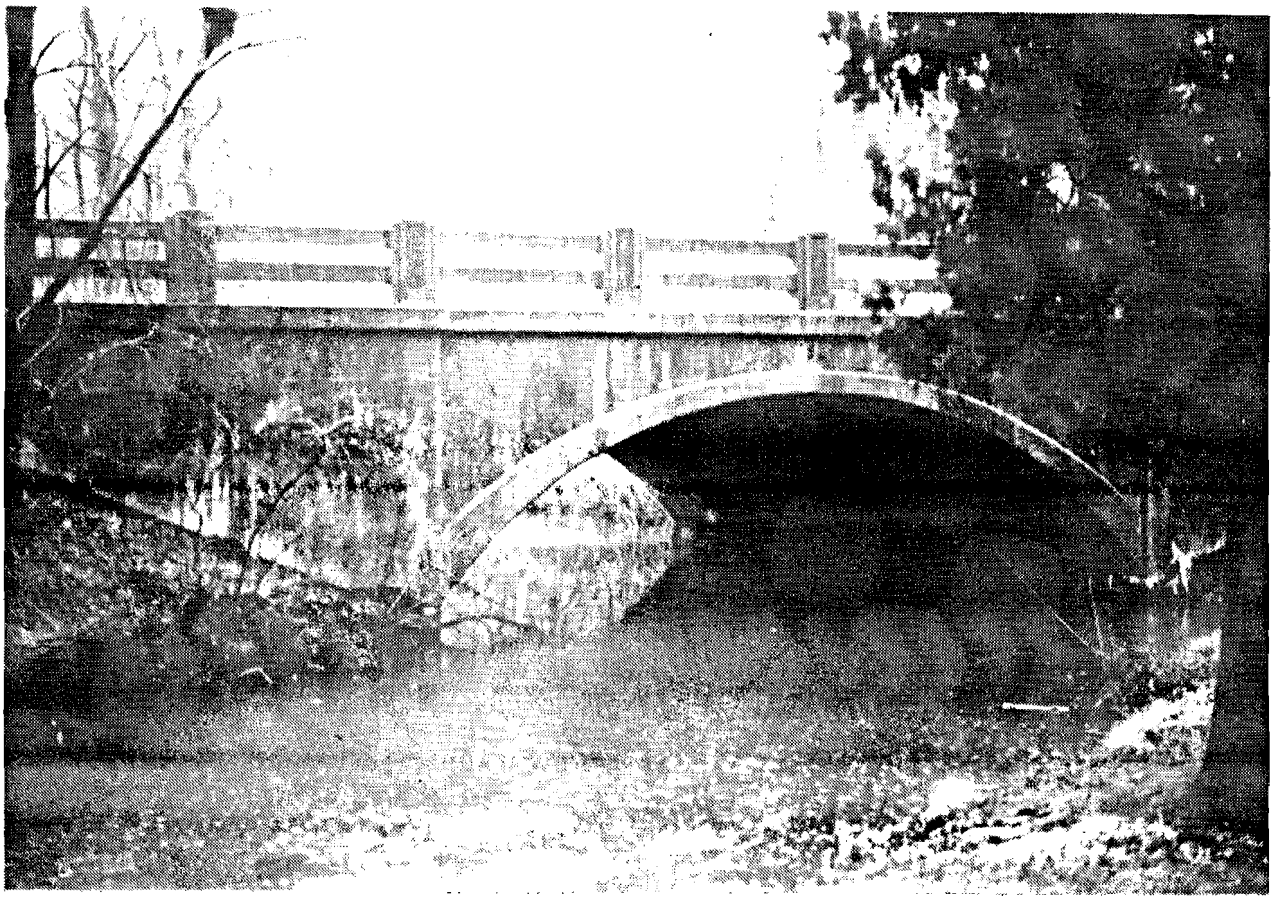


Plate 5

Bridge 27B

Bridge built in 1920 to replace the girder bridge, K 6466, from the northwest.

Like many other nineteenth-century Kent County bridges, this is built of quarried stone (PLATE 2, PAGE 8). By definition, the stone was brought from outside the county. The nearest quarry of such stone is found along the Brandywine above Wilmington.

In spite of its apparent high cost, quarried stone was a popular material for nineteenth-century foundations. Generally speaking, quarried stone in Kent County structures is found near steamboat landings. Circumstantial evidence points to the material having been brought as ballast or deck cargo on steamers.

Some of Kent County's earliest stone strucures are found in and near Little Creek: the Stone Tavern of circa 1825 (K-130), Octagonal School of 1829 (K-114), and part of York Seat (K-148). All three structures were associated with Manlove Hayes, a steamboat promoter. Closer to the project area, the Hunn Jenkins house of about 1840 (K-179) stands on a dressed stone foundation; the builder was a Philadelphia merchant and shipper. At Lebanon, the county swing bridge foundations were quarried stone, as were some of the footers for the cannery built there in 1869 (Heite 1990).

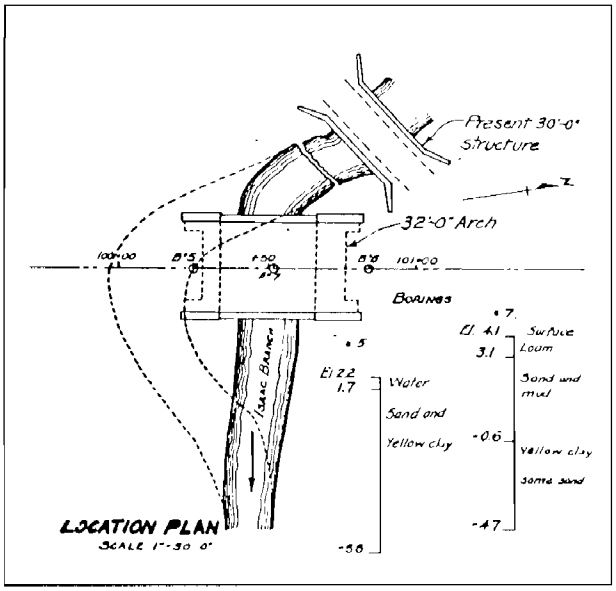


Figure 5

1920 replacement

Detail of contract drawing, sheet 4, contract 16, showing the relocation of the Isaac's Branch bridge crossing. Note relocation of the stream. Scale is reduced 50% to 1" = 60'

BRIDGE 27B, K-6466

Bridge 27B (PLATE 5, PLATE 1) is a reinforced concrete arch bridge built in two stages. The original 1920 bridge, with a 32' span, was 36' wide., built on pilings.

The bridge site is north of the original bed of the stream, which was diverted to run under it (FIGURE 5).

In 1957-1958, the bridge was widened about 15' to its present width. Everything now visible was built at that time.

HEADRACE BRIDGE 27C, K-6655

The current headrace bridge (PLATE 6, PLATE 7, FIGURE 7) was built in 1920 to replace an earlier bridge on the same site. The bridge is a reinforced concrete box culvert 36' wide with a 10' clear span. The upstream (west) side contains a gate that helps maintain the pond level about 8' above the branch below.

The 1957-1958 enlargement added about 15' to the width of the culvert, and included construction of a new gate on the upstream side. All the trim and visible features date from that rebuilding (FIGURE 6).

HOUSE ON MILL FOUNDATION, K-6651

The headrace terminates in a concrete floodgate in the brick foundations of the old mill. Atop the foundation is a one-story house of recent vintage that incorporates parts of the old Mount Vernon Mill structure, which was three stories high.

MILLER'S HOUSE, K-1013

The toft west of the highway is much older than the house that stands on it. This may have been the location of the eighteenth-century Pennell house (PLATES 8-10).

Beers' *Atlas* of 1867 shows a house in this location in the ownership of Henry Moore.

Plate 6

Headrace bridge

View of the present (1957) headrace bridge guardrail, looking east across Route 113.

HOUSE SITE, K-6650

A dirt road, formerly a county road, connects the mill with the highway along the line of the headrace. Until fairly recently,

there were two houses on this road about midway between the mill and the highway.

FISH REARING PONDS, K-6652

The fish rearing ponds are supplied by a piping system attached to the headrace.

In recent years, all but the western pond have been rented to a private fish supplier. The state's fish for stocking streams are obtained from Federal fish hatcheries.

Because of its lightweight foundations, the pond system is not considered suitable for large mechanized systems that would make it economical for modern use.

FORMER HIGHWAY YARD, K-6654

In the space between the old and new roads south of the bridge was a borrow pit, which was used as an equipment yard by the former Delawre State Highway Department. This yard, now three building lots, was used to store road-building equipment and, for many years, a French railroad car. The 1957-1958 plans indicate that the site was landscaped at that time.

Houses now stand in the space. The yard, which dates from the earliest years of modern highway engineering, has been sealed under modern suburban yards and may have archæological potential.

FORMER DELTECH BUILDING, K-6649

The Kent County campus of Delaware Technical and Community College, now known as the Terry Campus, was first located in a building at Moore's Lake (PLATE 12). This structure, recently a furniture store, is attached to chicken houses at the rear.

HOUSE, K-1014

North of the private Lakeland Avenue is a frame house, on a concrete-block foundation (PLATE 11), previously identified in the state cultural resource survey, K-1014. It is not affected by the project as proposed.

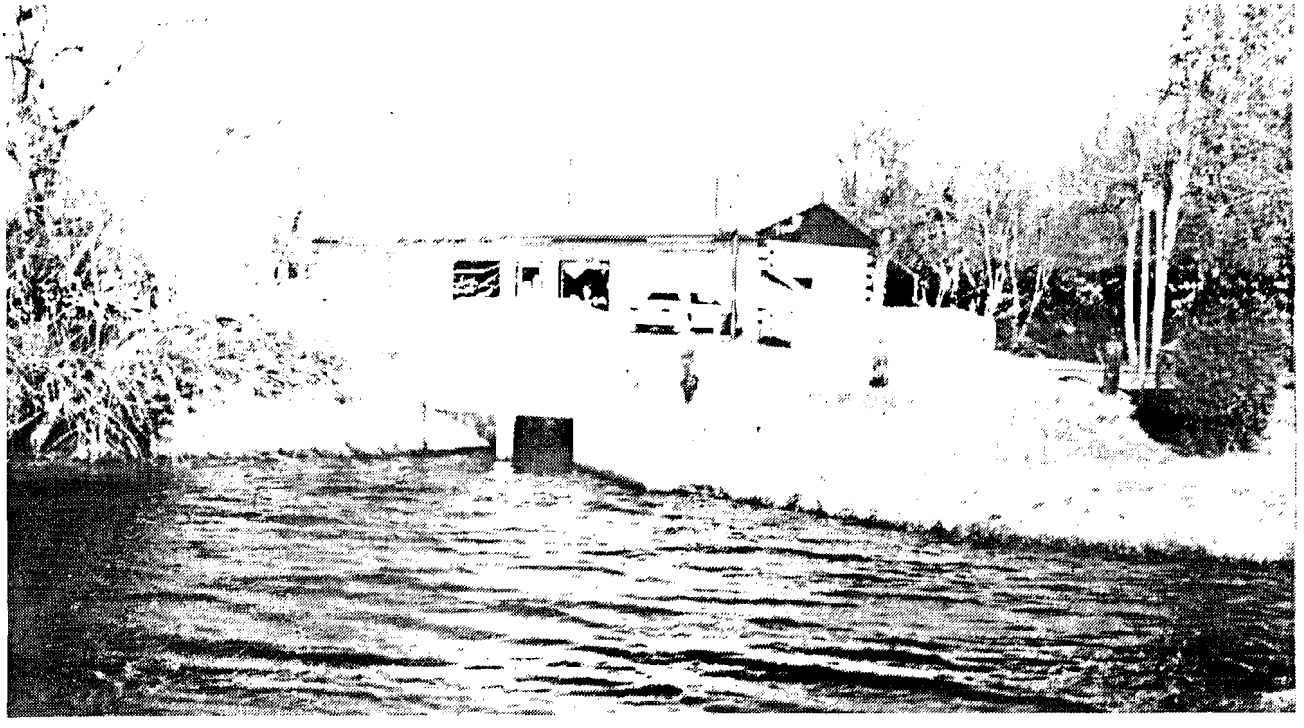


Plate 7

Headrace bridge from upstream

View of the present headrace bridge and the nearby sandwich shop, from the Moore's Lake dam, looking northeast. The original building on the sandwich shop site was a house, shown as still standing in the 1957 plans.

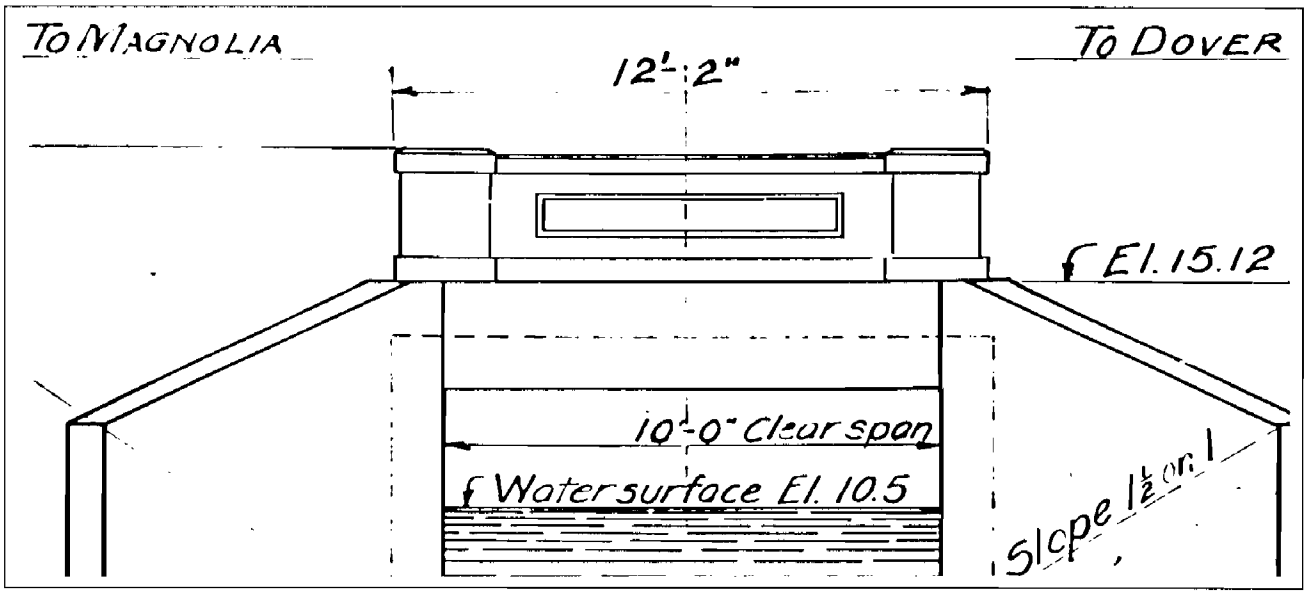


Figure 6

Headrace bridge

Detail of the "end elevation" of the original 1920 bridge, from sheet 2, contract 16. The handrail design shown here existed until the present handrails were installed in the 1957-1958 contract. This bridge contains the control gates for the millpond.

Plate 8

Miller's House

View of the 1881 Henry Moore house, K-1013, from the southwest. An earlier house at this toft appears on the 1867 *Atlas* map. The frame house is now covered with stucco.

Plate 9

Miller's House

View of the facade of the Henry Moore house from the northeast

Plate 10

Miller's House

View of the Henry Moore house from the southeast. The present pent roof replaced a full porch when the front yard was taken during the 1958-1959 highway project.

Plate 11

House

House, K-1014, on the east side of the highway, not affected by the project.

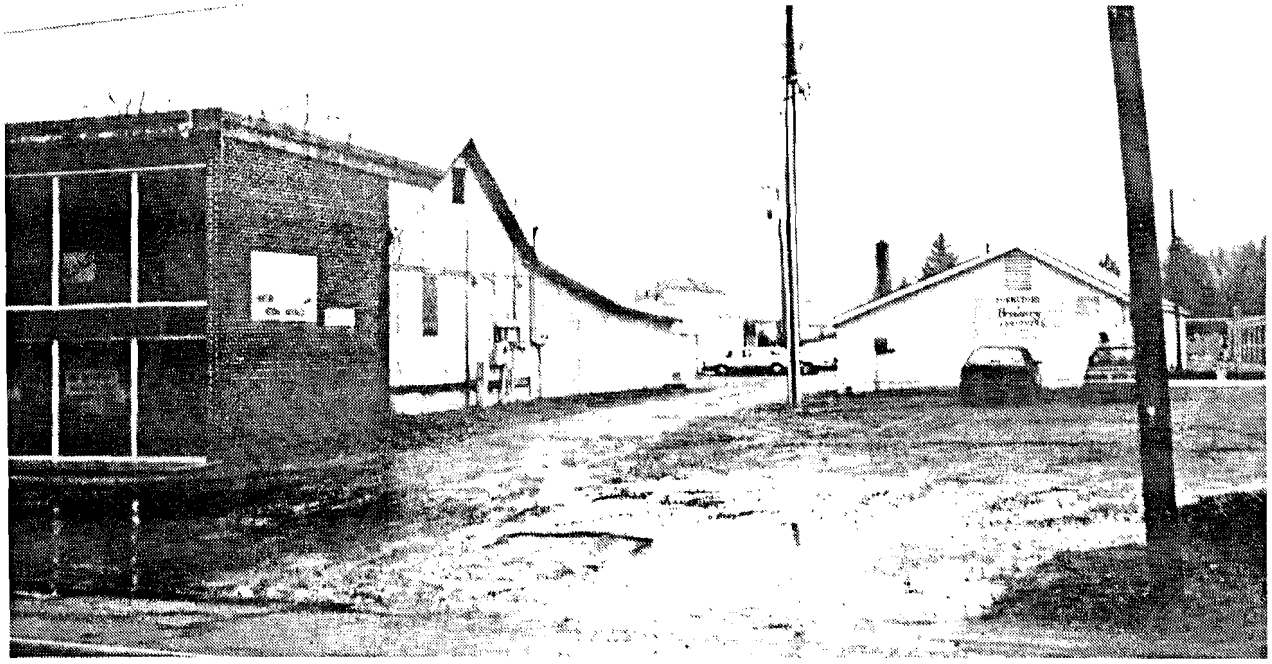


Plate 12

Former DelTech Kent Campus Building

Furniture store and chicken houses, K-6649, that once housed the Kent (now Terry) campus of Delaware Technical and Community College. The chicken houses and the gable-roofed section of the main building are relics of an earlier feed and poultry business associated with the last mill operators.

SUBSURFACE TESTING

The proposed project will be confined primarily to existing rights-of-way, and is unlikely to encroach upon areas that have not already been disturbed by previous construction.

For example, in front of the miller's house, K-1013, the porch was removed earlier, and the proposed work will not encroach farther.

In one area, however, there is a possibility that some historic or prehistoric remains might be exposed to the current project. North of the miller's house is a small ridge of sandy loam, now a Christmas tree farm, into which the highway has been cut deeply. According to Beers, this site was part of the Moore toft, but the map is not detailed enough to distinguish exact locations. The Christmas trees can be clearly seen on the ærial photograph, plate 4, page 18.

Three shovel test pits, ten meters apart, were sunk along the edge of the public right-of-way in the Christmas tree area. One red earthenware jug neck fragment was recovered from one test.

The sandy plowsoil, right to the edge of the road cut, appeared to have been plowed, indicating that the field has been truncated by previous road widening. In fact, it was quite soft with a plowzone uniformly 30 cm. deep.

No other areas were tested.

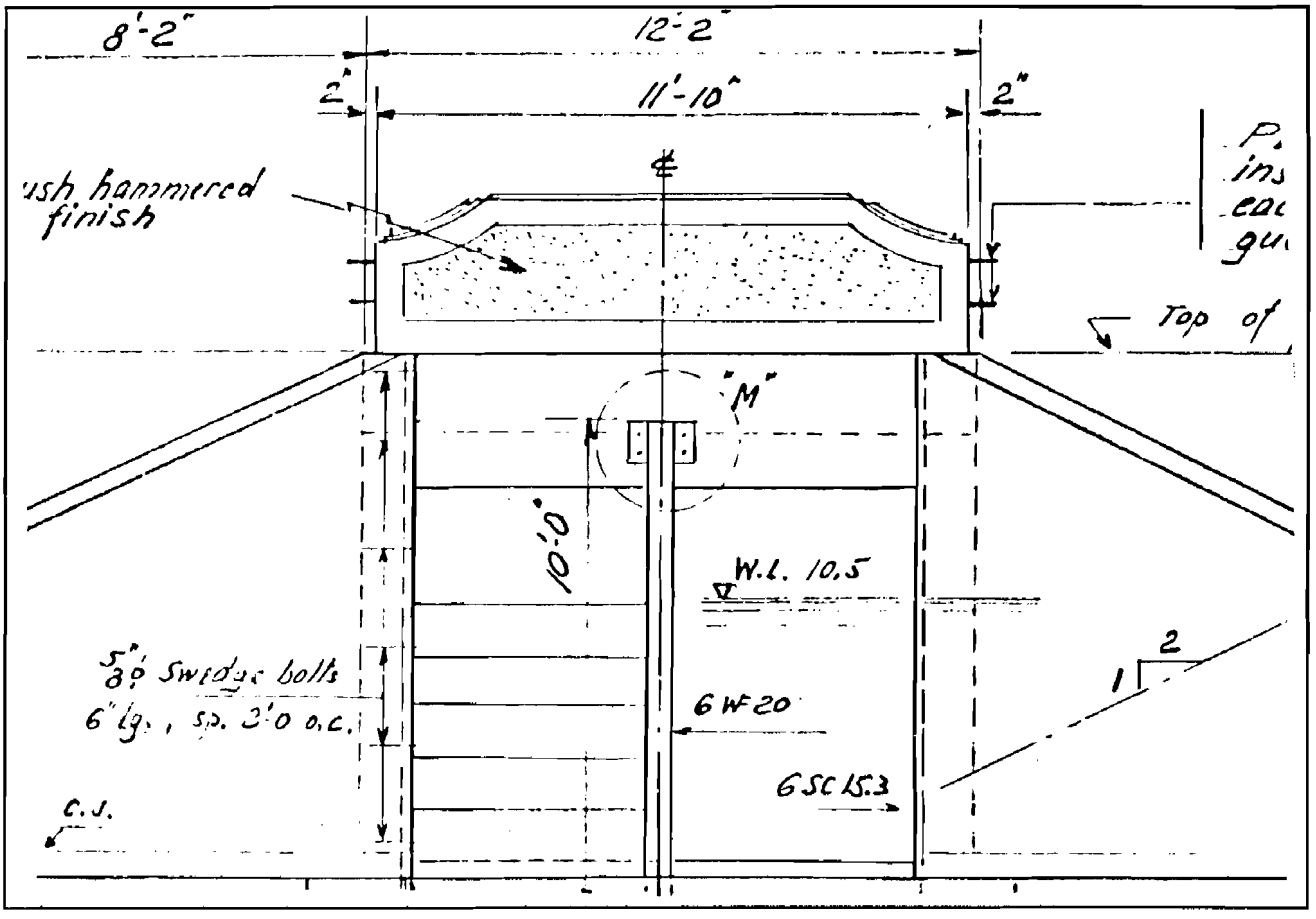


Figure 7

Headrace bridge

Detail of the west elevation of the enlarged 1957 bridge, from the contract drawings for contract number 1551. Compare with Figure 6, page 22 and Plate 7, page 21.

5. Evaluation and Conclusions

PARTS OF A HISTORIC MILLING SYSTEM were identified in the current study. Surviving components of the system includ the headrace, the miller's toft, and the mill. At least two periods of major construction on the toft could be identified.

As early as the beginning of the eighteenth century, mill seats such as this were "central places" for sparsely-settled rural communities. Today's mill ponds are the focus for local recreation, but industrial centers are elsewhere. In the case of Moore's Lake, the commercial center has survived as well, in unbroken succession.

All the changes can be described as part of a larger pattern of commercial succession. Each period has flowed from the past, building upon infrastructure left by its predecessor. An early milling complex evolved by a series of logical steps until it became a recreational area and a local retail central place.

As the neighborhood changed from agricultural to residential, the land use changed, *within the historical context* of longstanding local service business.

CONTINUITY AND CHANGE

While the existing 1881 house on the miller's toft has been modernized, the changes have accommodated evolved perceptions of domestic comfort. While the pump still stands over the trough in the wash house, residents enjoy an automatic dishwasher. The rear piazza has been enclosed, tight modern windows installed, and a stucco skin added to the outside.

These changes arguably detract from the pristine architecture of 1881, but they offer valuable evidence that the house evolved historically in a manner consistent with its history and its natural setting.

The pond that powered Henry Moore's mill remains a powerful attraction for people to live on his former property. The system changes, but it continues to perform a central function in the community.

The sub shop and the convenience store have supplanted the feed and flour business of the millers, responding to the suburban population that supplanted the former farm clientele.

Identified historic mill-related properties, considered together, exemplify the evolution of a single resource and its exploitation through time. In the sense that they represent continuity with change, the resources are a single coherent historical whole. Parts of the complex have, from time to time, given way to new elements serving new purposes. This succession itself is a historically significant process that often leaves a trail of evidence in the ground for archæological interpretation.

SIGNIFICANCE, INTEGRITY AND CHANGE

If change is part of the historical process that begets significance, the concept of integrity must value change equally with survival.

Aside from tombstones, few material objects in the built environment are designed to survive unchanged. Indeed, change is a premier mark of success and significance. If an object or building is a useful and contributing member of the environment, it will inevitably suffer wear, repair, change, and practical preservation, albeit in a changed form.

If, on the other hand, a thing was never touched, repaired, altered, or used, it most likely played no part in the history of its environs. Its preservation may stem from the fact that it was set aside and not used. Preservation, in such cases, is prima facie evidence for a lack of significance.

Therefore, alteration and defacement contribute to the significance of any historic property, except, of course, tombstones, which are seldom eligible.

This argument can be carried to an extreme, so that one might argue that the most significant objects are those that have been totally worn out and altered beyond

recognition by repeated repair. Without going to such extremes, it is likely that the former Moore's Mill (Mount Vernon Mills) system probably possesses integrity sufficient to make it eligible for listing in the National Register of Historic Places.

Eligibility can be justified on the basis of all four standard National Register criteria:

Under criterion A, the impoundment may be eligible. The fish-rearing ponds and the recreational adaptation of the former mill pond represent a significant change in the utilization of mill seats that occurred during the Depression.

CCC conversions of old industrial properties created a major recreational asset on the Delaware landscape. Indeed, America's publicly-owned recreational infrastructure is the fruit of a single decade, during which Moore's Lake became a public facility.

Under criterion B, the site's association with John Vining and Henry Molleston will render it significant at a local level. The association with Cæsar Rodney is peripheral only, and does not contribute.

Individual, scattered elements of the mill seat and toft are collectively eligible under criterion C, since the seat is readily distinguished even today as a coherent whole. As it has for three centuries, the mill dam serves to cement the district together.

Finally, three centuries of human activity have left buried evidence, from the first mill house to the twentieth-century duPont highway yard.

Molleston's house and Vining's mill are certainly archæologically recoverable. Other likely buried resources include the earlier mills, changes to the mill races, auxiliary structures, and former dams.

SIGNIFICANCE THRESHOLDS

Changing styles of highway design can be demonstrated in the evolution of even the simplest and most utilitarian structures (FIGURE 7, PAGE 25) along our roadways. In the short 75-year history of our Delaware state system, Moore's Lake bridges are already 35 years into the life-cycle of their second configuration. As the life-span of bridges becomes shorter, designs will come and go more rapidly than at any time in the past.

Rapid turnover in modern systems call into question the fifty-year significance threshold for modern systems under the National Register program.

In the field of commercial archæology, which studies changing roadsides, entire generations of artifacts routinely last only a few months. If highway systems turn over in thirty-five years, it follows that the significance threshold might be more recent than a half-century ago.

On this site, the building left over from the feed and chicken operation obtained a measure of historical significance when it served temporarily as a college, less than fifty years ago. Even though the chicken houses are older than the requisite half-century, their period in the spotlight was more recent.

One cannot debate the historical significance of the Delaware community colleges. In spite of its significance, a surviving building from the formative period is all but disqualified on the basis of age.

Temporary facilities, by definition, are subject to loss in less than fifty years. As the tempo of turnover increases in roadside contexts, further losses of important resources may be expected, thanks to an arbitrary cutoff date that does not always accommodate historical realities.

COMMERCIAL ROADSIDE CONTEXT

In connection with another project,the cultural resource group of Louis Berger and Associates has proposed a context for automobile-influenced commercial roadside architecture (LeeDecker et al., 1991).

The authors argue that the development of automobile transportation led to concurrent social and architectural changes in the roadside environment. Such buildings as the sandwich shop and the convenience store, as well as the highway maintenance yard, easily fit into this proposed context.

No further work is recommended in connection with the present project, which will have no effect on identified resources.

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INTERVIEWS

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