

2.0 BACKGROUND RESEARCH

2.1 PREVIOUS INVESTIGATIONS

Cultural Resources of the Proposed Route 13 Corridor: An Overview Prepared for the Draft Environmental Impact Statement. An overview study of prehistoric archaeological sites, historic archaeological sites, and standing structures was prepared for an Environmental Impact Statement (EIS) on the Proposed Route 13 Relief Route in 1986 by the University of Delaware Center for Archaeological Research (UDCAR) and DelDOT (Custer and Cunningham 1986; Identification Survey No. 43034). The Route 13 Relief Route later became known as State Route 1 (SR 1). This study was one of a series of technical reports and included a study area of 2 to 3 miles on either side of the existing US 13 from Tybouts Corner south to the Fredericka area. Cultural resource management considerations were provided along with a final draft Memorandum of Agreement for the project.

Architectural Investigation of the US Route 13 Relief Route: Route 7 to US Route 113, New Castle and Kent Counties, Delaware. Architectural investigations of the US 13 Relief Route (SR 1) were undertaken in 1986 and 1987 by Killinger Kise Franks Straw (Benenson and Bower 1987). Approximately 140 resources and 4 historic districts between Route 7 and US Route 113 in New Castle and Kent counties were evaluated for NRHP eligibility. Architectural resources within one mile of the current project area included a proposed historic district and a farmstead:

- The proposed St. Georges Historic District, a well-preserved nineteenth-century canal town located one mile south-southeast of the current project area. Most of the contributing buildings in the historic district reflect the mid-nineteenth-century era of the town's prosperity.
- East Linden (N5044), an early twentieth-century gabled ell cottage with its associated farm outbuildings, located roughly one-half mile south-southeast of the project area. East Linden, built circa 1906, is associated with the Higgins family, who also built the home known as Linden Hill (listed on the NRHP) circa 1834 on another part of the tract.

Phase I Archaeological Survey of the Chesapeake and Delaware Canal Section, Odessa Segment, of the US Route 13 Corridor, New Castle County, Delaware. UDCAR surveyed a portion of US 13 Relief Route (SR 1), in 1988 (Hodny et al. 1989; Identification Survey No. 43172). The survey covered approximately 6.4 miles of the proposed right-of-way from Red Lion Creek in Red Lion Hundred, over the Chesapeake and Delaware Cana and south to Scott's Run in St. Georges Hundred. The survey resulted in the identification of a single historic farmstead and twelve prehistoric archaeological sites. A portion of this survey area was west of the current project area, along the route of present-day SR1. Three of the prehistoric sites identified during this survey are located within 500 meters (m) of the current APE. Phase II evaluation was recommended for all three sites (Hodny et al. 1989:57-62):

- Site 7NC-G-103, Dragon Run North A, Cultural Resource Survey (CRS) N12125; a tight cluster of fire-cracked rock and tools at the crest of a prominent rise in a plowed field approximately 400 m southwest of the current APE;
- Site 7NC-G-104, Dragon Run North B, CRS N12126; tools and flakes on a knoll with an upper and lower terrace approximately 150 m west of the current APE; and,
- Site 7NC-G-105, Wrangle Hill South, CRS N12127; flakes of five different materials on a toe/terrace above the confluence of two ephemeral drainages approximately 200 m north of the current APE.

Phase II Archaeological Discoveries in the Chesapeake and Delaware Canal Section of the State Route 1 Corridor, New Castle County, Delaware. Phase II archaeological evaluations, including the three sites outlined above, were conducted by UDCAR (Kellogg et al. 1994). Work focused on determining the extent, depth, and preservation of the deposits and assessing their potential significance and NRHP eligibility:

- Site 7NC-G-103, Dragon Run North A (N12125) was described as small and low-density (Kellogg et al. 1994:19-22). Prehistoric artifacts were recovered from the plowzone in five of the 17 excavated test units, including flakes, utilized flakes, fire-cracked rock, and one biface. The site was interpreted as a temporary campsite dating to the Woodland I time period. No intact cultural remains were discovered within the highway right-of-way. The site was determined to be not eligible for listing on the NRHP.
- Site 7NC-G-104, Dragon Run North B (N12126) was deemed a large, relatively high density site. Phase II testing concentrated on a wooded portion of the site where contexts undisturbed by plowing were predicted; however it was found that this area had been plowed historically (Kellogg et al. 1994:33-40). A total of 51 square meters (m²) was excavated resulting in the documentation of two features. In addition, flakes (ironstone with some quartz, chert, jasper, and argillite), utilized flakes, flake tools, bifaces, a single hammerstone, and one Nassawango pottery sherd were recovered. Among the bifaces were 4 Woodland I projectile points and 1 possible Woodland II triangle. One Nassawango pottery sherd was also recovered. The site's primary occupation was attributed to the Woodland I period and activities included stone tool manufacture and maintenance, plus food procurement and processing. The site was recommended not eligible for inclusion in the NRHP citing agricultural disturbance across the site and the low number of prehistoric features.
- Site 7NC-G-105, Wrangle Hill South (N12127) was described as tight cluster of artifacts suggestive of a procurement site. A total of 29 m² was excavated (Kellogg et al. 1994:40-44). The great majority of test units contained artifacts in the first two soil layers beneath the plowzone. Four features were uncovered as a result of excavations: three prehistoric pits (Features 1, 2, and 3) and a diffuse lens of light-colored, silty fine sand (Feature 4). The site was determined to be eligible for inclusion in the NRHP due to the high level of subsurface integrity, unique ironstone lithic assemblage, and its association (through ceramic analysis)

with the Delmarva Adena complex distinctive burial ceremonialism and trade networks.

Final Archaeological Investigations at the Wrangle Hill Prehistoric Site (7NC-G-105), State Route 1 Corridor, Chesapeake and Delaware Canal section, New Castle County, Delaware. UDCAR undertook Phase III excavations at the Wrangle Hill South site (Site 7NC-G-105) in late 1991 to early 1992 (Custer et al. 1995; Phase III No. 43519). Final excavations at the site included a 25 percent sample of the plowzone soils via test unit excavation. This was followed by mechanical stripping of the plowzone to expose sub plowzone features. In summary, no buried landscapes with intact archaeological deposits were found at the site - the only artifacts recovered from primary context were within pit features that extended below the plowzone into the subsoil. Twenty-five prehistoric features were identified and interpreted as eroded remains of semi-subterranean pit houses, or storage or processing pits that may also have been used as refuse pits. Diagnostic ceramics were scarce, but included a portion of a Nassawango vessel, Hell Island vessel, and Killens vessel. Ironstone was the most commonly used lithic raw material in the flaked stone artifact assemblage. The site's primary association was interpreted as a classic example of a micro-band base camp. Prior to ca. 3000 BC occupations at the site were ephemeral, represented by scattered projectile points probably resulting from brief camping episodes by early hunters and gatherers who were attracted by the rich wetlands nearby. After this date, the site seems to have been inhabited for longer periods of time, possibly for more than one season of the year. Small groups of later Woodland people – probably limited to one family at a time - constructed semi-subterranean pithouses and dug storage and processing pits.

2.2 PREHISTORIC CONTEXT

Current interpretation of the Native American past in Delaware is based on the organization of material culture into temporal sequences. The prehistory of the region is conventionally divided into three general periods, which are seen as reflections of widespread technological and social adaptation to evolving environmental conditions. Following Griffin's (1967) chronology for eastern North America, these are referred to as the Paleoindian (ca. 12,000-8000 BC), Archaic (ca. 8000-1000 BC), and Woodland (ca. 1000 BC-AD 1600) periods. The latter two periods are typically subdivided into early, middle, and late sub-periods. An alternative chronology, focused more on evidence for changes in adaptive strategies than on diagnostic artifacts, has been proposed by Custer (1984, 1989) for the Delmarva Peninsula. Much of the existing database for Delmarva, as well as various settlement pattern models derived from that data, result from work conducted by Custer and his associates (e.g., Custer 1984; Custer and Bachman 1984; Custer and DeSantis 1985; Custer and Cunningham 1986). Thus, while the conventional eastern North American model is the main organizational framework used the present study, the regional Delmarva chronology is cross-referenced when necessary for comparative purposes. The Delmarva chronology defines the Paleoindian period to have extended from 12,000-6500 BC, and the Archaic period from 6500-3000 BC. Two later periods are recognized: Woodland I, from 3000 BC to AD 1000; and Woodland II, from AD 1000 to 1600. The discussion that follows highlights the current understanding of

these periods to provide a context for the interpretation of potential archaeological remains in the project area.

Paleoindian. The commonly accepted record of human habitation in the Middle Atlantic begins approximately 14,000 years ago, near the end of the cool and relatively wet Late Wisconsin Glacial period. The retreat of the glaciers brought a fairly rapid warming trend throughout the Middle Atlantic, a phenomenon directly reflected in the replacement of northern plant and animal species by southern types. Like much of the region, New Castle County was characterized by a relatively complex set of overlapping micro-environmental zones, providing a variety of subsistence resources for prehistoric populations. Archaeologists have in the past assumed that big game hunting was important in the subsistence economy of local populations in this period, based on analogies with big game hunting cultures in western North America. Yet the large Pleistocene grazing and browsing fauna that had earlier been present in the Middle Atlantic were for the most part gone by this point, and the woods and parklands of the region supported a wide range of flora and smaller fauna. Consequently, big game hunting was probably not a critical part of Paleoindian subsistence in the region (Wesler et al. 1981; Johnson 1986; Custer 1989).

Archaeological sites dating to this period are usually identified by the presence of fluted stone projectile points, often made of high quality, cryptocrystalline lithic material such as chert or jasper. Relatively few Paleoindian sites have been reported throughout the Middle Atlantic. Most of the Paleoindian locales reported in Delaware occur in the central portion of the peninsula (Custer 1989).

Archaic. The traditional Middle Atlantic chronology describes a break in cultural patterns at about 8000 BC, approximately corresponding with a warming trend that signaled the Boreal climatic episode. The new pattern, referred to as the Archaic period, is characterized by an adaptive response to the emergence of the so-called full Holocene environment, an environment increasingly like that of the present (Joyce 1988).

Early Archaic. Residential mobility and a varied subsistence base were typical throughout the Early Archaic period in Delmarva, which ranged from about 8000 BC to about 6500 BC. Intensive foraging has been assumed from the transitory use of resource areas suggested by the presence of many small sites. Most Middle Atlantic archaeologists agree that the record suggests similar adaptation in the Paleoindian and the Early Archaic periods, emphasizing continuity between the periods (Gardner 1974; Johnson 1986; Custer 1990). Following Gardner's lead, Custer (1984, 1989) has taken the further step of combining the two periods in Delmarva under the single rubric of Paleoindian. Among the cultural diagnostics of the period are the corner-notched Palmer and Amos points and the slightly later Kirk types. A change is also noted in lithic raw material use, with a preference for chert or jasper in the manufacture of earlier types, and a markedly greater incidence of materials such as rhyolite and argillite in later points (Custer 1986). Use of non-cryptocrystalline materials continued to grow significantly throughout the rest of the period, to approximately 6500 BC.

Middle Archaic. The Middle Archaic was a largely undifferentiated interval of adaptation extending from ca. 6500 to 2500 BC, corresponding roughly with the period noted in the Delmarva chronology as simply the Archaic (ca. 6500-3000 BC). By this time, local populations were exploiting the new floral and faunal resources appearing with the transformation of the mixed pine-oak forest to a temperate oak-hemlock deciduous forest. Although generalized foraging is assumed as the main resource procurement strategy, seasonally specialized, transient procurement stations have been noted, that have been proposed as support facilities for estuarine base camps (Gardner 1978; Custer 1986).

One of the most important environmental changes affecting prehistoric populations throughout the Middle Atlantic region during the entire Archaic period was the gradual rise in sea level and widespread lowland flooding accompanying the retreat of the continental ice sheets. Among the effects of the inundation were marked rises in local water tables, an increase in shoreline complexity associated with estuary development, and a consequent increase in floral and faunal resources in newly formed marsh or wetland areas. Large marshes and swamps became important points of focus for settlement-subsistence during the period (Gardner 1978).

The Middle Archaic period artifact assemblages included projectile point forms such as several bifurcate types—St. Albans, LeCroy, and Kanawha (Broyles 1971)—along with the stemmed types, Stanly or Neville. Early long- or broad-bladed forms, such as Guilford and Morrow Mountain, and the later, side-notched Halifax point, are also recognized in various regions (Coe 1964). Custer (1989:123-4) contends that only the bifurcated points have sufficiently unambiguous date ranges to be chronologically diagnostic for the period in Delmarva. The lithic tool kit during this period was further marked by the appearance of groundstone tools—the first artifactual evidence of extensive plant processing. Among the few sites with reported stratigraphic contexts from the middle part of the Archaic period is Blueberry Hill (7NC-K-107), at which Palmer and bifurcate points were recovered in levels at the base of a soil profile characterized by aeolian deposits (Heite and Blume 1995:53).

Late Archaic. Traditional Middle Atlantic chronologies recognize a final sub-period of the Archaic, the Late Archaic, extending from ca. 2500 BC to 1000 BC. At this time, regional environments during the Late Archaic were characterized by the prevalence of an oak-hickory forest. The rate of sea level rise slowed, allowing riverine and estuarine environments to form that were stable enough to support significant populations of shellfish and anadromous fish in larger streams. The focus of settlement shifted during the initial part of the period to these riverine and estuarine locales to take advantage of the increasingly predictable fish and shellfish resources (Custer 1978; Gardner 1978).

A marked increase in site frequency is observed during the early portions of the Late Archaic, suggesting both an overall population increase and population movements into new environmental zones (Turner 1978). Some sites in the riverine and estuarine areas tend to be larger and more complex than any occupied during previous periods, suggesting a trend toward sedentism and organized resource procurement strategies

(Johnson 1986). Gardner (1982) maintains that in upland areas, particularly near the fall line, large, spring-and-summer base camps existed during the Late Archaic at which anadromous fish were harvested. Moreover, smaller, fall-and-winter base camps were situated along inland streams, while multi-seasonal, transient camps were located in a variety of environments, offering additional support to the base camp occupations. The pattern of settled occupation that developed in the Late Archaic out of the generalized foraging pattern of the Middle Archaic forms the basis for the segregation of the traditional periods in the Delmarva chronology: the Middle Archaic is referred to simply as the Archaic, while the Late Archaic is combined with the initial two sub-periods of the ensuing Woodland period, the Early and Middle Woodland, into a broad cultural period referred to as Woodland I (ca. 3000 BC-AD 1000), recognizing an extended interval of continuity in settlement systems (Custer1989:141-2).

Chipped stone artifacts characteristic of the Late Archaic period included a wide range of broad-bladed, stemmed, and notched points. Custer (1994:144ff, Table 21) suggests that due to an apparent profusion of point types during the period, chronologies based on typical specimens are problematical and thus unreliable. In this view, point types which are considered to be useful temporal indicators include Otter Creek; broadspears such as Susquehanna, Perkiomen, Koens-Crispin, and Savannah River; and Fishtails. Other points, ranging from Vosburg and Brewerton, through Normanskill, Lamoka, Bare Island, and Piscataway, are considered to be of relatively little use in establishing chronological trends.

Woodland. Around 1000 BC, techniques for pottery manufacture were introduced across the region. This innovation has traditionally defined the beginning of the Woodland period in the Middle Atlantic. Ceramics, which tend to have somewhat more discretely bounded time ranges during the Woodland than do projectile points, have become the primary temporal indices.

The deliberate and organized procurement strategies that developed during the Late Archaic period appear to have remained unchanged throughout this period; however, there is evidence for an increase in sedentism as regional populations became more efficient in exploiting available resources. Gardner (1982) has postulated that, rather than breaking up into small base camps in interior freshwater settings, occupants of the large spring-and-summer base camps in anadromous fishing zones regrouped in the fall and winter near the freshwater/saltwater transition to take advantage of the abundant shellfish resources there. An increasing incidence of storage features from the period is widely assumed to represent archaeological evidence of more organized subsistence rounds and more sedentary settlement patterns.

Early Woodland. The earliest known ceramic in the area, used from about 1200 BC to 800 BC, is a steatite-tempered variety referred to as Marcey Creek ware, after its type site on the Potomac River, in Arlington County, Virginia (Manson 1948). Custer (1989:176) notes that the predominant projectile points accompanying these ceramic wares in Delmarva are long, stemmed points, referred to as Bare Island/Lackawaxen, as well as various broadspears and fishtails.

The latter half of the Early Woodland in Delmarva is highlighted by the Delmarva Adena Complex in the Upper Coastal Plain, particularly in the watersheds of the St. Jones and Murderkill rivers. This complex is typified by Adena notched points, and a series of clay-tempered ceramic wares, with type names such as Coulbourn, Nassawango, and Wilgus (Custer 1989:176). Many of these sites investigated in Delaware contain numerous burials, caches of late stage bifaces of Flint Ridge (Ohio) chert, beads, pipes, and other characteristic grave goods. Recently investigated sites from this period with little or no evidence of burials are Carey Farm (7K-D-3), Puncheon Run (7K-C-51) (Liebeknecht et al. 1997; LeeDecker et al. 2001), and Hickory Bluff (Petraglia et al. 2002).

Evidence has been proposed for changes in regional settlement patterns during the final stages of the Early Woodland period, with semi-sedentary base camps, often referred to as macro-band base camps, increasing in size (Custer 1989, 1994:297). Studies indicate a shift in the locations of these base camps from small, creek floodplains to large, river floodplains. This proposed shift may have set the stage for the local development, or adoption, of horticulture (Snyder and Gardner 1979; Gardner 1982:78). On the Delmarva Coastal Plain, Custer (1986, 1994:95) notes a shift in base camp locations from confluence areas of freshwater streams and estuaries to locations farther upstream. Increased participation in trade and exchange networks is also noted, as is an assumed increase in societal complexity. Both processes are inferred from the appearance of exotic lithic raw materials as well as artifacts and burial ceremonialism associated with cultures from the Mississippi and Ohio River Valleys (Custer 1989).

Middle Woodland. The break between Early and Middle Woodland periods is usually placed sometime after the beginning of the Christian era (AD 0). It is roughly correlated with the appearance of a new ceramic tempering agent—shell—first seen in Delmarva in a thick-walled, shell-tempered, often cord-marked or net-impressed ceramic ware known as Mockley. The date range for Mockley in Delmarva is approximately AD 110 to AD 450 (Artusy 1976). However, most Mockley sites cluster between AD 200 and AD 330 (Custer 1989:Appendix 2). Lithic projectile points associated with the period include lanceolate and stemmed Fox Creek or Selby Bay, corner-notched or pentagonal Jack's Reef, and shouldered and contracting stemmed Rossville (Steponaitis 1980; Wanser 1982).

The Webb Complex, in the Upper Coastal Plain, was identified at the Island Field site (7K-F-17) (Thomas and Warren 1970). Diagnostic artifacts included Hell Island ceramics, a crushed quartz-tempered and fabric- or cord-impressed ware with a date range of approximately AD 600—AD 1000. Associated lithics consisted of Jack's Reef pentagonal, Rossville, and a generalized side-notched point. In addition, burials and evidence of mortuary ceremonialism suggest renewed contact with extra-regional groups: a radiocarbon date of AD 740 was returned from a cremated burial at the site (Thomas and Warren 1970). A change in settlement patterns is seen during the Webb Complex. Few Webb Complex macro-band base camps are known, and so large macro-band base

camps are presumed to have reached a threshold size during preceding periods, eventually fissioning into smaller base camps (Custer 1989:292, 295-7).

Late Woodland. By approximately AD 900, horticulture began to achieve a significant role in the total subsistence system throughout much of the Middle Atlantic. Direct evidence of cultivation is rare. Evidence is abundant, though, of a pattern of focused collecting on a scale with earlier Woodland subsistence systems; therefore, agriculture is presumed to have remained a secondary activity (Custer 1989:300). Continually increasing sedentism is assumed on the basis of storage facilities and house structures that occur, particularly in the southern part of the peninsula. The disappearance of exotic lithics and non-local influences on mortuary practices, along with a marked period of cultural stability as evidenced in ceramic wares throughout the period, imply an apparent breakdown of the extensive trade and exchange networks operating during the earlier portions of the Woodland period (Stewart et al. 1986).

These changes were distinct across Delmarva, and they represent a cultural break defined as the Late Woodland period, which extended from AD 1000 to AD 1600. The latter date represents the approximate date of European Contact. The Late Woodland period corresponds roughly with the Woodland II period in the alternative Delmarva chronology (Custer 1989:298-9).

the Piedmont/Fall Line and Upper Coastal Plain zones, the Minguannan Complex is marked by a ceramic ware of the same name, which is characterized by sand, grit, or crushed quartz temper, and smoothed or cord-marked exteriors (Custer 1985). Minguannan ware is often decorated with incised or corded designs, which are occasionally found together in a variety referred to as Minguannan Compound Decorated (Griffith and Custer 1985). Associated projectile point forms appear restricted to several triangular points. Little evidence of widespread sedentism has been discovered at Minguannan Complex sites—there are no large villages, nor has a marked shift to fertile bottomlands been documented.

Contact. Although there is some archaeological data related to the Contact period in Delaware, much of the information on settlement patterns and territorial boundaries during that time is drawn from ethnohistorical accounts, descriptions of Native American groups written by contemporary Europeans. Attempts at reconciling the two sources of information, to connect ethnographic groups with archaeologically derived culture complexes, have generally been unsuccessful, resulting from a combination of the incomplete nature of the archaeological record and the prejudiced and sometimes erroneous accounts of colonial Europeans (Custer 1989:333).

The earliest general information about Native American groups in the region is from John Smith, from his account of early explorations of the Chesapeake Bay area. Smith reported that the dominant groups of the southern Delmarva were the Accomac and the Occohannocks. Both were allied with the Powhatan of the Virginia mainland for at least the early portion of the seventeenth century (Smith 1986a:150-151, 1986b:224-225).

The Native groups resident in the northern part of present-day New Castle County, in the Brandywine River Valley, included the Quenomysing and the Minguannan, who were collectively referred to at times as the Brandywine Indians (Weslager 1972:34, 38). The Brandywine Indians maintained a separate identity from other Unami-speaking Lenape to south and east and from Munsee speakers to the north through their patterns of settlement, land transactions, and cross-cultural associations (Weslager 1972:178-179).

2.3 HISTORIC CONTEXT

The project area was located in the central portion of New Castle County, the northernmost county in the state, within Red Lion Hundred. The hundred was named for the creek that forms its northern boundary; the Delaware River lies to the east, with St. Georges Creek to the south and Pencader Hundred to the west.

1630 – 1730 Exploration and Settlement. Four hundred years have passed since Henry Hudson sailed into the Delaware Bay and up to the mouth of the Delaware River. As the waters of the Delaware became shallow, Hudson decided the river could not constitute the westward passage to the orient that he sought. Accordingly, Hudson continued further north along the Atlantic coastline, eventually exploring the river that would eventually bear his name. Soon afterwards, colonists began arriving in the peninsula and establishing a permanent presence. Dutch Captain Cornelis Hendricksen visited Delaware many times from 1614 to 1629, and in 1629, Patroons began to colonize near Cape Henlopen (Doherty 1997:3). The region of Delaware south of Bombay Hook was called Swaanendael (or Zwaanendael) and an attempted settlement by Dutch in 1631 failed (Heite and Heite 1985:5). Swedish immigrants erected Fort Christina on the Upper Peninsula to the north in 1638, and the Dutch established a settlement at Fort Casimir on the Delaware River near modern-day New Castle to block a Swedish advance into the rest of Delaware (De Cunzo and Catts 1990:9).

New Amstel (New Castle) became the county seat under Dutch rule in 1654, and a Dutch military presence forced the Swedes to relinquish power to them in 1655, although many of the Swedish and Finnish settlers remained. The Dutch were soon inundated by English settlers, and tension between the two factions flared for many years.

In 1669, Lord Charles Calvert I, third baron of Baltimore, created Durham County as part of Maryland encompassing much of present-day Delaware, resulting in a hostile atmosphere between Maryland and Pennsylvania (Doherty 1997:51; Demars and Richards 1980:4-5). The Dutch began to regain control of the area and New Castle County (originally titled New Amstel) was organized in 1673 (Figure 2-1), extending from Christina Creek to near Leipsic Creek (Long 1996:13). However, Holland ceded many of its possessions extending from New York to Delaware to the English in 1676, when Delaware was placed under the jurisdiction of the Duke of York, with the top seat of government in New York (Harbeson 1992:17). One of the earliest land grants in Red Lion Hundred was to Jacob Young in 1675 for 1280 acres north of St. Georges Creek (Conrad 1908:528).

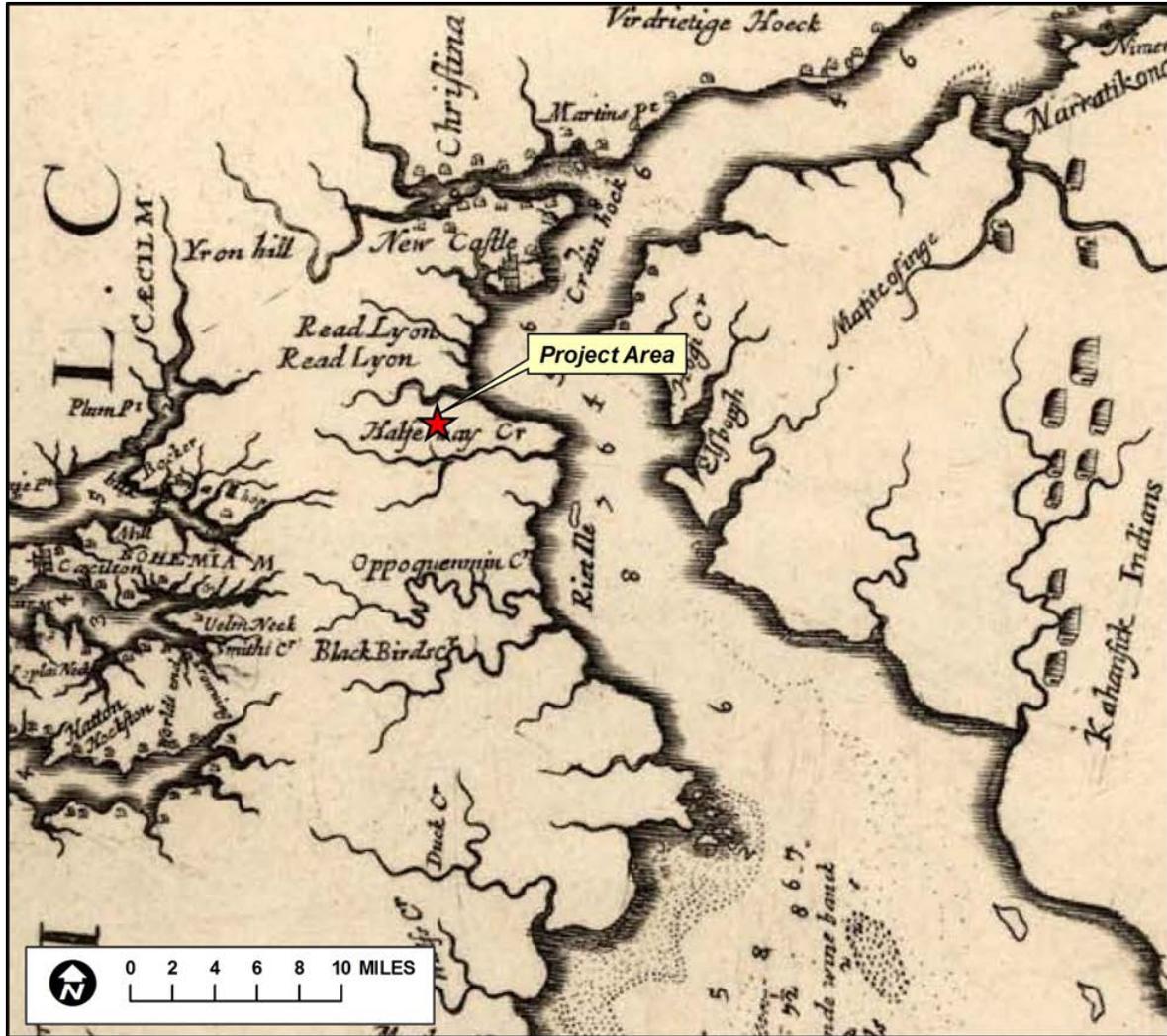


Figure 2-1: The Project Area on a Map from the Early 1670s.
(Herman ca.1673)

The Duke of York, James Stuart (a brother of King Charles II), granted a large tract of the Delmarva peninsula to William Penn in 1682, which Penn referred to as the lower three counties of Pennsylvania (Doherty 1997:3-4; Custer et al. 1987:43). Penn divided Delaware into townships that would contain 100 families, each of which contained approximately ten members. The townships were referred to as “hundreds”, a political designation originating in the Roman Empire over 1,000 years ago, and have remained intact in Delaware to modern times (Zippe 1968:2).

Dispute over control of Delaware between Pennsylvania and Maryland clouded the regional land patents for many years, and as a result, the south and west portions of Delaware were granted many Maryland patents (Russ 1966:12-13). Baltimore’s grants were contested by Pennsylvania authorities well into the 18th century, by which time Lord Baltimore’s son lost the claims (Demars and Richards 1980:4).

1730 – 1830 Early Industrialization. The village of Quinquiam was laid out in 1730 on both the north and south sides of St. Georges Creek, just east of the King’s Highway (now DuPont Highway) (Benenson and Bower 1987:35). By that date, a mill and mill dam had been built, and houses soon were erected for the workers, blacksmiths, shopkeepers and carpenters who moved to the area. The village was later renamed St. Georges (Figure 2-2) and was incorporated as a town in 1825.

The boundaries of New Castle County were set by an act of the General Assembly in 1775 (Heald 1820). The county was divided originally into nine hundreds, one of which was Red Lion (or Red Lyon) Hundred. The King’s Road – also called the “Great Road” or “Main Road” - was the main thoroughfare between Dover in Kent County through northern Kent County and into New Castle County. The road was already established by 1749 (Evans 1749) and reached Red Lion Hundred by 1762 (Conrad 1908:534). By the nineteenth century, the road was referred to as a State Road or Public Road. After the road was improved for modern traffic use, it was referred to as DuPont Boulevard or Dual State Highway, and later as State Route 13.

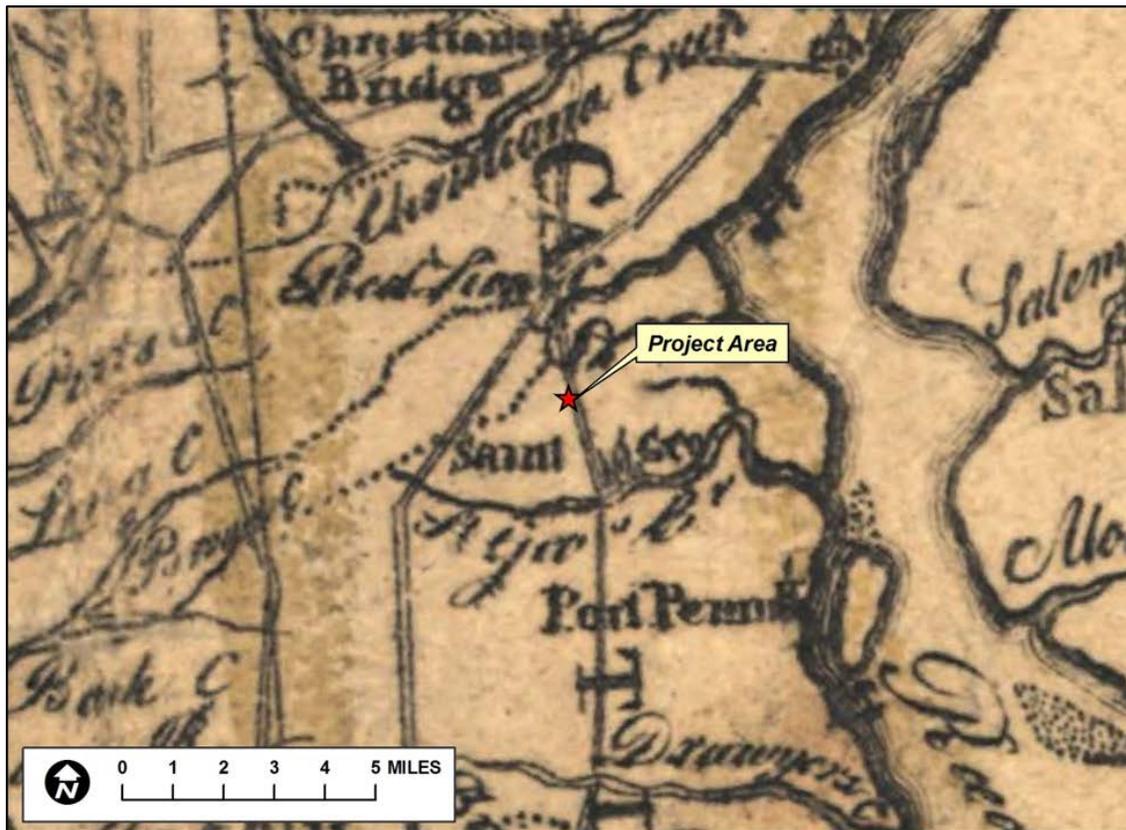


Figure 2-2: The Project Area on a Map from the Late 1770s.
(Churchman ca.1778)

Most of the residents of New Castle County in the 1700s were farmers, growing corn, rye, and wheat as principal crops. Grist mills were some of the earliest industries in the area, and many became the hub of small hamlets or towns as early as 1658 in New Castle (O’Connor et al. 1985:13-14; Shaffer 1988:15). The farms were successful and slowly

the northern part of Kent and New Castle counties were able to shift from a subsistence oriented economy to a market-based economy by the middle of the eighteenth century.

The rise of agriculture in Delaware was encouraged in that each farmstead could be located within twelve miles of a navigable river or creek (Munroe 1954:27). According to contemporary periodical advertisements, Kent County and New Castle County farmers in the early-to-mid-eighteenth century cleared an average of 30 percent of their land parcels; the rest of the tract was left in marsh, meadow or woods (Catts et al. 1995:98). Many farms were owned by absentee landowners, and the houses on the land were rented or leased to tenants. Advertisements appeared in the local paper to rent entire farms with descriptions of the land and buildings (Hancock 1987:46-47).

Iron deposits in New Castle County were discovered in the mid-1700s, and soon processing sites were established (Harbeson 1992:18-19; Heite 1974:18). Samuel James established a forge in the New Castle County in 1723, supposedly the first in the mid-Atlantic (Shaffer et al. 1988:21). The forges required an immense amount of fuel, and since coal was not locally available, the primary forests were harvested to produce charcoal (Passmore 1978:14). Mine owners either purchased thousands of acres outright or at least the rights to work the land solely for the harvest of the timber.

By 1780 Red Lion Hundred had over 100 farms and estates (Jett and Fitting 1979). The hundred contained 15 miles of roads in 1816 (Heald 1820). St. Georges became one of the county's stagecoach stops. The center for Delaware's peach industry was primarily in New Castle County, with some of the first orchards in Red Lion Hundred in the 1830s (Jett and Fitting 1979). St. Georges became even more crucial to local trade when St. Georges Creek was converted into the 14-mile-long Chesapeake and Delaware Canal by 1829 (Benenson and Bower 1987:36). The canal took years and hundreds of workers to construct, and provided a water route between the Chesapeake Bay and Delaware River. A canal lock at St. Georges allowed for shipments to Wilmington, Philadelphia, and New York. Canal barges brought passengers to St. Georges to shop as well as materials to be processed, including logs for sawmills and fruit and tomatoes for the cannery. A new town named Delaware City was platted in 1826 at the mouth of the canal. The town was situated on the Delaware River opposite Pea Patch Island and Fort Delaware. A post office was established as well as several commercial establishments (*Republican Compiler* 1826).

1830 – 1880 Industrialization and Early Urbanization. Wheat was the main agricultural crop in New Castle County during the colonial period, but as early as 1839, it was beginning to be replaced by the fruit industry (Passmore 1978:24). Farmers had learned in the early 1700s to rotate crops and tobacco was grown on freshly cleared ground while grains, such as wheat, corn, and rye, were grown mainly on previously tilled ground (Passmore 1978:22). However, farming practices in Delaware quickly leached the sandy soils of the major nutrients and led to the almost complete destruction of the topsoil by the 1830s (Passmore 1978:16). James C. Booth's "*Geological Survey of Delaware*" provided wonderful insight to the Delaware farmers to reconstitute their soils, and he is praised with saving agriculture in the region (Booth 1841). Booth correctly identified

that the nutrients in the soils of the entire Delmarva peninsula were being depleted and he encouraged farmers to add burned and crushed oyster shell and marl to their fields (Passmore 1978:17). Marl, a compact clay-sand deposit containing ancient sea shells, had been discovered in New Castle County while excavating the Chesapeake and Delaware Canal (Jett and Fitting 1979). From the early 1840s to the Civil War, marl increased crop productivity on almost all areas of application, sometimes as much as 400 percent (Passmore 1978:17). By the 1880s, other fertilizers, such as improved lime and ground crab, were used, and modern technological advancements in crop rotations and nitrogen fertilizers helped bring Delaware into the world agricultural markets (Passmore 1978:7-19).

In the 1820s and 1830s bricks were manufactured in Red Lion Hundred by Philip Reybold (Conrad 1908:532-533). Manufacturing was never a large part of the hundred's enterprises and its few grist and saw mills did not survive into the twentieth century (Conrad 1908:534). Eleven men were listed as dealers in dry goods (a general store) in Delaware City in 1851; one general store was mentioned in St. Georges (Thomson 1851). Each of these towns had one druggist in 1851. Manufacturing included lumber and flour in St. Georges; a lumber dealer and a shipper of coal and iron operated in Delaware City. A small number of physicians were practicing in Red Lion Hundred at this time: two in Delaware City, one in St. Georges, and two (including John H. Fromberger and Roderick Sutherland) from elsewhere in the hundred (or possibly from the town of Red Lion in New Castle Hundred). St. Georges and Delaware City each had one hotel by 1851, and the Delaware City Bank had been established in the town. A railroad line passed through the western end of the hundred by the 1860s, with a station named St. Georges at a crossroads known as Kirkwood (Figure 2-3). A planned spur line would later connect Delaware City to the rail line northwest of the hundred.

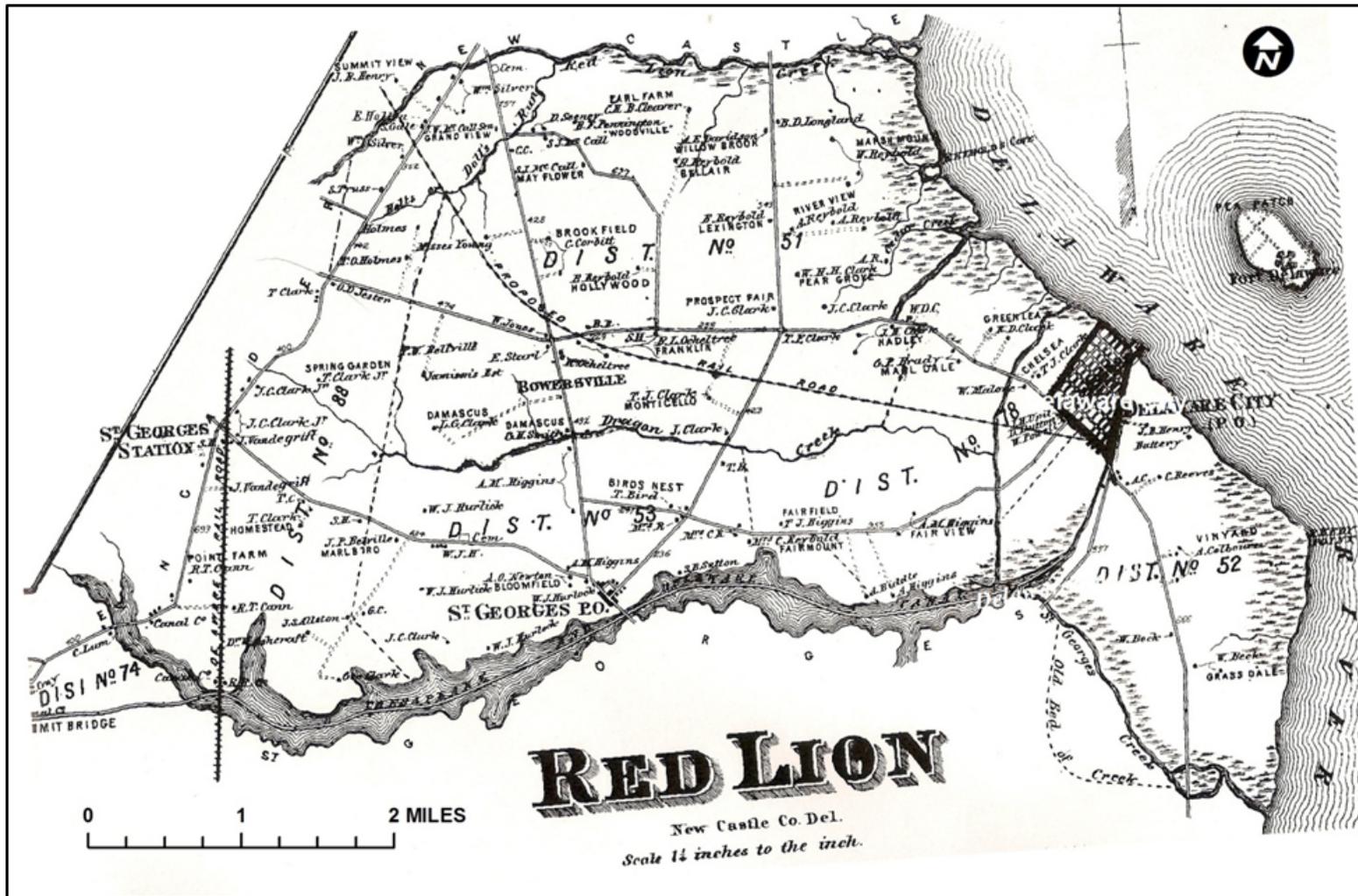


Figure 2-3: Map of Red Lion Hundred in New Castle County in 1868.
(Beers 1868)

1880 – 1940 Urbanization and Early Suburbanization. By the 1880s, a blight called “the yellows” was destroying the state’s peach trees (Zippe 1968:78). People immigrated to Delaware for the new agricultural industry. Migrant workers, referred to as Peach Plucks, harvested the fruits for 75 cents a day with meals and a place to sleep, usually on a haystack or in a barn. Tomato blight and competition after World War II ended the large-scale fruit industries in the region (Pryor 1975:25). Only a “few summer tomato and corn canning establishments, and a few creameries” were operating in Red Lion Hundred by 1908 (Conrad 1908:534).

New Castle County’s population was over 123,000 by 1914 (Atkinson Co. 1914:5). Roughly 83 percent of the county’s land was farmland in 1914. The average size of the 2,208 farms in the county was 106 acres, with an average farm value of \$11,084.00 including the land, buildings, farm implements, and animals. Approximately half of the farms in the county were operated by their owners, while the other half were run by tenants. Of the tenant farmers, around 70 percent worked for shares of the farm products, while the rest paid the owner a cash rent. Most of the farm operators were white and native-born (n=1,961), while a lesser number were white and foreign-born (149) or black (98). Over 25,000 cattle lived on county farms in 1910, with an average of approximately 11 per farm (Atkinson 1914:6). Delaware farmsteads often contained several tenant dwellings to house the hired hands directly on the farm tracts; many times, these tenements were in close proximity to the main farmhouse (Passmore 1978:8).

Widening of the Chesapeake and Delaware Canal caused the destruction of most of the historic town of St. Georges south of the original creek (Figure 2-4). In the 1920s the distance between the north and south portions of St. Georges was extended to 90 ft and in the 1930s it became 250 ft (Benenson and Bower 1987:36). The drawbridge spanning the canal at St. Georges was demolished in 1939 after being struck by a ship; the modern bridge was built 600 ft to the west. In the 1950s, the canal was widened to 450 ft. The northbound lanes of US 13 (DuPont Hwy.) were added in the 1930s, creating a dualized highway (Benenson and Bower 1987:3).

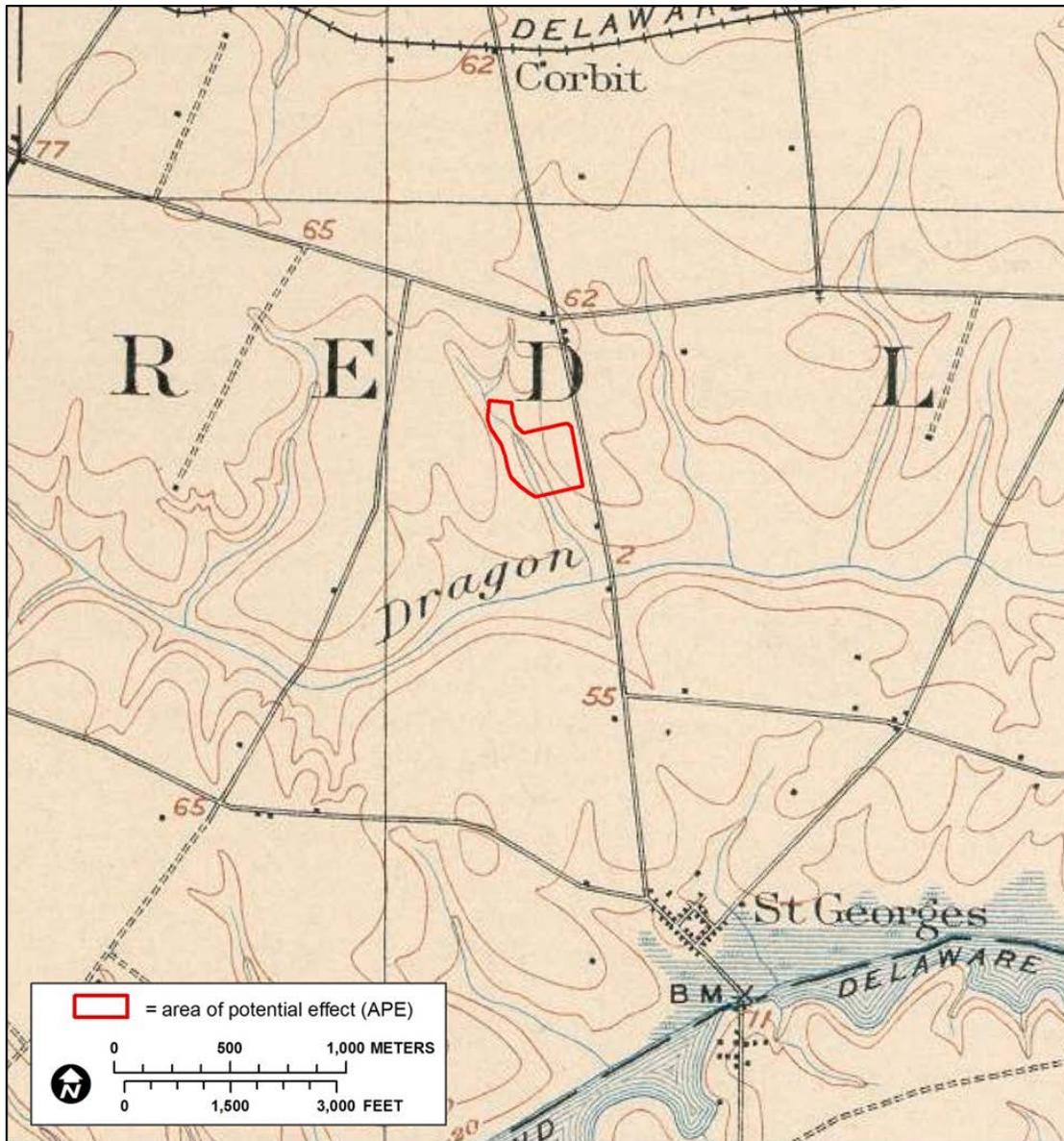


Figure 2-4: The Project Area on a Topographic Map from 1906.
(USGS 1906)

2.4 LAND USE

The project area is part of current New Castle County tax parcel no. 12-020.00-003. The earliest recorded deed located in the county's deed books for the parcel was from the 1830s; however, information on earlier transactions was obtained from recorded deeds and from an unpublished manuscript (Lester n.d.) on the Start [Starl] House (N01492 - the historic house that once stood on the project area parcel, outside of the APE, that was burned down in 2001). A summary of land transactions is provided in the Chain of Title (Appendix B).

Jesse Higgins was the earliest owner mentioned in recorded deeds. He reportedly bought the land including the project area at a public auction; the deed, from Thomas Perkins,

the County Sheriff, was “not yet recorded” according to a 1910 recorded deed (New Castle County Deed Book D, Vol. 23, Pg. 368 [NCCDB D(23):368]). A search of deed book indices did not find any recorded deed for this transaction, although Higgins was involved in a number of other land transfers in the county. It is known that Jesse Higgins purchased a 100-acre property with a Messuage (house) and Water Grist Mill in 1789 (Lester n.d.:1). Higgin’s mill property, which came to be known as Damascus, was probably located on Dragon Creek, to the south of the project area. Higgins acquired more land adjoining the original tract (Lester n.d.:1), including the current project area. Higgins sold a parcel of 146 acres, on both sides of the road leading from St. Georges to Red Lion (now DuPont Highway), to John Vanhekle (Lester n.d.:1). Unfortunately, this deed from Higgins and his wife to Vanhekle (or Vanhickle) also went unrecorded, according to the 1910 recorded deed (NCCDB D(23):369).

John Vanhekle was a resident of Red Lion Hundred, according to the 1800 Federal Population Census Data (Maddux and Ollar 1964:106), and he is the first owner known to have resided on the project area parcel. In 1800, John was between the ages of 26 and 45. Two other white males were living in the household: one aged 10 to 16, and one under the age of 10. John’s wife in 1800 was between the ages of 26 and 45. Five other white females resided in the household: two aged 16 to 26, one aged 10 to 16, and two under age 10. It is unclear if the seven people under age 26 were all children of the couple; some could have been servants or other relatives. John Vanhekle died intestate by February 1804, leaving behind a widow, Mary, and only three children: Charles T., Elisabeth (“Betsy”), and Lydia Vanhekle (Lester n.d.:1). Mary passed away by 1816. Two of the Vanhekle children had married by that date: Elisabeth to Fredus Pennington and Lydia to John Cannon (Lester n.d.:1). John Cannon petitioned the New Castle County Orphans Court, asking that the John Vanhekle estate’s land be divided among the heirs. A surveyor decided it would spoil the land to be divided into thirds, so he split the property into two tracts in 1816. In April of 1817, Charles T. Vanhekle, the oldest son, received 76 acres on the west side of the road (now DuPont Highway), including a brick house (New Castle County Orphans Court Record Book K(1):263, K(1):309, and K(1):312). This 76-acre tract includes the project area, and the brick house was on the extreme northeast corner of the property (Lester n.d.:1), well outside the current project area. The earliest map showing this parcel’s house is dated 1849, when “E. Starl” is noted as the owner (Figure 2-5; Rea & Price 1849). The sisters of Charles received the remainder of the property, 58 acres on the eastern side of the road (DuPont Highway); this portion of the estate did not include any of the project area parcel.

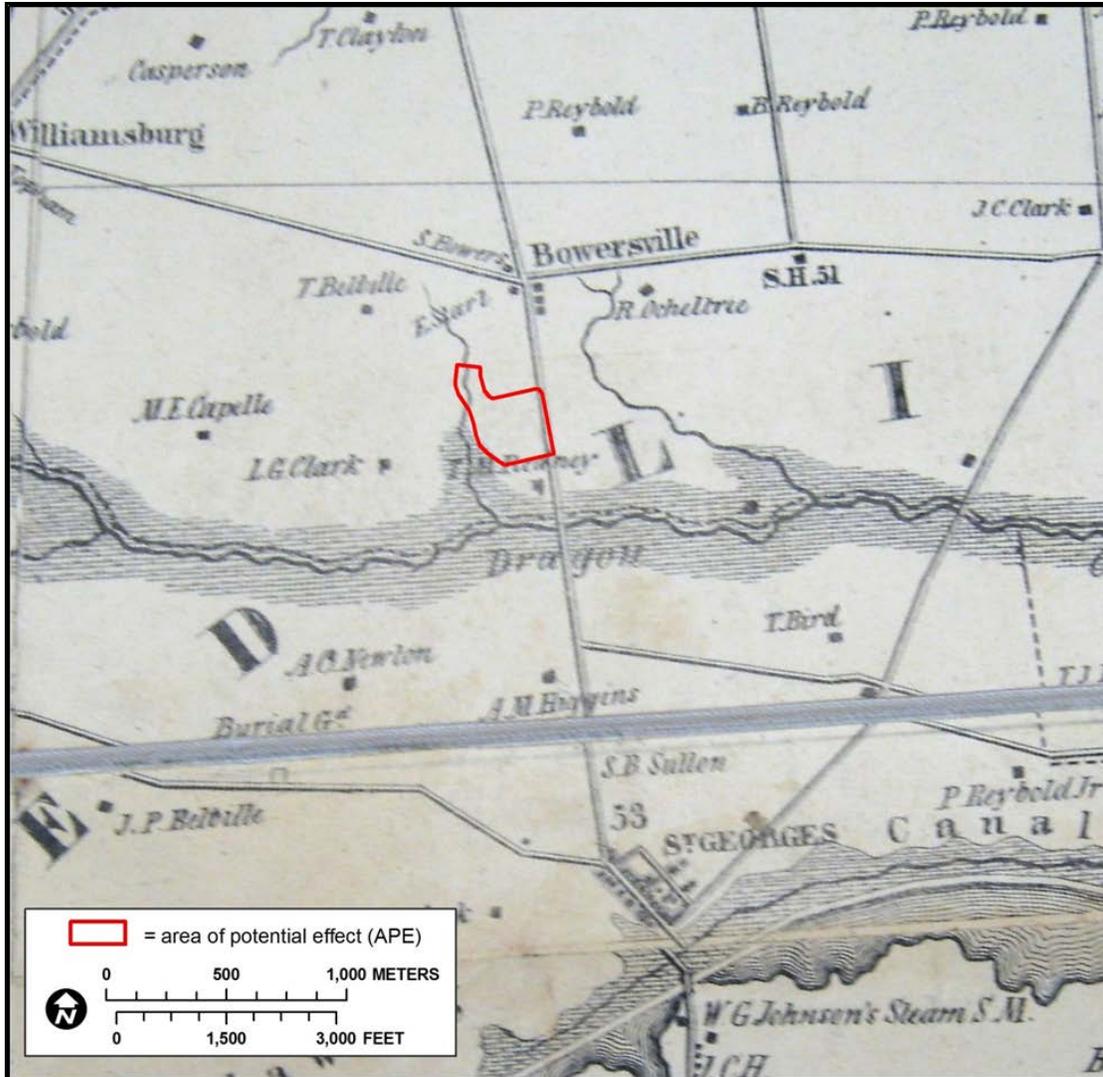


Figure 2-5: The Project Area in 1849.
(Rea & Price)

Charles Vanhekle was married to a woman named Margaret by 1822. Charles bought his sisters' share of their father's estate, on the eastern side of the road (Lester n.d.:1). Charles also added onto the western side of his property by purchasing tracts from Levi Clark. On August 26, 1822, Clark and Vanhekle, both described as farmers, exchanged portions of their respective properties. Levi Clark purchased a narrow strip of land running westward across the Charles Vanhekle farm, connecting the State Road (DuPont Highway) to Clark's property (NCCDB X(4):362). The deed conveyed to Clark the "privilege of riding & having a Road of the width of 25 ft to pass through the Plantation occupied by the said Charles T. Vanhikle & Margaret his wife." The road would pass over a "Run called and known by the name of Silver Run." Clark and his heirs would have the privilege of using, for the use of his livestock, the water in Silver Run, as long as Clark agreed to make a "good and substantial fence out into Said Run" so that the property of Vanhekle would "not suffer injury from the stock" of Clark. Clark also agreed to "make and keep in good Repair a fence along one side of the above granted

Road.” Silver Run is the tributary of Dragon Creek that flows to the west of the project area, within a wooded area. The resulting road, Levi Clark’s house, and Silver Run are visible on the 1868 Beers Atlas map (Figure 2-6; Beers 1868). The road cuts across the current project area and seems to divide the project area roughly into northern and southern halves.

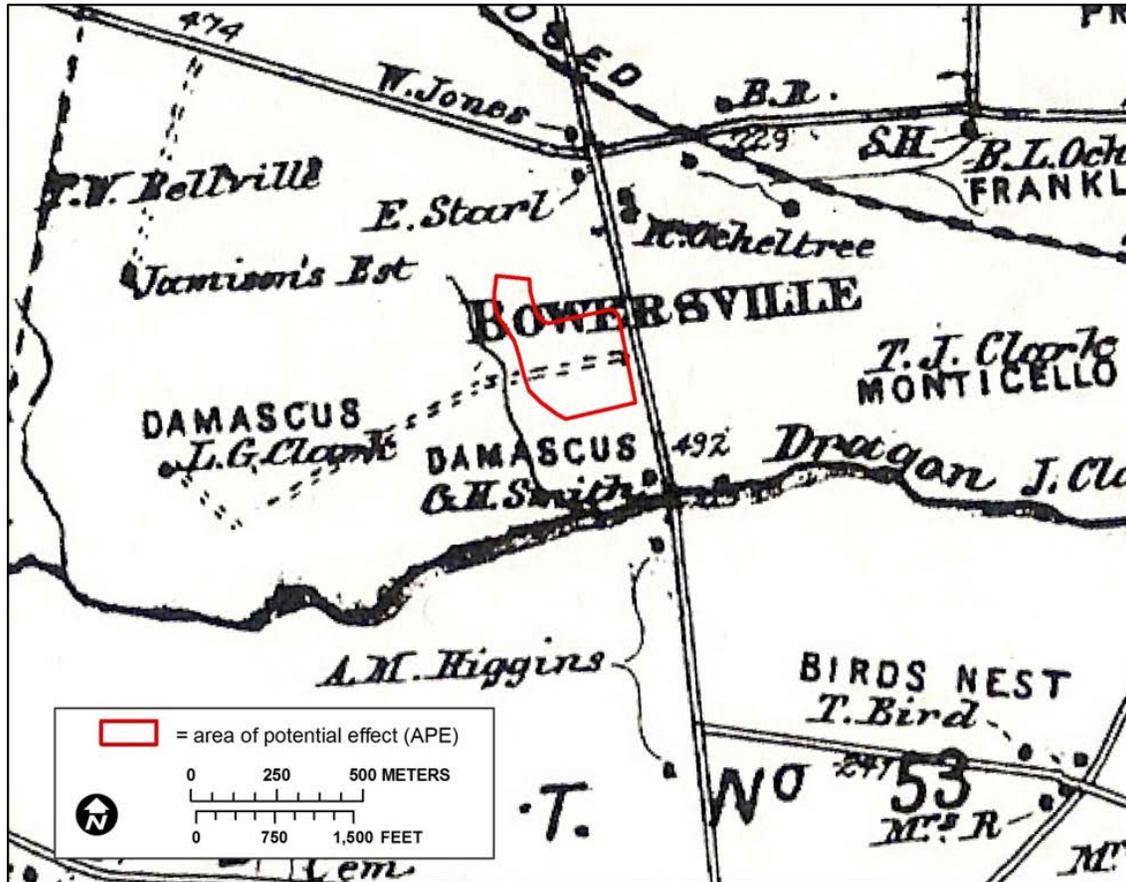


Figure 2-6: The Project Area with Access Drive to Clark Property in 1868.
(Beers 1868)

The deed in which Levi Clark conveyed land to Charles Vanhekle in trade for the above road’s land, also dated August 26, 1822, was never recorded, according to a later deed. However, later deeds mention that the parcel was a 7-acre lot of wetlands known as “the Silver Run Cripple,” on both sides of Silver Run. This 7-acre parcel is probably part of the wooded strip to the west of the current project area.

In 1833, Charles Vanhekle purchased approximately 14 acres of land from Levi Clark, on the south side of the road that Clark had purchased of Vanhekle in 1822; this road led from the State Road (Dupont Highway) to “Levi Clark’s dwelling house” (NCCDB R(4):178). The conveyed tract was bounded on the east by the State Road, on the south by Dragon Run, and on the west by a ditch made as a line between this tract and the Broom lot, and by a fence line of a lot formerly purchased of Clark (perhaps the missing 1822 deed’s lot). Vanhekle agreed not to build a “Dwelling House on any part of the

above described property under the penalty of Two hundred dollars.” The northern portion of this 14-acre parcel would therefore overlap the approximate southern half of the project area (see Figure 2-6, Beers 1868).

Charles Vanhekke was still a farmer living in Red Lion Hundred in 1839 when he sold the estate to Susan E. Porter, a widow from the city of Wilmington (NCCDB C(5):296). The 97 acres conveyed included the 76 acres Vanhekke had inherited, the 14 acres he had purchased from Levi Clark in 1833, and the 7 acres traded for with Clark in 1822. The sale price paid by Mrs. Porter was 5,000 dollars. Susan E. Porter was reportedly the daughter of Jesse Higgins, the first known owner of the project area parcel (Lester n.d.:2). Susan Elizabeth Higgins married Henry Fromberger in 1811; Henry died in 1818. Susan remarried in 1820 to Robert Porter; Robert passed away in 1832. Susan E. Porter died intestate by 1841, leaving two children from her first marriage as her heirs: John H. Fromberger and Susan M. Fromberger. John was a physician living in Red Lion Hundred, reportedly in the brick home near Dragon Creek known as Damascus; this was the property to the south of his late mother’s 97-acre estate. It is possible that Susan E. Porter had been residing in the house on the 97 acres before her death (Lester n.d.:2). Her daughter and heir, Susan M. Fromberger, was a resident of the city of Wilmington in 1841. The heirs sold their inherited property of 97 acres (encompassing the 76-, 14-, and 7-acre parcels described previously) to Elijah Start for 5,000 dollars in March of 1841 (NCCDB G(5):80). Start was then a storekeeper living in the town of New Castle, Delaware; his name is mistakenly spelled as “Starl” on nineteenth-century maps.

Elijah Start and his family occupied the house on the project area land parcel for decades. He may have operated a store from a portion of the house, since it was situated at a crossroads of the State Road (DuPont Highway) and Jester’s Corner Road (now Wrangle Hill Road). Elijah Start was married to Sarah W., who died in 1865. Elijah died in 1870; he and his wife are buried in St. Georges Cemetery (Lester n.d.:3). Elijah wrote his last will and testament in 1867, in which he left much of his estate to his two daughters and his grandchildren (New Castle County Will Book [NCCWB] B(2):142). One of Elijah’s daughters, Mary Jane, had married Ferdinand Janvier by 1867. Another of Elijah’s daughters, Eliza W., was the wife of Joseph E. Capelle. Elijah Start bequeathed 200 dollars to his granddaughter, Sally W. Janvier, and 100 dollars to another granddaughter, Mary May Janvier (NCCWB B(2):142). To a third granddaughter, Sadie S. Capelle, Elijah left all his “household and kitchen furniture” and his “personal property of that kind used in house or kitchen” (NCCWB B(2):142). Start left to his son-in-law, Ferdinand Janvier:

all that messuage and tract of land in Red Lion Hundred...In trust to hold or sell the same at public or private sale and to execute a deed for conveying the title to the purchaser (said farm not to be sold by said Trustee without the consent in writing of both my daughters Eliza W. and Mary Jane. (NCCDB B(2):142)

Start’s will specified that his daughter Eliza should receive one half of the annual rents and profits of the farm, and his daughter Mary Jane should receive the other half. He

authorized his estate's executor, his son-in-law Ferdinand Janvier, to invest all of the money arising from the sale of the farm on real securities at interest (NCCWB B(2):143). The remainder of Elijah's estate was to be divided equally between his two daughters.

By May 1871, the neighbor to the west of the Start estate, Levi G. Clark, had moved to the city of Wilmington. Clark sold the strip of land containing the private road leading across the Start estate to the Clark house back to the heirs of Elijah Start. The trustee for the heirs, Ferdinand Janvier of Pencader Hundred in New Castle County, paid 35 dollars for the 10 square perches. A new road to the west of the project area would allow for access to the Clark farm from the north or the south, so the long drive from the State Road (DuPont Highway) would no longer be needed.

The Start farm was sold in February 1876 by Ferdinand Janvier, the trustee of Elijah Start's estate, to William J. Marley of White Clay Creek Hundred, New Castle County. Marley paid 8,000 dollars for the 100-acre tract (NCCDB R(10):41). On the very same day, Marley sold the same farm back to Mary Jane Janvier, the wife of Ferdinand Janvier and the daughter of Elijah Start, again for 8,000 dollars (NCCDB R(10):43).

Mary Jane Janvier continued to own the Start family farm for the rest of her life. "F. Janvier" (Ferdinand, her husband) is noted as the owner of the farmhouse on a map from 1881 (Figure 2-7; Hopkins 1881). She died in April 1910 as a resident of Philadelphia, Pennsylvania (Lester n.d.:3). In her will written in 1904, Mary Jane left her 100-acre farm and buildings to be held jointly by her two daughters, Mary May and Katherine J. Janvier (NCCWB B(3):264). The daughters were both single women living in Philadelphia in December 1910 when they sold the farm to William L. Eliason of St. Georges Hundred, New Castle County (NCCDB D(23):368). The sale price was 5,500 dollars for 100 acres. The tract was bounded on the east by the public road leading from Red Lion to St. Georges; on the south by the heirs of the late George Smith and by Dragon Creek; on the west by lands of Thomas Belville and Levi G. Clark; and on the northeast by the public road leading from Bowersville to Jester's Corner.

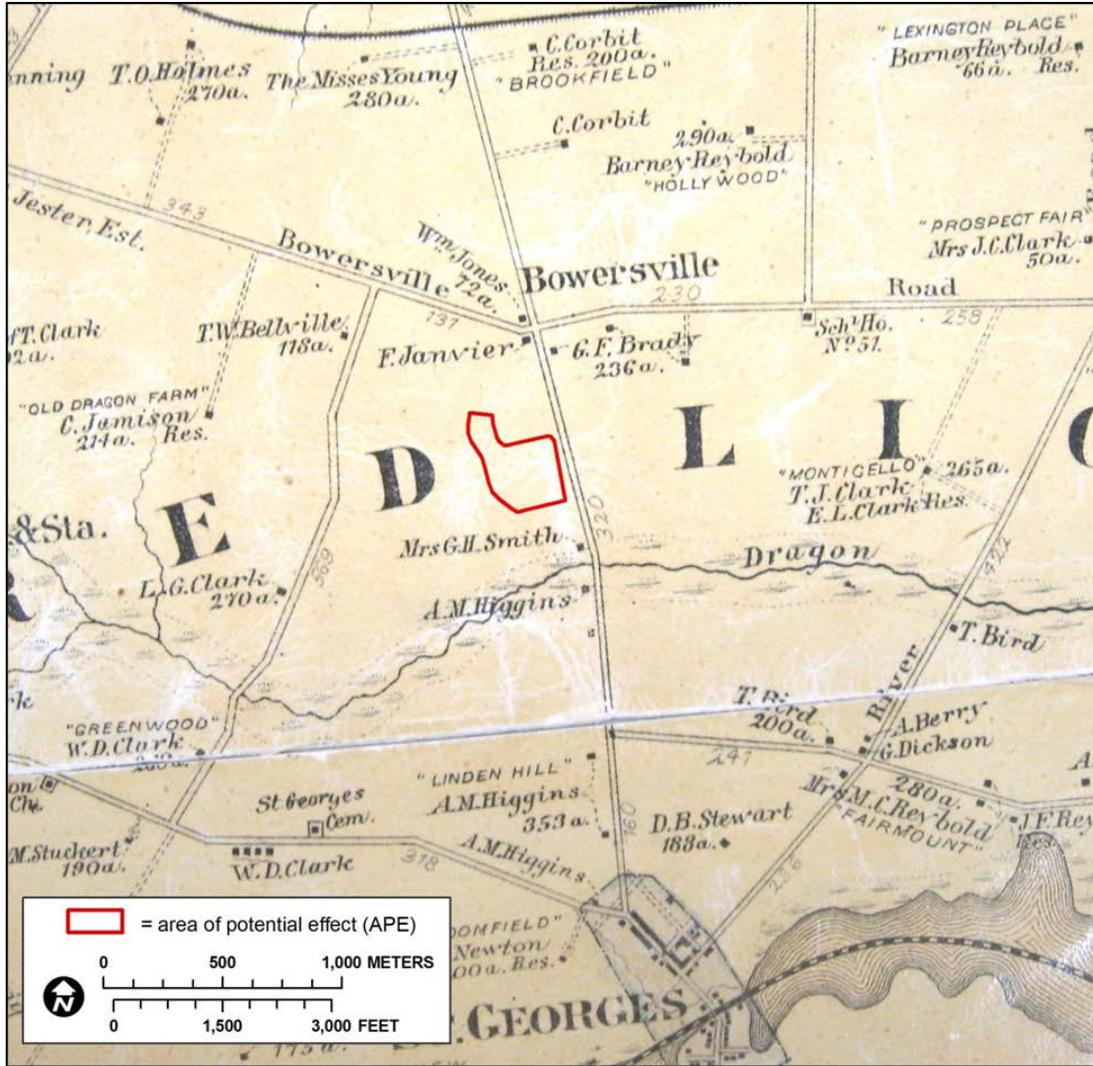


Figure 2-7: The Project Area on a Map from 1881.
(Hopkins 1881)

William L. Eliason and his wife, Bertha T., sold part of their property to the State of Delaware in 1924 for 1 dollar (NCCDB M(32):239). The narrow strip of land was along the western edge of the current State Highway between St. Georges and Tybonts Corner (DuPont Highway) and was to become part of the right-of-way for the widening/dualization of the road. The width of the new right-of-way was to be 40 ft west of the center line of the existing state highway, and the state obtained 2.220 acres of the farm. The dual lanes of DuPont Highway are visible in an aerial photograph of the Eliason farm in 1937 (Figure 2-8; Delaware DataMIL). The project area is clearly being used as an agricultural field in the 1930s. Beyond the project area, the property's farmstead was connected to the field's northeast corner by a narrow drive just west of DuPont Highway.

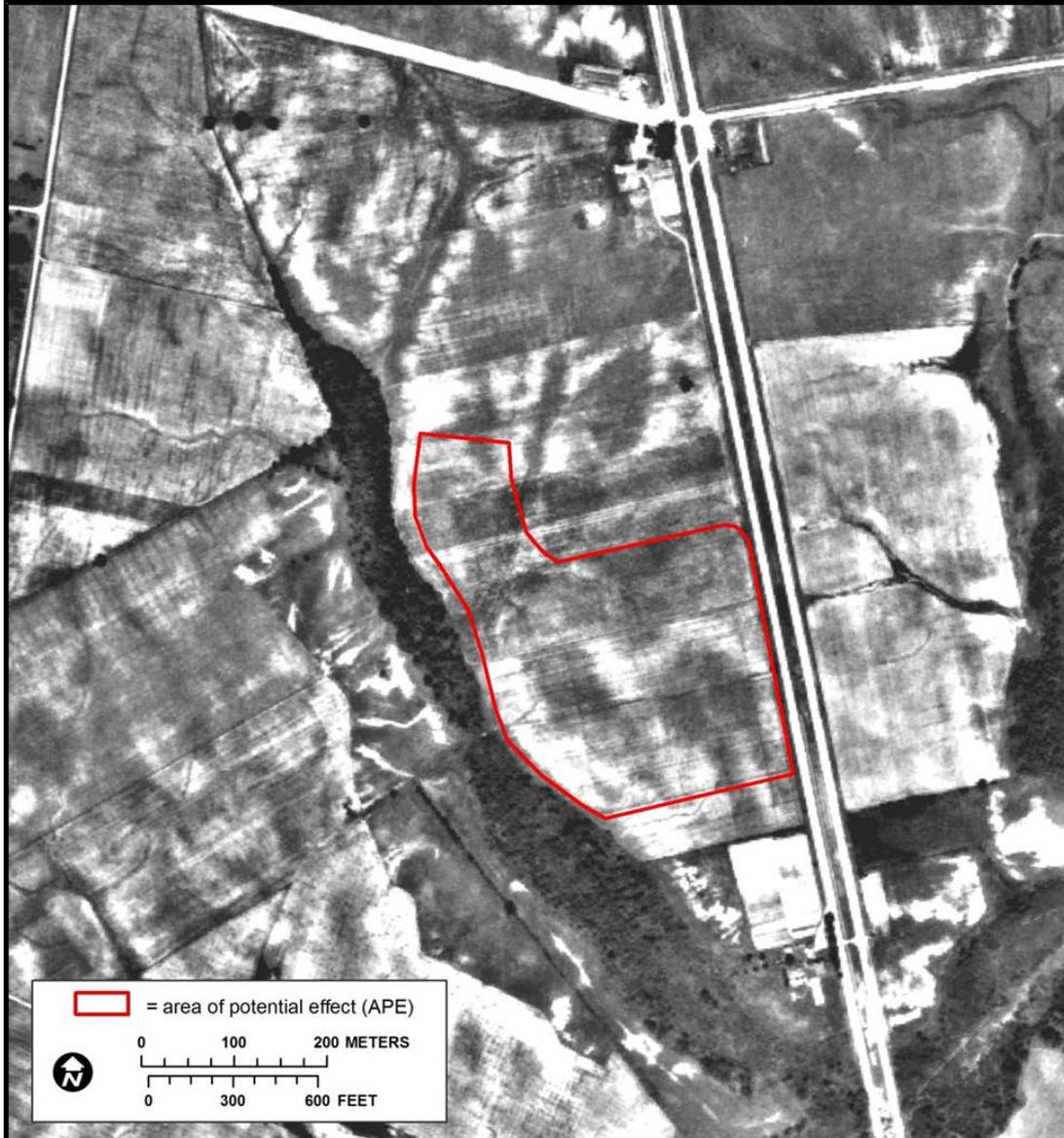


Figure 2-8: Aerial Photograph of the Project Area Farm in 1937.
(Delaware DataMIL 1937)

William Eliason died in Philadelphia in 1940, leaving his estate to his wife, Bertha T. In 1941, Bertha was still a resident of Philadelphia when she sold the 98-acre farm to John T. Hopkins of Elkton, Maryland for 10 dollars (NCCDB P(42):412). John T. and his wife, Florence Hopkins, reportedly lived on the farm (Lester n.d.:3). After John Hopkin's death in 1944, Florence inherited the property as his sole heir (NCC Will Record 078849). A daughter of John and Florence Hopkins, Florence H. Walker, then moved to the farm with her husband, Norman Walker. The couple reportedly lived in the farmhouse with Florence Hopkins and Norman farmed the land (Lester n.d.:3). Florence Hopkins passed away in 1971 and the property was inherited by her daughters, Charlotte H. Bevis and Florence H. Walker (NCC Will Record 58272).

In 1992, the State of Delaware acquired a portion of the farm for the construction of State Route 1, paying 1,000 dollars. The project area was still undeveloped farmland in 1993. State Route 1, a limited-access highway, has since been constructed to the west of the project area and west of Silver Run.

Florence H. Walker and her sister Charlotte H. Bevis sold a 3.68-acre portion of the farm to the State of Delaware in 1998 (NCCDB 2531:177) for 1 dollar. The land was part of the right-of-way for construction of a transportation-related facility named Transportation Management Center Access (TMCA). Late in 2000, the sisters conveyed the rest of the farm to the State of Delaware for 925,000 dollars (NCCDB 2939:108). The tract was bounded on the west by the right-of-way for State Route 1, on the north by State Route 72 (Wrangle Hill Road), and on the east by the west side of US 13 (DuPont Highway).

A community yard waste site was established within part of the project area within the last decade; this facility was the first of its kind in the county. A public hearing was held in February 2007 regarding a special use to allow a mulching business, an agricultural use, on a property zoned Suburban. The permit was approved in June 2007 and the yard waste facility is currently in use (Figure 2-9, New Castle County Board of Adjustment 2007). The community is allowed to drop off yard waste which is made into mulch; the mulch is then available to the community for free. Vehicular access to the facility is via a scraped earth road leading south from a paved access drive leading from DuPont Highway. The facility is currently partially fenced, with young trees or bushes growing in one corner. It appears that some grading may have taken place between the access drive and the facility; a backhoe was parked within the facility during an informal site visit in April 2012.

The project area is included in the 60.60-acre parcel #1202000003, currently owned by the Delaware Transit Corporation of the State of Delaware. While the project area is currently undeveloped land, except for the partially-fenced yard waste operations area, a number of buildings and parking lots have been added to the rest of the parcel, immediately north of the project area. The closest development is a paved access road, extending from the western edge of DuPont Highway along the northeastern edge of the project area; this J-shaped road is excluded from the boundaries of the tax parcel and is owned by DelDOT. Immediately to the north of the J-shaped road are a storm water management pond and a paved parking lot for commuters that are part of a DART system complex.

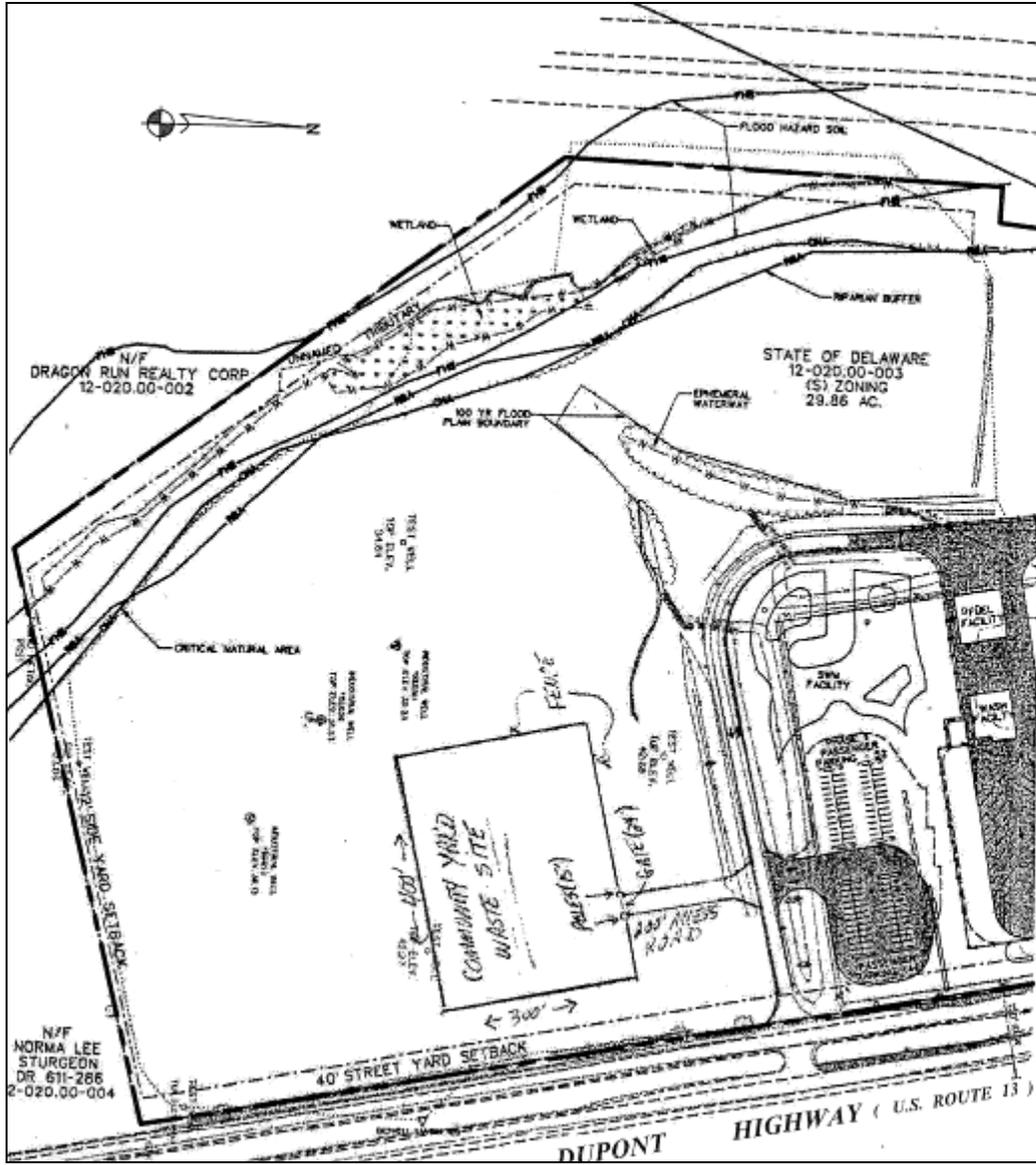


Figure 2-9: Plat of Proposed Community Yard Waste Site in Project Area in 2007. (New Castle County Board of Adjustment 2007)