IV. ETHNOBOTANICAL INVESTIGATIONS

A. HISTORIC LANDSCAPE ASSESSMENT

1. Natural Setting

The John Henry Site (7NC-J-223) consists of approximately 1.1 acres of mostly wooded land. The site is situated in southern New Castle County, Delaware, within the Drainage Divide zone of Delaware's Upper Atlantic Coastal Plain. Located at the southeast corner of U.S. Route 13 and Blackbird Landing Road at Pine Tree Corners, the site is bounded by U.S. Route 13 to the west, Blackbird Landing Road on the north/northeast, and active residential properties to the south. The project area has been significantly impacted by the construction and maintenance of U.S. Route 13: Modifications to the historic landscape have occurred due to the reconfiguration of topographic and surface water configurations and the relocation of the domestic structure during the early twentieth century.

The topography throughout the John Henry Site is gently sloping, and generally representative of the Atlantic Coastal Plain. Elevations within the project area range from 18 to 21 meters (60 to 70 feet) above mean sea level (amsl). Highest elevations occur at the house site at the northernmost limit of the project area. Lowest elevations are found within the wooded wetland zone at the southern periphery of the project area. This depression wetland is probably the much-altered remains of a groundwater-interfacing vernal pool called a Delmarva bay. These isolated and diminutive ponds are prevalent in the immediate vicinity of the subject property and, in a larger landscape context, are found in clusters and bands throughout the central backbone of the Delmarva peninsula. Because the ponds are fed by rainwater and groundwater, and have no significant watershed, they are often dry in late summer and autumn and full in the spring, rising and falling with groundwater levels. The vegetation growth pattern is often consequently divided into concentric rings in the pond, delineating the wetter and drier microclimates.

Most of the Delmarva bays in Delaware have been altered to some degree. The example at the John Henry Site has been entirely altered by agricultural practices and does not retain the singular vegetative character of this unusual landform. Although these pond features are classified as geomorphic anomalies, they are probably derived from ancient dune and swale systems associated with rising and falling Atlantic sea levels. Local tradition, however, held that the depression ponds were formed during the death throes of whales left stranded far from the sea by the recession of the biblical flood, and they are still called "whale wallows" by some local people. The John Henry Site lies within the Appoquinimink Drainage.

Soils at the John Henry Site are characterized by the Matapeake-Sassafras-Urban Land Association (Matthews and Lavoie 1970). Soil series mapped within the project area include Sassafras sandy loam, 2 to 5 percent slopes, moderately eroded. This series consists of deep, well-drained soils common to the uplands of the Coastal Plain in the southern part of New Castle County. Developed in beds of sandy sediments, Sassafras soils once supported a native forest of mixed hardwoods, and today support both forests and agriculture. Sassafras soils are easily

worked, have moderate available moisture capacity, and are well suited to a variety of crop uses. A modified wooded wetland dominates the southern portion of the project area. This area of the site is dominated by a moisture-tolerant deciduous canopy. Hydric soils in this wetland support a variety of hydrophilic plant species.

2. *Landscape Assessment*

Landscape ecology has direct application to archaeological investigations. Many alterations of the landscape are related to human activities, and these activities shape the development of subsequent vegetative communities (Cronon 1983; Watts 1975). Plant associations reflected in each ensuing succession are based on the age of dominant taxa, their rate of growth, their tolerance to growth in the shade, the size of the existing plant community, the composition of plant species present, and the proximity of seed sources (Newmann and Sanford 1987). This approach has a direct application to archaeological investigations at the John Henry Site, augmenting both the archival research and the archaeological field investigations. Assessment of the natural setting provides a persistent, living link between past agricultural and domestic activities, historical references, historical maps, and the physical site as it exists in the present. Appraisal of a site's natural setting helps to target high probability areas for archaeological testing, and strengthens the archaeological research design by providing a critical baseline environmental context.

Evaluation of the environmental setting of the John Henry Site began with a survey of the entire project area on May 12, 1997. This landscape reconnaissance included an examination of topographic features, land relief, and wetlands configuration on historical maps and recent maps from the United States Geological Survey (USGS). In addition to the physical aspects of the local landscape, a detailed survey was made of the biological community of the site. This survey included a comprehensive assessment of plant taxa represented throughout the project area. Particular emphasis was placed on (1) the age and species composition of various vegetational communities to help to establish the successional nature and duration of these plant populations with regard to the history of land use at the site; and (2) cultural signatures persisting in the extant landscape (i.e., apple trees and daffodils). Forest cover type descriptions are based on criteria defined by Eyre (1980) and Ford-Robertson (1971). The measurement of tree species encountered is given in centimeters in diameter at breast height (cmbd). The approximate age and character of vegetative cover and key botanical features are provided below. Both common and scientific names of plant species encountered are included in this report to ensure clarity.

3. *Survey Results*

Survey of the John Henry Site revealed four distinct vegetative or land-use zones (Figure 6). These zones, described as Loci I, II, III, and IV show a history of intensive domestic and agricultural use, with human activities utilizing 100 percent of the project area. Locus I was the house perimeter and the adjacent landscape, Locus II was the rear yard of house, Locus III was the wooded wetland area, and Locus IV was the wooded uplands. The vegetative composition and key landscape features of these are as follows:

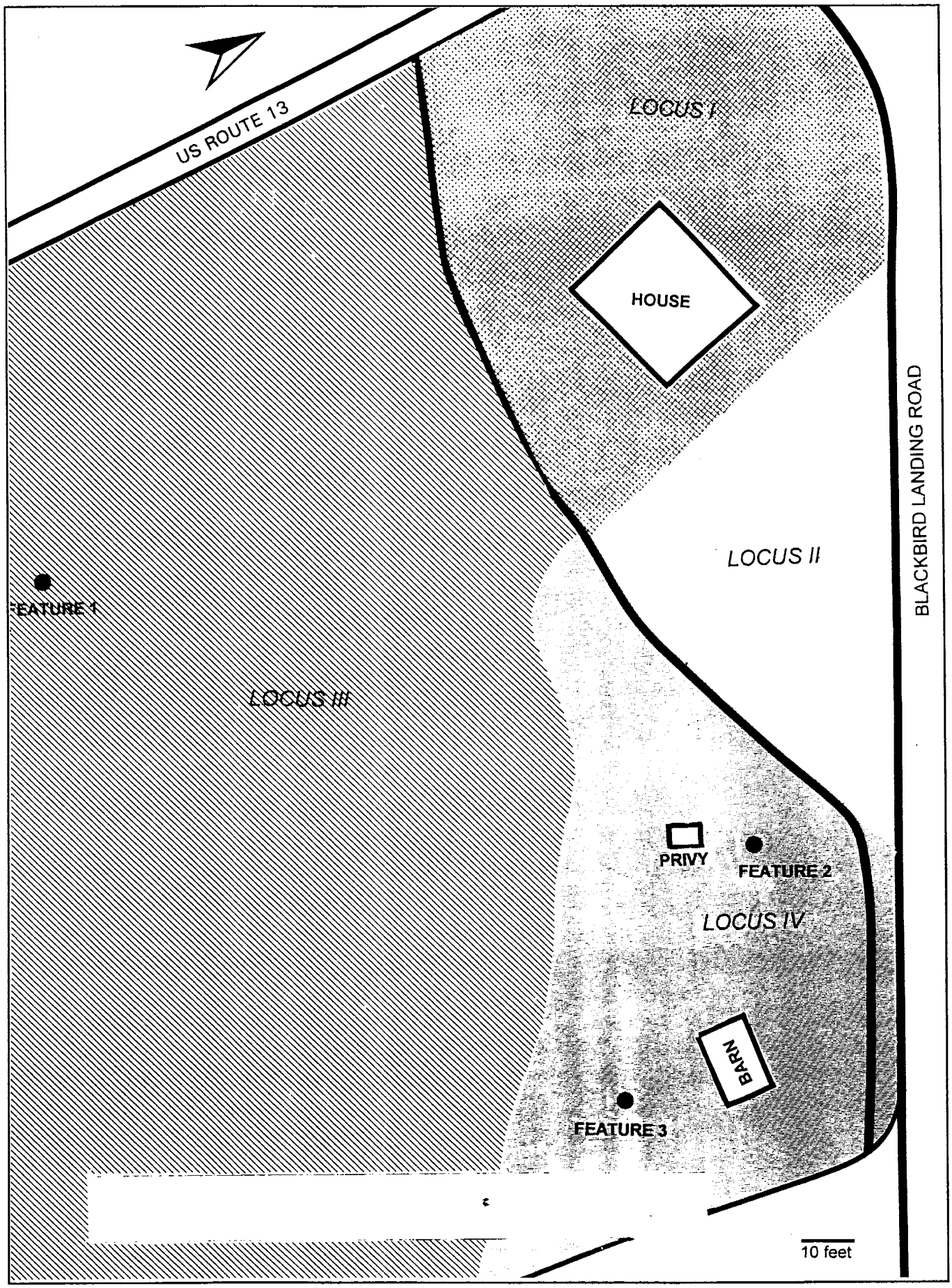

FIGURE 6: Plan of the Landscape at the John Henry Site

LOCUS I. An array of culturally significant plant taxa were identified in close proximity to the John Henry House. Mature shade trees flanked the western limits of the home lot and the southern edge of Locus I. Tree species identified included Norway maple (*Acer platanoides*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), and eastern red cedar (*Juniperus virginiana*). The western edge of the project area supported trees averaging 35-45 years in age. Propagation of these specimens undoubtedly occurred after the relocation of the dwelling across the road from its original location around 1920. The oldest trees identified within the subject property occurred on the west side of the abandoned driveway. Examination of a red maple tree in this area revealed an open growth pattern indicative of development in an open setting (i.e., pasture, maintained yard). This specimen dated to the early twentieth century, and pre-dated the relocation of the house. Once-cultivated shrubs persisted in the landscape on all sides of the standing structure. Lilac (*Syringa* sp.), rose of sharon (*Hibiscus syriacus*), viburnum (*Viburnum* sp.), spirea (*Spirea* sp.), and roses (*Rosa* sp.) revealed that the late historic occupants of the John Henry House had had an aesthetic sense, and surplus capital (at least in the form of land) to expend on ornament. Herbaceous ornamental plants including mullein pink (*Lychnis coronaria*), Spanish bayonet (*Yucca filamentosa*), sedum (*Sedum* sp.), and daffodil (*Narcissus pseudo-narcissus*) had also naturalized around the houselot.

Vegetation mapped within Locus I dated to after the relocation of the structure, around 1920, and indicated that this area had long functioned as a houselot. Persistent ornamental plants were concentrated on the western side of the house, and along the abandoned driveway. This arrangement indicated that the twentieth-century landscape at John Henry House had been designed and maintained to maximize the appearance of the public facade of the site. Unfortunately, the vegetation extant in Locus I revealed little regarding the late nineteenth- and early twentieth-century landscape of the site. Relocation of the John Henry House structure, and twentieth-century road modifications, had effectively erased any earlier cultural signatures from the vegetative landscape. It has been asserted that an emphasis on ornament and public view is unusual among House and Garden sites in Central Delaware, and it is probable that earlier residents of the site did not maintain the same level of ornament as twentieth-century tenants.

LOCUS II. The rear yard of the house was an open area dominated by weedy herbaceous cover maintained through periodic mowing. Species mapped for this area included a mixture of native and invasive ruderal species including dandelion (*Taraxacum officinale*), henbit (*Lamium amplexicaule*), horsemint (*Monarda punctata*), English plantain (*Plantago virginica*), knotweed (*Polygonum* sp.), dock (*Rumex crispus*), wild onion (*Allium vineale*), clover (*Trifolium* sp.), and chickweed (*Stellaria media*). The wooded edges of Locus II were dominated by red maple trees (*Acer rubrum*), with Virginia creeper (*Parthenocissus quinquefolia*) and honeysuckle (*Lonicera japonica*). Persistent culturally significant vegetation included feral blackberries (*Rubus flagellaris*) and rose (*Rosa* sp.).

Maintenance of Locus II in open-field vegetation had limited natural vegetation series from developing, and prevented interpretation of historic land use based on survey results. It is likely that the rear yard of John Henry Site had long served as an intensively utilized activity area for domestic and agricultural activities at the site. The location of this loci between the domestic and

horticultural/agricultural centers of the property pointed to its probable use as a processing area for farm products, and an open-air work area for domestic activities such as laundering. The level topography and drier soils characterizing Locus II would also have supported its function as a vegetable garden.

LOCUS III. This probable Delmarva Bay remnant is characterized by moisture-tolerant forest cover and a moderate understory. Forest cover in this area was dominated by red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*) (Ferguson 1959) with an average age of 35 years. Extant herbaceous taxa indicative of wetland setting included jewel weed (*Impatiens pallida*) and various water-tolerant grasses (Gramineae). The northern edge of Locus III flanked the northbound lane of U.S. Route 13 and the open edge supported a distinct plant community dominated by lush field-edge vegetation, including sassafras (*Sassafras albidum*), blackberry (*Rubus* sp.), maples (*Acer* sp.), honeysuckle (*Lonicera japonica*), poison ivy (*Rhus radicans*), and trumpet creeper (*Campis radicans*). The large structural timber which persisted on the western periphery of Locus III and the project area might reveal the use of the area for agricultural activities.

House and Garden occupants maximized the productive potential of the environmental resources at hand, maintaining an intensive self-sufficiency by raising livestock, poultry, and vegetable and fruit crops on very limited ground. The highly altered natural state of Locus III, the persistence of agriculturally related architectural features, and its proximity to other activity areas at the site support the hypothesis that this zone was used as a livestock paddock for swine or cattle. Throughout the Delmarva Peninsula, it was common practice to keep livestock (especially pigs) in the otherwise "useless" wetland areas.

It was evident that Locus III had endured considerable alteration during recent times as a result of road construction and maintenance. These activities undoubtedly affected the historically imposed artificial drainage systems which may have made this land more employable to the residents of the site.

LOCUS IV. Survey of vegetation and landscape features within Locus IV revealed that this densely wooded area of the site served as the agricultural center of operations. Key cultural signatures within this locus included persistent apple trees (*Pyrus malus*), a grove of black locust (*Robinia pseudoacacia*), possible gate posts, and sprouted black locust fence posts in association with other standing and truncated fence posts. Forest cover in this area was dominated by sweet gum (*Liquidambar styraciflua*), black locust (*Robinia pseudoacacia*), wild cherry (*Prunus serotina*), and red mulberry (*Morus rubra*). All of these species are common successional forest vegetation over abandoned agricultural land. The general forest cover of Locus IV averaged 35 to 40 years in age. Additional cultural signatures within the landscape of Locus IV included rose of sharon (*Hibiscus syriacus*), rose (*Rosa* sp.), soapwort (*Saponaria officinalis*), and a line of deciduous tree stumps along Blackbird Landing Road. Structural remains of a barn and privy were also encountered.

Table 2 is a key to vegetation loci and lanscape features.

TABLE 2 KEY TO VEGETATION LOCI AND LANDSCAPE FEATURES JOHN HENRY HOUSE SITE (7NC-J-223)

LOCUS I: House perimeter and adjacent landscape		
Naturalized Perennials		These persistent perennials relate directly to the historic landscape of the site.
	Spanish bayonet/yucca *(Yucca filamentosa)*	Yucca flanks the northwestern periphery of Locus I and the project area. This species has been cultivated in the eastern states since the nineteenth century and often escapes to old fields, home sites, roadsides—especially in sandy soil (Brown and Brown 1984:341).
	Mullein pink/campion *(Lychnis coronaria)*	A scattered crop of mullein pink has naturalized in the front of the standing structure. This nineteenth- and early twentieth-century garden favorite (Leighton 1987:338) often persists in abandoned domestic settings (Brown and Brown 1984:449).
	Daffodil *(Narcissus pseudo-narcissus)*	A common cultural signature on abandoned historic sites, daffodils are widely naturalized across Locus I.
	Sedum *(Sedum sp.)*	Cultivated variety has naturalized around foundation of standing structure.
Persistent Woody Taxa		Trees, shrubs, and vines enduring in the landscape from historic occupation of Henry House.
	Rose of Sharon *(Hibiscus syriacus)*	This species, introduced before 1790 (Wyman 1969), has been a garden favorite for centuries. The deciduous shrub naturalizes easily and occurs along the Loci I and III interface at the woods edge.
	Lilac *(Syringa sp.)*	Lilac persists along the Rte. 13 frontage of Locus I, and occurs at the gatepost of abandoned driveway. According to Leighton (1987:363-364) many varieties were common in American gardens during the nineteenth century.
	Norway maple *(Acer platanoides)*	Specimens identified along northwest periphery of Locus I and the project area to 20-30 cmdbh. Native across Europe, the Norway maple has been widely planted across the United States. Fast growing, tolerant to smoke and dust.
	Grape *(Vitis sp.)*	Unidentifiable grape varieties naturalized in home lot.
	Viburnum *(Viburnum sp.)*	Viburnum was identified persisting along north side of standing structure. Viburnums were popular shrubs in nineteenth-century gardens (Leighton 1987:364-365), and many varieties were propagated and available.
	Spirea *(Spirea sp.)*	A single, standard spirea endures on the south side of standing structure. These flowery shrubs were popular in nineteenth-century gardens, and many different varieties were available for the home gardener (Leighton 1987:362-363).

TABLE 2 (Continued)

	Eastern red cedar *(Juniperus virginiana)*	Eastern red cedar is renowned for its attractive color, durability, and excellent working qualities. Cedar also possesses a pungent fragrance and reputed insect-repelling properties (Panshin and deZeeuw 1970:499-500). The wood is extremely durable, and historically was the principle taxon for fenceposts and pole-built structures due to its enduring quality in the ground. The lumber has been used in the construction of wardrobes, chests, and closet linings, and for interior finish millwork, doors, and window sashes. Specimens to 25 cmdbh were observed within Locus I.
	Red maple *(Acer rubrum)*	Red maples to 80 cmdbh flank the southern edge of abandoned drive within Locus I. Red maples are native to the forests of New Castle County, Delaware (Tatnall 1946), but have also been highly regarded as ornamental trees since colonial times, popular for their wood, sap, blossoms, and autumn coloring. The wood of the red maple had historic application in the manufacturing of furniture, boxes, crates, wall paneling, and food containers (Panshin and deZeeuw 1970:607).
	Rose *(Rosa sp.)*	A variety of indistinguishable roses flank the southern side of abandoned driveway.
	Climbing rose *(Rosa sp.)*	Old-fashioned climbing rose flanks the entrance to abandoned driveway, growing around gatepost. Variety not distinguishable.
	Silver maple *(Acer saccharinum)*	Silver maples trees grow along south side of abandoned drive. This native species is commonly used as a landscape feature. Specimens identified measure to 25 cmdbh. Silver maple lumber is employed for a variety of construction uses.
Invasive Weedy Annuals		These species quickly colonize abandoned ground, waste places.
	Buttercup *(Ranunculus sp.)*	Buttercup species are common throughout open, sun-exposed areas of Locus I. Mature fruits needed for species identification unavailable at time of survey.
	Grasses, various *(GRAMINEAE)*	Various native and non-native grasses were identified throughout Locus I.
	Sedges, various *(CYPERACEAE)*	A variety of sedges were identified throughout open, sunny areas of Locus I.
	Henbit *(Lamium amplexicaule)*	Common throughout.
	Japanese knotweed *(Polygonum cuspidatum)*	This highly invasive non-native species (Brown and Brown 1984:406) is well established on the southwest side of abandoned driveway.
	Horsemint *(Monarda punctata)*	Common to shady areas of Locus I.

TABLE 2 (Continued)

	Common milkweed *(Asclepias syriaca)*	This most common milkweed species is an early colonizer of abandoned fields and waste places. Seeds wind dispersed, facilitating the spread of the species. Poisonous to livestock if eaten (Brown and Brown 1984:752).
	Dandelion *(Taraxacum officinale)*	This ubiquitous weed is also one of the most useful of all European herbs. Greens and roots can be eaten as a potherb, or fresh as a salad green; roots provide a coffee substitute; all parts can be used in the production of fermented beverages. Medicinal uses include application as an effective diuretic and to treat liver ailments (Stuart 1987:270). Occurs throughout open areas of Locus 1.
Hardy/Invasive Woody Species		These plants constitute an early successional vegetation stage in the open landscape of Locus I.
	Poison ivy *(Rhus radians)*	Common throughout.
	Honeysuckle *(Lonicera japonica)*	The species was first imported from Asia as an ornamental, which became a widely planted and popular landscaping plant in the nineteenth-century domestic landscape (Downing 1847, 1859). Honeysuckle has been common intruder to the natural landscape since 1900 (Brown and Brown 1972:304).
	Red maple *(Acer rubrum)*	Saplings common. Red maples are native to the forests of New Castle County, Delaware (Tatnall 1946), but have also been highly regarded as ornamental trees since colonial times, popular for their wood, sap, blossoms, and autumn coloring. The wood of the red maple had historic application in the manufacturing of furniture, boxes, crates, wall paneling, and food containers (Panshin and deZeeuw 1970:607).
	Trumpet creeper *(Campis radians)*	This native trumpet creeper is a tenacious vine growing thick on the southwest side of abandoned driveway. Scott extolls the beauty of the scarlet trumpet flowers to the nineteenth-century horticultural landscape, and recommends them as a "superb vine to grow on old evergreen trees" (Scott 1879:249).
	Staghorn sumac *(Rhus typhina)*	This common old field species is well established on the sunny northernmost limits of Locus I.
	Devils walkingstick *(Aralia spinosa)*	Dominates the northern limits of Locus I and the project area. A common colonizer of open waste places and barren ground (Brown and Brown 1972:239).
	Common greenbriar (Smilax rotundifolia)	Common throughout.
	Norway maple *(Acer platanoides)*	Pioneer specimens propagated from large Norway maples described above. Saplings and young trees measure <10 cmdbh.

TABLE 2 (Continued)

	Tulip poplar *(Liriodendron tulipifera)*	Pioneer specimens measuring <10 cmdbh.
Architectural/Agricultural Remnants		
	Henry House	Standing structure.
LOCUS II: Rear yard of house—open landscape		
Herbaceous Cover		
	Various grasses *(GRAMINEAE)*	Various grasses dominate the open areas of Locus II.
	Japanese knotweed *(Polygonum cuspidatum)*	A dense thicket of Japanese knotweed dominates the forest edge and understory along southern side of abandoned driveway. This species has recently become naturalized throughout the Coastal Plain, and is extremely invasive.
	Dandelion *(Taraxacum officinale)*	This ubiquitous weed is also one of the most useful of all European herbs. Greens and roots can be eaten as a potherb, or fresh as a salad green; roots provide a coffee substitute; all parts can be used in the production of fermented beverages. Medicinal uses include application as an effective diuretic and to treat liver ailments (Stuart 1987:270). Common throughout Locus II.
	Henbit *(Lamium amplexicaule)*	Common weed species throughout Locus II.
	Horsemint *(Monarda punctata)*	This weed species is common throughout Locus II.
	English plantain *(Plantago virginica)*	This is a prevalent species over all open areas of Locus II. English plantain was naturalized from Europe and now one of our most troublesome weeds in lawns, meadows, and pastures.
	Knotweed *(Polygonum aviculare)*	This weedy annual is prevalent throughout open areas of Locus II.
	Daisy family *(COMPOSITAE)*	Various members of this family common throughout.
	Curled dock *(Rumex crispus)*	Common throughout. This naturalized alien perennial is a troublesome weed in grain fields, meadows, and lawns (Brown and Brown 1984:399). Historically, the species had many uses: As a dyeplant; medicinally as a purgative, cholagogue, tonic, and astringent; and edible when the young leaves are boiled as a potherb (Stuart 1987: 256).
	Wild onion *(Allium vineale)*	Naturalized from Europe: common weed to forests, fields, meadows, and pastures. Gives unpalatable flavor to milk if eaten by cows.

TABLE 2 (Continued)

	Buttercup *(Ranunculus sp.)*	Common throughout sunny, open areas of Locus II. Mature fruits are needed for species identification, and were unavailable at time of survey.
	Various knotweeds *(Polygonum sp.)*	Common throughout forest margins and open areas of Locus II.
	Clover, various *(Trifolium sp.)*	Clover common throughout open, sunny areas of Locus II.
	Chickweed *(Stellaria media)*	This vigorous annual is common throughout the loci. The species was historically used as chicken feed or forage, and used as a salad herb or cooked vegetable. Medicinal applications developed in the southern United States after 1828, specifically as an expectorant, emetic, purgative, laxative, and sialogogue (Stuart 1987:267).
Colonizing Woody Taxa		
	Red maple *(Acer rubrum)*	Red maples to 30 cmdbh occur at the periphery of Locus II. Red maples are native to the forests of New Castle County, Delaware (Tatnall 1946), but have also been highly regarded as ornamental trees since colonial times, popular for their wood, sap, blossoms, and autumn coloring. The wood of the red maple had historic application in the manufacturing of furniture, boxes, crates, wall paneling, and food containers (Panshin and deZeeuw 1970:607).
	Virginia creeper *(Parthenocissus quinquefolia)*	This native vine was highly acclaimed as an ornamental in the nineteenth century (Emerson 1887; Henderson1887). Occurs throughout Locus II.
	Honeysuckle *(Lonicera japonica)*	The species was first imported from Asia as an ornamental, which became a widely planted and popular landscaping plant in the nineteenth-century domestic landscape (Downing 1847, 1859). Honeysuckle has been common intruder to the natural landscape since 1900 (Brown and Brown 1972:304).
Persistent cultural vegetation		The following plants persist from the historic landscape of the site.
	Blackberry *(Rubus flagellaris)*	Common across Locus II.
	Rose *(Rosa sp.)*	Various rose species persist across Locus II. Varieties not distinguishable.
LOCUS III: Wooded wetlands—frequently inundated area		
Woody species		General forest cover of the area, including understory, shrubs, and vines.

TABLE 2 (Continued)

	Box elder *(Acer negundo)*	Tolerant of wet soils, box elder are native deciduous trees with little economic value (Brown and Brown 1972:216-217). Common throughout Locus III in forest canopy and as an understory in open areas.
	Poison ivy *(Rhus radians)*	Common throughout.
	Red maple *(Acer rubrum)*	Red maples dominate the woodland. Specimens to 30 cmdbh; saplings colonizing Rte. 13 (northbound) forest edge. Red maples are native to the forests of New Castle County, Delaware (Tatnall 1946), but have also been highly regarded as ornamental trees since colonial times, popular for their wood, sap, blossoms, and autumn coloring. The wood of the red maple had historic application in the manufacturing of furniture, boxes, crates, wall paneling, and food containers (Panshin and deZeeuw 1970:607).
	Silver maple *(Acer saccharinum)*	Silver maples are common throughout Locus III, measuring to 25 cmdbh. This native species is commonly used as a landscape feature. Silver maple lumber is employed for a variety of construction uses (Panshin and deZeeuw 1970:605-607).
	Viburnum *(Viburnum sp.)*	Understory taxa common throughout Locus III.
	Black locust *(Robinia pseudoacacia)*	Historically, this medium-sized leguminous tree had a variety of important uses for agriculture. The wood is unsurpassed for fenceposts, as it resists rot in contact with the ground. Locust wood was also used to manufacture durable tools and tool handles. The wood of the locust tree is hard, strong, very durable and makes excellent fuel. The tree produces edible flowers in April, and the ensuing young pods are also edible. Medsger (1966:121) states that the seeds of the black locust were gathered and cooked (like peas or beans) by Native Americans. Specimens observed to 25 cmdbh.
	Sweet gum *(Liquidambar styraciflua)*	Sweetgums are a dominant forest tree within Locus III, growing to 35 cmdbh. These moisture tolerant trees thrive in wetland conditions.
	Norway maple *(Acer platanoides)*	Trees measuring to 25 cmdbh. Native across Europe, the Norway maple has been widely planted across the United States. Fast growing, tolerant to smoke and dust.
	Fox grape *(Vitis lambrusca)*	This native wild grape is common throughout Locus III.
	Honeysuckle *(Lonicera japonica)*	Naturalized since 1900 (Brown and Brown 1972:304), the species was first imported from Asia in as an ornamental, which became a widely planted and popular landscaping plant in the nineteenth-century domestic landscape (Downing 1847, 1859).

TABLE 2 (Continued)

	Trumpet creeper *(Campis radians)*	Dominates forest fringe along Rte. 13 (northbound). This native trumpet creeper is a tenacious vine. Scott extolls the beauty of the scarlet trumpet flowers to the nineteenth-century horticultural landscape, and recommends them as a "superb vine to grow on old evergreen trees" (Scott 1870:249).
	Wild cherry *(Prunus serotina)*	Young cherry trees occupy the forest fringe along Rte. 13 (northbound).
	Sassafras *(Sassafras albidum)*	Saplings common along Rte. 13 (northbound) wood edge.
	Blackberries *(Rubus sp.)*	Frequent throughout where sunlight penetrates, especially along forest edge at Rte. 13.
	Virginia creeper *(Parthenocissus quinquefolia)*	This native vine was highly acclaimed as an ornamental in the nineteenth century (Emerson 1887; Henderson1887). Common along open edges of Locus III.
	Eastern red cedar *(Juniperus virginiana)*	Eastern red cedar trees are fairly common within Locus III. Eastern red cedar is renowned for its attractive color, durability, and excellent working qualities. Cedar also possesses a pungent fragrance and reputed insect-repelling properties (Panshin and deZeeuw 1970:499-500). The wood is extremely durable, and historically was the principle taxon fenceposts and pole-built structures due to its enduring quality in the ground. The lumber has been used in the construction of wardrobes, chests, and closet linings, and for interior finish millwork, doors, and window sashes.
Herbaceous vegetation		
	Japanese knotweed *(Polygonum cuspidatum)*	Spreading south from southwest side of abandoned driveway (Locus I)
	Peppermint *(Mentha piperita)*	Common to wet areas (ditch) of forest fringe along Rte. 13 (northbound).
	Various grasses *(GRAMINEAE)*	Various native and exotic grass species occur throughout Locus III.
	Jewel weed *(Impatiens pallida)*	A common plant to moist creek banks and wetland forests, jewel weed is a prevalent species throughout Locus III.
	Poke *(Phytolacca americana)*	Common throughout loci where sun is available. This common perennial herb is native to North America with numerous medicinal, dye and food uses. Historically used as an emetic and as a remedy for venereal disease. The young shoots can be boiled as a vegetable. Colorant made from the berries. Mature plant is toxic and should be handled with care. (Stuart 1987:237-238).

TABLE 2 (Continued)

Architectural/Agricultural Remnants		
Fea. 1	Vertical structural post with treenails	A single, isolated structural member persists at the southern limits of Locus III and the project area. Analysis of wood fibers from the post identify it as American chestnut *(Castanea dentata)*, historically an important and favored wood for post and timber frame construction (Panshin and deZeeuw 1970:559-561).
LOCUS IV: Wooded "uplands"		
Woody Vegetation		Including dominant forest cover, understory, and vining plants.
	Black locust *(Robinia pseudoacacia)*	Measuring 15-45 cmdbh, a distinct grove of black locust trees dominate central portion of Locus IV—undoubtedly the result of sprouting of locust fenceposts, and ensuing natural propagation. Larger (30-45 cmdbh) black locusts dying out.
	Sweet gum *(Liquidambar styraciflua)*	To 35 cmdbh. A dominant cover tree around the southern periphery of Locus IV.
	Wild cherry *(Prunus serotina)*	A community of large wild cherries (to 50 cmdbh) flank the western limits of Locus IV along periphery of the project area. These mature specimens reflect development in crowded forest conditions rather than open field habit.
	Apple *(Pyrus malus)*	Two domestic apple trees persist, measuring 20 and 30 cmdbh. These trees are open and spreading in habit, and suggest their development in an open setting. Varieties not distinguishable.
	Rose *(Rosa sp.)*	Various cultivated rose species remnants persists on the periphery of Locus IV. Varieties not distinguishable.
	Rose of Sharon *(Hibiscus syriacus)*	This species, introduced before 1790 (Wyman 1969), has been a garden favorite for centuries. The deciduous shrub naturalizes easily and occurs within Locus IV at the woods edge.
	Red maple *(Acer rubrum)*	Maples are a dominant tree species along the interface with Locus III where soils are moist and elevations lower. Trees to 30 cmdbh. Red maples are native to the forests of New Castle County, Delaware (Tatnall 1946), but have also been highly regarded as ornamental trees since colonial times, popular for their wood, sap, blossoms, and autumn coloring. The wood of the red maple had historic application in the manufacturing of furniture, boxes, crates, wall paneling, and food containers (Panshin and deZeeuw 1970:607).
	Fox grape *(Vitis lambrusca)*	Fox grape is common along the edges of Locus IV where sun exposure is adequate. Vines estimated to 20 years old.
	Poison ivy *(Rhus radians)*	Poison ivy is prevalent along open edges of Locus IV (especially the northern periphery), and scattered moderately throughout.

TABLE 2 (Continued)

	Multiflora rose *(Rosa multiflora)*	This widely naturalized Eurasian species is common along Blackbird Landing Road at the periphery of Locus IV. Multiflora rose was first imported as a root stock for grafting cultivated roses; these often sprout below the graft, replacing the cultivated variety (Brown and Brown 1972:170), and may represent a "feral" cultural signature from past horticultural activities at Henry House.
	Blackberry/raspberry *(Rubus sp.)*	Berry thickets predominate the edge of Locus IV along Blackbird Landing Road. These plants may represent enduring feral specimens, or wild brambles propagated by songbirds.
	Red mulberry *(Morus rubra)*	Mulberry seedlings identified along Blackbird Landing Road. Mature trees bear an edible multiple fruit which ripens in late June. The fruits are tasty and useful in jams, jellies, preserves, and pies. In the absence of mature trees in the project area, these specimens may represent newcomers to the landscape—recently propagated by birds.
	Honeysuckle *(Lonicera japonica)*	Honeysuckle is common throughout the exposed "edge" regions of Locus IV. The species was first imported from Asia in as an ornamental, which became a widely planted and popular landscaping plant in the nineteenth-century domestic landscape (Downing 1847, 1859). Honeysuckle has naturalized since 1900 (Brown and Brown 1972:304),
	Deciduous stumps	Large (to 80 cm in diameter) tree stumps are evident along the wooded edge flanking Blackbird Landing Road. These trees may have been recently cleared by road maintenance or power maintenance operations. The specimens may evidence a former wooded buffer to agricultural areas of the site.
Herbaceous cover		Ruderal and useful species identified.
	Mustards, various *(Brassica sp.)*	Varieties of this weedy annual are common throughout the open edge of Locus IV. Wild mustards (especially field mustard and black mustard *(B. rapa and B. nigra)*) provide edible field greens, and the seeds may be ground for use as table mustard.
	Vetch *(Vicia sp.)*	Multiple species identified along open edge of Locus IV. Vetch is planted as a forage crop for livestock.
	Grasses, various *(GRAMINEAE)*	Various grasses form the maintained margin along Blackbird Landing Road at the periphery of Locus IV.
	English plantain *(Polygonum lanceolata)*	This is a prevalent species over all open areas of Locus IV. English plantain was naturalized from Europe and now one of our most troublesome weeds in lawns, meadows, and pastures.

TABLE 2 (Continued)

	Soapwort, bouncing bet *(Saponaria officinalis)*	This perennial herb is common along the open edge of Locus IV at Blackbird Landing Road. Soapwort has long been used as a natural soap (its cleaning properties are due to the presence of saponins in the plant). The astringent lather that the plant produces is particularly suitable for cleaning woolen fabric (Stuart 1987:260).
	Wild onion *(Allium vineale)*	Naturalized from Europe, common weed to forests, fields, meadows, and pastures. Gives unpalatable flavor to milk if eaten by cows.
	Dandelion *(Taraxacum officinale)*	This ubiquitous weed is also one of the most useful of all European herbs. Greens and roots can be eaten as a potherb, or fresh as a salad green; roots provide a coffee substitute; all parts can be used in the production of fermented beverages. Medicinal uses include application as an effective diuretic and to treat liver ailments (Stuart 1987:270). Common throughout Locus IV.
Architectural/Agricultural Remnants		
Fea. 2	gate/fenceposts persist	Two fenceposts endure near the wooded edge of Locus IV. Analysis of fibers from these posts identifies them as black locust *(Robinia pseudoacacia)*; historically a preferred tree for fashioning fenceposts due to its durability, strength, and resistance to rot (Panshin and deZeeuw 1970: 598-600).
Fea. 3	sprouted fenceposts/ fenceposts	A line of sprouted fenceposts, standing and truncated posts persist through the southeastern portion of Locus IV in a roughly north/south arrangement.
	Barn	Collapsed agricultural building "barn" located in southern portion of Locus IV.
	Privy	Structural remnants of collapsed privy located in central portion of Locus IV.

B. SOIL FLOTATION

Archaeobotanical investigations were undertaken at the John Henry Site in order to enhance the identification of site function, better understand local subsistence activities, augment reconstruction of the historic landscape, and advance an understanding of the swiftly changing plantation landscape generally and the unique House and Garden culture in particular. Current archaeobotanical investigations at the John Henry Site were designed using a two-phase approach, which began with the field collection, processing, and preliminary assessment of recovered macrobotanical remains from representative cultural contexts at the site. Processing of the complete collection was reserved for possible future work.

The great majority of plant remains deposited at a site decompose quickly, leaving a limited and biased sample of the original vegetative material. This bias is due both to the cultural factors involved in deposition and to the physical factors governing the differential preservation of plants and plant parts deposited (Pearsall 1989). Although the full range of plant remains originally deposited is not accurately represented in the small complement of botanical remains recovered through flotation, significant results can nevertheless be obtained through careful field sampling, adequate flotation processing and analysis, and judicious interpretation of the resulting archaeobotanical data. Where the remains of wild and cultivated food plants from the historic landscape endure, significant dietary reconstruction can be realized through careful interpretation of data obtained through archaeobotanical analysis. An understanding of historic textile manufacturing, medicinal practices, building material selection, and firewood preference is augmented through analysis of archaeobotanical assemblages. Wood remains can also be helpful in exploring past environmental disturbance, and to assist in landscape reconstruction for the period of site occupation.

1. Methodology

During field excavations at the John Henry Site, macrobotanical samples were systematically collected through routine soil sampling. Soil samples were collected from all culture-bearing strata encountered. Soil samples of a standard volume (measuring 2 liters) were retained. Thirty-six soil samples totaling 72 liters were collected. Of these, 10 representative samples from across the site were selected for flotation processing and analysis based on their potential for yielding a representative sample of plant macrofossils enduring at the site (their composition, condition, and frequency). The cultural fill analyzed thus totaled 20 liters.

Soil samples were individually processed using a modified Shell Mound Archaeological Project (SMAP) flotation system (Watson 1976) equipped with 0.30-millimeter fine fraction and 1.6-millimeter coarse fraction screens. The SMAP flotation system facilitates the separation and recovery of organic remains from the soil matrix via agitation in water. Processing results in two fractions of material (heavy and light). Floated portions were air-dried. In order to establish the recovery rate of macrobotanical remains from the John Henry Site using this particular flotation system, the standard poppy seed test (Wagner 1982) was applied. Poppy seeds (*Papaver somniferum*), in measured lots of 50, were added to three of the 10 selected flotation samples

prior to processing. Recovery rates averaged 84 percent. No contamination was observed between samples, and little damage to the poppy seeds was noted.

The heavy flotation fraction contained a great variety of cultural artifacts and geologic material, including woody root fibers (modern), coal and coal clinker, degraded rubber insulation, bottle glass, mammal bone and tooth fragments, and iron hardware. Sample matrices were consistently composed of heavy clay and/or quartzitic gravel. All archaeologically derived plant remains recovered through flotation were combined and passed through a 2-millimeter geological sieve, yielding fractions of two different sizes for analysis. Weights and sample descriptions of the resulting fractions greater than or equal to 2-millimeters and less than 2-millimeters in size were recorded. The charcoal specimens greater than or equal to 2 millimeters were examined under low magnification (10X to 30X) and sorted into general categories of material (i.e., wood, seeds, amorphous charcoal, etc.). Description, count, and weight were recorded for each category of material greater than or equal to 2 millimeters. The fractions less than 2 millimeters in size were examined under low magnification; their general description was recorded and any remains of seeds or cultivated plants were noted.

In order to establish the "general composition" of the John Henry Site samples, identifications were attempted on all seed remains encountered, and on a systematically selected sample of two fragments per flotation sample of wood remains encountered. Identifications of all classes of botanical remains were made to the genus level when possible, to the family level when limited diagnostic morphology was available, and to the species level only when the assignment could be made with absolute certainty. When botanical specimens were found to be in such eroded or fragmentary condition as to prevent their complete examination or recognition, standard general categories were assigned to reflect the degree of identification possible (Pearsall 1989): The general wood category "deciduous taxa" was applied where specimens could be identified as having a porous vessel arrangement reflecting deciduous taxa rather than a trachid arrangement indicative of coniferous taxa; and "unidentifiable" where specimens were so fragmentary or minute that no clear section could be obtained upon which to base an identification. The category "amorphous charcoal" was used in this report to classify carbonized remains which lacked any suitable characteristics whatsoever upon which to base identification.

All identifications are routinely made under low magnification (10X to 30X) with the aid of standard texts (Kozlowski 1972; Martin and Barkely 1961; Panshin and deZeeuw 1970), and are checked against plant specimens from a modern reference collection germane to the flora of New Castle County, Delaware (Ferguson 1959; Tatnall 1946). Specimen weights were taken using an electronic balance accurate to 0.01 grams.

2. *Results of Preliminary Analysis*

Few plant macrofossils were recovered from the John Henry Site. Flotation processing of 20 liters of soil from cultural contexts yielded 4.24 grams of plant remains, or an average density of 0.21 grams of archaeological plant material per liter of cultural fill analyzed. This low overall density of macrofloral remains may be partially explained by the absence of samples from cultural features (which often yield higher densities of plant macro remains).

Although quantitatively limited, the archaeobotanical assemblage from the John Henry Site reflects the use of a variety of plant species by the nineteenth- and early twentieth-century inhabitants of the site, and provides insight into the local vegetative landscape during this period of occupation. Plant remains recovered represent deciduous trees; wild and/or cultivated fruit representing a variety of useful herbaceous and woody plants; rind fragments; and miscellaneous plant materials including fungal fructifications and unidentifiable amorphous charcoal.

Carbonized wood remains were not abundant within the examined samples. Wood charcoal comprised 36 percent (by weight) of the site sample. A total of 342 wood fragments weighing 1.52 grams was recovered. Identification of two wood fragments randomly selected from each flotation sample revealed the presence of maple (*Acer* sp.), hickory (*Carya* sp.), red, white, and unspecified oak species (*Quercus* sp.), American chestnut (*Castanea dentata*), and black locust (*Robina pseudoacacia*). All of these arboreal species are consistent with the historic forest cover of New Castle County, Delaware (Brown et al. 1986; Ferguson 1959; Tatnall 1946).

Recovered seed remains were both abundant and ubiquitous. However, all seeds recovered were noncarbonized, a condition which raises some question of the archaeological integrity of the specimens (Minnis 1981; Pearsall 1989). The recovery of modern seeds is often used as an indicator of sample contamination, possibly indicating the vertical dispersion of modern seeds via rodent or insect burrowing, root action, plowing, or down-washing (Keepax 1977; Minnis 1981; Smith 1985). For the purposes of this preliminary report, these noncarbonized seed remains are presented for consideration within the archaeological contexts in which they were recovered. The seed remains recovered represent a range of useful and ruderal plants, including maple (*Acer* sp.), red maple (*Acer rubrum*), Virginia three-seeded mercury (*Acalypha virginica*), pigweed (*Amaranthus* sp.), goosefoot (*Chenopodium* sp.), rattlebox (*Crotalaria sagittalis*), goosegrass (*Eleusine indica*), spurge (*Euphorbia* sp.), carpet-weed (*Mollugo verticillata*), oxalis (*Oxalis stricta*), poke (*Phytolacca americana*), knotweed (*Polygonum aviculare* and *P.* sp), purselane (*Portulaca oleracea*), raspberry/blackberry (*Rubus* sp.), dock (*Rumex* sp.), elderberry (*Sambucus canadensis*), grape (*Vitis* sp.), and members of the chenopod (Chenopodiaceae), grass (Gramineae), and nightshade (Solanaceae) families.

Miscellaneous archaeobotanical materials identified within the John Henry Site assemblage included maple achene fragments, unidentifiable rind fragments, amorphous charcoal fragments, and a single fungal fructification.

3. Discussion

The pattern of plant remains revealed during this preliminary analysis provides only limited information as to the nature and scope of human-plant interactions at the John Henry Site. Through this analysis, it has been established that limited plant remains persisted in the archaeological record, and that the composition of these remains is consistent with the established forest cover and known function of the site during the nineteenth and early twentieth centuries. However, the data do little to enhance our understanding of the specific form and function of the site within either the House and Garden culture or the regional plantation landscape of central Delaware during this period.

Although evidence of on-site horticulture and local agriculture might be expected at the John Henry Site, the current data do not provide support for an interpretation of a sophisticated economic and social framework focused on plant husbandry. Neither do the limited plant remains allow for a definitive explanation of the seasonality of cultural deposits at the site.