

Environmental Assessment

Village of Patchogue Out-of-District Sewer Extension, Patchogue, NY

APPENDIX G: CULTURAL RESOURCES SURVEYS

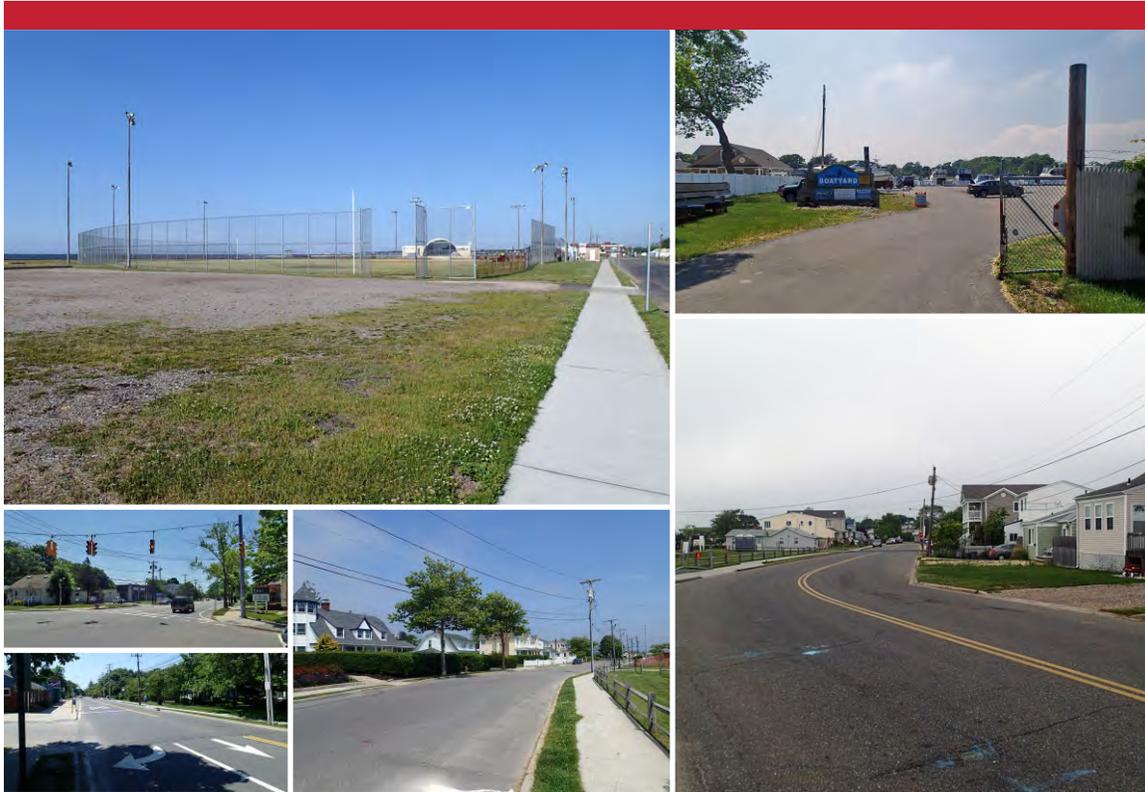
Phase IA Archaeological Reconnaissance Survey,

Village Of Patchogue Out-Of-District Sewer District Extension

PART 1

PHASE IA ARCHAEOLOGICAL RECONNAISSANCE SURVEY, VILLAGE OF PATCHOGUE OUT-OF-DISTRICT SEWER DISTRICT EXTENSION

Village of Patchogue, Suffolk County, New York



Prepared for:



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*Revised Draft Report
October 21, 2015*

Portions of this report have been redacted in accordance with federal statute (Section 304, 54 U.S.C. 470w-3a, NHPA) pertaining to the confidentiality of cultural resources locations.

PHASE IA ARCHAEOLOGICAL
RECONNAISSANCE SURVEY
VILLAGE OF PATCHOGUE OUT-OF-DISTRICT
SEWER DISTRICT EXTENSION

Village of Patchogue, Suffolk County, New York

Prepared for:

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Management Summary

Involved City, State, and Federal Agencies	U.S. Federal Emergency Management Agency (FEMA), New York State Division of Homeland Security and Emergency Services (DSHES), New York State Governor's Office of Storm Recovery (GOSR), U.S. Department of Housing and Urban Development (HUD), U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, New York State Office of Parks, Recreation and Historic Preservation, New York State Department of Environmental Conservation, New York State Department of State, Metropolitan Transportation Authority Long Island Rail Road, Suffolk County, Village of Patchogue
Project Type and Funding	Village of Patchogue Out-of-District Sewer District Extension, Village of Patchogue, Suffolk County, NY (15PR01821), CDBG-DR
Cultural Resource Survey Type	Phase IA Archaeological Reconnaissance Survey
Location Information	The project area is located in the Village of Patchogue, Suffolk County, New York. It consists of parcels south of Church Street, bounded on the east by Rider and Dewitt avenues and on the west by Tuthills Creek. Parcels along Waverly Avenue and 2 nd through 7 th streets are also in the project area.
Reconnaissance Survey Area	Approximately 109 hectares (270 acres)
USGS 7.5-Minute Quadrangle Map	<i>Patchogue, NY</i> (USGS 1967)
Sensitivity Assessment	Prehistoric: Moderate to High Historic: Moderate to High
Archaeological Methodology	
<i>Methods Used</i>	Pedestrian reconnaissance survey
Results of Reconnaissance Survey	
<i>No./Name(s) of Prehistoric Sites Identified</i>	None
<i>No./Name(s) of Historic Sites Identified</i>	None
Recommendations	Phase IB shovel testing in sensitive areas where impacts outside existing sewer right-of-way are to occur.
Report Authors	The Louis Berger Group, Inc. – Wesley Willoughby, PhD.
Date of Report	October 21, 2015

Abstract

Louis Berger completed a Phase IA archaeological reconnaissance survey for the Village of Patchogue Out-of-District Sewer District Extension the Village of Patchogue, Suffolk County, New York. The New York State Governor's Office of Storm Recovery is proposing to fund the expansion of the Patchogue Sewer District as part of the New York State Sandy Recovery efforts funded through the Community Development Block Grant-Disaster Recovery (CDBG) program. The survey included archaeological and architectural components; the architectural component is the subject of a separate report.

The proposed sewer expansion area is composed of 616 parcels that encompass approximately 109 hectares (270 acres) outside the existing Village of Patchogue Sewer District boundary. Expansion efforts will include re-routing existing sewer mains and installing new bypass mains where existing capacity is limited; installing 5,691 meters (18,672 feet) of low pressure sewer mains, new service laterals, and individual on-site grinder stations to connect the unserved parcels to the system; upgrading the West Avenue Pump Station to accommodate the additional flow generated by the sewer district expansion; and abandoning the on-site septic systems. The construction area for this system will include the right-of-way (ROW) and connections from the main sewer to each dwelling, as well as grinder stations to be installed in the basement of the structure or buried underground. Most of the ground-disturbing impacts for this project will be limited to the existing sewer ROW; however, installation of service laterals, house connections, and grinder stations will require ground disturbance outside the ROW. At the time of this cultural resource assessment, project plans were still in the final planning stages and the areas of ground-disturbing impacts to occur outside the existing ROW (the archaeological area of potential effects, or APE) had not been defined. Therefore Louis Berger took a broader approach to assessing the general project area, focusing attention on identifying particular areas of interest for archaeological sensitivity.

The archeological survey included background research and a pedestrian reconnaissance survey of the project area. The goal of the reconnaissance survey was to assess the potential for archaeological resources in the project area and included a review of archaeological site files and cultural resource management projects within 3.2 kilometers (2 miles) of the project area. The pedestrian reconnaissance survey was conducted on June 9-10, 2015.

The pedestrian reconnaissance survey found that much of the project area has been subjected to degrees of disturbance related to twentieth-century residential and commercial development. However, some portions of the project area are still considered to have archaeological sensitivity based on probability of intact soils. It is Louis Berger's opinion that subsurface surveys and/or additional archaeological work are warranted in areas that may maintain sufficient subsurface integrity and/or historical and prehistoric archaeological sensitivity as a result of other factors.

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I. Project Introduction and Description

Louis Berger completed a Phase IA archaeological reconnaissance survey for the Village of Patchogue Out-of-District Sewer District Extension in the Village of Patchogue, Suffolk County, New York (Figure 1). The New York State Governor's Office of Storm Recovery is proposing to fund the expansion of the Patchogue Sewer District as part of the New York State Sandy Recovery efforts funded through the Community Development Block Grant-Disaster Recovery (CDBG) program. The goal of the survey was to assess the potential for archaeological resources in the project area. The survey included background research and pedestrian reconnaissance (archaeological and architectural).

The proposed sewer expansion area is composed of 616 parcels that encompass approximately 109 hectares (270 acres) outside the existing Village of Patchogue Sewer District boundary. Expansion efforts will include re-routing existing sewer mains and installing new bypass mains where existing capacity is limited; installing 5,691 meters (18,672 feet) of low pressure sewer mains, new service laterals, and individual on-site grinder stations to connect the unsewered parcels to the system; upgrading the West Avenue Pump Station to accommodate the additional flow generated by the sewer district expansion; and abandoning the on-site septic systems. The construction area for this system will include the right-of-way (ROW) and connections from the main sewer to each dwelling, as well as grinder stations to be installed in the basement of the structure or buried underground. Most of the ground-disturbing impacts for this project will be limited to the existing sewer ROW; however, installation of service laterals, house connections, and grinder stations will require ground disturbance outside the ROW. At the time of this assessment, project plans were still in the final planning stages and the area of potential effects (APE) for ground-disturbing impacts to occur outside of the existing ROW had not been defined. Therefore, Louis Berger took a broader approach to assessing the general project area, focusing attention on identifying particular areas of interest for archaeological resource sensitivity.

Louis Berger conducted this Phase IA archaeological reconnaissance survey in accordance with guidelines and recommendations established in *Work Scope Specifications for Cultural Resource Investigations on New York State Department of Transportation Project*, prepared by the New York State Education Department (NYSED) Cultural Resources Survey Program (NYSED 2004); the New York State Office of Parks, Recreation and Historic Preservation (OPRHP); and the *Cultural Resource Standards Handbook: Guidance for Understanding and Applying the New York State Standards for Cultural Resource Investigations* published by the New York Archaeological Council (2000). The work was performed in accordance with the National Historic Preservation Act of 1966, as amended; Procedures for the Protection of Historic and Cultural Properties (36 Code of Federal Regulations [CFR] 800); the Procedures for Determining Site Eligibility for the National Register of Historic Places (NRHP) (36 CFR 60 and 63); the New York State Environmental Quality Review Act (SEQRA); and Secretary of the Interior's Standards for Archaeology and Historic Preservation (United States Department of the Interior 1983). All staff who supervised the investigation meet or exceed the standards specified in 36 CFR 66.3(b)(2) and 36 CFR 61.

This report consists of five chapters. Chapter II summarizes the results of the background research conducted for this project. Chapter III presents the results of the pedestrian reconnaissance survey. Chapter IV presents the conclusions and Louis Berger's recommendation regarding future investigations of the project area, and Chapter V contains a list of the references cited.

Louis Berger personnel conducted this survey under the direction of Vice President-Cultural Resources Hope E. Luhman, Ph.D. Louis Berger Archaeologist Wesley Willoughby, PhD. conducted the archaeological reconnaissance survey and wrote the report. Principal Editor Anne Moiseev supervised the editing and production of this report, and Principal Draftsperson/GIS Analyst Jacqueline L. Horsford prepared the graphics.

II. Background Research

A. Site File Research

Research was conducted using OPRHP’s online Cultural Research Information System (CRIS) to assess the archaeological sensitivity of the project area and to place it in prehistoric and historical archaeological context. Previously recorded archaeological sites within a 3.2-kilometer (2-mile) radius of the general project area are listed in Table 1. Research also included a review of local histories, a study of nineteenth- and twentieth-century maps and plans, and a review of published archaeological and historical studies and unpublished cultural resource management reports. The information contributed to the assessment of archaeological sensitivity in the project area (Figure 2).

TABLE 1
 RECORDED ARCHAEOLOGICAL SITES IN THE PROJECT VICINITY

SITE NUMBER/ ADDITIONAL SITE NO. (NAME)	DISTANCE FROM APE/ USGS QUADRANGLE	SITE TYPE/TIME PERIOD	ARTIFACTS/FEATURES	REPORTED BY
<i>New York State Office of Parks, Recreation and Historic Preservation</i>				
A10302.0919/ Five Mile Lock House: Gate Posts	[REDACTED]	Historic/ca. 1902	Gateposts and base of masonry wall. Hotel no longer standing.	Craig 1982a
A10302.1128/ [REDACTED]	[REDACTED]	Historic/ca. 1815	Site of 19th-c. gristmill, no visible evidence.	Craig 1982b
A10302.2691/NA	[REDACTED]	Prehistoric/Historic	2 quartz flakes, 3 sherds of blue transfer-printed whiteware, 8 sherds of ironstone ceramic	Camissa 2002
<i>New York State Museum (NYSM)</i>				
4893	[REDACTED]	Prehistoric	2 shell middens in general vicinity of Patchogue	Parker 1920
4894	[REDACTED]	Prehistoric	[REDACTED]	Parker 1920
9355	[REDACTED]	Prehistoric	Fluted and Poplar Island projectile points, biface.	

Background research identified six previously recorded archaeological sites located within a 2-mile radius of the project area. Four of the sites are within 1 mile (1.6 kilometers) of the project area, all consisting of prehistoric sites. Two sites were reported by Parker (1920). New York State Museum (NYSM) Site 4893 consists of shell middens [REDACTED]. The second site reported by Parker (1920) [REDACTED], Site 4894. The third site is Site NYSM 9355, [REDACTED] he collection indicates possible Paleoindian and Archaic period use of the area. The fourth site within 1 mile (1.6 kilometers) of the project area is the Five Mile Lock House (A10302.0919), [REDACTED]. This site is the location of a hotel constructed ca. 1902. Little remains of the site above ground, but cement masonry gateposts and part of a masonry wall that surrounded the lot were still visible and in reasonably good condition at the time the site was reported in 1982. The site file indicates that it is located in a wetland preserve and thus may have good subsurface integrity remaining.

Two other sites occur within a 2-mile (3.2-kilometer) radius of the project area. Site A10302.2691 produced both prehistoric and historic artifacts in small numbers, but the site is listed as a stray find on the inventory form. This site was identified [REDACTED] by Tracker Archaeology Services (Tracker) during a Phase I survey for [REDACTED]. The Swan River Mills Site (A10302.1128) is [REDACTED]. The inventory form indicates any associated structures or visible evidence of the site have been obliterated, but historical research indicates it was

the location of a ca. 1815 grist mill. Given the presence of a number of prehistoric sites recorded in or near the project area, the potential for other prehistoric sites located in undisturbed portions of the APE is relatively high.

Background research using the CRIS online database located five cultural resource management projects conducted in the vicinity of the project area. Of these, only two occur within or overlap the current APE. These consist of Phase IA and IB archaeological surveys conducted by the SUNY Stony Brook Institute for Long Island Archaeology (Bernstein and Merwin 2003a, 2003b) for the proposed Patchogue River Maritime Center and Riverwalk. The proposed riverwalk was to be located along the east side of the Patchogue River, running 2.17 kilometers (1.35 miles) from Patchogue Lake to Patchogue Bay. The Phase IA research and field inspection indicated a high sensitivity for both prehistoric and historic period cultural deposits in undisturbed portions of the project area. Given the degree of documented disturbance along most of the riverwalk corridor, recommended shovel testing was confined to a relatively small portion of the corridor between West Main Street and the Long Island Railroad tracks. The Phase IB survey entailed the excavation of 20 shovel tests. With the exception of a refuse midden dating to the first half of the twentieth century, no prehistoric resources were encountered and no additional archaeological investigations were recommended for the project.

Two projects in the vicinity of the project area were conducted by Tracker. In 2005 Tracker completed a Phase IA/IB investigation for a proposed Verizon Wireless communication facility in Blue Point, [REDACTED] (Camissa 2005). A total of 16 shovel tests were excavated in a 0.5-acre parcel, which did not encounter any prehistoric or historic artifacts or features. In 2009 Tracker conducted another Phase IA/IB investigation of a 1.6-acre parcel for the proposed location for a Bank of Smithtown, in Bayport, [REDACTED] (Camissa 2009). Excavation of 33 shovel tests failed to locate any significant prehistoric or historic resources.

In 2010 the Cultural Resource Survey Program of the NYSM conducted a large Phase IA/IB survey for a 17.9-kilometer (11.1-mile) segment of NYS Route 27 for proposed service road improvements (Mazeau 2010). The western terminus of the survey corridor was [REDACTED]. Over 5,000 shovel tests identified four prehistoric sites and one historic site well outside the vicinity of the current project area.

B. Environmental Background

1. Geology/Physiography/Topography

Suffolk County is situated in the central portion of Long Island, New York. Long Island is in the Atlantic Coastal Plain physiographic province. Suffolk County and Long Island lie on the terminal moraines and outwash plains of the furthest extent of the Wisconsin glacialiation (Isachsen et al. 2000:169). The project area is situated on the Hempstead outwash plain, formed roughly 18,000 years ago by meltwater as the Wisconsin glacier receded (Mazeau 2010; Sirkin 1996). Bedrock underlying the project area consists of unconsolidated and poorly consolidated Cretaceous sediments at depths greater than 122 meters (400 feet) (United States Department of Agriculture [USDA] 1975:98).

Topography in the project area is generally flat to gently sloping, with elevations averaging 6 meters (20 feet) above mean sea level. The project area is bisected by the tidal Patchogue River, and bordered along the south by the Patchogue Bay. Prior to extensive riverfront modifications, the river was likely surrounded by tidal or fresh water marshes (Bernstein and Merwin 2003a:4).

The mature climax forest existing before European colonization would have consisted of white oak, hickory, pitch pine, white aspen, scarlet oak, and post oak. Historically, large-scale cutting for farm clearing, housing stock, and fuel use resulted in a heavily depleted forest cover (USDA 1975:96).

The modern climate of the region is humid and temperate, strongly influenced by Long Island Sound and the Atlantic Ocean (USDA 1975:92). In Suffolk County precipitation averages 109.22 to 116.84 centimeters (43 to 46 inches) per year, with a small area near Lake Ronkonkoma receiving an average of 127 to 132.08 centimeters (50 to 52 inches) per year. The mean average air temperature is about 52 degrees Fahrenheit (USDA 1975:97).

2. Soils

The vast majority of soils in the project area (more than 80 percent) consist of urban land (Ur), cut and filled land (CuB), made land (Ma), or filled land from dredged materials (Fd) (Figure 3; Table 2). However, preserved patches of intact soils have been identified in the project area (Table 2). Within these areas, four distinct soil series have been mapped (USDA-NRCS 2013). Berryland mucky sand (Bd) is mapped in small areas along the edge of the Patchogue River in the north end of the project area, comprising roughly 1 percent of the project area. This soil series is generally very deep, very poorly drained, and found in coastal plain upland or lowland environments. In coastal areas they are often found in areas adjacent to swamps and in bottoms of closed depressions at levels just above the tidal mark. Areas of Carver and Plymouth sands (CpA) with 0 to 3 percent slopes are found in fairly isolated patches to the east and west of the Patchogue River. Combined, these series comprise roughly 12 percent of the project area. Both the Carver and Plymouth series are characterized as very deep, excessively drained soils formed in glaciofluvial deposits. They are nearly level through steep soils on plains and moraines. Deerfield sand (De) was mapped in the southeast portion of the project area, covering less than 2 percent of the total survey area. Though not quite as well drained as Carver and Plymouth soils, Deerfield soils also consist of very deep soils formed in glaciofluvial deposits. They are often formed on terraces, deltas, and outwash plains.

TABLE 2
 SOILS IN THE PROJECT AREA

NAME	SOIL HORIZON DEPTH	COLOR	TEXTURE, INCLUSIONS	SLOPE %	DRAINAGE	LANDFORM
Berryland sand	A 0 – 25 cm (1-10in)	Blk	Sa, F Rts	NA	Very poorly drained	Coastal plain uplands and lowlands
	Eg 25 – 30 cm (10-12in)	Gry	Sa, F Rts			
	Bh 30 – 51 cm (12-20in)	DkRBrn	LoSa, F-M Rts			
	Bg 51 – 76 cm (20-30in)	DkGry	Sa, Fi Rts			
	Cg1 76 – 102 cm (30-40in)	GBrn	CSa			
	Cg2 102 – 183 cm (40-72in)	GBrn	Sa/SaLo			
Carver coarse sand	Oi 0 – 5 cm (0-2in)	NA	OM	0-45	Excessively Drained	Outwash plains, moraines
	Oe 5 – 8 cm (2-3in)	VDkBrn	Dec OM			
	A 8 – 18 cm (3-7in)	Blk	CSa			
	E 18 – 25 cm (7-10in)	DkGry	CSa			
	Bw1 25 – 38 cm (10-15in)	SBrn	CSa			
	Bw2 38 – 71 cm (15-28in)	YBrn	CSa			
	BC 71 – 81 cm (28-32in)	BrnYl	CSa			
	C 81 – 170 cm (32-67in)	LtYBrn	CSa			
Plymouth loamy sand	A 0 – 10 cm (0-4in)	VDkGBrn	LoSa, F Rts	0-35	Excessively drained	Plains, hilly moraines
	Bw1 10 – 25 cm (4-10in)	YBrn	LoSa, F Rts			
	Bw2 25 – 43 cm (10-17in)	YBrn	LoSa, F Rts			
	Bw3 43 – 69 cm (17-27in)	Brn	LoSa			
	2C 69 – 178 cm (27-70in)	YBrn	GrlCSa			
Deerfield loamy sand	Ap 0 – 23 cm (0-9in)	VDkGrBrn	LoSa, F Rts	0-15	Moderately well-drained	Terraces, deltas, outwash plains
	Bw1 23 – 38 cm (9-15in)	YBrn	LoSa, F Rts			
	Bw2 38 – 48 cm (15-19in)	YBrn	LoSa, F Rts			
	BC 48 – 69 cm (19-27in)	OIBrn	Sa, F Rts			
	C 69 – 165 cm (27-65in)	OIGry	Sa			

KEY: *Shade:* Lt – Light, Dk – Dark, V – Very, S – Strong
Color: Brn – Brown, Blk – Black, Gry – Gray, GBrn – Grayish Brown, StrBrn – Strong Brown, RBrn – Reddish Brown, YBrn – Yellowish Brown, OIBrn – Olive Brown, Wh – White, Ol – Olive, PIBrn – Pale Brown, Brn Yl – Brownish Yellow
Soils: Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand
Other: / – Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch – Channery, F – Fine, V – Very, E – Extremely, Dec OM – Decomposed organic matter, M – Medium

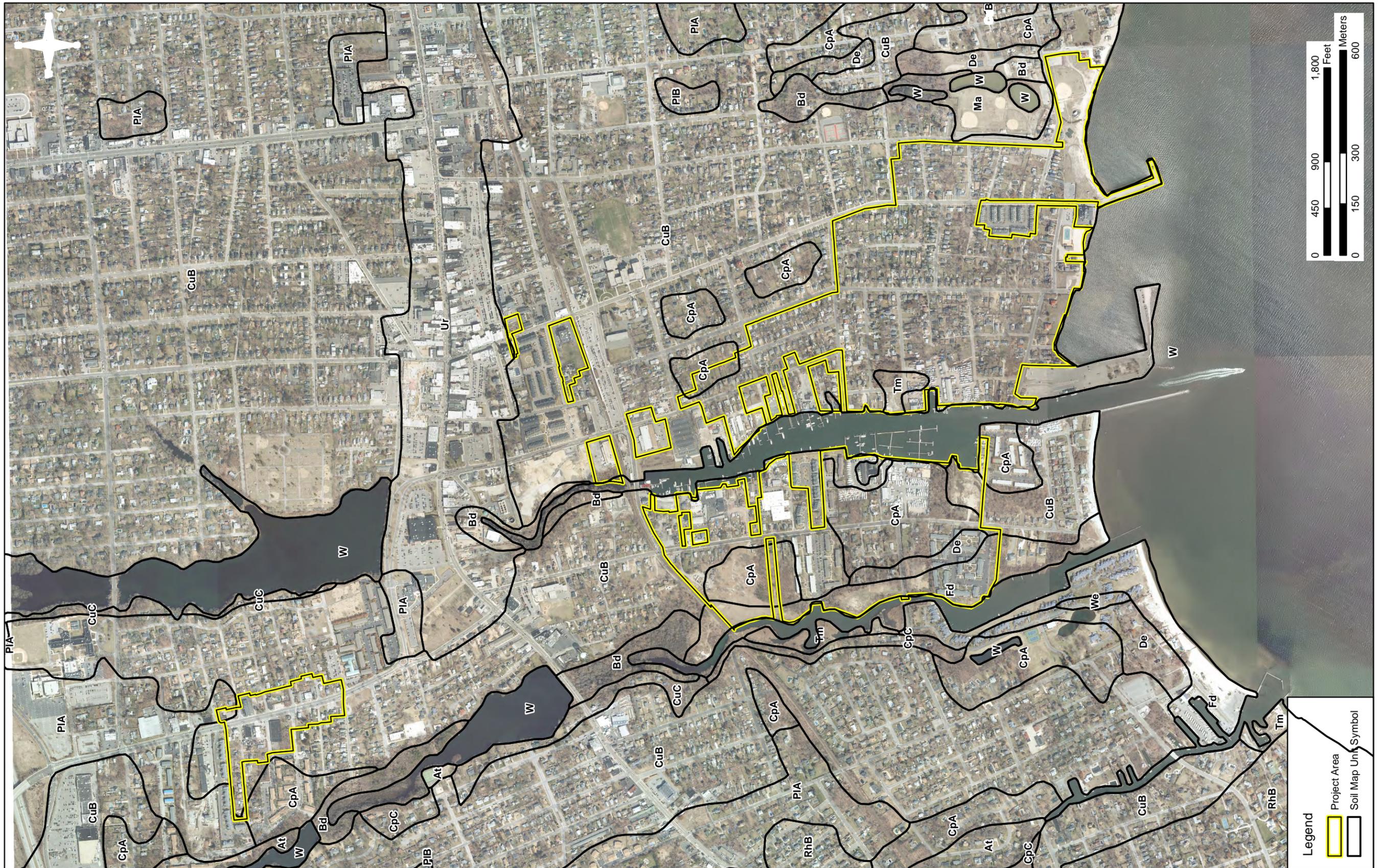


FIGURE 3: Soils in the Project Area (NYS GIS 2013; USDA-NRCS 2013)

3. *Previous Impacts and Current Land Use*

Historical maps of the area indicate little change in the historical alignment of the Montauk Highway in Patchogue since the mid-nineteenth century. Some development was concentrated along the highway, near the south end of the Great Patchogue Lake by 1842, but most of the area to the south along the Patchogue River is depicted as swamp or marshland (Mather and Smith 1842). By 1873 additional development is depicted on the lands east and west of the Patchogue River, south of Montauk Highway, including several new streets and a number of residences (Beers 1873). Most of these streets maintain the historical alignment depicted in the Beers (1873) map, though additional roads, residences, and commercial buildings have been developed since. Currently most of the project area is a combination of residential and commercial development. Commercial development is particularly concentrated along the edges of the Patchogue River, consisting primarily of marinas and restaurants. Soils mapped in the project area indicate that significant earth moving and landscape modification accompanied a great portion of this development as prior marsh lands were filled and stabilized to facilitate construction.

C. Prehistoric Context

Archaeologists have divided the vast expanse of New York cultural history into five general periods: Paleoindian (12,000 to 9500 years before present [BP]), Archaic (9500 to 3000 BP), Woodland (3000 to 500 BP), Contact (500 to 300 BP), and Historic (300 BP to present). The first three subdivisions (Paleoindian, Archaic, and Woodland) are thought to represent Native American cultural adaptation to changing climatic conditions since the arrival of humans in the New York region around 12,000 years ago—from Pleistocene (Ice Age) to Holocene (modern) norms. The region's natural environment and geomorphology have greatly influenced the nature of Native American settlement, land use, and cultural development. One important factor in the interpretation of the prehistory of New York is the impact of glaciation on the topographic and hydrologic conditions in the area since the end of the Pleistocene.

1. *Paleoindian Period (12,000 to 9500 BP)*

Humans (the Paleoindians) first entered the region from the south between 12,000 and 9500 BP, following the retreat of the Wisconsin glaciers. At its maximum extent (18,000 and 16,000 BP), the Wisconsin glacier covered all of New York State and extended south into northern New Jersey and Pennsylvania. As the ice sheets receded, open spruce woodland developed in the Northeast, with pine replacing spruce as the dominant arboreal species by about 10,000 BP (Gaudreau 1988).

Few definite habitation sites from the Paleoindian period have been identified in the Northeast. It is more common to encounter isolated finds of artifacts that are diagnostic for the period. Such artifacts include Clovis-type fluted projectile points, assorted scrapers, graters, and drills. These lithic tools are usually made from cherts that originated in eastern New York and jaspers found in Pennsylvania and New Jersey. The Paleoindian sites that have been located in New York tend to be quarry-related activity areas, small base camps, and isolated kill sites.

Paleoindian period sites in the region appear to be located in three geographic settings: (1) lowlands adjacent to water and near coniferous swamps or larger rivers; (2) upland bluffs with deciduous trees as the predominant arboreal species; and (3) ridgetops with deciduous trees as the predominant arboreal species. The basic model for Paleoindian habitation in the Northeast assumes that Paleoindians coalesced in small, highly mobile bands that traveled and hunted through large territories focusing on post-Pleistocene megafauna. However, it is also possible that Paleoindian populations used a relatively wide range of plant and animal resources that were encountered in more restricted territorial ranges.

Although isolated fluted points have been found on Long Island (Saxon 1973), no Paleoindian habitation sites have been identified. The Port Mobil Site on Staten Island is the nearest excavated Paleoindian site (Eisenberg 1978; Funk 1977). At the time of Paleoindian occupation, large portions of the present continental shelf near coastal New York would have been exposed because of the lower sea levels, and therefore former habitation sites on Long Island may have been submerged or destroyed by rising seas following the last glacial retreat (Edwards and Merrill 1977; Newman 1977).

2. Archaic Period (9500 to 3000 BP)

The Archaic period is characterized by climatic amelioration that eventually resulted in greater biodiversity in the resource base; changes in technology, site size, and site location reflect utilization of a broader spectrum of resources. Researchers usually divide the Archaic into three subperiods: Early (9500 to 7000 BP); Middle (7000 to 5500 BP); and Late (5500 to 3000 BP).

a. Early Archaic Period (9500 to 7000 BP)

The Early Archaic period was initially characterized by fluctuations in climate that eventually stabilized into a warming trend. The warmer conditions enhanced biological diversity in the plant and animal communities developing in the region. The subsistence focus of aboriginal populations shifted from a primary focus on hunting post-Pleistocene megafauna to hunting, fishing, and gathering a diverse range of animal and plant forms. Populations may have increased because of the greater stability of the resource base. Most of the evidence of human occupation during this period is based on isolated finds of artifacts diagnostic for the period, including bifurcate-base points, which are most often located along major drainages.

On Long Island the instability of the coastal environments during the early Holocene epoch may be one reason that evidence of significant Native American occupation of Long Island prior to Late Archaic times (5500 to 3000 BP) is lacking (Wyatt 1977:400). Remains of Early Archaic (9500 to 7000 BP) occupation are represented by a few scattered points similar to the Kanawha Stemmed and Lecroy Bifurcate Base types (Broyles 1971). Vosburg and Brewerton point types are also known to have come from Long Island but are relatively scarce (Wyatt 1977:400).

b. Middle Archaic Period (7000 to 5500 BP)

During the Middle Archaic the climatic warming trend continued. New varieties of flora and fauna became established in the region. The subsistence and settlement patterns of the human occupants of the region continued to shift toward seasonal transhumance focused on utilization of specialized resources within limited ranges, which may have fostered a greater degree of territoriality (Dincauze and Mulholland 1977). Diagnostic artifacts include Neville and Stark projectile points. The reliance on diverse and specialized resources fostered expansion of the toolkit, which included adzes, axes, drills, mortars and pestles, netsinkers, and hammerstones.

c. Late Archaic Period (5500 to 3000 BP)

Climatic warming continued into the Late Archaic. The rich and diverse biotic resource base enabled increased habitation. Diagnostic artifacts for the subperiod include small stemmed projectile points such as Lamoka, Taconic, Squibnocket, and Brewerton.

By the Terminal Archaic, or Transitional period, people were grinding and polishing soapstone to make bowls and other cultural items. The Terminal Archaic is characterized by three cultural traditions: the Laurentian tradition (Vergennes phase and Vosberg complex); the small stemmed tradition; and the Susquehanna tradition (Snook Hill and Orient phases). Based on a reassessment of the distribution of Terminal Archaic points, Snow suggests that the Susquehanna tradition (Snook Hill, Perkiomen, and Susquehanna Broad points) was dominant in the first half of the Terminal Archaic, and superseded by the Orient complex (Orient fishtail points) in the second half of the period (Snow 1980:237). The exact nature of the cultural differences reflected in the technological and stylistic differences between these traditions has not been conclusively discerned. They may represent differences in settlement systems and technology based on utilization of different resource niches, the migrations of new people into the region, or the spread of distinctive technological ideas.

The rate of sea level rise and isostatic rebound of the continental margins had lessened by Late Archaic times (Edwards and Merrill 1977; Newman 1977; Snow 1980), resulting in the stabilization of marine environments. There is considerable archaeological evidence, in the form of shell middens, to indicate that marine resources were intensively exploited by Late Archaic populations on Long Island, where the shell middens are concentrated near salt marshes (Wyatt 1977). However, the relationship between shell midden sites and Late Archaic sites in interior areas, which

are characterized by artifact assemblages that include Wading River points, atlatl weights, and celts (Ritchie 1980:142-145), is poorly understood.

Coastal occupation intensified during the Terminal Archaic (Transitional) period (3300 to 2800 BP), which is represented by artifact assemblages that include broadspear points, Orient Fishtail points, and soapstone vessels. On Long Island the earliest known Native American burials are associated with Terminal Archaic (Transitional) period occupation (Ritchie 1980:164-165).

3. Woodland Period (3000 to 500 BP)

The Woodland period is divided into three subperiods: Early Woodland (3000 to 1700 BP); Middle Woodland (1700 to 1200 BP); and Late Woodland (1200 to 500 BP).

a. Early Woodland Period (3000 to 1700 BP)

In general, Early Woodland occupations in the Eastern Woodlands are characterized by a continuation of Late Archaic lifeways. Throughout the eastern United States it appears that Early Woodland groups were sedentary or semisedentary, with residential sites located in riverine and upland contexts and logistical sites located in a variety of physiographic contexts.

Ritchie and Funk (1973:96) write that “as in the case of the Transitional [Archaic] stage, it [the Early Woodland] is marked by the appearance of certain new traits and by the characteristic expression of other, older traits,” but “there is no evidence for significant changes in subsistence or settlement patterns.” Substantial residential sites of the Late Archaic are often referred to as base camps, yet similar sites of the Early Woodland become “villages” with the presence of ceramics and possible storage pits at these sites.

Broadspear forms were phased out in the Early Woodland period, and small stemmed and notched forms, as well as lanceolate and teardrop forms, dominate hafted biface assemblages. Ground grooved axes, seen in the Late Archaic, continue into the Early Woodland but are refined, and the repertoire of such implements is expanded. Slate gorgets, pendants, and ground slate pieces have also been recovered from Early Woodland sites.

The mortuary complexity exhibited by some Late Archaic groups continued into the Early Woodland. Meadowood (3000 to 2560 BP) cremations, bundle burials, and flex burials include red ochre, cache blades (“up to 1,500 in one grave”), gorgets, tubular pipes, and copper objects, as well as utilitarian items such as hafted bifaces, other bifacial tools, adzes, celts, bone tools, carbonized nets, and basketry (Ritchie and Funk 1973:96, 348). Early Woodland groups also created burial mounds for their dead, which represent one of the most dramatic manifestations of the social complexity inherent in Adena societies.

The Early Woodland period (Middlesex phase) is characterized by the introduction of ceramic vessels—in this region typed as Vinette 1 undecorated wares, some with steatite temper. Sites of the period are usually found on well-drained knolls next to fresh water (Ritchie 1980:21).

b. Middle Woodland Period (1700 to 1200 BP)

The Middle Woodland period is marked by changes in lithic and ceramic technology. During the Middle Woodland period maize agriculture and other horticultural practices were gradually incorporated into the subsistence adaptations of the occupants of the region, promoting development of semipermanent village settlement. Subsistence practices during the Middle Woodland period were not very different from those of earlier periods, although intensified hunting, gathering, and small-scale agriculture increased use of resources. The climate during this cultural period remained similar to that of the Early Woodland period. Episodic fluctuations in temperature and precipitation did occur, which affected the distribution and composition of biotic communities. Site types identified include small camps (some temporary and some reoccupied over time), semipermanent large camps, cemeteries, burial mounds, and workshop activity areas (Ritchie and Funk 1973:349).

The bow and arrow were introduced in this period. Diagnostic lithic artifacts include Jack's Reef corner-notched and pentagonal projectile points and Fox Creek projectile points. The presence of increased amounts of exotic lithic materials suggests further development of interregional trade networks. Other items of material culture associated with the Middle Woodland include ornamental pendants and pins. Ceramic technology became more sophisticated, as indicated by a decrease in the wall thickness of pots and a rounding of vessel shape. Ceramic decoration, including netmarking and ornamentation of collars and bodies, increased.

c. Late Woodland Period (1200 to 500 BP)

During the Late Woodland period aboriginal populations continued to grow and expand into riverine environmental zones. Agriculture continued to increase in importance as part of aboriginal subsistence systems, and maize became a major component of the prehistoric diet. By the time of the Late Woodland, the climate was very similar to that of today. More sites, larger sites, and sites with a higher density of cultural material are associated with this period in prehistory than with earlier periods. Sites have been encountered along major drainages in association with rockshelters, in coastal areas, and on islands. Small campsites are also located near swamps and streams. The settlement-subsistence system for this period appears to be characterized by an annual pattern of seasonal movement between riverine, coastal, and inland sites. The semipermanence of many of the occupations and resource areas may have fostered greater territoriality (Mulholland 1988:163). Diagnostic artifacts include Levanna projectile points and Owasco-related ceramics.

In some areas of New York State, competition for land and resources appears to have resulted in conflicts that caused groups to "nucleate" in larger, defensible settlements. Late prehistoric occupation of Long Island seems to have been dispersed along the coastline, suggesting that marine and estuarine resources continued to dominate subsistence economies. Caution must nevertheless be used when making assumptions about settlement patterns on Long Island. Earlier studies have been conducted primarily along the coast, or along rivers and streams, and it is therefore not surprising that most sites have been found in those locations. More recently, archaeologists have shown that Native Americans conducted many activities in inland areas of Long Island (e.g., Lightfoot and Moore 1985).

4. Early Historic Contact (500 to 300 BP)

Native American settlement and subsistence adaptations of the Late Woodland continued during the early Contact period, characterized by seasonal hunting and gathering and focusing on streams and major watercourses in the spring and fall for seasonal fish runs. During this period Native Americans also accessed smaller sites in inland and upland areas for hunting and resource procurement. Larger semipermanent village sites, consisting of oval and round houses and large pits, were also located in the interior near planted fields. In the winter smaller bands of people occupied sites in inland and upland settings close to forest game (Cronon 1983:48).

Initial contact between Europeans and Native Americans was made when early explorers entered the area to engage in trade. The introduction of European material goods, the demands of trading relationships, rapid colonial expansion, and the spread of diseases brought by the Europeans had profound effects on the settlement and subsistence adaptations of the native populations. Native groups gradually became dependent on trade with the Europeans. Tribal and clan affiliations were affected, and much of the native population disappeared or was displaced (Brasser 1978). Some estimates suggest that between 60 and 90 percent of the native population was lost to European diseases in the seventeenth century in southern New England and New York (Snow 1980:34).

5. Prehistoric Sensitivity Statement

A considerable portion of the overall project area appears to be disturbed and significantly modified from modern development. However, three prehistoric sites have been documented in or close to the project area, including NYSM Sites 4893, 4894 and 9355. Soil mapping by the USDA-NRCS indicates that some areas of undisturbed soils may remain in the project area. Intact soils in an area of known prehistoric activity are considered highly sensitive for prehistoric archaeological resources.

D. Historic Context

A number of early European explorers surveyed what we now know as Long Island. As early as the sixteenth century Giovanni Verrazano skirted the south shore of Long Island during an exploratory expedition carried out on behalf of France in 1524 (Bailey 1962). Henry Hudson explored the area in 1609 for the Dutch East India Company. In 1636 the Dutch would establish the first permanent settlement on Long Island when they founded Brooklyn in the western portion of the island, establishing the colony of New Amsterdam (Mazeau 2010:30). In 1639 English settlers established two communities on the east end of the island, Southbold and Southampton. Control of the island by the English and Dutch would remain in dispute for a number of years. For a time, in 1662, the Connecticut colony claimed jurisdiction over the island based on a clause in the charter granting them claim over adjacent islands. In 1664 Richard Nicoll, commissioned Lord Chancellor by the Earl of Clarendon, arrived in the area with 500 soldiers and captured New Amsterdam from the Dutch (Weeks 1955:7). The colony was later renamed New York and Long Island was brought fully under its jurisdiction.

Early settlers on Long Island subsisted primarily on grains, such as wheat, corn, rye, and oats, and vegetables. Cattle were imported from England in the early 1600s, and sheep were introduced in the area in the mid-seventeenth century. Pork was also considered a staple of the seventeenth century diet (Munsell 1882:44-45).

In the early part of the eighteenth century, transportation on Long Island consisted of travel by boat, or on land via the "Great South Road." This road, commissioned in 1732 and completed in 1735, served as the principal east-west route on Long Island. Smaller local roads, known as "paths," radiated outward from the main road, providing access to waterways, such as the Great South Bay. These roads were also used for driving livestock to clearings near the bay (Munsell 1882:6).

Permanent settlement of what would become Suffolk County did not occur until the mid- to late- seventeenth century. At that time central Long Island was occupied by a number of Native American groups, including speakers of the Mohegan-Pequot-Montauk Algonquian language. The area of Patchogue was occupied by the Patchogue (Pochaug) people (Bernstein and Merwin 2003a; Mazeau 2010:30; Salwen 1978). Among the earliest settlements in the Suffolk County area was Setauket, established in 1655 north of present-day Patchogue, on the island's north shore.

Throughout the eighteenth century Suffolk County was inhabited primarily by landholders with large farmsteads. Besides raising food for subsistence, many landowners in the region operated a variety of enterprises on their farmsteads, such as mills and retail and tool manufacturing businesses. The typical large farms in Suffolk County during the colonial era functioned as "small scale capitalistic enterprises" (Gramly 1977). Slave labor was often used in the operation of the largest farmsteads (Gramly 1977). Industries were few during the eighteenth century; most farms in the area were nearly self-sufficient.

During the nineteenth century farming continued to dominate the economic scene in the region. Other than farming, the most important industry to develop was the cordwood industry, followed by the whaling and fishing industries, which led to an increase in the region's settlement. Agricultural activity gradually declined, a trend that continued into the twentieth century. By 1960 only 2 percent of the population worked in agriculture (USDA 1975:94). This decline included the once thriving cranberry industry, which had disappeared by the 1970s. Coastal areas became resort locations for "weekenders," and a new transportation network was constructed across the island.

Gradually, suburbanization came to Long Island in the early nineteenth century when reliable steam ferry service allowed the more prosperous Wall Street workers to get to homes in Brooklyn Heights. After the Civil War streetcar suburbs sprawled out onto the plains farther to the east. Waves of immigrants spilling over from New York City (mostly Italian-Americans, Irish-Americans and Jewish-Americans) further stimulated urban growth to the eastern sections of Kings County (Brooklyn). In the 1920s and 1930s, Long Island began a complete transformation from backwoods and farms to become the paradigm of the American suburb. With Long Island Parks Commissioner Robert Moses leading the way, a number of parkways began to span the entire island, along with various state parks. Long Island very quickly became New York City's retreat (Molle 1982).

After World War II Long Island's population skyrocketed, stimulated by more and more reliable transportation systems, with development following the establishment of a parkway system, allowing greater and greater numbers of workers in New York City to commute to more affordable and spacious living areas. The most famous postwar development was Levittown. Positioned along the Wantagh Parkway in the area known as Island Trees, it became the first place to reproduce houses on a grand scale, providing great opportunities for GIs returning home to start families (Dade 1989). The success of Levittown stimulated what would eventually be criticized as "suburban sprawl." Nassau County was the first to become densely populated, but it was just a matter of time before its eastern counterpart, Suffolk County, would experience the same massive and quick growth (Molle 1982). Dependent on automobiles, rapid development further increased with the establishment of the Sunrise Highway and the Jericho Turnpike. Post-World War II industrialization would permanently negate the agricultural life of the area. The landscape was overtaken by a growing emphasis on manufacturing and suburban sprawl, which still exists today.

Present-day Patchogue was originally within lands purchased from the natives by Governor John Winthrop of Connecticut in 1664 for 10 coats, 12 hoes, 12 hatchets, wampum, 50 muxes (drills), 100 needles, six kettles, 10 pounds of lead, seven chests of powder, 12 knives, and one pair of child's stockings (Bayles 1874; Bernstein and Merwin 2003a). In 1752 the land was conveyed to Humphrey Avery of New London, Connecticut, by Winthrop's heir, who divided the land into lots and sold them off in 1758-1759 (Bernstein and Merwin 2003a:10). During that time permanent settlement of the area began to take shape near where three prominent streams (Patchogue Creek, Swan River, and Tuthill's Creek) empty into the Patchogue Bay (Mazeau 2010:30).

Farming and fishing dominated the local economy during the eighteenth century. Mill production also soon became a major industry. Several mills were constructed along the river in the eighteenth century, and at least five mills were in operation by the mid-nineteenth century (Bernstein and Merwin 2003a:11). One of the more significant mills was the Patchogue-Plymouth Lace Mill, which remained in operation until 1954 (Bernstein and Merwin 2003a). Though mill production remained important throughout the nineteenth century, fishing industries became paramount to the economic lifeblood of the community by the mid- to late nineteenth century, particularly shellfish farming and harvesting (Bayles 1874:268; Mazeau 2010:30). Shipbuilding was also important for a time, particularly in the late nineteenth century. In 1890 the U.S. Army Corps of Engineers dredged the Patchogue River to create a deep water port in support of the industry. From 1875 to 1922, Patchogue also served as an official Federal Port of Entry (Bernstein and Merwin 2003a:12; Mazeau 2010:30). Patchogue was officially incorporated as a village in 1893 (Greater Patchogue Historical Society 2015).

Industry in Patchogue declined through the latter half of the twentieth century. Like much of Long Island following World War II, Patchogue underwent suburbanization with a shift toward retail and service industries.

1. *Historical Map Review*

The historical map research depicts the project area from the early nineteenth through mid-twentieth centuries. The Damerum map dated 1815 shows relatively minor development in the Patchogue area concentrated along what appears to be the Montauk Highway (now Main Street in Patchogue Village), as well as possible mills located along the Patchogue River (Figure 4). Additional structures and residences are depicted in nearby Blue Point, west of the current project area. The Mather (1842) map depicts a similar pattern of development with structures concentrated along the Montauk Highway and in nearby Blue Point, and mills along the river (Figure 5). A coastal survey map dated 1851 shows a number of structures located along what appears to be Ocean Avenue (Figure 6). The majority of the project area appears undeveloped at that time with most of the land south of the highway, along the river, depicted as marshlands. By 1873, however, the village appears to have undergone significant development (Figure 7). Most of the main town and residential streets appear to have been laid out by that time, with many of the lots depicting residences. In the project area east of Patchogue River, a number of residences are depicted lining Ocean Avenue, and additional lots along Cedar and Maiden avenues show areas of residential development. Most of the area west of Cedar Avenue to Patchogue Creek (River) remains largely undeveloped. West of the river, lots along River Street and a number of side streets running westward toward the riverfront also show development by 1873. Most of this development appears concentrated north of Duffs Lane (now Riverview Court). By 1904 additional streets appear to have been laid out in the village south of Division Street, in the current project area, though parts of the project area still appear to remain undeveloped (Figure 8). A 1906 bird's-eye view depiction of the village shows additional development just south of Division Street and along the waterfront. A large portion of the project area

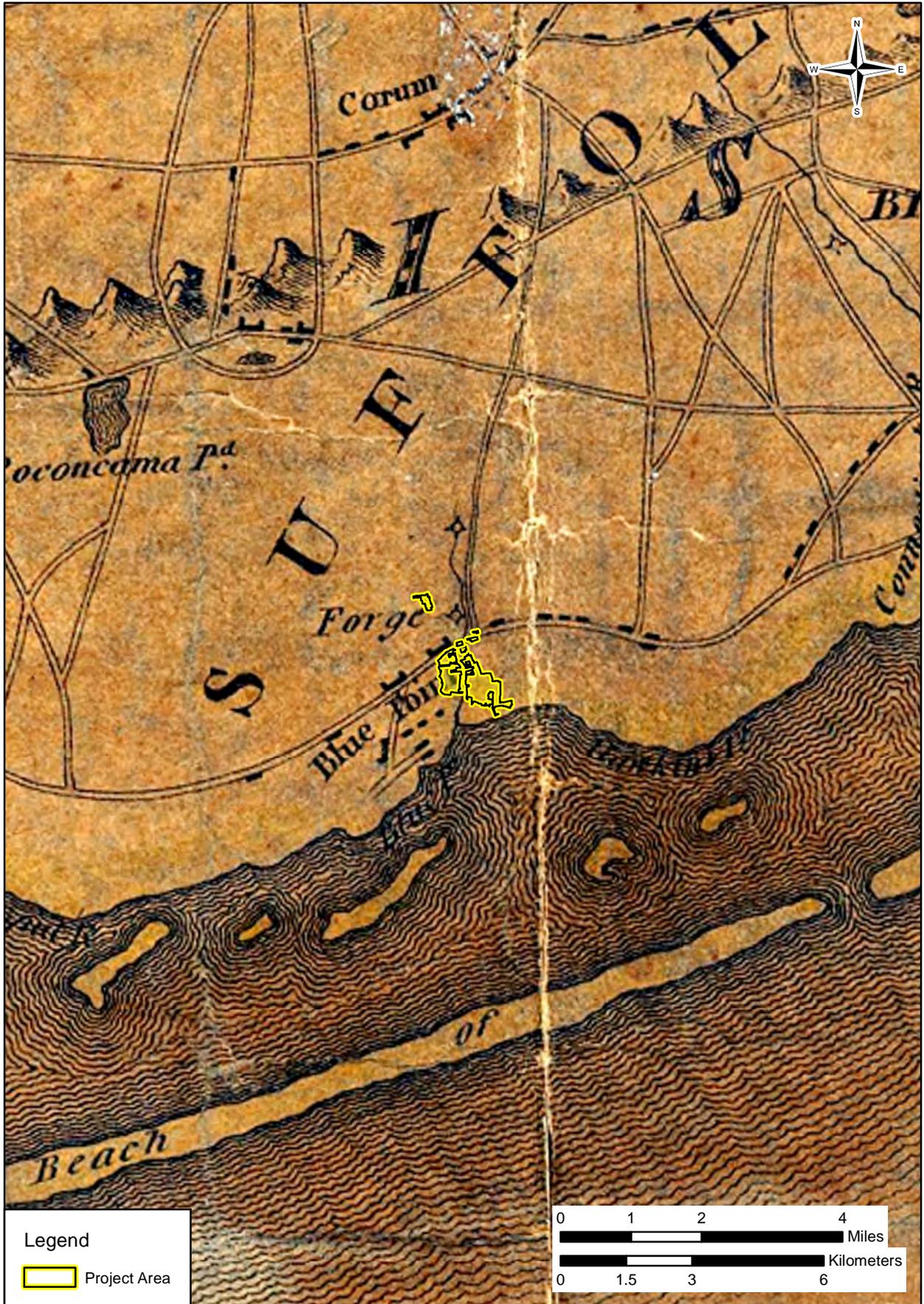


FIGURE 4: Project Area in 1815 (Damerum 1815)

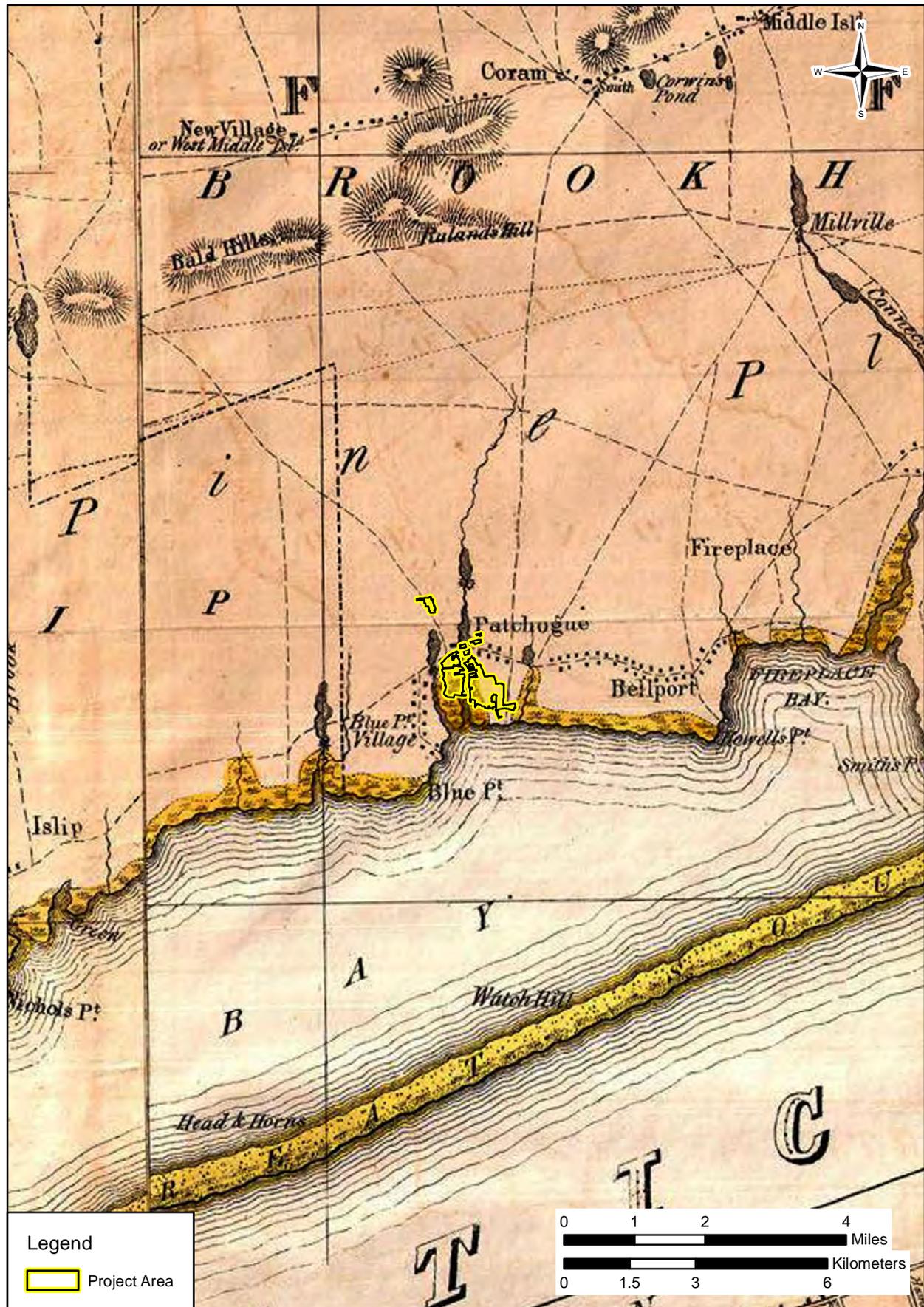


FIGURE 5: Project Area in 1842 (Mather and Calvin 1842)

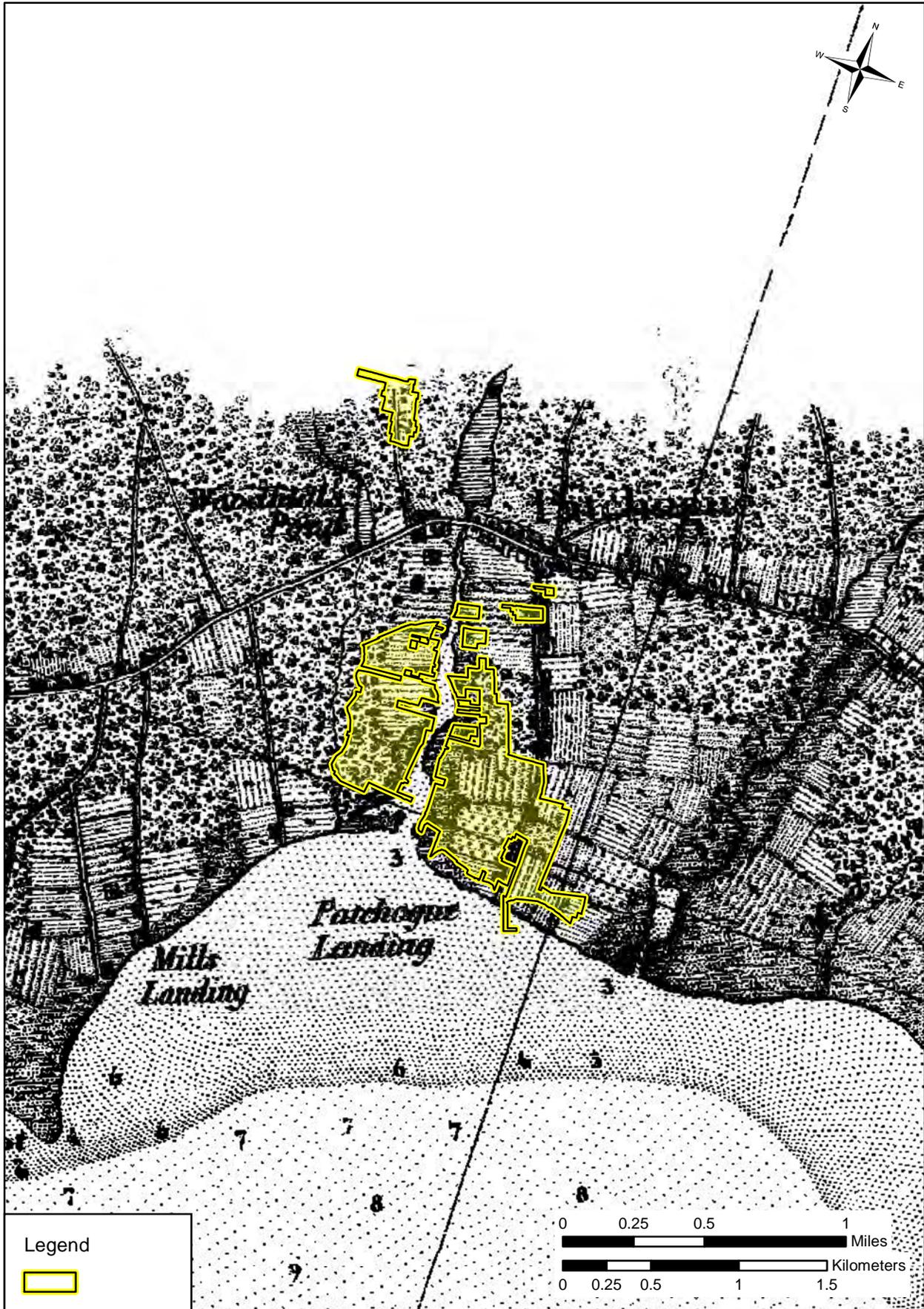


FIGURE 6: Project Area in 1851 (USCS 1851)