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PERSPECTIVES INC.



**Phase IA Archaeological Assessment
Markham Gardens Proposed Residential Development**

**Block 169, Lot 1, Bounded by Richmond Terrace, Broadway, North
Burgher Avenue and Wayne Street**

Staten Island, Richmond County, New York

**NYSOPRHP 06PR00935
LPC NYCHA/ER.R**

939

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LPC NYCHA/ER.R**

Prepared For:

**Urbitran Associates
71 West 23rd Street
New York, NY 10010**

Prepared By:

**Historical Perspectives, Inc.
P.O. Box 3037
Westport, CT 06880**

Author:

Julie Abell Horn, M.A., R.P.A.

July 2006

MANAGEMENT SUMMARY

SHPO Project Review Number (if available): 06PR00935

Involved State and Federal Agencies: HUD, New York City Housing Authority

Phase of Survey: Phase IA Archaeological Assessment

Location Information

Location: Block 169, Lot 1, Staten Island, New York. The project site is bounded by Richmond Terrace on the north, Broadway on the west, North Burgher Avenue on the east, and Wayne Street on the south.

Minor Civil Division: 08501, Staten Island

County: Richmond

Survey Area

Length: varies

Width: varies

Number of Acres Surveyed: ca. 12

USGS 7.5 Minute Quadrangle Map: Jersey City

Archaeological Survey Overview

Number & Interval of Shovel Tests: N/A

Number & Size of Units: N/A

Width of Plowed Strips: N/A

Surface Survey Transect Interval: N/A, urban area

Results of Archaeological Survey

Number & name of precontact sites identified: None

Number & name of historic sites identified: None

Number & name of sites recommended for Phase II/Avoidance: None

Report Authors(s): Julie Abell Horn, M.A. R.P.A., Historical Perspectives, Inc.

Date of Report: July 2006

EXECUTIVE SUMMARY

The New York City Housing Authority (NYCHA) is proposing to construct up to 80 units of senior housing, 25 two-family townhouses, and 240 rental units on a 12.4-acre block in the West New Brighton section of Staten Island (Figure 1). The project site is bounded by Broadway to the west, Richmond Terrace to the north, North Burgher Avenue to the east, and Wayne Street to the south, and is known as Block 169, Lot 1. The block is presently occupied by a 360-unit row housing development for public housing residents, known as Markham Gardens, which was built in 1942-1943 as the Edwin Markham Houses (Figure 2).

NYCHA is the lead agency for the proposed project. As part of the environmental review process, the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) were contacted by Urbitran Associates. The LPC responded that the property had no architectural significance but may possess potential archaeological significance from nineteenth century occupation and as such recommended an archaeological documentary study be conducted (Sutphin 2006). The NYSOPRHP responded that the Markham Gardens complex is eligible for the State and National Registers of Historic Places, and that a Phase IA archaeological survey is necessary for all portions of the project site that will involve ground disturbance (Cumming 2006). Areas that will be affected by future ground disturbance are considered the Area of Potential Effect (APE). Because the proposed project parameters have not been finalized, the entire project site (Block 169, Lot 1) is considered the APE.

One of the most critical pieces of information reviewed as part of the Phase IA research was a series of photographs taken of the Markham Gardens complex under construction in 1942-1943, on file at the NYCHA archives, which illustrate that significant and extensive earthmoving occurred on the property during the twentieth century. In fact, the project site landform was extensively altered in order to construct the Markham Houses. Appendix A, a selection of these photographs, shows that original site soils were heavily disturbed from grading, excavating, and soil stockpiling activities. Construction of the new buildings and utilities then involved significant additional excavation on the site. Additionally, although the present landscape on the site is nearly flat, the photographs in Appendix A show that this level terrain was artificially created through grading, filling, and landscaping. Therefore, based on the photographs, it must be concluded that the original ground surface of the project site has been completely obliterated and the underlying soils have been churned up and redeposited.

Based on these data, HPI concluded that while the project site is located in an area where a number of precontact period archaeological sites have been recorded in the past, it is likely that any potential precontact resources in the area have been destroyed by modern development and construction activities. Likewise, although in its undisturbed state historical archaeological sensitivity for the property would be high in areas that were developed prior to the mid-1880s when piped city water became available, the high degree of disturbance to the property negates this conclusion and renders historic period sensitivity low. Additionally, while the Markham Gardens complex itself is eligible for the State and National Registers of Historic Places and is greater than 50 years of age, there should be no significant archaeological resources associated with this development. Due to the high level of ground disturbance on the project site, HPI recommends that no additional archaeological investigations are necessary.

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8. Project site showing wide sidewalks along interior of property. View looking north from interior of site.

I. INTRODUCTION

The New York City Housing Authority (NYCHA) is proposing to construct up to 80 units of senior housing, 25 two-family townhouses, and 240 rental units on a 12.4-acre block in the West New Brighton section of Staten Island (Figure 1). The project site is bounded by Broadway to the west, Richmond Terrace to the north, North Burgher Avenue to the east, and Wayne Street to the south, and is known as Block 169, Lot 1. The block is presently occupied by a 360-unit row housing development for public housing residents, known as Markham Gardens, which was built in 1942-1943 as the Edwin Markham Houses (Figure 2).

NYCHA is the lead agency for the proposed project. As part of the environmental review process, the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) were contacted by Urbitran Associates. The LPC responded that the property had no architectural significance but may possess potential archaeological significance from nineteenth century occupation and as such recommended an archaeological documentary study be conducted (Sutphin 2006). The NYSOPRHP responded that the Markham Gardens complex is eligible for the State and National Registers of Historic Places, and that a Phase IA archaeological survey is necessary for all portions of the project site that will involve ground disturbance (Cumming 2006). Areas that will be affected by future ground disturbance are considered the Area of Potential Effect (APE). Because the proposed project parameters have not been finalized, the entire project site (Block 169, Lot 1) is considered the APE.

This Phase IA Archaeological Assessment was prepared to satisfy the requirements of the National Environmental Protection Act (NEPA), the State Environmental Quality Review Act (SEQRA), and New York City Environmental Quality Review (CEQR). The report complies with the standards of the LPC and the NYSOPRHP (LPC 2002; New York Archaeological Council 1994; NYSOPRHP 2005). The HPI project team consisted of Julie Abell Horn, M.A., R.P.A., who conducted research and wrote the report; Christine Flaherty, M.A., who conducted a site visit and assisted with the research; Luc Litwinionek, M.S., R.P.A., who prepared the graphics; and Cece Saunders, M.A., R.P.A. who managed the project, conducted a site visit, and provided editorial and interpretive assistance.

II. METHODOLOGY

The present study entailed review of various resources.

- Historic maps were reviewed at the New York Public Library, the Richmond County Clerk's Office, and using various online websites. These maps provided an overview of the topography and a chronology of land usage and ownership/occupation for the study site.
- Site visits were conducted on May 18 and 25, 2006 to assess any obvious or unrecorded subsurface disturbance related to potential archaeological resources (Photographs 1-8). The location and orientation of the photographs are shown on Figure 2. The site visits revealed that the entire project site has been severely disturbed from construction of the Markham Gardens complex in 1942-1943.
- Disturbance to the original ground surface was confirmed using a series of ca. 40 photographs taken of the Markham Gardens complex under construction in 1942-1943, which clearly show the massive earthmoving that occurred during this period. These photographs are on file in the NYCHA Collection, housed at the LaGuardia and Wagner Archives at LaGuardia Community College (CUNY) in Long Island City, Queens. A selection of these photographs is reproduced as Appendix A, and their content is discussed more fully throughout the report.
- Because the original landform of the project site was shown to be so severely disturbed based on the 1942-1943 photographs, occupational data concerning former residents and commercial establishments on the project site during the nineteenth century was only minimally undertaken. Sources consulted included Federal Censuses and selected city directories. Of note, tax assessment records and city directories, which are standard resources consulted as part of a documentary study, were not particularly useful for this property. Nineteenth-century tax assessment records for this part of Staten Island, available at the Staten Island Historical Society, are only extant beginning in the mid-1890s, and nineteenth-century city directories that included residential listings were only available beginning in the 1880s.
- Several primary and secondary sources concerning the general precontact period and history of Staten Island and specific events associated with the project site were also reviewed at the New York Public Library and the Staten Island Institute of Arts and Sciences.

- Several primary and secondary sources concerning the general precontact period and history of Staten Island and specific events associated with the project site were also reviewed at the New York Public Library and the Staten Island Institute of Arts and Sciences.
- New York City Department of Buildings data were reviewed using the department's online website. However, despite numerous entries on the website, the records department no longer retains most of these materials in its files (Kelly 2006).
- A site file search was conducted at the NYSOPRHP and additional materials were reviewed at the LPC. All archaeological sites within one mile of the project site were documented.
- Urbitran Associates provided various maps, site data, and environmental site assessments for the property, and forwarded selected construction plans of the original Markham Houses from the NYCHA.

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. CURRENT CONDITIONS

As described in the Introduction, the project site is located south of Richmond Terrace, between Broadway on the west and North Burgher Avenue on the east. Wayne Street marks the southern border of the site. The entire project site is covered by the Markham Gardens complex, which includes 30 two-story apartment buildings spaced over the majority of the property, a heating plant along North Burgher Avenue, and a community center building in the interior section of the lot, surrounded by playgrounds and surface parking lots. At the time of the field visits, the complex was vacant of tenants. A report prepared by the Pratt Institute (2005) describes the apartment buildings on the site.

Markham Gardens Houses consists of 360 apartments in 30 residential buildings, all of which are two stories tall with a crawl space and flat roof. Each building is approximately 25 feet from front to back and all the apartments extend through the building. The length of the buildings vary, with the shortest having 6 apartments and the longest with 16 apartments. The typical apartment is a duplex and the widths vary depending on the number of bedrooms. Thirty-six of the apartments are simplex units and these are all located at the ends of buildings. The buildings are constructed with concrete foundation walls. The floors and roofs are constructed with wood joists spanning from the front to the back of the building. The separation walls between the apartments are constructed with concrete block, while the other walls are wood frame. The exterior walls are faced with stucco.

In the crawl space there is approximately 3 feet of headroom. The floor is earth and the joists are exposed with no ceiling or insulation. Ventilation is provided via vents through the exterior walls at the level of the joists. The crawl space area is compartmentalized by concrete block walls that separate the apartments. There is a small opening in each of these separation walls for access. The roofs are basically flat with a drainage slope from front to back and a continuous gutter along the back. There is a low parapet at the front and rear ends (Pratt 2005:7).

Between the apartment buildings are landscaped areas. There are small front yards often enclosed by fencing, with sidewalks between the buildings located on the interior of the property (Photograph 1), and along the surrounding streets on the exterior of the property (Photograph 2). Trees, many of which were planted in the 1940s, are located at various spots in between the buildings. Behind the apartment buildings are small rear yards, also separated by sidewalks (Photograph 3). Lamp posts in the rear yards attest to the laying of underground electric lines through these areas. In general, most of the open space between the apartment buildings has been covered by landscaping, utility lines, fencing, stoops, and sidewalks.

The heating plant along North Burgher Avenue is a red brick building, one-two stories in height, with a smoke stack (Photograph 4). A Phase I Environmental Site Assessment prepared for the site (Parsons Brinckerhoff 2005) indicates that there is an 8,000-gallon above-ground storage tank on the west side of the heating plant building, surrounded by a chain link fence. According to the report, this above ground storage tank replaced two 20,000-gallon underground storage tanks located east of the heating plant building, which have been taken out of service. These 20,000-gallon tanks may have replaced yet an earlier set of tanks: one of the photographs from the 1942-1943

construction series shows three large side-by-side heating elements being installed at the heating plant (see Appendix A).

The interior section of the site contains a community center building (Photograph 5) that formerly housed a nursery and the property's management office. The building is surrounded by playgrounds and basketball courts, as well as parking lots (Photograph 6). Both paved roads (Photograph 7) and wide sidewalks (Photograph 8) lead from the exterior streets into this interior section of the property.

B. TOPOGRAPHY AND HYDROLOGY

As a whole, the Markham Gardens project site is relatively level, at about 20 feet above mean sea level. Comparison of historic and modern topographical maps (USGS 1891; 1976, 1995) indicates that this overall elevation has not changed markedly over time. However, a more detailed topographical map, the Borough of Richmond Topographic Map of 1908, indicates that the project site originally ranged from 4-20 feet above the Richmond high water datum (which is equal to approximately 7-23 feet above mean sea level), with the lowest elevation in the northwest corner and the highest in the northeast corner (see Figure 10). The property had a more noticeable slope than today, with the south and eastern sides higher than the north and western sides. Thus, comparison of the topographical maps shows that there has been both grading and filling on the property.

The project site lies in close proximity to both the Kill Van Kull (which is on the north side of Richmond Terrace, less than one block away) and the perennial drainage that empties into the Kill Van Kull and which was dammed in the nineteenth century to power the Factoryville mills (on the west side of Broadway, also less than one block away). The project site, itself, however, does not have any mapped natural water sources within it.

C. GEOLOGY

The project site sits within the western edge of the Piedmont Lowlands. As described by Boesch (after Wolfe 1977),

The Piedmont Lowlands make up about one fifth of the land area of Staten Island and consist of gently rolling terrain, generally between 50 and 100 feet in elevation, which gradually slopes to the southeast. The undulating surface is interrupted by an intrusive ridge, 200 to 250 feet in elevation, and by slightly lower, plateau-like topographic features. The rolling lowlands are generally underlain by Triassic and Jurassic age shales, siltstones, and sandstones of the Brunswick Formation of the Newark Group[,] while the ridges are composed of basaltic lava flows and diabase traprock. The plateau-like features developed on erosion resistant Lockatong Formation Argillites.
(Boesch 1994: 3)

During the precontact era the woodlands of the Piedmont Lowlands consisted of broadleaf deciduous trees, which provided a habitat for "games birds, small mammals, deer, bear, and during at least a portion of the precontact period, elk" (Boesch 1994: 6). Mixed wetland ecologies provided numerous floral and faunal resources, the most important faunal resources being the shellfish found in saltwater and brackish environments. Freshwater faunal resources include "mussels, fish, certain amphibians and reptiles, migratory fowl, and semi-aquatic mammals. Anadromous fish species would have been present seasonally within Staten Island via streams emptying into the estuary system" (Boesch 1994: 5-6).

D. SOILS

In 2005, the Natural Resources Conservation Service published its first comprehensive soil survey for New York City, and this publication became available online in early 2006. Much of the West New Brighton section of Staten Island, including the project site, is mapped as "Pavement and buildings, Foresthills-Wethersfield complex, 0-8 percent slopes." This mapping unit is described as:

Nearly level to gently sloping areas of urbanized till plains that have been cut and filled for residential use; a mixture of anthropogenic and red till soils, with 50 to 80 percent of the surface covered by impervious pavement and buildings; located in Staten Island (USDA 2005:20).

Characteristics of the Foresthills and Wethersfield soils are described in the table below. Figure 3 illustrates the project site on the USDA soil map (USDA 2005).

Project Site Soils

Name	Soil Horizon Depth cm(in)	Color	Texture, Inclusions	Slope %	Drainage	Landform
Foresthills series	A: 0-2 in Bw: 2-15 in Ab: 15-17 in BAb: 17-28 in Bwb: 28-42 in Cd: 42-60 in	VDkGryBrn Brn/YelRd/Bk Bk Brn RedBrn YelRed	Lo SiLo Lo Lo Lo Lo	0-8	Well	Anthropogenic urban fill plains
Wethersfield series	A: 0-3 in Bw1: 3-13 in Bw2: 13-27 in Cd: 27-65 in	DkBrn RedBrn DkRedBrn RedBrn	Lo Lo GrlLo GrlLo	0-8	Well	Till plains, hills, and moraines

Key: Shade: Dk-Dark, V-Very
Color: Brn-Brown, Red-Red, Yel-Yellow, Bk-Black
Soils: Lo-Loam, Si-Silt
Other: Grl-Gravel

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. PRECONTACT SUMMARY

For this report, the word precontact is used to describe the period prior to the use of formal written records. In the western hemisphere, the precontact period also refers to the time before European exploration and settlement of the New World. Archaeologists and historians gain their knowledge and understanding of precontact Native Americans on Staten Island from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

The Paleo Indian Period (c. 10,500 B.C. - c. 8000 B.C.) represents the earliest known human occupation of Staten Island. Approximately 14,000 years ago the Wisconsin Glacier retreated from the area leading to the emergence of a cold dry tundra environment. Sea levels were considerably lower than modern levels during this period (they did not reach current levels until circa 5,000 B.C., in the Early to Middle Archaic Period). As such, Staten Island was situated much further inland from the Atlantic Ocean shore than today, and was characterized by higher ground amid glacial lakes and rivers (Boesch 1994). The material remains of the Paleo Indians include lithic tools such as Clovis-type fluted projectile points, bifacial knives, drills, graters burins, scrapers, flake cores, and flake tools, although sites generally are represented by limited small surface finds. The highly mobile nomadic bands of this period specialized in hunting large game animals such as mammoth, moose-elk, bison, and caribou and gathering plant foods. It has been theorized that the end of the Paleo-Indian Period arose from the failure of over-specialized, big-game hunting (Snow 1980:150-157). Based on excavated Paleo-Indian sites in the Northeast, there was a preference for high, well-drained areas in the vicinity of streams or wetlands (Boesch 1994). Sites have also been found near lithic sources, rock shelters and lower river terraces (Ritchie 1980). Paleo-Indian materials have been recovered at several sites on Staten Island including Port Mobil, the Cutting site, Smoking Point and along the beach in the Kreischerville area.

During the Archaic Period (c. 8000 B.C. - 1000 B.C.) a major shift occurred in the subsistence and settlement patterns of Native Americans. Archaic period peoples still relied on hunting and gathering for subsistence, but the emphasis shifted from hunting large animal species, which were becoming unavailable, to smaller game and collecting plants in a deciduous forest. The settlement pattern of the Archaic people consisted of small bands that occupied larger and relatively more permanent habitations sites along the coast of Staten Island, its estuaries and streams and inland areas (Boesch 1994). Typically such sites are located on high ground overlooking water courses. This large period has been divided up into four smaller periods, the Early, Middle, Late and Terminal Archaic.

The environment during the Early Archaic (c. 8000 B.C. - 6000 B.C.) displayed a trend toward a milder climate and the gradual emergence of a deciduous-coniferous forest with a smaller carrying capacity for the large game animals of the previous period (Ritchie and Funk 1971). The large Pleistocene fauna of the previous period were gradually replaced by modern species such as elk, moose, bear, beaver, and deer. New species of plant material suitable for human consumption also became abundant. The increasing diversification of utilized food sources is further demonstrated by a more complex tool kit. The tool kit of the Early Archaic people included bifurcated or basally notched projectile points generally made of high quality stone. Tool kits were more generalized than during the Paleo-Indian period, showing a wider array of plant processing equipment such as grinding stones, mortars and pestles. Early Archaic component sites on Staten Island include the Old Place, Hollowell, Charleston Beach, Wards Point, Travis, and Richmond Hill sites (Ritchie and Funk 1971; Boesch 1994).

The archaeological record suggests that a population increase took place during the Middle Archaic Period (c. 6000 - c. 4000 B.C.). This period is characterized by a moister and warmer climate and the emergence of an oak-hickory forest. The settlement pattern during this period displays specialized sites and increasing cultural complexity. The exploitation of the diverse range of animal and plant resources continued with an increasing importance of aquatic resources such as mollusks and fish (Snow 1980). In addition to projectile points, the tool kits of Middle Archaic peoples included grinding stones, mortars, and pestles. Such artifacts have been found throughout Staten Island, including the Old Place and Wards Point sites (Boesch 1994).

Late Archaic people (c. 4000 - c. 1000 B.C.) were specialized hunter-gatherers who exploited a variety of upland and lowland settings in a well-defined and scheduled seasonal round. The period reflects an increasingly expanded economic base, in which groups exploited the richness of the now established oak-dominant forests of the region. It is characterized by a series of adaptations to the newly emerged, full Holocene environments. As the period progressed, the dwindling melt waters from disappearing glaciers and the reduced flow of streams and rivers promoted the formation of swamps and mudflats, congenial environments for migratory waterfowl, edible plants and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech and elm attracted white-tailed deer, wild turkey, moose and beaver. The large herbivores of the Pleistocene were rapidly becoming extinct and the Archaic Indians depended increasingly on smaller game and the plants of the deciduous forest. The projectile point types attributed to this period include the Lamoka, Brewerton, Normanskill, Lackawaxen, Bare Island, and Poplar Island. The tool kit of these peoples also included milling equipment, stone axes, and adzes. A large number of Late Archaic Period sites have been found on Staten Island. These include the Old Place, Pottery Farm, Bowman's Brook, Smoking Point, Goodrich, Sandy Brook, Wort Farm, and Arlington Avenue sites (Boesch 1994).

During the Terminal Archaic Period (c. 1700 B.C. - c. 1000 B.C.), native peoples developed new and radically different broad bladed projectile points, including Susquehanna, Perkiomen and Orient Fishtail types. The use of steatite or stone bowls is a hallmark of the Terminal Archaic Period. Sites on Staten Island from the Terminal Archaic Period include the Old Place, Pottery Farm, Wards Point, and Travis sites (Boesch 1994).

The Woodland Period (c. 1000 B.C. - 1600 A.D.) is generally divided into Early, Middle and Late Woodland on the basis of cultural materials and settlement-subsistence patterns. Settlement pattern information suggests that the broad based strategies of earlier periods continued with a possibly more extensive use of coastal resources. The Early Woodland was essentially a continuation of the tool design traditions of the Late Archaic. However, several important changes took place. Clay pottery vessels gradually replaced the soapstone bowls during the Early Woodland Period (c. 1000 B.C. to A.D. 1). The earliest ceramic type found on Staten Island is called Vinette 1, an interior-exterior cordmarked, sand tempered vessel. The Meadowood-type projectile point is a chronological indicator of the Early Woodland Period.

Cord marked vessels became common during the Middle Woodland Period (c. A.D. 1 to c. 1000 A.D.). Jacks Reef and Fox Creek-type projectile points are diagnostic of the Middle Woodland. Another characteristic projectile point of the early to Middle Woodland Period is the Rossville type, named for the site at Rossville where it predominated. It is believed to have originated in the Chesapeake Bay area and is found in New Jersey, southeastern New York and southern New England (Lenik 1989:29). The Early and Middle Woodland periods display significant evidence for a change in settlement patterns toward a more sedentary lifestyle. The discovery of large storage pits and larger sites in general has fueled this theory. Some horticulture may have been utilized at this point but not to the extent that it was in the Late Woodland period.

In the Late Woodland period (c. 1000 A.D. - 1600 A.D.), triangular projectile points such as the Levanna and Madison types, were common throughout the Northeast, including Staten Island (Lenik 1989:27). Made both of local and non-local stones, brought from as far afield as the northern Hudson and Delaware River Valleys, these artifacts bear witness to the broad sphere of interaction between groups of native peoples in the Northeast. Additionally, during this period collared ceramic vessels, many with decorations, made their appearance.

Woodland Period Native Americans in Staten Island and surrounding regions shared common attributes. The period saw the advent of horticulture and with it, the appearance of large, permanent or semi-permanent villages. Plant and processing tools became increasingly common, suggesting an extensive harvesting of wild plant foods. Maize cultivation may have begun as early as 800 years ago. The bow and arrow, replacing the spear and javelin, pottery vessels instead of soap stone ones, and pipe smoking, were all introduced at this time. A semi-sedentary culture, the Woodland Indians moved seasonally between villages within palisaded enclosures and campsites, hunting deer, turkey, raccoon, muskrat, ducks and other game and fishing with dug-out boats, bone hooks, harpoons and nets with pebble sinkers. Their shellfish refuse heaps, called "middens," sometimes reached immense proportions of as much as three acres (Ritchie 1980:80, 267). Habitation sites of the Woodland Period Indians increased in size and permanence. A large number of Woodland Period archaeological sites have been found on Staten Island in a variety of environmental settings. A favored setting for occupation during this period was well-drained ground near stream drainages and coastal waterways.

During the early Contact period (1500 to 1700 A.D.) there was a continuation of the Late Woodland settlement patterns of the coastal Algonquians. By the 17th century the Dutch settlers of lower New York were in frequent contact with the many Native Americans who lived in the vicinity. Historic accounts describe both peaceful and violent interchanges between these two groups (Brasser 1978, Flick 1933). Through at least the 1650s, Native Americans known as the Raritans occupied portions of Staten Island and New Jersey's Raritan Valley (Ruttenber 1872). The Raritans were but one of many native groups which as a whole were known as the Delaware Indians by the European settlers. As the European population increased, and internecine warfare due to increased competition for trade with the Europeans intensified, the Raritans, and the Delaware in general, retreated inland away from the eastern coast. By the 1800s their migration had scattered them across the Mid West and even into Canada (Weslager 1972), where they have continued living to the present day. Journal accounts by European explorers, settlers and travelers describe Native settlements and lifeways. However, only a few Historic Contact Period sites have been found on Staten Island. Sites include those at Wards Point, Old Place, Corsons Brook, Travis, New Springfield, and at the PS56R Site in Woodrow (Boesch 1994; HPI 1996).

B. PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES AND SURVEYS

Records on file at the NYSOPRHP, the NYSM, and the LPC indicate that there are eight precontact and seven historic period archaeological sites within one mile of the project site. Not all of the precontact sites may be discrete sites, but rather may have been recorded duplicate times. All of the precontact sites have been destroyed by modern construction. The historic period sites consist of the remains (many now removed) of six maritime vessels within the Kill Van Kull, and an historic cemetery. These sites are summarized in the table, below.

NYSOPRHP Site #	Additional Site #	Distance from APE	Time Period	Site Type
08501.000004	NYSM 4592, Boesch 62	Ca. 0.4 mile southwest	Woodland	Village with burials
	NYSM 4591, Boesch 63	Ca. 0.5 mile northeast	Woodland	Villages with burials; may be several discrete loci
	NYSM 734, Boesch 64	Ca. 0.2 mile northeast	Unknown precontact	Village with burials
	NYSM 7812	Ca. 0.5 mile southwest	Unknown precontact	Unknown
	NYSM 7813	Ca. 0.5 mile southwest	Unknown precontact	Unknown
	NYSM 8475	Ca. 1 block east	Unknown precontact	Unknown

NYSOPRHP Site #	Additional Site #	Distance from APE	Time Period	Site Type
	Boesch 106	Ca. 0.9 mile southwest	Unknown precontact	Camps
	Boesch 107	Various loci, nearest is ca. 0.7 mile southwest	Unknown precontact	Small camp
08501.002362		2 blocks west	Nineteenth and twentieth century	Cemetery
08501.002605		Ca. 0.4 mile northwest	Unknown historic	Maritime vessel remains
08501.002611		Ca. 0.3 mile northwest	Unknown historic	Maritime vessel remains
08501.002612		Ca. 0.4 mile northwest	Unknown historic	Maritime vessel remains
08501.002616		Ca. 0.2 mile northwest	Unknown historic	Maritime vessel remains
08501.002617		Ca. 0.5 mile northwest	Unknown historic	Maritime vessel remains
08501.002701		Ca. 0.3 mile northwest	Unknown historic	Maritime vessel remains

In addition to the previously documented archaeological sites, various cultural resources investigations have occurred within a one mile radius of the project site. Two of the studies were undertaken within or along the shoreline of the Kill Van Kill (Raber Associates 1996; Panamerican Consultants 1999), while the remainder of the studies were conducted at the Snug Harbor Cultural Center and the Staten Island Botanical Gardens, both located approximately 0.75 mile to the east of the project site just south of Richmond Terrace (Baughner et al. 1991; 1985a, 1985b; Baughner and Baragli 1987; Baughner and Lenik 1990; Cotz 1984; Roberts et al. 1988, 1989).

Boesch's sensitivity study for the Borough of Staten Island (1994), commissioned by the LPC, does not identify the project site as archaeologically sensitive. He identifies the closest areas of archaeological sensitivity as the area just south of Richmond Terrace immediately to the west of the project site, along Castleton Avenue (several blocks southwest), and the Clove Valley (about 0.5 mile to the southwest). Last, Archaeologist/Historian Robert S. Grumet (1981) notes the presence of a Native American trail following the route of Richmond Terrace to Clove Road, located about 0.5 mile west of the project site. He also identifies two habitation sites on the north and south sides of Richmond Terrace in the vicinity of the project site. These habitation sites correspond to two of the sites outlined in the table, above, although due to the scale of the map it is difficult to tell which ones.

C. HISTORIC PERIOD SUMMARY

Staten Island was the most sparsely settled portion of New York City during early Euro-American settlement. In 1630, while under Dutch rule, Michael Pauw purchased land from the Native Americans. Five years later, he sold it to the Dutch West India Company, which sold land rights to Pietersz De Vries in 1639. Native hostilities and Governor Kieft's War forced the abandonment of these settlements in 1643. In 1657, the Dutch repurchased the island. However, when the British gained control of the island in 1664, only a small group of settlers were present at South Beach on the northeastern shore.

In a 1690 treaty English Governor Lovelace extinguished all Native American rights to Staten Island. Labadist missionaries traveling through Staten Island in 1679 observed that "there are now about a hundred families on the island, of which the English constitute the least portion, and the Dutch and French divide between them about equally the greatest portion. They have neither church nor minister and live rather far from each other" (Dankers and Sluyter 1867:142).

While under British control economic activities focused on the raising of livestock, and oystering. Through to the 1830s, farming and fishing were the primary economic activities on Staten Island (WPA 1982: 600). Oystering

developed into an extensive trade after about 1830, and continued through the nineteenth century (Leng and Delevan 1924:22).

Industrialization following the Civil War influenced the development of Staten Island. Industrial growth occurred along the north and northeastern shores. The Staten Island Rapid Transit railroad, located along the northern shore of the island, was in place by the mid-1880s, with the railroad bridge over the Arthur Kill opened in 1889 (Leng and Delevan 1924:24). Piped water and electricity were introduced on Staten Island in the 1880s and sewers in the 1890s (Leng and Delevan 1924:26-29). In 1916, water pollution became so bad that the Department of Health condemned the oyster beds, effectively ending an era (Smith 1970:152). After this time, shipbuilding became the primary industry of Staten Island (WPA 1982: 601).

In the twentieth-century, Staten Island became tied to Manhattan through regular ferry service, and to New Jersey by a series of bridges – the Goethals Bridge in 1928, the Outerbridge Crossing in 1928, and the Bayonne Bridge in 1931. However, dramatic changes to Staten Island occurred only after the opening of the Verrazano Narrows Bridge in 1964, after which the island took on a suburban character.

D. HISTORY OF THE PROJECT SITE

According to a reconstructed map of colonial patents, the project site falls within a 160-acre area originally granted to Garrett Cruse in 1677, which encompassed much of what is now known as West Brighton (Skene 1907). By 1672, neighboring landowner John Palmer had constructed one of Staten Island's first tide mills at the mouth of what was later known as the Clove Valley Creek or Bodine's Creek, about one half mile west of the project site (Leng and Davis 1930, Vol. II:610). This mill later was known as Dongan's lower mill, and is clearly depicted on several late eighteenth-century maps and reconstructions (Anglo-Hessian 1780-1783 [Figure 4]; Taylor and Skinner 1781; McMillen 1949). The Anglo-Hessian map indicates that within the project site or its immediate vicinity, two structures had been built south of Richmond Terrace, attributed to L. Roome and J. Rolphe. Several structures belonging to the "Kruse" family were located to the east of the project site.

The project site vicinity began to develop more fully around 1819, when Factoryville (the original name for West Brighton) came into existence with the purchase of a former mill at the foot of Broadway by Barrett, Tileston and Company, who established the Staten Island Dyeing and Printing Establishment and diverted water from the Clove Valley Creek northeast towards the Kill Van Kull to form the factory's pond. The factory lured many settlers to the north shore of Staten Island (Leng and Delevan 1924:22; Leng and Davis 1930, Vol. II:616-617; Smith 1942).

Although no historic maps of the area are available from the 1810s-1830s, it should be assumed that at some point during this period the project site experienced its first development. A chancery map from 1844, on file at the Richmond County Clerk's office, illustrates that in this year, the west side of the project site was owned by the Nathan Britton, Jr. Estate, and there was a stone cottage and barn just south of Richmond Terrace, but the remaining acreage was undeveloped. The east side of the project site belonged to the Estate of D.D. Burger, for whom North Burgher Avenue (the eastern boundary of the project site) is named (Clute and Cary 1844).

The first detailed nineteenth-century historic map that shows the entire project site was published by Dripps in 1850 (Figure 5). By this time, numerous structures had been built within Factoryville and the area south of Richmond Terrace, including a number within the project site, both south of Richmond Terrace, along the east side of Broadway, and along the east-west streets that would later be named Franklin and Union Streets (Union Street is now Wayne Street). Only one of the buildings within the project site is labeled, however: a structure attributed to "Merseraux" was located at the extreme northeastern corner of the project site. The Butler map, published in 1853, illustrates conditions nearly identical to the earlier Dripps map. Again, a number of structures are shown within the project site, but only the Mersereaux building is labeled.

The next historic map that indicates additional owners and/or occupants of structures within the project site was published by Walling in 1859 (Figure 6). This map shows a total of 43 structures, located along all of the streets that had now been laid out. Tracing the various names on the Walling map in the 1850 and 1860 federal censuses reveals that the large majority of the project site's household heads held working class professions, including many associated with the dyeing factory across the street. Occupations included dyer, silk printer, bleacher, laborer in dye house, as well as other trades such as painter, carpenter, mariner, sail maker, and general laborer. A large

percentage of the less skilled residents had been born in Ireland. However, despite their lower incomes, the censuses note that a number of the residents owned real estate, suggesting that many of the homes on the project site were owned and not rented.

Although several additional historic maps are available from subsequent years (e.g. Higginson 1860; Colton 1866; Dripps 1872), none shows enough detail to accurately determine the owners/occupants of the buildings on the project site during this period. However, the Beers map from 1874 (Figure 7) illustrates a fair bit of detail compared to earlier maps, including some lot lines and structure shapes. This map also indicates some owners and/or occupants of structures within the project site. Some of the names match those identified on the 1859 Walling map, suggesting that there was at least some long-term ownership and/or occupancy on the site. Comparing names on the 1874 Beers map with those in the 1870 and 1880 federal censuses again reveals a predominantly working class population on the site, with a number of residents employed at the local factories or as laborers. The large Irish immigrant population on the site continued. Again, though, many of the residents were noted as owning homes. The Beers map also shows that the dyeing factory occupied a large section of open land on the east side of Broadway.

The Sanborn Insurance maps, which provide the most detailed view of the project site including specific building footprints, were first published for portions of the project site in 1885. Although the Sanborn maps do not indicate ownership or occupancy of the buildings on the property, they do illustrate functions and characteristics of structures. The 1885 Sanborn map shows that most of the dwellings on the site were two stories high and set back slightly from the streets. Some shanties and tenements were noted interspersed between dwellings. Along Broadway north of Franklin Street, commercial establishments included a meat store, a candy store, and a saloon, whereas the corner of Broadway and Richmond Terrace contained a millinery, a saloon, an ice cream store, and a police station. The block bounded by Broadway, Burgher, Franklin and Union was part of an area labeled "Cork Town" which presumably attested to a high Irish immigrant population. The 1885 Sanborn map also illustrates that water pipes had been laid under Richmond Terrace, Burger Street, and Broadway by this time, although Franklin Street was shown to have a well and pump and a well house within the streetbed. According to Leng and Davis (1930, Vol. II:635), the Staten Island Water Supply Company began water delivery in 1881. After this year, local residents and businesses presumably began to decrease their reliance on back yard water shaft features, such as wells and cisterns.

Historic maps made during the remaining years of the nineteenth century illustrate little overall change to the project site. The Beers map from 1887 (Figure 8) illustrates much of the same data as the earlier 1874 edition, and shows that while there were some new owners and/or occupants, some of the families on the property had not changed in the intervening years. Webb's 1886 City Directory confirms a reasonably static community on the property, with many names shown on historic maps appearing in the directory pages. The 1898 Sanborn map (Figure 9) includes the entire project site, and shows the location of the various lot lines. It also indicates that the remaining streets within the project site had been provided with water pipes by this time. The 1898 Robinson map shows similar conditions to the 1898 Sanborn map, and identifies a few of the owners and/or occupants.

The project site did not change markedly during the first decades of the twentieth century (Robinson 1907, Borough of Richmond 1908 [Figure 10], Sanborn 1917 [Figure 11], 1937). The property continued to support dwellings along most of the street fronts, with some commercial establishments along Broadway and Richmond Terrace. By 1917, the dyeing company holdings on Broadway had become a lumber yard, John Street had become Campbell Avenue and was extended through to Union Street, which was now known as Wayne Street. Burgher Street was now called North Burgher Avenue. By the 1937 edition of the Sanborn map, Franklin Street had been renamed Bement Court.

By the 1940s, however, the project site changed irrevocably when the 110 buildings on the property were demolished in order to build the Edwin Markham Houses, now known as the Markham Gardens complex. The property had been earmarked as early as the mid-1930s by the newly formed New York City Housing Authority as a site for a low-rent housing development, but after the property was reclassified as Defense Worker Housing under the Lanham Act of 1940, federal funding for the project allowed design and construction of the complex to be expedited and the residency extended to workers at nearby shipyards aiding the defense effort. The Edwin Markham Houses were designed by the architects De Young & Moskowitz and Frederick Mathesius and construction of the complex began in the spring of 1942, after razing the existing buildings on the site (Pratt 2005).

Appendix A provides a selection of images showing the project site after demolition of the former buildings on the property and during construction of the Edwin Markham Houses in 1942-1943. As the images show, there was significant earthmoving involved to create the new complex, and it is unlikely that any of the original landform on the property survived the construction process.

The first families began moving into the Edwin Markham Houses in February 1943 and by the end of that year the complex was fully occupied by defense workers from the nearby waterfront. After World War II, the housing complex was converted to low-income housing by NYCHA, and housed a tight-knit community of residents during the ensuing decades (Pratt 2005). The 1951 Sanborn map (Figure 12) illustrates the layout of the Edwin Markham Houses complex on the project site (each building is numbered). The former streetbeds of Campbell Avenue (formerly John Street) and Bement Court (formerly Franklin Street) had been transformed into pedestrian thoroughfares for much of their length (renamed Wayne Court and Markham Road, respectively) although the map notes that utility lines still ran underneath the old streetbeds. By the 1990s, condition of the buildings had declined, resulting in deterioration of the physical condition of the complex. In 2004, NYCHA announced it would sell the property to be redeveloped and since that time the residents of the complex have vacated the premises (Pratt 2005). Today, Markham Gardens is vacant of residents.

V. CONCLUSIONS

A. PRECONTACT SENSITIVITY

Although the project site is located in an area where a number of precontact period archaeological sites have been recorded in the past, it is likely that any potential precontact resources in the area have been destroyed by modern development and construction activities (see Appendix A), as was the case with all the nearby precontact sites on file with regulatory agencies. Additionally, in his sensitivity assessment for Staten Island, Boesch (1994) does not indicate that the project site is sensitive for precontact archaeological resources. Based on these factors, HPI concurs that the project site is not sensitive for precontact archaeological resources.

B. HISTORIC PERIOD SENSITIVITY

Archival research indicates that the project site and/or its immediate vicinity contained structures as early as 1780, and the area began to develop in earnest after 1819. Historic maps confirm portions of the project site were developed by at least 1844, and probably earlier. By the mid-nineteenth century, much of the project site was covered with dwellings, shanties, and various commercial structures. Residents of the project site were predominantly working class, with many household heads employed at the nearby dyeing factory. Many of the residents were Irish immigrants. The project site continued to contain a mix of residential and commercial buildings, with a number of long-term owners and/or occupants, through the 1930s. Although in its undisturbed state historical archaeological sensitivity for the property would be high in areas that were developed prior to the mid-1880s, the high degree of disturbance to the property (see below) negates this conclusion and renders historic period sensitivity low.

C. DISTURBANCE RECORD

As described above and illustrated in Appendix A, construction of the Edwin Markham Houses in 1942-1943 necessitated demolition of 110 structures on the project site, most of which dated to the nineteenth century. Following demolition activities, the project site landform was extensively altered in order to construct the Markham Houses. Appendix A shows that original site soils were heavily disturbed from grading, excavating, and soil stockpiling activities. Construction of the new buildings and utilities subsequently involved significant additional excavation on the site. Additionally, although the present landscape on the site is nearly flat, the photographs in Appendix A show that this level terrain was artificially created through grading, filling, and landscaping. Therefore, based on the photographs, it must be concluded that the original ground surface of the project site has been completely obliterated and the underlying soils have been churned up and redeposited.

VI. RECOMMENDATIONS

A. PRECONTACT RESOURCES

As described above, HPI assigned the project site a low precontact sensitivity. As such, HPI recommends no additional archaeological investigations for precontact resources.

B. HISTORIC PERIOD RESOURCES

Although the project site contained a number of historic period structures that predated the introduction of piped municipal water, all traces of these nineteenth-century structures and any associated features appear to have been destroyed on the property as a result of twentieth-century disturbance to the ground surface and underlying soils, rendering the historic period archaeological sensitivity low. Additionally, while the Markham Gardens complex itself is eligible for the State and National Registers of Historic Places and is greater than 50 years of age, there should be no significant archaeological resources associated with this development. HPI therefore recommends no additional archaeological investigations are necessary for historic period resources.

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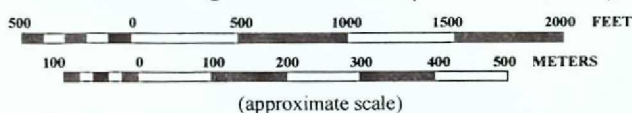


SOURCE: USGS TOPOGRAPHIC QUADRANGLES, 7.5' SERIES, JERSEY CITY, NJ-NY 1976; ELIZABETH, NJ-NY 1995

**PHASE IA ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK**



FIGURE 1. PROJECT SITE ON ELIZABETH AND JERSEY CITY, NY-NJ 7.5 MINUTE QUADRANGLES (USGS 1995, 1976)



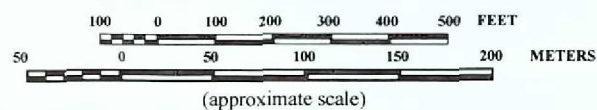


SOURCE: MODERN SANBORN, INSURANCE MAP OF RICHMOND BOROUGH OF NEW YORK CITY

**PHASE 1A ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK**



FIGURE 2. PROJECT SITE BOUNDARIES, CURRENT CONDITIONS, AND LOCATION AND ORIENTATION OF PHOTOGRAPHS (MODERN SANBORN)

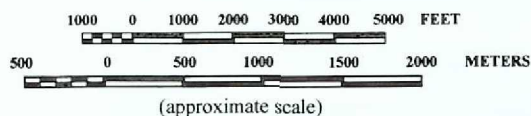


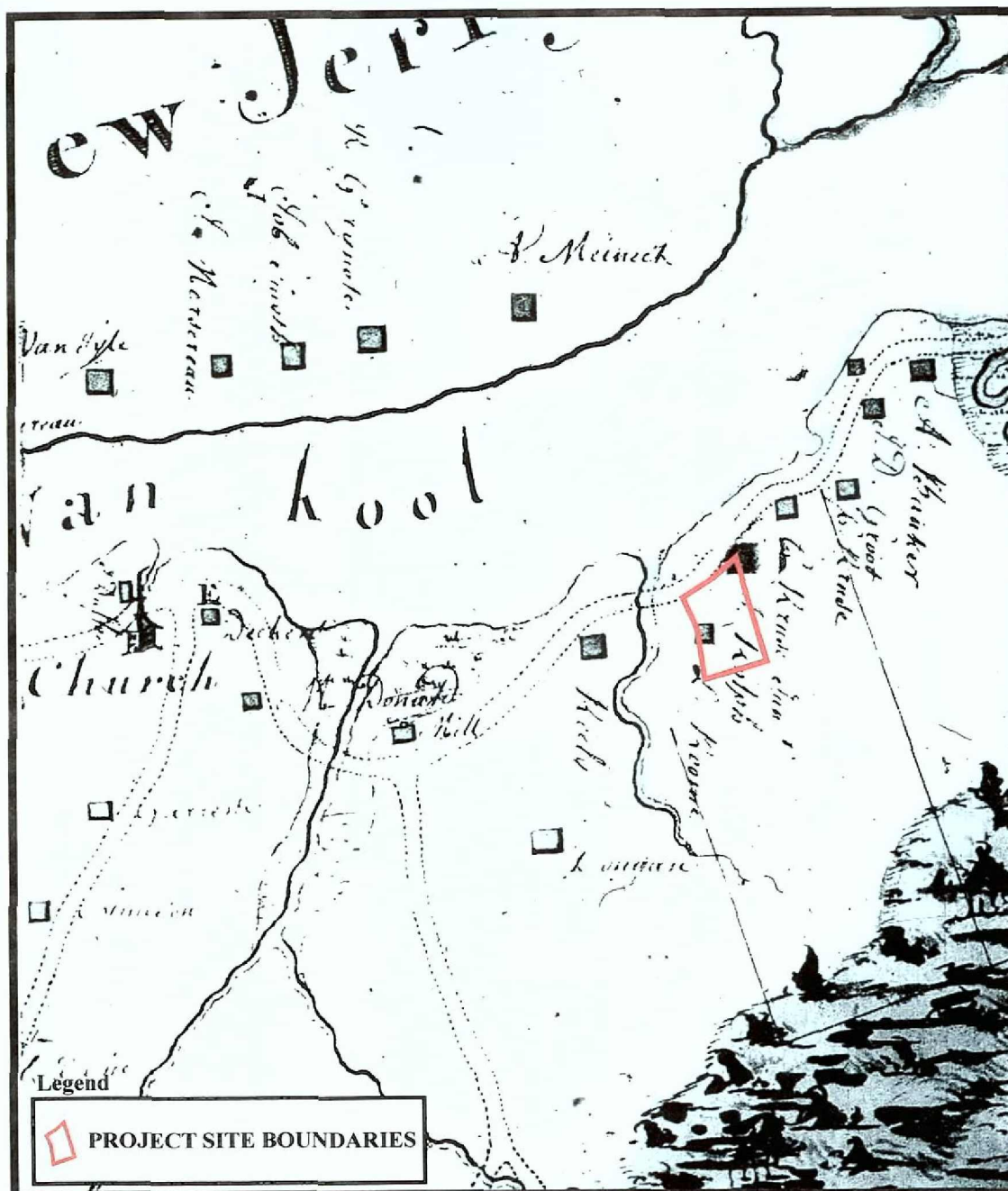


SOURCE: NEW YORK CITY SOIL AND WATER CONSERVATION DISTRICT; UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICES *NEW YORK CITY RECONNAISSANCE SOIL SURVEY 2005*

**PHASE IA ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK**

FIGURE 3. PROJECT SITE ON *NEW YORK CITY RECONNAISSANCE SOIL SURVEY* (USDA 2005)

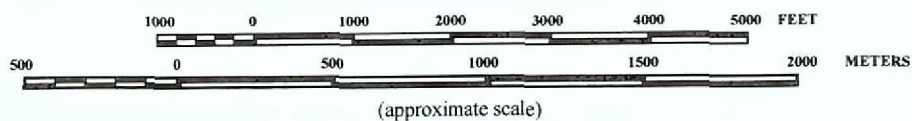


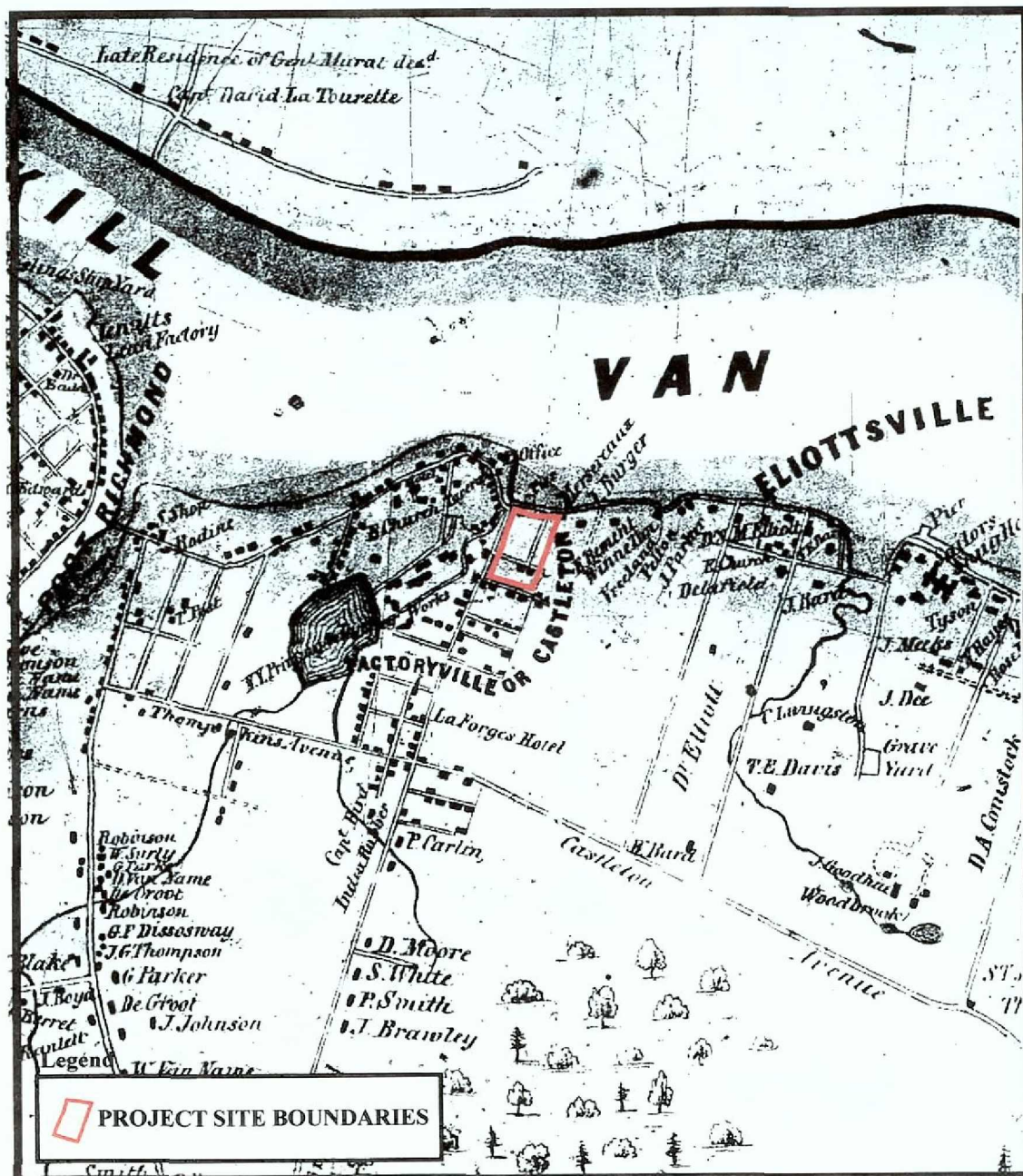


SOURCE: ANGLO-HESSIAN 1780-1783 PLAN (NO. 31) DU CAMP ANGLO-HESSOIS DANS STATEN ISLAND, BAIE DE NEW YORK DE 1780 A 1783

**PHASE IA ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK**

FIGURE 4. PLAN (NO. 31) DU CAMP ANGLO-HESSOIS DANS STATEN ISLAND, BAIE DE NEW YORK DE 1780 A 1783 (ANGLO-HESSIAN 1780-1783)



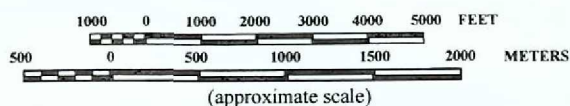


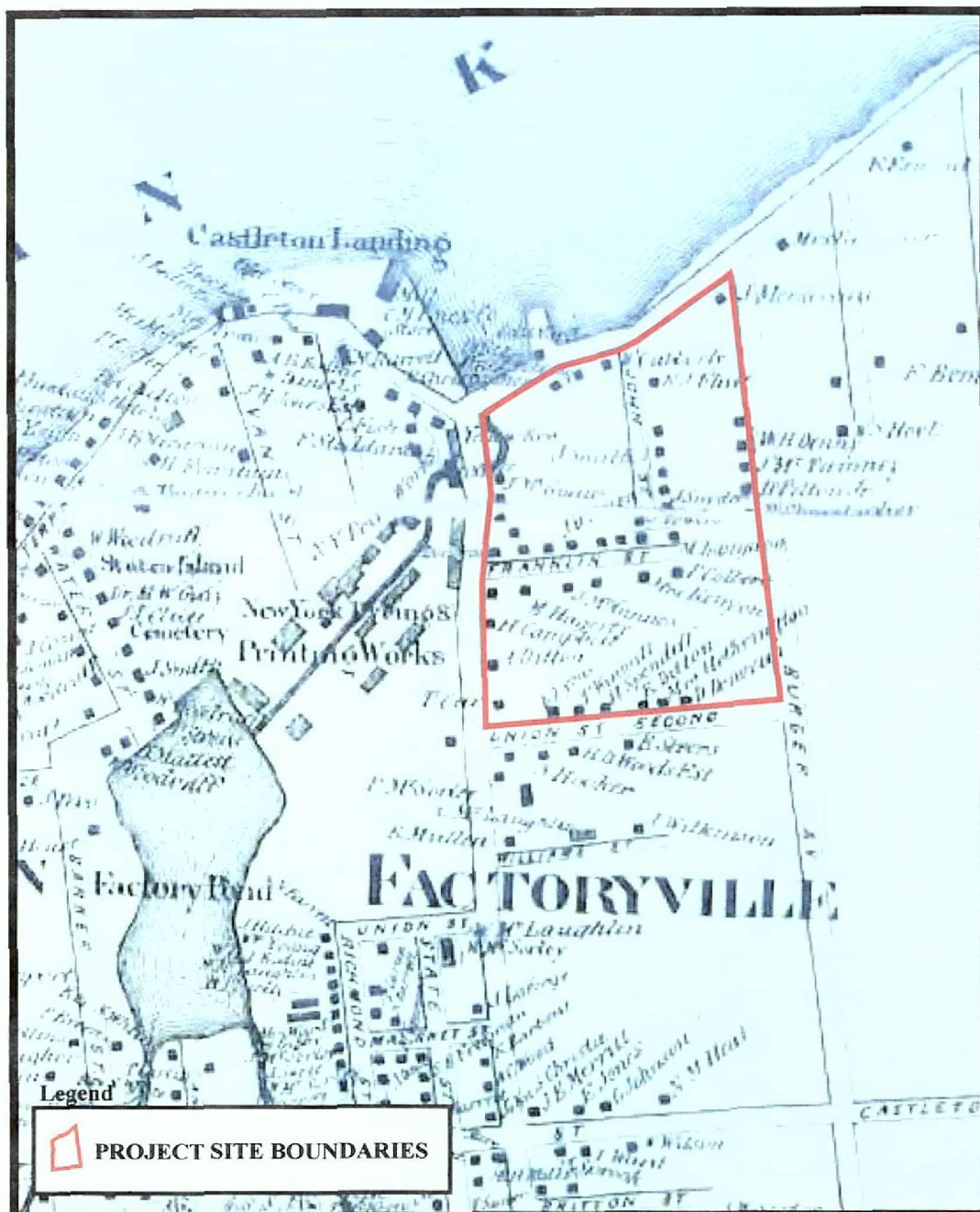
SOURCE: DRIPPS 1850 MAP OF STATEN ISLAND OR RICHMOND COUNTY

**PHASE IA ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK**



FIGURE 5. MAP OF STATEN ISLAND OR RICHMOND COUNTY (DRIPPS 1850)

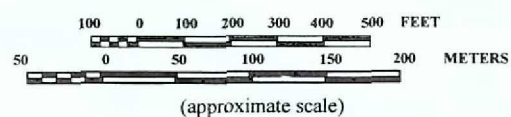


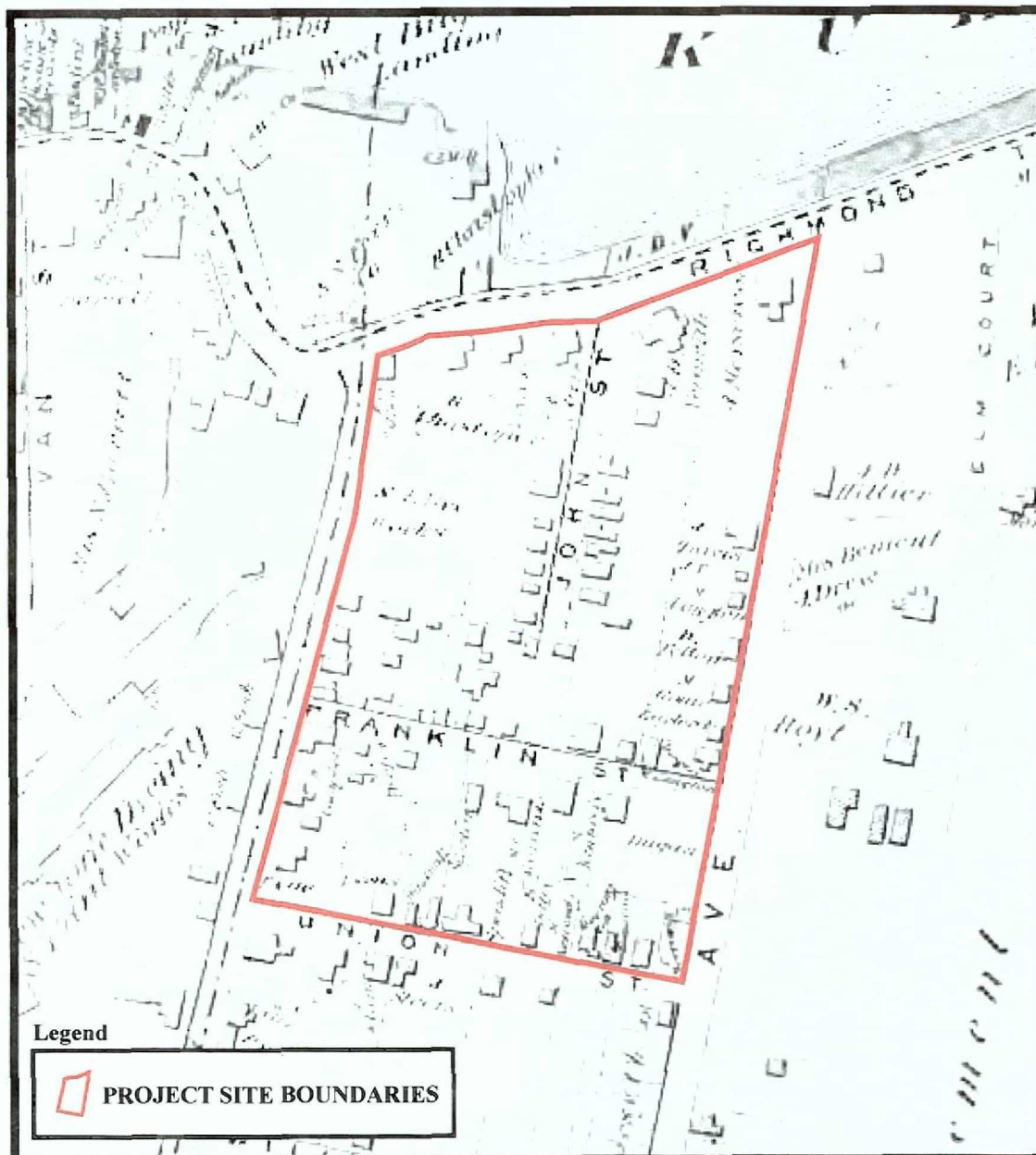


SOURCE: WALLING 1859 MAP OF STATEN ISLAND, RICHMOND COUNTY, NEW YORK

PHASE IA ARCHAEOLOGICAL ASSESSMENT
MARKHAM GARDENS PROPOSED RESIDENTIAL DEVELOPMENT
STATEN ISLAND, RICHMOND COUNTY, NEW YORK

FIGURE 6. MAP OF STATEN ISLAND, RICHMOND COUNTY, NEW YORK (WALLING 1859)



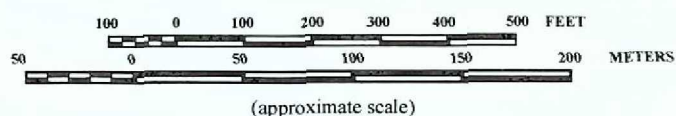


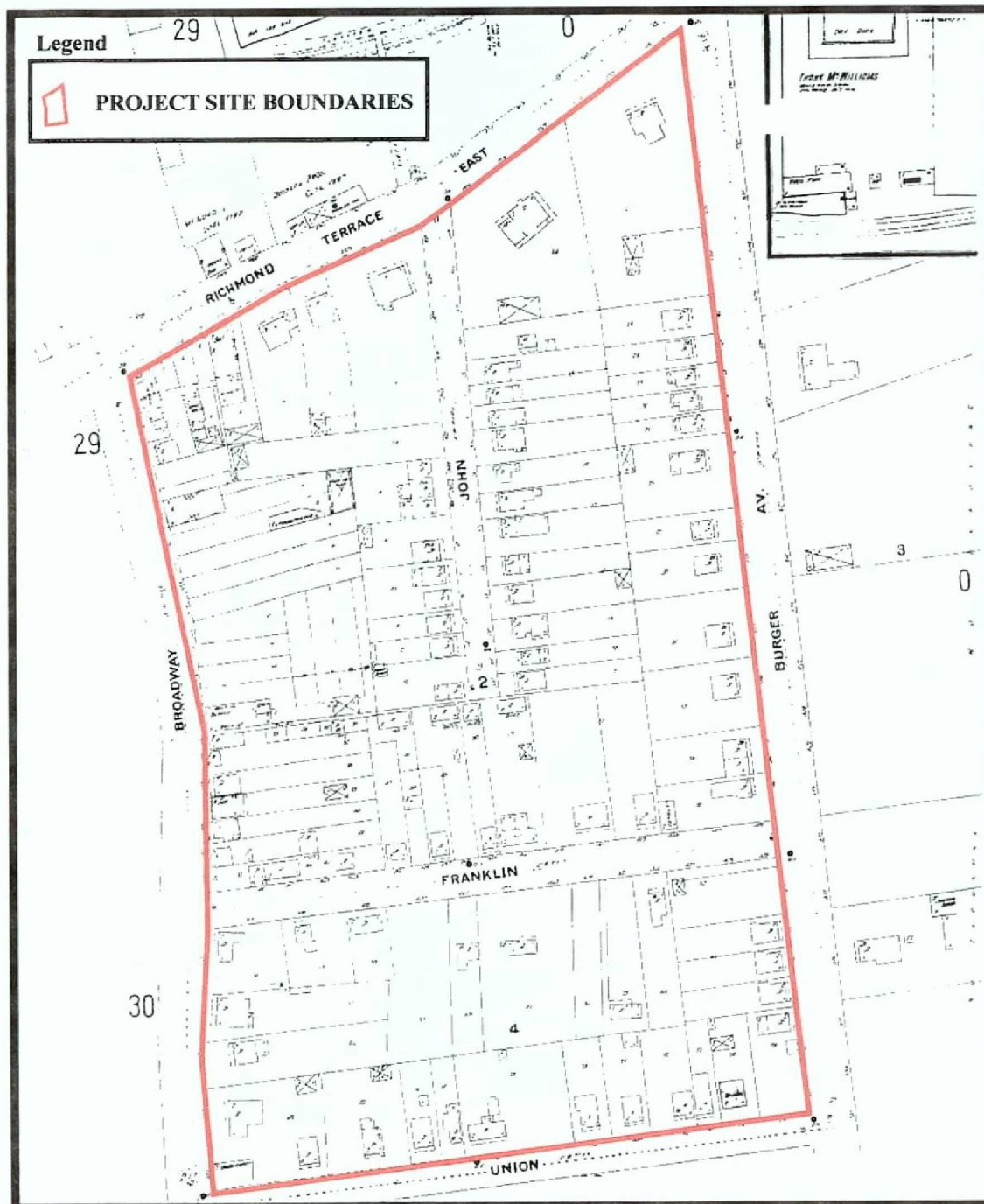
SOURCE: BEERS 1874 ATLAS OF STATEN ISLAND, RICHMOND COUNTY, NEW YORK

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FIGURE 7. ATLAS OF STATEN ISLAND, RICHMOND COUNTY, NEW YORK (BEERS 1874)

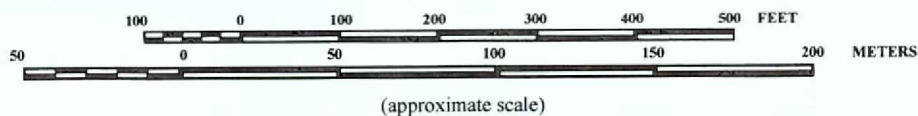


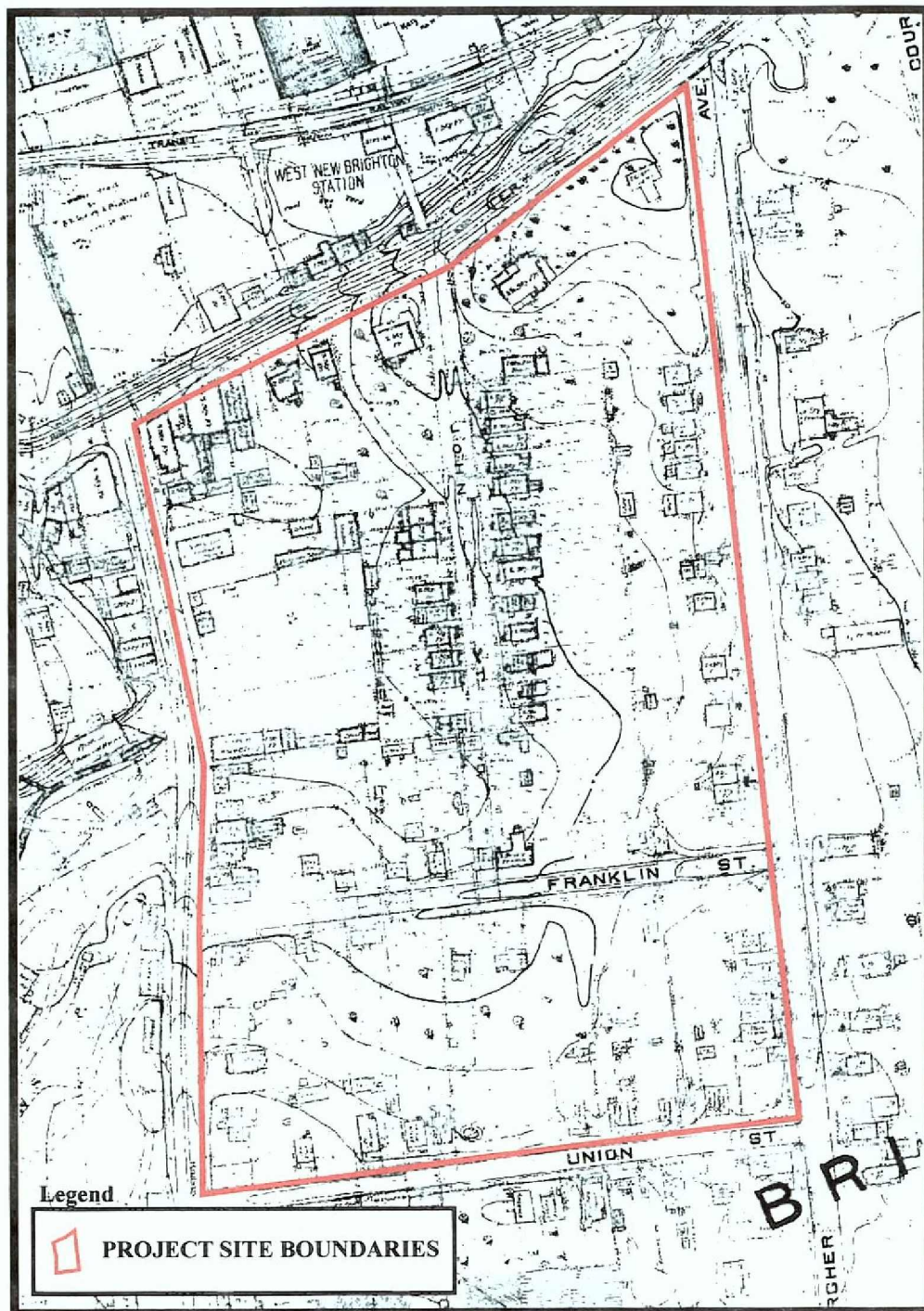


SOURCE: SANBORN 1898 INSURANCE MAPS OF STATEN ISLAND, NEW YORK

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FIGURE 9. INSURANCE MAPS OF STATEN ISLAND, NEW YORK (SANBORN 1898)

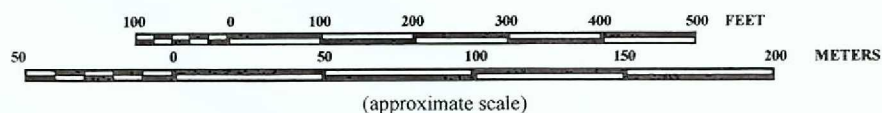


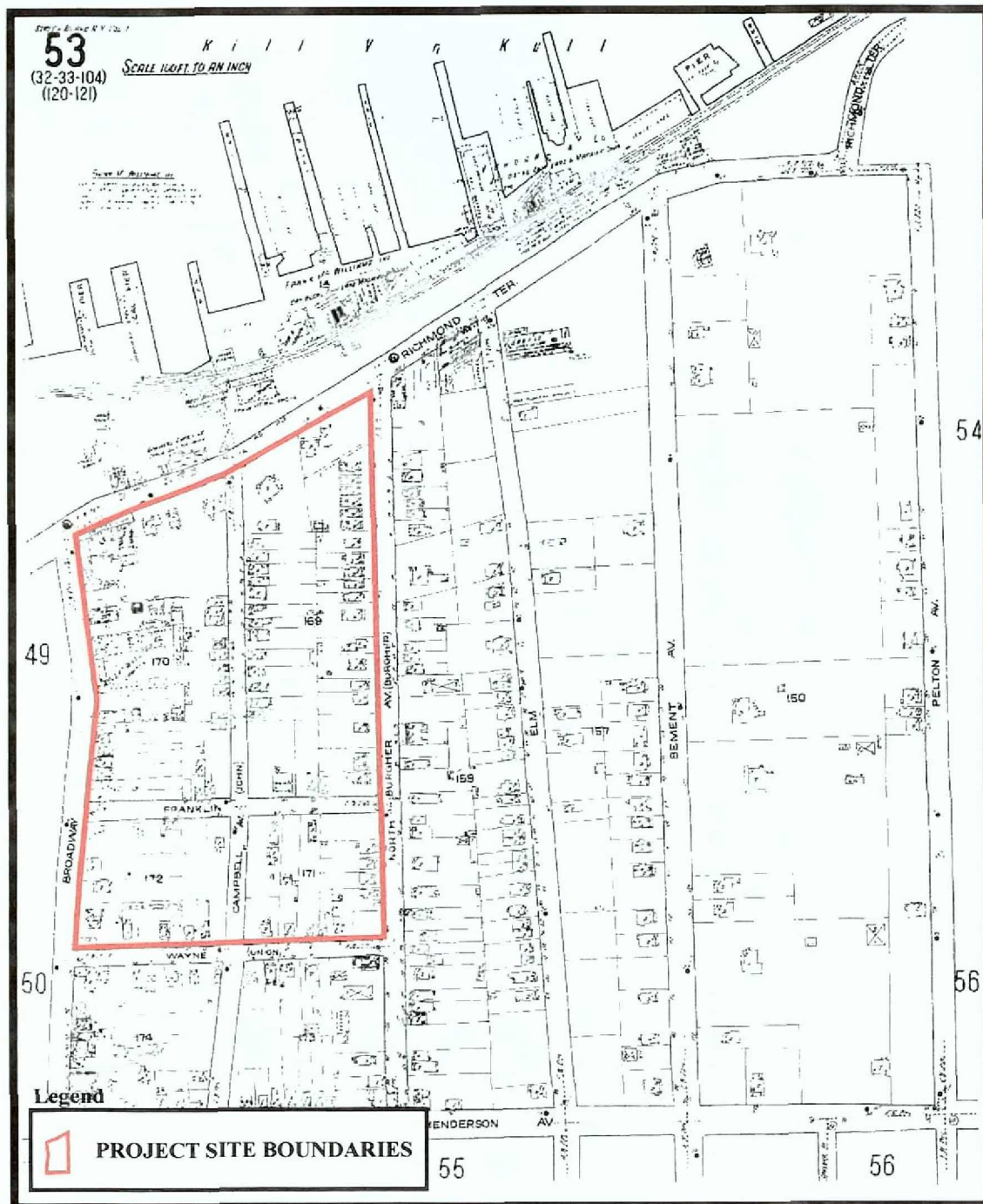


SOURCE: BOROUGH OF RICHMOND 1908 BOROUGH OF RICHMOND TOPOGRAPHICAL SURVEY

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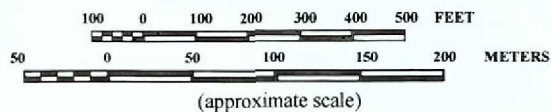
**FIGURE 10. BOROUGH OF RICHMOND TOPOGRAPHICAL SURVEY
(BOROUGH OF RICHMOND 1908)**





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FIGURE 11. INSURANCE MAPS OF STATEN ISLAND, NEW YORK (SANBORN 1917)





Photograph 1: Project site showing typical area between fronts of apartment buildings on interior of property, with sidewalks and fencing. View looking east from interior of site.



Photograph 2: Project site showing typical front of apartments facing exterior streets. View looking southeast along Broadway.



Photograph 3: Project site showing typical area between rear of apartment buildings on interior of property, with sidewalks and lamp posts. View looking south from interior of site.



Photograph 4: Project site showing heating plant along North Burgher Avenue. View looking west from North Burgher Avenue.



Photograph 5: Project site showing community center building and surrounding paved areas on interior of property. View looking northeast from interior of site.



Photograph 6: Project site showing paved playground and ball court on interior of property. View looking north from interior of site.



Photograph 7: Project site showing paved road leading from Broadway into interior of property. View looking east from Broadway.



Photograph 8: Project site showing wide sidewalks along interior of property. View looking north from interior of site.

APPENDIX A



Project site showing grading and excavation of property prior to construction of Markham Gardens buildings. Note large soil stockpiles, large pits, and undulating surface. View looking east from Broadway near Richmond Terrace.



Project site showing grading and excavation of property prior to construction of Markham Gardens buildings. Note large soil stockpiles, large pits, and undulating surface. View looking southeast from Broadway near Richmond Terrace.



Project site showing grading and excavation of property prior to construction of Markham Gardens buildings. Note large soil stockpiles, large pits, and undulating surface. View looking southwest from North Burgher Avenue.



Project site showing large pits being excavated on property prior to construction of Markham Gardens buildings. Unknown view.



Project site showing foundations for apartment buildings and disturbed ground surface surrounding them. Note utility pipe entering foundation in foreground. View looking northwest from interior of site.



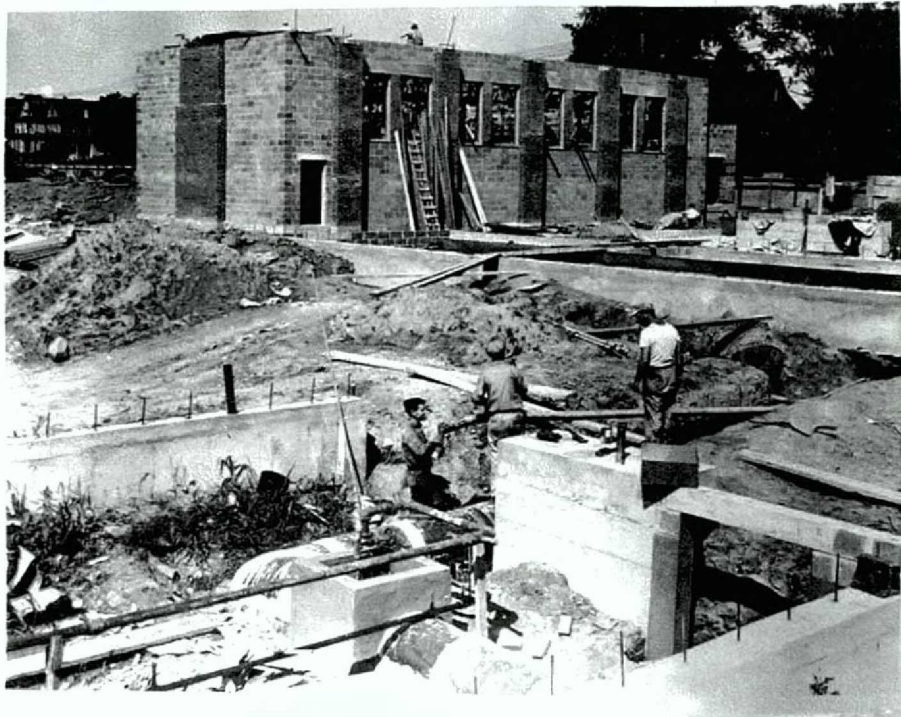
Project site showing foundations for apartment buildings and disturbed ground surface surrounding them. View looking southwest from North Burgher Avenue.



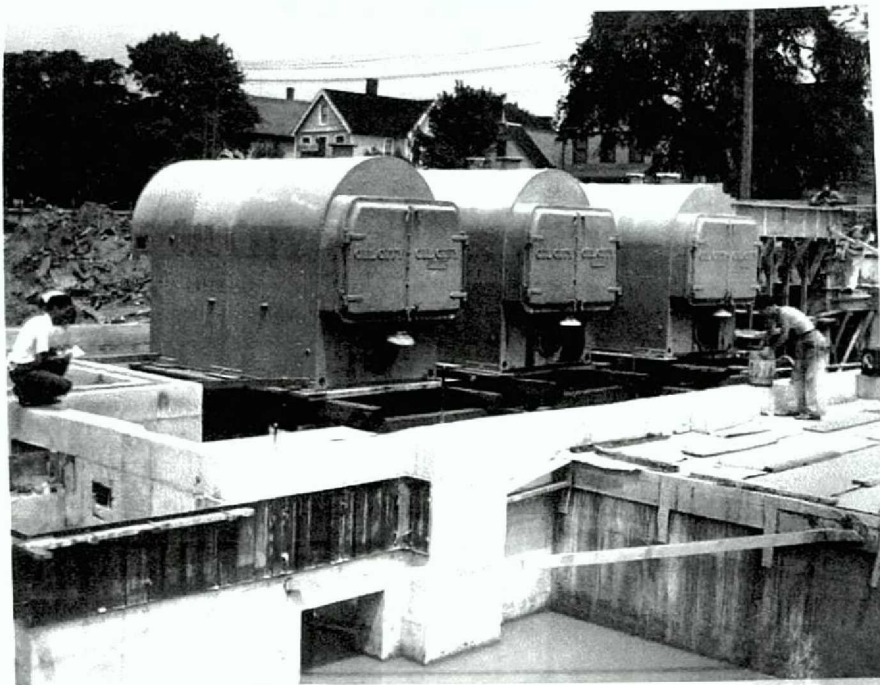
Project site showing progress of apartment buildings construction and disturbed ground surface surrounding them. View looking south from near North Burgher Avenue.



Project site showing installation of sewer line below ground surface. Unknown view.



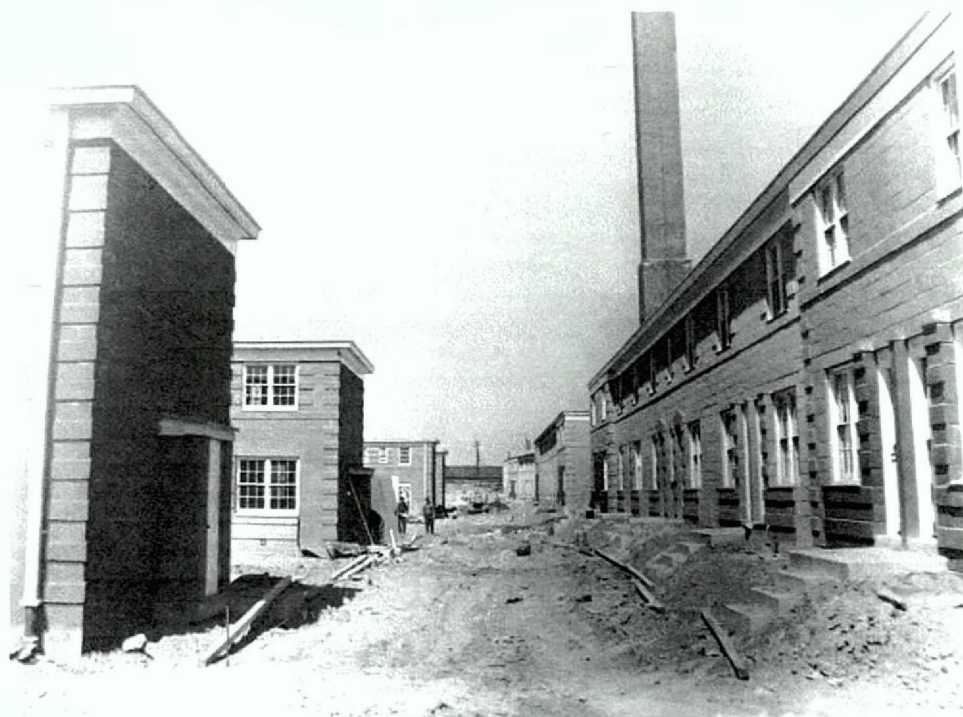
Project site showing construction of heating plant and disturbed ground surface surrounding it. Unknown view.



Project site showing installation of heating apparatus at heating plant site. Unknown view.



Project site showing Richmond Terrace frontage of property prior to landscaping. Note heavily disturbed ground surface. View looking east from intersection of Richmond Terrace and Broadway.



NYCHA-EDW. MARKHAM-BLOCKS 11-12-30-TOWARD No. 349

Project site showing interior of property prior to landscaping. Note heavily disturbed ground surface. View looking north from area between Buildings 11, 12, and 30.



Project site showing interior of property during sidewalk installation and landscaping. View looking north from area between Buildings 18 and 19.



Project site showing interior of property during landscaping. View looking east from area between Buildings 11, 12, and 30.