



Phase IA Archaeological Documentary Study

**New York City Department of Environmental Protection
Wards Point Infrastructure Improvements
Amboy Road from Wards Point Avenue to
U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York**

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January 2011

EXECUTIVE SUMMARY

The New York City Department of Design and Construction (NYCDDC), on behalf of the New York City Department of Environmental Protection (NYCDEP), is proposing Capital Project No. SER-200208, which involves the construction of new storm sewers and appurtenances, street reconstruction (i.e. final paving, grading), and a new stormwater outfall in the Tottenville neighborhood of Staten Island. One of these site locations is situated at the terminus of Amboy Road, extending from Wards Point Avenue to the U.S. Pierhead and Bulkhead Line in the Arthur Kill (Figures 1 and 2). The new outfall would be located at approximately the same location as an existing drainage outlet, which currently contains a concrete drainage swale. It would be constructed within a 40 foot wide section of an 80 foot wide right-of-way leading from the intersection of Wards Point Avenue and Amboy Avenue to Arthur Kill. The right-of-way ranges from 228 feet in length on the north to 242 feet in length on the south. The Area of Potential Effect (APE) is the area that could be affected by project development. The APE for the proposed project includes the new 40-foot wide section of right-of-way for its entire length.

As part of this project, the New York City Landmarks Preservation Commission (LPC) has requested that a Phase IA Archaeological Documentary Study be completed “to further assess the likelihood that the site may contain significant Native American and historic resources” (Sutphin 2010). The LPC request no doubt stems from the well known fact that the Tottenville neighborhood, also known as the “Wards Point” landform and Conference House Park in particular contain some of the most significant archaeological sites found in New York City. Hazen and Sawyer has contracted Historical Perspectives, Inc. (HPI) to complete this study, which has been prepared to satisfy the requirements of CEQR, and to comply with the standards of the LPC (LPC 2002; CEQR 2010).

The Phase IA Archaeological Documentary Study concluded that the project site is located in an area where there is significant documentation of heavy precontact period archaeological occupation. It should be assumed that any area of the Tottenville neighborhood that contained a naturally favorable landform (such as level, elevated topography) would have been utilized by Native Americans at one time or another. The project site was probably in use as a Native American trail leading to the water’s edge for many years before being regulated as Amboy Road (Grumet 1981). However, the exact location of the Native American trail versus the alignment of Amboy Road is not and cannot be known. It is possible that Native American occupation resources may have been located within the project site. Precontact archaeological sites on Staten Island often are buried beneath layers of accumulated soils; if the disturbance observed during the field visit is not deep, it is possible that precontact resources could survive within the upland portion of the project site, between the present terminus of Amboy Road and the beach, as shown on Figure 12. Thus, precontact archaeological sensitivity for the APE is high.

The project site also is located in an area of extended historic period use. The terminus of Amboy Road was the site of one of the earliest ferries on Staten Island, and a ferry house existed just south of the APE during the eighteenth and nineteenth centuries. This building appears to have remained in use, either as a tavern or a hotel and later an amusement hall, through at least the end of the nineteenth century. There was also use of the areas north and south of the APE during the mid and later nineteenth century as summer resorts. It is possible that archaeological resources associated with the ferry house building and/or the summer resorts may be present within the APE. If the disturbance observed during the field visit is not deep, it is possible that historic period archaeological resources could survive within the upland portion of the project site, between the present terminus of Amboy Road and the beach, as shown on Figure 12. Thus, historic period archaeological sensitivity for this section of the APE is high.

The beach section of the APE and its immediate vicinity contains a number of wooden elements embedded in the sand that appear to be remains from wharves, piers, or other waterfront features. Two fragmentary wooden pilings also could be seen in or near the APE within the Arthur Kill between the shoreline and the bulkhead line. There may be additional wharf or pier elements under the water of the Arthur Kill within the area, but if they exist they could not be seen during the site visit. It is unclear based on the field survey what the particular functions of these various wooden elements were, how old they are, or how deep they extend into the sand. It is assumed that these wooden elements do not represent the earliest ferry landing features, but rather date to the late nineteenth or twentieth centuries. Because the APE was not staked at the time of the field survey, it also was difficult to discern the exact boundaries of the APE and which of the wooden elements might be directly impacted by the proposed project. This section of the APE also has been assigned a high historic period archaeological sensitivity, as shown on Figure 12.

Based on these conclusions, and because no previous soil borings have been completed on the project site that might illuminate soil conditions, HPI recommends that Phase IB field testing be undertaken in the portion of the project site between the terminus of Amboy Road and the beach, to ascertain the possible presence of both precontact and historic period archaeological resources. If the Phase IB testing, which would entail a small number of hand excavated shovel tests (STs), confirms disturbance to buried soil horizons, then no additional archaeological studies would be warranted.

Additionally, HPI recommends that the wooden elements on the beach section of the APE be formally documented by a maritime archaeologist prior to implementation of the proposed project. This recordation should be scheduled at the lowest possible monthly ebb tide, so as to better view any possible features in the water that could not be seen at the time of the present field survey. All archaeological testing should be conducted according to OSHA regulations and applicable archaeological standards (LPC 2002; CEQR 2010). Professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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3. Taylor and Skinner, *Map of New York and Staten Island & Part of Long Island*, 1781.
4. U.S.C.S., *Map of New-York Bay and Harbor and The Environs*, 1844.
5. U.S.C.S., *Staten Island, New York, Ward's Point to Great Kills*, 1856.
6. Beers, *Atlas of Staten Island, Richmond County, New York*, 1874.
7. Bien and Vermeule, *Atlas of the Metropolitan District and Adjacent Country*, 1891.
8. Robinson, *Atlas of the Borough of Richmond, City of New York*, 1907.
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13. “Mount Hermon, Staten Island, N.Y.” as published in *The Illustrated News*, September 17, 1853. Note roadway of APE in background, with ferry house to right.
14. View of Bay Cliff Park, ca. 1900 (Shepherd 2008:148). APE is on left of image.
15. View of A.C. Brown & Sons Shipyard, Tottenville, N.Y, located immediately to the north of the APE.

I. INTRODUCTION

The New York City Department of Design and Construction (NYCDDC), on behalf of the New York City Department of Environmental Protection (NYCDEP), is proposing Capital Project No. SER-200208, which involves the construction of new storm sewers and appurtenances, street reconstruction (i.e. final paving, grading), and a new stormwater outfall in the Tottenville neighborhood of Staten Island. One of these site locations is situated at the terminus of Amboy Road, extending from Wards Point Avenue to the U.S. Pierhead and Bulkhead Line in the Arthur Kill (Figures 1 and 2). The new outfall would be located at approximately the same location as an existing drainage outlet, which currently contains a concrete drainage swale. It would be constructed within a 40 foot wide section of an 80 foot wide right-of-way leading from the intersection of Wards Point Avenue and Amboy Avenue to Arthur Kill. The right-of-way ranges from 228 feet in length on the north to 242 feet in length on the south. The Area of Potential Effect (APE) is the area that could be affected by project development. The APE for the proposed project includes the new 40-foot wide section of right-of-way for its entire length.

As part of this project, the New York City Landmarks Preservation Commission (LPC) has requested that a Phase IA Archaeological Documentary Study be completed “to further assess the likelihood that the site may contain significant Native American and historic resources” (Sutphin 2010). The LPC request no doubt stems from the well known fact that the Tottenville neighborhood, also known as the “Wards Point” landform and Conference House Park in particular contain some of the most significant archaeological sites found in New York City. Hazen and Sawyer has contracted Historical Perspectives, Inc. (HPI) to complete this study, which has been prepared to satisfy the requirements of CEQR, and to comply with the standards of the LPC (LPC 2002; CEQR 2010). The HPI project team consisted of Julie Abell Horn, M.A., R.P.A., who conducted site visit, the majority of the research, and wrote the report; Richard Schaefer, Ph.D., R.P.A., who prepared the graphics; and Cece Saunders, M.A., R.P.A. who assisted with the research, managed the project and provided editorial and interpretive assistance.

II. METHODOLOGY

The present study entailed review of various resources. Because the project site was used exclusively as a thoroughfare during the historic era and never contained any structures, certain archival materials were not relevant, as described below.

- Primary and secondary sources concerning the general precontact period and history of Staten Island and specific events associated with the project site and vicinity were reviewed at the New York Public Library, the Staten Island Historical Society, the library of HPI, and using online resources.
- Historic maps were reviewed at the New York Public Library, the Staten Island Historical Society, the Staten Island Museum, the library of HPI, and using various online websites. These maps provided an overview of the topography and a chronology of land usage and ownership for the study site. A selection of these maps has been reproduced for this report. Because these maps showed that the project site was used as a path or roadway leading to a pier on the waterfront as part of Amboy Road, deed research was not undertaken.
- Tax assessment records, city directories, and federal census records, which are standard resources consulted as part of a documentary study, also were not useful for this property because of its use as a roadway.
- Because the project site has not had an official block or lot number for much of its history, Department of Building records do not exist for the project site.
- Information about previously recorded archaeological sites and surveys in the area was compiled from data available at the NYSOPRHP, the LPC, and the library of HPI.
- Hazen and Sawyer provided various maps and site data for the property.
- Last, a site visit was conducted by Julie Abell Horn of HPI on November 18, 2010 to assess any obvious or unrecorded subsurface disturbance (Photographs 1-14; Figure 2).

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

The project site is a long, narrow parcel that stretches from the dead end of Amboy Road at Wards Point Avenue to the U.S. Pierhead and Bulkhead line in the Arthur Kill. There is a large residence located on the south side of the APE on Block 7966, Lot 2, which was constructed in the late twentieth century. The area north of the APE, known as Block 8005, Lot 220, is vacant.

The site can be divided into three general areas, which will be discussed east to west. The section from the intersection of Amboy Road and Wards Point Boulevard west to the beach is a sloping area containing a concrete drainage culvert or swale that parallels the northern alignment of the APE and then angles slightly southwest to avoid a large tree (Photograph 1). The culvert, which is approximately 6 feet wide and approximately 1 foot deep at its lowest point, terminates at the edge of the beach. There is clear evidence of disturbance surrounding the culvert, with the upper reaches of the soil column turned over and modern inclusions (such as asphalt, concrete, plastic, etc.) visible throughout the soil in this area (Photograph 2). The residence to the south of the APE currently has a grassy lawn that extends into the APE, and a small section of its large asphalt driveway is included in the APE as well. A large boat was parked on a trailer within this section of the driveway at the time of the site visit.

There are varying amounts of disturbance to the entire length of this section of the APE. The intersection of Amboy Road and Wards Point Boulevard, where the APE begins, has subsurface utilities marked by several manhole covers within the APE (Photograph 3). There is a guard rail at the end of the roadway, followed by evidence of erosion where the concrete culvert begins (Photograph 4). The entire stretch of APE along the length of the culvert has disturbed soils within the upper reaches of the soil column, presumably in part from creation of the culvert and construction on the adjacent residential property, compounded by damage from a recent storm that appears to have washed out the landform in places and felled trees, including the very large tree at the border of the beach (Photographs 5-7).

The APE also contains a section of beach, located west of the concrete culvert and extending to the shoreline of the Arthur Kill (Photograph 8). There is a drop-off from the inland area of the APE to the intertidal beach, showing more evidence of erosion, storm damage, and land manipulation. The beach itself is covered with shells and shell fragments, rocks, and debris. There are also a number of wooden elements embedded in the sand within and adjacent to the APE that appear to represent former wharves, piers, or other waterfront features (Photographs 8-13). It is unclear from preliminary inspection how old these wooden elements may be. It is also unclear how deep they may extend below the sand, and whether there are additional buried elements that could not be seen on the ground surface. A large metal cleat, used to secure vessel lines to docks, was also observed in this area, which may have been attached to a former wharf (Photograph 13).

The remainder, or third and westernmost section, of the APE is under water, stretching from the edge of the beach approximately 40 feet into the Arthur Kill to the bulkhead line. As will be described below, historic maps note that there was once a wharf or pier, or series of wharves or piers, that extended into the water in this approximate location. Two fragmentary wooden pilings could be seen extending above the water level at the time of the site visit in or near the APE (see Photograph 9), but murky water precluded visual confirmation of any potential underwater features.

B. Topography and Hydrology

In its natural state, the project site was a gently sloped area at the edge of the Arthur Kill. The shoreline to the north and south was more sloped, such that the APE probably was a more well-suited location to create a path and later roadway to reach the waterfront. The elevation at the shoreline is at sea level, and the elevation at the eastern end of the APE is approximately 20 feet higher (although due to varying zero datum points used on Staten Island, mapped elevations range from about 18-20 feet here). Comparing historic topographical maps (e.g. U.S.C.S. 1835-6, 1844 [Figure 4], 1856 [Figure 5]; Bien and Vermuele 1891 [Figure 7], Borough of Richmond 1911 [Figure 9]) with modern maps is difficult because at such low elevations, precision is compromised and the margin of error is large. Moreover, many early topographical maps used a 20-foot contour interval, so that the entire project site would fall within the 0-20 foot range. As noted above, however, it is clear that the natural topography has been disturbed by

earthmoving associated with the culvert creation and nearby residential lot construction, as well as from natural erosion and storm damage.

C. Geology

The project site sits within the inner lowland subprovince of the Coastal Plain Province. As described by Boesch (after Wolfe 1977 and Isachsen et al. 1991),

Generally this province is a broad, low-lying land form that slopes gently towards the Atlantic Ocean. The inner lowland subprovince consists of generally level to gently undulating terrain that is between 20 and 50 feet in elevation. Most of the inner Coastal Plain is underlain with gently southeastward dipping, unconsolidated marine and fluvial deposits of clay, silt, sand, and gravel of Late Cretaceous and Tertiary age. Large areas are also covered with interglacial fluvial deposits of Quaternary age. The Piedmont Lowlands and the portion of the inner Coastal Plain present on Staten Island, were greatly affected by the Wisconsin glaciation. Glacial drift covers most of these areas north of the terminal moraine of the Wisconsin glaciation. The inner Coastal Plain, in particular, is not much more than a ridge of glacial and glacial outwash sediments that almost completely overlie the Cretaceous and Tertiary layers. The moraine extends northward roughly from Perth Amboy along the Atlantic shore line (routes of van Duzer Street, Richmond Road, and Amboy Road run, approximately, along the front [or southern] edge of the moraine) crossing the Narrows to Brooklyn where it becomes the Ronkonkoma moraine. (Boesch 1994: 3).

D. Soils

According to the soil survey for New York City, the project site falls just at the boundary between soil mapping units 240, or Windsor-Verrazano-Pavement & buildings complex, 0 to 8 percent slopes, and 304, or Pavement & buildings-Windsor-Verrazano complex, 0 to 8 percent slopes.

Windsor-Verrazano-Pavement & buildings complex is described as:

Nearly level to gently sloping areas of sandy outwash plains and dunes that have been partially filled; a mixture of sandy outwash soils and loamy-capped anthropogenic soils, with 15 to 49 percent of the surface covered by impervious pavement and buildings; located in western Staten Island and Brooklyn (USDA 2005:19).

Pavement & buildings-Windsor-Verrazano complex is described as:

Nearly level to gently sloping urbanized areas of sandy outwash plains and dunes that have been partially filled for residential and commercial use; a mixture of sandy outwash soils and loamy-capped anthropogenic soils, with 50 to 80 percent of the surface covered by impervious pavement and buildings; located in Staten Island (USDA 2005:21).

The Windsor and Verrazano soil series are further described in the table, below.

Name	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Windsor Series	Oi: 0-2 in A: 2-3 in Bw1: 3-8 in Bw2: 8-13 in Bw3: 13-27 in C: 27-60 in	10YR 2/1 10 YR 2/1 10 YR 4/3 10 YR 5/6 7.5 YR 5/6 7.5 YR 5/6	SliDecPlaMat LoSa LoSa LoSa LoSa LoSa	0-8	Excessively	Outwash plains and terraces
Verrazano Series	A: 0-3 in Bw: 3-17 in BC: 17-24 in 2C1: 24-60 in 2C2: 60-80 in	10YR3/1 10YR 3/2 10YR 3/2 2.5Y 6/3 2.5Y 5/3	SaLo SaLo Lo Sa Sa	0-8	Well	Anthropogenic fill plains near coastal waterways

Key: Soils: Lo-Loam, Sa-Sand
Other: Sli-Slightly, Dec-Decomposed, Pla-Plant, Mat-Material

No soil borings have been provided by DDC for project site.

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Precontact Summary

Archaeologists have recognized that the Conference House Park location, situated about 1000 feet south of the project site, contains perhaps the most important precontact archeological occupation in New York City. The Wards Point peninsula was located along precontact travel routes, including the Hudson and Raritan Rivers, as well as coastal routes from New England, Long Island and New Jersey. Jacobson's (1980) synthesis of archaeological excavations at the Wards Point Archaeological Site, also known as Burial Ridge, which is located within Conference House Park, described a large number of precontact artifacts, including 764 projectile points and 667 precontact potsherds.

The precontact period of Native American occupations in the Northeast usually is divided into four major chronological stages reflecting technological changes and new adaptations to changing environments (Ritchie 1969; Funk 1976). These stages include the Paleoindian Stage (12,000 to 10,000 BP), the Archaic Stage (10,000 to 3200 BP), the Transitional Stage (3600 to 2800 BP) and the Woodland Stage (2800 to 400 BP). The Archaic and Woodland Stages are further divided into Early, Middle and Late periods, discussed below. Particular emphasis is placed on these time periods as they relate to the Conference House Park and Burial Ridge precontact occupations.

The Paleoindian Stage (12,000 to 9500 BP) marked initial human settlement of post-glacial environments. Highly mobile human groups might have subsisted through specialized hunting of large herbivores, perhaps including now-extinct mammoths, mastodons and other animals, as well as by fishing and plant gathering (Snow 1980; Kauffman and Dent 1982). Paleoindian fluted projectile points have been identified on Staten Island at Rossville, Keiserville and at the Port Mobil, Cutting and Smoking Point sites, but have not been reported at Burial Ridge or other areas adjacent to the project (Burgher 1957; Pappalardo et al. 1996; Jacobson 1980).

The Archaic Stage (9500 to 3200 BP) might have involved a transition to generalized hunting and gathering in increasingly complex forest and coastal ecosystems. The earliest evidence for human occupations at the Wards Point site occurred during the Early Archaic (10,000 to 8000 BP) and Middle Archaic (8000 to 6000 BP), including radiocarbon dates of 8250 +/- 140 BP (I-5331) and 7260 +/- 125 BP (I-4512) from deeply buried hearths (Ritchie and Funk 1971). Early and Middle Archaic artifacts from Burial Ridge include 2 Kanawah, 2 LeCroy, 3 Guilford-like and 17 Kirk Stemmed projectile points from various excavations (Jacobson 1980:56). These small samples suggest deposition of 0.6 points per century during the Early and Middle Archaic, analogous to small human population densities. Lithic type utilization for these 24 Early and Middle projectile points include 25.0 percent flint, 16.7 percent chert, 41.7 percent argillite, 4.2 percent quartz and 12.5 percent other lithic types. The high percentage of argillite points might indicate contacts with groups in the Delaware River Valley. Other Early and Middle Archaic dated sites in the region include the Richmond Hill and the Old Place sites on Staten Island (Ritchie and Funk 1971), and Turkey Swamp, south of Raritan Bay in New Jersey (Cavallo 1981).

Human populations increased dramatically during the Late Archaic period (6000 to 3200 BP) throughout the Middle Atlantic and New England regions (Reeve and Forgacs 1999). Late Archaic projectile points have been recovered at shell middens at the Wards Point and Billops Ridge sites from Conference House Park (Jacobson 1960; Pickman and Yamin 2004). Projectile points from Wards Point include 4 Lamoka, 30 Brewerton variants, 25 Vosburg, 12 Bare Island, 63 Lackawaxen-Kittatinny, 2 Eshback, 4 Hellgramite, 97 Beekman/Squibnock Triangle, 5 Squibnock Stemmed, 20 Sylvan Stemmed, 22 Wading River, 9 Normanskill, and 9 Genesee points (Jacobson, 1980:56). The 302 Late Archaic projectile points suggest deposition of 10.8 points per century, suggesting increasing human populations. Late Archaic projectile points from Wards Point include 38.7 percent flint, 7.3 percent chert, 12.6 percent jasper, 24.8 percent argillite, 7.0 percent shale, 5.0 percent quartz and 4.6 percent other materials. Wards Point might have attracted groups from both the west and north.

The Transitional Stage (3200 to 2800 BP) marked the introduction of pottery, use of steatite bowls, and elaborate burial ceremonialism at certain sites in coastal Connecticut, Long Island and New Jersey (Pfeiffer 1992). Projectile points from Wards Point include 14 Orient, 1 Perkiomen, 4 Snook Kill, and 12 Susquehanna Broad points (Jacobson 1980:56). The 31 Transitional Stage points suggest deposition of 7.8 points per century, a lower density than during the Late Archaic. Lithic types include 32.2 percent flint, 3.2 percent chert, 12.9 percent jasper, 29.0 percent argillite, 6.6 percent shale and 16.1 percent other materials, again suggesting contacts with the west and north. Ritchie and Funk (1971) described flat-bottomed pottery, possibly Ware Plain, associated with Orient points in deep sands at Burial Ridge excavations. However, no Transitional Stage burials were reported at the Wards Point Archaeological Site (Jacobson 1980).

The Woodland Stage, from approximately 2800 to 400 BP, included widespread adoption of ceramic technology and increasingly focused subsistence patterns leading toward agriculture and the complex tribal social systems met by Europeans during the seventeenth century. The Early Woodland (2600 to 1800 BP) is marked by widespread trade and elaborate cemeteries in the Ohio River drainage, Chesapeake Bay, western New York and Vermont associated with the Adena Tradition. No Adena burials have been described at Wards Point. Early Woodland pottery is represented at Wards Point by Vinette I interior cord marked wares, including 86 sherds from at least 11 vessels (Jacobson 1980:48). Early Woodland projectile points at Wards Point include 5 Adena, 15 Meadowood points, and probably also 58 Rossville points (Jacobson 1980:56). The 78 Early Woodland projectile points from Wards Point suggest deposition of 9.8 points per century, perhaps marking increasing human populations. Lithic types include 44.9 percent flint, 3.8 percent chert, 33.3 percent argillite, 12.8 percent shale, 3.8 percent quartz and 1.3 percent other materials. The increasing percentage of flint used for projectile points indicates that contacts might have increased with Hudson River groups to the north.

The Middle Woodland period (1800 to 1000 BP) was characterized by regional exchange networks with the Middle Atlantic region, especially noted at the Abbott Farm site along the lower Delaware River (Stewart 1982; Silver 1991). Burials and other features at the Wards Point site have been radiocarbon dated to the Middle Woodland (Ceci 1990). Middle Woodland projectile points at Wards Point included 30 Fox Creek Lanceolate, 32 Fox Creek Stemmed, 3 Greene, 22 Jack's Reef Corner-notched, and 10 Jack's Reef Pentagonal points (Jacobson 1980:56). The 97 Middle Woodland points from Wards Point suggest deposition of 12.1 points per century, a slight increase from the Early Woodland. Lithic types include 22.7 percent flint, 3.1 percent chert, 18.6 percent jasper, 50.5 percent argillite, and 2.1 percent shale. Strong cultural contacts with the Delaware River region perhaps are indicated by high percentages of argillite and jasper.

Middle Woodland pottery also reflected strong influences from the Delaware valley (Jacobson 1980:48-49). Pottery analogous to Abbott Farm types include Abbott Zoned Dentate (15 sherds from 3 vessels), Abbott Zoned Incised (18 sherds from 4 vessels), Corded Punctate (2 sherds from 2 vessels), Fabric Impressed (57 sherds from 14 vessels), Net Impressed (39 sherds from 5 vessels), Paddled Cord (7 sherds from 7 vessels), Plain (4 sherds from 2 vessels) and Straight Cord (15 sherds from 2 vessels) types. Middle Woodland pottery analogous to New York and Connecticut coastal sites included Clearview Stamped (3 sherds 1 from 1 vessel) and Windsor Brushed (4 sherds from 2 vessels) types. Several sherds suggested upper New York State contacts, including St. Lawrence Pseudo Scallop Shell (2 sherds from 1 vessel), Wickham Incised (1 sherd from 1 vessel) and Wickham Punctate (1 sherd from 1 vessel) types.

The Late Woodland period (1000 to 400 BP) was marked by the widespread adoption of the bow and arrow, the appearance of tropical cultigens including maize and beans, and dramatic population increases in the Middle Atlantic and New England regions (Reeve and Forgacs 1999). Burials and other features at the Wards Point site have been radiocarbon dated to the Late Woodland (Ceci 1990). Late Woodland projectile points at Wards Point include 232 triangular Levanna/Madison points, suggesting deposition of 46.4 points per century, consistent with models for increasing populations and village sedentism (Ceci 1990; Reeve and Forgacs 1999). Lithic types include 45.3 percent flint, 5.2 percent chert, 21.6 percent jasper, 21.6 percent argillite, 1.7 percent shale, 0.4 percent quartz, and 4.3 percent other materials. Strong contacts might have become established with Hudson River groups.

Late Woodland pottery reflected the local development of the East River Tradition, perhaps reflecting expansion of Munsee-speaking people. East River pottery at Wards Point included Bowman's Brook Incised (90 sherds from 7 vessels), Bowman's Brook Stamped and/or Punctate (53 sherds from 9 vessels), Clason's Point Stamped (1 sherd from 1 vessel), East River Cord marked (6 sherds from 4 vessels) and Eastern Incised A (11 sherds from 8 vessels).

Abbott Farm influences might have continued into the Late Woodland, including Fine Incised ware (3 sherds from 3 vessels). New York Iroquois influences were reflected by Castle Creek Beaded (1 sherd from 1 vessel) and Cayadutta Incised (11 sherds from 5 vessels). In addition, many sherds from Wards Point were not identified by time periods or types, including Clamshell Stamped (1 sherd from 1 vessel), Knobbed Cord Marked (4 sherds from 1 vessel), Cord Marked (161 sherds), Cord Wrapped Stick Stamped (16 sherds), Indeterminate Incised (16 sherds), Indeterminate Collared/Incised (5 sherds), and Smooth (34 sherds).

During the seventeenth century, southern Staten Island was occupied by the Raritan, whose territory extended west into New Jersey (Pickman 1997). Many metal arrow points, trade beads and other European trade goods were recovered in excavations at Wards Point. Other closely related Munsee-speakers occupied Manhattan, western Long Island, western Connecticut, and north along the Hudson River (Salwen 1978).

B. Previously Recorded Archaeological Sites and Surveys

Archaeological remains of precontact Native Americans at Wards Point were discovered in 1858, when workmen digging the foundation of the Joel Cole house discovered a complete human skeleton and skulls at what became known as Burial Ridge. The Cole house was west of Satterlee Street and just north of Clermont Avenue. While digging an addition in 1863, Cole discovered 20 more skeletons and grave goods of Native Americans. From 1893 to 1897, Capt. Robert D. Wainwright and George Hubbard Pepper conducted large-scale excavations, including human burials, at Burial Ridge. Their work was sponsored by the American Museum of Natural History and the Staten Island Institute of Arts and Sciences. In 1920, Mark R. Harrington of the Museum of the American Indian-Heye Foundation conducted excavations at Burial Ridge. In 1960, Columbia University conducted limited excavations, including a well-documented human burial. The Columbia University investigations provided a focus for Jerome Jacobson's 1960 master's thesis, which summarized previous archaeological investigations and analyzed available collections from Burial Ridge. Between 1959 and 1967, Albert and Robert Anderson, Donald Sainz, and other avocational archaeologists conducted further excavations, including deeply stratified areas at Burial Ridge (Ritchie and Funk 1971). Much of this early work was synthesized by Jacobson (1980), who updated his 1960 thesis and described eleven major loci for precontact finds. Jacobson calculated that at least 77 Native American burials were unearthed from the mid-nineteenth century until 1980. Based on these finds, the Wards Point Conservation District was listed on the National Register of Historic Places in 1982 (Florence 1982). In total, more than 50 archaeological investigations were conducted at Conference House Park before 1982.

Jacobson's (1980) map of early archeological digs identified several areas that were relatively close to the project. Pepper's 1895 trench excavations at Burial Ridge were less than 100 meters (300 feet) west from the project along Massachusetts Street. Jacobson also identified an area marked "3", including Pits H-3, H-12, H-14 and H-27, located west of Satterlee Street less than 30 meters (100 feet) from the project along Massachusetts Street. The Billops Ridge site is west of Satterlee Street, between Hylan Boulevard and Shore Road, immediately west of the project. In 1920, Harrington excavated ten archaeological features, including two Native American burials at the Billops Ridge site (Jacobson 1980:9).

Recently, additional professional archaeological investigations have been conducted at Conference House Park toward identifying and managing archeological sites. Pickman and Yamin (1988) identified archaeological sensitivity zones in connection with a Master Plan for Conference House Park. In 1982, the NYCLPC sponsored excavations around the Conference-Billopp House (Baughner et al. 1991). In 1984, Pickman and Yamin (1984) conducted testing along the route of the proposed Oakwood Beach sewer, including four Shovel Tests (STs) along Billops Ridge west of Satterlee Street, where shell and lithic artifacts were recovered. Testing also was conducted south of Hylan Boulevard between Satterlee and Massachusetts Streets, where lithic artifacts were recovered from two of four STs. The following year, the New York City Department of Real Property sponsored Testing on properties adjacent to Conference House Park. In the block between Connecticut and Massachusetts Streets, 204 STs were excavated, but only one ST contained a precontact lithic artifact and five STs contained shell concentrations. Little evidence for precontact sites was observed in blocks north of Clermont Avenue between Connecticut, Finlay, Aspenwall and Carteret Streets. In 1997, Arnold Pickman compiled an archeological sensitivity map for Conference House Park, describing areas west of Satterlee Street as highly sensitive for precontact sites (Zone I). Areas south of Clermont Avenue were moderately sensitive for precontact sites (Zones II

and III), and areas south of Billop Avenue were not sensitive due to land filling (Zone IV). Pickman (1997) also conducted exhaustive historical research and assembled an atlas of historic maps and photographs. This information was incorporated into a Cultural Landscape Report for Conference House Park (South Street Design Company et al. 2000). Pickman (2000) also conducted an archeological assessment for a pavilion at Conference House Park.

In 2001, HPI completed the Phase 1A cultural resource assessment survey for South Richmond Drainage-Conference House Park Watershed project (Lenik and Gibbs 2001). In 2002, HPI conducted Phase 1B/2 testing at sites CHP-1 and CHP-2 for storm water management BMP installation for this project along Uncle Ed Ward's Brook, south of Clermont Avenue (Kearns et al. 2003). HPI reported extensive stream disturbances and recommended avoidance of certain areas sensitive for precontact archaeological sites. In 2003, DPR initiated a program of landscape improvements at Conference House Park. John Milner Associates, Inc. (JMA) conducted extensive Phase 1B/2 Testing for new fence lines along Satterlee Street, Clermont Avenue and other areas at Conference House Park, monitored drainage installation along Satterlee Street, and other landscape improvements (Pickman and Yamin 2004). In 2004, JMA conducted additional Phase 1B/2 excavations around the Wood/Leven and Biddle houses west of Satterlee Street (Heaton 2005). JMA's investigations provided the first controlled archaeological investigation at the Billops Ridge Site, west of Satterlee Street. Other archaeologists have also emphasized that the Billops Ridge site extended farther east of Satterlee Street, including precontact burials (Pickman 1997; Platt 2001).

In 2006, HPI completed additional archaeological work, spanning Phase IB through Phase III investigations, for a DDC project to install new underground storm water drains, sanitary sewers and water mains in residential neighborhoods in the South Richmond Drainage-Conference House Park Watershed, including Swinnerton Street, Clermont Avenue, Massachusetts Street, Hylan Boulevard, and Satterlee Street. Numerous locations within these streetbeds indicated precontact and historic period archaeological remains, stressing the continued archaeological sensitivity of the Wards Point neighborhood (Reeve et al. 2006).

The present APE is located in an area of high precontact period sensitivity; Boesch (1994) shows that precontact sites and loci are mapped all along the former ridgeline that now corresponds to Satterlee Street and Conference House Park, as well as at numerous locations along Hylan Boulevard from approximately Sprague Avenue to Page Avenue. The closest mapped precontact artifacts to the project site were found in shovel tests near the intersection of Hopping Avenue and Satterlee Street, located approximately one block to the east. Last, the route of Amboy Road is a former precontact trail (Grumet 1981).

C. Historic Period Summary

The history of the Wards Point neighborhood has been well documented by historians and archaeologists working in this area over many years. In particular, Pickman (1997) and Lenik and Gibbs (2001) have compiled detailed histories of Conference House Park and the surrounding areas. The general history of the Wards Point area is drawn from these studies, with specific developments within and immediately adjacent to the APE drawn from additional sources.

As summarized by Pickman (1997:29), Captain Christopher Billop had settled on the area of Conference House Park before 1675. Billop might have selected the site due to the prior forest clearing and existing Native American agricultural fields. Billops received two patents totaling 1,600 acres, known as the Manor of Bentley. A 1687 map depicted a dwelling and outbuilding (perhaps a barn) surrounded by a fence or stockade in the approximate location of the extant Conference House-Billogg House (see Pickman 1997:170). The eastern boundary of the Manor of Bentley extended along an early road that led north from Raritan Bay to Mill Creek, east of the project probably in the vicinity of Sharrott Avenue (Pickman 1997:30). The surviving stone manor house might have been built about 1699. Christopher Billop died in 1725, leaving the property to his daughters and grandson. Billop's will suggested substantial improvements to the manor, including an orchard and fenced fields adequate to sustain at least four horses, six oxen, ten milk cows and calves, three steers, a bull, 160 sheep and fowl (Pickman 1997:30-31). Billop also owned African-American slaves.

By 1733, or earlier, the Billops established a ferry that crossed the Arthur Kill to Perth Amboy (see Pickman 1997:171). The ferry landing was at the west end of Amboy Road, within or immediately adjacent to the APE. Amboy Road was the first highway crossing Staten Island, and a former precontact trail. Satterlee Street probably originated as a farm lane that led north from the manor house to the ferry and Amboy Road. The ferry house, which was located just south of the ferry landing, may have been a tavern and inn, and was built by the Billopp family (Shepherd 2008).

Maps made during the eighteenth century, including the Anglo-Hessian Map from 1780-1783 and the Taylor and Skinner map from 1781 (Figure 3), illustrate the ferry landing and ferry house in or immediately adjacent to the APE. The lack of precision on these maps precludes making a definitive statement as to the exact location of the structure shown, although it is assumed that it was located just south of the APE, in the approximate location of the modern residence on Block 7966, Lot 2. Amboy Road at this time would not have been paved.

Billop's grandson, Thomas Farmer-Billop, and great grandson Christopher Billop II, sold substantial portions of the Manor of Bentley but retained the manor house, surrounding farm and the ferry (Pickman 1997:45). Christopher Billop II was a lieutenant-colonel in the militia and a Loyalist. At the outbreak of the American Revolution, the Billops fled the manor, which was occupied by British and Hessian troops. The Billop house probably was occupied by officers, but campsites of the British and Hessian garrisons have not been identified. After the Battle of Long Island, Lord Richard Howe convened a peace conference on September 11, 1776 at the Billop house, attended by Benjamin Franklin, John Adams and Edward Rutledge. Three years after the failed peace conference, American militiamen arrested Col. Billop. Realizing that title to his property would be forfeited to the Americans, Col. Billop sold the Manor of Bentley in 1781 and fled to Nova Scotia. At that time, the manor contained 1,078 acres, half of which was cultivated, and there were four tenant houses in addition to the manor house (Pickman 1997:32-33). The manor house and surrounding 373 acres, including the project area, were sold to Samuel Ward.

In 1801, Caleb Ward, Samuel's son, sold a 30-acre waterfront parcel extending to Amboy Road to Isaac Butler, who already owned a 43-acre parcel of land immediately north of Amboy Road. Not surprisingly, based on the location of his land, Butler was the operator of the Perth Amboy ferry, which docked at the foot of Amboy Road. Isaac Butler died in 1831; just weeks after his death his daughter Harriet married Henry Hogg Biddle, who after partition of Butler's lands, became the owner of the property on both sides of Amboy Road adjacent to the project site. Henry Hogg Biddle's house, built in 1848, is at 70 Satterlee Street within the Conference House Park grounds, several blocks south of the project site, and is a designated New York City Landmark (LPC 1990; Shepherd 2008).

Maps made during the mid-nineteenth century illustrate conditions on and adjacent to the APE. A structure located just south of the APE, in the approximate location of the ferry house shown on the eighteenth-century maps, continued to be depicted on the 1835-6 and 1844 U.S. Coastal Survey maps (Figure 4). Neither of these Coastal Survey maps were detailed enough to illustrate any waterfront wharves or piers, however, which is not to say that they did not exist at this time. Presumably there was a wharf or pier associated with the ferry service that operated at the foot of Amboy Road during this period.

Both the 1850 Dripps map and the 1853 Butler map indicate that the structure just south of the APE was attributed to "H. Biddle." Again, no wharf or pier was shown within the APE. Henry Hogg Biddle never operated the ferry himself; his business ventures were mainly in real estate and speculation. One such venture was the creation of "Biddle's Grove," a summer day resort located immediately north of the project site, along the Arthur Kill waterfront. It dated to about 1852, when the first known advertisements began to circulate inviting visitors to the locale. Shepherd (2008:68) quotes an undated circular for the resort, which is worth repeating here.

Excursions to Biddle's Grove, Staten Island, opposite, Perth Amboy.

To summer parties &c. This delightful summer resort, which has been greatly improved since the last season, is now offered to pic-nic parties, and others, who may wish to spend a day at one of the most splendid Groves on Staten Island.

The Grove is beautifully fitted up, and during the last summer was frequently visited by Sabbath schools from the city of New York, as well as by numerous public and private pic-nic parties.

The Grove is about two hours sail from the city, and is shaded by thousands of trees; it fronts on the river, where you can enjoy the healthful sea breeze, and bath houses have been erected on the beach for the comfort of visitors.

Mr. Biddle invites a visit from those about getting up excursion parties during the warm season.

An illustration of the resort, also known as “Mount Hermon,” was published in 1853 in *The Illustrated News*. A copy is on file at the New York Public Library and is shown here as Photograph 13. The view is from the New Jersey side of the Arthur Kill, looking across at the project site and vicinity. The APE is clearly visible as a roadway leading down to the waterfront, with the ferry house distinctly shown to the right, or south of the road. Some form of waterfront wharf or pier appears along the shoreline within the APE, although details are difficult to discern. The 1856 U.S. Coastal Survey map (Figure 5), however, which is more detailed than any of the previous maps, confirms both a structure south of the APE (unlabeled but presumably the ferry house), and a wharf or pier at the end of the roadway.

In 1861, Henry Hogg Biddle sold much of his property, including the land on either side of Amboy Road, to Joel Smith of Perth Amboy, who the same year conveyed it to Harmon Kingsbury, an Ohio businessman who in 1853 had proposed expanding Biddle’s Grove into an evangelical resort and religious community. The plan never materialized, but Kingsbury eventually did acquire the land legally (Shepherd 2008). Both the 1859 and 1860 Walling maps show that the ferry house building was attributed to “H. Kingsbury.” These maps also show a large wharf or pier at the end of the APE. By this time, the Staten Island Railroad was under construction north of the APE; both of these maps erroneously show the railroad alignment ending at Amboy Road, when in fact this section was never built. The railroad ended at what became the new ferry landing, located at the terminus of Bentley Avenue. Railroad service to the new ferry began in 1860 (Leng and Delavan 1924). It appears that after about 1860, formal ferry service ceased at the foot of Amboy Road, although the presence of the large wharf or pier allowed boats to continue docking there.

The 1872 Dripps map and the 1874 Beers map (Figure 6) both show the location of the ferry house (now known as the Manahatta Club) within property labeled the Kingsbury Estate, and Biddle’s Grove north of Amboy Road. The 1874 map shows a small structure associated with Biddle’s Grove just north of the APE. Shepherd (2008) notes that Captain C.C. Ellis created a tourist hotel and park in the 1870s on the south side of Amboy Road, on the bluff above the Arthur Kill at the foot of Amboy Road. It was known as Bay Cliff Park. A photograph shows the beachfront view of the property, with a large platform overlooking the water surrounding a large elm tree (Shepherd 2008:148; Photograph 14). The project site was located just to the left of the image. In 1900, a New York Times article noted that Ellis had sold the facility to a new owner, who intended to further develop the property with additional buildings (*New York Times* March 7, 1900). However, this proposed development never seems to have occurred. The 1907 Robinson map (Figure 8) shows that the property south of Amboy Road was now attributed to “Jere Johnson, Jr. Company,” whereas the property north of Amboy Road contained “A.C. Brown and Sons Dry Dock and Boat Builders.” An undated postcard of the A.C. Brown shipyard is held by the New York Public Library, and is shown here as Photograph 15.

The 1911 Borough of Richmond Topographical Survey maps (Figure 9) are some of the most detailed depictions of Staten Island ever made. For the project site, this map illustrates the former Bay Cliff Park structures south of Amboy Road, in the approximate location of the present modern residence, and the buildings of the ship yard north of Amboy Road. The APE itself is shown as a sloped area leading to the waterfront, although the roadway does not appear to have a formal terminus. There is a large L-shaped wharf or pier shown extending into the Arthur Kill, raised approximately 3 feet above the water level. A portion of the wharf or pier appears to fall within the APE.

Little change is shown on the 1917 Sanborn map or the 1917 Bromley map, other than a change in ownership south of Amboy Road to Henry Rogers. A 1924 aerial photograph seems to show that the large wharf or pier was partially dismantled or had collapsed by this time, although its outline can still be seen. Sanborn maps from 1937 (Figure 10) and 1951 indicate that the property south of Amboy Road was vacant by this time, whereas the ship yard north of Amboy Road continued to operate through at least mid-century. No wharf or pier is shown at the end of the roadway on either map. Aerial photographs including the project site made from 1931-2007, and available on www.historicaerials.com, show that the outline of the former large wharf or pier continued to define the edge of the artificially straight waterline to some degree through ca. 1980. After ca. 1980, when the residence was built on the

property south of the APE and the concrete culvert was built within the APE, the shoreline took on a more rounded shape, suggesting that the wharf or pier had been at least partially removed. Figure 11 shows the current configuration of the project site and vicinity. As noted in the Current Conditions section, there are still wooden wharf remains visible on the beach of the APE.

V. CONCLUSIONS

A. Disturbance Record

Due to the lack of soil borings available for the project site, the disturbance record must rely primarily on observations made during the field visit and comparison of historic maps with modern maps.

As noted in the earlier Current Conditions discussion, the section of the APE from the intersection of Amboy Road and Wards Point Avenue to the beach shows clear evidence of disturbance from earthmoving associated with construction of the existing concrete culvert, land manipulation from construction of the adjacent residential property to the south, erosion and storm damage. It is also likely that the original landform was altered by use of the APE as a historic roadway. However, the extent of disturbance to the overall soil column within the project site is unknown. The beach section of the APE also appears to be disturbed to some degree from erosion, storm damage, and construction of waterfront wharves or piers. As described above, the beach was artificially extended when the large wharf or pier was built. The remainder of the APE, which is under water, could not be assessed as to potential disturbance.

B. Precontact Archaeological Sensitivity

The project site is located in an area where there is significant documentation of heavy precontact period archaeological occupation. It should be assumed that any area of the Tottenville neighborhood that contained a naturally favorable landform (such as level, elevated topography) would have been utilized by Native Americans at one time or another.

The project site was probably in use as a Native American trail leading to the water's edge for many years before being regulated as Amboy Road (Grumet 1981). However, the exact location of the Native American trail versus the alignment of Amboy Road is not and cannot be known. It is possible that Native American occupation resources may have been located within the project site. Precontact archaeological sites on Staten Island often are buried beneath layers of accumulated soils; if the disturbance observed during the field visit is not deep, it is possible that precontact resources could survive within the upland portion of the project site, between the present terminus of Amboy Road and the beach, as shown on Figure 12. Thus, precontact archaeological sensitivity for the APE is high.

B. Historic Period Archaeological Sensitivity

The project site also is located in an area of extended historic period use. The terminus of Amboy Road was the site of one of the earliest ferries on Staten Island, and a ferry house existed just south of the APE during the eighteenth and nineteenth centuries. This building appears to have remained in use, either as a tavern or a hotel and later an amusement hall, through at least the end of the nineteenth century. There was also use of the areas north and south of the APE during the mid and later nineteenth century as summer resorts. It is possible that archaeological resources associated with the ferry house building and/or the summer resorts may be present within the APE. If the disturbance observed during the field visit is not deep, it is possible that historic period archaeological resources could survive within the upland portion of the project site, between the present terminus of Amboy Road and the beach, as shown on Figure 12. Thus, historic period archaeological sensitivity for this section of the APE is high.

The beach section of the APE and its immediate vicinity contains a number of wooden elements embedded in the sand that appear to be remains from wharves, piers, or other waterfront features. Two fragmentary wooden pilings also could be seen in or near the APE within the Arthur Kill between the shoreline and the bulkhead line. There may be additional wharf or pier elements under the water of the Arthur Kill within the area, but if they exist they could not be seen during the site visit. It is unclear based on the field survey what the particular functions of these various wooden elements were, how old they are, or how deep they extend into the sand. It is assumed that these wooden elements do not represent the earliest ferry landing features, but rather date to the late nineteenth or

twentieth centuries. Because the APE was not staked at the time of the field survey, it also was difficult to discern the exact boundaries of the APE and which of the wooden elements might be directly impacted by the proposed project. This section of the APE also has been assigned a high historic period archaeological sensitivity, as shown on Figure 12.

VI. RECOMMENDATIONS

Based on these conclusions, and because no previous soil borings have been completed on the project site that might illuminate soil conditions, HPI recommends that Phase IB field testing be undertaken in the portion of the project site between the terminus of Amboy Road and the beach, to ascertain the possible presence of both precontact and historic period archaeological resources. If the Phase IB testing, which would entail a small number of hand excavated shovel tests (STs), confirms disturbance to buried soil horizons, then no additional archaeological studies would be warranted.

Additionally, HPI recommends that the wooden elements on the beach section of the APE be formally documented by a maritime archaeologist prior to implementation of the proposed project. This recordation should be scheduled at the lowest possible monthly ebb tide, so as to better view any possible features in the water that could not be seen at the time of the present field survey. All archaeological testing should be conducted according to OSHA regulations and applicable archaeological standards (LPC 2002; CEQR 2010). Professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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1860 *Map of the City Of New-York and Its Environs from Actual Surveys.* S.D. Tilden, New York.



LEGEND

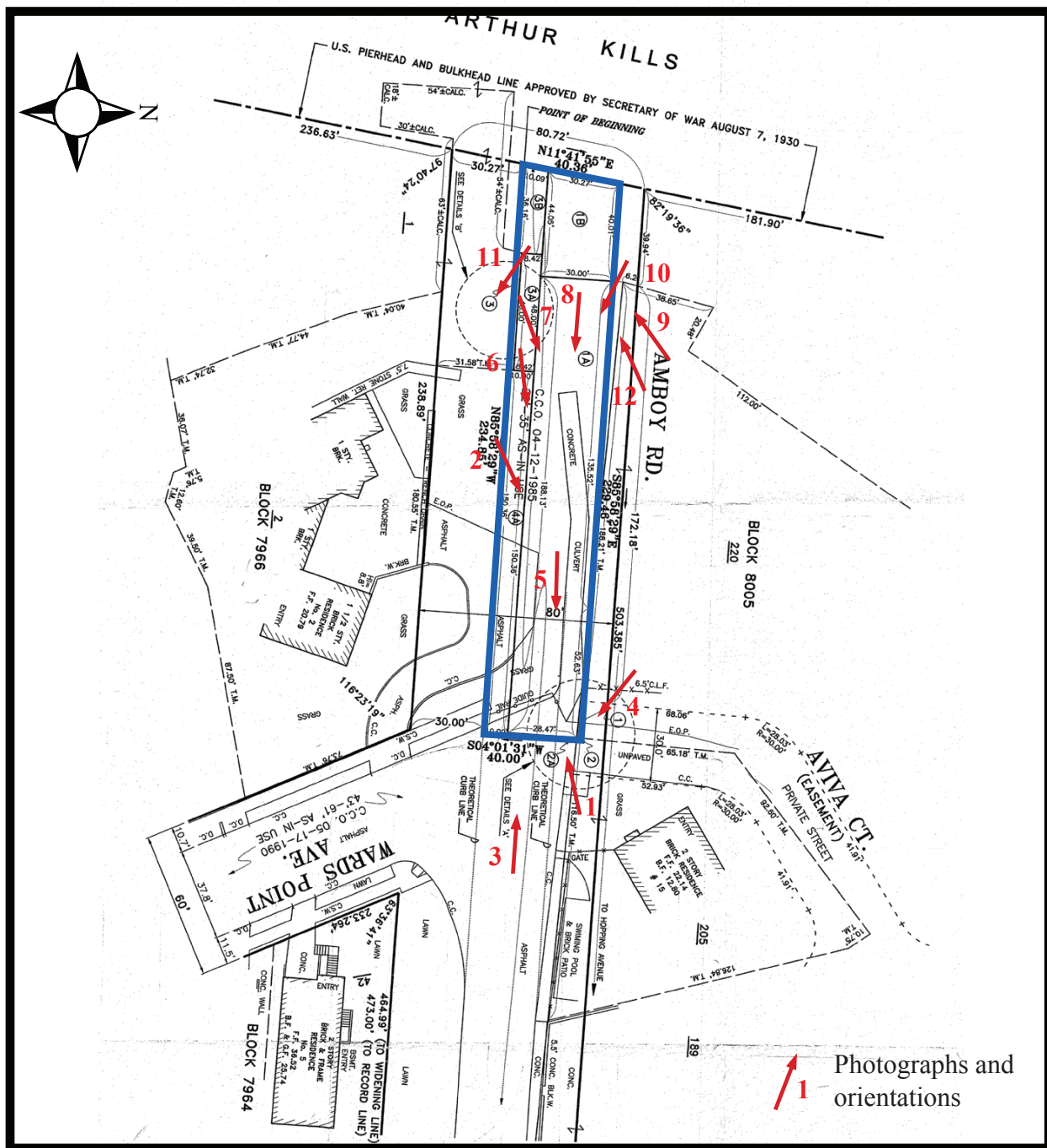
— Area of Potential Effect

1000 0 1000 2000 3000 4000 FT.

Phase IA Archaeological Documentary Study **Wards Point Infrastructure Improvements** **Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line** **Staten Island, Richmond County, New York**



FIGURE 1. U.S.G.S., *Arthur Kill, N.J.-N.Y.* 7.5 Minute Topographic Quadrangle, 1981.



LEGEND

— Area of Potential Effect

25 0 25 50 75 100 FT.

Phase IA Archaeological Documentary Study

Wards Point Infrastructure Improvements

Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York

FIGURE 2. City of New York, Department of Design and Construction, *Amboy Road Damage & Acquisition Map*, 2008.





LEGEND

Arrow indicates the approximate location
of the Area of Potential Effect

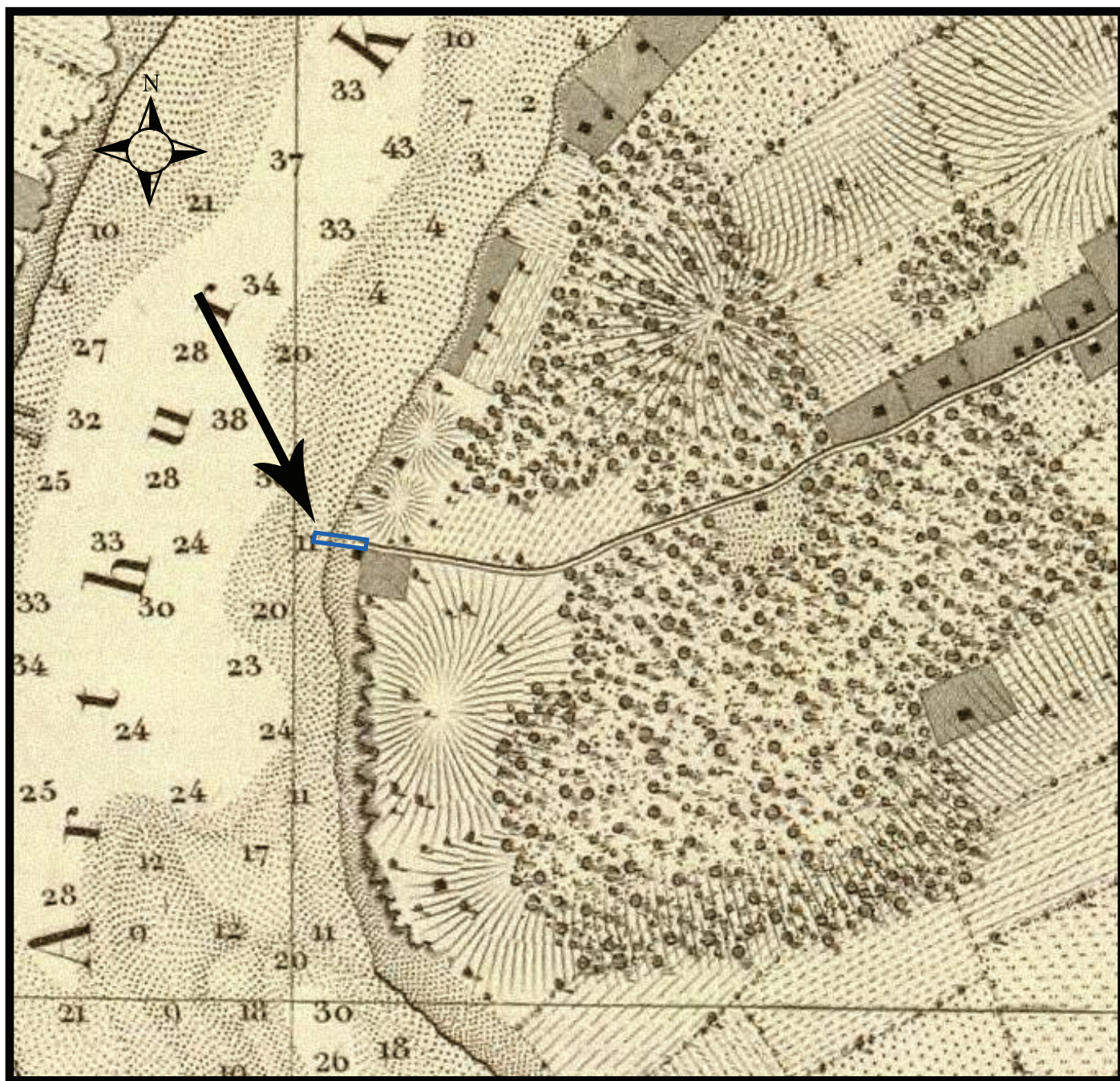
1000 0 1000 2000 3000 4000 FT.

Phase IA Archaeological Documentary Study Wards Point Infrastructure Improvements


*Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York*



FIGURE 3. Taylor and Skinner, *Map of New York and Staten Island & Part of Long Island*, 1781.



LEGEND

 Area of Potential Effect

250 0 250 500 750 1000 FT.


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Wards Point Infrastructure Improvements


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FIGURE 4. U.S.C.S., *Map of New-York Bay and Harbor and The Environs*, 1844.



LEGEND

 Area of Potential Effect

250 0 250 500 750 1000 FT.

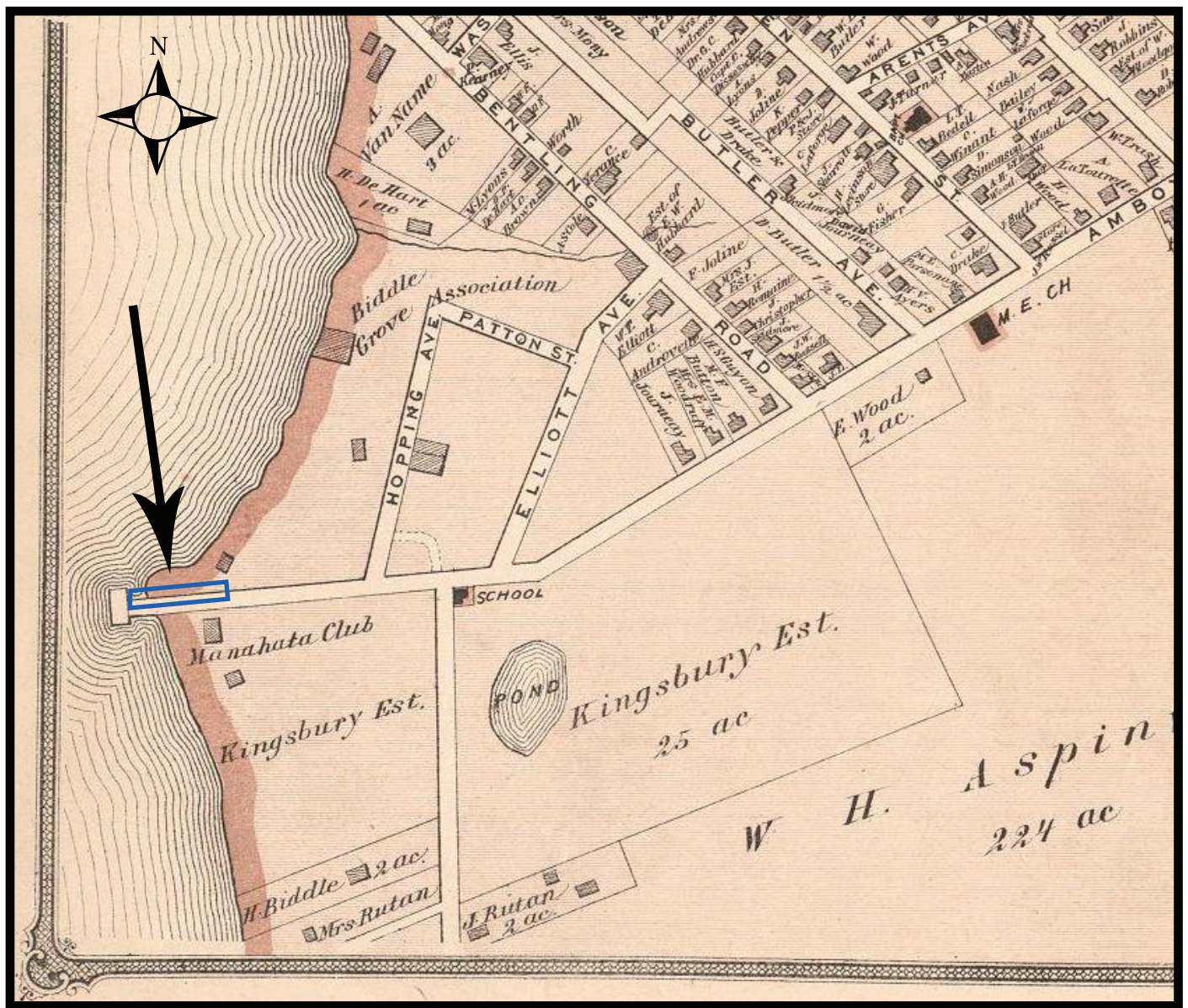

Phase IA Archaeological Documentary Study

Wards Point Infrastructure Improvements

***Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
 Staten Island, Richmond County, New York***



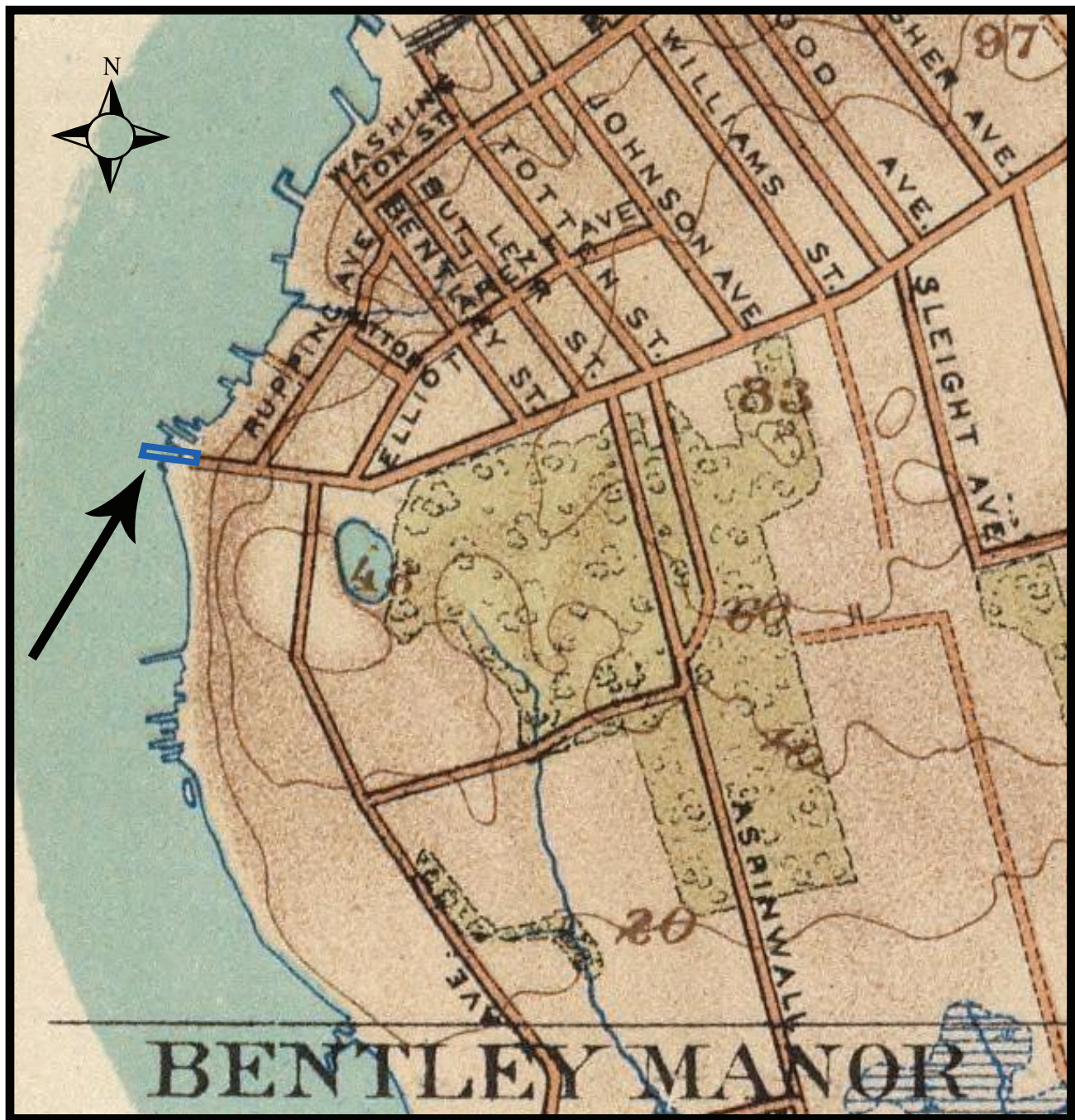
FIGURE 5. U.S.C.S., *Staten Island, New York, Ward's Point to Great Kills*, 1856.



Phase IA Archaeological Documentary Study
Wards Point Infrastructure Improvements
Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
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FIGURE 6. Beers, *Atlas of Staten Island, Richmond County, New York*, 1874.



LEGEND

— Area of Potential Effect

250 0 250 500 750 1000 FT.

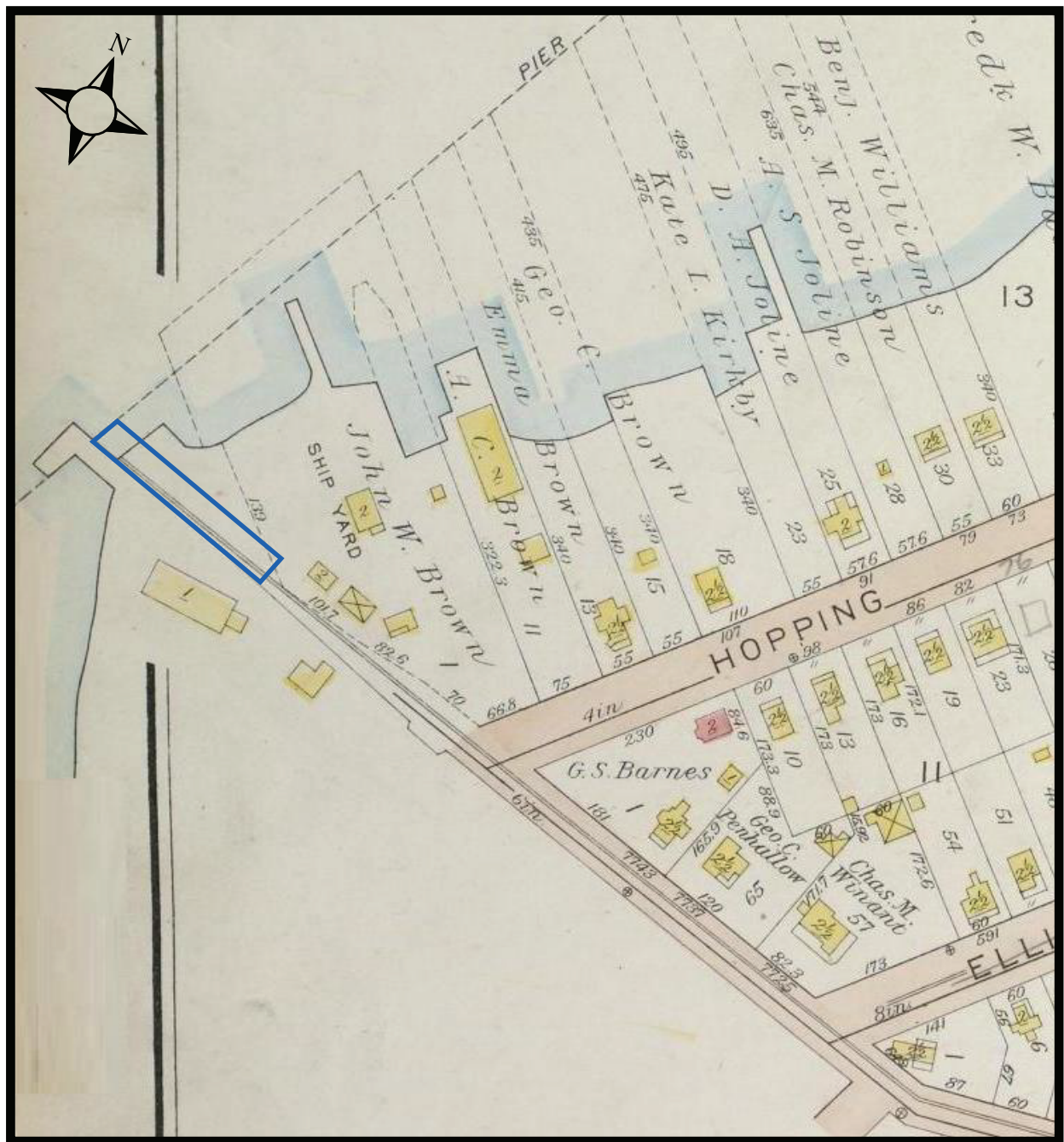
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FIGURE 7. Bien and Vermeule, *Atlas of the Metropolitan District and Adjacent Country*, 1891.



LEGEND

— Area of Potential Effect

100 0 100 200 300 400 FT.



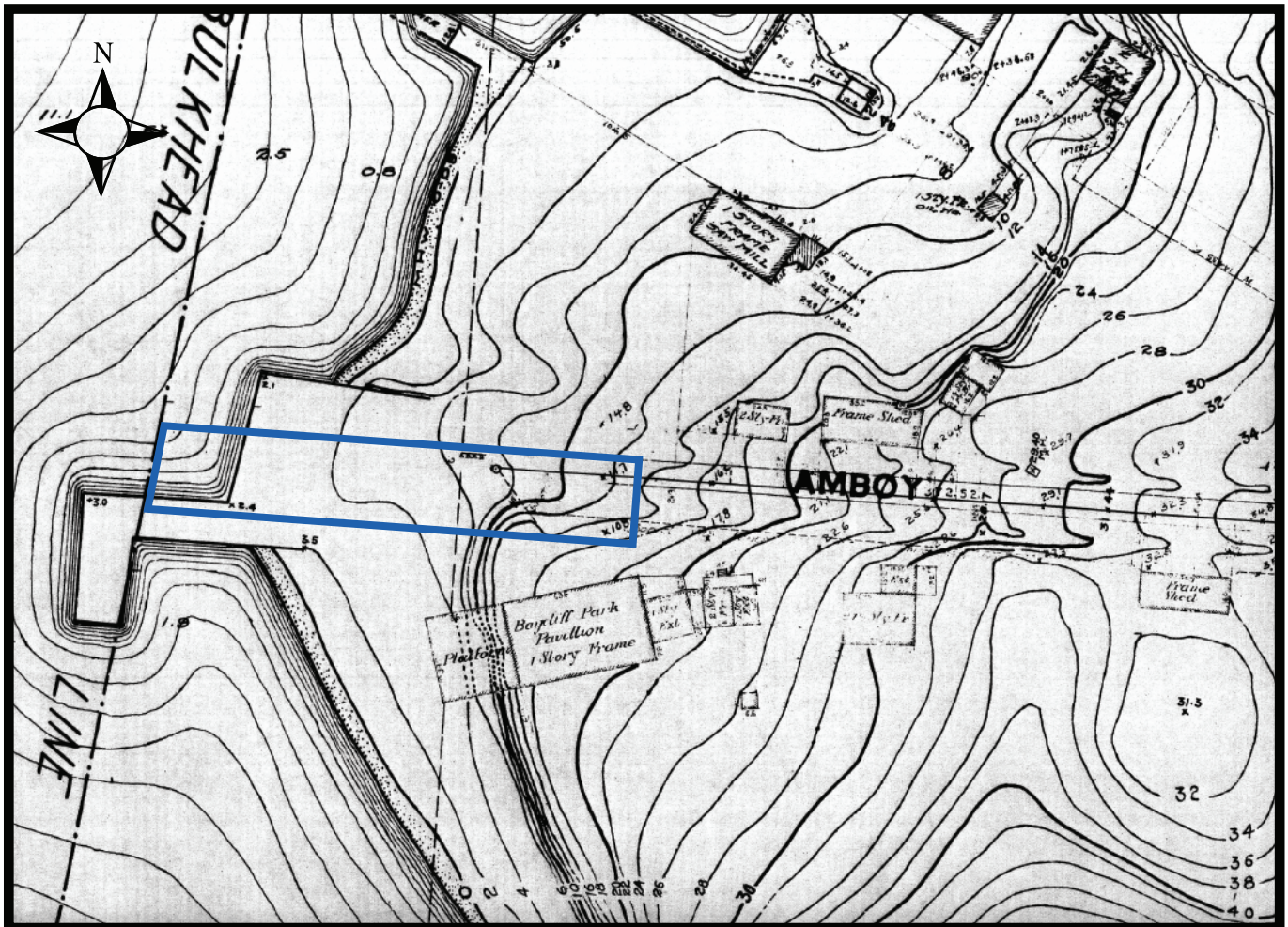
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Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
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FIGURE 8. Robinson, *Atlas of the Borough of Richmond, City of New York*, 1907.





LEGEND

— Area of Potential Effect

50 0 50 100 150 200 FT.

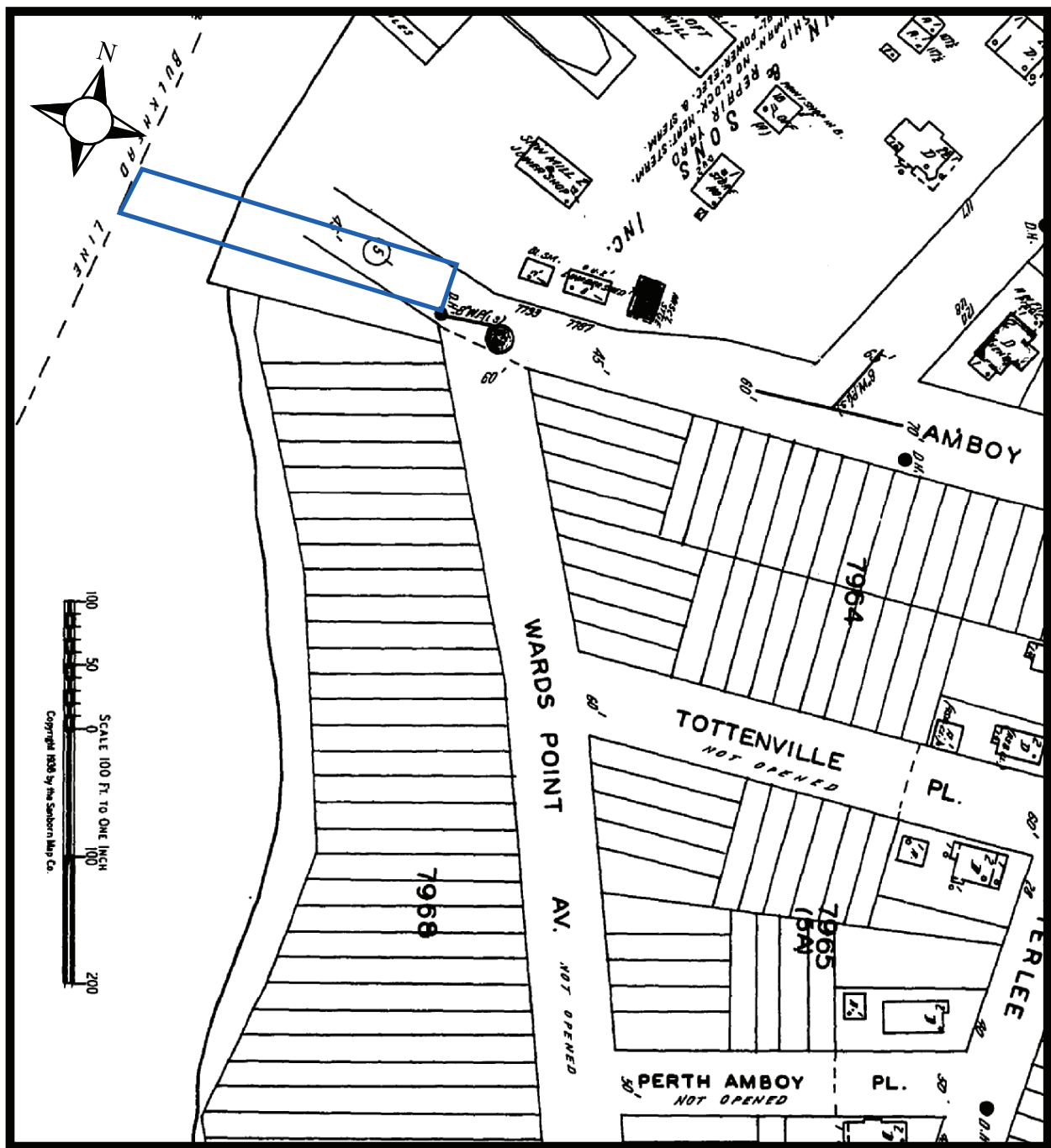
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Wards Point Infrastructure Improvements

*Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York*



FIGURE 9. *Borough of Richmond, Topographical Survey, 1911.*



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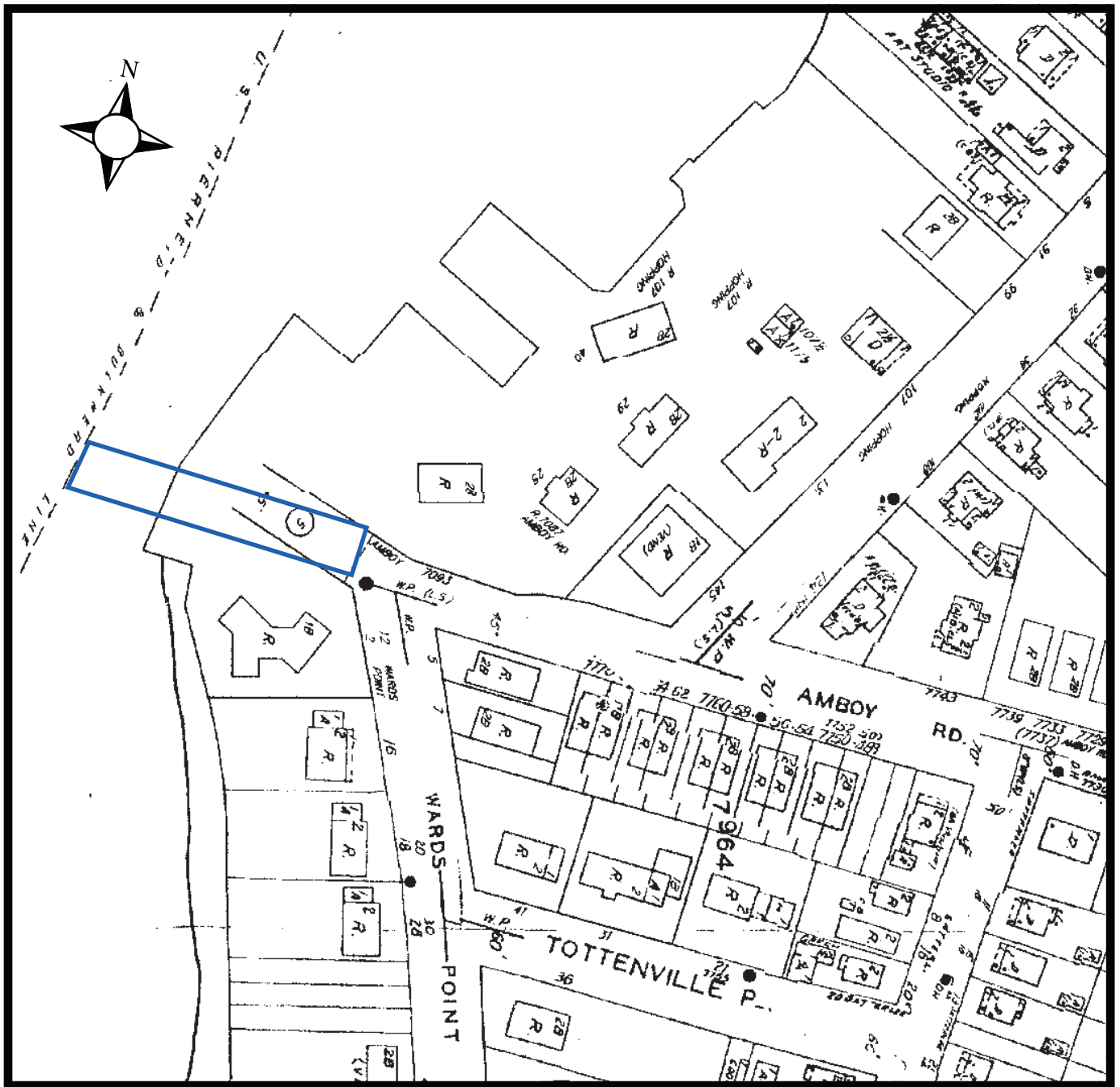
— Area of Potential Effect

50 0 50 100 150 200 FT.

Phase IA Archaeological Documentary Study
Wards Point Infrastructure Improvements
Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York

FIGURE 10. Sanborn, *Insurance Maps of Staten Island, New York*, 1937.





LEGEND

— Area of Potential Effect

50 0 50 100 150 200 FT.

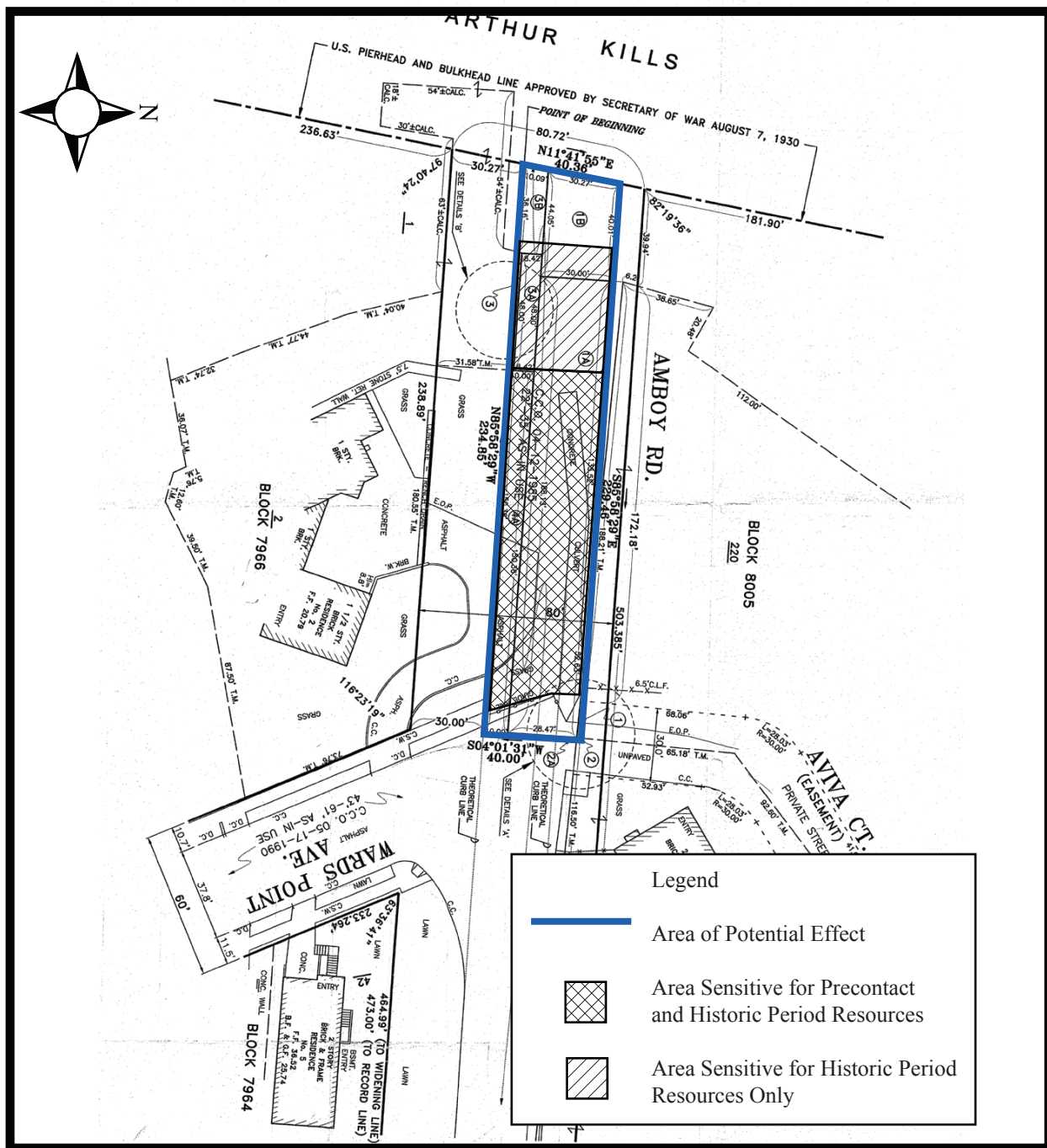
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Wards Point Infrastructure Improvements

*Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
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FIGURE 11. Current Sanborn Map.





Phase IA Archaeological Documentary Study

Wards Point Infrastructure Improvements

Amboy Road from Wards Point Avenue to U.S. Pierhead and Bulkhead Line
Staten Island, Richmond County, New York

FIGURE 12. Archaeological Sensitivity map, City of New York, Department of Design and Construction, *Amboy Road Damage & Acquisition Map*, 2008.





Photograph 1: Project site section from the intersection of Amboy Road and Wards Point Boulevard to the beach, showing concrete drainage culvert or swale. View looking west from Amboy Road terminus.



Photograph 2: Project site section from the intersection of Amboy Road and Wards Point Boulevard to the beach, showing disturbed soils and landscaped yard area surrounding concrete drainage culvert or swale. Portion of asphalt driveway and large boat in background are included in APE. View looking northeast from interior of site.



Photograph 3: Intersection of Amboy Road and Wards Point Boulevard, where the APE begins, showing subsurface utilities marked by several manhole covers in front of iron guard rail. View looking west from Amboy Road.



Photograph 4: Evidence of erosion at edge of Amboy Road cul-de-sac where concrete culvert begins. View looking southwest.



Photograph 5: Example of disturbed soils with partially buried hoses near Amboy Road terminus. Concrete culvert is in left background. View looking northeast.



Photograph 6: Example of disturbed soils near edge of APE and beach. View looking northeast.



Photograph 7: Example of downed trees and debris within APE at juncture of beach. View looking northeast from beach.



Photograph 8: Beach portion of APE, showing wooden element in center. View looking east.



Photograph 9: Beach portion of APE and immediate vicinity, showing wooden wharf or pier remains. Two pilings within water can be seen in background. View looking southwest.



Photograph 10: Beach portion of APE and immediate vicinity, showing wooden wharf or pier remains. Note metal cleat in right background. View looking southeast.



Photograph 11: Example of wooden wharf or pier remains immediately to south of APE on beach. View looking southeast. Note the notched joinery.



Photograph 12: Detail of metal cleat. View looking southwest.



Photograph 13: "Mount Hermon, Staten Island, N.Y." as published in *The Illustrated News*, September 17, 1853. Note roadway of APE in background, with ferry house to right.



Photograph 14: View of Bay Cliff Park, ca. 1900 (Shepherd 2008:148). APE is on left of image.



Photograph 15: View of A.C. Brown & Sons Shipyard, Tottenville, N.Y. , located immediately to the north of the APE.