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DRAFT
1A ARCHAEOLOGICAL ASSESSMENT

**REPLACEMENT OF CITY ISLAND ROAD BRIDGE
OVER EASTCHESTER BAY, BRONX, NEW YORK**

**NYCDOT CONTRACT NO: HB1012-9A
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Submitted to:

**New York City Department of Transportation
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Replacement of City Island Road Bridge

1A Archaeological Assessment—Draft



October 2004

Replacement of City Island Road Bridge
1A Archaeological Assessment--Draft

Prepared for Gandhi Engineering, Inc.
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January 14, 2005

ABSTRACT

The findings of 1A documentary research undertaken for the archaeological component of an Environmental Assessment (EA) for the replacement of City Island Bridge, Bronx County, New York are presented in this study conducted for Gandhi Engineering, Inc., the designers of the proposed bridge. Plans include a temporary bridge to link the island with the Bronx mainland during new bridge construction. The permanent structure, to be located on the site of the bridge it will replace, has a single tower and abutment on established embankment adjacent to Pelham Bay Park. Previously identified sites suggested the area has a high sensitivity for prehistoric resources. Of primary concern was the potential archaeological sensitivity of the approach to the temporary bridge on and just south of the existing access and proposed bridge site in Pelham Bay Park. A recent water main project that included archaeological test pit and trench monitoring that might have offered subsurface information for the most part did not penetrate fill documented in recent borings as between 6.5 and 13 feet deep. It is conceivable that deeper excavation west of the former shore of Eastchester Bay may uncover traces of prehistoric shell middens (shell heaps) beneath the fill. Therefore, it is recommended that an archaeologist monitor any deep test pits called for in the area of concern, and be on site to monitor selected areas of the trench excavation. This would determine if there are, or could be, buried land surfaces under the fill, but well above bedrock, that might harbor intact Native American cultural resources.

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INTRODUCTION

DRAFT 1/14/05

This report presents the findings of 1A documentary research undertaken for the archaeological component of an Environmental Assessment (EA) for a replacement bridge to join mainland Bronx and City Island, Bronx County, New York (Figures 1 and 2). The study was conducted for Gandhi Engineering, Inc., the designers of the proposed City Island Bridge. Plans include a temporary bridge to link the island with the mainland during new bridge construction. The permanent structure, to be located on the site of the bridge it will replace, has a single tower and abutment on established embankment in Pelham Bay Park. Of primary concern in the assessment was the potential archaeological sensitivity of the approach in Pelham Bay Park to the temporary bridge planned on and just south of the existing access road and proposed bridge site.

METHOD

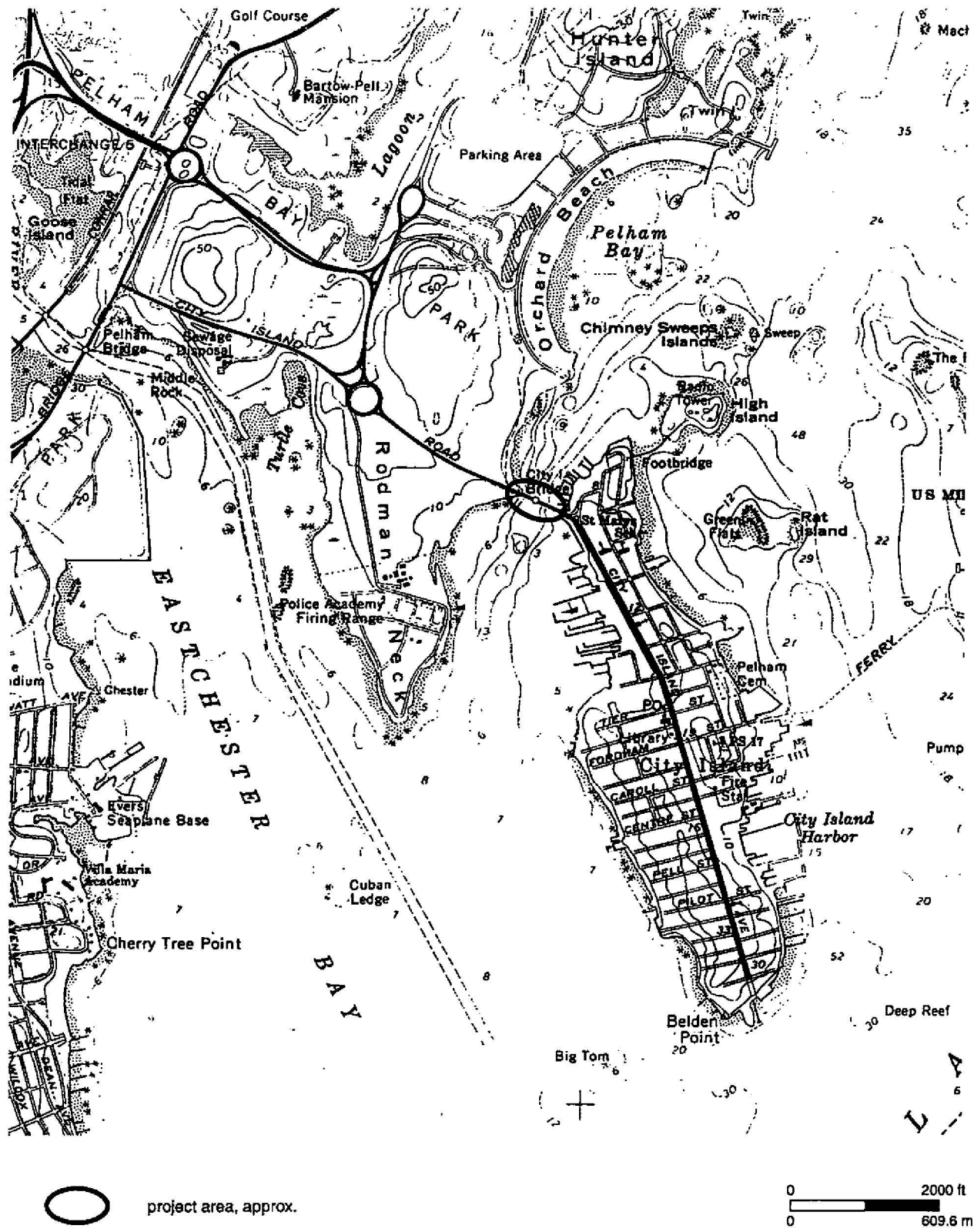
The assessment entailed several site visits to photograph existing conditions in the project Area of Potential Effects (APE), that is, where proposed construction or construction-related activities may cause impacts. It also entailed a review of relevant archaeological reports and surveys at the New York City Landmarks Preservations Commission. Among them was a comprehensive compendium of known Bronx archaeological sites prepared by Eugene J. Boesch (1996) as well as two recent field surveys conducted in Pelham Bay Park in the vicinity of the bridge approach (Greenhouse 2002; Milner 2003). In addition, research was conducted at the City Island Historical Society and in the archives and library of the New York City Department of Parks and Recreation as well as the New York Public Library and the Geographical Division of the Library of Congress in Washington, D.C.

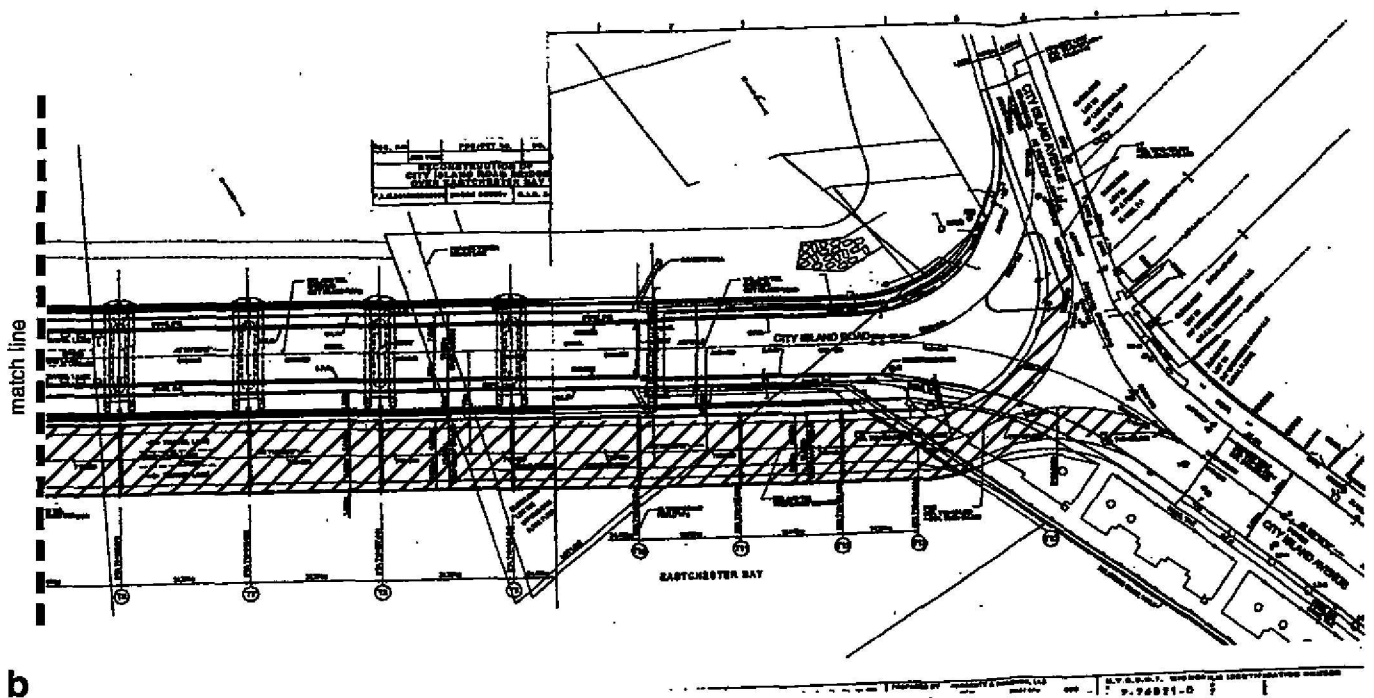
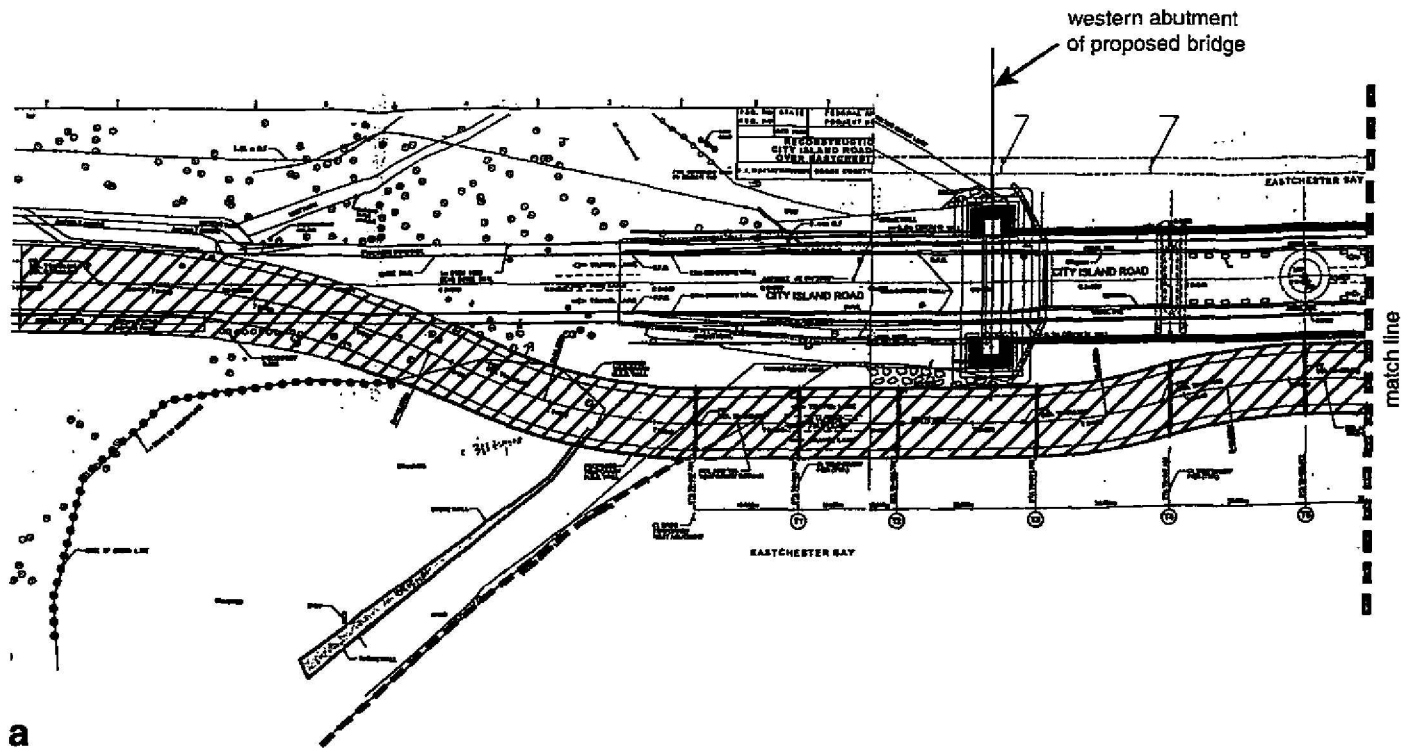
EXISTING CONDITIONS





The site visit indicated the most potentially sensitive part of the project APE undoubtedly lies south and west of the existing bridge near where it meets the shore of Eastchester Bay in Pelham Bay Park (Figure 3). The Hutchinson River, located well west of the project area, separates Pelham Bay Park from the rest of the Bronx (WPA 1939:510). Comprising 2,764 acres, Pelham Bay Park, the location of the west side of the project APE, was created in 1888 and is the largest park in the city park system (e.g., Parks c.1988).

Conditions documented during a site visit in October 2004 suggested the park portion of the APE is relatively undisturbed, but this proved deceptive. A sandy beach adjoins dense vegetation that includes phragmites, an opportunistic plant that typically signifies swamp or marshland (Figures 4 to 6). Equally dense upland vegetation is found on the south side of the asphalt paved road and bike path that leads to the bridge in the project APE (Figures 7 and 8). On the north side of the road and bridge, where no construction impacts are anticipated, the terrain is more park-like than on the south side (Figure 9).

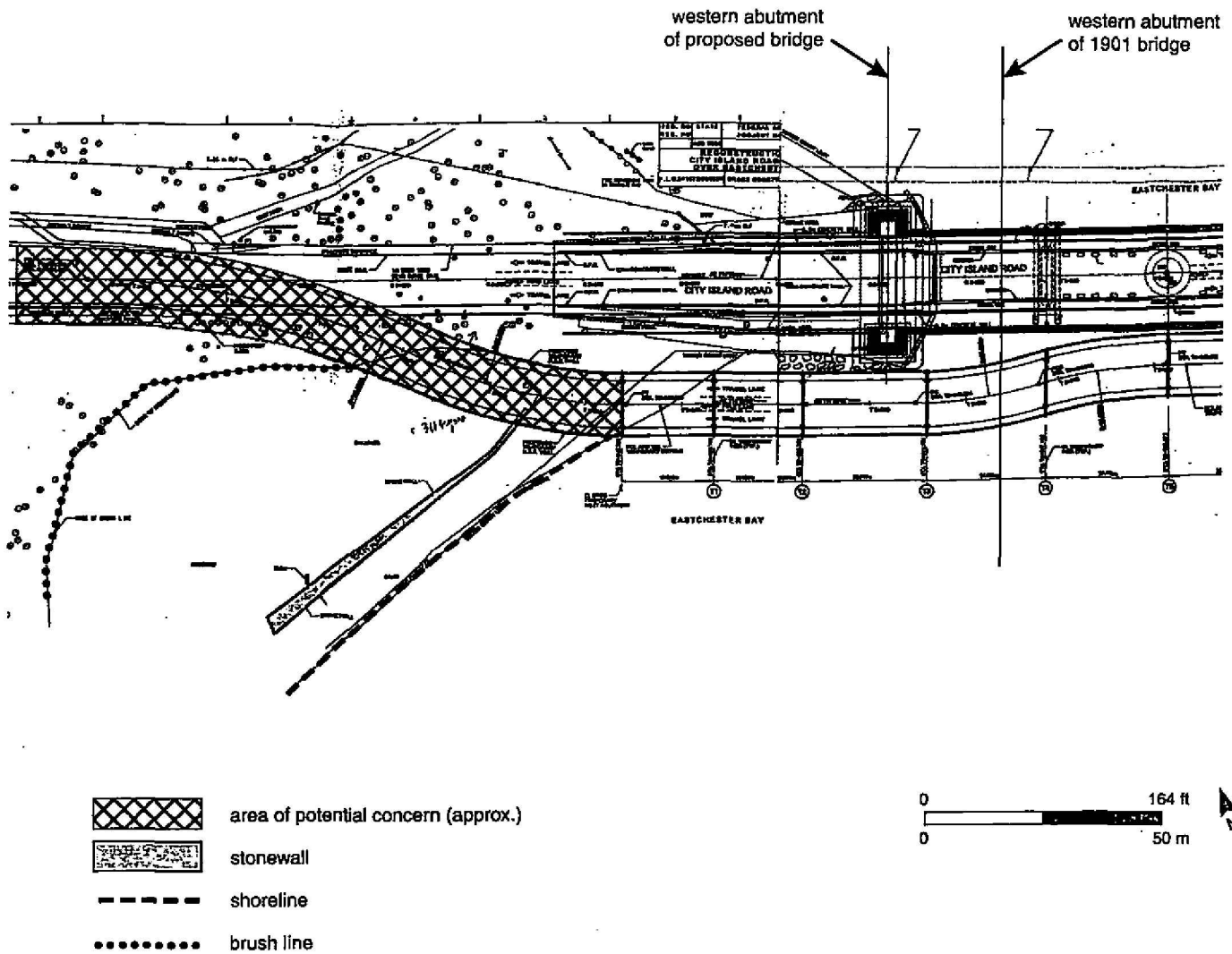
The three-lane bridge that connects the mainland to City Island at this writing is just over 100 years old. It was subject to alterations in the 1960s that included fixing the swing mechanism that allowed the bridge to accommodate passing boats (see below).

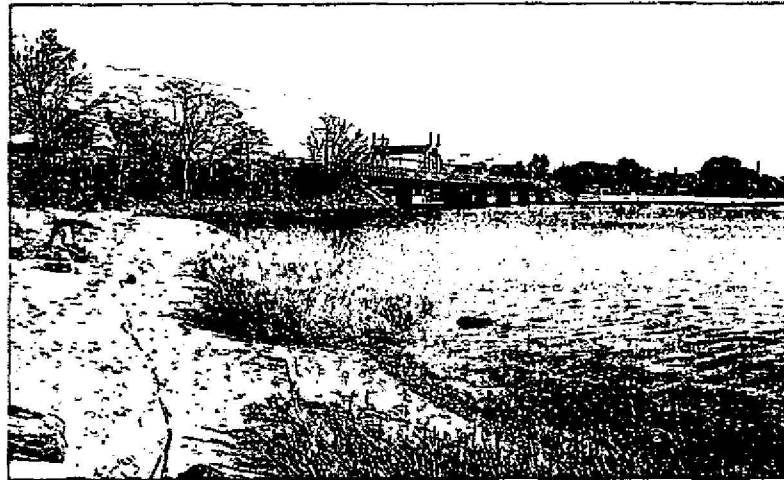




-  temporary bridge
-  stonewall
-  shoreline
-  brush line



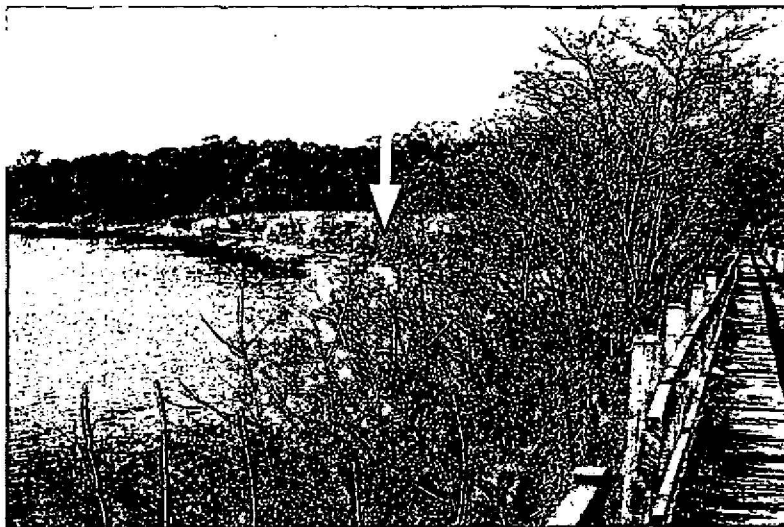




4 City Island Bridge from the Pelham Bay Park shore. View is northeast, looking toward City Island. (Geismar 10/04)



5 South side of 1901 City Island Bridge looking toward Pelham Bay Park from City Island. The temporary bridge will run parallel to this side of the existing bridge. (Geismar 10/04)



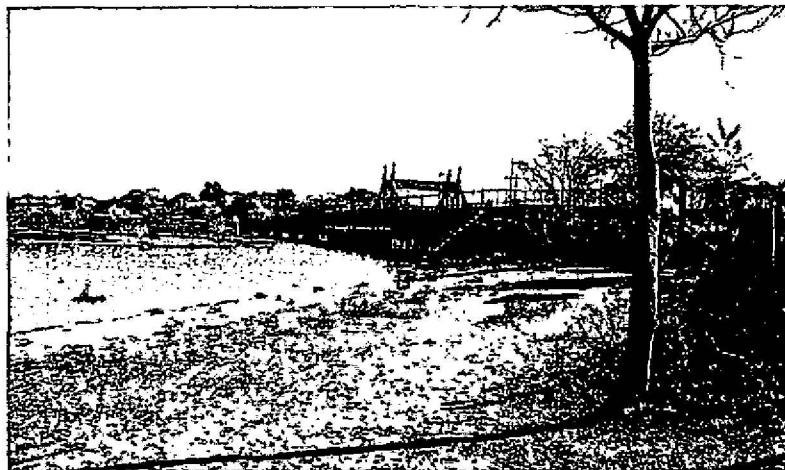
6 View of beach in the vicinity of proposed temporary bridge from south walkway of existing (1901) City Island Bridge. A dense stand of phragmites (arrow) lies between the shore and upland vegetation. (Geismar 10/04)



7 Pan view looking west toward proposed location of western end of approach to the temporary bridge. Vegetation was documented in October 2004. (Geismar 10/04)



8 View east from Pelham Bay Park looking toward City Island Bridge. Temporary bridge will be located adjacent to the south side of the bridge (right side of photo). (Geismar 10/04)



9 North side of City Island Bridge looking toward City Island from Pelham Bay Park. No impact is anticipated on this side of the bridge. (Geismar 10/04)

A trolley line that replaced an earlier horse car line crossed the bridge and ran on City Island's main street by 1914; buses replaced the trolley in 1928 (Scott 1999:41, 49). In 1910, an electric monorail, which terminated at the western end of the bridge, had connected the Bartow Station of the New York, New Haven & Hartford Railroad to City Island (Scott 1999:44, 48; Jenkins 1912:428; Figure 10). Although innovative, the monorail proved to be dangerous as well as unreliable and service appears to have ended in 1912 although the line may have persisted till 1914 (Scott 1999:49; McNamarra 1989:193; *Engineering News* 1912:461-462). Despite this succession of transportation facilities, City Island was still described as "isolated" in 1939 (WPA 1939:510).

The east side of the bridge opens onto City Island Avenue, the island's main road that traverses it from end to end along what has been called its "spine." At the western end of the island, just beyond the eastern edge of the bridge, a narrow park runs along the south side of City Island Avenue. At this writing, the park includes a memorial to an island resident. The stone memorial is scheduled to be temporarily relocated within the park during construction and will be restored to its original location once construction is completed. The western end of City Island is the site of the eastern terminus of both the proposed new bridge and the temporary three-lane bridge that will service the island during construction.

City Island has been joined to the mainland by two successive bridges. The second of the two, which is the one to be replaced, required changes to both shores to create abutments and approaches; this suggests significant disturbance in the APE more than a century ago (see below). High Island, a small offshore island that is a known site of Native American resources, is connected to City Island by a footbridge (see Figures 1 and 11).

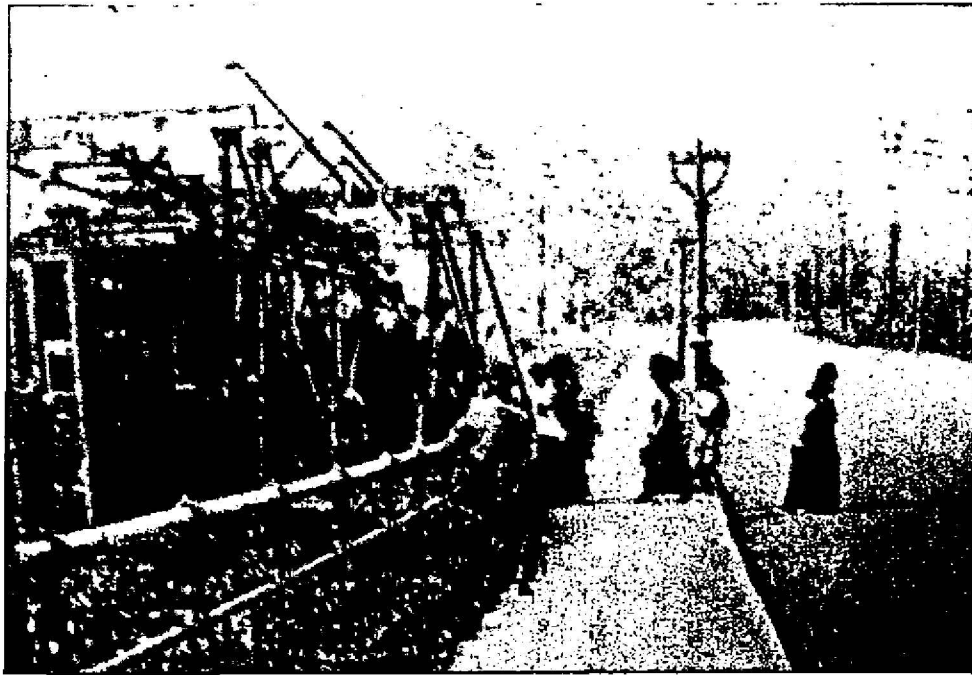
PREHISTORIC CONSIDERATIONS AND PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

Native American sites, or the potential for such sites, have been documented on City Island and its environs, including Pelham Bay Park to the west, Hunter's Island to the northwest, Rodman's Neck to the southwest, and High Island to the northeast. Archaeological resources identified in the vicinity of the East River and the shore of Long Island Sound include habitation and camp sites, shell middens (shell heaps), and various occupation sites as well as isolated artifact finds.

Pelham Bay Park, which would have offered abundant food resources to Native Americans, is relatively undisturbed by development. In the past rich and diverse forests that teemed with nuts, fruits and berries and many types of game were to be found, and the seashore and fresh water marshes would have provided fish and shellfish. The park's topography, which includes high ground overlooking inlets of the Sound and bay and interior marshy areas as well as fresh water, such as the Bronx River, would have been conducive to Native American use and occupation.

In 1996, Eugene J. Boesch compiled a list of all previously identified Bronx sites. In addition to being an invaluable resource, it also highlights the lack of detailed site information, such as size, function, and identified culture periods, and the location of isolated finds is often unknown. Table 1 lists relevant sites and available information and Figure 12 locates them. It should be noted that vocational archaeologists working during the early years of the 20th Century are credited with most of the discoveries.

The Rodman's Neck shore, situated in the park along Eastchester Bay, achieved its modern configuration during the post-glacial period (12,500 to c. 4,000 Before the Present [BP]).



10 The short-lived, electrically-powered monorail ran from the Bartow Station of the Harlem River Branch of the New York, New Haven and Hartford Railroad to the west side of the City Island bridge (left side of the photo). This c. 1911 photo was taken about a year after its inauguration. (Photo: Courtesy of the City Island Historical Society).



11 View north through a gate looking toward the footbridge (arrow) to High Island, documented location of Native American archaeological sites. (Geismar 10/04)

Table 1. CITY ISLAND BRIDGE PROJECT Archaeological Sites Near/In Project APE (See Figure 12)

Previously identified sites on West Side of Bridge, Within 2,000 Feet of APE

Site No. (Boesch 1996)	Site Type	Location	Remarks	Source (Boesch 1996)
57	Shell middens and Camp sites	Entire shore of Pelham Bay including Pelham Bay Lagoon, now Orchard Beach		Parker 1922
103	Occupation sites (not described)	North shore of a cove on W side of Rod- man's Neck, now within Pelham Bay Park		Parker 1922

West Side of Bridge Within 1 Mile of APE

57	Shell middens and camp sites	Entire shore of Pelham Bay including Pelham Bay Lagoon, now Orchard Beach		Parker 1922
83	Large habitation site	Point of land (formerly Leroy Point) ex- tending into bay (Leroy or Pelham Bay); most of point now Orchard Beach parking lot (SW end) and adjacent traffic circle	Contact Period site; Quahog shells used in wampum manufac- ture recovered	Bolton 1922
104	Shell midden	North shore of cove on W side of Rod- man's Neck, now within Pelham Bay Park		Parker 1922
105	Occupation sites (not described)	East Shore of Rodman's Neck, S of City Island Bridge	In APE of proposed temporary bridge	Parker 1922

City Island & Bronx County, within 1 1/4 Miles of APE

114	Shell midden	SW shore between Browne and Bay Streets		Parker 1922:488
115	Occupation sites (not described)	On raised middle ground of island between Fordham and Schofield Streets		Parker 1922:488
116	Shell middens	Intermittently along north and east shore		Parker 1922:490

High Island Northeast of City Island - Within 1 Mile of APE

117	Artifacts (not described)	Along shore		Parker 1922
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One consequence of inundation that occurred during the Paleo-Indian and Early- to Middle-Archaic Native American culture Periods was an increase in available food resources that would have been attractive to these early Native American populations. Although there is no evidence directly in the APE, conditions in the New York coastal area in this period and later are similar to those where sites have been found, such as Staten Island (e.g., Salwen 1968). Later sites, in the form of shell middens (heaps), are documented on the west side of Rodman's Neck and elsewhere in Pelham Bay Park and on City Island (Boesch 1996; see Table 1 and Figure 12). While predictive models and known settlement patterns suggest that former coastal sites may be preserved beneath bay sediments, given documented disturbance in the APE (see below), this does not appear to be a concern. However, it is possible that evidence of shoreline shell middens still may be found under fill or naturally deposited soils.

Not only would the shore of the Bronx mainland in the vicinity of the APE have been attractive to Native American hunters and gatherers, so would the nearby offshore islands. This is confirmed by documented campsites and shell middens and perhaps by a nearby mainland Indian trail (Boesch 1996 [see Table 1]; Baer 1946:83). Alice Payne, in *Tales of the Clam Diggers*, tells us the Siwanoy Indians, a branch of the Mohicans of the Algonquin tribe, were the island's original settlers (Payne 1969:6). However, these tribal affiliations do not encompass the millennia of possible Native American use that predate these associations.

Burial sites and shell heaps are documented in the northern part of Manhattan (Skinner 1915) and the southern part of Staten Island (Jacobson 1980), but there is no archaeological evidence for the permanent structures in the prehistoric period that characterize Native American "villages" known from the early historic period, that is, after European contact. Aboriginal settlement in the New York metropolitan area prior to this period is problematic (Ceci 1977; 1988:personal communication). Evidence of prehistoric use or occupation most commonly found in this area is the aforementioned shell middens and seasonally revisited camps, but there are also isolated artifacts related to hunting or the debris from their manufacture (e.g., Bolton 1934).

The New York State Museum considers the project area to have a higher than average probability of producing prehistoric data (e.g., Wellman 1989; Geismar 1991; Boesch 1996). Since there is little or no documented development, it appears the western limit of the APE, located on Rodman's Neck in the park, has the greatest archaeological potential. However, as noted previously and as will be discussed below, this area was subject to land alteration and disturbance related to construction of the 1901 bridge and the subsequent introduction of infrastructure, in this case water mains, to City Island. Soil borings indicate a relatively deep fill (see Table 2). While this does not preclude finding at least some prehistoric cultural material under fill, it is more than likely that documented disturbance destroyed the integrity of any such deposits.

PREVIOUS ARCHAEOLOGICAL MONITORING

In association with a recent City Island Water Main Project, archaeological monitoring occurred in the western end of the APE within Pelham Bay Park in 2002. At the request of the New York City Landmarks Preservation Commission, monitoring was carried out in three episodes. The first, in March 2002, called for monitoring 21 test pits, three of them within the current project APE (Greenhouse 2002). The second, in November 2002, entailed monitoring several short trenches. Of concern here is the third monitoring episode that took place in December 2002. This was a single approximately 800-foot-long trench that incorporated the area where three test pits

was a single approximately 800-foot-long trench that incorporated the area where three test pits were excavated in March 2002 in the vicinity of the western approach to the bridge (Milner 2003:2; Tables 2 and 3 below). The water main project was situated within two miles of twenty-seven previously identified prehistoric sites (see Table 1). The water main followed Pelham Bridge Road to its intersection with City Island Road, and then proceeded to the City Island Bridge. Of the 21 test pits, only three (TP 48, 49 and 59), all located on the north side of City Island Road, reached natural soils, but were devoid of cultural material (Greenhouse 2002:4; Milner 2003:6; see Table 2). All other pits and trenches were excavated entirely in fill.

Table 2. CITY ISLAND BRIDGE PROJECT: Selected Test Pits* (Greenhouse 2003)

Test Pit (Station Number)	Length of Pit	Depth of Pit BG	Width of Pit	Strata Description
48 & 49 (236+25 to 236 + 50)	35 ft	4 ft	3 ft	Test Pits 48 and 49 (actually one trench, located 1 to 8 ft NE of the City Island Road curb) Stratum 1: fill deposits (0.5 ft thick) very dark grayish brown silty loam w/ modern rubble; Stratum 2: fill (1.3 ft thick) dark yellow brown silty sand w/ modern rubble; Stratum 3 (2.1 ft thick): highly mottled, white, light gray, yellow brown, probably marine deposited silt; Stratum 4 (0.3 ft thick): red, coarse sandy silt; Stratum 5 (began 4.2 ft BG to below bottom of trench at 5.5 ft BG not described; No artifacts recovered)
59 (675 ft east of above)	----	----	----	Strata 1 and 2, not described, identified only as fill; Strata 3 and 4 correspond to Strata 4 and 5 above; again not described; no artifacts recovered

*Located on the N side of City Island Road, W of the City Island Bridge. Test pits on Pelham Bridge Road and the W half of City Island Road all included fill deposits that extended beyond the 4 to 8 ft deep test pits. BG=below grade

Table 3. CITY ISLAND BRIDGE PROJECT Relevant Trenches* (Milner 2003)

Segment Station Number	Length of Trench Segment	Depth of Trench Segment	Width of Trench Segment	Strata Description
236 + 00	----	2.5 m	----	Fill; asphalt and cement road (Stratum A: ~0-25 cmbs); dark gray gravelly silt w/cobbles and rubble (Stratum B: ~25-100 cmbs); dark grayish brown, silty sand w/large boulders and cobbles (Stratum M: ~100-250 cmbs)
243 + 50	----	----	----	Fill; dark gray gravelly silt w/cobbles and rubble (Stratum B: ~25-100 cmbs) underlain by a dark yellow brown silty sand w/large cobbles and rubble (Stratum NA ~25 – 250 cmbs also a fill

*Excavated December 6, at Station 236+00; cmbs = centimeters below surface

HISTORICAL CONSIDERATIONS AND DEVELOPMENT HISTORY

Land ownership in Westchester County, which included the Bronx until 1895, can be traced to 1639 when it belonged to the Dutch West India Company. In the 18th century the Rodman's Neck peninsula was owned by Samuel Rodman, whose second wife, Mary, was the daughter of Thomas Pell, the original owner of nearby Pelham Bay Manor (Cooley 2001). An Englishman, Thomas Pell's holdings are said to have included the eastern half of the Bronx and Westchester, including all of City Island. Despite this long ownership history, Westchester, including the project area, continued to be mainly agricultural throughout most of the 19th century (WPA 1939:510). The exception was City Island, where boat making became an industry.

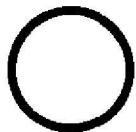
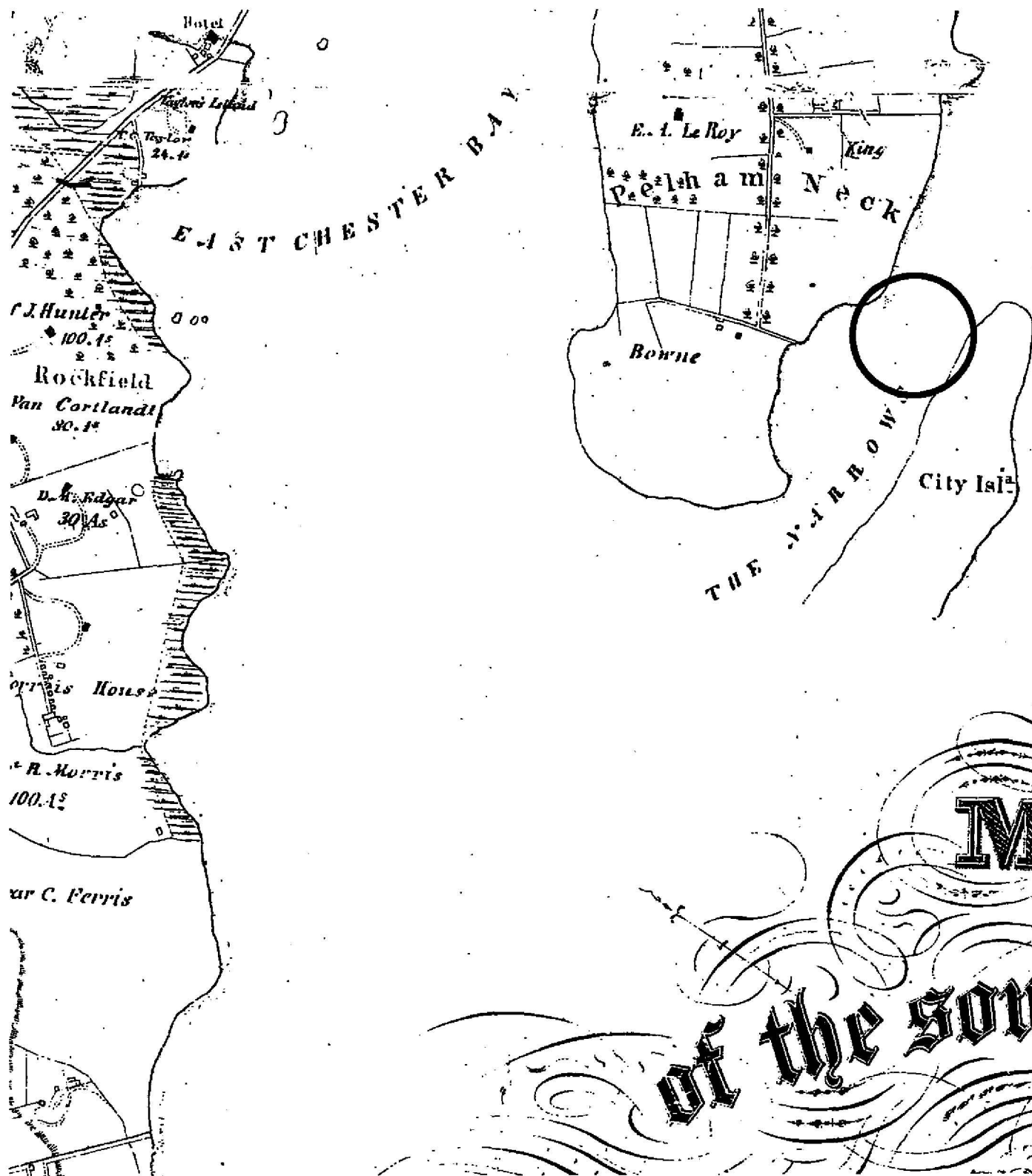
A reference to Minnewits or Manuring Island, now City Island, dates to 1654. Apparently the Dutch considered the island a good place to intercept English pirates who plagued the area (Stokes IV 1922:145). In 1654, the aforementioned Thomas Pell received an Indian deed for 9,160 acres that included land now in Pelham Bay Park as well as the adjacent off-shore islands (Baer 1946:13). Through this deed, Pell acquired a strategic stronghold in Dutch territory (although he built a house on the mainland, his primary residence was in English-held Connecticut). There are those who think Pell's purchase was instrumental to the 1664 English takeover of New Netherland (Baer 1946:12-28). With this takeover, Pell received an English deed to his vast holding that remained in his family until 1749.

After this, City Island repeatedly changed hands (and its name) until 1761 when it was purchased by Benjamin Palmer who envisioned it as a port to rival New York City (just about a century later, August Belmont and his cronies supposedly considered another grandiose but unrealized plan to create a retreat for the rich that was to include a race track over most of the island [Baer 1946: 86]). Reflecting his dream, Palmer named it City Island and subdivided it into thirty equal parts; he kept four and sold the others to fellow proprietors. Each part comprised 25 by 100-foot house lots for a total of 4,500 possible subdivisions plus areas reserved for public and religious use (Baer 1946:82). In 1763, Palmer acquired water lot rights to all but the northern end of the island, beyond the project area, that the city has since sought unsuccessfully to regain.

By mid-19th century, Rodman's Neck was in the possession of three families, the LeRoys on the west side of the neck and the Kings and Bownes on the east side where the project area is located (e.g., Dripps 1853; Figure 13), and, by 1872, the entire neck appears to be part of the Bowne Estate (Beers 1872; Figure 14). However, despite its long ownership history, no known development occurred in the impact area of the APE within the park. The configuration of the neck changed dramatically during creation of Orchard Beach, a 1936 Robert Moses project. Its configuration in the vicinity of the APE was also altered, albeit less drastically, when the second City Island Bridge was constructed at the turn of the 20th century (see below).

In December 1888, seven years before this part of Westchester County was annexed to New York City (Jenkins 1912:7), the City of New York took title to the land that comprises Pelham Bay Park (Parks c. 1988). On the north side of the bridge approach within the park, where no impact is anticipated, a structure, possibly a hotel, is cartographically documented in 1899 (e.g., USCGS 1899, 1907; see Figure 20); other maps document unidentified structures in this same area (e.g., see Figures 19, 20, and 22). However, the APE on the south side of City Island Bridge Road, where impacts will occur, does not appear to be historically sensitive.

The introduction of infrastructure to service City Island in 1936, more specifically a 16-inch flexible joint water main located on the south side of the bridge, is part of the project APE's development history. According to a 1936 plan and profile in Parks' archives, the main was to run about 25 feet south of and parallel to the bridge. Construction was expected to disturb the western and eastern bridge embankments as well as the river bottom in the project area (see Figure 15). Construction of the water main and the standing bridge undoubtedly caused great disturbance in the project APE.



project area, approx.

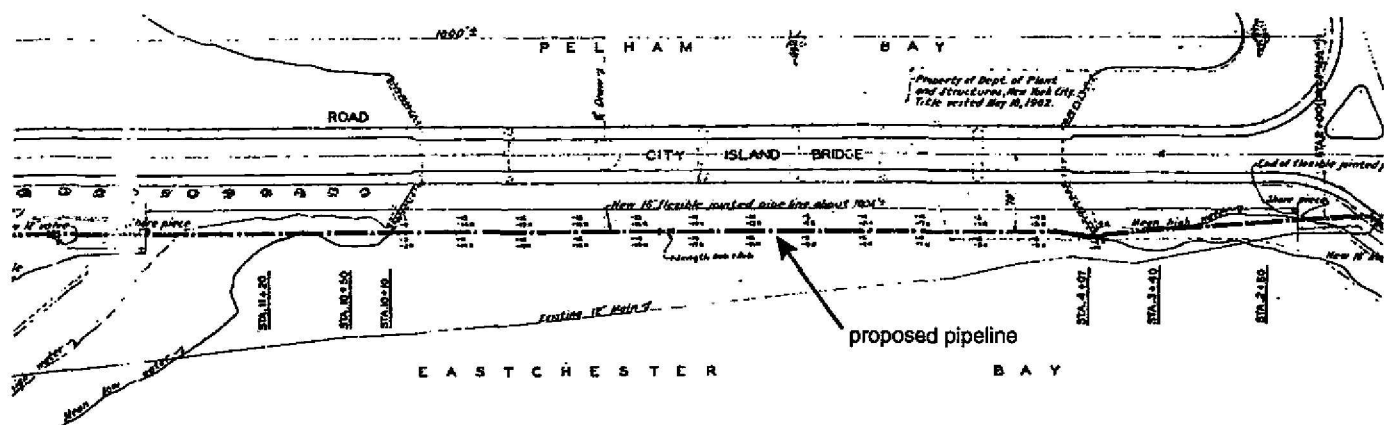
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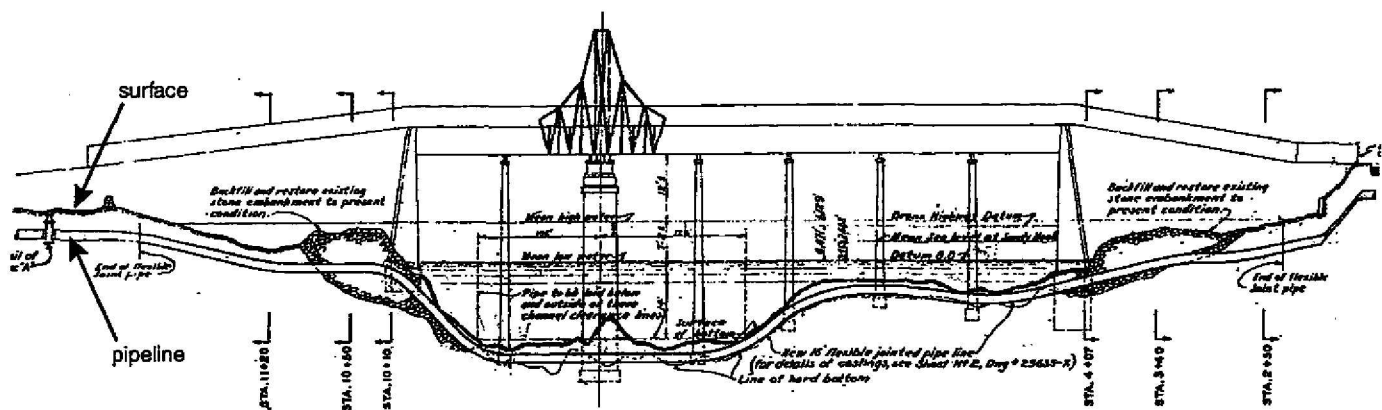
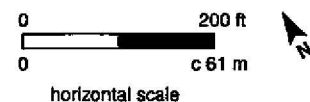


unidentified structure

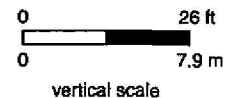




Plan



Profile

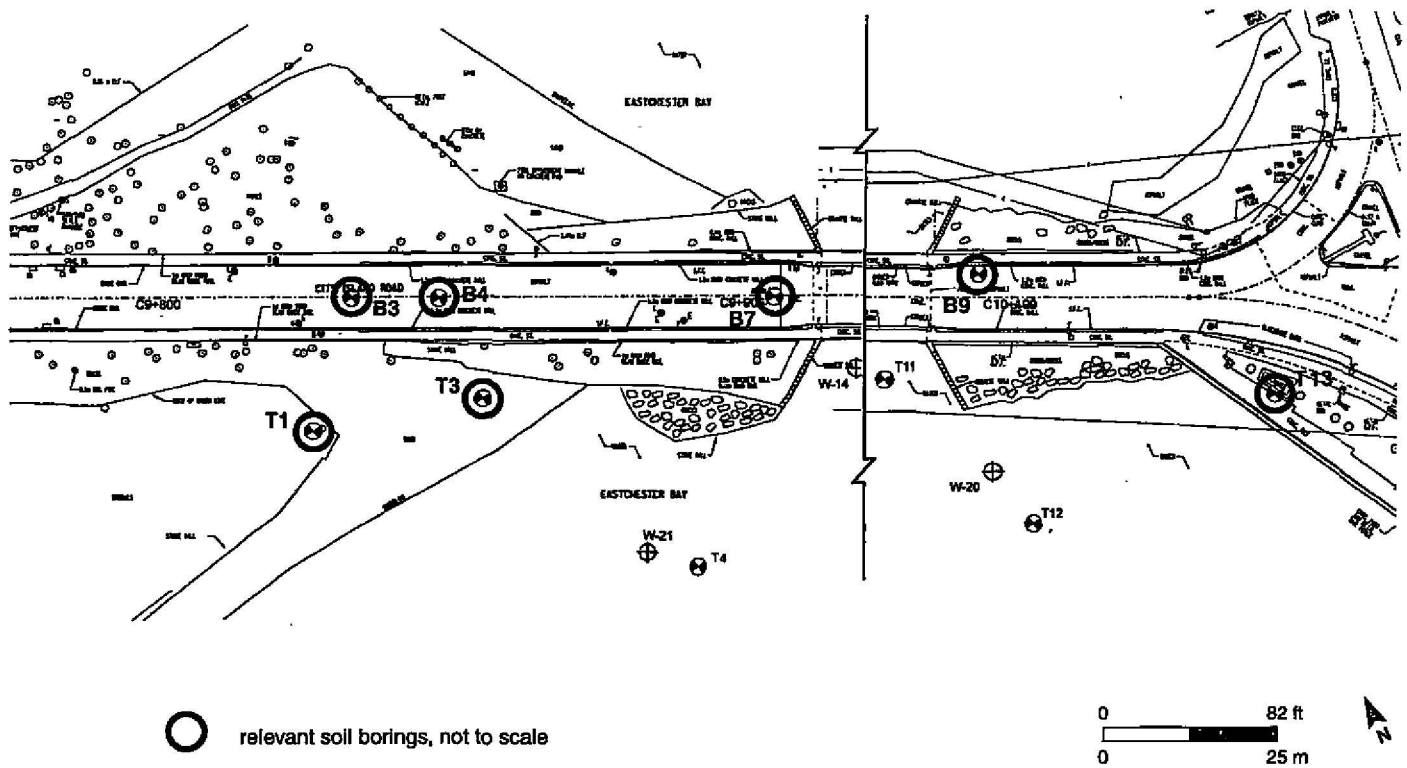


SOIL BORING DATA

Data from seven borings located directly within the footprints of the approaches to the temporary and new bridges (Figure 16) are provided in Table 4. All were drilled with a 2-inch split spoon and, except for boring T13, were taken to granitic gneiss, the local bedrock. The documented fill depth ranges from 6.5 feet in Boring B4 on the west side of the bridge approach to 23 feet in Boring B9 on the east side. Boring T3, located on the beach west of the bridge, did not document any fill at all and neither did boring T13 on the east side of the bridge. Soil borings indicate that natural soils were mostly silts and sands. These, in turn, suggest deposition during marine transgressions, the result of rising water levels in Long Island Sound that occurred as glacial ice melted during the post-glacial period. None of the relevant soil borings indicate the presence of a buried former ground surface, a condition that would suggest the possibility of finding pre-historic deposits preserved under the fill (Rutsch 1977 cited in Boesch 1996:26). The borings were carried out by URS in September of 2004.

Table 4. CITY ISLAND BRIDGE Relevant Soil Borings in the Vicinity of the Proposed Temporary Bridge Abutment (See Figure 16 for Boring Location Plan)

Soil Boring Number	Depth in feet	Extent of fill	Description of Soil Under Fill (URS 2004)
T1	35	7	Medium stiff, brown-gray, low plasticity silt to 10 ft; highly decomposed rock to 20 ft over granitic gneiss
T3	37	No fill	Loose brown, coarse sand, trace silt and shell fragments to 5 ft; very dense, gray, silty coarse to medium sand, some shell fragments to 8 ft; highly decomposed rock to 12 ft over granitic gneiss
B3	51.5	13	Medium dense, light gray, medium to fine sand, trace silt and fine gravel to 20 ft; very dense, reddish-brown, coarse to medium sand, trace silt to 21 ft over granitic gneiss
B4	51	6.5	Loose, light gray, coarse to medium sand, trace silt, fine gravel and shell fragments to 15 ft; medium dense, light gray, coarse to medium sand, trace silt to 20 ft; very dense, light brown-gray, coarse to medium sand, trace silt, to 21 ft over granitic gneiss
B7	67	8	No recovery 8 to 15 ft; medium dense, brown-gray, coarse sands, trace silt and fine gravel to 20 ft; medium dense, brown, coarse to fine sand, trace silt to 25 ft; dense, brown-gray, coarse to fine sand, trace silt to 30 ft; very dense, brown, coarse to fine sand, trace silt and fine gravel to 34 ft over granitic gneiss
B9	77	23	Medium dense, black, coarse to medium sand, trace silt and fine gravel to 30 ft; very dense, black, medium to fine sand, some organic silt w/shells and rock fragments to 35 ft; no recovery 35 – 40 ft; very dense, gray, coarse sand, trace silt and fine gravel to 42 ft; highly decomposed rock to 47 ft over granitic gneiss
T13	17	No fill	Loose, gray, medium to fine sand, some silt to 5 ft; dense, brown-gray, coarse sand, trace silt and fine gravel to 17 ft



BRIDGE HISTORY

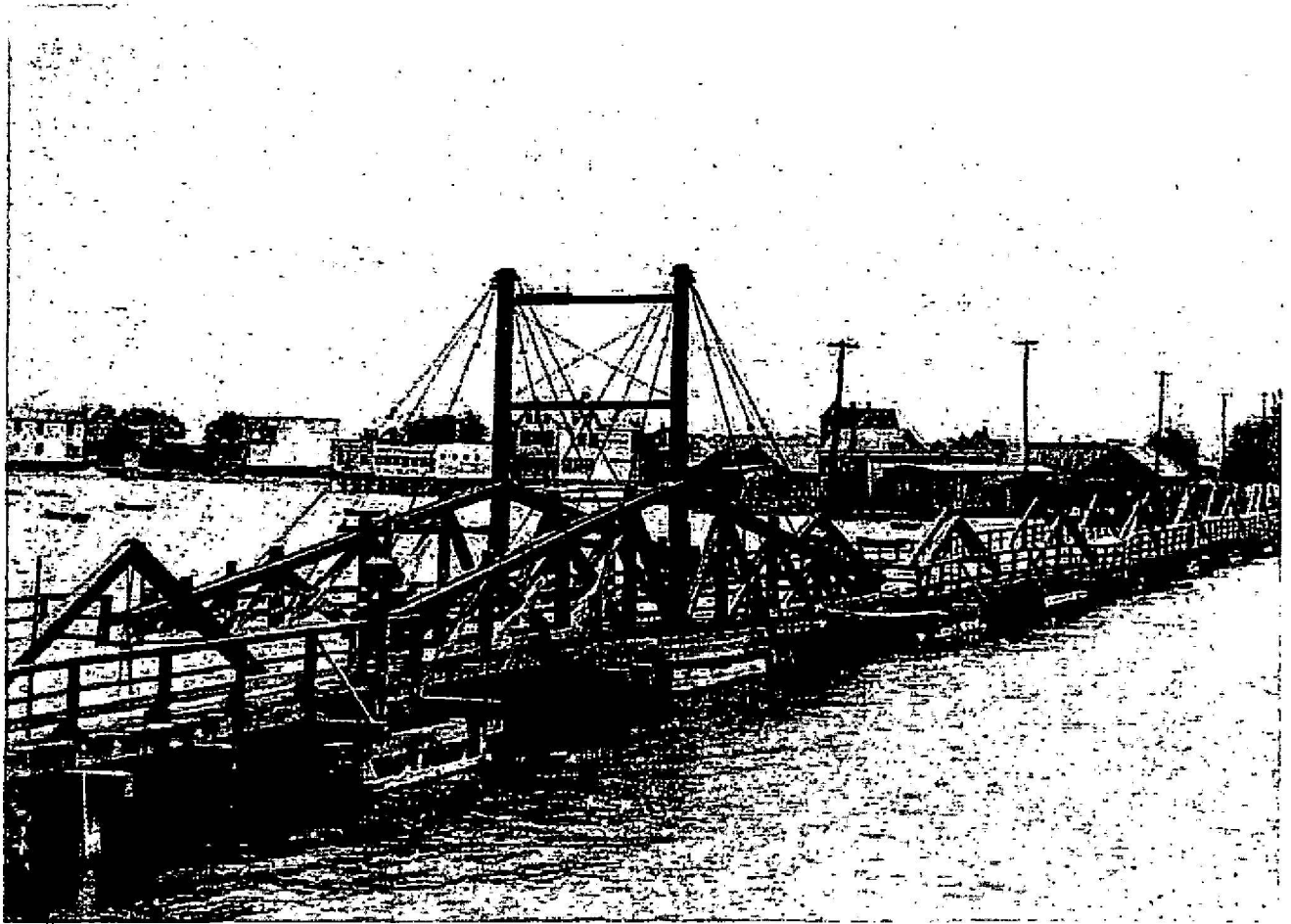
The construction date of the first bridge joining mainland Bronx and City Island is somewhat problematic. An accepted date is 1873 (e.g., Scott 1999:42; Dolensek 2000). However, attempts to build a bridge predate the Revolutionary War (Dolensek 2000), and a letter in the archives of the City Island Historical Society gives it an 1857 construction date (Roe 1894). However, this seems too early and may be a mistake or a trick of memory since the writer was recalling a date in the past. Even the 1873 date is questionable since the bridge is shown on Beers' 1872 map of Westchester County (see Figure 14), obviously drafted before its publication date, and there is no doubt it was planned by the late 1860s (Dolensek 2000). Whatever its construction date, this wooden toll bridge, purportedly partially constructed of timbers from the *USS North Carolina*, connected mainland Bronx to Bridge Street on City Island (Figure 17 is an undated photograph of the bridge). A drawbridge, with its 120-foot draw said to be from the Coles or Harlem Bridge originally at Third Avenue (Jenkins 1912:429), it was located north of the bridge about to be replaced (Scott 1999:42; see Figures 20 and 21 this report). When the city acquired title to the park in 1888, it also assumed responsibility for the western half of the bridge since it was included within the park's domain (Parks 1888:433; 1889:492; see Figure 21).

Construction of the existing steel bridge began in 1898 and was completed in July 1901 (Jenkins 1912:430). Designed by the Department of Parks and constructed by the Department of Bridges (Record Map 1977), it was built as a swing bridge. The bridge connects to City Island Avenue rather than Bridge Street to the north. Its western approach in the park is at least partially situated on fill as suggested by a 1992 map that illustrates fill locations (Baskerville 1992; Figure 18). The swing mechanism was apparently inactivated in 1963 (Dolensek 2002). Plans to use underwater explosives to remove antiquated piers during bridge renovations in 1978-1979 (*The Island Current* 1978) were modified and instead called for substantial pier alterations that included capping (Civic Association 1979).

A series of topographic maps allows comparison of the two bridge locations as well as suggesting the amount of filling that occurred to create a western embankment for the 1901 bridge (e.g., Briggs and Greiffenberg 1906; Figure 19). A superimposition of maps from 1899 and 1907 (Figure 20) and 1897 and 1939 (Figure 21) illustrate this. Parenthetically, the 1897-1939 graphic also illustrates where Parks' ownership of the earlier bridge ended (see Figure 21). This same graphic illustrates where filling occurred to create the bridge's western embankment.

CONSTRUCTION IMPACTS AND RECOMMENDATIONS

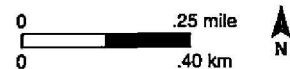
Based on construction planned at this writing, and on 1A documentary research carried out to determine potential archaeological sensitivity in the project APE, the assessment mainly focused on the impact construction will have on the western access to a temporary bridge. The area of concern is located in Pelham Bay Park where archaeological resources are documented. In addition, the single abutment for the proposed permanent bridge located within the footprint of the existing bridge access in Pelham Bay Park, apparently a filled and disturbed area, was also considered. A trolley line ran down the center of the access road in 1914 (e.g., Figure 22), and, for a short time before, a unique electric monorail ran from the mainland accessing the bridge, where it ended, from the south side of the road. Vestiges of these early-20th century transportation facilities may remain in the impact area. Further west, along the approach to the temporary bridge, prehistoric or early historic-era Native American archaeological deposits, or

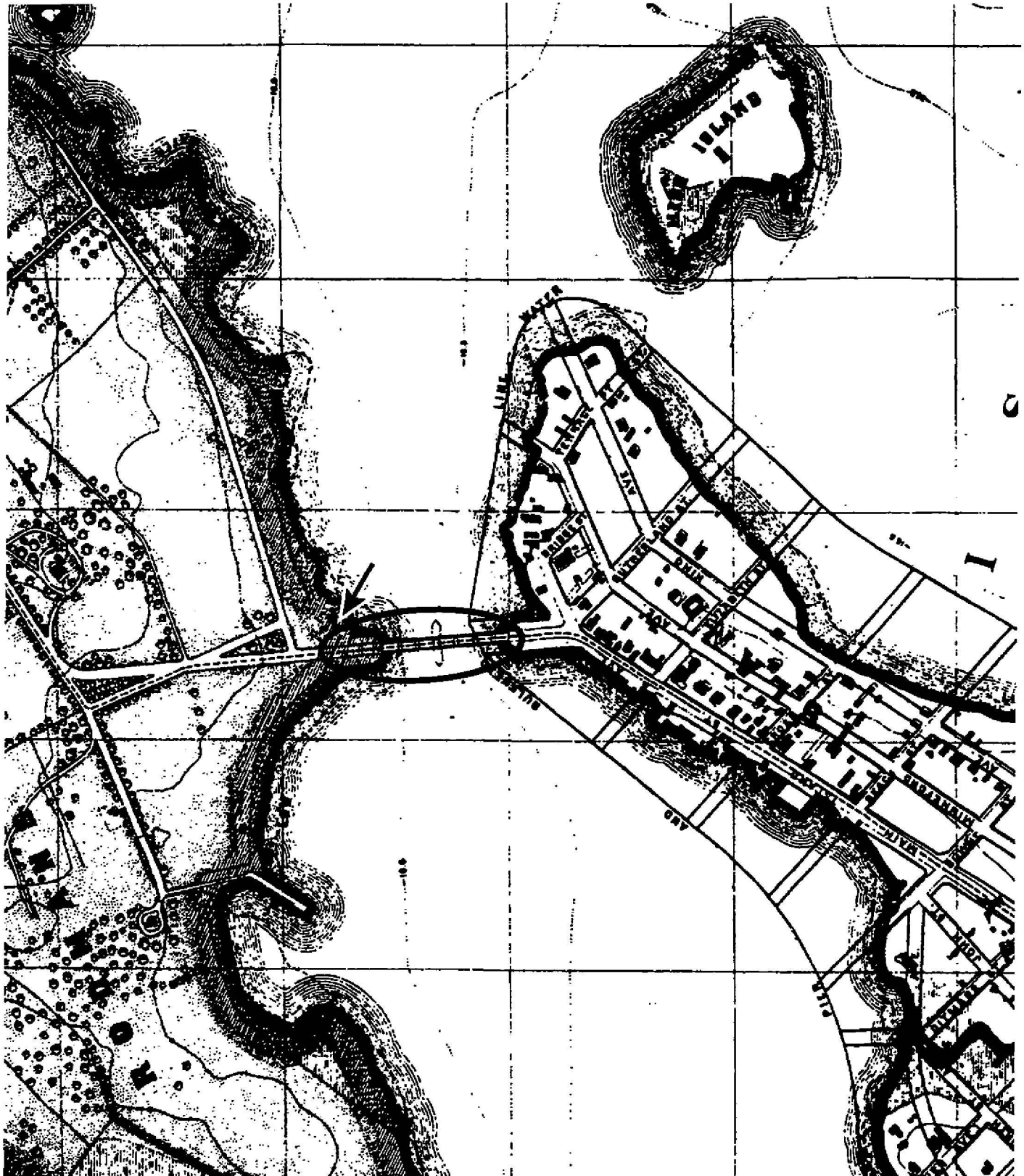





17 Undated view of the old City Island Bridge that joined the Bronx mainland to Bridge Street in the northwestern part of the island. Originally a toll bridge, it spanned 1,000 feet and had a 120-foot draw. (photo courtesy of Barbara Dolensek)



18 Bedrock and topography in project area. Dotted line indicates where former swamp or marsh adjoins higher ground in project area. (Baskerville 1992, detail) Project area indicated by box.

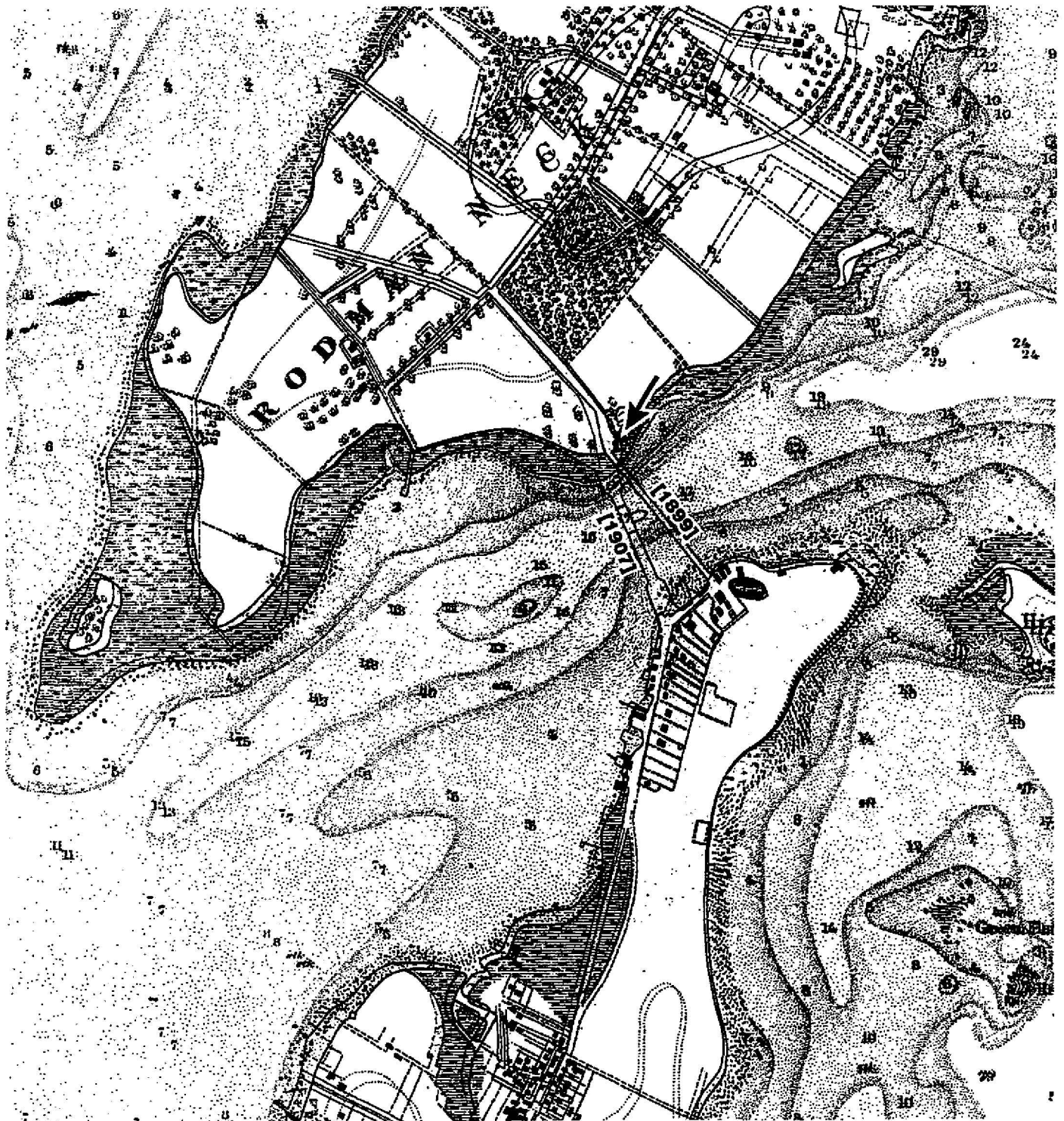




-  project area, approx.
-  trolley line
-  unidentified structure

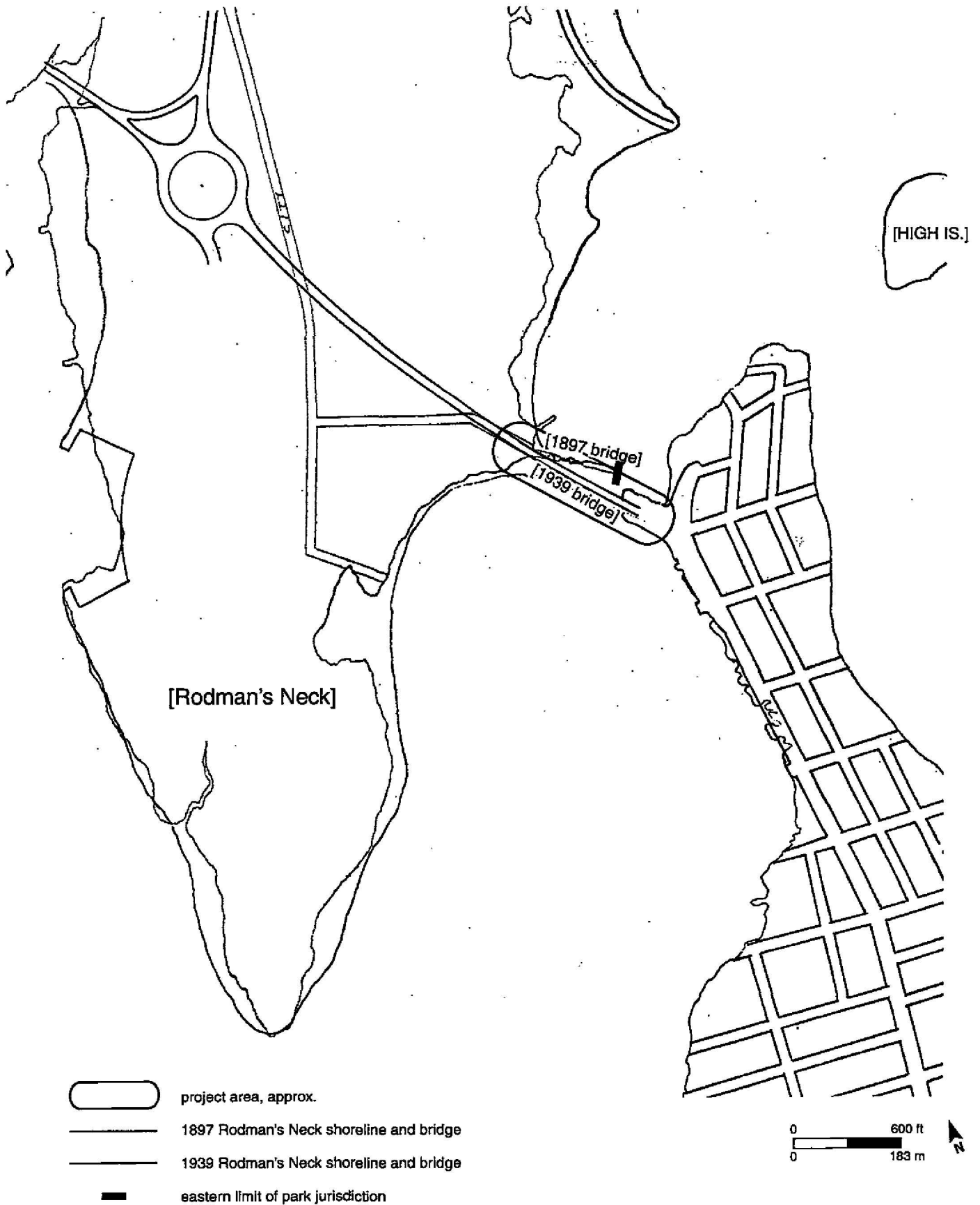
0 1000 ft
0 304.8 m





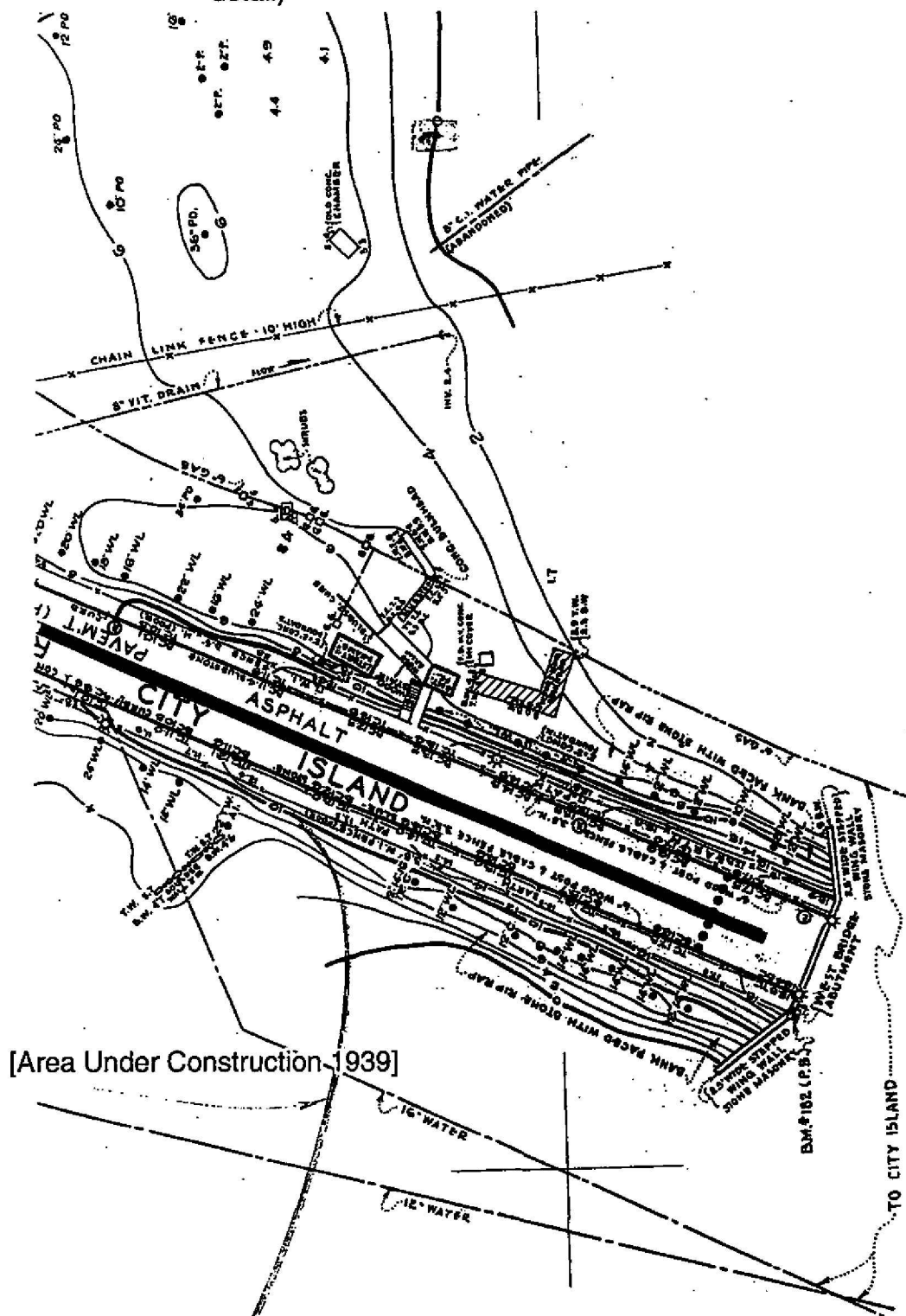
→ unidentified structure (1899, 1907)









CITY ISLAND BRIDGE Eastern Portion of Access Road and Western Portion of 1901 Bridge in Pelham Bay Park 1939 (Department of Parks 1939, detail)

22



[Area Under Construction 1939]

-  abandoned trolley track
-  proposed west bridge abutment, approx.
-  1-2 story frame structures
-  wood and stone bulkhead

0 100 ft
0 30.5 m



remnants of deposits, may be found under documented fill. It is expected that any such deposits would be shell middens, a culture resource documented elsewhere in the park and on City Island. This said, research also documented land alterations, the introduction of infrastructure, and filling in the area of concern that changed the terrain and caused great disturbance.

Project construction plans include excavating and removing existing unsuitable material and replacing it with acceptable backfill to support the approach embankment for the proposed temporary bridge. This excavation, which will be taken down below documented fill, is expected to be 45 feet wide (Su 2004:personal communication; Kang 2005:personal communication). Recent soil borings from this area document fill depths of 6.5 feet (B4) to 13 feet (B3) (see Table 4 and Figure 16).

While test pits and trenches related to installation of a water main were monitored in 2002, for the most part these investigations did not penetrate fill. It is conceivable that deeper excavation, particularly at the western end of the APE, west of the former shore of Eastchester Bay, may uncover traces of prehistoric shell middens beneath the documented fill. Therefore, it is recommended that an archaeologist monitor any deep test pits called for in the area of concern (Figure 23), and be on site to monitor selected areas of the trench excavation. This would determine if there are, or could be, buried land surfaces under the fill, but well above bedrock, that might harbor intact Native American cultural resources.



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