



Phase 1B Archaeological Investigation

**Reconstruction of the Belt Parkway Bridge over Mill Basin:
Marine Park Freshwater Wetland Mitigation Area**

Block 8590, Lot 600 (part)

Borough of Brooklyn, Kings County, New York

Associated with NYSDOT PIN X021.52

SHPO Project Review Number: 03PR04249

LPC Project Number: DOT LA-CEQR-K

Prepared for:

New York City Department of Transportation
59 Maiden Lane, 36th floor
New York, NY 10038

Prepared by:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, New York 10016

July 15, 2014

Management Summary

SHPO Project Review Number:	03PR04249
Involved Agencies:	New York State Department of Transportation New York City Department of Transportation New York City Department of Parks and Recreation Federal Highway Administration
Phase of Survey:	Phase 1B Archaeological Investigation
Location Information	
<i>Location:</i>	New York City Tax Block 8590, Lot 600 (part)
<i>Minor Civil Division:</i>	04701
<i>County:</i>	Kings
Survey Area	
<i>Length:</i>	Approximately 305 meters (1,000 feet)
<i>Width:</i>	Approximately 200 meters (650 feet)
<i>Total Area Surveyed:</i>	Approximately 2.1 acres (91,500 square feet)
USGS 7.5 Minute Quadrangle Map:	Coney Island
Archaeological Survey Overview	
<i>Shovel Test Pits:</i>	None
<i>Backhoe Trenches:</i>	Seven
<i>Width of Plowed Strips:</i>	n/a
<i>Surface Survey Transect:</i>	n/a
Results of Archaeological Survey	
<i>Precontact Sites Identified:</i>	None
<i>Historic Sites Identified:</i>	None
<i>Sites Recommended for Avoidance/Phase 2:</i>	None
Report Author:	Elizabeth D. Meade, M.A., R.P.A.
Date of Report:	July 15, 2014

Table of Contents

Chapter 1: Introduction and Methodology	1
A. Introduction.....	1
B. Project Description and Proposed Impacts.....	1
C. Project Background.....	1
D. Survey Methods	3
Chapter 2: Results of Survey	6
A. Results of Phase 1B Testing.....	6
B. Summary of Trenches	6
Chapter 3: Conclusions	10
A. Conclusions.....	10
References	11

Figures

Appendix A: Phase 1B Excavation Record

List of Figures

- Figure 1:** USGS 7.5 Min. Quadrangle—Coney Island, NY
- Figure 2:** Phase 1B Archaeological Testing Locations
- Figure 3:** *Photograph A:* The dense vegetation (common reed and common mugwort) and debris that cover most of the site, preventing access to certain areas
Photograph B: A view of Trench 1 during excavation, showing groundwater seeping in at a depth of approximately 39 inches (3.25 feet)
- Figure 4:** *Photograph C:* Trench 2 during excavation; the darker soils at the left of the photograph contained dense demolition debris underlain by reddish-brown soils.
Photograph D: A metal pipe protruding from the northwest corner of Trench 3 at a depth of almost 36 inches (3 feet) and groundwater accumulating at a depth of 52 inches (4.34 feet).
- Figure 5:** *Photograph E:* The eastern wall of Trench 4, showing asphalt at the base of a disturbed portion of the trench at a depth of 54 inches (4.5 feet)
Photograph F: The western wall of Trench 5, showing multiple layers of sandy fill on top of clean sandy soils near the base of the trench
- Figure 6:** *Photograph G:* Trench 6 being excavated in a low-lying area near the southern end of the site. Groundwater was observed at a depth of 30 inches (2.5 feet)
Photograph H: Light gray sandy soils observed throughout Trench 7, excavated near the northern boundary of the site

A. INTRODUCTION

As part of its ongoing Belt Parkway Bridges Reconstruction Program, the New York City Department of Transportation (NYCDOT) proposes to replace the Belt Parkway Bridge over Mill Basin (see **Figure 1**). The Mill Basin Bridge is located on the Belt Parkway about 1 mile (1609.34 meters) east of the Flatbush Avenue interchange in Brooklyn, NY. In 1998, a Final Generic Environmental Impact Statement (FGEIS) was prepared for the Belt Parkway Bridges Reconstruction Program by HNTB/Ebasco, Allee King Rosen & Fleming, Inc. (AKRF), Konheim & Ketcham, and Historical Perspectives, Inc. (HNTB, et al. 1998). The FGEIS included a Phase 1A Archaeological Documentary Study of the proposed bridge replacement sites that was completed by Historical Perspectives, Inc. (“HPI,” 1998).

The Mill Basin Bridge project would impact freshwater wetlands regulated by the United States Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC). The freshwater wetlands impacted by the proposed Mill Basin Bridge Project include areas south and north of the bridge that are predominantly vegetated with common reed (*Phragmites australis*). As part of this project, USACE has requested that NYCDOT compensate for freshwater wetland losses resulting from the proposed replacement of the bridge. The construction of the proposed freshwater wetlands at the Marine Park site is associated with the replacement of the bridge, and is being undertaken as mitigation for that project in compliance with USACE permit conditions for the construction of the new Mill Basin Bridge. The proposed Marine Park Freshwater Wetland Mitigation will be undertaken by NYCDOT under a separate contract from the construction of the Mill Basin Bridge, and this freshwater wetland mitigation project will be funded completely by NYCDOT.

B. PROJECT DESCRIPTION AND PROPOSED IMPACTS

The NYCDOT, in coordination with the New York City Department of Parks and Recreation (NYCDPR) has selected Marine Park as a feasible mitigation site for the new freshwater wetland (“Mitigation Area”; see **Figure 2**). In 2014, USACE indicated to FHWA that the mitigation site has been found to be feasible and accepts the proposed acreage of the Freshwater Wetland Mitigation Area.

The proposed Marine Park Freshwater Wetland Mitigation Area (Block 8590, part of Lot 600) is bounded by Avenue U to the northwest, basketball and handball courts and baseball fields to the northeast, park pathways to the east and south, and by the tidally influenced Gerritsen Inlet to the southwest. While a 5.5-acre portion of the Marine Park site was originally designated for the freshwater wetland mitigation project, the portion of the Marine Park site considered to be most appropriate for the creation of a freshwater wetland has an area of approximately 1.3 acres. This site abuts an existing freshwater wetland which has an approximate area of 0.8 acres. The freshwater wetland mitigation project would include both the proposed freshwater wetland area and the adjacent wetland, for a total approximate area of 2.1 acres. As part of the proposed project, the 1.3 acres site will be connected to the existing adjacent wetland and re-graded to ensure that the existing water level supports the proposed wetland. Up to 60 inches (5 feet) of soil removal would be necessary in parts of the proposed area to facilitate the construction of the proposed freshwater wetland mitigation project.

C. PROJECT BACKGROUND

The proposed mitigation project is subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA). In addition, the Federal Highway Administration (FHWA) has requested that NYCDOT evaluate the Marine Park site pursuant to Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 (now 49 USC § 303). Section 4(f) prohibits the Secretary of

Transportation from approving any program or project that requires the use of: (1) any publicly owned land in a public park, recreation area, or wildlife and waterfowl refuge of national state, or local significance, or (2) any land from a historic site of national, state, or local significance (collectively, “Section 4(f) resources”), unless there is no feasible and prudent alternative to the use of such land and all possible planning has been undertaken to minimize harm to the 4(f) resource. As the property owner of Marine Park, NYCDPR has the jurisdiction over the Section 4(f) resource.

In coordination with NYCDPR and consultation with NYSDOT and FHWA, NYCDOT has concluded that a Section 4(f) use does not occur in relation to the freshwater wetland mitigation at Marine Park. In a letter dated September 18, 2013, NYCDPR has agreed that the freshwater wetland mitigation project at Marine Park will enhance existing park features within Marine Park and will preserve and enhance the attributes of the park. Moreover, the NYCDPR has agreed that the freshwater wetland mitigation project at Marine Park will not constitute a Section 4(f) use.

Therefore, this document has been prepared as part of the process and documentation necessary to fulfill the federal Section 106 requirements for this project’s environmental review. FHWA is serving as lead agency for environmental review.

RESULTS OF THE PHASE 1A ARCHAEOLOGICAL DOCUMENTARY STUDY OF THE PROPOSED WETLAND MITIGATION AREA

Pursuant to the aforementioned regulations, the New York City Landmarks Preservation Commission (LPC) reviewed the project and in a comment letter dated September 23, 2013 determined that the Mitigation Area may be potentially archaeologically significant and recommended that an archaeological documentary study be prepared. In response to this determination, a Phase 1A Archaeological Documentary Study (“Phase 1A study”) of the site was completed by AKRF in February 2014 (AKRF 2014a). The exact location of the proposed wetland mitigation was not known at the time that the Phase 1A was completed and, as such, that document analyzed the entire 5.5-acre project site that had previously been under consideration. Since the preparation of the Phase 1A study, the wetland mitigation project area has been refined to a 2.1-acre site. The proposed 2.1-acre site includes the 1.3-acre area which has been determined to be appropriate for the creation of a freshwater wetland. The subject of this Phase 1B Archaeological Investigation is the 1.3-acre area for the proposed freshwater wetland creation.

As stated in the Phase 1A study, the 5.5-acre Mitigation Area is situated in an area of partially filled marshland. Filling activities began in the mid-19th century and appear to have continued through the mid-20th century. No developments appear to have occurred within the Mitigation Area prior to the formal construction of Marine Park in the early 20th century. Subsequent disturbance associated with park-related developments (i.e., filling, grading, marsh restoration, and the construction of paths and buildings) occurred throughout the 20th century. Soil borings indicate that portions of the Mitigation Area are covered with a layer of fill measuring 54 inches (4.5 feet) in thickness while other areas appear to have no fill deposits, suggesting that 20th century excavation may have removed some fill deposits.

The Mitigation Area was determined to have no sensitivity for archaeological resources dating to the historic period. However, the proposed Mitigation Area is located in the vicinity of the large, previously documented Ryder’s Pond archaeological site. That site was formerly located on the west side of Gerritsen’s Creek approximately 2,000 feet (609.6 meters) to the west of the proposed Mitigation Area. It was therefore determined that Native American activity likely occurred within or in the immediate vicinity of the Mitigation Area and that the site was potentially sensitive for precontact archaeological resources. Some early 20th century descriptions of the Ryder’s Pond Site (i.e., Bolton 1922) indicate that the site may have extended to the eastern side of the Pond, in the vicinity of the Wetland Mitigation Area. While there is a high likelihood that the soils situated between 36 and 60 inches (3 and 5 feet) below the ground surface of the Mitigation Area have been previously disturbed and a moderate likelihood that

these disturbances extend even deeper, if intact soils are present below that depth, they would be considered to have a moderate to high sensitivity for the presence of precontact archaeological resources. The proposed wetland mitigation would result in the disturbance of up to 60 inches (5 feet); therefore, there is also a moderate chance that undisturbed soils could be impacted by the proposed project.

As a result of the potential precontact archaeological sensitivity identified in the Phase 1A, a program of limited archaeological monitoring during the wetland restoration was proposed. This recommendation was consistent with recommendations made for adjacent sites (i.e., Hunter Research, Inc.'s 2002 archaeological investigation of the ecosystem restoration within the southern portion of the Mitigation Area and the areas to the south). In a comment letter dated March 10, 2014, LPC concurred with the conclusions of the Phase 1A study and its recommendation for a program of limited monitoring during construction. However, in a comment letter dated March 28, 2014, SHPO requested that instead of limited monitoring, a Phase 1B archaeological investigation of the Mitigation Area be completed in advance of construction. NYCDOT subsequently agreed to conduct the investigation requested by SHPO.

PHASE 1B ARCHAEOLOGICAL TESTING PROTOCOL

On May 9, 2014, AKRF prepared a Phase 1B Archaeological Testing Protocol to outline the field and analytical methods that will be followed during the course of the Phase 1B archaeological investigation (AKRF 2014b). This Testing Protocol established the procedures that were followed during the course of the testing and outlined the research questions that the Phase 1B investigation attempted to answer.

This protocol also included an Unanticipated Discoveries Plan to be implemented in the event that unexpected finds or human remains were encountered during the archaeological investigation or during subsequent construction. A second Unanticipated Discoveries Plan was also included that will be available during construction in the event that unexpected finds or human remains are encountered after the conclusion of the Phase 1B Archaeological Investigation. If it is determined that the burials may date to the precontact period, then the "Stockbridge-Munsee Community Policy for the Treatment and Disposition of Human Remains and Cultural Items that May be Discovered Inadvertently During Planned Activities" would also be implemented in addition to the Unanticipated Discoveries Plan as outlined in the Testing Protocol, which conforms to all relevant New York City laws regarding the discovery of human remains. An additional plan for the unanticipated discoveries of human remains was provided by the Delaware Tribe Historic Preservation Representative. However, as no human remains were encountered during the testing, these protocols were not necessary.

D. SURVEY METHODS

As stated in the *New York City Environmental Quality Review (CEQR) Technical Manual*, although a documentary study determines archaeological potential, "the resources the site actually contains cannot be known until the site is physically tested" (2001 Section 513.1: 3F-16). Therefore, the primary goal of the Phase 1B Archaeological Investigation of the proposed Marine Park Freshwater Wetland Mitigation Area will be to confirm the presence or absence of intact archaeological resources. While it is not a full-scale excavation, Phase 1B testing and artifact collection is sufficient to draw conclusions regarding the potential for significant resources to be present within a project site. The second goal of the Phase 1B investigation will be to determine if additional fieldwork (e.g., Phase 2 testing) may be necessary in order to discover the extent and significance of those resources.

RESEARCH ISSUES INVOLVED

While precontact archaeological sites have been identified in the immediate area, these sites were first described in the early 20th century and were not excavated using modern archaeological methods and techniques. The objective of the field testing was to (1) ascertain the presence or absence of archaeological deposits on the project site associated with its precontact occupation; and (2) to determine

the significance of any recovered resources. According to the guidelines for cultural resources as laid out in the *CEQR Technical Manual*, the determination of significance of a project site is directly related to whether the identified resource type “is likely to contribute to current knowledge of the history of the period in question” (January 2012 Edition: 9-11).

It was hoped that if an intact Native American archaeological site were encountered within the project site, a professional, modern archaeological investigation could produce valuable new data to supplement and expand on that collected at nearby sites in the early 20th century. This would both produce new data and add to existing knowledge of life along the southern shore of Brooklyn during the precontact period. As described in the Phase 1A Archaeological Documentary Study, the site is not considered to be sensitive for archaeological resources dating to the historic period.

FIELD METHODOLOGY

Archaeological testing at the site of the proposed Marine Park Freshwater Wetland Mitigation Area was designed to document the subsurface soil conditions and confirm the presence or absence of an intact ground surface or artifacts beneath the depth of the existing fill. A sufficient number of testing locations was sampled to collect data capable of characterizing the archaeological significance of the proposed Marine Park Freshwater Wetland Mitigation Area as a whole. As described in greater detail in the Phase 1A study, the proposed Marine Park Freshwater Wetland Mitigation Area has been subjected to previous episodes of disturbance and soil borings indicate that several feet of fill are present across the majority of the site. Therefore, subsurface testing consisted of a series of mechanically excavated trenches, as depicted in **Figure 2**.

The type of testing strategy employed was dependent upon the amount of modern fill/disturbed ground observed within each testing location. The site was extensively overgrown with common reed (*Phragmites australis*) reaching more than 84 inches [7 feet] tall in some portions of the site, common mugwort (*Artemisia vulgaris*), and other vegetation. Trenches were excavated as close as possible to the preliminary testing locations that were identified in the Phase 1B testing protocol. The proposed trench locations as seen in the Phase 1B Testing Protocol were located at an interval of approximately 100 feet (30.48 meters) throughout the 1.3-acre proposed Marine Park Freshwater Wetland Mitigation Area. However, because of the extensive vegetation and topographic variation, the trenches were excavated in areas that appeared to be clear of fill deposits/debris and that could be accessed by the backhoe with minimal damage to trees and other natural resources. All testing locations were approved by an International Society of Arboriculture (ISA) certified arborist working as a consultant to NYCDOT.

Seven backhoe trenches measuring approximately up to 72 inches (6 feet) in width and 180 inches (15 feet) in length were opened across the site. The backhoe trenches were excavated to a depth of at least 60 inches (5 feet) below the ground surface, the maximum depth of proposed project impacts. As trenches were excavated, the stratigraphy within each was observed and recorded in an attempt to identify a consistent soil profile across the length of the proposed Mitigation Area. In the event that buried ground surfaces had been encountered, as per the Phase 1B Testing Protocol, mechanical trenching would have been stopped and excavation to greater depths would have continued by hand through shovel skimming and the excavation of shovel test pits (STPs) measuring 16 inches (1.34 feet) in diameter and/or square excavation units measuring 24 by 24 inches (2 by 2 feet). However, no intact buried ground surfaces were observed in any of the seven trenches excavated as part of this Phase 1B study.

After excavation, each trench was refilled using the materials excavated from within it. All trenches were documented using standard archaeological nomenclature and, where possible, their locations were mapped on-site using fiberglass tapes. Because of the extensive overgrowth, measuring the locations of trenches from known landmarks was difficult, and surveyed trees and other landmarks (i.e., piezometers installed for groundwater monitoring) were used to approximate the locations of each trench. All

fieldwork was documented through field notes and photographs. Professional standards for excavation, screening, recording features and stratigraphy, labeling, mapping, and photographing were applied during Phase 1B testing. Soil profiles and textures were recorded and soil colors were identified using Munsell soil color charts.

Artifacts were collected as necessary. The collected artifacts included a small number of modern refuse and debris. However, because the artifacts represented modern refuse, they were not subject to extensive analysis. Where appropriate, the recovered artifacts are summarized in **Chapter 2: Results of Survey**; however, an artifact catalogue was not prepared.

All Phase 1B testing was completed in accordance with the standards prepared by LPC (2002), the New York Archaeological Council (NYAC, 1994), the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP, 2005), and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716). All field work was completed by archaeologists who meet the *Secretary of the Interior's Professional Qualifications Standards* for cultural resources specialists and are who are Registered Professional Archaeologists (RPA). All testing was consistent with safety regulations issued by the Occupational Safety and Health Association (OSHA).

A. RESULTS OF PHASE 1B TESTING

In total, seven backhoe trenches were excavated within the project site (see **Appendix A** and **Figure 2**). Where possible, the trenches were placed in generally level areas where overgrowth and vegetation could be cleared and where visible debris mounds were not present. Several trenches (Trenches 1, 2, 3, and 7) were opened in areas that historic maps suggest were historically dry upland or near the edges of the marshland to the south. Trenches 4, 5, and 6 were opened in areas situated within the location of the former marshland. The locations of each of the trenches were heavily overgrown with common reed (*Phragmites australis*) or other vegetation or featured debris (e.g., broken asphalt and brick or concrete rubble) on the ground surface. Groundwater was encountered in six of the seven trenches at depths ranging between 30 and 62 inches (2.5 and 5.17 feet) below the ground surface. Cultural materials recovered as part of this investigation included only modern or 20th century refuse and fill materials, including brick and glass fragments. As such, artifact analysis was not required for this investigation and recovered and observed artifacts are only briefly summarized in the following discussion.

As described below, each of the trenches contained clean medium and medium to fine sands either immediately beneath the top soil or at the bottom of the trench beneath layers of fill. The color and texture of these sands varied and a noticeable marine odor was present in many of the trenches. It is possible that these deposits are hydraulic fill or dredged materials that were used to prepare the site for use as a park in the early 20th century. As described in the Phase 1A study, the *New York City Soil Reconnaissance Survey* published by the National Resource Conservation Service (2005) indicates that the soils in the vicinity of the Mitigation Area belong to two soil complexes. Soils within the northern portion of the site are identified as the “Riverhead-Pompton Complex” while soils to the south are from the “Bigapple-Fortress Complex” (New York City Soil Survey Staff 2005). The soils of the Bigapple-Fortress Complex are typically found in nearly level to gently sloping areas (0 to 8 percent slopes) “that have been filled with sandy dredged materials; a mixture of well drained and moderately drained anthropogenic soils; located along coastal waterways” (ibid: 12). In anticipation of the industrialization of the Marine Park area in the early 20th century, marshes along the waterfront were dredged and filled (Black 2001: 37). After the establishment of Marine Park in the 1920s, almost 3,000,000 cubic yards of fill materials were dredged from the waters of Jamaica Bay and used to fill in the marshes in what is now the western side of Marine Park, east of Gerritsen Avenue (*New York Times* 1931). It therefore appears likely that similar materials were used to fill out the proposed Marine Park Freshwater Wetland Mitigation Area.

B. SUMMARY OF TRENCHES

Summaries of each trench are presented below and trench locations are provided on **Figure 2**. A table briefly describing each trench is presented below in **Table 1** and additional information can be found in the Excavation Record included as **Appendix A**.

Table 1: Summary of Phase 1B Trenches

Trench Number	Orientation	Length (feet)	Width (feet)	Depth (feet)
1	North-South	14	5	5
2	East-West	20	3	5
3	North-South	17	4	5
4	North-South	13.5	4	5.75
5	North-South	4	14	5.5
6	East-West	5	20	6
7	North-South	5	15	5.34

Notes: See **Figure 2** for trench locations and **Appendix A** for additional information.

TRENCH 1

Oriented north-south, Trench 1 was opened near the northwest corner of the Mitigation Area (see **Figure 2**). The trench was excavated in an area that was overgrown with low vegetation to the south of an area overgrown with dense common reed (*Phragmites australis*) (see **Figure 3, Photographs A and B**). The topsoil covering the trench was 4 to 5 inches (0.34 to 0.42 feet) thick and was a black (10YR2/1) fine silty sand. Only one soil level was observed between the topsoil and the base of the trench, situated at 60 inches (5 feet) below the ground surface. This level was yellowish brown (10YR5/4) medium to coarse sand. The sand appeared reddish near the top of the trench and the color darkened toward the bottom, likely the result of increasing moisture content as groundwater was encountered at a depth of 39 inches (3.25 feet) below the surface. The sand also appeared to grow increasingly coarse toward the bottom of the trench. The sand was very loose, and as a result, the walls of the trench were unstable and caved in in numerous locations. These sands may be dredged or hydraulic fill deposited in the early 1930s. No cultural material was recovered from the trench. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 2

Trench 2 was oriented east-west at the top of a small hill near the center of the proposed Marine Park Freshwater Wetland Mitigation Area (see **Figure 4, Photograph C**). The trench was placed in an accessible area surrounded by dense vegetation and at a distance from several large trees that were nearby. The ground surface in the location of Trench 2 was at approximately the same elevation as a large Norway maple (*Acer platanoides*) tree that stood to the northeast. The ground surface in the location of the trench was littered with demolition debris that extended through the thin (5-inch [0.42-foot]) top soil layer and the layer of dark gray (10YR4/1) sandy fill that extended to a depth of 27 inches (2.25 feet) below the ground surface. A second fill layer composed of compact dark grayish brown (10YR4/2) sandy silty clay continued beneath the debris fill to a depth of 46 inches (3.83 feet). At the bottom of the trench, between 46 and 60 inches (5 feet) were layers of brown (7.5YR4/4) and strong brown (7.5YR4/6) clean sands. These sands may be dredged or hydraulic fill deposited in the early 1930s. Artifacts recovered from this trench include 20th century and/or modern brick and glass refuse. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 3

Trench 3 was located in a level area heavily overgrown with common mugwort (*Artemisia vulgaris*) to the west of a large stand of birch trees (see **Figure 4, Photograph D**). Three soil levels were observed in the trench and the interfaces between these levels were undulating and irregular. No topsoil was observed in this trench and the soils extending between the ground surface and a depth of 29 inches (2.42 feet) were dark yellowish brown (10YR3/4) silty sands that appeared to represent redeposited fill containing modern glass fragments. Between 29 and 42 inches (2.42 and 3.5 feet) was a layer of coarse sand with pebbles. Within this level at a depth of 32 inches (2.67 feet), a metal pipe was encountered protruding from the northwest corner of the trench. A layer of dark yellowish brown (10YR4/4) medium to fine sand and a marine odor continued to the base of the trench, which terminated at a depth of 60 inches (5 feet). Plastic and glass refuse were recovered between 1 and 29 inches (0.08 and 2.42 feet) beneath the ground surface. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 4

Trench 4 was located in a heavily overgrown but level area in the southern half of the site (see **Figure 5, Photograph E**). Asphalt and demolition debris was present on the ground surface in the location of this trench. The trench was excavated to a depth of 69 inches (5.75 feet) below the ground surface and five soil levels with undulating and irregular interfaces were observed. The top three levels extended between

the ground surface and a depth of 32 inches (2.67 feet) and contained various fill deposits. Plastic refuse was recovered from a depth of 0 to 12 inches (1 foot) below the ground surface. An iron girder was observed at a depth of 24 inches (2 feet) below the ground surface and broken asphalt was observed throughout these fill levels. The asphalt extended to a depth of 54 inches (4.5 feet) below the ground surface in a limited area of the trench, where a narrow excavation may have occurred previously that was re-filled with debris. Two levels of clean, brown (7.5YR4/4) sand were observed between 32 and 60 inches (2.67 and 5 feet) beneath the ground surface. These deposits may have been hydraulic or dredged fill placed on the site in the early 20th century. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 5

Trench 5 was located in a heavily overgrown but level area to the north of a large refuse pile (see **Figure 5, Photograph F**). The trench was excavated to a depth of 66 inches (5.5 feet) below the ground surface and five soil levels with undulating and irregular interfaces were observed. The soil levels were nearly identical to those observed in Trench 4, with three fill levels extending to a depth of 32 inches (2.67 feet) below the ground surface and two sandy levels extending to the base of the trench. The sandy deposits making up the lower two levels may have been hydraulic or dredged fill placed on the site in the early 20th century. Groundwater was observed at the greatest depth 62 inches (5.17 feet) in this trench. No cultural material was collected from the fill and none was observed from the sandy soils at the base of the trench. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 6

Trench 6 was located in a low-lying area in the southwestern quadrant of the proposed Marine Park Freshwater Wetland Mitigation Area (see **Figure 6, Photograph G**). The trench was open in a relatively clear area surrounded by dense vegetation and fallen trees. The trench was opened to a depth of 72 inches (6 feet) below the ground surface and three soil levels were observed. Beneath a 5-inch (0.42-foot) layer of topsoil, two thick layers of clean, loose strong brown (7.5YR4/6) and dark yellowish brown (10YR4/4) sand were observed to depths of 20 and 72 inches (1.67 and 6 feet), respectively. The fine to medium sand contained no cultural materials with the exception of a fragment of modern brown bottle glass at a depth of 24 to 36 inches (2 to 3 feet) below ground surface. These deposits may have been hydraulic or dredged fill placed on the site in the early 20th century. Groundwater was observed beginning at a depth of 30 inches (2.5 feet) below ground surface, the shallowest of all seven trenches. No evidence of features or a buried ground surface was observed in this trench.

TRENCH 7

Trench 7 was located in an upland area near the northern boundary of the proposed Marine Park Freshwater Wetland Mitigation Area (see **Figure 6, Photograph H**). This location was covered with dense common reed (*Phragmites australis*) and poison ivy (*Toxicodendron radicans*). The trench was excavated to a depth of 64 inches (5.34 feet) below the ground surface. While the other six trenches featured largely similar soil levels, this trench contained materials unlike those seen elsewhere on the site. A very dark brown (10YR2/2) topsoil was observed within the top 5 inches (0.42 feet) of this trench, similar to that seen elsewhere. However, beneath the top soil were two barely distinguishable layers of loose, gray (5Y5/1 and 5Y6/1) coarse to medium and medium to fine sand. These deposits may have been hydraulic or dredged fill placed on the site in the early 20th century. Groundwater was encountered within the top 36 inches (3 feet) of the trench. Because of the loose sands present in this area, water quickly filled the trench, making it difficult to observe soil conditions as clearly as the other six trenches. A third coarser, darker soil type was observed beneath the gray sands at a depth greater than 64 inches (5.34 feet), however, because of the groundwater, these soils could not be fully observed. No cultural material was

observed within this trench. No evidence of features or a buried ground surface was observed in this trench.

A. CONCLUSIONS

The seven trenches that were excavated within the proposed Marine Park Freshwater Wetland Mitigation Area appear to indicate that the site is underlain by fill deposits (including both demolition debris and possible dredged/hydraulic fill). These fill deposits continue to a depth of at least 60 inches (5 feet), the maximum depth of disturbance anticipated for the proposed wetland restoration. While it is possible that the clean sands identified at the base of each of the seven trenches are clean, natural deposits, the variation in color and texture may indicate that these were fill deposits dredged from elsewhere in the region and deposited in the site during its conversion to a park in the early 20th century. No evidence of a buried or intact ground surface was observed in any of the seven trenches. The only cultural material observed in the trenches included demolition debris/rubble, and modern glass and brick fragments.

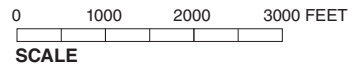
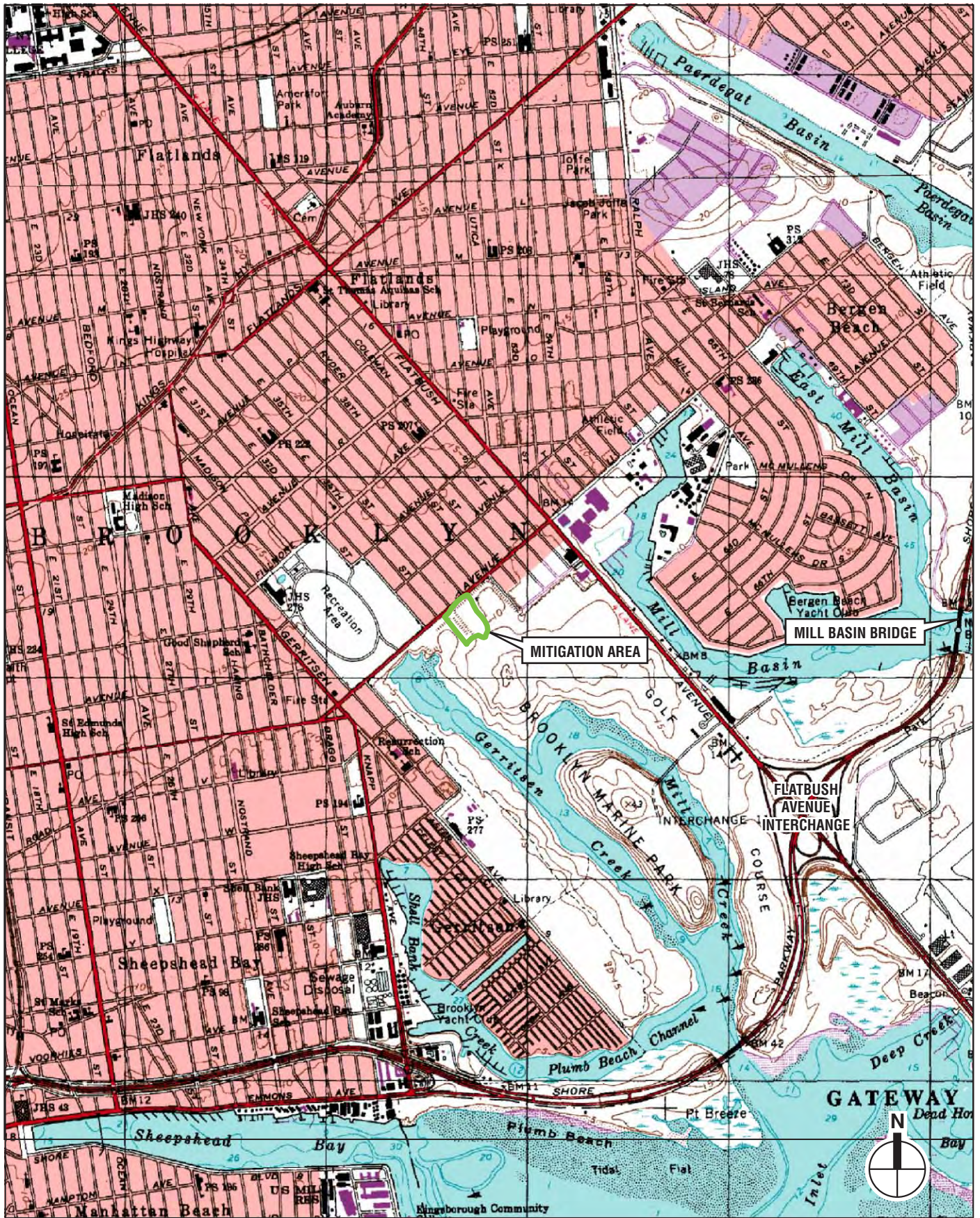
No intact archaeological resources—including precontact artifacts, features, or ground surfaces—were observed during the completion of the Phase 1B testing and no evidence was uncovered that would suggest that such resources could be present within the area that would be disturbed as part of the proposed project. Therefore, the proposed wetland restoration within the Marine Park Freshwater Wetland Mitigation Area is not expected to impact archaeological resources and no further archaeological investigations (e.g., a Phase 2 survey) are recommended.

Despite the extremely low likelihood that the proposed freshwater wetland mitigation would impact intact archaeological resources or human remains, the Phase 1B Testing Protocol included an Unanticipated Discoveries Plan in the event that such resources or human remains were encountered during construction. In the unlikely event that such a discovery occurs during the future construction of the Marine Park Freshwater Wetland Mitigation Project, the procedures outlined in that plan would be implemented.

References

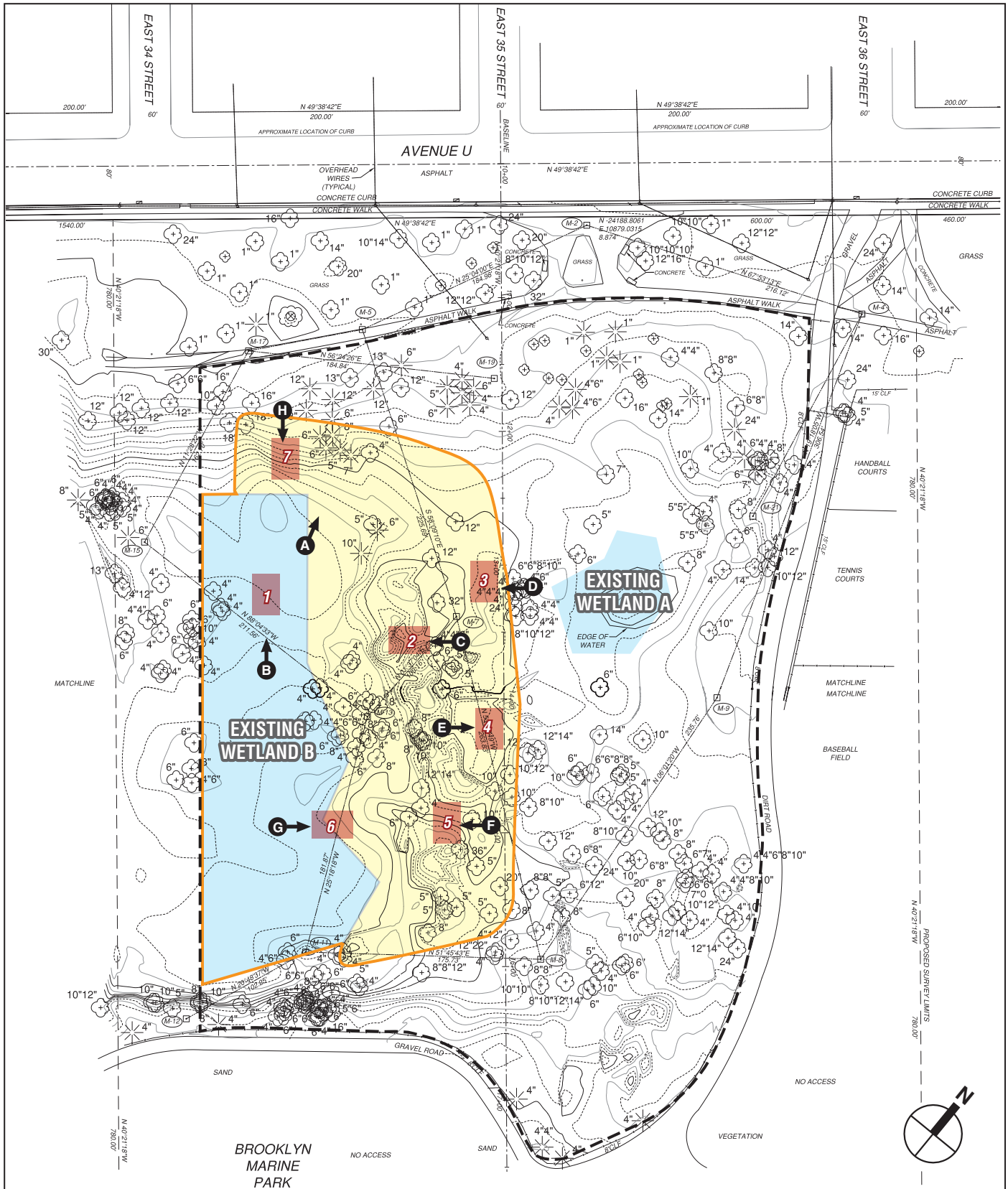
- AKRF, Inc.
2014a *Phase 1A Archaeological Documentary Study: Reconstruction of the Belt Parkway Bridge of Mill Basin: Marine Park Mitigation Area; Block 8590, Lot 600 (part); Borough of Brooklyn, Kings County, New York. Associated with NYSDOT PIN X021.52.* Prepared for: the New York City Department of Transportation, New York, NY.
- 2014b *Phase 1B Archaeological Testing Protocol and Unanticipated Discoveries Plan: Marine Park Freshwater Wetland Mitigation Area. Block 8590, Lot 600 (part), Borough of Brooklyn, Kings County, New York. Associated with NYSDOT PIN X021.52.* May 9, 2014. Prepared for: the New York City Department of Transportation, New York, NY.
- Bolton, Reginald Pelham
1922 "Indian Paths in the Great Metropolis." In *Indian Notes and Monographs*. Miscellaneous #22. New York: Museum of the American Indian, Heye foundation.
- Black, Frederick R.
2001 *Jamaica Bay: A History; Gateway National Recreation Area, New York, New Jersey.* Prepared for the National Park Service.
- HNTB/Ebasco, Allee King Rosen & Fleming, Inc., Konheim & Ketcham, and Historical Perspectives, Inc.
1998 *Belt Parkway Bridges Reconstruction Project Final Generic Environmental Impact Statement CEQR No. 97DOT0006K.* Prepared for: NYDOT Bureau of Bridges, New York, NY.
- Historical Perspectives, Inc.
1998 *Stage 1A Cultural Resources Assessment; Belt Parkway Bridges Project; Brooklyn, New York; DOT CEQR No. 97DOT0006K.* Prepared for: Allee King Rosen & Fleming, Inc., New York, NY.
- Hunter Research, Inc.
2002 *Phase 1A Cultural Resource Documentary Study for Gerritsen's Creek Ecosystem Restoration.* Prepared for the Department of the Army, United States Army Corps of Engineers, New York District.
- New York Archaeological Council
1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State.* The New York Archaeological Council.
- New York City Landmarks Preservation Commission
2002 *Landmarks Preservation Commission Guidelines for Archaeological Work in New York City.* New York: New York City Landmarks Preservation Commission. <http://www.nyc.gov/html/lpc/downloads/pdf/pubs/ayguide.pdf>
- New York City Soil Survey Staff
2005 *New York City Reconnaissance Soil Survey.* United States Department of Agriculture, Natural Resources Conservation Service, Staten Island, New York.
- New York State Historic Preservation Office (SHPO)
2005 *New York State Historic Preservation Office (SHPO) Phase I Archaeological Report Format Requirements.* Albany: New York State Historic Preservation Office.
- New York Times*
1931 "Marine Park Begun with Dredged Mud." *The New York Times*. July 14, 1936. New York, NY.

Figures

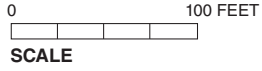


BELT PARKWAY BRIDGE REPLACEMENT OVER MILL BASIN
MARINE PARK FRESHWATER WETLAND MITIGATION

USGS 7.5 min. Quadrangle—Coney Island, NY
Figure 1



- Project Site
- Proposed Wetland Mitigation Area
- Existing Freshwater Wetland
- Proposed Freshwater Wetland
- 1 Phase 1B Trench (Approximate Location) and Trench Number
- A → Photograph View Direction and Reference Number (See Figures 3 through 6)





The dense vegetation (common reed and common mugwort) and debris that cover most of the site, preventing access to certain areas

A



A view of Trench 1 during excavation, showing groundwater seeping in at a depth of approximately 39 inches (3.25 feet)

B



Trench 2 during excavation; the darker soils at the left of the photograph contained dense demolition debris underlain by reddish-brown soils

C



A metal pipe protruding from the northwest corner of Trench 3 at a depth of almost 36 inches (3 feet) and groundwater accumulating at a depth of 52 inches (4.34 feet)

D



The eastern wall of Trench 4, showing asphalt at the base of a disturbed portion of the trench at a depth of 54 inches (4.5 feet)

E



The western wall of Trench 5, showing multiple layers of sandy fill on top of clean sandy soils near the base of the trench

F



Trench 6 being excavated in a low-lying area near the southern end of the site. Groundwater was observed at a depth of 30 inches (2.5 feet)

G



Light gray sandy soils observed throughout Trench 7, excavated near the northern boundary of the site

H

Appendix A:

Phase 1B Excavation Record

Appendix A:

Phase 1B Excavation Record

Trench Number	Orientation	Length (feet)	Width (feet)	Depth (feet)	Depth of Groundwater	Soil Level Depth (inches)	Soil Color	Soil Texture	Comments
1	North-South	14	5	5	39 inches (3.25 feet)	0 to 5	Black (10YR2/1)	Fine silty sand (top soil)	Sands were very loose and the trench walls were not stable.
						5 to 60	Yellowish Brown (10YR5/4)	Medium to coarse sand; sands get coarser to the south and rockier at greater depths below the ground surface.	
2	East-West	20	3	5	Not observed	0 to 5	Very Dark Brown (10YR2/2)	Fine silty sand (root mat/topsoil)	Trench opened in an upland area at the approximate grade of a very large, old Norway maple tree.
						5 to 27	Dark Gray (10YR4/1)	Sandy fill with demolition debris (concrete, fieldstone, glass)	
						27 to 46	Dark Grayish Brown (10YR4/2)	Sandy silty clay (compact fill)	
						46 to 58	Brown (7.5YR4/4)	Medium sand; clean, possibly natural	
						58 to 60	Strong Brown (7.5YR4/6)	Fine to medium sand; very clean, with a gradual change from previous level	
3	North-South	17	4	5	52 inches (4.34 feet)	0 to 29	Dark Yellowish Brown (10YR3/4)	Silty sand	Undulating interface between all soil levels; Metal pipe in the northwest corner of the trench at a depth of 32 inches (2.67 feet); Groundwater encountered at a depth of 52 inches (4.34 feet).
						29 to 42	Brown (7.5YR4/4)	Coarse sand with pebbles; no cultural material; slight marine odor	
						42 to 60	Dark Yellowish Brown (10YR4/4)	Medium to fine sand; no cultural material; slight marine odor	

Bridge Over Mill Basin: Marine Park Mitigation Area—Phase 1B Archaeological Investigation

Trench Number	Orientation	Length (feet)	Width (feet)	Depth (feet)	Depth of Groundwater	Soil Level Depth (inches)	Soil Color	Soil Texture	Comments
4	North-South	13.5	4	5.75	60 inches (5 feet)	0 to 12	Dark Brown (10YR3/2)	Silty sand (mixed fill)	Ground surface covered with broken asphalt and construction debris; soil level depths variable throughout the trench; large iron girder encountered at a depth of 24 inches (2 feet). Asphalt extended to a depth of more than 54 inches (4.5 feet) in a limited portion of the trench, possibly representing an older episode of excavation/filling.
						12 to 25	Dark Grayish Brown (10YR4/2)	Sandy loam with asphalt and demolition debris (fill)	
						25 to 32	Strong Brown (7.5YR4/6)	Sandy clay loam (fill)	
						32 to 42	Brown (7.5YR4/4)	Medium sand with no cultural material	
						42 to 60	Brown (7.5YR4/4)	Medium to coarse sand with no cultural material	
5	North-South	4	14	5.5	62 inches (5.17 feet)	0 to 16	Dark Grayish Brown (10YR4/2)	Silty sand (top soil)	Opened to the north of large debris mounds and trees; interfaces between soil levels undulate.
						16 to 22	Yellowish Brown (10YR5/4)	Silty sand (fill)	
						22 to 32	Brown (7.5YR4/4)	Sandy clay loam (fill)	
						32 to 52	Dark Brown (7.5YR3/3)	Medium sand with no cultural material	
						52 to 64	Dark Yellowish Brown (10YR4/4)	Medium to coarse sand with no cultural material	
6	East-West	5	20	6	30 inches (2.5 feet)	0 to 5	Dark Yellowish Brown (10YR4/3)	Fine to medium sand (top soil)	Opened in low-lying, cleared area beyond trees and overgrowth.
						5 to 20	Strong Brown (7.5YR4/6)	Fine to medium sand with no cultural material	
						20 to 72	Dark Yellowish Brown (10YR4/4)	Medium sand with no cultural material	

Appendix A: Phase 1B Excavation Record

Trench Number	Orientation	Length (feet)	Width (feet)	Depth (feet)	Depth of Groundwater	Soil Level Depth (inches)	Soil Color	Soil Texture	Comments
7	North-South	5	15	5.34	Within top 36 inches (3 feet)	0 to 5	Very Dark Brown (10YR2/2)	Silty Loam (top soil)	Opened in area overgrown with common reed, 10 feet south of tree line; interface between levels 2 and 3 undulating. Coarser, darker colored sand beneath level 3 and below the groundwater.
						5 to 23	Gray (5Y6/1)	Clean coarse to medium sand with no cultural material	
						23 to 64	Gray (5Y5/1)	Clean fine to medium sand with no cultural material	
<p>Notes: See Figure 2 for trench locations. Sources: Soil colors based on Munsell Soil Color Charts.</p>									