Port Mobil Redevelopment
Block 7247, Lot 1 and Block 7207, Lot 60

CHARLESTON, STATEN ISLAND, RICHMOND COUNTY, NEW YORK

Phase 1A Archaeological Documentary Study

Prepared for:

NorthPoint Development
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Management Summary

SHPO Project Review Number: 21PR04011

LPC Unique Site Identifier: 35554

Involved Agencies: New York City Department of City Planning
New York State Department of Environmental Conservation
U.S. Army Corps of Engineers

Phase of Survey: Phase 1A Documentary Study

Location Information
Location: Block 7247, Lot 1, and Block 7207, Lot 60
Staten Island, New York
Minor Civil Division: 08501
County: Richmond County

Survey Area
Length: Approximately 4,700 feet
Width: Approximately 3,250 feet
Area: Approximately 242 acres (8,992,000 square feet)

USGS 7.5 Minute Quadrangle Map: Arthur Kill

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Chapter 1: Introduction and Methodology

A. INTRODUCTION AND PROJECT DESCRIPTION

NorthPoint Staten Island Industrial, LLC is proposing to redevelop a 242-acre parcel of land in the Charleston neighborhood of Staten Island (see **Figure 1**). The proposed project site includes Staten Island Block 7247, Lot 1 and Block 7201, Lot 60 (see **Figure 2**). The project site is situated within an Industrial Business Zone (IBZ) and is currently developed with the former Port Mobil Major Oil Storage Facility (MOSF) and associated industrial infrastructure, as well as a 15.4-acre ground-mounted solar array facility. A portion of the site's waterfront is developed with three buildings (office/warehouse and marine buildings), accessory parking spaces, and a 3,100-foot bulkhead. Portions of the project site are forested, and freshwater and tidal wetlands are present as well as natural shoreline adjacent to the Arthur Kill tidal strait. The proposed project would facilitate the redevelopment of the former Port Mobil MOSF, currently an underutilized, mostly vacant site, and fulfill a need for large-scale warehouse building space in Staten Island and New York City as a whole.

With the proposed redevelopment, the existing MOSF would be demolished, and the site redeveloped with a commercial warehouse development of approximately 2.15 million gross square feet (gsf) and consisting of four one-story buildings with accessory parking, loading berths, and trailer storage areas in addition to internal driveways that connect to Arthur Kill Road. It is anticipated that these four commercial buildings would be conventional warehouses used for storage, distribution, and logistics purposes. A new stormwater management system would be constructed as part of the project that would include new catch basins, manholes, stormwater quality basins, and subsurface conveyance piping. The stormwater management system would drain into the Arthur Kill via two newly constructed outfalls. New potable water and sanitary sewer infrastructure would be installed on the Project Site and would connect to existing NYCDEP water and sewer infrastructure along Arthur Kill Road. The existing ground-mounted solar array would be relocated to the rooftop of one or more the new buildings. Off-site road frontage improvements would occur along Arthur Kill Road and include widening the roadway to its full mapped width, installing sidewalks along site entrances and roadway frontages, improving curbs and gutters, and landscaping, as well as implementing traffic accommodation improvements (e.g., new signals and striping).

Along the waterfront, the existing 3,100-foot bulkhead would be preserved and is projected to be re-tenanted by a maritime user as a marine service yard or for similar operations (e.g., storage, mobilization, or repair of marine equipment). Access to the existing bulkhead, upon reactivation, would be provided via an existing private drive (Ellis Road) on the west side of the Project Site as well as from within the Proposed Project via an internal driveway. Open space and wetland areas throughout the Project Site as well as along the natural waterfront would be preserved as part of the proposed project. The site plan has been designed to keep wetland disturbance to a minimum.

B. SUMMARY OF ENVIRONMENTAL REVIEW

The proposed project would require a number of permits and approvals from city, state, and federal agencies, including the New York State Department of Environmental Conservation (NYSDEC). The

proposed project is therefore subject to New York City Environmental Quality Review (CEQR) and Section 14.09 of the New York State Historic Preservation Act ("Section 14.09)

Pursuant to CEQR, consultation was initiated with the New York City Landmarks Preservation Commission (LPC) regarding the project site's potential archaeological sensitivity. In a comment letter issued on April 28, 2021, LPC determined that the project site is potentially archaeologically significant in association with its indigenous occupation in the precontact period. LPC requested that an archaeological documentary study be prepared to further clarify its archaeological sensitivity. Consultation was also initiated with the New York State Historic Preservation Office (SHPO) pursuant to Section 14.09. SHPO also requested a Phase 1A archaeological survey of the project site to confirm its archaeological sensitivity. This Phase 1A Archaeological Documentary Study has been prepared to satisfy the requests made by LPC and SHPO.

C. RESEARCH GOALS AND METHODOLOGY

The Phase 1A Archaeological Documentary Study of the project site has been designed to satisfy the requirements of LPC and SHPO, while also following the guidelines of the New York Archaeological Council (NYAC). The study documents the development history of the proposed project site and its potential to yield archaeological resources, including both precontact and historic cultural resources. In addition, this report documents the current conditions of the project site, as well as previous cultural resource investigations that have taken place in the vicinity.

This Phase 1A Archaeological Documentary Study has four major goals: (1) to determine the likelihood that the project site was occupied during the precontact (Native American) and/or historic periods; (2) to determine the effect of subsequent development and landscape alteration on any potential archaeological resources that may have been located within the project site; (3) to make a determination of the project site's potential archaeological sensitivity; and (4) to make recommendations for further archaeological analysis, if necessary. The steps taken to fulfill these goals are explained in greater detail below.

The first goal of this documentary study is to determine the likelihood that the project site was inhabited during the precontact and/or historic periods and identify activities that may have taken place in the vicinity that would have resulted in the deposition of archaeological resources.

The second goal of this Phase 1A study is to determine the likelihood that archaeological resources could have survived intact within the project site after development and landscape alteration (e.g., erosion, grading, filling, etc.). Potential disturbance—associated with paving, utility installation, and other previous construction impacts—was also considered. As described by NYAC in their *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*, published in 1994 and subsequently adopted by SHPO:

> *An estimate of the archaeological sensitivity of a given area provides the archaeologist with a tool with which to design appropriate field procedures for the investigation of that area. These sensitivity projections are generally based upon the following factors: statements of locational preferences or tendencies for particular settlement systems, characteristics of the local environment which provide essential or desirable resources (e.g., proximity to perennial water sources, well-drained soils, floral and faunal resources, raw materials, and/or trade and transportation routes), the density of known archaeological and historical resources within the general area, and the extent of known disturbances which can potentially affect the integrity of sites and the recovery of material from them* (NYAC 1994: 2).

The third goal of this study is to make a determination of the project site's archaeological sensitivity. As stipulated by the NYAC standards, sensitivity assessments should be categorized as low, moderate, or high to reflect "the likelihood that cultural resources are present within the project area" (NYAC 1994: 10). For the purposes of this study, those terms are defined as follows:

- Low: Areas of low sensitivity are those where the original topography would suggest that Native American sites would not be present (i.e., locations at great distances from fresh and saltwater resources), locations where no historic activity occurred before the installation of municipal water and sewer networks, or those locations determined to be sufficiently disturbed so that archaeological resources are not likely to remain intact.
- Moderate: Areas with topographical features that would suggest Native American occupation, documented historic period activity, and with some disturbance, but not enough to eliminate the possibility that archaeological resources are intact on the project site.
- High: Areas with topographical features that would suggest Native American occupation, documented historic period activity, and minimal or no documented disturbance.

As mentioned above, the fourth goal of this study is to make recommendations for additional archaeological investigations where necessary. According to NYAC standards, Phase 1B testing is generally warranted for areas determined to have moderate or higher sensitivity. Archaeological testing is designed to determine the presence or absence of archaeological resources that could be impacted by a proposed project. Should they exist on the project site, such archaeological resources could provide new insight into precontact occupation in southwestern Staten Island, the transition from Native American to European settlement, or the historic period occupation of the project site.

To satisfy the four goals as outlined above, documentary research was completed to establish a chronology of the project site's development, landscape alteration, and to identify any individuals who may have owned the land or worked and/or resided there, and to determine if buildings were present there in the past. Data were gathered from various published and unpublished primary and secondary resources, such as historic maps, topographical analyses (both modern and historic), historic and current photographs (including aerial imagery), newspaper articles, local histories, and previously conducted archaeological surveys. These published and unpublished resources were consulted at various repositories, including the Main Research Branch of the New York Public Library (including the Local History and Map Divisions) and the Library of Congress. Previously identified sites and previously conducted archaeological resources in the vicinity were collected from the files of LPC, SHPO, and the New York State Museum (NYSM). Information on previously identified archaeological sites and previous cultural resources assessments was accessed through the New York State Cultural Resource Information System (CRIS).[1] Online textual archives, such as Google Books and the Internet Archive Open Access Texts, were also accessed. Attempts were made to identify the owners and occupants of the project site using historical maps. For this part of Staten Island, it can be difficult to identify owners using historic directories and census record, as the area's rural nature throughout much of its history makes it difficult to correlate specific records with specific properties as a result of the lack of or inconsistent use of street addresses and the presence of large families in the general regions with multiple individuals sharing the same names.

[1] https://cris.parks.ny.gov

Chapter 2: Summary of Previous Archaeological Analysis of the Project Site

A. INTRODUCTION

Information about the archaeological sensitivity of the Port Mobil area has been collected over the last century by both professional and avocational archaeologists, resulting in the establishment of Port Mobil as one of the oldest archaeological sites to be documented in New York City. These investigations have varied greatly with respect to the availability of data and the degree to which they comply with modern professional standards for archaeological investigations. Previous archaeological investigations of the project site and immediate vicinity are summarized below. The solar array located within the project site was constructed ca. 2017. In addition, no information regarding this development appears in LPC's archaeological report database or in CRIS. There is also no evidence that archaeological analysis was required as part of its development or that its development was subject to environmental review.

B. AVOCATIONAL ARCHAEOLOGY ON THE PROJECT SITE, 1950S-1970S

Initial excavations were completed by avocational archaeologists in the first half of the 20th century (Boesch 1994). These investigations were not properly documented and resulted in the collection of data from contexts disturbed as a result of construction of the existing oil facility (ibid:10). In the 1950s, Robert and Albert Anderson made initial discoveries of artifacts in the area including surface finds later determined to be Paleo-Indian artifacts—precontact artifacts within disturbed contexts and in eroded soils on the beach underlying the bluffs. Similar surface finds were made in the 1960s and 1970s by Joseph Bodnar, Donald Sainz, and others (Eisenberg 1978: 72; Cantwell and Wall 2001: 41). In subsequent years, these individuals continually "collected" artifacts from the surface of the area surrounding the oil tanks and across the site (Kraft 1977). Information on the area's stratigraphy was not recorded by these early collectors, and the presence of oil contamination and visibly disturbed soils made it difficult to determine the objects' origin (Eisenberg 1978; Boesch 1994).

It is commonly assumed that the construction of the existing oil tank farm resulted in significant and wide-spread disturbance of archaeological resources across that portion of the project site (Eisenberg 1978; Boesch 1994; Cantwell and Wall 2001). Attempts at the professional archaeological investigation of the site were attempted by Bert Salwen and students from New York University in the 1960s; however, archaeological resources were not observed during these investigations (Kraft 1977; Cantwell and Wall 2001: 305 *n10*).

Additional information recovered as a result of the mid- to late-20th century collection of materials from the site is discussed in detail in **Chapter 4, "Precontact Archaeological Resources."**

C. PROPOSED ANAEROBIC DIGESTER PROJECT, 2018

In 2018, AKRF prepared a Phase 1A Archaeological Documentary Study ("Phase 1A Study") for a proposed anaerobic digester project that would have been located within the southeastern corner of the existing project site on a portion of Block 7247, Lot 1 and a portion of Block 7207, Lot 60 adjacent to Arthur Kill Road. The proposed project was ultimately not developed, and no additional archaeological analysis was completed for the project as then proposed. The conclusions and recommendations of the

study are summarized below and as the project was not constructed and no recent evidence of disturbance was found, these conclusions remain valid. Relevant background information collected for that study is included herein as necessary and appropriate and has been supplemented with new research.

PRECONTACT ARCHAEOLOGICAL SENSITIVITY

As described in the Phase 1A study, the portion of the current project site that was examined in 2018 is located along a generally level area in close proximity to both fresh water and marine resources. Furthermore, dozens of precontact archaeological sites have been identified in the immediate vicinity of the project site, including two that overlap with the project site. A comparison of the modern and early-20th century topography of the project site that was completed for the Phase 1A Study shows that portions of the project site appear to be undisturbed or have otherwise not been subjected to large-scale landscape modification. Given the site's natural topography, lack of clearly defined areas of disturbance, and the extent to which Native American activity has been identified in the area, the Phase 1A Study concluded that the project site has moderate to high sensitivity for precontact archaeological resources.

HISTORIC PERIOD ARCHAEOLOGICAL SENSITIVITY

As described in the Phase 1A Study, the project site is situated in an area that was settled in the late 17th century and was occupied by descendants of the Winant family between the early 18th and early 20th centuries. The occupation and development of the project site before the mid-19th century is unknown, though the site would have been located near the Arthur Kill Road, a major transportation corridor in Staten Island during the 18th century. Two historic homes constructed before the mid- to late 19th century were identified within the project site on historic maps and described in the Phase 1A Study. The first, which was owned by Winant and constructed before 1850, was located on the northern side of Arthur Kill Road near the southeastern corner of the project site. The home was vacant and in ruins by the 1920s but was associated with at least two outbuildings located to the northeast. The second home, located on the northern side of Arthur Kill Road near the extreme southwest corner of the project site, was on the property of the Hughes family, constructed before 1859, and previously owned by T. Storer and W. Wrighs. The residents of these homes likely depended on shaft features (e.g., privies, cisterns, and wells) for the purposes of water gathering and sanitation. Such features were typically filled with household refuse after they were no longer needed for their original purpose and are therefore of high archaeological research value. Shaft features were typically constructed of brick or stone and extended to significant depths, often to 10 to 15 feet or more below the project site. As such, these types of features frequently survive disturbance episodes, even if the upper portions are truncated during development. The residents likely also maintained refuse midden deposits on their property, which may not have been fully disturbed by subsequent development. The Phase 1A Study therefore concluded that the project site has moderate sensitivity for archaeological resources associated with the historic period occupation of the project site.

RECOMMENDATIONS FOR FUTURE WORK MADE BY THE PHASE 1A STUDY

The Phase 1A study recommended a Phase 1B Archaeological Investigation to determine the presence or absence of archaeological resources within the project site. The recommendations stated that pursuant to CEQR guidelines, prior to the investigation, an archaeological testing protocol must be prepared to outline the scope of work for the proposed investigation. As the project was not constructed, no additional testing or other analysis was ultimately completed.

Chapter 3: Environmental and Physical Settings

A. CURRENT CONDITIONS

The project site comprises two tax parcels: Block 7207, Lot 60 and Block 7247, Lot 1. The former parcel is a long, linear property situated at the eastern end of the project site adjacent to Johnson Street. A small storage lot is located at the southeast corner of the parcel. The remainder of the lot is a dense wooded area with overgrown vegetation. A tidal marsh is located at its northern end, adjacent to the Arthur Kill.

The remainder of the project site is occupied by Block 7247, Lot 1. This parcel is dominated by the existing MOSF facility, which occupies most of the central and western portions of the block. The facility contains a large tank farm that was constructed in the 1930s as well as related facilities and structures. To the south is a solar array farm that was constructed ca. 2017 and extends to the south of the MOSF as far as Arthur Kill Road. The remainder of the parcel includes vegetated woodland and wetland areas similar to those seen on Block 7207, Lot 60.

B. GEOLOGY AND TOPOGRAPHY

The project site is situated within a geographic province known as the Atlantic Coastal Plain (Isachsen, et al. 2000). The island's physical setting was shaped by massive glaciers up to 1,000 feet thick that retreated from the area toward the end of the Pleistocene. There were four major glaciations that began approximately 17,000 years ago and lasted until roughly 12,000 years ago when the Wisconsin period—the last glacial period—came to an end. During the Wisconsin ice age, a glacial moraine known as the "Terminal Moraine" traveled southwest across Staten Island. The progression of the Terminal Moraine resulted in the separation of the Atlantic Coastal Plain in southern Staten Island from the remainder of the island to the northwest, which is characterized by hard bedrock rather than glacial deposits (ibid; Reeds 1925). Bedrock in southern Staten Island is associated with the Raritan Formation (clay, silty clay, sand, and gravel) dating to the Upper Cretaceous epoch, which ended approximately 66 years ago (Fisher, et al. 1995; Isachsen, et al. 2000). Surficial geological deposits are identified as "till moraine," which is more permeable and more variably sorted and drained than other till deposits (Cadwell 1989).

C. HYDROLOGY

As the glaciers receded, the ensuing runoff created streams, rivers, and lakes as well as thick tracts of marshland in the low-lying areas along Staten Island's coasts. As recently as a few thousand years ago, the sea level was 2 to 4 meters (6.6 to 13.1 feet) lower than it is at present and the coastline was located further out into the bay hundreds of meters south of its present location (GRA 2014). The project site is located less than 2,000 feet southwest of the Arthur Kill, the tidal strait that separates Staten Island from mainland New Jersey. The 1913 topographical survey identifies some small ponds and networks of wetlands along the southern side of the site adjacent to what is now Ellis Road. Additional smaller streams and ponds extended into the project site from what was originally the shoreline of the Arthur Kill. A large stream that extended along the eastern side of the project site adjacent to Johnson Street drained into a large tidal marsh along the Arthur Kill to the north.

The National Wetlands Inventory maintained by the U.S. Fish and Wildlife Service (USFWS) indicates that at least 10 freshwater ponds are located on the project site. In addition, the inventory identifies wetlands along the waterfront in the northern end of the project site; along the eastern side of the project site adjacent to Johnson Street; and along the southeastern side of the project site. Some of these wetlands and ponds may have formed as a result of the industrial development of the surrounding area. Groundwater has been documented on the project site at depths of 1 to 8 feet below the ground surface (Langan Engineering 2021a).

D. SOILS

The Web Soil Survey maintained by the United States Department of Agriculture (USDA)'s National Resource Conservation Service indicates that nine soil complexes are mapped within or adjacent to the project site. These soil types are summarized below and described in **Table 3-1**.

- **Appoquinimink Mucky Peat (ApA)**: mapped in a small waterfront area near the project site's northeast corner, these types of soils are found in frequently flooded tidal wetland areas with 0 to 1 percent slopes;
- **Haledon-Hasbrouck Complex (HHA)**: located along the eastern boundary of the project site and in limited areas near the western boundary; a somewhat poorly drained soil type associated with ground moraines in generally level areas with 0 to 3 percent slopes;
- **Natchaug Muck (NaA)**: located in wetland areas at the southwestern part of the site; a very poorly drained muck (highly decomposed organics) over silt loam and fine sandy loam in areas with 0 to 2 percent slopes;
- **Oil-Waste Land (Oi)**: present in the location of the existing MOSF facility; typical of anthropomorphically filled land associated with oil production/waste.
- **Urban Land, Sandy Substratum (UsA)**: present at the extreme eastern end of the project site adjacent to Johnson Street; coarse sand situated beneath up to 20 inches of cemented material in urbanized areas with 0 to 3 percent slopes;
- **Urban Land, Till Substratum (UtA)**: located in small pockets near Arthur Kill Road; urban fill materials over glacial till on summit landforms with 0 to 3 percent slopes;
- **Urban Land-Verazano/low impervious surface (UVA)**: coarse sand situated beneath up to 20 inches of cemented material in urbanized areas with 0 to 3 percent slopes;
- **Verrazano Sandy Loam (VzA)**: present along the waterfront in the central portion of the project site; sandy loam, loam, and sand found in anthropomorphically modified areas near sandy beaches or outwash with 0 to 3 percent slopes; and
- **Windsor Complex, Loamy Substratum (WWB):** mapped across much of the lower half of the site; a well-drained soil type typical of outwash plains with slopes of less than 0 to 8 percent; and
- **Water (W)**: inundated areas.

Table 3-1
Project Area Soils

Series Name	Typical Soil Profile			Slope (%)	Drainage	Landform
	Level	Soil Horizon Depth (inches)	Soil Type			
Appoquinimink Mucky Peat (ApA)	Oe	0 to 3	Mucky Peat	0 to 1	Very poorly drained	Tidal Marshes
	Cg	3 to 28	Silt Loam			
	Oa	28 to 35	Muck			
	O'e	35 to 47	Mucky Peat			
Haledon-Hasbrouck Complex (HHA)	Oe	0 to 2	Moderately decomposed plant material	0 to 3	Somewhat Poorly Drained	Ground Moraines
	A	2 to 6	Loam			
	BEg	6 to 12	Silt Loam			
	Btg	12 to 29	Silt Loam			
	B/Etx	29 to 63	Loam			
Natchaug Muck (NaA)	Oa1	0 to 12	Muck	0 to 2	Very poorly drained	Depressions
	Oa2	12 to 31	Muck			
	2Cg1	31 to 39	Silt Loam			
	2Cg2	39 to 79	Fine Sandy Loam			
Oil-Waste Land (Oi)	n/a	n/a	n/a	n/a	n/a	Filled areas
Urban Land, Sandy Substratum (UsA)	M1	0 to 6	Cemented Material	0 to 3	n/a	Summits
	M2	6 to 20	Cemented Material			
	2^C	20 to 72	Coarse Sand			
Urban Land, Till Substratum (UtA)	M	0 to 15	Cemented Material	0 to 3	n/a	Summits
	2^C	15 to 79	Coarse Sand			
Urban Land-Verrazano/low impervious surface (UVA)	M1	0 to 6	Cemented Material	0 to 3	Well Drained	Summits
	M2	6 to 20	Cemented Material			
	2^C	20 to 72	Coarse Sand			
Verrazano Sandy Loam (VzA)	^A	0 to 3	Sandy Loam	0 to 3	Well Drained	Backslopes, summits, toeslopes, footslopes
	^Bw	2 to 17	Sandy Loam			
	^BC	17 to 24	Loam			
	2C	24 to 72	Sand			
Windsor Complex, Loamy Substratum(WWB)	Oi	0 to 2	Decomposed plant material	0 to 8	Well Drained	Outwash Plains
	A	2 to 2	Loamy Sand			
	Bw	2 to 27	Loamy Sand			
	C1	27 to 50	Sand			
	2C2	50 to 71	Sandy Loam			

Sources: USDA Natural Resources Conservation Service Web Soil Survey: https://websoilsurvey.sc.egov.usda.gov (accessed August 2021).

E. ASSESSMENT OF LANDSCAPE MODIFICATION IN THE 20TH CENTURY

The project site was included within an extensive survey of Staten Island that was completed by the Richmond County Topographical Bureau in 1913[1] (see **Figure 3**). The information from this survey was compared with modern topographical information in order to identify any areas of landscape modification (e.g., areas that have been graded or filled). This involved the georeferencing of the 1913 map to align with the modern street grid and the overlay of topographical information obtained from Lidar information

[1] The survey was completed between 1906 and 1913; however, the two sheets depicting the project site (Sheets 73 and 74) were both issued in 1913.

published by the United States Geological Survey (USGS) in 2017. The 1913 map includes elevation data measured relative to the Richmond Borough Datum and the Lidar data was measured relative to the North American Vertical Datum of 1988 (NAVD88).[1] The Richmond Borough datum is located 2.092 feet below NAVD88. Therefore, the Lidar elevations presented in **Figure 3** have been converted to NAVD88 for the purposes of comparison.

The comparison of current and modern topography confirms that extensive landscape modification occurred across much, but not all, of the site as a result of the construction of the existing MOSF. The industrial transformation appears to have involved extensive earth moving, including the lowering of small hills and filling of underlying areas to create the present landscape. In the location of the existing tank farm, the grade appears to have been lowered by 2 to 9 feet in most areas. Along the waterfront north and east of the existing MOSF complex, the landscape appears to have been altered both through development and erosion.

The extent of disturbance associated with this landscape modification was documented as a result of the avocational archaeological investigations of the site as described in the previous chapter and in **Chapter 4, "Precontact Archaeological Resources."** A series of geotechnical soil borings completed in 2021 as part of the preparation for the construction of the proposed project identified layers of sand, gravel, and clay beneath the existing MOSF (Langan Engineering 2021a; 2021b; and 2021c). Other than the dense layers of clay that are typical of this part of Staten Island, the borings did not specifically identify organic matter or peat in this area that might suggest deeper layers of undisturbed deposits (ibid). The typical soil profile as identified included a 2- to 6-foot-thick layer of fill (possibly disturbed soils) at the surface followed by 2 to 4 feet of loose to medium sand and silt and alternating layers of sand, silt, and clay to depths of approximately 18 to 60 feet or more below ground surface (ibid). Additional layers of silt, sand, and clay were observed at greater depths, below the depths of expected cultural deposits before or after the rise of sea level (ibid).

Limited landscape modification is documented to the south of the tank farm in the areas adjacent to Arthur Kill Road with the exception of the location of the existing solar array. That portion of this area to the east of the solar array was identified as archaeologically sensitive in the Phase 1A Study completed by AKRF in 2018. The eastern portion of the project site east of the MOSF and west of Johnson Street also appears to have been minimally impacted by development and landscape modification.

[1] A datum is the point from which surface elevations are measured (where the elevation is considered to be 0). Elevations of the same ground surface taken relative to different datum points will therefore differ despite the fact that they refer to the same location. Therefore, understanding the datum from which an elevation was measured is critically important to an analysis of historic elevations and landscape change. The elevations presented in the 1913 Topographic Survey are relative to a datum based on "Richmond High Water," which is interpreted here as the modern Richmond Borough Datum.

Chapter 4: Precontact Archaeological Resources

A. PRECONTACT CONTEXT

Archaeologists have divided the time between the arrival of the first humans in northeastern North America and the arrival of Europeans more than 10,000 years later into three periods: Paleo-Indian (11,000-10,000 BP), Archaic (10,000-2,700 BP), and Woodland (2,700 BP–AD 1500). These divisions are based on certain changes in environmental conditions, technological advancements, and cultural adaptations, which are observable in the archaeological record.

PALEO-INDIAN PERIOD

Human populations did not inhabit the Northeast until the glaciers retreated more than 11,000 years ago. These new occupants included Native American populations referred to by archaeologists as Paleo-Indians, the forebears of the Delaware—also called the Lenape Indians—who would inhabit the land in later years. Archaeological evidence suggests that the Paleo-Indians were likely highly mobile hunters and gatherers who utilized a distinct style of lithic technology, typified by fluted points. They appear to have lived in small groups of fewer than 50 individuals (Dincauze 2000) and did not maintain permanent campsites. In addition, most of the Paleo-Indian sites that have been investigated were located near water sources. Because of the close proximity of Paleo-Indian sites to the coastline, few have been preserved in the New York City area. Of the few Paleo-Indian sites that have been discovered in New York City, nearly all have been found on Staten Island, including the Port Mobil sites, as described in **Chapter 2, "Summary of Previous Archaeological Investigations of the Project Site"** (Cantwell and Wall 2001). Like most precontact sites, this location is situated on high ground overlooking the water. Because of heavy disturbance in the area—it is currently an oil tank farm—the site has yielded nothing more than a collection of fluted points and other stone tools characteristic of the period (Ritchie 1980). Paleo-Indian artifacts were also found along the eroding shoreline 500 yards south of the Port Mobil site and at the Cutting site in the Rossville section of Staten Island (ibid). Recent excavations at the Old Place site in northwestern Staten Island by the Public Archaeology Laboratory (PAL) have yielded new evidence regarding the site's occupation during the Paleo-Indian period through the Late Woodland, though the majority of the collected artifacts date to the Archaic (PAL 2014).

ARCHAIC PERIOD

The Archaic period has been sub-divided into three chronological segments, based on trends identified in the archaeological record which reflect not only the ecological transformations that occurred during this period, but the cultural changes as well. These have been termed the Early Archaic (10,000–8,000 BP), the Middle Archaic (8,000–6,000 BP), and the Late Archaic (6,000–2,700 BP) (Cantwell and Wall 2001). The Late Archaic is sometimes further divided to include the Terminal Archaic (3,000-2,700 BP). The abundance of food resources that arose during this period allowed the Archaic Native Americans to occupy individual sites on a permanent or semi-permanent basis, unlike their nomadic Paleo-Indian predecessors. Fishing technology was developed during the Middle Archaic in response to an increasing dependence on the area's marine resources. Tools continued to be crafted in part from foreign lithic

materials, indicating that there was consistent trade among Native American groups from various regions in North America throughout the Archaic period.

The rising sea levels and rapid development of the area, as well as the dominance of coniferous forests at that time generated a habitat ill-fit for human habitation (Boesch 1994), and few Early Archaic sites have been identified in New York City. Most of those that have been identified are located on Staten Island, including Ward's Point at the southwestern tip of the island; Richmond Hill; the H. F. Hollowell site; and the Old Place site. Sites such as Ward's Point—a domestic habitation location that due to lowered sea levels was originally inland—tend to be deep and stratified and have yielded stone tools related to cooking, woodworking, and hide processing. The many years of constant occupation caused the artifacts to be deeply buried under more recent debris deposits (Cantwell and Wall 2001). However, at the Old Place Site, the only artifacts that were discovered—stone tool assemblages—were found at relatively shallow depths of around 42 inches or 3.5 feet (Ritchie 1980).

There are also few Middle Archaic sites in the region. The majority of these tend to consist of large shell middens, which are often found near major watercourses such as the Hudson River, although stone points have also been found in such locations. These sites were in great danger of obliteration because of their proximity to the shrinking coastlines. Unlike the Early and Middle periods, many Late Archaic sites have been found throughout the New York City area including many in Staten Island. Late Archaic habitation sites are often found in areas of low elevation near watercourses and temporary hunting sites are often located near sandy areas (Boesch 1994). Late Archaic sites identified in Staten Island include the Pottery Farm, Smoking Point, and the Wort Farm sit, all of which are in close proximity to the project site (ibid).

Finally, many Terminal Archaic sites from all across the city have provided examples of what archaeologists call the Orient culture, which is characterized by long fishtail stone points and soapstone bowls. Extremely elaborate Orient burial sites have been found on eastern Long Island, but none have been identified on Staten Island. Orient-style fishtail points have been discovered along the shores of the Charleston neighborhood (in which the project site is located), and it is assumed that they fell from eroding cliffs located nearby (Boesch 1994).

WOODLAND PERIOD

The Woodland period represents a cultural revolution of sorts for the Northeast. During this time, Native Americans began to alter their way of life, focusing on a settled, agricultural lifestyle rather than one of nomadic hunting and gathering. Social rituals become visible in the archaeological record at this time. Composite tools, bows and arrows, domesticated dogs, and elaborately decorated pottery were introduced to Native American culture, and burial sites grew increasingly complex. Woodland-era sites across North America indicate that there was an overall shift toward full-time agriculture and permanently settled villages. Woodland sites in New York City, however, suggest that the Native Americans there continued to hunt and forage on a part-time basis. This was most likely due to the incredibly diverse environmental niches that could be found across the region throughout the Woodland period (Cantwell and Wall 2001; Grumet 1995).

The Woodland period ended with the arrival of the first Europeans in the early 1500s. One Woodland period archaeological site that has been identified on Staten Island is the Bowman's Brook site, located along the island's northwest coastline. That site yielded a type of incised pottery, which has since become known as the Bowman's Brook Phase. Sites with this particular type of pottery are most often located near tidal streams or coves and are usually associated with large shell middens and refuse pits, indicating long periods of occupation (Ritchie 1980). The Bowman's Brook site also contained several human and dog graves, as well as bundle burials (Cantwell and Wall 2001). The Ward's Point site was also occupied

during the Woodland period, and many Native American artifacts and elaborate burials with varied grave offerings have been uncovered there (ibid).

CONTACT PERIOD

The Contact Period begins with the arrival of the first Europeans in the early 1500s. At that time, a division of the Munsee Indians known as the Raritan occupied southern Staten Island (Bolton 1975). They entered the area toward the end of the Woodland period (Boesch 1994). They referred to Staten Island as "Aquehonga Manacknong," possibly meaning "haunted woods," "bushnet fishing place," or "the high bank fort place" (Grumet 1981: 2). The name may have also referred to the village settlement at Ward's Point (ibid). In land transactions with the Europeans, the island was also referred to as "Matawucks" and "Eghquaous" (Boesch 1994).

The Contact Period in the New York City area began with the arrival of European expeditions led by Giovanni de Verrazano in 1524 and Henry Hudson in 1609, and the area was first colonized by Dutch settlers in the early 17th century. Shortly after Hudson's men explored Staten Island, a skirmish ensued with the local Indians, resulting in the death of one of Husdon's crewmen (Burrows and Wallace 1999). Because of this incident, the Native Americans residing on Staten Island were extremely wary of Europeans and set up look-outs on tall hills in an effort to spot approaching ships so as to prevent vessels from landing (Historical Records Survey 1942: xii).

Beginning in 1621, Dutch West India Company (WIC) managed Dutch interests in the New World and began to purchase large tracts of land from the Native American groups that inhabited the region. Although the land had been "sold" to the Europeans in 1630 (Grumet 1981), it was not until 1638 that a successful European colony, that of Olde Dorpe, could be established on the island, which continues to retain its Dutch name of "Staaten Island". Violence between the Native Americans and the Europeans would cause this village to be burned down and rebuilt several times throughout the contact period (ibid). Several incidents occurred on Staten Island in which the Dutch and the Native Americans engaged in violent, deadly clashes, including a war attributed to Dutch Director-General William Kieft in the 1640s and the "Peach War" of 1655 (Grumet 1981). Following the end of the latter altercation and facing a growing European population, the Native American residents of the area sold the remainder of the land on Staten Island between 1657 and 1670, finally paving the way for extensive European settlement on the island (Grumet 1981; Bolton 1975).

B. PREVIOUSLY IDENTIFIED NATIVE AMERICAN ARCHAEOLOGICAL SITES NEAR THE PROJECT SITE

In general, Native American habitation sites are most often located in coastal areas with access to marine resources and near fresh water sources and areas of high elevation and level slopes of less than 12 to 15 percent (NYAC 1994). The natural landscape of the project site included areas of high, level land and fresh water and tidal wetland resources. The original ecological setting suggests that the project site would have been an ideal location for an occupation, camping, or resource acquisition/processing site.

Further indication of the potential presence of Native American activity near a project site is indicated by the number of precontact archaeological sites that have been previously identified in the vicinity. Information regarding such previously identified archaeological sites was obtained from various locations including the site files of SHPO, LPC, NYSM, and from published accounts. Dozens of archaeological sites have been identified within one mile of the project site in databases maintained by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) and NYSM (accessed via CRIS) and the site is located within a generalized area of archaeological sensitivity as mapped by SHPO and in an area of high sensitivity as mapped by LPC (Boesch 1994). More than forty sites are mapped within one

mile of the project sites in CRIS and in LPC's site files (ibid). These sites are summarized in **Table 4-1**, below. The great number of sites that have been identified near the project site clearly demonstrates that this portion of Staten Island was occupied by Native Americans during the precontact period.

Table 4-1
Previously Identified Precontact Archaeological Sites within One Mile

OPRHP Site Number	NYSM Site Number	LPC Site Number	Site Name	Distance to Project Site	Time Period	Site Type	Additional Source(s)
8501.000073 8501.0002815	770	17	Canada Hill/Fairview Precontact Site	5,200 feet	Woodland/ Historic	Mixed historic and precontact artifacts; site disturbed by looting; later excavated professionally: fire-cracked rock and lithic debitage observed in addition to the ruins of the Kreischer Estate	n/a
8501.000074	7323	7, 91	Chemical Lane/Ultra-Marine Site	2,500 Feet	Archaic/ Woodland	Lithic points. Site impacted by looting. Associated with Smoking Point and Pottery Farm Sites	n/a
8501.000075	738	8	Pottery Farm	2500 Feet	Woodland?	Pottery; impacted by looting. Associated with Smoking Point and Chemical Lane Sites	n/a
8501.000076	737	6	Smoking Point	3500 Feet	Archaic/ Woodland, Possible Paleo-Indian component	Midden with lithic points and pottery; impacted by looting. Associated with Chemical Lane and Pottery Farm Sites	n/a
8501.000118		50	T&J Site	600 Feet	Precontact	Lithic Points and Tools	
8501.000119	772	4	Rossville Site/ Hammer-stone Hill	4,250 Feet	Precontact	Shell and artifacts; Destroyed by bulldozer during construction of West Shore Expressway	Bolton 1922
	742	9	Port Socony North	2,000 Feet	Precontact	Lithic Points and tools; pottery; Disturbed	Bolton 1922
	743	14	Port Socony South	2,600 Feet	Paleo-Indian	Lithic Points and tools; pottery; Disturbed	Bolton 1922
8501.000122	744	15/16	Charleston Beach/ Kreischer-ville/ NYS Museum STD 21-3	3,500 Feet	Paleo-Indian to Late Woodland	Lithic Points and tools; pottery; Disturbed; mapped in the location of the Port Socony North site in CRIS	Bolton 1922
8501.000130		50	Park Headquarters	1,250 Feet	Archaic to Woodland	Lithic debitage and ground stone	Yamin and Pickman 1986
8501.000878 8501.000879 8501.00088		50	Abraham's Pond Locus A-C	1,500 Feet	Archaic to Woodland	Temporary camp sites	Yamin and Pickman 1986
8501.000083			Winant House	2,000 Feet	Historic and Precontact		n/a
8501.002378			Salamander Court	3,250 Feet	Precontact and Historic	Lithic debitage and FCR	n/a
8501.002569			NYCSCA P.S. 56R Precontact	5,200 Feet	Middle to Late Archaic and Woodland	Lithic debitage, pottery, bifaces, and projectile points	n/a
8501.002767			A7-MCB-1	4,000 feet	Precontact	Hilltop site with lithic debitage below plow zone	n/a
8501.002766			C4-MCB-1	4,500 feet	Precontact	Hilltop site with lithic debitage below plow zone	n/a
	2320		Area I	2,500 Feet	Precontact	No information	n/a
	4603			Overlaps with site	Precontact	Fields and possible village	n/a
	4604	44	Sandy Brook	2,500 Feet	Precontact/Contact	Possible village/large camp	Parker 1920

Table 4-1
Previously Identified Precontact Archaeological Sites within One Mile

OPRHP Site Number	NYSM Site Number	LPC Site Number	Site Name	Distance to Project Site	Time Period	Site Type	Additional Source(s)
	4606			2,000 Feet	Precontact	Camps with middens	Parker 1920
	4623			Overlaps with site	Precontact	Village and camp	n/a
	4624			1,500 Feet	Precontact	Possible camp and village	n/a
	5701		New Site I	850Feet	Precontact	Possible camp and workshop	n/a
	7272			4,500 Feet	Precontact	Traces of occupation	n/a
	8494			Overlaps with site	Precontact	Traces of occupation	n/a
	8495			3,500 Feet	Precontact	Middens	n/a
	8497			4,500 Feet	Precontact	Village	n/a
8501.000120		10	Gericke Farm Site	1,500 Feet	Precontact	Lithic Debitage	Yamin and Pickman 1986
	773	12, 21?	Rossville Campsite	4,250 Feet	Woodland	Campsite	n/a
	5702		New Site II	1,000 Feet	Precontact	Unknown	n/a
8501.000122		50	Clay Pit Rd Site	250 Feet	Archaic/ Woodland	Lithic Debitage and misc. stone tools	Yamin and Pickman 1986
8501.000131		50	Junkyard Site	1,250 Feet	Archaic/ Woodland	Lithic Debitage, projectile points, and misc. stone tools	Yamin and Pickman 1986
8501.000123		50	Clay Pit Road North Bluff	1,750 Feet	Precontact	Lithic Debitage and misc. stone tools	Yamin and Pickman 1986
8501.000121		50	Clay Pit Road East	1,250 Feet	Precontact	Lithic Debitage and misc. stone tools	Yamin and Pickman 1986
		5	Harik's Sandy Ground	4,250 Feet	Archaic	Resources processing site with lithic material associated with hunting and processing, possibly a series of campsites	Boesch 1994
	735	11	Wort Farm	4,500 Feet	Late Archaic to Late Woodland	Lithics and ceramics collected by local avocational archaeologists	Boesch 1994
		56	Unnamed Site	3,500 Feet	Late Woodland	Shell midden and campsite	Boesch 1994
		118	Unnamed Site at Ellis Point	1,000 Feet	Precontact	Small village	Boesch 1994
		119	Unnamed Site	500 feet	Early Woodland	No information	Boesch 1994
		3	St. Luke's Cemetery	4,200 Feet	Archaic to Late Woodland	Within historic cemetery; evidence of Native American occupation with lithics and ceramics	Boesch 1994
	771	78	Indian Fields	3,500 Feet	Woodland	Traces of occupation	Boesch 1994
8501.002847	n/a	n/a	Price Prehistoric Site	4,400 feet	Late Archaic to Late Woodland	Stratified site with cord-marked pottery, lithics, lithic debitage, and fire-cracked rock	URS 2005
n/a	8493	n/a	n/a	5,000 feet	Precontact	Camp	Parker 1920

Sources: CRIS database (https://cris.parks.ny.gov/) and Boesch 1994

The majority of these sites were discovered and reported by avocational archaeologists and pot-hunters in the early 20th century and are poorly documented. Several others (e.g., Canada Hill, Chemical Lane, and Pottery Farm) were reported by professional archaeologists attempting to document areas that were being looted.

THE PORT MOBIL ARCHAEOLOGICAL SITES

As described in **Chapter 2, "Previous Archaeological Investigations of the Project Site,"** one of the oldest archaeological sites to have been identified in New York City is that of Port Mobil, a group of seemingly related sites located within or in the immediate vicinity of the project site near the existing oil tank farm. Three adjacent and closely related sites represent the Port Mobil site (Cantwell and Wall 2001: 305 *n10*). A site known as "Port Socony-North" or "North Beach" was located near the northern part of the current project site on an "outwash beach" near the Arthur Kill (Kraft 1977; Boesch 1994). "Port Socony South" was situated on bluffs overlooking the Arthur Kill near what is now Ellis Avenue and similarly contained lithic projectile points believed to have been associated with hunting activities that was found in a layer of "orange-brown sand" (ibid: 102). The majority of the information on the precontact occupation of the Port Mobile area was collected from the southern site (Kraft 1977: 5). The final site included the artifacts recovered from the Charleston Beach that had originated in areas of higher elevation and were deposited on the beach as a result of erosion (Boesch 1994; Cantwell and Wall 2001).

During the Paleo-Indian period, before sea levels rose, the Arthur Kill was a "small brackish stream" located 25 feet lower than the ground surface of the Port Mobil area (Cantwell and Wall 2001: 42). Geological reconstructions have suggested that because sea level was significantly lower during the Paleo-Indian period, the Port Mobil site was originally situated on a "much higher terrace" during its and has since been transformed through natural processes such as sea level rise and erosion as well as landscape modification associated with development (Eisenberg 1978: 123). The higher elevation of the site is believed to have resulted in the initial preservation of the archaeological site, as many other Paleo-Indian sites were situated in formerly coastal areas that were inundated as a result of sea level rise (Kraft 1977).

As described in **Chapter 2**, the site was explored by avocational archaeologists in the early 20th century and was reported to have contained a variety of Paleo-Indian lithic points (including Clovis points) and tools made from imported chert from Pennsylvania and upstate New York (ibid). The site, which today is "heavily disturbed, scarred by all the bulldozing and grading needed to put up the huge earthen works that surround the oil tanks," was likely associated with additional similar finds located on Charleston Beach and at North Beach (aka Port Socony North) (ibid: 40). Recovered objects at these sites included "diagnostic Paleo-Indian artifacts such as fluted points and spurred end scrapers as well as lithic debitage" (Boesch 1994: 9-10). The majority of the observed tools were homogeneous unifacial flake tools, although some bifacial points were also recovered from the site as well as broken points suggesting local production (Eisenberg 1978). The objects were identified in eroding and mechanically disturbed soils, including in disturbed and redeposited sediments surrounding the oil tanks (Eisenberg 1978: 72).

The limited archaeological resources recovered from disturbed contexts in the larger Port Mobil area were initially interpreted as seasonally occupied camps dedicated to hunting and resource procurement (Eisenberg 1978). However, later analyses suggested that the artifacts reflected more complex activities associated not only with hunting, but with processing hides and other byproducts of hunting that may have been used by small mobile groups of men, women, and children (Cantwell and Wall 2001: 44).

ADDITIONAL PRECONTACT ARCHAEOLOGICAL SITES IN THE REGION

Because of the proximity to the coastline, most local Paleo-Indian sites have been lost due to rising sea levels, erosion, and historic and modern disturbance, making the Port Mobil site finds of great value to the archaeological record. At that time, the Native American population appears to have lived in the high lands adjacent to the Arthur Kill and exploited the resources in the low-lying coastal region below (Boesch 1994). There is evidence that these campsites were consistently reoccupied through the Late Woodland period (ibid). A series of professionally excavated archaeological sites were reported by

archaeologists Rebecca Yamin and Arnold Pickman in the Clay Pit Pond Park area in 1986, including the Abraham's Pond Loci A-C; Clay Pit Pond Road; Clay Pit Pond Road East; Clay Pit Pond Road/Bluff North; Gericke; Junkyard; Park Headquarters; T and J; and Winant sites. Each of these sites yielded a variety of stone tools and points likely associated with Archaic and/or Woodland period occupation (Boesch 1994).

Finally, as shown in **Table 4-1**, many temporary and seasonal campsites used by Native Americans have been identified within a one-mile radius of the project area. In the past, these sites and others like them have yielded large amounts of lithic debitage—waste flakes created during the manufacture of stone tools—as well as occasional stone tools, fire-cracked rock, and shell middens. The remnants left behind at these campsites indicate that they were used by the Native Americans during hunting and fishing excursions, but not necessarily for full-time habitation. Numerous campsites have been identified in the immediate vicinity of the project site, including the Wort Farm and Sandy Brook Sites. The Wort Farm, 4,500 feet to the east of the project site near the northeast corner of Winant Avenue and Woodrow Road, included Late Archaic to Late Woodland (6,000 BP to 1600 AD) artifacts. Bolton (1922) identified several sites in that vicinity, including "scattered settlements…in the southwestern portion of the island around Woodrow (82), where, along the line of Sandy Brook (81), on the Wort Farm, and over the fields to Rossville (80) and Kreischerville, signs of Native American occupancy and cultivation are found" (Bolton 1922: 194). Site 80 was a shell midden and Sites 81 and 82 were respectively a village site and a collection of Native American artifacts "spread over a considerable area" both located near Bogardus Corners, the historic name for the area near the intersection of Woodrow and Bloomingdale Roads. All three sites were investigated by Alanson Skinner in the early 20th century (Skinner 1909). Skinner said of the area, the sites from the Sandy Brook to the Wort Farm are remarkable for the number of stone mortars found there" and that "peculiar" stone-lined burials with possible grave goods had been reported by the Wort family (Skinner 1909:10). Skinner further described the sites in the Rossville area as "lodges, shells, etc…with early relics" and said that "all the sandy fields along the shore to Kreischerville yield relics" (ibid:11).

Chapter 5: The Historic Period

A. THE EARLY HISTORY OF THE CHARLESTON NEIGHBORHOOD

The Dutch colony of New Netherlands became the British colony of New York in 1664, and though the Dutch were later able to reclaim the colony in 1673, they traded it back in 1674 for "the far more lucrative colony of Surinam" (Cantwell and Wall 2001: 181). Richmond County was established in 1683 and the area that is now New York City would remain under British control for the next hundred years. Under British rule, Staten Island's open farmland and vast coastline became essential for the production of agricultural products and collection of marine resources for export to the city.

Staten Island proved to be a key asset to the British during the Revolutionary War. In 1776, unsuccessful peace negotiations were held the "Conference House" on the southern tip of Staten Island, which continues to stand in what is now known as Conference House Park. The house was built in 1680 by Captain Christopher Billopp, who four years earlier had been granted a massive plot of land comprising more than 960 acres, and represents the first long-term European settlement in the southern half of Staten Island (Burrows and Wallace 1999). Throughout the remainder of the Revolutionary War, the British continued to use Staten Island as a rudimentary home base due to its strategic location at the mouth of the harbor (Historical Records Survey 1942).

Despite New York City's loyalty to the British during the war, after the American victory the conversion to the new American government was relatively smooth. Land previously owned by British loyalists was divided and sold, which brought about a surge in population and development in the outer boroughs. This trend continued through the 19th century. The 1733 Popple map depicts a number of small towns across Staten Island, though none were located in the vicinity of the modern Charleston neighborhood. In 1788, the island was officially divided into four townships, Castleton, Northfield, Southfield, and Westfield, where the project area is situated (Leng and Davis 1930). A precursor to modern Amboy Road, one of the first major roads connecting northern and southern Staten Island, was constructed in the early 18th century and connected to a ferry to New Jersey located near the southwestern tip of Staten Island (ibid). Arthur Kill Road, originally known as Fresh Kills Road, was constructed around the same time to connect the eastern and western halves of Southern Staten Island (ibid). With the addition of these roads, the Charleston area became newly accessible and an attractive area for residential development.

Between 1840 and 1880, the population of Staten Island nearly quadrupled. This surge was caused in part by the increasing population density in Manhattan, which drove many people to the outer boroughs. The project site was situated in the vicinity of several Staten Island neighborhoods, including Woodrow to the east, Rossville to the northeast, and Kreischerville to the south, the name of Charleston for the neighborhood not becoming popular until the 20th century (Leng and Davis 1930). The region's prosperity caused the counties in the New York City region to become increasingly codependent, both economically and culturally. Staten Island was the site of several prominent industrial facilities and the role of industry in the area grew after the Civil War (ibid). Prominent factories in the vicinity of the project site included a chemical works located along the shore of the Arthur Kill to the northeast of the project site, which was founded before 1850 and later became the "Delafield White Lead and Chemical Company" and in 1884 the "Dr. Reiner Roehre's International Ultramarine Works" (ibid). It was therefore suggested that the counties around New York Harbor be consolidated under the name New York

City. Although there was some resistance from some Staten Island residents, it officially became a borough of New York City on New Year's Day, 1898 (Burrows and Wallace 1999).

As part of the integrated city, Staten Island flourished throughout the 20th century. Increased mass transit connected all the boroughs and allowed more people to live outside of Manhattan while still having access to the city's varied resources. The remainder of the 20th century saw continued growth and increasing population density throughout Staten Island.

B. DEVELOPMENT HISTORY OF THE PROJECT SITE

EARLY COLONIAL HISTORY

Skene's 1907 map of original farmland grants (reproduced in Garrison 2018) appears to suggest that the project site was located within a small part of three large land grants: the western portion was included within a 49.08-acre area granted to Ellis Point; the central portion was within a large parcel granted to Richard Tuttershall in 1686; and the eastern portion within an 85.25-acre plot granted to Jolly Coeur in 1680. Each of the three parcels was an irregularly shaped wedge, with the widest part of each property situated along the Arthur Kill. These three property boundaries appear to have remained intact in the area north of Arthur Kill Road through the 20th century.

Few detailed maps exist that depict development conditions on Staten Island before the mid-19th century. Taylor and Skinner's 1781 map of Staten Island appears to depict the presence of homes along the waterfront of the Arthur Kill in the vicinity of the project site. Loring McMillen's 1933 map incorporating information from Taylor and Skinner's map as well as two maps produced during the Revolutionary War depicts several properties along the coast of the Arthur Kill but does not depict specific houses or building footprints. The map depicts three property owners in the vicinity of the project site in the approximate locations of the three previously referenced land grants. The owners were, from west to east, A. Woglom; A. Tappan, and W. Wynants (also spelled Winant). The Winant house is depicted on the map to the east of a large stream or creek. These families are discussed in detail in the following sections. The Winant (also spelled Wynant, Wynants, or Winants), Tappan, and Woglom families were among Staten Island's oldest families. Davis' 1896 map of local place names indicates that an area off the coast of the project site was known as "Woglom's Cove" and that the creek that ran to the south of Ellis Street was known as "Tappan's Creek."

Winant and his descendants would continue to own the eastern portion of the project site for more than a century. Their long-time neighbors to the east included the Johnson (or Johnston) family, and the two families were united by marriage. The 1790 census, the first federal census to be recorded, lists Winant Winants as a resident of Westfield, Richmond County. Winants appears on the same ledger and adjacent to the records for James Johnson, Abraham Woglom, Daniel Storey, Garrett Ellis, and Asher Tappin [sic], all from families that would own property in and around the project site in the decades that followed. With the exception of Johnson, each of these individuals was identified as an enslaver, with between one and seven enslaved persons reported within each household. Upon Captain Winant Winant's death in 1804, he left his estate to his wife, Mary, and his children and his will specifically names two enslaved persons of African descent among the property to be divided: a woman named Jude and a man named Harry, who were presumably among the four enslaved individuals associated with the Winant house in the 1800 census (Richmond County Wills Liber A, Page 289). The 1820 census, the last recorded before slavery was ended in New York State in 1827, indicates that a woman identified as "Widow Mary Winant," presumably the same Mary Winant referred to previously, was the only resident of her household of European descent. The other occupants recorded in the census included an enslaved man and an enslaved woman both between the ages of 26 and 45 and a "free" man of African descent in the same age range.

It is therefore clear that forced labor played a large role in the operation of farms and the maintenance of households in this portion of Staten Island before slavery was abolished in 1827. Subsequent census records continue to identify many of these individuals and their descendants, but do not indicate which individuals resided in which homes in the neighborhood, and the presence of multiple family members sharing the same name made it difficult to identify which census records apply to which of each family's many homes. It is therefore difficult to estimate the total number of residents and enslaved laborers who occupied the project site around this time.

EARLY 19TH CENTURY RESIDENTIAL AND AGRICULTURAL USE

The c. 1835 Renard coastal survey and the 1844 Hassler coastal survey of depict the project site within a largely wooded area situated in an area with small farms scattered along Arthur Kill Road and the Arthur Kill waterfront. The surveys appear to depict two houses on the former Winants property along the eastern side of the project site, one at its northern end along the waterfront and one along the waterfront to the north, east of the area now occupied by the MOSF. Additional houses are depicted in the northwestern corner of the project site, within the existing MOSF footprint. A final residential property is depicted just outside the project site on the southern side of Ellis Road. Similar developments are indicated on the 1850 Sidney map and the 1853 Butler map (see **Figure 4**). Those maps depict a cluster of three house occupied by "J. Johnson" in the northwest corner of the project site. The Johnson and Winant families were related Following the death of the elder Winant in 1871, the larger Winant estate was divided among his son, Winant, and his daughter and son-in-law, Mary Jane and James Johnson (Bailey 1936). The historical Winant home was located on the portion of the estate later occupied by the Johnsons. Another house occupied by the Winant family was situated a short distance to the west, as was another to the south on the northern side of Arthur Kill Road. Near the project site's northwestern corner, a cluster of five to six buildings was depicted along the waterfront that were occupied by members of the Storey, Ely, and Ellis families. Both maps depict an informal road in the vicinity of what is now Ellis Road that connected these properties to Arthur Kill Road to the southeast.

Increased residential development along the waterfront in the vicinity of the project site is indicated on the 1859 and 1860 Walling maps of Staten Island. The former Johnson and Winant homes continue to be depicted, as were the waterfront homes of J.W. Hughs [sic], J. Storer, and Mrs. E. Storer to the west. The Storer homes may be the same as those identified as the property of the Storey family on the 1850 Sidney and 1853 Butler map, though they are shown farther to the east on Walling's maps. Walling's maps also identify two houses to the south occupied by A. Allis and "Mrs. Ely" and in proximity to what is now Ellis Road. Walling's 1860 map also identifies a second home occupied by the Storer family along the northern side of Arthur Kill Road to the south of the previously mentioned Storer house. This house is depicted as the home of "W. Wrighs" on the 1866 Colton map, which otherwise depicts no changes to the property owners within the project site.

SUBDIVISION OF ESTATES IN THE SECOND HALF OF THE 19TH CENTURY

Beers' 1874 atlas of Staten Island (see **Figure 5**) is among the first to depict building footprints and property boundaries and suggests that the project site was situated within a portion of several larger estates, most of which were long, narrow parcels that extended between Arthur Kill Road and the waterfront. The 19th and early 20th century development and ownership of each parcel is described below.

FORMER ELLIS ESTATE

The 1874 Beers atlas depicts the estate of A. Ellis along the southern border of the current project site adjacent to what is now known as Ellis Road. The Ellis land holdings also included a large parcel to the

east of Arthur Kill Road opposite the project site, bringing the family's total property holdings to 42 acres. A rail line connected the two tracts of land along the southern side of the Ellis parcel. The rail line was built to connect a "Kalien [sic] Pit" east of Arthur Kill Road and a waterfront dock on the project site. The kalien (also spelled kaolin) deposit was associated with the rich brick-making industry that dominated this portion of Staten Island (Leng and Davis 1930). The 1874 Beers atlas depicts a building along the waterfront of the parcel. The 1887 Beers map depicts the parcel in a similar manner but indicates that the portion of the Ellis estate located west of Arthur Kill Road was by that time owned by Mrs. R. Boyd. The former Ellis/Boyd property is identified on the 1898 Robinson atlas as the property of "Mrs. Morich" and while no rail lines are depicted, "kaolin pits" continue to be shown in the eastern extent of the property (see **Figure 6**). By the publication of the 1907 Robinson and 1917 Bromley atlases (see **Figures 7 and 8**), both portions of the former Ellis property east (19.166 acres) and west (31.086 acres) of Arthur Kill Road were undeveloped and owned by the "Realty Business Corporation." The 1913 topographical survey does not depict any structures within the project site on this parcel, although it depicts a timber dock along the waterfront in the vicinity of a landfilled area now occupied by the MOSF. A dirt road connected the dock to Arthur Kill Road to the east. The map depicts a large (approximately 200-foot-square), angular area that may represent an excavated pit in the vicinity of what is now the southeastern corner of the MOSF.

FORMER STORER ESTATE

The J. Storer estate is depicted on the 1874 Beers atlas as a 27-acre parcel located west of Arthur Kill Road and north of the Ellis parcel. A driveway extended through the northern side of the property along the line of what is now known as Clay Pit Road to the east of the project site. The driveway terminated at the Storer home located along the waterfront within what is now the MOSF. J. Storer continues to be identified as the owner of the 27-acre property on the 1887 Beers atlas. By the publication of the 1898 Robinson atlas, some alterations to the property boundary appear to have occurred. The parcel situated in the vicinity of the driveway—which is depicted in the same manner as the 1874 Beers atlas—is identified as a 13-acre parcel owned by the heirs of Jacob Storer. A 14-acre estate located to the north was owned by J.M. Storer and appears to have included a small portion of both the historical Storer estate and the Hughes estate to the north (discussed below). The boundary line may have been adjusted again in 1907, when the property owned by the heirs of Jacob Storer is identified as 16.95-acres on the Robinson atlas published that year. The 16.95-acre parcel was identified as the property of the Hughes family on the 1917 Bromley atlas.

The 1874, 1898, 1907, and 1917 atlases all depict a waterfront home to the south of the driveway on the property within what is now the MOSF. The 1917 atlas identifies it as a two-story wood frame building with a wood frame stable located to the east. The same general footprints of these two buildings are also shown on the 1913 topographical survey; however, the survey appears to incorrectly identify the western building—a large building with an irregular footprint at the top of a hill—as a one-story frame shed and the eastern building—a long, narrow rectangular structure slightly downhill from the first building—as a two-story frame dwelling. The survey also indicates that along the waterfront west of the house (within a landfilled area now part of the modern MOSF) was an "old canal boat" that had been repurposed as a dock. The remainder of the parcel is depicted on the survey as rolling hills, open fields, wooded areas, areas with vegetation or underbrush, dirt paths, and ponds/streams. A large, approximately 200-by-200-foot square area in the southern portion of the property appears to have been an excavated pit, possibly one of many opened in the area to access clay deposits for brick making. Finally, a surveyor's monument identified as "Boundary Monument #9," which was used to help establish the boundary between the states of New York and New Jersey, is depicted on the property approximately 275 feet south of the former Storer house.

FORMER HUGHES ESTATE

The 1874 Beers atlas depicts the land to the north of the historical Storer estate as a 27-acre parcel owned by J.W. Hughes. As shown on the map, the parcel was bisected by a long driveway that extended between Arthur Kill Road to the southeast. The map identifies two buildings on the property: a waterfront house and a house along Arthur Kill Road, both of which were on the northern side of the driveway. The 1887 Beers atlas reflects the death of J.W. Hughes and indicates that the parcel was owned by his estate at that time. As described previously, the 1898 Robinson atlas appears to indicate that the boundary line between the Hughes property and the Storer estate to the south was adjusted and it appears that the northern line of the Hughes estate may have been modified at this time as well. Around this time, the former Hughes parcel was split into two, one of which remained in the Hughes family.

Storer/Killmeyer Property

The 1898 map identifies the 14-acre property of J.M. Storer to the south of the driveway that formerly bisected the Hughes property. Three wood frame buildings are shown on this parcel on the map: a house and stable or barn along the waterfront to the south of the driveway and a stable or barn along the southern edge of the property, set back from the waterfront. The same buildings are depicted on the 1907 Robinson atlas, which identifies the property owner as Theo. Killmeyer and indicates that the property had been expanded to 17.93 acres, possibly through the purchase of land from the Hughes property to the north. The 1917 Bromley atlas depicts the Killmeyer property as the same size but indicates that the wood frame buildings along the waterfront had been greatly expanded.

Killmeyer was a member of a German American family that maintained hotels and restaurants in the Kreischerville/Charleston area, (Salmon 2006). He appears to have expanded the former Storer house into a waterfront resort complex. The 1913 topographical survey indicates that the complex included one- and two-story buildings including a hotel, a dining pavilion, a dance hall, and other unidentified structures and an outbuilding. Along the waterfront, a pier was constructed using old bulkheads and an old scow. The remainder of the parcel included hills, woodlands, and dirt paths.

Dixon Hughes Property

To the north of the driveway that separated the two halves of the Hughes estate was a 27-acre parcel identified on the 1898 atlas as the property of Dixon Hughes, which may have been expanded onto the former Winant estate to the north, the size of which had decreased by 10 acres between the publication of the 1887 Beers map and the 1898 Robinson atlas. This parcel contained the two houses seen on the 1874 map. A stable is depicted behind (northwest of) the house along Arthur Kill Road. The waterfront Hughes home is depicted adjacent to a circular driveway/path and three stables or barns are depicted to the east of the main access road leading to the house. The same buildings are depicted on the 1907 Robinson atlas, which indicates that the Dixon Hughes property had been altered once again and was at that time 22.5 acres, with some of the land possibly having been added to the Killmeyer property to the south. While no property owner is identified, except for modifications to some outbuildings the property appears in the largely same condition on the 1917 Bromley atlas.

The 1913 topographical survey includes more detailed information about the buildings on the parcel at that time. The Hughes home is depicted as a two-story dwelling with two wings and small square outbuildings slightly downhill to the southwest and northeast. A rectangular wire-fence enclosure with an unknown function was depicted on the sloping bluffs to the northeast of the house. A path led down to the waterfront, where a bathhouse and a “railway” were present adjacent to the Arthur Kill. The outbuildings to the northeast are identified on the map as a two-story barn, two sheds, and a brick icehouse. Additional rail and picket fence enclosures enclosing pastureland were situated east of these buildings. The survey indicates that a large area of the property to the southeast of the house was cultivated land or rolling hills.

In the southern portion of the parcel, a one-story frame dwelling was depicted along the northern side of Arthur Kill Road. Behind the house was a barn and a small square outbuilding that appears to be marked with an "s," possibly to designate a shed. A photograph of this house taken by P.L. Sperr in 1924 are in the collection of the New York Public Library (NYPL).[1] The information associated with the photograph indicates that the home's address was 4037 Arthur Kill Road, but no information regarding residents could be identified related to that address. The photograph also indicates that the home and the property on which is stood were both at a slightly higher elevation than the adjacent road, as it is today. Finally, a sign visible on the property in the image indicates that the 200-acre property was for sale and may reference the Arthur Kill Land and Waterfront Company, though the name is partially blocked by vegetation.

FORMER WINANT/JOHNSON ESTATE

The eastern half of the project site was dominated by the former estate of Winant Winant, later inherited by his children, a son also named Winant Winant, and a daughter named Mary Johnson (also spelled Johnston). By 1874, what was historically the Winant land grant in the eastern part of the project site was divided into seven parcels, six of which were situated within the project site on the eastern half of Block 7247, Lot 1 and on Block 7207, Lot 60. The Winant family's presence on Staten Island began when Pieterse/Peter Winant (1654-1758) emigrated from Holland between 1655 and 1660 and initially settled in Brooklyn (Morris 1900). Peter's son, also named Peter, later moved to Staten Island (ibid). He was responsible for beginning "one of the oldest families on the Island" that became "so ramified that it is impossible to trace all its branches to their sources" (Clute 1877:435). The Winants' connection to the area surrounding the project site began in the early 18th century, when Winant Winant—the first of many to share that name—purchased a stone house that was possibly constructed by John Hendrickson in 1696, and which was later expanded with a frame addition after the Revolutionary War (Bailey 1936).[2] The property was inhabited by succeeding generations of Winant descendants, including a Winant Winant (1744-1804) who lived there with his second wife, Mary, and after his death in 1804, his son, Winant (1799-1871), inherited the property (ibid). The younger Winant married Christina Mary Johnson (1799-1866), whose family owned the land to the east (ibid). A cemetery near their home in which Winant and Mary were interred, along with other family members, is discussed in greater detail below.

Winant Winant Property

The westernmost 40 acres of this parcel are identified as the undeveloped property of Winant Winant on the 1874 Beers atlas. Winant (also spelled Wynant or Winants) owned additional developed land to the south on the opposite side of Arthur Kill Road. The 1898 Robinson map identifies the property owner as "J.G. and Anna C. Winant." As described previously, the parcel is identified as 30 acres on that map, indicating that the boundary had shifted as a result of the sale of some land to the Hughes family to the south. It is identified as a 33.53-acre parcel on the 1907 Robinson map, which suggests that the property, as well as the former Johnson property to the west, had been purchased by the "Arthur Kill Land & Water Front Co." The property was consolidated in early 1907 by the Princes Bay Realty Company, which also purchased the Arthur Kill Land and Waterfront Company at the same time, giving them control of a mile-long section of the waterfront land facing the Arthur Kill (*New-York Tribune* 1907). Little else is known about the company, which does not appear to have extensively developed the property. Polk & Co.'s 1918-1919 directory for New York City identifies the corporation and its board of directors, including president John H. Jewett, and notes that it and a net worth of $250,000, though no information about the

[1] Accessible at: https://digitalcollections.nypl.org/items/510d47dd-7e48-a3d9-e040-e00a18064a99.

[2] A 1907 photograph of this home is included in Bailey (1936).

group's activities is provided. No development appears to have occurred on the property by the publication of the 1917 Bromley atlas, which identifies the "heirs of Winant Winant" as the owners of what was by that time an undeveloped 35.64-acre property. The 1913 topographical survey similarly depicts the land as undeveloped land with rolling hills, woodlands, and areas of dense underbrush growth.

Mary E. Johnson Property

Located on the eastern portion of Block 7247, Lot 1 and extending into Block 7207, Lot 60, the parcel of Winant Winant's daughter, Mary Johnson, included the original Winant family homestead. The 1874 Beers map depicts the 51.5-acre plot occupied by "Mrs. Johnson." Two additional buildings are depicted on the parcel on the map: one along the waterfront to the northeast of the old Winant home and one to the south along Arthur Kill Road. By the publication of the 1898 Robinson atlas, the land had been subdivided into a series of smaller parcels (the eastern portion within Block 7207 is discussed in the following section). The 35-acre portion of the property located within Block 7247, Lot 1 remained within the family and was at that time owned by J.G. and Anna C. Winant, the owners of the Winant Winant parcel to the south. The map shows the three houses seen on the previous map and indicates that at least four barns or stables were located near them. The property was bisected by a long, meandering driveway that connected the waterfront and Arthur Kill Road. As with the Winant property to the south, the 1907 Robinson map identifies the parcel's owner as the "Arthur Kill Land & Water Front Co." while the 1917 Bromley atlas identifies the owner as the "Heirs of Mary J. Johnston [sic]."

On the 1917 Bromley atlas, the old Winant home is depicted as a brick dwelling whereas older maps identified it as wood. The 1913 topographical survey depicts it as a one-story stone dwelling, rather than brick. The house was set near the top of a small hill and adjacent to a pond. A timber dock extended into the Kill to the west of the house. The house in the northeast corner of the property is identified only as a "dwelling." Two frame outbuildings were situated to the rear of the house in association with a fenced-in cultivated area. The remainder of the property was occupied by hills, wooded areas, and underbrush. The Winant home was demolished in 1929 (Bailey 1936).

The former Winant house located at the southeastern end of the parcel is identified on the 1913 map as a two-story frame dwelling with a front porch and a one-story frame addition along the western side of the home. At its closest point, the home was located less than 10 feet from the northern line of modern Arthur Kill Road. A small frame outbuilding measuring approximately 15-feet-square was located to the northwest of the home and a large two-story frame barn was located further to the north. Photographs of this home taken by P.L. Sperr between 1928 and 1930 are also in the collection of NYPL,[1] which depict the home as vacant, dilapidated, and covered with advertisements for the "Sells Floto Circus" in 1928 and a different circus in 1930.

Johnson/Butler Plots

The land within modern Block 7207, Lot 60 to the east of the Johnson property is depicted as four separate properties on the 1874 Beers atlas: the long, narrow 11.5-acre property of J. Johnson along the eastern side of the lot and three parcels owned by I. Butler, J.C. Butler, and John Johnson in the southern portion of the lot. Only the J. Johnson property was developed with a house that was situated along the waterfront and south of a stream. The 1898 Robinson atlas shows that the western half of Block 7207, Lot 60—formerly part of the Mary Johnson property—was divided into two parcels owned by W.T. Elliot and Edward Sprague, neither of which was developed. The former Johnson home and an adjacent barn in the

[1] Accessible at: https://digitalcollections.nypl.org/items/510d47dd-7e86-a3d9-e040-e00a18064a99. The information associated with this photograph indicates that it is west of Clay Pit Road; however, that appears to be in error as the home in the photographs is identified as part of the former Johnson estate (previously owned by J.H. and Anna C. Winant) that had been sold to the Arthur Kill Land & Waterfront Co., which suggests that it was the home on the project site.

eastern half of Block 7027, Lot 60 continued to be depicted at the edge of the marshland on the map, which identified its owner as G.C. Graves.

The majority of the parcels making up modern Block 7207, Lot 60 had been purchased by "Louise M. Geigerich" by 1907 with the exception of a small parcel at the southeast corner owned by "M.J. Johnson." In 1917, the undeveloped parcels in the western half of the lot were owned by Walter T. Elliot and John T. Storer, Jr., while the parcel to the northwest, containing the former Johnson home, was owned by Charles W. Graves. The 1917 map continues to identify M.J. Johnston as the owner of the smaller parcel at the southeast corner of the lot and indicates that a wood frame dwelling had been constructed on the property. The 1913 topographical survey depicts the Johnson house at the northern end of the lot as a "dwelling" situated near the junction of two streams that drained into the adjacent marshland. A cultivated area or garden was situated to the rear of the house, as was a small barn. A small shed was depicted near the southeast corner of the property, adjacent to a row of houses that had been constructed along the western side of Johnson Street north of Arthur Kill Road. The remainder of the property was undeveloped and wooded. The 1917 Sanborn map only depicts a portion of the property but identifies the former Johnson house as a one-and-a-half-story wood frame dwelling with two wings and wood frame rear additions or porches.

20TH CENTURY INDUSTRIAL DEVELOPMENT

An aerial photograph of the project site taken in 1924 continues to depict the site in the same manner as the 1917 Bromley atlas (see **Figure 9**). The estates within the project site are largely shown as rural residential properties with wooded areas and dirt roads and driveways. Similar to what is depicted on the 1913 topographical survey, the woodlands appear to be denser closer to Arthur Kill Road and larger, cleared areas were present along the waterfront, surrounding the locations of historical homes on the project site. Piers and docks, including the former canal boat dock off the coast of the former Storer property, are visible along the coastline.

Staten Island experienced intense industrial development in the decades leading up to the mid-20th century, resulting in the construction of waterfront warehouses and factories, the massive Fresh Kills Landfill, and a network of highways. One of the earlier developments was the construction of the MOSF in the early 1930s. The facility, originally known as "Port Socony," was opened in 1935 by the Socony-Vacuum Oil Company, the successor to the Standard Oil and the predecessor company of Mobil and Exxon-Mobil (*Brooklyn Times Union* 1935). The 257-acre complex was designed to function as the "world's most modern marine terminal" and was "the focal point for the Socony-Vacuum Oil Company's marine operations on the Eastern Seaboard" (ibid: 10). The facility was constructed to receive heating oil, gasoline, lubricating oil, and other petroleum products from oil barges and tankers for distribution around New York City, New England, and the surrounding area (ibid; *Architect and Engineer* 1935). The vast network of storage tanks and pipelines was capable of storing hundreds of millions of gallons of fuel and related products (*Brooklyn Times Union* 1935). To accommodate the incoming vessels that would bring materials to and from the complex and refuel on-site, the waterfront was redeveloped with a more extensive bulkhead and larger wharves (The Board of Engineers for Rivers and Harbors 1955). The facility was enlarged following World War II with the construction of new storage tanks and other facilities, and a major dredging program implemented off the coast to accommodate larger ships (*The Oil and Gas Journal* 1948). Numerous improvements were made to further expand the facility over the years and to provide new pipeline connections—some many miles long—through the marshes adjacent to the facility and across the Arthur Kill into New Jersey (*Petroleum Week* 1955).

An aerial photograph taken in 1951[1] (see **Figure 9**) depicts the massive tank farm and the other associated facilities on what is now the MOSF campus. Few changes are indicated within the project site outside of the footprint of the MOSF on aerial photographs taken in 1996 and later until the construction of the existing solar array ca. 2017. Sanborn maps of the project site were not produced until the 1980s and depict the extensive array of oil storage tanks across the MOSF, but identify only a few small buildings identified as offices, sheds, storage/warehouse buildings, utility/maintenance buildings, boiler houses, or guard houses across the other portions of the project site. The property was sold by the ExxonMobil Corporation to Kinder Morgan Liquids Terminals in 2005 (Richmond County Clerk Conveyance Document 61298).

C. CEMETERIES IN THE VICINITY OF THE PROJECT SITE

Prior to the 19th century, many families with large estates in rural areas like Staten Island maintained family cemeteries on their land, and several have been documented in the vicinity of the project site (Meade 2020). One such cemetery was reported on the Winant family estate within the project site (Salmon 2006). The cemetery does not appear on historic maps. Other family cemeteries, including a large burial ground on the Androvette property to the southwest of the project site south of Ellis Road are depicted on the 1853 Butler map, and the Blazing Star Cemetery, which is still extant, is depicted within the town of Rossville to the northeast. Headstones in the Androvette burial ground date between 1773 and 1844 and bear the names of many of the families that settled in the Charleston area and on the project site during the colonial occupation of New York City. The names on recorded stones include Androvette, Tappen, Ellis, Butler, and Johnston, suggesting that several local families—who frequently intermarried—utilized the burial ground (Davis 1889; Inskeep 2000). A second group of graves was reported to have been located on the other side of a fence in the same property that included headstones bearing the names of the DuBois, Mesereau, and Winant families (Davis 1889).[2] This cemetery is clearly mapped and labeled as "Old Cemetery 1773-1822" on the 1913 Topographical Survey, though its size, shape, and orientation do not match that depicted on the1853 map. Many additional residents were interred in the nearby West Baptist Church cemetery, which was founded in the mid-19th century and remains extant on the west side of Arthur Kill Road south of Ellis Road. Other residents were interred within the Woglom/Johnson family cemetery (within what is now St. Luke's Cemetery) and the former Wright family cemetery, both to the northeast of the project site, which were founded in the mid-18th century (Meade 2020).

The Winant cemetery was described by historian William Davis in 1889, who made the following observations:

> *Further along the shore* [from the Androvette cemetery], *under the shade of some large cedar trees and near the line fence are three stones, with their backs to the Kill. Near by* (sic) *is a long, low stone house, one story and attic, and with a sloping roof…in this burying ground, as in nearly all of the others mentioned, there are some graves marked by common stones* (Davis 1889: 6).

Davis transcribed the epitaphs from three headstones within the cemetery, including those of Winant Morgan (died in infancy in 1806); Mary Winant, the wife of Winant Winant (1765-1842); and Capt. Winant Winants [sic] (1744-1804). Davis' mention of graves marked with common stones appears to

[1] The aerial photographs taken in 1924, 1951, and 1996 are posted on NYCityMap: http://maps.nyc.gov/doitt/nycitymap/.

[2] Inskeep (2000) indicates that the Winant and DuBois graves were part of the Winant family cemetery, though Davis (1889), which Inskeep identifies as the source for the information on the Winant cemetery, suggests that those graves were adjacent to the Androvette cemetery and at a distance from the Winant cemetery.

imply that additional unmarked graves were present. As described previously, the Winant family was responsible for the enslavement of individuals of African descent on its property and are known to have enslaved at least two to four individuals in the late 18th and early 19th centuries. The locations of the burial of enslaved individuals were rarely recorded in the documentary record, particularly in large rural areas such as Staten Island (Meade 2020). Meade (2020) suggests that it is highly likely that families of European descent that maintained cemeteries on their property for the burial of kin may also have interred enslaved persons of African descent either in close proximity to the family cemetery or elsewhere on their property (ibid). While there is no documentation of either the death or burial of enslaved persons on the Winant family property, the possibility exists that such burials could have occurred.

The stones from this cemetery were apparently relocated to the Bethel Methodist Episcopal Church Cemetery, though it is unclear if only the stones were relocated or if the graves were disinterred and reburied in the church cemetery (Salmon 2006). Bethel Methodist cemetery was established in 1841 and remains in active use (ibid; Meade 2020). The website FindaGrave.com[1] indicates that the stones of Winant and Mary Winant and Wynant Morgan as described by Davis (1889) are present in Section 2, Block 23, Plot 2 of the cemetery and includes original photographs of the headstones Davis documented. These are the only identified gravestones in the family plot at Bethel Methodist cemetery that appear to pre-date the cemetery's founding in 1841; however, as this information is user-updated and not peer reviewed, its accuracy has not been verified other than visual inspection of the images of tombstones.

No maps identify the location of the former cemetery, and no evidence of the cemetery's possible location is presented on the 1913 topographical survey. The survey does depict the long, rectangular one-story stone dwelling within the former Winant property along the shore of the Arthur Kill within the project site just north of the location of the MOSF. It is presumed that the burial ground was located in the vicinity of this home. Meade (2020) represents the only known attempt to map the general vicinity surrounding the cemetery and places its possible location in the vicinity of this home within the northern portion of the project site, partially within the MOSF facility and in the area of adjacent pipelines within the marshes to the northeast.

[1] https://www.findagrave.com/memorial/18920219/winant-winant

Chapter 6: Conclusions and Recommendations

A. CONCLUSIONS

As part of the background research for this Phase 1A Archaeological Documentary Study, various primary and secondary resources were analyzed, including historic maps and atlases, historic photographs and lithographs, newspaper articles, and local histories. The information provided by these sources was analyzed to reach the following conclusions.

PREVIOUS DISTURBANCE

The topography of the project site has been significantly altered through grading or filling since at least 1913 across the location of the MOSF and the adjacent solar array. Less disturbance associated with development and landscape modification has been documented in the areas between the MOSF and Arthur Kill Road on either side of the solar array within Block 7247, Lot 1 and east and northeast of the MOSF on Block 7207, Lot 60. Some disturbance would have occurred as a result of the construction and demolition of the houses, barns, and other outbuildings that were located on the project site in the 17th through 20th centuries. Pockets of disturbance are visible across the project site within these less disturbed areas, particularly in areas adjacent to modern or historical development, but other areas appear to be largely undisturbed woodland. Furthermore, the existing MOSF has an extensive network of pipelines and other infrastructure that extends through areas that otherwise do not exhibit signs of disturbance, including areas to the north of the facility and adjacent to the Arthur Kill.

PRECONTACT SENSITIVITY ASSESSMENT

As described in **Chapter 4, "Precontact Archaeological Resources**," the precontact sensitivity of project sites in New York City is generally evaluated by a site's proximity to level slopes (less than 12 to 15 percent), watercourses, well-drained soils, and previously identified precontact archaeological sites (NYAC 1994). The project site is located in close proximity to both fresh water and marine resources and in an area with varying topography, including level high ground. Prior to the rise of sea levels thousands of years ago, the larger Port Mobil area was a high, elevated terrace. Given these environmental conditions, the project site would have been an extremely attractive place for long or short-term occupation. This is confirmed by the dozens of precontact archaeological sites that have been identified within the project site and in the immediate vicinity. Given the site's natural topography, lack of clearly defined areas of disturbance, and the extent to which Native American activity has been identified in the area, undisturbed areas within the project site are determined to have moderate to high sensitivity for precontact archaeological resources (see **Figure 10**).

HISTORIC SENSITIVITY ASSESSMENT

The project site is situated in an area that was settled in the late 17th century and was occupied by descendants the Winant, Johnson, Storer, and Hughes families (among others) between the early 18th and early 20th centuries. Little is known about the specific occupation and development of the project site before the mid-19th century. However, the site was located near the Arthur Kill Road, a major

transportation corridor in Staten Island during the 18th century, and would be expected to have been in a relatively high-traffic and desirable area for settlement.

At least seven historic homesteads were present on the project site by the late 19th century as shown on historical maps. While the majority of these homes were located within the highly disturbed MOSF campus, at least five historical homesteads were situated outside the disturbed area, including the older Winant and Johnson homes near the northeast corner of the site and homes on the historical Winant and Hughes estates located along the northern side of Arthur Kill Road. The residents of these homes and any older homes located in undisturbed locations on the project site would have depended on shaft features (e.g., privies, cisterns, and wells) for the purposes of water gathering and sanitation. Such features were typically filled with household refuse after they were no longer needed for their original purpose and are therefore of high archaeological research value. Shaft features were typically constructed of brick or stone and extended to significant depths, often to 10 to 15 feet below the project site or more. As such, these types of features frequently survive disturbance episodes, even if the upper portions are truncated during development. The residents likely also maintained refuse midden deposits on their property, which may not have been fully disturbed by subsequent development.

In addition, the Winant family is known to have maintained a small family cemetery along the shore of the Arthur Kill in the vicinity of the family's stone home. While the exact location of the cemetery is unknown, it is believed to have been within or immediately north of the MOSF property. The graves within the cemetery are believed to have been disinterred and reburied elsewhere. However, the possibility exists that not all remains were removed or that unmarked graves might have been missed. The general location of the cemetery is in an area of disturbance, and as such, disarticulated remains or disturbed graves could be present in the general vicinity.

The project site is therefore determined to have moderate sensitivity for archaeological resources associated with the historic period occupation of the project site (see **Figure 10**. Low to moderate potential for human remains in the form of disarticulated remains or intact graves also exists; however, the exact area of sensitivity for human remains is unknown (see **Figure 10**).

B. RECOMMENDATIONS

Given the identified precontact and historic period archaeological sensitivity of the project site, archaeological testing in the form of a Phase 1B investigation is recommended to confirm the presence or absence of archaeological resources on the potentially sensitive portion of the project site. The Phase 1B investigation should be completed in coordination with LPC and SHPO. Prior to the completion of any testing, an Archaeological Work Plan outlining the proposed testing strategy and scope of work should be completed and submitted to LPC and SHPO for review and concurrence.

Given the inability to determine the exact location or limits of the historical cemetery that was formerly located on the project site, it would be extremely difficult to develop a testing strategy that would conclusively prove that human remains are present or absent on the project site. As such, it is recommended that an Unanticipated Human Remains Discovery Plan be prepared that would be in place during both the Phase 1B Archaeological Investigation (and any subsequent archaeological investigations that may be determined necessary) as well as during the construction of the project itself.

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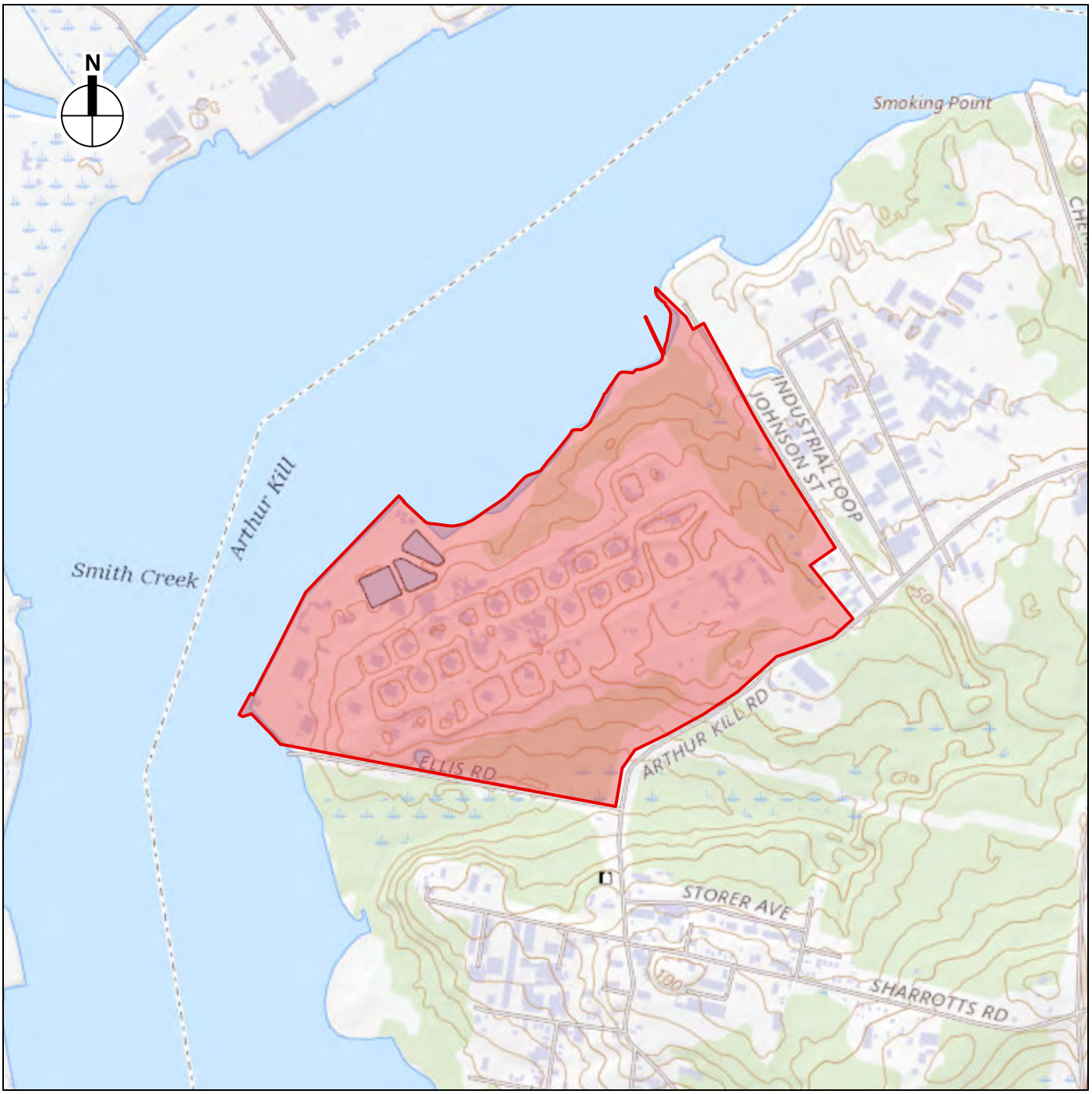
Figures



Approximate coordinates of Project Site:
74°14'23"W 40°32'48"N

USGS Topographic Map – Arthur Kill Quadrangle

PORT MOBIL REDEVELOPMENT

Figure 1

9.21.21

Project Site

0 1,000 FEET

Photograph View Direction and Reference Number

Project Location

PORT MOBIL REDEVELOPMENT

Figure 2

9.22.21

Approximate Location of Project Site

Present Day Topography (2-foot contours)

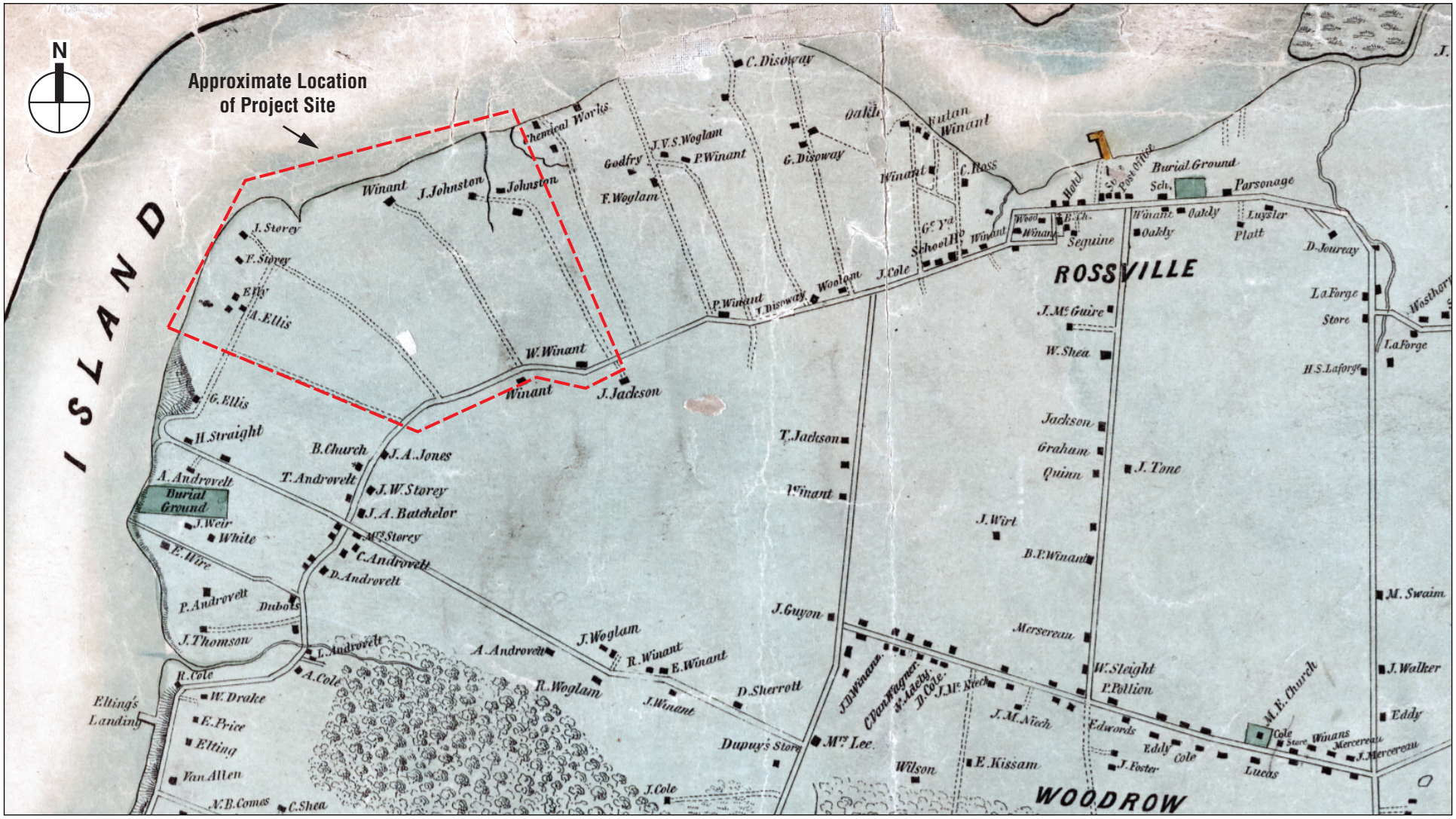
0 1,000 FEET

1913 Borough of Richmond Topographical Survey

PORT MOBIL REDEVELOPMENT

Figure 3

9.21.21



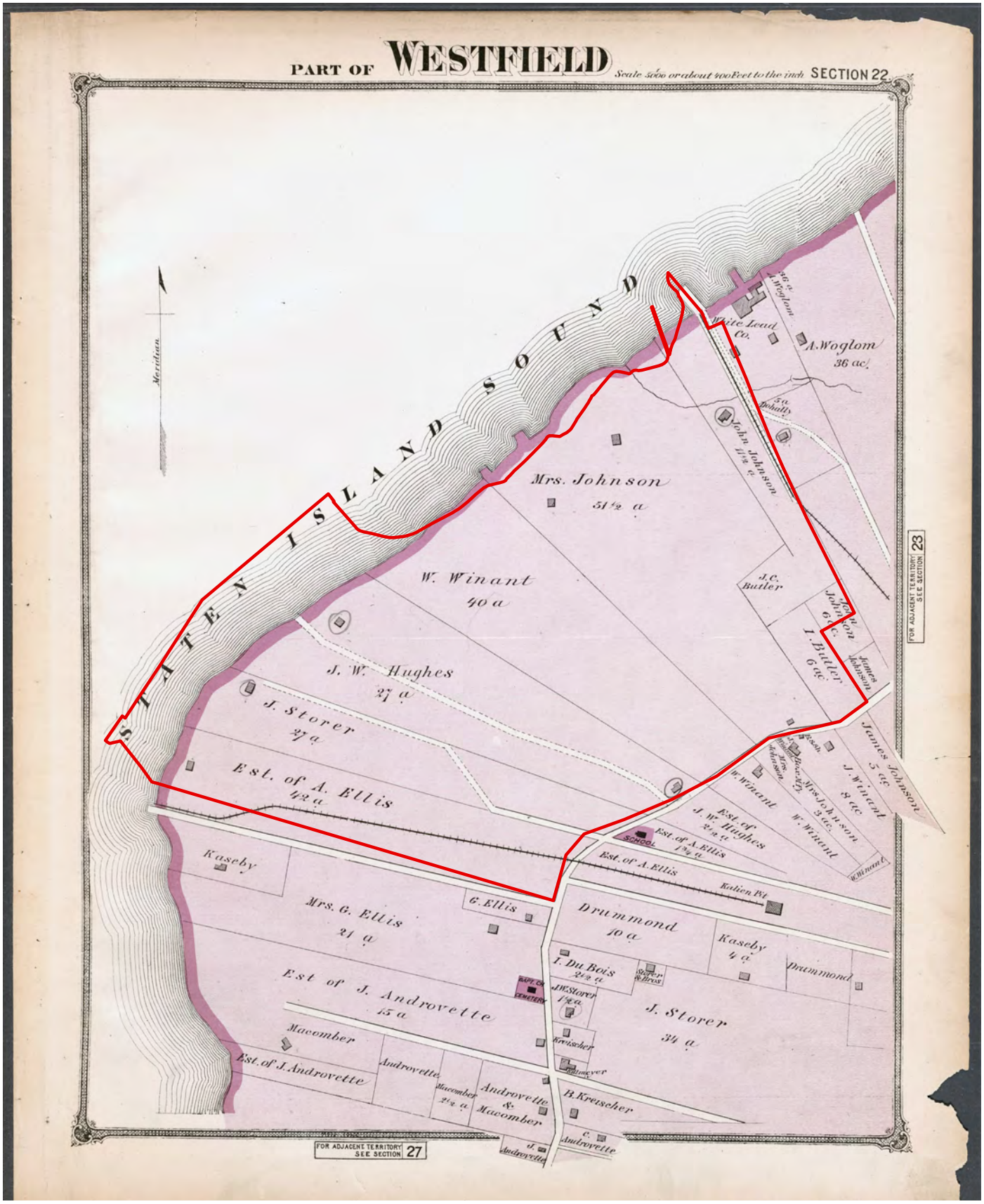
NOT TO SCALE

PORT MOBIL REDEVELOPMENT

1853 Butler Map

Figure 4

9.22.21



NOT TO SCALE

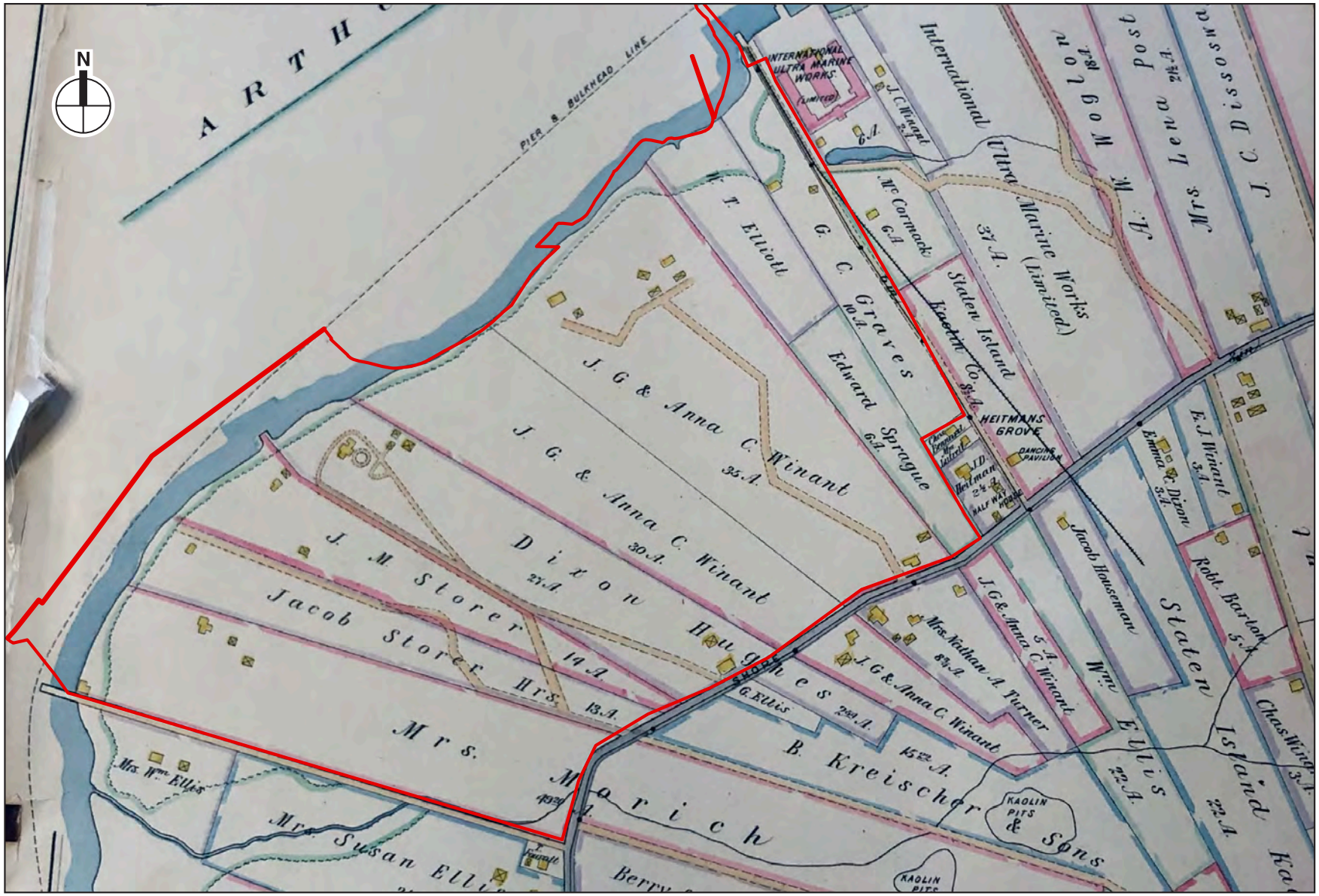
Approximate Location of Project Site

1874 Beers Atlas

PORT MOBIL REDEVELOPMENT

Figure 5

9.22.21



NOT TO SCALE

Approximate Location of Project Site

1898 Robinson Atlas

PORT MOBIL REDEVELOPMENT

Figure 6

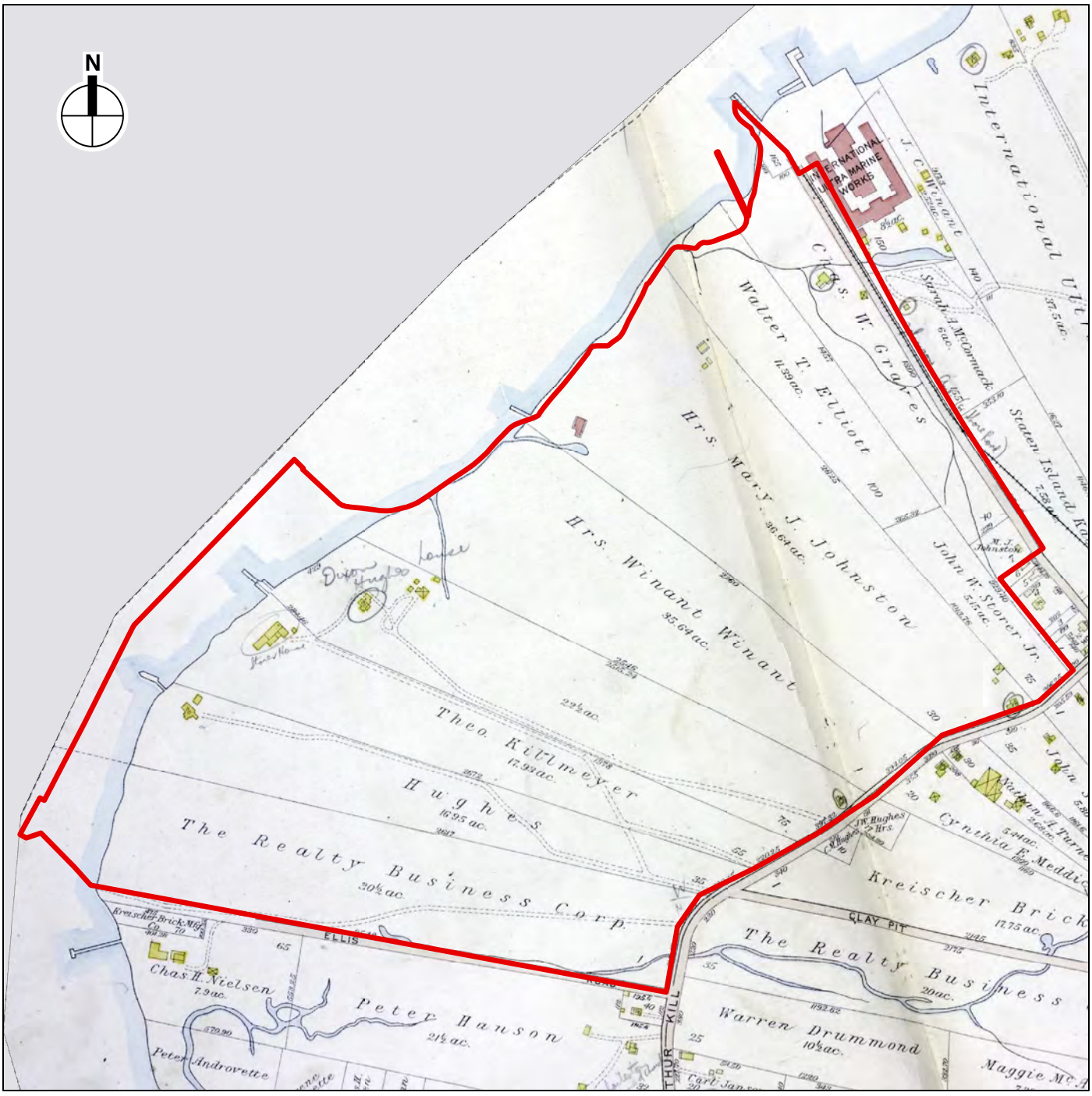
9.22.21

1907 Robinson Atlas

PORT MOBIL REDEVELOPMENT

Figure 7

9.22.21

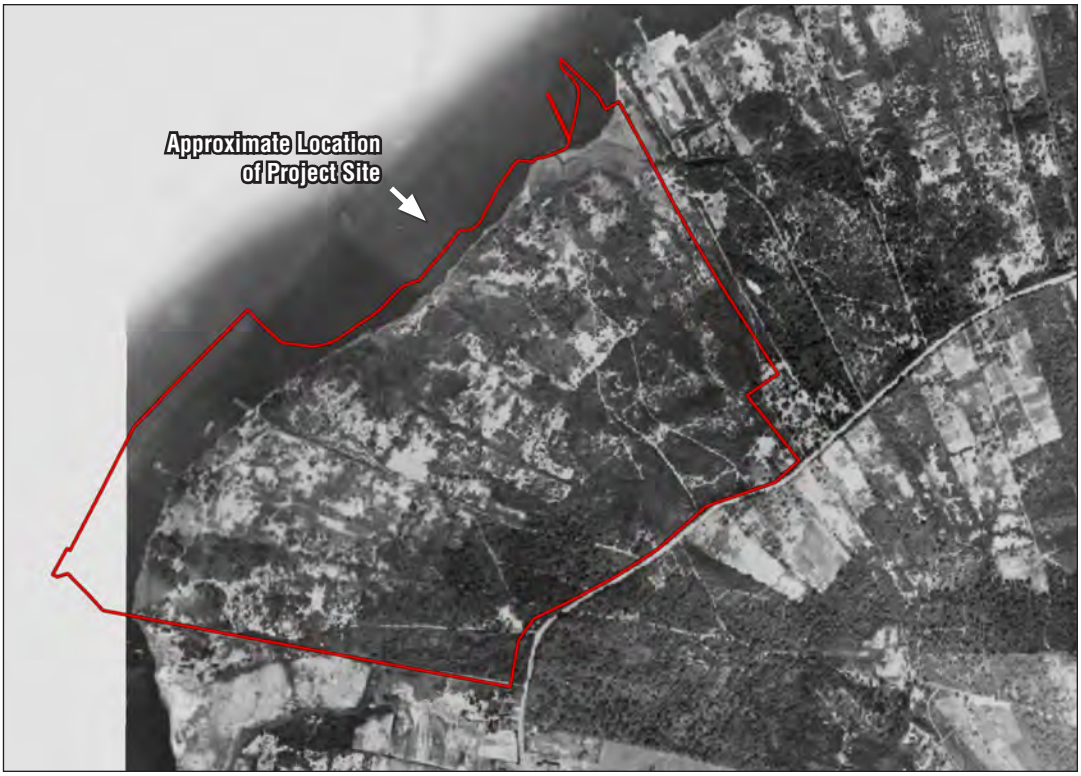


1917 Bromley Atlas

PORT MOBIL REDEVELOPMENT

Figure 8

9.21.21



Source: NYCity Map

1924 Aerial **A**

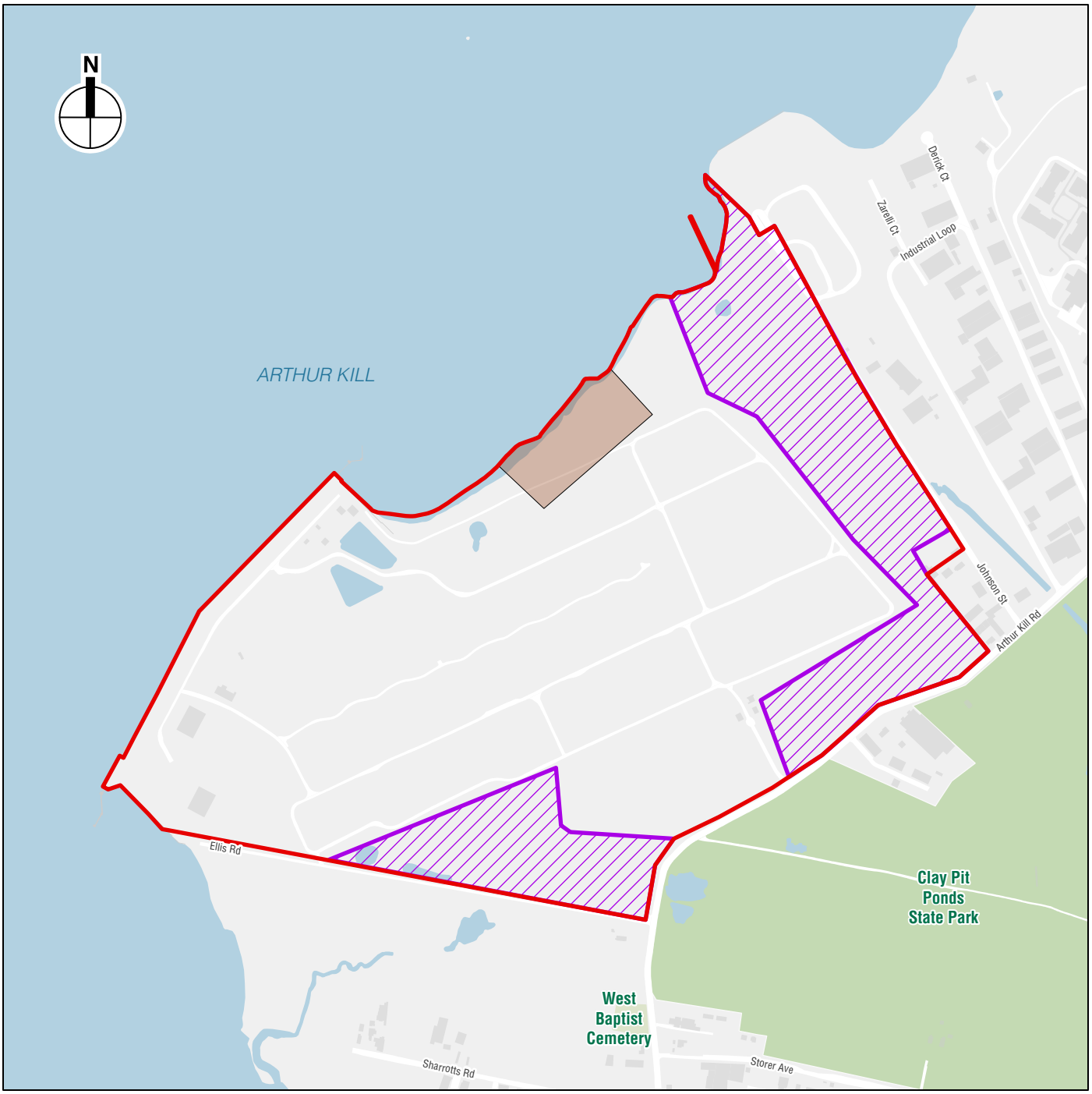
Source: NYCity Map

1951 Aerial **B**

PORT MOBIL REDEVELOPMENT

Historical Aerial Photographs
Figure 9

9.21.21



Project Site

Area of Archaeological Sensitivity

General Vicinity of Winant Home; a small historical cemetery may have been located somewhere in this area

Areas of Archaeological Sensitivity

PORT MOBIL REDEVELOPMENT

Figure 10

Photographs

View of the project site along its westernmost service road, facing northeast **1**

View of the project site's existing former Port Mobil MOSF infrastructure, facing east **2**

View looking south from the project site's southwest corner **3**

View looking northeast from the project site's western boundary **4**

View of the existing bulkhead at the project site, facing southwest **5**

View of the project site towards former Port Mobil MOSF infrastructure, facing south **6**

View from the project site, facing northeast **7**

Representative view of former Port Mobil MOSF petroleum tanks and berm enclosures at the project site **8**

View within the project site of internal driveways with perimeter natural areas beyond, facing northeast **9**

View of the project site along the easternmost service road, facing south, with perimeter natural areas to the left **10**

Representative view of the former Port Mobil MOSF tank farms, facing southwest **11**

Representative view of former Port Mobil MOSF petroleum tanks and berm enclosures at the project site **12**

Representative view of the ground-mounted solar array at the project site, facing northwest **13**

View of the Arthur Kill Road private access drive, facing southeast from within the project site **14**

View of existing warehouse and storage buildings at the project site, facing northeast **15**

View of the existing office building at the project site, facing southeast **16**

View along Ellis Road, facing southeast **17**

View along Ellis Road, facing northwest **18**