

**APPENDIX D**  
**TOPIC INTENSIVE ARCHAEOLOGICAL**  
**DOCUMENTARY STUDY**

# **250 Water Street Redevelopment and South Street Seaport Museum Expansion**

**BLOCK 73, LOT 8; BLOCK 74, LOT 1; BLOCK 95, LOT 101; BLOCK 98, LOT 1;  
STREETBEDS OF PECK SLIP BETWEEN PEARL STREET AND WATER STREET;  
WATER STREET BETWEEN FULTON STREET AND PECK SLIP; FRONT STREET  
BETWEEN BURLING SLIP AND BEEKMAN STREET AND FULTON STREET BETWEEN  
SOUTH STREET AND WATER STREET**

**MANHATTAN, NEW YORK COUNTY, NEW YORK**

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## **Topic Intensive Archaeological Documentary Study**

**Prepared for:**

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**Prepared by:**



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**MARCH 2021, REVISED APRIL 2021**

## Executive Summary

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**CEQR Number:** 21DCP084M

**LPC Project Unique Identification Number:** 35266

**Involved Agencies:**

**Phase of Survey:** Topic Intensive Archaeological Documentary Study

### **Location Information**

*Location:* Manhattan  
*Minor Civil Division:* 06101  
*County:* New York County

### **Definition of Survey Area: Development Site**

*Location:* Block 98, Lot 1 (304 Pearl Street)  
*Site Length:* 325 to 335 feet  
*Site Width:* 110 to 190 feet  
*Site Area:* Approximately 1.1 acres (47,880 square feet)

### **Definition of Survey Area: Museum Site (Expanded Archaeological Study Area)**

*Location:* Block 74, Lot 1 (89 South Street)  
*Site Length:* Approximately 250 feet  
*Site Width:* Approximately 195 feet  
*Site Area:* Approximately 1.1 acres (47,539 square feet)

### **Definition of Survey Area: Pier 16 (Expanded Archaeological Study Area)**

*Location:* Block 73, Lot 8 (Pier 16, South Street)  
*Site Length:* Approximately 640 feet  
*Site Width:* Approximately 145 feet  
*Site Area:* Approximately 3.4 acres (146,025 square feet)

### **Definition of Survey Area: Titanic Park**

*Location:* Block 95, Lot 101 (206 Water Street)  
*Site Length:* Approximately 133-153 feet  
*Site Width:* Approximately 16 to 65 feet  
*Site Area:* Approximately 0.12 acres (5,361 square feet)

### **Definition of Survey Area: Streetbeds within Project Area**

*Location:* Size of streetbed segments varies; see Figure 2.

**USGS 7.5 Minute Quadrangle Map:** Brooklyn Quadrangle

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**Date of Report:** March 2021, Revised April 2021

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**A. INTRODUCTION**

250 Seaport District, LLC is proposing the redevelopment of a parcel at 250 Water Street in Lower Manhattan, New York (see **Figure 1**). The Proposed Project would involve the construction of a mixed-use building on the Development Site, which is located on Block 98, Lot 1 (see **Figure 2**). The Proposed Project would also include the restoration, reopening, and potential expansion of the South Street Seaport Museum (the Museum) on Block 74, a portion of Lot 1 (the Museum Site). The Proposed Project would additionally include operational changes to facilitate passenger drop off on the Pier 17 access drive, and may include streetscape, open space, or other improvements (e.g., planters) under the Proposed Actions within the Project Area.

The proposed building on the Development Site would be a mixed-use building containing residential (including affordable housing units), office, retail, and community facility uses as well as parking spaces. As currently contemplated, it would be comprised of a seven-story base with a tower above rising to a height of approximately 395 feet. In addition, the Proposed Project would also facilitate the restoration, reopening, and potential expansion of the South Street Seaport Museum on the Museum Site. The Museum, a key part of the South Street Seaport neighborhood, first opened in 1967. The Museum has experienced recent financial hardships, including several closures (in 2001 due to the September 11th attacks, in 2012 due to flooding from Hurricane Sandy, and in 2020 due to the COVID-19 pandemic). While the future of the South Street Seaport Museum remains uncertain, for purposes of analysis, it is conservatively assumed that absent the Proposed Actions, the Museum would be forced to close. Funding provided to the Museum would stabilize and strengthen its finances, setting the stage for its potential expansion. The restoration and reopening of the Museum would include newly renovated space in several of the Schermerhorn Row Buildings at the corner of Fulton Street and South Street (91 to 93 South Street and 2 to 4 Fulton Street), and the potential expansion of the Museum would include the construction of a seven-story building to be constructed on the vacant John Street Lot at the corner of John Street and South Street. The Museum's existing "Collections" building at 167 to 171 John Street would not be modified under the Proposed Project, but would be reopened as a result. The Proposed Project would also include operational changes to facilitate passenger drop off on the Pier 17 access drive, and may include streetscape, open space, or other improvements (e.g., planters) within the Project Area.

The Proposed Project would require a number of Proposed Actions, including a special permit, site plan modifications, zoning text amendments, and a curb cut authorization from the City Planning Commission (CPC). As the Project Area is located within the South Street Seaport Historic District, Certificates of Appropriateness would also be required from the Landmarks Preservation Commission (LPC) for the designs of the new building at the Development Site and the renovation and potential Museum expansion on the Museum Site and the Commission may require archaeology as part of these approvals. In addition, other actions will include a certification to transfer development rights and may include, as necessary, amendments to ground leases, disposition actions, and funding decisions, if needed, to effectuate other changes to the affected area. The Proposed Actions are subject to New York City Environmental Quality Review (CEQR). The New York City Department of City Planning (DCP), acting on behalf of CPC, will be the lead agency for environmental review.

## **B. DEFINITION OF STUDY AREA**

The study area for this Topic Intensive Archaeological Documentary Study includes the area that could be disturbed for project construction, i.e., the Development Site and the Museum Site (see **Figure 2**). In addition, although no in ground disturbance is anticipated with respect to Titanic Park and the streetbeds within the Project Area, these areas have been conservatively included within the study area for the archaeological resources analysis. Pursuant to CEQR, consultation with LPC was initiated regarding the potential archaeological significance of the Project Area. LPC reviewed the blocks and lots included within the Project Area and in a comment letter dated November 13, 2020, LPC identified the following Project Area locations as potentially archaeologically significant and combined, they comprise the study area for this Topic Intensive Archaeological Documentary Study:

- Development Site (Block 98, Lot 1);
- Pier 16 (Block 73, Lot 8);
- Museum Site (Block 74, Lot 1): for the purposes of this Topic Intensive Archaeological Documentary Study, the Museum Site is defined as Block 74, Lot 1 in its entirety, while only a portion of the lot is included within the Project Area (see **Figure 2**);
- Titanic Park (Block 95, Lot 101); and
- All or portions of streetbeds of Peck Slip between Pearl Street and Water Street; Water Street between Fulton Street and Peck Slip; Front Street between Burling Slip and Beekman Street, and Fulton Street between South Street and Water Street.

Additional parcels associated with Pier 17 (Block 73, Lots 10 and 11) are included within the Project Area. However, no development is currently proposed on either parcel as a result of the Proposed Project. As stated in their comment letter dated November 12, 2020, LPC did not review these parcels for impacts on archaeological resources and these lots are therefore not included in the study area for this archaeological study. In addition, a portion of the streetbed of Beekman Street between Park and Water Streets was not specifically identified as archaeologically sensitive in LPC’s comment letter, but has been conservatively included within the study area for this investigation. This Topic Intensive Documentary Study was revised in April 2021 to reflect LPC’s comments on a draft of the study as included in an environmental review comment letter dated April 9, 2021.

## **C. REPORT ORGANIZATION**

The majority of the Project Area has been previously analyzed as part of previous archaeological investigations completed by various firms between the 1970s and the 2010s. This study therefore includes chapters that analyze both the Project Area as a whole as well as its individual components. The methodology used to prepare this study and the general themes that guide archaeological inquiry in this part of Manhattan are presented in **Chapter 2, “Research Goals and Methodology.”** The general environmental context of the Project Area and the broader contexts describing its precontact and historic period occupation are presented in **Chapter 3, “Environmental Setting and Precontact/Historic Period Contexts.”** Historical maps supporting the contextual discussion are presented in **Figures 3 through 6.** In the chapters that follow, each component of the Project Area is addressed separately with respect to its current conditions; a summary of previous archaeological investigations of that portion of the Project Area; where necessary, an assessment of additional disturbance or landscape change that may have occurred since previous archaeological work was completed; a reevaluation of the location’s archaeological sensitivity; and, where necessary, recommendations for additional archaeological analysis. The archaeological analysis of the Development Site is included in **Chapter 4** (see **Figure 7**); the Museum Site (including the expanded

archaeological study area covering those portions of Block 74, Lot 1 located outside the Project Area) in **Chapter 5** (see **Figure 8**); Titanic Park in **Chapter 6**; Pier 16 in **Chapter 7**; and the Project Area streetbeds in **Chapter 8**. Areas of archaeological sensitivity for all portions of the Project Area are summarized in **Chapter 9, “Conclusions and Recommendations”** and areas of archaeological sensitivity are depicted on **Figure 9**.



## A. INTRODUCTION

This Topic Intensive Archaeological Documentary Study has been prepared to assess the archaeological sensitivity of the Project Area with respect to both precontact and historic period archaeological resources. Nearly all of the sites within this study area have been subject to archaeological inquiry to some extent, either in the form of documentary research or testing. Therefore this Study synthesizes those previous investigation and combines previously collected data with new research to identify those areas of archaeological sensitivity that could potentially be impacted by the Proposed Project. Newly conducted research includes a summary of precontact and historical occupation of the sites within the Project Area, contextual information regarding physical and environmental settings, and a summary of previous disturbance in addition.

## B. RESEARCH GOALS AND METHODOLOGY

This Topic Intensive Archaeological Documentary Study of the Project Area has been designed to satisfy the requirements of the LPC as issued in 2018 and it also follows the guidelines of the New York Archaeological Council (NYAC) as issued in 1994. The study documents the development history of the sites within the study years and summarizes the results of previous archaeological investigations to determine the Project Area's potential to yield archaeological resources, including both precontact and historic cultural resources.

This study has five major goals: (1) to summarize the results of previous archaeological investigations of sites within the Project Area and to identify any areas where additional research is necessary to assess archaeological sensitivity in accordance with the 2018 LPC guidelines; (2) to determine the likelihood that the project sites were occupied during the precontact (Native American) and/or historic periods or to summarize the discussion of this occupation as documented in previous archaeological investigations; (3) to determine the effect of subsequent development and landscape alteration on any potential archaeological resources that may have been located within the project sites, including impacts resulting from previous archaeological investigations; (4) to make a determination of the potential archaeological sensitivity of the sites within the Project Area; and (5) to make recommendations for further archaeological analysis, if necessary. The steps taken to fulfill these goals are explained in greater detail below.

### SYNTHESIS OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

The first goal of this study is to summarize the results of previous archaeological investigations of the Project Area. Reports summarizing these assessments were accessed through the New York State Cultural Resource Information System (CRIS) archaeology survey database maintained by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) and the LPC database of archaeological reports or were provided directly by LPC. Nearly all of these reports were prepared prior to LPC's issuance of its revised guidelines in 2018; therefore, the conclusions described therein may no longer be consistent with the current guidance as described in LPC's 2018 guidelines and the *CEQR Technical Manual*. Furthermore, the conclusions of one previous archaeological investigation were not accepted by LPC, and as such, the findings of that investigations may not be valid in accordance with the 2018 guidelines. These previous investigations are briefly summarized in **Table 2-1** and are discussed in detail in the following chapters.

**Table 2-1**  
**Summary of Previous Archaeological Investigations of the Project Area**

Project Area Location	Author/Year	Report Title	Summary of Conclusions
Development Site (Block 98, Lot 1)	Greenhouse Consultants, Inc. (Greenhouse) 2000	"Archaeological and Historical Sensitivity Evaluation, 250 Water Street, Borough of Manhattan, New York, New York"	Sensitive for historic period archaeological resources associated with 17th and 18th century landfill and 17th through 19th century occupation/use
	Greenhouse 2002*	"Report of Archaeological Investigation: 250 Water Street, Borough of Manhattan, New York, New York"	Testing identified the presence of archaeological resources, including landfill and landfill-retaining structures and shaft features
	Historical Perspectives, Inc. (HPI) 2003	"Second Avenue Subway Phase 1A Archaeological Assessment"	Examined as potential staging area; identified as archaeologically sensitive for precontact and historic period archaeological resources. No further work recommended due to project redesign.
Museum Site (Block 74, Lot 1)	Historic Sites Research (Kardas and Larrabee) 1978	"18th Century Landfill in Manhattan, an Archaeological Analysis of Tests in the Schermerhorn Row Block"	Identified evidence of fill materials and landfill-retaining structures in limited testing.
	Historic Sites (Kardas and Larrabee) Research 1991	"Summary Report of 1981–1983 Archaeological Excavation: The Schermerhorn Row Block."	Identified evidence of fill materials and landfill-retaining structures in limited testing.
	Arnold Pickman 1999	"Archaeological Documentary Study, Block 74, Part of Lot 20; Corner of South and John Streets, Borough of Manhattan, City of New York."	Sensitive for historic period resources associated with landfill/landfill-retaining structures and 19th century occupation
	Arnold Pickman 2000	"Archaeological Borings and Test Pit Monitoring: Schermerhorn Row Block, Borough of Manhattan"	Evidence of landfill/landfill-retaining structures confirmed in soil borings and evidence of some documentation of shallower levels observed in test pits
	HPI 2006	"Phase 1A Study...Fulton Street Redevelopment Project; Burling Slip"	Determined site sensitive for landfill and 19th century shaft features at depths greater than 5 feet
	AKRF 2008	"Phase 1B Archaeological Survey of Burling Slip."	No features identified in limited testing
	AKRF 2011a	"Bulkhead Documentation Report: Burling Slip"	Additional testing observed remnants of 18th century landfill/landfill-retaining structures
Titanic Park (Block 95, Lot 101)	HPI 2007	"Phase 1A Study...Fulton Street Redevelopment Project; Titanic Park"	Sensitive for historic period resources associated with landfill/landfill-retaining structures and 19th century occupation; Project impacts would not affect sensitive soil levels and no further work recommended
	AKRF 2011b	"Archaeological Monitoring and Unanticipated Discoveries Report: Titanic Memorial Park and Little Water Street; Block 95, Lot 101; Borough of Manhattan, New York, New York"	Documented a stone wall that was determined to not be significant; reburied on site and no further work recommended

**Table 2-1 (cont'd)**

**Summary of Previous Archaeological Investigations of the Project Area**

Project Area Location	Author/Year	Report Title	Summary of Conclusions
All or portions of Peck Slip Between Pearl and Water Streets; Water Street Between Fulton and Peck Streets;	AKRF 2007	"Phase 1A Archaeological Documentary Study, East River Waterfront Access Project, Peck Slip between Pearl and South Streets; Water St. between Beekman and Dover Streets; Front Street between Peck Slip and Dover Street"	Sensitive for historic period resources associated with landfill/landfill-retaining structures and 19th century occupation
Front Street between Burling Slip and Beekman Street; Beekman Street between Pearl Street and Water Street;	Chrysalis Archaeological Consultants (CAC) 2009	"Phase 1A Cultural Resource Documentary Report of the Fulton Street Reconstruction- Project Extension- Fulton Street between Water Street and South Street, New York (New York County), New York"	Sensitive for historic period resources associated with landfill/landfill-retaining structures and 19th century occupation
and Fulton Street between South and Water Streets**	CAC 2018	"Fulton Street Phase II Reconstruction Project (HWMV/TCA8B) and Peck Slip Redevelopment Project (HWM1159 [HWM/TCA7D]) Phase II Archaeological Investigations"	Multiple resources documented; additional sensitivity may remain in undisturbed areas
<p><b>Notes:</b>                      *This report was not approved or accepted by LPC and its conclusions are therefore unverified. Because the report was not approved, it does not appear in LPC's digital archaeological report database. The information in this table summarizes a portion of the report that was provided to AKRF by LPC.                      **Additional reports may cover portions of these streetbed areas.</p>			

**DOCUMENTATION OF PRECONTACT AND HISTORIC PERIOD OCCUPATION AND DEVELOPMENT**

The second goal of this study is to determine the likelihood that the Project Area was inhabited during the precontact or historic periods, and identify any activities that may have taken place in the vicinity that would have resulted in the deposition of archaeological resources. Where such information is documented in previous archaeological investigations as explained in **Table 2-1**, it is summarized herein. For those sites where additional information was required to document previous site conditions or to ensure that the analysis was in conformance with the 2018 LPC guidelines, additional documentary research was completed.

Any additional documentary research that was completed as part of this study was designed to establish a chronology of the APE'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 was gathered from various published and unpublished primary and secondary resources, such as historical maps, topographical analyses (both modern and historic), historic and current photographs (including aerial imagery), newspaper articles, and local histories. These published and unpublished resources were consulted at various repositories (both physical and digital), including the Main Research Branch of the New York Public Library (including the Local History and Map Divisions); the Library of Congress; and the New York City Municipal Archives, among other sources. File searches were conducted using LPC's archaeology report database, the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP), and the New York State Museum (NYSM). Information on previously identified archaeological sites and previous cultural resources assessments on file with OPRHP and NYSM was accessed through the New York State Cultural Resource

Information System (CRIS).<sup>1</sup> Online textual archives, such as Google Books and the Internet Archive Open Access Texts, were also accessed.

Modern advancements in mapping technology and geographic information systems (GIS) were used to more thoroughly analyze the development of the Project Area. This effort involved georeferencing historical maps of the Project Area that were published between the 18th and 20th centuries. The maps were aligned with the modern street grid so that analysis could be completed with respect to changes in the elevation/topography of the landscape; filling in or other modification of marshes and streams; and the extent to which the construction of both historic and modern structures (including residential and industrial/commercial buildings) affected the landscapes.

### **DOCUMENTATION OF PREVIOUS SITE DISTURBANCE AND LANDSCAPE MODIFICATION**

The third goal of this Supplemental Phase 1A study is to determine the likelihood that archaeological resources could have survived intact within the Project Area after development and landscape alteration including both historical disturbance (e.g., grading, construction/demolition of buildings) and more recent disturbance resulting from previous archaeological investigations. Potential disturbance associated with paving, utility installation, and other previous development-related impacts was also considered. This was done through a thorough review of previous archaeological assessments in comparison with recent information regarding site topography, where such information was available.

### **ASSESSMENT/REASSESSMENT OF ARCHAEOLOGICAL SENSITIVITY**

The fourth goal of this study is to make determinations of archaeological sensitivity within the Project Area based on previous archaeological sensitivity determinations (where such determinations were made) in relation to the amount of historical and recent disturbance that was documented in each location as described previously. As described by NYAC in their Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State:

*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).*

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 salt water resources), locations where no historic activity occurred before the installation of municipal water

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<sup>1</sup> <https://cris.parks.ny.gov>.

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 Area.
- High: Areas with topographical features that would suggest Native American occupation, documented historic period activity, and minimal or no documented disturbance.

### **RECOMMENDATIONS FOR FURTHER ARCHAEOLOGICAL ANALYSIS**

The final goal of this study is to make recommendations for additional archaeological investigations where necessary. According to the NYAC standards, a Phase 1B Archaeological Investigation is generally warranted for areas determined to have moderate sensitivity or higher. Archaeological testing at the Phase 1B level is designed to determine the presence or absence of archaeological resources that could be impacted by a proposed project. Should they exist within the Project Area, such archaeological resources could provide new insight into the precontact and historic occupation of Manhattan. The recommendations for further analysis at each component of the Project Area (e.g., the Development Site, the Museum Site, Titanic Park, Pier 16, and Project Area streetbeds) are presented at the conclusion of the chapter documenting that portion of the Project Area.

### **C. GENERAL RESEARCH THEMES**

Several general archaeological research themes have been identified in previous archaeological assessments and as a result of additional research completed as part of this Topic Intensive Archaeological Documentary Study. These themes are summarized below and were used to frame the historical research completed as part of this investigation and helped to inform the sensitivity determinations made for each site within the Project Area.

#### *LANDFILL-RETAINING STRUCTURES AND LANDFILL DEPOSITS (INCLUDING SUNKEN VESSELS)*

The anthropomorphic extension of Manhattan's waterfront has been well-documented by archaeologists and historians. Across the East River waterfront, historic piers, wharves, and docks that formerly marked the outer limits of Manhattan's development were often repurposed as landfill-retaining structures as shorelines were expanded. Additional timber structures were often built for the specific purpose of retaining fill and supporting newly made land. While landfill and landfill-retaining structures are subject to disturbance, particularly as a result of basement excavation, intact deposits have been identified at relatively shallow depths at other archaeological sites along the East River. Work at several archaeological sites along the East River waterfront has uncovered the original wooden cribwork that was used to create artificial land within water lots. These sites include the Assay Site (Louis Berger and Associates 1990), the Barclay's Bank Site (Louis Berger and Associates 1987), the Whitehall Ferry Terminal (AKRF, et al. 2012), the Telco Block (Soil Systems, Inc. 1982), the Schermerhorn Row Block (Kardas and Larrabee 1991), and the sites located at 175 Water Street (Soil Systems, Inc. 1983) and 209 Water Street (Schuyler, et al. 1978).

At Burling Slip, along the East River to the southwest of the Museum Site, the top of an intact timber bulkhead was observed at a depth of 2 to 2.5 feet below ground surface (AKRF 2011a). Similarly, as described below, at Rutgers Slip, intact landfill-retaining structures thought to be representative of intact cribbing were observed at depths of approximately 6 to 8 feet during archaeological monitoring (AKRF 2012). Landfill deposits can include rocky material and clean fill that was generally obtained from grading and construction projects (e.g., basement excavation) as well as refuse including merchandise broken in transit, ballast from ships, garbage dumped on or near the docks, household

trash, dredged material from nearby slips, and detritus from artisans' workshops. With the invention of the steam-powered pile driver in the 19th century, earlier methods of creating landfill became obsolete in favor of wharves constructed of vertical pilings. Wharves built atop deeply embedded piles quickly became standard (Kardas and Larrabee 1991).

Derelict vessels were also often used as landfill-retaining structures and as such, become incorporated into landfill (AKRF 2013; Riess and Smith 2015). A critical component of Manhattan's 18th and 19th century maritime economy involved the construction and maintenance of slips along the shoreline, providing a place where boats could dock and load and unload goods and passengers. The Project Area included a number of slips throughout its history. Therefore, ships would have been a frequent presence in the vicinity of this Project Area, increasing the likelihood that sunken or derelict vessels could be incorporated into the landfill in the vicinity of Project Area. Sunken vessels would be expected to extend to great depths, as the vessels would be expected to be located on what was historically the river bottom. The top of the ship found within the southern site of the World Trade Center redevelopment—which was represented by only the bottom portion of a sloop's hull with a single deck remaining—was identified at a depth of between 11.5 and 20 feet below mean sea level, or between about 20 to 30 feet below the modern street grade (AKRF 2013). However, the upper portions of the large, multi-decked vessel discovered within the landfill deposits of 175 Water Street—formerly known as “The Ronson Ship” and now identified as the 18th century vessel, *Princess Carolina*—was identified at a shallower depth of approximately 8 to 9 feet below the ground surface as the upper portions of that ship remained intact (Soil Systems 1983; Riess and Smith 2015).

#### *STREETBED INFRASTRUCTURE AND ARTIFACT DEPOSITS*

Previous archaeological investigations have documented archaeological resources within active streetbeds, both in the form of artifact deposits and evidence of streetbed infrastructure, including wooden water mains and evidence of historical transportation systems (e.g., streetcar/trolley lines and associated elevated structures).

Despite its status as one of America's largest and most industrial cities, New York did not have a reliable network of water and sewer lines until the mid-19th century. The first water pipes were installed in the early 19th century by the Manhattan Company, the precursor to what would later become the Chase Manhattan Bank (Koeppel 2000). These wooden pipes carried water from local sources to other areas of Lower Manhattan. By 1829, the city had constructed a reservoir near the intersection of modern 13th Street and the Bowery (Burrows and Wallace 1999). An iron pipe ran between the reservoir and Catherine Street, bringing water to the Lower East Side (ibid). The initial water supply system could not be sustained for very long because local water sources became too polluted for continued use. It was not until 1842 that the Croton Aqueduct system brought significant amounts of clean water into Manhattan. A map of the complex distribution system associated with the Croton waterworks published by Endicott in 1842 depicts water lines and stop cocks running through most of Lower Manhattan, including within the Project Area.

Previous research into the historic occupation and development of the East River waterfront has resulted in the documentation of early-19th century wooden water pipes representing some of the earliest infrastructure in Manhattan's streetbeds (Chrysalis Archaeological Consultants, Inc. [CAC] 2007). Wooden water mains associated with thousands of historic period artifacts were recovered at a depth of 3 feet below the ground surface near the intersection of Beekman and Pearl Streets (CAC 2007). Water mains were found at much greater depths—approximately 20 feet below the ground surface—in the vicinity of Dey Street and were determined to be within a disturbed context (URS 2008).

Archaeological resources associated with older street surfaces have also been documented in the Project Area and vicinity at various depths. In 1952, a historic ground surface including a cobblestone street and historic artifacts were identified within South Street at a depth of 4 feet below the mid-20th century ground surface (*New York Times* 1952). Brick and metal footers for elevated rail lines associated with a late-19th century transportation hub were observed during the archaeological investigation of the South Ferry Terminal project site (AKRF, et al. 2012). Similar footings had been discovered during subway construction in the early 20th century, confirming that buried transportation infrastructure can survive multiple disturbance episodes associated with major improvement projects (ibid). Buried trolley tracks and yokes associated with 19th century transportation systems have also been encountered during roadwork in Lower Manhattan, including in recent years (*Tribeca Citizen* 2019).

#### *DOMESTIC SHAFT FEATURES*

Although water lines were present by 1842, sewers were not installed throughout the majority of the city until after the 1850s and many buildings were not immediately connected to the sewers after their initial installation (Goldman 1997). Therefore, historic properties that were developed before water and sewer networks were accessible in the mid-19th century relied on backyard shaft features (e.g., privies, cisterns, and wells) for the purposes of water gathering and sanitation. Privies—the shaft features constructed beneath outhouses—are typically expected to be located at the rear of the historic property while wells and cisterns are typically located closer to a dwelling. These features would have remained in use until municipal water and sewer networks became available in the mid- to late-19th century, and possibly for decades after and were typically filled with refuse either during or following their periods of active use. Poorly maintained buildings in the vicinity of the Project Area that were not connected to municipal sewer lines are known to have continued to use privies and rear-yard shaft features through the mid-1860s at least (Smith 1864). Similarly, the sewer infrastructure installed in the previous decades was reported to have been failing by 1864 (ibid). Therefore, any historical lots that were developed prior to the availability of water/sewer networks in the mid- to late-19th century and that were not previously disturbed by basement excavation should therefore be considered sensitive for shaft features. While the upper portions of these features may have been truncated as a result of subsequent development and disturbance, the lower portions of these features may still be extant within those undisturbed portions of the historic blocks.

## **Chapter 3: Environmental Setting and Precontact/Historic Period Contexts**

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### **A. CURRENT CONDITIONS WITHIN THE PROJECT AREA**

#### **DEVELOPMENT SITE (BLOCK 98, LOT 1)**

The Development Site on which the Proposed Project would be constructed is located at 250 Water Street and is owned by 250 Seaport District, LLC. It currently contains a surface parking lot with an attendant's kiosk. The Development Site occupies the full block bounded by Pearl Street, Water Street, Beekman Street, and Peck Slip. It was developed with low- and mid-rise buildings prior to the second half of the 20th century.

#### **MUSEUM SITE (BLOCK 74, PART OF LOT 1)**

The Museum Site occupies a portion of the block located between John Street, South Street, Front Street, and Fulton Street (Block 74, a portion of Lot 1). The Museum Site includes existing spaces that would be renovated in the historic, approximately 200-year-old Schermerhorn Row buildings at the corner of Fulton and South Street (91 to 93 South Street and 2 to 4 Fulton Street), the Museum's "Collections" spaces for which no work is proposed but which would reopen, located in the historic, approximately 170-year old A.A. Low Building on John Street (167 to 171 John Street), and a vacant lot currently used for parking and storage at the corner of South Street and John Street that would be the site of a potential future expansion of the Museum (the John Street Lot).

#### **PIER 16 (BLOCK 73, LOT 8)**

Pier 16 is a waterfront structure that extends into the East River south of South Street/the FDR Drive between the approximate lines of John and Fulton Street. Though older piers existed in the approximate area, the pier was built in its modern configuration in the second half of the 20th century.

#### **TITANIC PARK (BLOCK 95, LOT 101)**

Titanic Park is an irregularly shaped open space located in the triangular intersection formed by the modern lines of Pearl and Water Streets and the existing building at 117 Beekman Street, which was constructed in 1983 (Block 95, Lot 7501). The park is largely a paved plaza with some landscaping, trees, and seating. The park is owned by the New York City Department of Housing Preservation (NYCHPD) and features a lighthouse dedicated to those who perished on the *Titanic* in 1912. A plaque affixed to the lighthouse indicates that it was built in 1913 and originally stood on the roof of the Seaman's Church before being relocated to its current location in 1967.

#### **STREETBEDS**

Each of the streetbeds included within the Project Area is an active thoroughfare that extends between property lines and therefore includes both roadways and sidewalks. Most of the streetbeds within the Project Area are paved with Belgian block or cobble stone paving and bluestone paved sidewalks and walkways. Portions of Peck Slip and Fulton Street are public plazas. All of the streetbeds contain subsurface utilities including sewers, water lines, gas lines, telecommunications lines, and/or electrical lines as well as street lighting, fire hydrants, and other infrastructure. Manholes, catch basins, and ventilation shafts are visible in some road and sidewalk surfaces.



## B. GEOLOGY AND TOPOGRAPHY

The island of Manhattan is found within a geographic bedrock region known as the Manhattan Prong of the New England (Upland) Physiographic Province (Isachsen, et al. 2000). The vicinity of the Project Area is composed mostly of metamorphic rock known as Manhattan Schist (Reeds 1925). Portions of the Project Area are located on artificially created land. Manhattan had a much narrower and more irregular shape in the days before systematic landfilling created the regimented shoreline of piers and promenades that we see today. Historic maps indicate that the original shoreline's high water mark—the maximum extent of the water at high tide—was located south of what is now Pearl Street, bisecting the Development Site (Department of Docks 1873). The low water mark—the level of the water when the tide was out—was situated near what is now the line of Water Street (ibid). Therefore, nearly the entire Project Area with the exception of the northern portion of the Development Site is located within an area of landfill reclaimed from the East River (see **Figures 3 and 4**). Specific topographical information and analysis of landscape modification is discussed for individual areas within the development site as outlined in the chapters that follow.

## C. SOILS

The “Web Soil Survey” maintained by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) indicates that two soil complexes are located in the vicinity of the Project Area.<sup>1</sup> The small area of original dry ground, also known as fast land, occupying the northern half of the Development Site is identified as “Urban Land, Outwash Substratum” (UoA). This soil type is found in level areas (0 to 3 percent slopes) and its typical profile includes up to 20 inches of cemented material over gravelly sand that extends to depths of at least 6 feet (72 inches). The majority of the remainder of the Project Area located south of the pre-landfill water line, is characterized as “Urban land, reclaimed substratum.” The typical profile of this soil type includes 15 inches of cement or pavement over gravelly, sandy loam and is also found in level areas with slopes of 0 to 3 percent. Additional areas south and west of Pier 16 are mapped as open water.

## D. PRECONTACT CONTEXT

In general, Native American habitation sites are most often located in coastal areas with access to marine resources, near fresh water sources and areas of high elevation and level slopes less than 10 to 12 percent (NYAC 1994). 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. While much of the Project Area is included within an area of historic landfill (see **Figures 3 and 4**), documented Native American activity occurred along the coastline in the immediate vicinity of the East River Waterfront.

Information regarding such previously identified archaeological sites was obtained from various locations including the site files of OPRHP and the New York State Museum (NYSM), accessed via CRIS<sup>2</sup> and published accounts such as R.P. Bolton's 1922 work, *Indian Paths in the Great Metropolis*. These sites are summarized in **Table 3-1**. Because many of these sites were discovered and reported by avocational archaeologists (e.g., Parker 1920, Bolton 1922) in the early 20th century, there is limited descriptive information available.

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<sup>1</sup> <https://websoilsurvey.sc.egov.usda.gov>

<sup>2</sup> Accessible at: <https://cris.parks.ny.gov>

**Table 3-1**

**Precontact Archaeological Sites in the Vicinity of the Project Area**

Site Name/ Number	Time Period	Approximate Distance from Development Site	Site Type
<i>Shell Point/Werpoes</i> NYSM: 4059	Precontact	2,500 feet	Native American village and shell middens
<i>Nechtanc</i> NYSM: 4060	Precontact; Contact	3,000 feet	Native American village used as a retreat during 17th century wars with the Dutch
<b>Note:</b> Because the Development Site included the only portion of the Project Area that is not located on landfill, all measurements are given from that location.			
<b>Sources:</b> The New York State Cultural Resources Information System (CRIS); Parker 1922, and Bolton 1922.			

As described in **Table 3-1**, two Native American village sites have been identified in the vicinity of Lower Manhattan. The first site, known as “Shell Point” or “Werpoes” (NYSM site #4059) was located north of City Hall Park to the northwest of the Project Area. The village was located on a hill known *Kalch Hoeck* adjacent to the Collect Pond, or *Kolch* (Bolton 1922; Bolton 1975). The name *Werpoes* is possibly derived from the word *Wapu*, meaning “a hare” and “Shell Point,” likely refers to the many shell middens that covered the site (Bolton 1922).

The other village site, most commonly referred to as *Nechtanc*, meaning “sandy place” (Grumet 1981), is also known as *Rechtauck* or *Naghtogack* (Bolton 1922; Bolton 1975). According to Bolton’s 1922 map of Native American trails, the village was located atop a large hill, later known as Jones’ Hill, in the vicinity of the intersection of Jefferson, Henry, Clinton, and Madison Streets (Bolton 1922). As shown on that map, the village was accessed by a Native American trail that ran approximately along the line of modern East Broadway before making a ninety degree turn and continuing to the south in the approximate location of modern Clinton Street. *Nechtanc*’s high elevation and close proximity to the river’s varied resources would have made it an ideal location for a precontact village. Later in the Contact Period, its natural topography also made it an important refuge for the Lower Hudson River Delaware Indians from all over the New York City area. Brutal wars with the Dutch took place in the early 1640s, and forced many Native Americans to flee their homelands. Ultimately, *Nechtanc* was not a safe haven for them, and in 1643, the Dutch staged a nighttime attack on several Native American villages, including *Nechtanc*, at which time many Native Americans were killed in their sleep (Grumet 1981).

Other Native American place names in the area included *Kapsee*, rocky ledge at the southern end of the island (Grumet 1981, Bolton 1975); *Catemiuts*, a fort and hill located near the modern-day intersection of Pearl Street and Park Row, and *Ashibic*, a rocky cliff north of today’s Beekman Street that abutted a marshy tract (Grumet 1981). A series of Native American trails connected these locations with the villages discussed above as well as other Native American habitation sites further north. A major Native American roadway—known as *Wickquasgeck*—ran along the southern line of modern Broadway before splitting into two roads; one angling to the northeast and continuing northward along the approximate path of today’s Bowery Road, and the other continuing east towards *Nechtanc*. West of the fork in the trail, two offshoots extended from the main road; one traveling northward towards *Werpoes* and the other heading south towards the East River shore in the vicinity of the Brooklyn Bridge (Grumet 1981, Bolton 1922; Bolton 1934).

## **E. HISTORICAL CONTEXT FOR THE EAST RIVER WATERFRONT**

The sites within the Project Area remained almost entirely under water through the mid-18th century, centuries after European colonization brought about the start of the historic period in New York City. Following the period of initial European contact beginning with the arrival of Henry Hudson’s voyage

in 1609, New York became a Dutch colony (Burrows and Wallace 1999). In 1621, the States-General in the Netherlands chartered the Dutch West India Company (WIC) to consolidate Dutch commercial activities in the Americas. After the English conquest of New Amsterdam in 1664, the colony was renamed “New York” and commerce and trade in the colony increased dramatically under British rule, resulting in the rapid development and expansion of Manhattan’s waterfront. The Dongan Charter of 1680 had the most profound effect upon the transformation of the waterfront. This charter permitted the city government to raise money by selling water lots (see **Figure 3**), “or the right to build wharves and ‘make land’ out into the rivers between the low and high water marks, a distance of 200 feet” (Cantwell and Wall 2001: 225). The Montgomery Charter of 1731 extended the range to 400 feet, well beyond the low water mark. The new owners of these lots were charged with filling them in and with building wharves, piers, and/or bulkheads along the shore to prevent further erosion caused by the swift river currents (ibid). Much of the Project Area was still inundated by the late 18th century (see **Figure 4**).

Land-making accomplished two goals. First, it extended the shoreline beyond the shallow water near the natural shore so that ships could dock at landside wharves instead of anchoring far out in the East River. Second, the waterfront’s close proximity to the trade ships led to the construction of markets, storefronts, warehouses, and other commercial structures which were “conveniently close to landings where farmers could moor their boats and unload livestock and produce for sale” (Cantwell and Wall 2001: 226). In this way, land-making had a crucial impact on the development of New York’s burgeoning economy as the port of New York rose to prominence in the commercial and industrial networks of the Americas (Albion 1967).

After the Revolutionary War, the American economy expanded as the new country entered new foreign and domestic networks of trade and commerce. New York’s shipping and maritime industries were located along the East River waterfront in the 18th and 19th centuries, which was rapidly developed (Albion 1967). With the continued success of New York’s trade enterprises, more and more land along the East River was required for commercial purposes and the creation of terrain via landfilling was augmented. The opening of the Erie Canal in 1825 and the development of packet services to distant American and European ports led to expanded reciprocal trade between local merchants and the rest of the country (Burrows and Wallace 1999). In the mid-19th century, the years preceding the American Civil War, “New York City handled two-thirds of America’s imports, and dominated exports and passenger trade” (Novek 1992:24). By the early 19th century, landfill had expanded to the location of modern South Street, which was “most intimately connected with things maritime...[with] counting-houses on the north side of the street and opposite them were the East River piers, whence the bowsprits and jibbooms of the ships stretched well across the cobbled street” (Albion 1967:266). This expansion resulted in a surge of development along the waterfront for both residential and commercial/industrial purposes throughout the 19th and 20th centuries (see **Figures 5 and 6**).

The East River waterfront maintained a prominent role in the shipping industry until the mid-19th century, when the invention of steam-powered ships forced the focus of New York’s trade economy to shift to the deeper waters of the Hudson River. In 1879, there were four times as many sailing vessels arriving in New York from abroad as compared to steamships, but the latter—now too large for East River piers—had taken over the lucrative fine cargo and passenger businesses which soon followed the steamships to the west side of Manhattan (Albion 1967; Burrows and Wallace 1999). The East River waterfront then became the home to other industrial enterprises as the 19th century concluded and the 20th century began. By the mid-20th century, the construction of major municipal infrastructure projects, such as the construction of the FDR Drive and the adjacent piers, and the redevelopment of many blocks with housing complexes dramatically changed the landscape of the East River waterfront.

## **Chapter 4: Archaeological Analysis of the Development Site (Block 98, Lot 1)**

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### **A. INTRODUCTION**

As described previously, the Development Site at 250 Water Street (Block 98, Lot 1) is a paved parking lot within the South Street Seaport Historic District. The Development Site occupies the full block bounded by Pearl Street, Water Street, Beekman Street, and Peck Slip and is one of the only undeveloped spaces in the area. It was developed with low- and mid-rise buildings prior to the second half of the 20th century, when the block was repurposed as a parking garage and later a parking lot. Previous developments have been proposed on the site and as such, it has been subject to three previous archaeological investigations as described below. This chapter summarizes the previous archaeological investigations of the site and documents new research completed to assess the Development Site's archaeological sensitivity.

The development and occupation history of the Development Site and of the general Peck Slip area is described in detail in several previous archaeological assessments (e.g., Greenhouse 2000; HPI 2003; AKRF 2007; CAC 2018). As such, this history is only summarized in brief in this chapter and in a manner sufficient to support the conclusions regarding the site's revised archaeological sensitivity as presented in this chapter.

### **B. DEVELOPMENT HISTORY OF BLOCK 98, LOT 1**

Stokes' "Map of Original Grants and Farms" shows that the area of Peck Slip in the vicinity of the Development Site was a small marshy area known as Beekman's Swamp (Stokes 1967). This land was at one point conveyed by the Dutch colonial government to William Beekman, a German immigrant who was closely associated with the WIC (Burrows and Wallace 1999). Beekman, after whom both William and Beekman Streets are named, established tanneries along his East River waterfront land holdings and maintained a residence near the corner or present-day Pearl and Frankfort Streets, outside the Project Area (Lossing 1884). Beekman's Swamp was formerly known as "Bestevaer's Kripplebush," a Dutch phrase meaning either "Grandfather's Swamp" (Stokes 1967) or "Old Man's Swamp" (Innes 1902). The northern half of what is now Block 98 was included within a land grant that was later known as Beekman's Pasture after it, too, was conveyed to William Beekman in 1670 (Stokes 1967). Prior to Beekman's ownership, the Development Site was owned by Isaac Allerton, who arrived in America on the *Mayflower* and later established a warehouse on the East River waterfront in the vicinity of what was formerly known as 10 Peck Slip within the Development Site (ibid). This warehouse appears "Alderton's Building" on the "Duke's Plan," published in 1664 but depicting Lower Manhattan in September, 1661 (and published in 1664) and it is shown to have been surrounded by a fence or palisade (ibid).

Pearl Street, formerly known as Queen or Queene Street, was the only extant street in the vicinity of the Development Site in the 17th century. Landfilling began to expand the shoreline within and south of the Development Site beginning in the 17th century. The Nicolls map, of 1664-1668 depicts a "pier or roundout" in the area that may have been situated within the boundaries of the Development Site and the adjacent streetbed of Water Street (Stokes 1967 I: 210). A ferry between Brooklyn and Manhattan was also established in this area in the 17th century by Cornelis Dircksen who owned waterfront property near either terminus (Innes 1902, Colton 1902). Early landfilling projects dating to

1656 were intended to protect the shoreline from the river's currents with a wall of wooden planks and soil (Grim 1855). The gradual extension of the shoreline ultimately resulted in the creation of Water Street. Peck Slip was formed before the publication of James Lyne's 1728 and 1731 maps of Lower Manhattan. "Dally's Ship Yard" is also depicted between Pearl and Water Streets, just east of the line of Beekman Street, which has not yet been continued south of Pearl Street.

Later maps depict both "Peck's Wharf" and "Peck's Slip," named for owner Benjamin Peck, as well as a number of shipyards along the waterfront near the Development Site (AKRF 2007). On March 7, 1736, Peck requested permission of the Common Council to purchase water lots contiguous to his houses on Queen Street in the Montgomery Ward<sup>1</sup> of New York City. Peck's request was approved in 1737 and he was granted a 50 foot stretch of "water and soil under the water from high to low water mark" (Common Council of the City of New York 1905 IV: 388-9). He would make several additional water lot requests in the years that followed. By the publication of the 1755 Maerschalk map, the Development Site was entirely filled and developed (AKRF 2007).

By the early decades of the 19th century, the Development Site was divided into lots and developed with buildings (detailed individual lot histories are presented in Greenhouse 2000 and HPI 2003). The streetbed of Pearl Street was realigned in the mid-20th century, and as a result, Block 98 historically extended further to the north into what is now the roadbed. The private ownership of individual lots was documented as early as 1808, and some of the lots were owned by single families for many decades (HPI 2003). Many of the buildings were occupied for both residential and instruction/commercial purposes, and were the location of stores, workshops/manufacturing facilities (including thermometer factories), and taverns (Greenhouse 2000; HPI 2003). Wooden water mains were available in Pearl Street by 1807 and in Water Street, Peck Slip, and Beekman Street by 1812, and many buildings on the block were connected by 1820 (Greenhouse 2000). Sewers were available in the streets surrounding the Development Site between 1853 and 1866 (ibid). One of the first detailed maps of the block is the 1852 Perris atlas, which shows that each of the lots on the block was developed by one or more buildings at that time.

Subsequent maps depict the redevelopment of many of the lots historically within the Development Site. By the publication of the 1950 Sanborn map, all of the lots within the modern boundaries of Block 98, Lot 1 were developed with buildings. All of the buildings that were located on the block in the late 19th and early 20th centuries were constructed with basements, although twelve of the historical lots had rear yards that were not fully disturbed by basement excavation (Greenhouse 2000). The buildings were razed between the 1950s and 1970s and the lot was converted into a parking garage and then a parking lot.

## **C. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS**

### **PHASE 1A ARCHAEOLOGICAL DOCUMENTARY STUDY OF 250 WATER STREET, 2000**

A Phase 1A Archaeological Documentary Study of 250 Water Street (Block 98, Lot 1)<sup>2</sup> was completed by Greenhouse Consultants, Inc. (Greenhouse) in 2000. At that time, Milstein Properties Corp., the

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<sup>1</sup> Montgomery's Ward was created in 1731, after the Montgomery Charter split "the Out Ward," the area of Manhattan formerly outside of the traditional city boundaries, into two separate wards to accommodate the city's northward expansion (Stokes 1967).

<sup>2</sup> At the time that this investigation was completed, modern Block 98, Lot 1 was divided into historical Lots 1 through 37)

entity that owned the Development Site in the late 20th century, proposed to redevelop the property. The project was ultimately not constructed, although preliminary archaeological testing occurred there (discussed in detail below). The Phase 1A study documented the development and occupation history of what is now Block 98, Lot 1 (portions are summarized in the previous section). The study examined a series of soil borings taken in 1980 that indicated that the block was underlain by 5.5 to 17 feet of fill material (which could have been either basement fill or landfill material) and that some evidence of organic materials including vegetation and shell were present in portions of the site (Greenhouse 2000).

While the northern half of the site was waterfront land before the onset of colonial landfilling efforts, given the extent to which the site was developed during the historic period, the site was not identified as sensitive for precontact archaeological resources. The site was determined to be highly sensitive for historic period resources associated with waterfront structures (e.g., piers, wharves, and bulkheads); landfill and landfill-retaining devices; remnants of commercial sites associated with the 17th/18th century Allerton warehouse and its associated wharf and the former Dalley's Shipyard; and domestic shaft features (e.g., privies and cisterns) associated with 19th century buildings on twelve historical lots (Greenhouse 2000). Four historical lots (formerly known as lots 5, 10, 14, and 22) were identified as particularly sensitive for shaft features given the extent to which those lots were associated with specific individuals (*ibid.*)<sup>1</sup> The report recommended archaeological testing across the site to confirm the presence or absence of archaeological resources.

#### **PHASE 1B ARCHAEOLOGICAL INVESTIGATION OF 250 WATER STREET, 2002**

Pursuant to the recommendations made in the 2000 Phase 1A study, Greenhouse completed archaeological testing on what is now the Development Site and prepared a report summarizing the results of the investigation in 2002 (see **Figure 7**). The conclusions of the report were not accepted by LPC and the report was not approved.<sup>2</sup> As such, the investigation was not determined to have sufficiently addressed archaeological resources issues on the site and did not confirm the presence or absence of all resources within the site boundaries.

The Phase 1B testing that was completed as part of the 2002 investigation included the excavation of five backhoe trenches referred to as “deep trench areas” to investigate the locations of the Allerton Warehouse and Dalley's Shipyard on historical lots 9, 12, 13, 15, 17, and 32 (Greenhouse 2002). In addition, four “shallow trenches” were excavated in the vicinity of historical lots 5, 10, 14, and 22, which were the lots designated as sensitive for 19th century shaft features (*ibid.*). The mechanical testing was supplemented by 29 hand-excavated units placed within the five trenches (*ibid.*). The approximate locations of these testing areas is included on **Figure 7**. A summary of the trenches is included in **Table 4-1**. As shown in the table, groundwater was a significant impediment to the excavation, with water flooding trenches at depths between approximately 12 to 14 feet below the 2001/2002 ground surface.<sup>3</sup>

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<sup>1</sup> In the past, many New York City-based archaeological investigations connected determinations of archaeological sensitivity with the ability to identify the individuals who may be associated with particular resources. These arguments are not consistent with the most current guidelines for archaeological work as issued by LPC in 2018.

<sup>2</sup> Because this report was not approved, it is not available in LPC's publicly accessible report database. Attempts were made to secure copies from the original author and portions were obtained from other archaeological firms who have worked on nearby sites. LPC was able to provide a scan of a portion of the report, including pages one through twenty-two as well as the map depicting the locations of the trenches as excavated.

<sup>3</sup> The 2018 LPC guidelines include a requirement that all depths be recorded relative to a standard datum (e.g., NAVD88). As the 2002 work was completed before this requirement, all depths were recorded relative to the ground surface. A comparison of the 2002 and 2021 ground surfaces is described later and presented in **Table 4-2**.

Most trenches documented layers of basement disturbance to approximate depths of 8 to 12 feet below grade. In shallow trenches in those areas that were historically occupied by rear yards, more than 3 feet of fill/rubble were observed. In two historical lots, possible yard surfaces/buried ground surfaces were observed at depths greater than 8 feet, with fill materials identified underneath.

**Table 4-1**  
**Summary of Previous Excavation of the Development Site**

Trench	Historical Lot	Dimensions (WxLxD, in ft)/ Amount Excavated	Manual Excavation	Sensitivity	Observations
1 (Deep)	32	15x35x13.4/ 7,035 ft <sup>3</sup>	3x3 unit in northern end	Allerton warehouse	Disturbance associated with former garage building (concrete floor slab and support piers) to depth of 12.6 feet below ground surface (bgs). Some 19th and 20th century artifacts were collected from soils located beneath the water table in the southern end. In the northern portion (fast land), black sand with 19th–20th century artifacts was observed beneath the concrete floor, underlain by sterile gray sand. Testing impeded by groundwater.
2 (Deep)	32	13x33x13.6/ 5,834 ft <sup>3</sup>	Ten 5x5 units; Two 4x5 units	Allerton warehouse	Disturbance associated with former garage building (concrete floor slab and support piers) to depth of 12.8 feet bgs. Culturally sterile gray sand with brown sand inclusions observed in units. Testing impeded by groundwater.
3 (Deep)	16-17	15x35x10.1/ 7,035 ft <sup>3</sup>	Eight 5x5 units (Units 13 to 20) within Lot 16	Dalley's Shipyard	Basement disturbance observed to depths of 7.6 to 8.4 feet bgs with footings extending to greater depths. Construction and demolition debris observed to depth of 9.8 feet bgs, underlain by sterile subsoil. Testing impeded by groundwater.
4 (Deep)	12-13	15x35x11.3/ 5,933 ft <sup>3</sup>	Two 5x5 units (Units 21 and 22)	Dalley's Shipyard	Basement/cellar disturbance observed to 9.7-10.8 feet bgs; construction/demolition debris observed to approximately 10.5-11.3 feet bgs. Units documented two to three layers of sand/silty-sand with 18th to 19th century artifacts. Testing impeded by groundwater
5 (Deep)	9-10	11x41x12.9/ 5,818 ft <sup>3</sup> (Supplemental trench)	Two 5x5 units (Units 25 and 26)	19th century shaft features	Pavement and building rubble/basement fill observed to depths of 9.5-9.5 feet bgs; underlain by fill material to depths of 11.3 feet bgs. Unit 25 documented two layers of artifact-rich sand separated by a thin silt layer. Two-foot-thick layer of black silt observed over a circular brick feature encountered at a depth of 12 feet bgs, determined to be an ash pit. Testing impeded by groundwater
6 (Shallow)	5	10x21x8.9/ 1,869 ft <sup>3</sup>	None	19th century shaft features	Pavement and building rubble/basement fill observed to depth of 3.1 feet bgs, where a stone slab with drain was encountered. The slab was situated over brick rubble and sandy silt. Two brick features without substantial artifact deposits were documented: 1) rectangular brick storage bin with domed top and ashy/coal dust fill and 2) 3-by-4-foot mortar-lined brick feature with ashy fill identified as a cistern.
7 (Shallow)	22	8x27x14/ 3,024 ft <sup>3</sup>	None	19th century shaft features	Pavement and building rubble/basement fill observed to depth of 3.9 feet bgs; possible yard/buried ground surface observed at 8 feet bgs, underlain by fill material (8.5 to 12 feet bgs) and sterile subsoil. A brick party wall between Lots 14 and 22 was observed.
8 (Shallow)	14	10x27x14.3/ 3,861 ft <sup>3</sup>	None	19th century shaft features	Pavement and building rubble/basement fill observed to depth of 3.8 feet bgs; possible yard/buried ground surface observed at 8.65 feet bgs, underlain by fill material (12.45 to 13.35 feet bgs) and sterile subsoil. Oval brick/stone feature identified as privy or well (interior diameter 4.25 feet) observed in southeastern corner of trench between 7.3 and 12.3 feet bgs. Feature appeared to pre-date division of Lots 14 and 22 and was a stone feature disturbed during construction of a party brick wall separating the two.
<p><b>Notes:</b> All measurements are in feet and all depths are relative to the ground surface at the time of the testing (see <b>Table 4-2</b> and <b>Figure 7</b>). Dalley's Shipyard is referred to as Dolley's Shipyard in the Greenhouse reports (2000 and 2002).  <b>Source:</b> Greenhouse 2002</p>					

## PHASE 1A ARCHAEOLOGICAL INVESTIGATION OF THE SECOND AVENUE SUBWAY ALIGNMENT, 2003

As part of the environmental review completed as part of the planning for the Second Avenue Subway project, Historical Perspectives, Inc. (HPI) prepared a Phase 1A Study of the entire proposed subway alignment.<sup>1</sup> At the time, what is now Block 98, Lot 1 was identified as a potential staging area in association with the construction of the subway. HPI's study documented the occupants of the historical lots that were situated on the Development Site in detail through research of tax assessment records and historical directories. The research also concluded that the surface elevation of the streets surrounding the site were unchanged between at least 1885 and 2001. HPI reviewed soil borings dating to 1974 that suggested that the site was underlain by 15.5 feet of fill and that the water table was expected to be at a depth of 13.5 feet below grade. In contrast to the conclusions reached by Greenhouse, HPI determined that the buildings on the block did not have basements, with the exception of one.

The study therefore concluded that there was some sensitivity for precontact resources below the depths of fill material in portions of the site between depths of 15 and 20 feet below grade. Regarding archaeological resources from the historic period, HPI concluded that the Development Site is sensitive for resources associated with landfilling and 19th century occupation, including shaft features. HPI also determined that Block 98, Lot 1 is sensitive for resources associated with the 18th through 20th century occupation of the site between depths of 0 and 15.5 feet below grade.

### D. HAZARDOUS MATERIALS AND SITE CONTAMINATION

The site's extensive industrial history has been documented in a number of environmental site investigations. Soil materials characterized as "historic fill"<sup>2</sup> containing ash, wood, concrete, brick, gravel, and silty sand has been documented at depths between 6 and 14.5 feet below the ground surface across the Development Site underlain by native soil (Langan 2018). Groundwater has been documented at depths of 7 to 14 feet below ground surface (ibid). The soils on the Development Site have also been identified as potentially hazardous due to documented petroleum spills and identified contamination associated with mercury and solvents above levels that are considered to be safe (ibid). The mercury contamination is linked to four historical lots on which thermometer factories or workshops were located on the Development Site, including 236 and 240 Water Street (historical Lots 12 and 10)<sup>3</sup> and 298 and 302 Pearl Street (historical Lots 25 and 27) (Langan 2021). As such, the site has been accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (ibid).

Pursuant to the BCP, a remedial investigation was completed on the site in 2020 (Langan 2021). The investigation included air monitoring, a non-invasive geophysical survey, and a soil investigation involving 29 geotechnical soil borings (advanced to depths of 10 to 32 feet below ground surface) and 16 mercury delineation soil borings; and groundwater and soil vapor investigations involving the installation of monitoring wells (ibid). The investigation identified creosote-type contamination that was believed to be associated with the presence of historical waterfront structures including wharves of cribbing (ibid: 30). Extensive excavation will be required to remove and remediate contaminated

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<sup>1</sup> The previous Greenhouse work is not referenced in the HPI study, presumably due to the fact that the 2002 testing report was not accepted by LPC.

<sup>2</sup> This term applies to fill material as defined in the context of environmental investigations and not does not necessarily refer to fill material/landfill as defined by archaeologists.

<sup>3</sup> The sites at 236 and 240 Water Street were included in both deep and shallow trenching areas as part of the 2001–2002 archaeological investigation completed by Greenhouse.



materials on the Development Site to depths of up to 16 to 24 feet below the ground surface (0 to -7 feet NAVD88) (ibid).

## **E. REASSESSMENT OF THE ARCHAEOLOGICAL SENSITIVITY OF THE DEVELOPMENT SITE**

As described in the preceding sections, the Development Site has a rich development history and it has experienced modification as a result of the construction of waterfront structures; landfilling; residential/commercial development. Absent disturbance, the Development Site would continue to be considered sensitive for these types of resources as has been documented in the two previous Phase 1A studies, including precontact archaeological resources; 18th to 19th century landfill and landfill-retaining structures; evidence of waterfront structures, including those associated with shipyards; and evidence of 17th through 19th century shaft features or foundation remnants (Greenhouse 2002 and HPI 2003). Disturbance has occurred across the majority of the block as a result of the construction and demolition of buildings with basements, and even previous archaeological testing.

### **ASSESSMENT OF LANDSCAPE MODIFICATION SINCE 2001/2002**

All depth measurements provided in the 2002 Greenhouse report were recorded relative to the ground surface, which was described as being “relatively flat” (Greenhouse 2002: 2). Only one figure from the 2002 report (referred to in that report as Figure 2) was made available for review for this Topic Intensive Archaeological Documentary Study, which depicted the trenches excavated and a partial site survey. The map included some spot elevation information (where legible) but did not identify the datum from which those elevations were recorded. These elevations were compared to elevations recorded relative to the North American Vertical Datum of 1988 (NAVD) as shown on a site plan produced by Langan in 2021, as summarized in **Table 4-2**. Some spot elevations appear to have increased by 1 to 2 feet in the last twenty years; however, this could be due to the use of a different datum on the earlier map. If the spot elevations recorded in the 2002 survey were relevant to either the Manhattan Borough Datum (MBD), they would be expected to be either 1.652 feet lower than elevations recorded relative to NAVD88 and elevations recorded relative to the National Geodetic Vertical Datum of 1929 (NGVD29) would be expected to be 1.1 feet lower than NAVD88 elevations. Given the legibility issues, the lack of spot elevations recorded in the same spots, and the lack of a known datum associated with the 2002 survey, it is assumed that the ground surface of the Development Site in the present day is generally similar to that observed in 2002. However, the possibility remains that it may have been increased by 1 to 2 feet as a result of repaving/resurfacing the parking lot. Current surveys indicate that the elevation of the Development Site slopes down to the south from an elevation of 16 feet to 7 feet relative to NAVD88 (Langan 2021).

**Table 4-2**  
**Comparison of Spot Elevations 2001–2021**

Trench	Surface Elevation 2002 (Datum: Unknown)	Surface Elevation 2021 (Datum: NAVD88)
1	11.3	11.03
2	13.44	14.61
3	7.64 [partially legible]	9.21
4	12.04	14.61
5	13.16	14
6	8.7	10.8
7	13.11	14.81
8	12.4 [partially legible]	14.52

**Notes:** Both the 2002 and 2021 surveys include a series of spot elevations. The nearest surface elevation to each trench as seen the 2002 map is included herein (due to the quality of the scan of the map, this table represents the best interpretation of this data based on what information was legible). Attempts were made to reference a surface elevation nearest to that point as seen on the 2021 survey. As such, not all elevation points reference the exact surface elevation of the trench itself but are consistent with a nearby area.

**Sources:** Greenhouse 2002; Langan 2021

**REFINED DETERMINATION OF ARCHAEOLOGICAL SENSITIVITY**

An analysis of georeferenced Sanborn maps published in 1905, 1922, and 1950 confirms that all of the buildings that were located on the Development Site were constructed with basements. However, as documented by Greenhouse (2000), small backyard areas in select historical lots may have been undisturbed by basement excavation associated with 19th and 20th century development (see **Figure 7**). However, the majority of those undisturbed areas were included within the shallow trench excavations completed by Greenhouse in 2001–2002. That investigation confirmed the presence of basement disturbance across much of the Development Site and those features that were identified were disturbed or were of low research value (e.g., filled with ash or charcoal and not artifact-rich refuse). The testing itself is presumed to have further disturbed these areas to the maximum depth of the archaeological trenches (approximately 9 to 14.5 feet below ground surface). The majority of the Development Site is therefore assumed to have been disturbed between depths of approximately 8 to 10 feet or more as a result of basement excavation and previous archaeological testing. Given this extensive disturbance, the Development Site is now considered to be disturbed to a depth of at least 8 feet below the ground surface (approximately 9 feet to -1 feet NAVD88, depending on the location within the site). The absence of shaft features of high research value identified during the 2001/2002 testing also suggests that the Development Site has low sensitivity for 19th century shaft features and associated infrastructure.

However, the Development Site remains highly sensitive for archaeological resources associated with waterfront activity and landfill/ landfill-retaining structures. The southern half of the Development Site represents some of the oldest landfill in Manhattan and the potential presence of intact landfill-retaining structures was confirmed through soil borings that identified traces of creosote, both dry and wet wood fragments, and some borings that were stopped after hitting wooden refusals (Langan 2021). There is some indication that landfilling efforts and associated waterfront activities (e.g., dredging) may have disturbed the original river bottom surface. Only one soil boring identified traces of peat, although several included traces of shell or organic matter/vegetation were observed (ibid). The bulk of the testing completed in 2001/2002 was situated in the northern half of the site, in the area of fast land. Minimal testing was completed in the southern half of the site in the area of landfill. As such, the landfill deposits and associated landfill-retaining structures may not be extensively disturbed beneath the depth

of 19th and 20th century basement disturbance (e.g., at depths greater than 8 feet below the current ground surface).

## **Chapter 5: Archaeological Analysis of the Museum Site (Block 74, Lot 1)**

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### **A. INTRODUCTION**

The Museum Site (Block 74, Lot 1) occupies the block bounded to South Street to the south; Fulton Street to the east; Front Street to the north; and John Street to the west. While the Project Area includes only a portion of Lot 1, this assessment examines the lot in its entirety. The streetbed of John Street overlaps with the historical waterway known as Burling Slip, which is now developed with a city park known as “Imagination Playground.” The Museum Site is developed with 17 buildings constructed between c. 1793 and 1850 (LPC 1977). Sixteen of the buildings are individual New York City Landmarks and the entire Museum Site is included within the South Street Seaport Historic District, which was designated by LPC in 1977 and expanded in 1989. The final building was constructed c. 1980 to connect the historical buildings and create additional museum space. While the majority of the work associated with the Proposed Project would include interior renovations in the existing buildings, some ground-disturbing activities may be necessary to reopen or modernize these spaces. Furthermore, a vacant parking lot located at the corner of South and John Streets (known as “the John Street Lot”) may be utilized for the construction of an addition to the museum.

### **B. SUMMARY OF THE DEVELOPMENT HISTORY OF THE MUSEUM SITE**

Like the majority of the Project Area, the Museum Site is entirely situated within an area of artificially created land. The history of the block has been described at length in multiple previous historical and archaeological investigations and the history will only be briefly summarized here (e.g., Kardas and Larrabee 1978; LPC 1977; Pickman 1999; Pickman 2000; HPI 2006; AKRF 2008; AKRF 2011a). Its history is therefore closely tied with New York’s early maritime industries and related development/landfilling efforts.

The landfilling process that created the land on which the Museum Site is located began in the late 18th century. By the publication of the 1776 Ritzer map (depicting conditions in 1767), the original Burling Slip had been constructed to the north of the Museum Site, but the piers extending from it did not yet extend as far south as South Street. The area to the north is believed to have been filled as far as Front Street by 1788 and that the landfilling quickly continued to fill in portions of the Museum Site through the 1790s (Kardas and Larrabee 1978). Portions of the Museum Site remained unfilled as Beekman and Burling Slips along what are now the eastern and western sides of the block (respectively) through the 19th century (ibid). The 1836 Colton map indicates that the Museum Site, including the formerly open portion of Burling Slip, was entirely filled as far south as South Street (AKRF 2011a). It has been suggested that debris from the Great Fire of 1835, which destroyed hundreds of buildings in lower Manhattan, may have been used in filling the slip (HPI 2006).

As filling continued, buildings were constructed within portions of the Museum Site in the late 18th and early 19th centuries, with most of the buildings on the site constructed between c. 1793 and 1811 (LPC 1977). Owners of land adjacent to Burling Slip between present-day Front and South Streets in the early 19th century included George Codwise, George Bowne, Peter Schermerhorn, Peter Van Zandt, and others (Kardas and Larrabee 1978; HPI 2006). Codwise was responsible for constructing a large wharf along the eastern side of Burling Slip between 1803 and 1807, portions of which are still present

on the site and have been documented through archaeological investigations (AKRF 2011a). Schermerhorn built “Schermerhorn’s Wharf” along the eastern side of the block by the 1790s, which former the western side of the former Beekman’s Slip (Kardas and Larrabee 1991). Schermerhorn was responsible for developing the row of buildings on the northern side of the block, which lead to it being colloquially known as the “Schermerhorn Row” (ibid). Codwise developed the building at 165 John Street in 1811 (ibid).

Most of the buildings on the site have remained intact since the late 18th and early 19th centuries and have been occupied and cared for by the South Street Seaport Museum since 1968. The buildings on the John Street Lot were demolished in 1956 and while it was later used as a filling station, the property has been vacant for many years (Pickman 1999). Burling Slip remained a largely undeveloped streetbed until Imagination Playground was constructed in 2009 (AKRF 2011a).

### **C. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS**

Also known as the Schermerhorn Row Block, portions of the Museum Site and the adjacent Imagination Playground have been the subject of a number of archaeological investigations (including both documentary research and field testing) since the late 1970s. These investigations are summarized below and previous testing locations are depicted on **Figure 8**.

#### **ARCHAEOLOGICAL INVESTIGATIONS OF THE SCHERMERHORN ROW BLOCK— 1974–1991**

Multiple archaeological analyses of the Museum Site (also called “the Schermerhorn Row Block”) were completed in the 1970s, beginning with a documentary research report completed by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) in 1974.<sup>1</sup> Subsequent testing was completed by the firm Historic Sites Research in 1977 as part of a project designed to restore and stabilize the buildings on the site and to allow for utility upgrades (Kardas and Larrabee 1978). This testing included the excavation of seven test pits beneath the cellar floors of buildings on seven historical lots and many of the pits were located adjacent to extant foundation walls. As shown in **Table 5-1**, the testing observed structural elements beneath a number of the buildings that appear to have been constructed as both building supports and to assist with waterproofing (ibid). Some 18th and 19th century fill deposits were observed, including timber cribbing that was found at a depth of 5 feet below the floor surface (-2.16 feet relative to mean sea level [MSL]) at 165 John Street. Multiple fill layers up to 15 feet in thickness were documented in most of the test pits, with many dating to the late 18th and/or early 19th century (ibid). Original 18th century landfill layers were believed to be situated at elevations of 3 to 4 feet below MSL (ibid). In several cases, the archaeologists documented 19th century disturbance into older fill layers as a result of the construction of new buildings or later building alterations (ibid).

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<sup>1</sup> This report is not available in LPC or OPRHP’s online databases of archaeological reports and as such, was not reviewed for this study.

**Table 5-1**  
**Summary of Excavation of the Museum Site in 1977**

Test	Address	Floor/Ground Surface Elevation (MSL)	Depth of Excavation (bgs)	Observations
1	4 Fulton Street	6.31 feet	9 feet	Evidence of utility-related disturbance observed beneath basement, along with late-18th/early-19th century artifacts
2	193 Front Street	0.82 feet	7.5 feet plus hand augur to 9 feet	Documented extensive mortared brick and stone supports for the building to at least 5 feet below the floor; two layers of fill observed representing two filling episodes: brown dirt with rocks and 18th century artifacts above sand with reddish fibrous materials
3	165 John Street	2.84 feet	5.34 feet	Documented extensive mortared brick and stone supports for the building to at least 5 feet below the floor; timber cribbing observed 60 inches below the floor surface with high density of 18th/early 19th century artifacts
4	18 Fulton Street	6.39 feet	3.5 feet	Late 18th/early 19th century rubble fill observed beneath floor
5	171 John Street	5.32 feet	3 feet	Brick sub-floor for waterproofing observed 3 feet below floor surface with late 18th century fill materials with 19th century intrusions
6	189 Front Street	2.8 feet	4 feet	Multiple wood floors observed over at least four fill layers with low density of 18th century artifacts with the oldest layer predating the 1790s beginning 3 feet below the floor.
7	2 Fulton Street	4.52 feet	8 feet plus hand augur to almost 10 feet	Sub-floor support structures documented associated with c. 1810 construction; brick wall observed dividing the basement level, a portion of which was filled in the late 20th century. Undisturbed timber landfill-retaining structures observed ear base of excavation (72 to 94 inches below floor): 8 to 10 inch diameter logs in a crib formation in a good state of preservation in context with a very dark gray silt fill material
<b>Notes:</b> Depth measurements are relative to the elevation of the cellar floor. See <b>Figure 8</b> for testing locations.				
<b>Source:</b> Kardas and Larrabee 1978				

Additional testing was completed by Historic Sites Research between 1981 and 1983, with a final report produced by Kardas and Larrabee in 1991. This phase of work involved the excavation of an additional 46 test pits beneath the buildings on the Museum Site and elsewhere on the block. The additional testing resulted in the further identification of both undisturbed primary landfill deposits dating to the 18th century and secondary fill deposits representing later disturbance largely associated with 19th and 20th century improvements (Kardas and Larrabee 1991). **Table 5-2** represents the “major stratigraphic units” that were identified as a result of the work in the 1980s and is based on Table 23 as included in the final report (ibid: 283).

**Table 5-2**  
**Major Stratigraphic Units Identified for Museum Site in 1991 Analysis**

Stratigraphic Unit	Date	Elevation of deposit (MSL)	Description
Cellar Fill/Disturbance	After 1810	2-3 to 5 feet	Varies by structure/ between structures
Secondary Landfill	c. 1810-1812	0 to 2-3 feet	Reddish brown sand with brick/mortar rubble and artifact deposits
Primary Landfill	c. 1800-1810	-10 to 0 feet (west) -20 to 0 feet (east)	Rocks and timber cribbing
Organic Silty Clay	Holocene-18th century	-12 to -5 feet (west) -22 to -10 feet (east)	Original river bottom
Sand	Pleistocene?	-100 to -24 feet (west) -100 to -12 feet (east)	Pre-river bottom surface
Bedrock	n/a	Deeper than -100	Bedrock
<b>Source:</b> Kardas and Larrabee 1991: 283 (Table 23)			

### **ARCHAEOLOGICAL INVESTIGATIONS OF BLOCK 74, LOT 20—1999–2000**

A Phase 1A Archaeological Documentary Study of Block 74, part of historical Lot 20 was completed by archaeologist Arnold Pickman in 1999. The study analyzed the archaeological sensitivity of an approximately 90- by 60-foot lot that includes what is now the “John Street Lot” at the southwest corner of the Museum Site. The area investigated included four vacant historical lots: historical Lot 16 (88 South/39 Burling Slip/175 John St); historical Lot 5 (89 South Street); historical Lot 4 (90 South Street); and historical Lot 7 (37 Burling Slip/173 John St). A review of historical soil borings indicated that fill deposits near the area were expected to extend to a depth of approximately 24 feet below the ground surface, or an elevation of -20.8 feet relative to the Manhattan Borough Datum, or approximately -19.2 feet NAVD88<sup>1</sup> (Pickman 1999). The John Street Lot was determined to be sensitive for original river bottom deposits beneath the depths of the early 19th century landfill; resources associated with landfill and landfill-retaining structures beneath the depth of mean sea level; remnants of waterfront structures (e.g., piers, wharves, and bulkheads, specifically the Bowne/Byvanck Pier); sunken vessels; 19th century shaft features; and building foundation remnants (ibid).

Pickman completed archaeological testing of the John Street Lot the following year (Pickman 2000). The testing included a review of more recent geotechnical soil borings that revealed additional stratigraphic information. The borings indicated that the ground surface (at an elevation of 4 to 5 feet MSL) was underlain by a 9- to 11-foot-thick layer of demolition debris/brick rubble similar to the secondary fill deposits observed in previous archaeological testing at the site (ibid: 6). Primary fill deposits were observed in the soil borings at depths extending to 17 to 22 feet below the ground surface (-13 to -17 feet MSL) and were determined to include sandy soils with both historic and precontact artifacts, including a chert flake and a modified cobble (ibid:7). Original river bottom deposits were identified beneath the fill materials to a depth of at least 30 feet below the ground surface (-20 feet MSL), the maximum depth of the soil borings (ibid).

The archaeological investigation completed by Pickman in 2000 included the monitoring of the excavation of four test pits on the Museum Site but outside the John Street Lot. The pits measured 3 to 3.5 feet square within the former backyard areas of the buildings at 12 Fulton Street; 10 Fulton Street; 6 Fulton Street; and 91 South Street (Pickman 2000). The test pits were excavated to document foundation wall conditions and no archaeological resources were observed due to utility-related disturbance dating to the 1970s and 1980s (ibid: 15). As no additional project-related impacts occurred, additional testing was not completed and the John Street Lot was not redeveloped following the completion of Pickman’s work.

### **ARCHAEOLOGICAL INVESTIGATIONS OF BURLING SLIP—2006–2011**

The redevelopment of the site of Burling Slip, now within the streetbed of John Street, was first proposed in 2006. The area was identified as the site of a proposed park—now known as Imagination Playground—to be constructed in association with the Fulton Street Corridor Revitalization Plan, a street improvement project in Lower Manhattan. A Phase 1A Archaeological Documentary Study of the Burling Slip area was completed by HPI in 2006. The study concluded that the site was not sensitive for precontact archaeological resources but that undisturbed areas were highly sensitive for historic period archaeological resources associated with waterfront structures, landfill, and landfill-retaining

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<sup>1</sup> Pickman (1999) did not indicate the datum from which this boring was recorded; however, as the boring was from the 1940 *Rock Data Map* published by the Works Progress Administration, it is assumed to have been recorded relative to the Department of Public Works datum, which is identified as 2.75 feet above mean sea level as recorded in Sandy Hook, New Jersey.

structures associated with the slip and its subsequent filling (HPI 2006). The proposed project impacts were expected to extend between 4 and 8 feet below the ground surface (ibid).

Phase 1B archaeological testing of the Burling Slip site was completed by AKRF in 2008. The testing extended to depths of 3 to 9 feet below the ground surface (AKRF 2008). While 20th century foundation remnants were observed, the testing did not identify any landfill-related archaeological resources (ibid). During the construction of the park, unanticipated discoveries of 19th century landfill-retaining structures were made. AKRF completed supplemental documentation of the unanticipated discoveries and prepared a final report in 2011. The timber bulkhead documented was determined to be associated with original pier structures known as Remsen's Wharf and Codwise's Wharf (AKRF 2011a). The top of the bulkhead was observed at depths as shallow as 2 feet 2 inches to 2.5 feet below the pre-park ground surface (ibid). Dendrochronological analysis indicated that the timbers used to construct the upper portions of the wharves were felled in the Hudson Valley region and were felled c. 1825, indicating that they were replacement timbers (ibid). Artifact analysis also indicated that the filling of the slip may have continued through the mid-19th century or that artifacts in the fill continued to migrate as a result of tidal activity through at least 1850 (ibid). A parallel investigation in an area further to the west confirmed that the landfill-retaining structures did not extend west of the location of Imagination Playground (ibid). The report concluded that the observed bulkhead was historically significant and eligible for listing on the State and National Registers of Historic Places.

#### **D. REASSESSMENT OF THE ARCHAEOLOGICAL SENSITIVITY OF THE MUSEUM SITE**

The Museum Site appears to retain its high sensitivity for archaeological resources associated with waterfront structures (e.g., piers and wharves) and landfill/landfill-retaining structures. Previous archaeological investigations have confirmed that intact timber features associated with the landfilling process are intact beneath the Museum Site, including under existing buildings and in adjacent undeveloped areas (Kardas and Larrabee 1978; Kardas and Larrabee 1991; Pickman 2000; AKRF 2011a). These features may be as shallow as 2 to 3 feet below the street grade or 3 to 5 feet below the cellar floors of existing buildings. Furthermore, the historical rear yards on the John Street Lot were determined to be archaeologically sensitive by Pickman (1999). These areas were not subject to a complete archaeological investigation beyond the monitoring of a small number of test pits directly adjacent to building foundations.



## **Chapter 6: Archaeological Analysis of Titanic Park (Block 95, Lot 101)**

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### **A. INTRODUCTION**

Titanic Park is an irregularly shaped open space located in the triangular intersection formed by the modern lines of Pearl and Water Streets and the existing building at 117 Beekman (Block 95, Lot 7501). The park is largely a paved plaza with some landscaping, trees, and seating. The park is owned by the New York City Department of Housing Preservation (NYCHPD) and is dedicated to the memory of those who perished on the *Titanic* in 1912.

### **B. SUMMARY OF DEVELOPMENT HISTORY OF TITANIC PARK**

Titanic Park has been a public open space since its initial construction in the second half of the 20th century. As described below, the irregularly shaped parcel was historically included within a larger city block that was altered as a result of the widening and realignment of Pearl Street in 1958. It was reconstructed c. 2011, resulting in a transition from a landscaped public plaza to its current configuration (AKRF 2011b).

Titanic Park is almost entirely located in an area of landfill. The 1873 Department of Docks map indicates that the park was situated in the area between the high and low water marks and as such, it would have been partially inundated throughout the day. The initial filling of the land that is now the park was completed following the granting of water lots in the area to Gerardus Beekman, Johannus Beekman, and John Cannon, and the parcel was historically east of the earliest portions of Beekman's Slip (HPI 2007). The filling appears to have occurred between 1719 and 1730 (ibid; AKRF 2011b). A sunken vessel is known to have been used as a landfill-retaining structure in this area and was observed during subsurface work completed in 1978 beneath the basement floor of the building at 207-209 Water Street, which is occupied by the South Street Seaport Museum (HPI 2007). The outer planking of the ship was observed to have been coated with water- and worm-proofing tar and horsehair and was stripped of metal fasteners or reusable parts (ibid). The ship was believed to extend into the streetbed of Water Street north of the building (ibid). The parcel may have been the site of a Revolutionary War-era fortification later in the 18th century (Stokes 1967).

By the early 19th century, the block on which modern Titanic Park was originally situated was divided into a number of historical lots developed with a number of residential and commercial buildings. The modern park included land associated with historical Lots 2 (216-218 Water Street); Lot 3 (212-214 Water Street); Lot 4 (210 Water Street); Lot 5 (208 Water Street); Lot 6 (206 Water Street); Lot 7 (204 Water Street/27 Fulton Street); and Lot 8 (25 Fulton Street). Extended lot histories with detailed information on occupants and specific developments are included in HPI (2007).

### **C. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS**

#### **PHASE 1A ARCHAEOLOGICAL DOCUMENTARY STUDY OF TITANIC PARK—2007**

In association with the reconstruction of Titanic Park, HPI prepared a Phase 1A study of the park in 2007. The study concluded that given the extent of disturbance associated with the landfilling process and subsequent construction and demolition of buildings, the site of Titanic Park is not sensitive for

precontact archaeological resources. The site was identified as sensitive for historic period archaeological resources associated with landfill and landfill-retaining structures (including sunken vessels) as well as for shaft features associated with the occupation of the historical lots on the parcel in the first half of the 19th century. The study concluded that the buildings that formerly occupied the park were constructed with basements to depths of at least 5 feet below the ground surface. Furthermore, a review of soil borings confirmed that 12 to 18 feet of fill are present on the site, potentially including both landfill and disturbed materials associated with the filling of basements of historic period structures (HPI 2007). As the basement depths were considered to be deeper than the anticipated project impacts (expected to be within 4 feet of the ground surface), the Phase 1A study did not initially recommend additional archaeological analysis (ibid).

#### **PHASE 1B ARCHAEOLOGICAL INVESTIGATION OF TITANIC PARK AND LITTLE WATER STREET—2011**

As a result of changes to the proposed project and the implementation of an unanticipated discovery plan, AKRF completed a Phase 1B Archaeological Investigation consisting of the limited monitoring of a portion of the Titanic Park parcel and the adjacent streetbed of Water Street, also known as Little Water Street in the vicinity of the park<sup>1</sup> (AKRF 2011b). The monitoring identified two archaeological features. The first was a stone foundation wall within Titanic Park near the boundary between historical Lots 5 and 6. The top of the feature was observed at a depth of 1 foot below the ground surface and it was more than 14 feet in length. The stone feature was determined to not be a significant historical resource. The second feature included a portion of a landfill-retaining structures and associated fill material within the adjacent streetbed (ibid). The landfill-retaining structure was observed at a depth of 6.5 feet below the ground surface (ibid). Less than one foot of the feature's height was exposed above the depth of ground water, which was observed at relatively shallow depths (ibid).

#### **D. REASSESSMENT OF THE ARCHAEOLOGICAL SENSITIVITY OF TITANIC PARK**

Given the limited nature of disturbances to Titanic Park as a result of the reconstruction of the park in the early 2010s, Block 95, Lot 101 remains archaeologically sensitive. While the site was initially identified as sensitive for 19th century shaft features in the 2007 Phase 1A study, the portions of the historical lots that are included within the modern park boundaries did not include historical backyard areas. Furthermore, the modern park boundary was entirely included within the footprints of buildings with basements. Therefore the site of Titanic Park is determined to have low potential for the recovery of 19th century archaeological resources, including shaft features. However, the park is highly sensitive for archaeological resources associated with landfill and landfill-retaining structures at depths greater than basement disturbance (e.g., greater than 5 feet below the ground surface) as initially identified by HPI (2007).

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<sup>1</sup> The archaeological sensitivity of the streetbed was not assessed in the Phase 1A Study, but LPC and OPRHP determined that the study was comprehensive enough that additional documentary research was not needed specifically for the streetbed (AKRF 2011b: 2).

**A. INTRODUCTION**

The location of the Pier 16 portion of the Project Area is situated on Block 73, Lot 8, which is located south of the line of South Street/the FDR drive between the lines of Fulton and John Streets. The Pier is west of Pier 17, a recently developed commercial complex and pier. Pier 16 is owned by the New York City Department of Small Business Services (NYCDSBS) and is used by the South Street Seaport Museum for the docking of historic ships in the museum's care. The tunnels that carry the A and C subway lines run underneath Pier 16. The wooden pier is developed with some small commercial structures/kiosks and sheds. The archaeological sensitivity of Pier 16 does not appear to have been previously assessed.

**B. SUMMARY OF DEVELOPMENT HISTORY OF PIER 16**

The modern location of Pier 16 is in an area that has historically only been developed with waterfront structures, the majority of which were associated with maritime transportation networks. Manhattan's shoreline did not extend as far as modern Block 73 until the 19th century. The 1836 Colton map depicts a narrow pier south of the historical line of South Street in the approximate vicinity of modern Pier 16. The 1852 Dripps map depicts the former Pier 21 in the same general area. The pier formed the western side of a slip utilized by the Fulton Ferry to Brooklyn. The pier formations and use appear in a similar manner on the 1879 Bromley and 1885 Robinson atlases, which indicate that the pier was owned by New York City and contained a large wood frame ferry house between Piers 21 and 22. The 1891 Bromley atlas depicts a large wood frame pier shed on Pier 21, which was still in use by the Fulton Ferry, and depicts the Fulton Fish market along the waterfront to the east, near what is now Pier 17. The pier continues to appear in this configuration on the 1922 Sanborn map, which indicates that it was developed with a "steel skeleton frame" building with a "corrugated iron clad roof" and a carpenter's shop at the southern end. Though still lining the western end of the Fulton Ferry slip, Pier 16 was at that time in use as a freight pier for the United Fruit Company.

The 1934 Bromley atlas reflects the redevelopment of the piers along the East River waterfront near modern Block 73, Lot 8. The recently constructed "subway to Brooklyn" is depicted on the map in the location of the former ferry terminal. A newly constructed Pier 16, which was narrower than modern Pier 16, was located within modern Block 73 and was at that time occupied by the New York and Puerto Rico Steamship Company. The 1951 Sanborn map identifies the pier as vacant and developed with a corrugated iron building supported by a steel frame.<sup>1</sup> The pier has been in active use by the South Street Seaport Museum since at least 1968 (Martin 1968).

**C. ASSESSMENT OF THE ARCHAEOLOGICAL SENSITIVITY OF PIER 16**

Pier 16 was constructed in its current configuration in the first half of the 20th century and has been modified over time, including through its connection to the recently reconstructed Pier 17 to the east.

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<sup>1</sup> A photograph of Pier 16 taken ca. 1951 can be viewed here: <https://digitalcollections.nypl.org/items/a44288b4-9c67-b31f-e040-e00a18060314>

An older pier occupied the same general area in the 19th century and was replaced with the existing pier structure. As such, it does not appear that undisturbed 19th century waterfront structures are present within the location of Block 73, Lot 8. Previous repair efforts to replace deteriorated sections of Pier 16 were determined to not represent impacts on cultural resources given the pier's status as relatively recent waterfront developments (Kardas and Larrabee 1977). Extensive dredging projects have been documented in the immediate vicinity of the pier (ibid). Furthermore, as a result of pier construction/demolition, it is not expected that the river bottom in the location of Block 73, Lot 8 would retain extensive deposits of shallow or deeply buried archaeological resources. The Pier 16 portion of the Project Area is therefore determined to have low sensitivity for archaeological resources.

**A. INTRODUCTION**

The streetbeds included within the Project Area have been identified as archaeologically sensitive as a result of a number of previous archaeological investigations and several have been the site of extensive archaeological monitoring or testing. Many previous archaeological investigations have analyzed the archaeological sensitivity of the streetbeds within or adjacent to the Project Area. Of the streetbeds included in the Project Area, only the streetbed of Front Street between Burling Slip and Beekman Street (excluding the streetbed of Futon Street) has not been subject to archaeological inquiry. As shown on **Figure 2**, only portions of some streetbeds are included within the Project Area while others are included in their entirety.

**B. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS****WALL STREET WATER MAINS PROJECT**

The small portion of Beekman Street that is included within the Project Area is situated to the west of the Development Site and was historically included within Beekman Slip, the history of which was described in in **Chapter 5, “Archaeological Analysis of the Development Site”** and which was analyzed in previous archaeological investigations (Greenhouse 2000; HPI 2003). CAC completed a limited Phase 1A study and archaeological monitoring of the streetbed as part of a 2007 report prepared in association with the Wall Street Water Mains Project. The investigation resulted in the documentation of wood water mains and other historical features within the streetbed (CAC 2007).

**PECK SLIP REDEVELOPMENT PROJECT**

The history of the streetbed of Peck Slip and the surrounding area is described in **Chapter 5, “Archaeological Analysis of the Development Site.”** The portion of the streetbed of Peck Slip between Pearl and Water Streets represents the oldest portion of the slip and was filled in the first half of the 18th century (AKRF 2007). The archaeological sensitivity of this portion of the Peck Slip streetbed and the segment of Water Street situated between Peck Slip and Beekman Street was first assessed in a Phase 1A Archaeological Documentary Study prepared by AKRF in 2007. The study determined that undisturbed portions of the streetbeds were sensitive for archaeological resources associated with landfill and landfill-retaining structures (ibid). Areas of sensitivity were identified beneath the depths of disturbance associated with existing utility lines, which extended across almost all of the streetbed with the exception of the eastern sidewalk (ibid). The utility disturbance was determined to extend to various depths ranging between 1.5 and more than 15 feet (ibid).

An extensive Phase 1B Archaeological Investigation of both streetbeds was completed as part of the Peck Slip Redevelopment Project and was summarized in a report prepared by CAC in 2018. The Phase 1B work included monitoring to various depths associated with project impacts between approximately

1 and 12 feet below the ground surface.<sup>1</sup>The monitoring resulted in the documentation of dozens of features, including wood elements identified by CAC as “cribbing timbers” and historical landfill and landfill-retaining structures (CAC 2018: 6.5). Drawings of the excavations included as Figures 6.40 and 6.66 to the CAC report appears to indicate that some monitoring occurred across the majority of the streetbed of Peck Slip between Pearl and Water Streets with the exception of the eastern sidewalk and Water Street between Peck Slip and Beekman Street with the exception of portions of the north and south sidewalks. The maps do not specify the depths of the “mass excavation” across these areas.

### **FULTON STREET REDEVELOPMENT PROJECT**

The 2018 report by CAC also addressed the archaeological investigations completed as part of the Fulton Street Redevelopment Project, which included the archaeological investigation of that portion of Fulton Street that is situated within the Project Area. As a result of the archaeological investigation, several large, significant archaeological resources were documented within the Project Area, including 18th century landfill and landfill-retaining structures, possibly including remnants of Gerardus Beekman’s wharf, in addition to 19th century shaft features and foundation remnants (CAC 2018: 5.181). These resources were largely found within the center median of the streetbed between the ground surface and depths of 6 to 8 feet. The testing also included trenching along the southern side of Water Street to the south of Titanic Park (ibid). The archaeological sensitivity of that portion of the Water Street streetbed had previously been established in the archaeological study completed by AKRF in 2011 (AKRF 2011a).

### **C. REEVALUATION OF THE ARCHAEOLOGICAL SENSITIVITY OF PROJECT AREA STREETBEDS**

Given the findings as documented by the previous archaeological investigations of the streetbeds within and in the vicinity of the Project Area, undisturbed areas within each of the Project Area streetbeds possess moderate to high archaeological sensitivity for archaeological resources associated with landfilling activities and 18th and 19th century artifact deposits or features. This sensitivity determination applies to that portion of Front Street that is located within the Project Area, as the surrounding blocks have been sufficiently documented during various archaeological investigations to confirm its underlying sensitivity.

The Project Area streetbeds have all been disturbed to some extent as a result of the construction of the streets and grading and paving associated with street maintenance as well as for previous improvement projects and archaeological investigations. It is assumed that all of the streetbeds are disturbed to depths of at least 1.5 feet below existing road surfaces and at least 2 feet below sidewalks. In addition, all of the Project Area streetbeds have been disturbed to greater depths during the installation of utilities. In areas not subject to previous archaeological investigation, it is assumed that the locations of any existing utilities are considered to be disturbed from the ground surface to a depth of 1 to 2 feet below the bottom of the utility line and to a distance of 1 to 2 feet on either side (beyond the outer edges of each utility line) representing the trench that was dug as part of the line’s installation. Any location where no utilities are present or where there is a space of five feet or more between the outer edges of existing utilities should be considered undisturbed. Those locations beneath the disturbed portions of existing utility trenches are also considered undisturbed. Any areas subject to previous archaeological

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<sup>1</sup> The CAC 2018 report did not include information regarding the elevation of the ground surface relative to a standard datum (e.g., NAVD88).

monitoring or testing are considered to be disturbed to the maximum depth of the archaeological investigation or associated construction work.

**A. INTRODUCTION**

This Topic Inventive Documentary Study included a synthesis of previous archaeological investigations of the sites within the Project Area combined with new research and analysis to reassess previous determinations of disturbance and archaeological sensitivity. This chapter summarizes the conclusions regarding the archaeological sensitivity of each location within the Project Area as defined in the preceding chapters and shown on **Figure 9**.

**B. DEVELOPMENT SITE (BLOCK 98, LOT 1)****CONCLUSIONS REGARDING ARCHAEOLOGICAL SENSITIVITY**

As described in **Chapter 4, “Archaeological Analysis of the Development Site (Block 98, Lot 1),”** the Development Site is determined to have been disturbed to a depth of at least 8 feet below the ground surface (approximately 9 feet to -1 feet NAVD88, depending on the location within the site) as a result of the construction and demolition of buildings with basements as well as previous archaeological investigations that occurred between 2001 and 2002 (see **Figure 7**). The Development Site is considered to have low sensitivity for 19th century shaft features and associated infrastructure as the 2001/2002 testing did not identify shaft features of high research value. However, the Development Site remains highly sensitive for archaeological resources associated with waterfront activity and landfill/ landfill-retaining structures (see **Figure 9**). These types of resources may be more intact on the southern site of the Development Site, where disturbance associated with previous archaeological testing did not occur.

**RECOMMENDATIONS FOR ADDITIONAL ARCHAEOLOGICAL ANALYSIS**

Depending on the construction plans/sequence, a combination of archaeological testing and monitoring is recommended to observe potentially deeply buried archaeological resources within the Development Site (e.g., below 8 feet below the ground surface). The Phase 1B investigation as completed in 2001/2002 was hindered by the groundwater that flooded the trenches and prevented archaeologists from fully observing resources and making future testing impractical. Given the height of the water table, it is assumed that the construction of a mixed-use building on the Development Site would require extensive de-watering (i.e., through the construction of a cofferdam, slurry wall, or similar), which would grant archaeologists an opportunity to observe landfill retaining structures as they are excavated below the water table. The dewatering may also provide the archaeological team with an opportunity to complete testing following initial de-watering efforts. Therefore, some combination of archaeological monitoring and, where possible, testing is recommended during excavation on the Development Site beneath a depth of 8 feet below the ground surface during either the construction of the Proposed Project or any associated remediation.

The use of monitoring or testing will depend on the proposed sequence of construction/dewatering efforts as well as issues pertaining to worker safety. Upon the finalization of plans for the construction of the proposed project and any associated dewatering efforts, a strategy for the Phase 1B archaeological investigation will be developed with the contractor, the archaeological consultant, and



LPC to determine where archaeological testing and archaeological monitoring can be safely completed. This strategy will be summarized in a Work Plan that will be submitted to LPC before the commencement of any archaeological work, remediation, or subsurface construction efforts. If archaeological monitoring or testing is to occur during any remediation work or within soils that have been identified as contaminated, such work would have to be completed in consultation with the hazardous materials specialists completing that work, including the preparation of a comprehensive Health and Safety Plan (HASP) and specialized training (e.g., 40-hour HAZWOPER training) as appropriate. Furthermore, the Work Plan prepared for any archaeological monitoring on the Development Site should include a discussion about alternative methods for documenting artifacts or features that may not be accessible via traditional archaeological analytical methods as a result of their association with contaminated soils.

### **C. MUSEUM SITE (BLOCK 74, PART OF LOT 1)**

#### **CONCLUSIONS REGARDING ARCHAEOLOGICAL SENSITIVITY**

As described in **Chapter 5, “Archaeological Analysis of the Museum Site (Block 74, Lot 1),”** the analysis completed as part of this Topic Intensive Archaeological Documentary Study confirmed previous assessments that determined that the Museum Site is highly sensitivity for archaeological resources associated with waterfront structures (e.g., piers and wharves) and landfill/landfill-retaining structures. The depths of possible features associated with landfill or landfill-retaining structures have been documented between 2 and 5 feet below the cellar floors of existing buildings. Furthermore, the historical rear yards on the John Street Lot were determined to be archaeologically sensitive in association with the 19th century occupation of the lots.

#### **RECOMMENDATIONS FOR ADDITIONAL ARCHAEOLOGICAL ANALYSIS**

For any areas within the Museum Site where ground-disturbing activities would be required, including from the potential Museum expansion on the John Street Lot, additional archaeological monitoring or testing may be required.

### **D. TITANIC PARK (BLOCK 95, LOT 101)**

As described in **Chapter 6, “Archaeological Analysis of Titanic Park (Block 95, Lot 101),”** the site of Titanic Park is determined to have low potential for the recovery of 19th century archaeological resources, including shaft features and high sensitivity for archaeological resources associated with landfill and landfill-retaining structures at depths greater than basement disturbance (e.g., greater than 5 feet below the ground surface).

#### **RECOMMENDATIONS FOR ADDITIONAL ARCHAEOLOGICAL ANALYSIS WITHIN TITANIC PARK**

For any areas within Titanic Park where ground-disturbing activities would be required to depths greater than 5 feet below the ground surface, archaeological monitoring or testing is recommended, depending on the nature of the proposed impacts. A Work Plan for archaeological testing or monitoring should be prepared in consultation with LPC prior to the implementation of the work.

### **E. PIER 16 (BLOCK 73, LOT 8)**

As described in **Chapter 7, “Archaeological Analysis of Pier 16 (Block 73, Lot 8),”** the Pier 16 portion of the Project Area is determined to have low sensitivity for archaeological resources. Therefore, no further archaeological analysis is warranted.

## **F. PROJECT AREA STREETBEDS**

As described in **Chapter 8, “Archaeological Analysis of Project Area Streetbeds,”** undisturbed areas within each of the Project Area streetbeds are determined to have moderate to high archaeological sensitivity for archaeological resources associated with landfilling activities and 18th and 19th century artifact deposits or features. The Project Area streetbeds have all been disturbed to a depth of at least 1.5 feet below road surfaces and 2 feet below sidewalks as a result of the construction of the streets and grading and paving associated with street maintenance as well as for previous improvement projects and archaeological investigations. In areas not subject to previous archaeological investigation, it is assumed that the locations of any existing utilities are considered to be disturbed from the ground surface to a depth of 1 to 2 feet below the bottom of the utility line and to a distance of 1 to 2 feet on either side (beyond the outer edges of each utility line) representing the trench that was dug as part of the line’s installation. Any location where no utilities are present or where there is a space of five feet or more between the outer edges of existing utilities should be considered undisturbed. Those locations beneath the disturbed portions of existing utility trenches are also considered undisturbed. Any areas subject to previous archaeological monitoring or testing are considered to be disturbed to the maximum depth of the archaeological investigation or associated construction work.

### **RECOMMENDATIONS FOR ADDITIONAL ARCHAEOLOGICAL ANALYSIS IN PROJECT AREA STREETBEDS**

Specific activities or improvements to this portion of the Project Area have not yet been defined and as such, it is not known if the Proposed Project would result in impacts on undisturbed areas within the Project Area streetbeds. Upon development on any street improvement plans, such plans should be reviewed by a qualified archaeologist. This review should include a comparison of the proposed depths of impacts with existing utilities/associated disturbance. The review should also compare specific areas of project-related disturbance with testing locations from previous archaeological investigations to determine if additional archaeological analysis is required. A Work Plan for archaeological testing or monitoring should then be prepared in consultation with LPC for any undisturbed areas within the Project Area streetbeds that would be disturbed by the proposed project.

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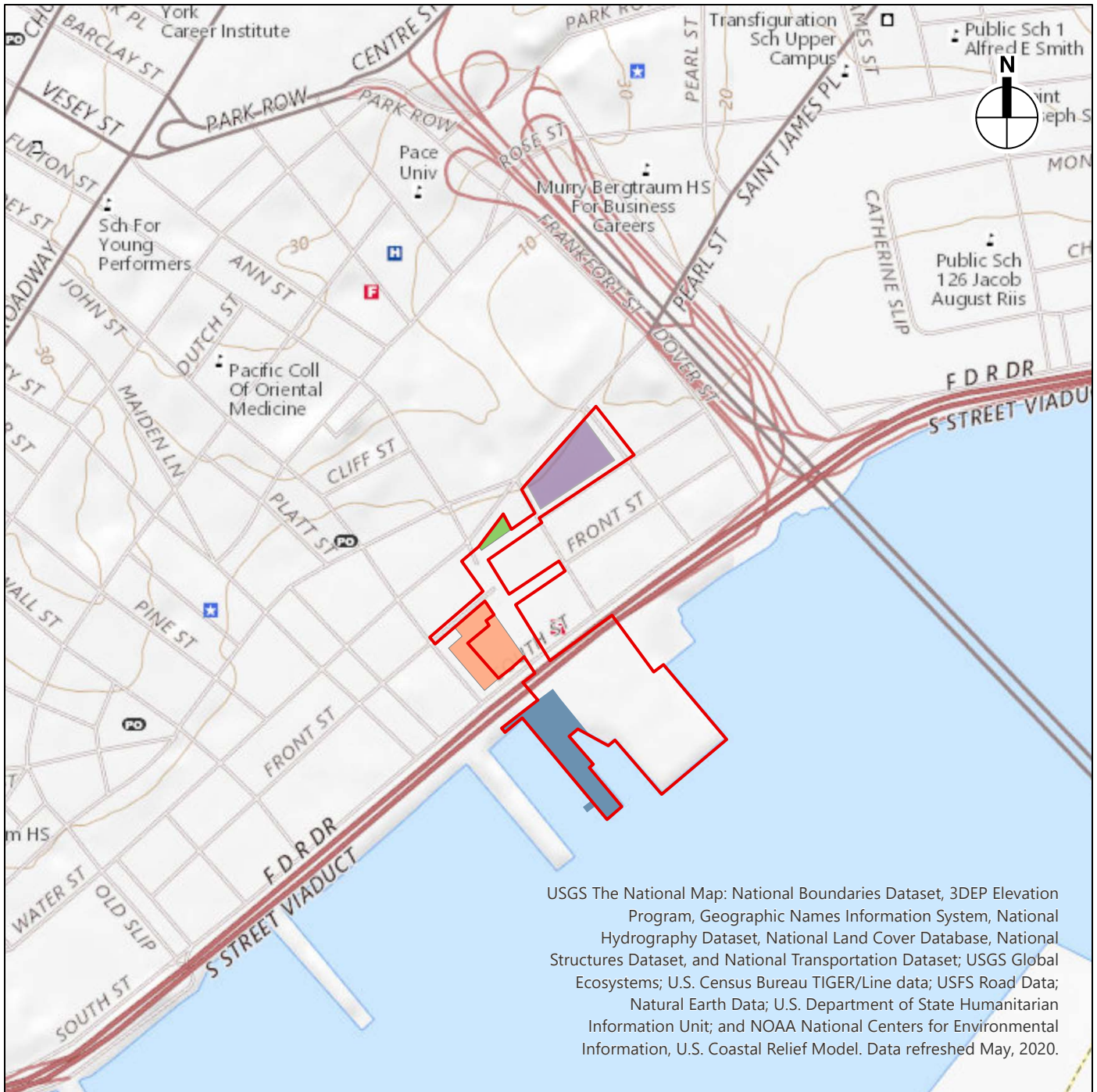
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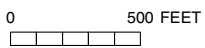
## **Figures**



3.1921



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed May, 2020.

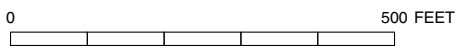
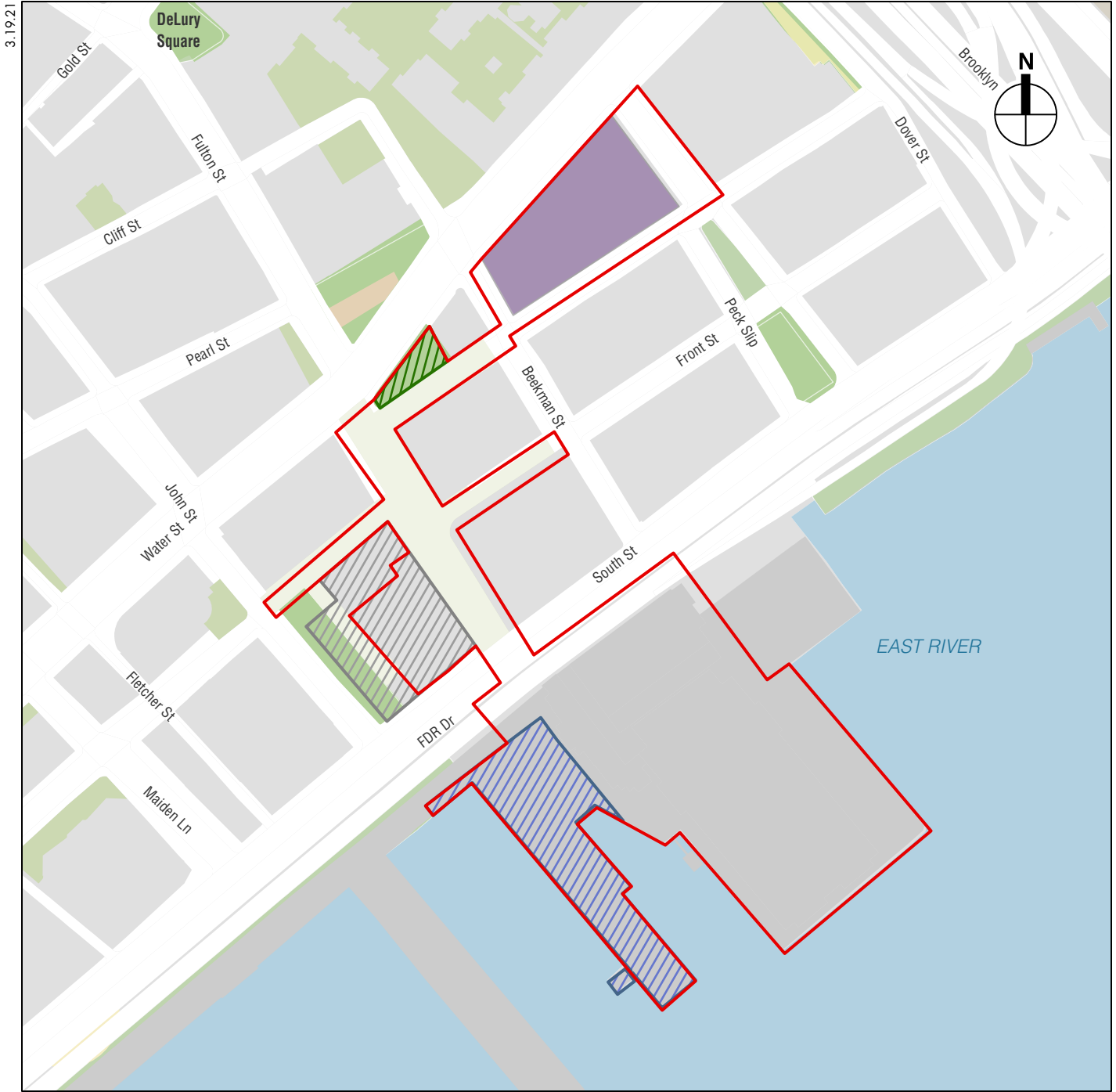


- Project Area*
- Development Site*
- Museum Site: Expanded Archaeological Study Area*
- Pier 16*
- Titanic Park*



**250 WATER STREET**

USGS Map, Brooklyn Quadrangle  
**Figure 1**



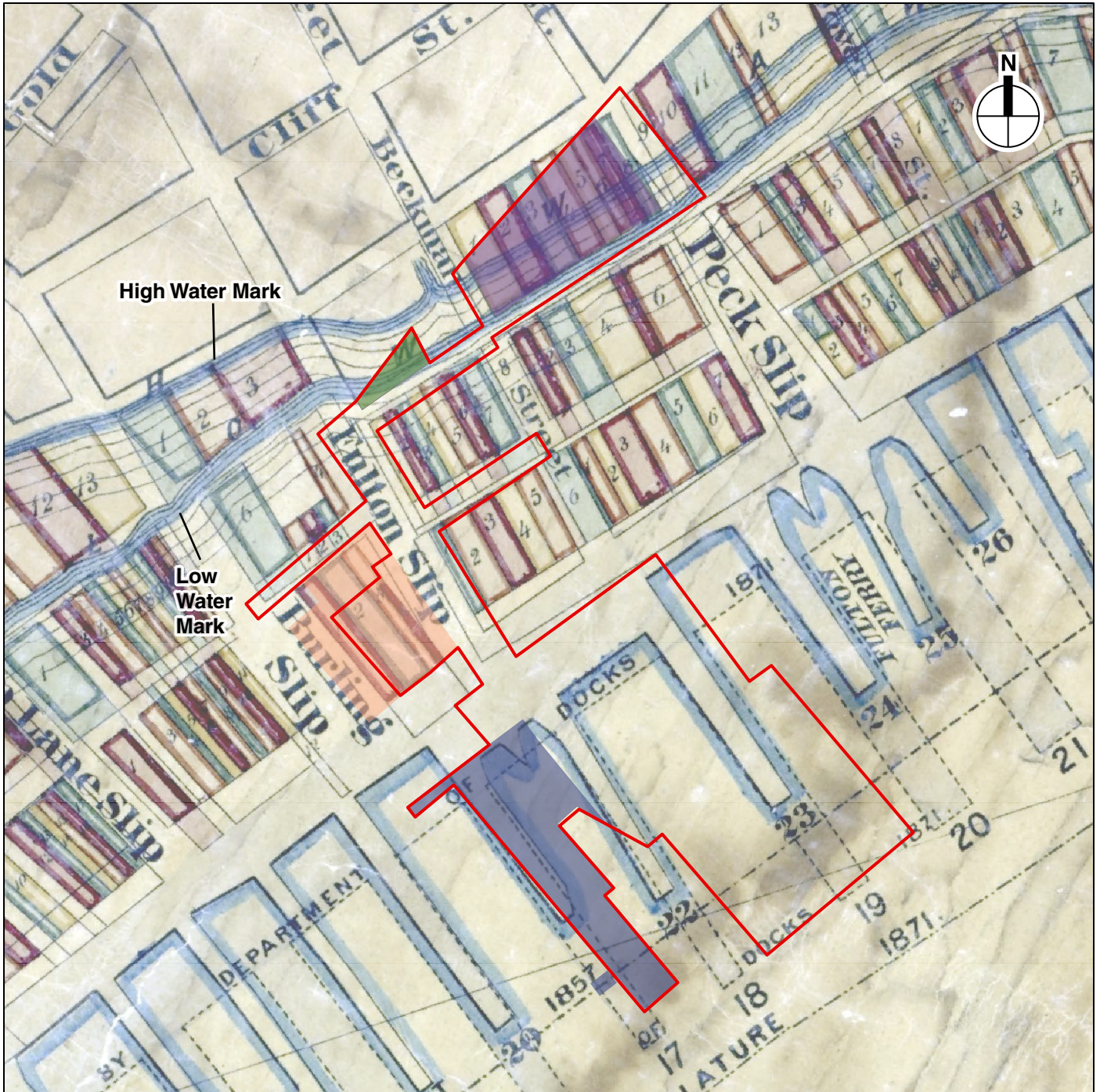
- Project Area
- Development Site
- Museum Site: Expanded Archaeological Study Area
- Pier 16
- Titanic Park



**250 WATER STREET**

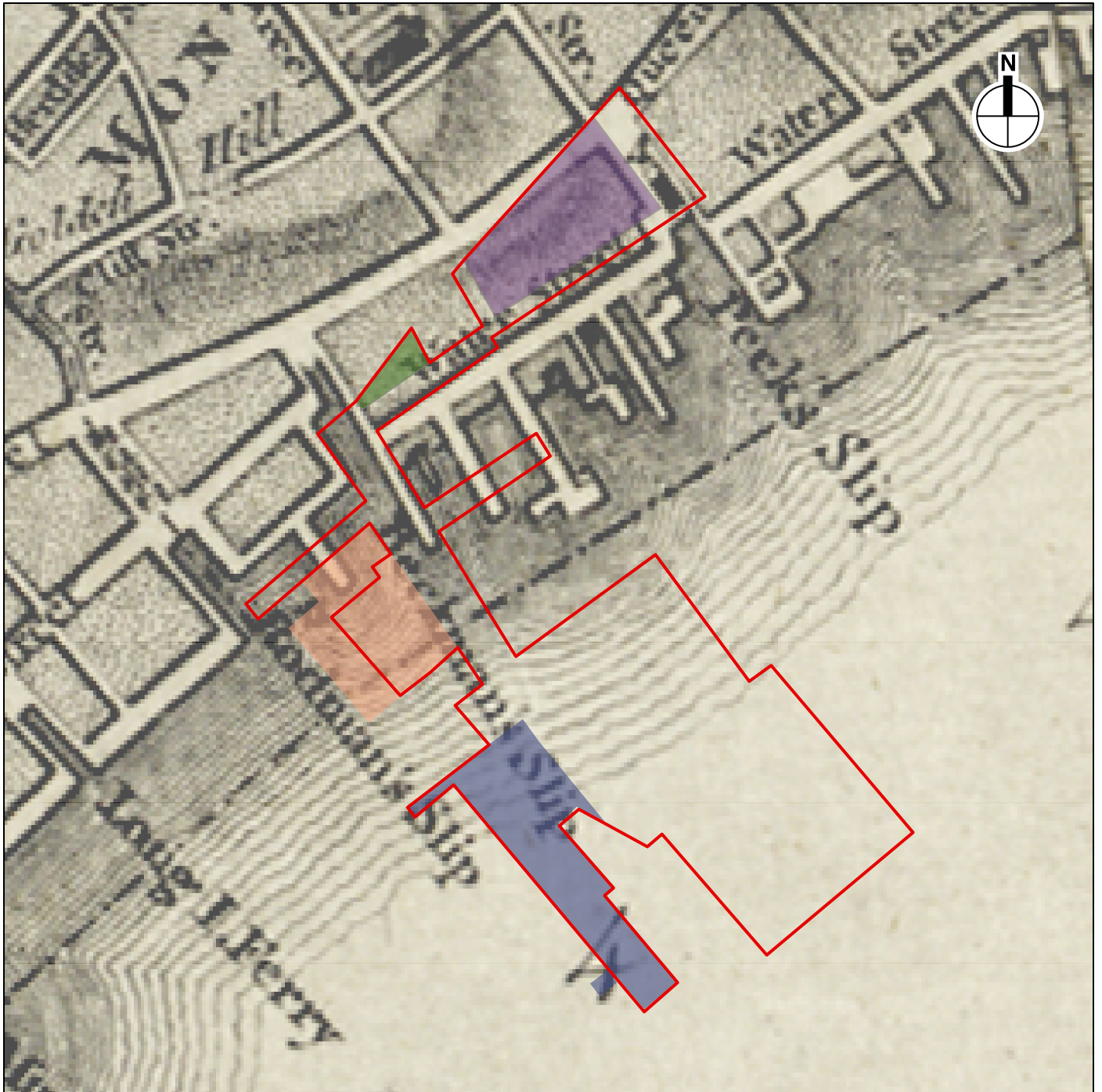
Project Location  
**Figure 2**





- Project Area
- Development Site
- Museum Site: Expanded Archaeological Study Area
- Pier 16
- Titanic Park

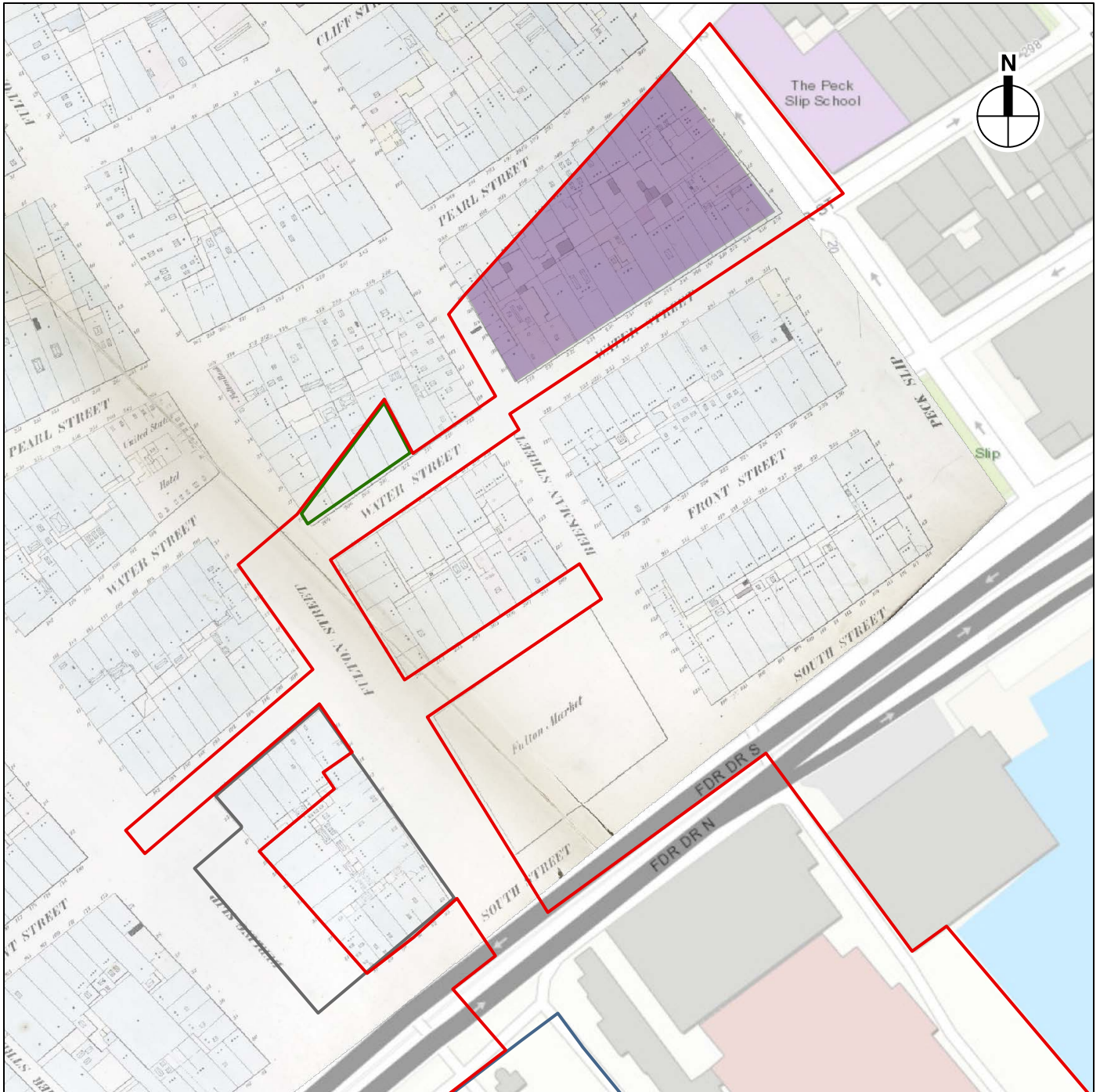
0 500 FEET



-  *Project Area*
-  *Development Site*
-  *Museum Site: Expanded Archaeological Study Area*
-  *Pier 16*
-  *Titanic Park*

0 500 FEET

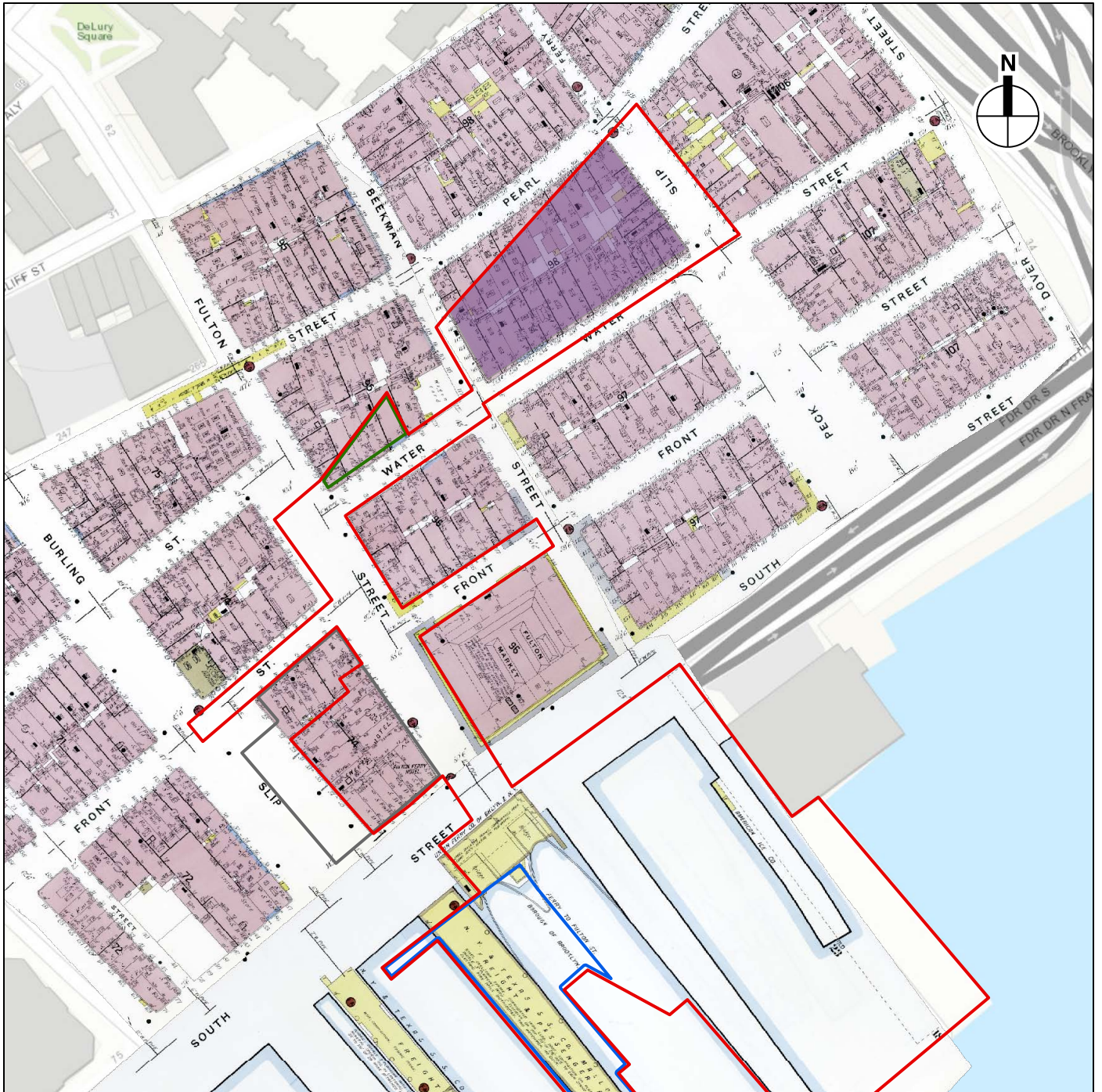




- Project Area
- Development Site
- Titanic Park
- Museum Site: Expanded Archaeological Study Area
- Pier 16

0 200 FEET








- Project Area*
- Development Site*
- Museum Site: Expanded Archaeological Study Area*
- Titanic Park*
- Pier 16*

0 200 FEET

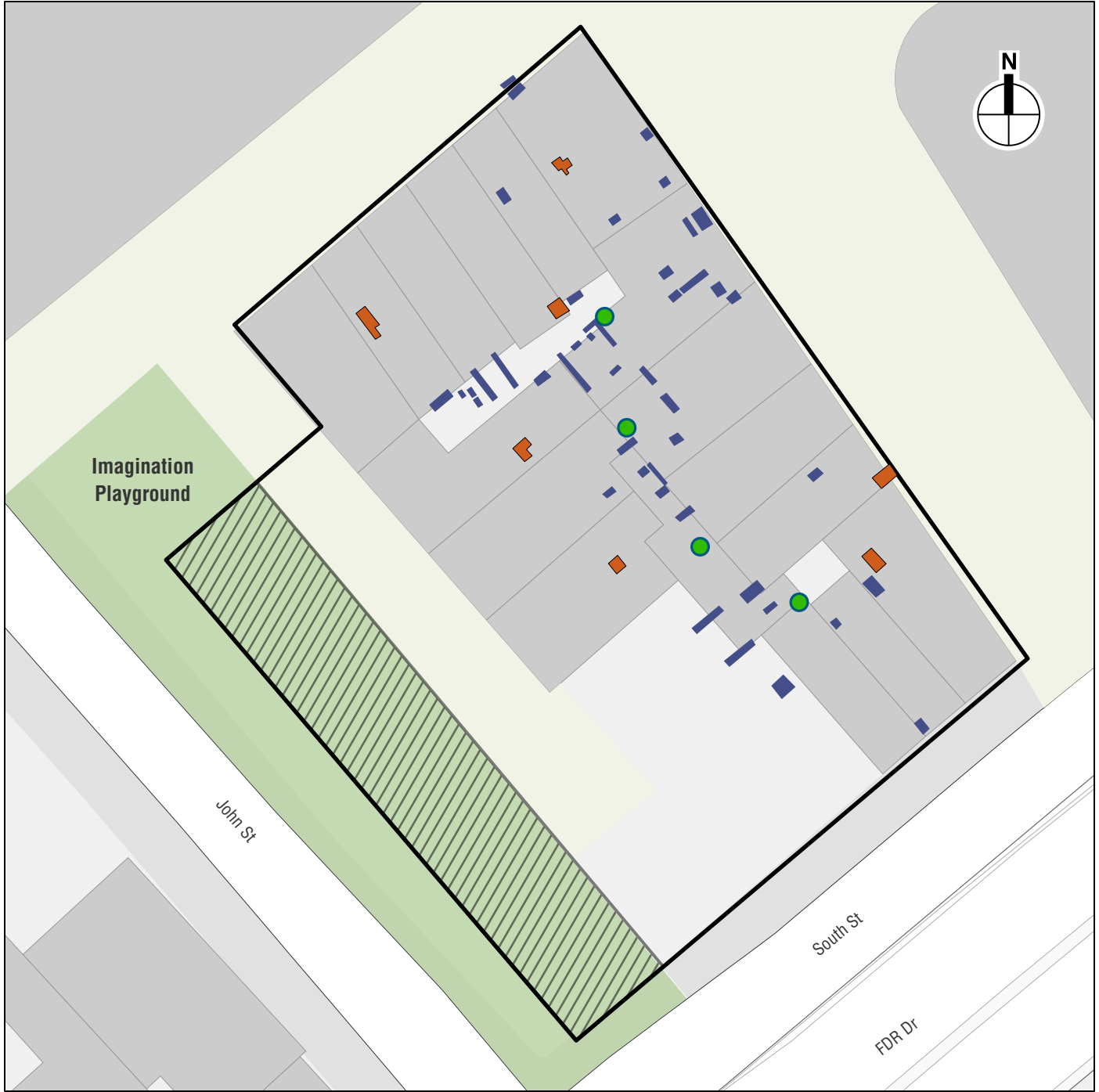


-  *Development Site*
-  *2002 Greenhouse Trench Locations*
-  *Footprints of Buildings with Basements*

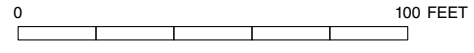
0 100 FEET



Previous Archaeological Work on the Development Site



-  *Museum Site: Expanded Archaeological Study Area*
-  *2000 Testing Locations (from Pickman 2000)*
-  *Area of 2008-2011 Burling Slip Excavations by AKRF*
-  *1981-1983 Testing Locations (from Kardas and Larrabee 1991)*
-  *1977 Testing Locations (from Kardas and Larrabee 1978)*



Previous Archaeological Work on the Museum Site





- Project Area: Undisturbed portions of streetbeds sensitive at various depths*
- Development Site: Sensitive below depth of 8' bgs*
- Museum Site: Sensitive at various depths*
- Pier 16: No archaeological sensitivity*
- Titanic Park: Sensitive below depth of 5' bgs*

