

**A. INTRODUCTION AND METHODOLOGY**

This appendix provides more detailed information on the methodology used to evaluate potential effects of the proposed Second Avenue Subway on archaeological resources and the existing archaeological conditions within the study area.

**REGULATORY FRAMEWORK**

As described in Appendix G, “Historic Resources,” Section 106 of the National Preservation Act of 1966 requires federal agencies to consider the effects of their actions on any properties listed on or determined eligible for the National Register of Historic Places and afford the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings if they would result in an adverse impact. Properties listed on or determined eligible for the State and National Registers of Historic Places (S/NR) can include archaeological resources as well as historic resources.

Federal agency preservation officers, in consultation with the State Historic Preservation Office (SHPO), must determine whether a proposed action would have any effects on the characteristics of a site that qualify it for the National Register. If the analysis indicates that the proposed project would have an adverse effect, the SHPO is consulted to seek agreement on ways to avoid or reduce the effects. This mitigation is typically implemented through either a Memorandum of Agreement (MOA) or Programmatic Agreement. The Advisory Council must be invited to participate when the federal agency sponsoring the project requests the Council’s involvement, when the project would have an adverse effect on a National Historic Landmark, or when a Programmatic Agreement will be prepared.

The New York State Historic Preservation Act of 1980 similarly requires State agencies to consider the effects of their actions on any properties listed on or determined eligible for the State and National Registers of Historic Places. The National Environmental Policy Act (NEPA) also requires such consideration. The review under Section 106 can be conducted in coordination with analyses and the public outreach process conducted for NEPA.

In addition, archaeological resources that are listed on or eligible for the National Register and that warrant preservation in place are protected from adverse effects by Section 4(f) of the Department of Transportation Act of 1966. Section 4(f) prohibits actions by the Secretary of Transportation that require “use” of a site that is listed in or eligible for inclusion in the National Register, unless a determination is made that there is no feasible and prudent alternative to the use of such land, and all possible planning has been undertaken to minimize harm to the 4(f) property. Archaeological resources that are important for the information they may provide through data recovery are not protected under Section 4(f). (For more information on Section 4(f) in relation to this project, please see the Section 4(f) Evaluation provided at the end of the main volume of this FEIS).

Consistent with these regulations, the analysis of the Second Avenue Subway project's effects on archaeological resources is being conducted in coordination with the SHPO. Consultation is also being conducted with the New York City Landmarks Preservation Commission (LPC). A meeting was held with representatives of the SHPO and MTA New York City Transit (NYCT) on December 17, 2001, and additional meetings with SHPO, the LPC, and MTA NYCT were held in September and October 2002. Copies of correspondence from the SHPO and LPC are included in Appendix G.2 of this FEIS. As described in Chapter 4, "Public Outreach and Review Process," NYCT has also identified and begun meeting with descendant groups associated with areas potentially sensitive for human remains. In addition, the FTA has also initiated contact with certain federally and state-recognized Native American tribes and groups as described later in this chapter.

### **TYPES OF ARCHAEOLOGICAL RESOURCES**

Archaeological resources are physical remains, usually buried, of past activities on a site. They can include remains from Native American people who used or occupied a site—including tools, refuse from tool-making activities, habitation sites, etc. These resources are also referred to as "precontact," since they were deposited before Native Americans' contact with European settlers. Archaeological resources can also include remains from activities that occurred during the historic period (beginning with European colonization of the New York area), such as battle sites, foundations, wells, and privies.

#### *PRECONTACT RESOURCES*

Before Europeans arrived in New York and continuing into the 18th century, Native Americans lived throughout the region. Upland well-drained land in proximity to fresh water was used by Native Americans for long- and short-term habitation, hunting, and planting. Native American sites that have been identified in the New York City region are typically located on high ground near freshwater ponds, streams, and tidal inlets and coves. Throughout the New York metropolitan region, the limited number of precontact archaeological resources that have been found have typically been shallowly buried, usually within 3 or 4 feet of the pre-development surface. As a result, these sites are vulnerable to disturbance by later activities on the site, and few such sites have survived. Because Native American archaeological sites in the New York City area are extremely rare, any surviving site would be considered extremely valuable and would most likely be eligible for inclusion on the State and National Registers.

#### *HISTORIC-PERIOD RESOURCES*

Buried remains from the historic period can also be important, because of the new, undocumented information they can provide about the daily lives of previous inhabitants or about important historical events. In the New York City area, historic-period archaeological resources can include early Dutch colonial artifacts (17th century), Revolutionary War-period objects, 19th century residential artifacts, and 17th to 19th century burials. Industrial remains can also be important. Types of historic archaeological resources that may be present in the New York City region include artifacts relating to dwellings, workplaces, and schools, which can be preserved in former buildings, yards, and old privies, cisterns, or wells. In use before municipal sewer and water services were available, privies, cisterns, and wells were located in backyards. They were typically shafts of up to 8 feet deep, and were sometimes used for refuse disposal. These shafts can serve as a time capsule, filled with artifacts from the time of their use. They can remain preserved beneath later construction on a site, often protected by fill levels or later

buildings. Other commonly occurring, but more shallowly buried, historic remains include foundations and builders' trenches, as well as more fragile backyard features such as fence lines, paths, and traces of landscaping. They may also include trolley features, such as cast iron saddles (a support structure for the earliest electrified trolley), original associated power conducts or early (circa mid 19th century) tracks, which were pervasive in the streetbeds of the APEs. Human remains from past or present cemeteries, not always located within the established boundaries of the burial grounds, may also be present. Historic-period archaeological resources may be considered significant, especially human burials, and therefore eligible for the State and National Registers (S/NR), if they have the potential to provide valuable new information about the past. Consequently, historic-period archaeological resources are typically most valuable when they are older and, usually, if relating to shaft features, when they predate installation of municipal sewer and water services.

Some other subsurface features that may also be present within the APE and encountered during project construction are considered to have a limited research potential. These include later (mid 19th century and on) trolley line tracks and the footings that supported elevated trains, such as the Second Avenue Elevated. These types of features are not considered potentially significant since the routes, technology, and construction of Manhattan's later trolleys have been extensively documented, and the footings of the elevated trains can only provide limited information about the structures they supported. In addition, there is the possibility that old utility pipes could be present in the APEs. These may include the original Consolidated Edison First District cables in Lower Manhattan. However, these electrical conduits were likely upgraded and/or replaced through time, and the archaeological resource potential for such features would not be considered significant. Therefore, for the purposes of this analysis, these types of resources are not considered as potential historic-period resources that could meet eligibility criteria for listing on the S/NR.

#### *CEMETERIES*

The Second Avenue Subway alignment would not pass through any existing cemeteries. However, human remains from former cemeteries or burial grounds may exist beneath portions of roadways or other properties where subway construction may occur. Given their sensitive nature, all human remains buried below ground are considered archaeological resources likely to meet eligibility requirements for the State and National Registers. In the analyses that follow, any cemeteries or burial grounds discussed in connection with the Second Avenue Subway date to the historic period (i.e., the period following European contact).

#### *FACTORS AFFECTING SURVIVAL OF RESOURCES*

On sites where later development occurred, archaeological resources may have been disturbed or destroyed by later grading, excavation, installation of utilities, construction of subway lines, and other development activities. However, some resources do survive in an urban environment, sometimes protected by paving or later buildings with shallow foundations.

At places where cemeteries or other burial grounds were once located, graves were sometimes moved when cemeteries were closed, usually before roadways or other features were constructed within the areas, and the locations to which the graves were relocated were recorded. However, it is possible that unmarked burials or interments may have been missed during such moves; if so, the remains may still be present without anyone's knowledge. Similarly, if any unmarked

burials occurred outside of the boundaries of the officially designated cemeteries, the remains may also be present beneath sidewalks or other similar street features.

## **EVALUATION METHODOLOGY**

Archaeological resources are typically evaluated through a three-step process. The first step, Stage 1, consists of documentary research using historic (primary) and secondary sources to determine the likelihood that archaeological resources that may be eligible for listing on the Registers may be present in the APE. Often, this step is divided into two phases: Stage 1A, which requires identifying areas that may contain archaeological resources, and Stage 1B, which involves subsurface testing to try to determine the presence or absence of resources. The second step, Stage 2, consists of more extensive subsurface investigations (if Stage 1B testing indicated that resources are present) and additional research to establish the age, integrity and research potential of the resources, and whether they may be eligible for the Registers. The third step, Stage 3, is considered the mitigation phase; mitigation may consist of either avoidance of the resource or data recovery in the form of a full-scale excavation and documentation.

For the Second Avenue Subway, documentary research was undertaken by professional archaeologists to determine the project's potential to affect archaeological resources. The research was conducted as part of the *Second Avenue Subway Stage 1A Archaeological Assessment*, prepared by Historical Perspectives, Inc., March 12, 2003; *Second Avenue Subway Preliminary Archaeological Assessment, Train Storage Yards*, prepared by Historical Perspectives, Inc., June 6, 2002; and addenda for new project elements dated March 12, 2003 and June 2003 prepared to accompany those reports. In addition, further documentary research was undertaken for areas sensitive for human remains which could be affected by the project.<sup>1</sup> Boring Logs prepared for soil borings undertaken as part of the project's subsurface geotechnical analyses were reviewed and the conclusions presented in *Second Avenue Subway Phase 1A Archaeological Assessment, Supplemental Analysis of Boring Logs*, prepared by Historical Perspectives, Inc., December 9, 2003. These evaluations are summarized in this appendix. As detailed below, the archaeological study conducted to date encompassed five steps:

- Definition of the Area of Potential Effect (APE). This is the area where project activities could disturb the ground to the extent that if any archaeological resources are present, they could be affected. The APE is the study area for archaeological resources.
- Preliminary identification of the possibility of archaeological resources being present within the APEs. Documentary research was conducted to identify areas where important precontact or historic-period activities may have occurred that could have resulted in archaeological resources.

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<sup>1</sup> Historical Perspectives, Inc., *Methodist Episcopal Cemetery Intensive Documentary Study, Second Avenue, New York, New York, Second Avenue Subway*, December 2003; *St. Stephens Church and Cemetery Intensive Documentary Study, Chrystie Street, New York, New York, Second Avenue Subway*, December 2003; *Shearith Israel Cemetery Intensive Documentary Study, St. James Place, New York, New York, Second Avenue Subway*, December 2003; *St. Philip's Episcopal Church Cemetery Intensive Documentary Study, Chrystie Street, New York, New York, Second Avenue Subway*, June 2003. The *Shallow Chrystie Option, which would have affected the St. Philip's Episcopal Church Cemetery, is no longer under consideration.*

- Documentation of disturbance and identification of potential undisturbed resources. For each area where research indicated that Native American or historic-period activities may have left archaeological resources, research was undertaken to determine original site topography and any subsequent alterations through filling or grading. Construction activities and other ground disturbances that occurred on the site were identified. This was done by comparing historic maps and by reviewing available borings and utility maps. The objective of this assessment was to identify locations where any archaeological resources, if originally present, may have survived. This assessment resulted in an inventory of potential archaeological resources that may remain in the APE. Areas that may have archaeological resources are considered to be archaeologically “sensitive.”
- Assessment of impact. The project’s effects on the potential archaeological resources identified were then assessed. Any archaeological resources present would be affected by project construction rather than operational project impacts.
- Identification of additional documentary and subsurface investigations and mitigation. For all potential significant adverse impacts identified, mitigation measures were identified.

Each of these steps is described in more detail below.

*DEFINITION OF THE AREA OF POTENTIAL EFFECT (APE)*

The first step in the assessment was to identify the study areas to be evaluated for archaeological resources. These study areas are the areas where project activities have the potential to disturb soils through in-ground disturbance such as excavation and deep grading. They are referred to as the project’s Area of Potential Effect, or “APEs.” The APEs were identified in consultation with the SHPO in correspondence dated November 27, 2001, and discussed at a meeting with the SHPO representatives on December 17, 2001. To develop a comprehensive assessment of areas that may contain archaeological resources, and to account for the lack of definition and/or potential for change of some project elements, the APE for archaeological resources was defined for the full alignment of the Second Avenue Subway in Manhattan, including the location of the proposed new tunnel and subway stations and potential shaft/staging sites and potential spoils removal tunnels. Although archaeological resources cannot be located within bedrock, the entire project alignment including the portions through bedrock was examined, to be conservative in the event that a shaft from the rock tunnel might be required.

An APE was also defined for the potential train storage yard sites at the 36th-38th Street Yard in the Sunset Park section of Brooklyn. No APEs were defined for the Concourse Yard or 207th Street Yard, since any proposed construction work would occur in an area already disturbed by the same type of activity.

No APEs were identified for the No Build Alternative, since under the No Build Alternative, the Second Avenue Subway would not be built and there would be no potential for in-ground disturbance.

In addition, no APEs were identified for the Broadway Alignment of the Second Avenue Subway, since construction related to opening access to the stairs at the Third Avenue end of the existing subway station at Lexington Avenue and 63rd Street would occur in an already disturbed area. In addition, the mining activities through rock to create curved connections to the 63rd Street Line would not disturb archaeological resources, since no soil would be disturbed.

*PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APES*

After defining the study areas for archaeological resources, the next step in the analysis was to identify locations that may have been used during the precontact period or during the historic period and that might have left archaeological evidence behind in the soils. Research regarding the locations of former cemeteries or burial grounds was also conducted. This involved documentary research to identify already known archaeological sites and areas that have the potential to contain archaeological resources, based on original topography (for precontact resources) or site development history (for historic-period resources). The presence of other precontact or historic period sites nearby (within 1 mile of the APE) and suitable topography are both indicators of possible use of a site during the precontact or historic period. Where sites have been documented in the vicinity of the APE, they are noted and described to provide an archaeological context for the APE.

Research was conducted at the New York Public Library; the Municipal Archives, the Manhattan Borough President's Office, the New York City Department of Design and Construction's Subsurface Bureau, and the New York Historical Society. Site file searches were performed at the SHPO and the New York State Museum (NYSM) in Albany. Pertinent archaeological reports were also reviewed at the New York City Landmarks Preservation Commission (LPC), which keeps records on archaeological sites in New York City and prepares sensitivity maps based on pre-development topography. Documented archaeological resources were identified, including sites on the State and National Registers and other known sites. Cartographic information, in the form of historic maps and atlases, was gathered to determine whether land forms within each APE were conducive for Native American habitation or use and to ascertain the historical development of each APE. These maps cover the 18th and 19th centuries, including the Grim map of 1742, Ratzel map of 1767, Randel maps of 1814-1821, and Viele maps of 1859, 1865, and 1874, among others. Sanborn maps for the 20th century were also used, as they include such useful information as historic shorelines and roads. Where available, soil borings were analyzed to determine subsurface conditions.

As noted earlier, precontact sites tended to be located near bodies of water and atop hills. The documentary research conducted was used to determine the likelihood that precontact archaeological resources were deposited within each APE. To help ensure that no possible sites were missed, any project locations that had appropriate topographical features before development and any locations noted in historic sources as former sites of Native American camps, villages, middens (refuse piles, such as shell heaps), etc., were considered potential prehistoric sites unless later activities have disturbed them.

The cartographic and documentary research was also used to reconstruct the historic development of each APE. In each area, a development history was compiled, and historic structures and landforms were noted. This information was used to determine the likelihood that archaeological resources from historic-period uses could have been deposited within each APE. Following completion of the background research, field visits were undertaken at each APE. At this time, obvious signs of disturbance were recorded, historical features were noted, and photographs were taken.

For both precontact and historic studies, contextual overviews were created based on the background research. These provide a framework in which to interpret potential prehistoric and historic resources and to understand the development history of each APE.

Based on information gathered from documentary and cartographic research and site visits, a preliminary evaluation of the likelihood of encountering archaeological resources was rated as low, moderate, or high for each APE. The results of this research are summarized below in section B, “Existing Conditions.”

*DOCUMENTATION OF DISTURBANCE AND IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

In conjunction with identifying areas where known archaeological sites are located or where archaeological resources may have been deposited, documentary and cartographic research was used to identify areas where late 19th century and 20th century development activities would have destroyed or disturbed any archaeological resources that may once have been present. Activities such as grading, landscaping, utility installation, and other similar activities that could have disturbed buried resources were documented. Where available, boring logs were reviewed to understand grading and filling activities that may have occurred, and topographic maps were compared to current elevations to determine what changes to the landscape have occurred through grading and/or filling.

This information about disturbance was used to adjust the rating of each APE’s potential to contain archaeological resources. After reviewing the disturbance record, sites were considered to have a low, moderate, or high probability of having buried archaeological resources. Sites with a high probability were those that once had topography that would have been conducive to prehistoric use, or those that once had historic-period uses that could have resulted in significant archaeological resources, at which later development activities may not have disturbed those resources. These sites therefore have the potential to contain intact archaeological resources. Such sites are referred to as potentially archaeologically “sensitive.” Sites rated as moderate may have a lesser probability of Native American use or potential to yield significant archaeological resources from the historic period, or may have experienced some degree of disturbance. These are also considered as potentially archaeologically sensitive. These resources are “potential” resources, or archaeologically sensitive areas, since it is not yet known whether any resources are actually present.

The results of this research and the potentially archaeologically sensitive areas in the APEs are described below in section B, “Existing Conditions.”

*ASSESSMENT OF EFFECT*

For each area that was identified as archaeologically sensitive, the project’s potential for significant adverse effects to those possible archaeological resources was assessed. For purpose of analysis, an effect was determined to occur if construction or operation of the subway would disturb the soil in the area where the potential resource could be located. Some components of the proposed project are not expected to cause effects to any potential archaeological resources; for example, no effects would occur where construction would occur within existing tunnels (since any resources that might have once existed there have already been disturbed) nor would effects occur within areas where the new tunnels would be dug through bedrock via tunnel boring machines (TBMs) and mining. (No archaeological resources are located within rock.) For portions of the project that would utilize existing tunnels and would not require any new construction, and for areas that would be built through bedrock, the archaeological potential would be either assumed to have been eliminated through previous construction, or not present since there would be no soil disturbance.

Other proposed construction, including cut-and-cover construction, building underpinning, and ground stabilization, that would cause disturbance from the ground surface into potentially sensitive strata, and mining techniques or tunneling techniques through soil (such as use of an earth-pressure-balance machine [EPBM], a type of soft soil boring machine), could result in impacts to potential archaeological resources if they are present in the soil affected by construction. Where cut-and-cover construction is proposed to construct the subway tunnel, subway stations, shaft/staging sites and spoils removal tunnels, as well as proposed subsurface work within the storage yards, potential impacts have been assessed and described. Potential effects have also been assessed and described in potentially sensitive areas where an EPBM would be used.

*ADDITIONAL EVALUATION FOR ARCHAEOLOGICALLY SENSITIVE AREAS*

At all locations where there is a potential for significant adverse effects to occur, professional archaeologists outlined a process describing the additional documentary research, field testing and/or mitigation measures that would be undertaken prior to any construction to avoid significant adverse effects from project construction or operation. The Programmatic Agreement attached to the end of the main volume of the FEIS describes the required steps in detail. Generally, the steps consist first of undertaking additional research and field testing to identify whether any archaeological resources are actually present on the sites and, if so, whether the resources that are present are eligible for the State and National Registers. Then, for any such resources, a range of possible mitigation measures was identified, including avoidance, data recovery, and curation. The results of these steps are summarized in Chapter 10, “Archaeological Resources.”

**B. EXISTING CONDITIONS**

The conclusions of the archaeological research performed for this project are described below. For each neighborhood area that would be affected by the project, there is a discussion of the preliminary identification of the possibility that archaeological resources may be present within the APE, followed by a description of later activities that could have disturbed or destroyed those resources. The result of this analysis is the locations within each APE that may contain buried archaeological resources. Maps of these locations are included in Chapter 10.

**EAST HARLEM**

*PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APE*

*Second Avenue, Harlem River to 125th Street*

Precontact Period. This portion of the study area was formerly part of a large flatlands area, extending from the Harlem River to Morningside Heights, called Muscoota by Native Americans. This region was surrounded by swamps. Native American trails and paths also were located in this area. One such path crossed First Avenue at 124th Street and Second Avenue at 121st Street within the study area. Arrowheads and flakes were found in 1855 in East Harlem during the excavation of a cellar on Avenue A (the former location of this street is now part of a housing complex east of First Avenue) between 120th and 121st Streets. NYSM Site #4063 was reported within a mile south of this section of the APE. It was a village/camp site that may have



extended west into the vicinity of Second Avenue near 110th Street. The presence of these Native American sites near the APE indicates that the APE may also have been used by Native Americans.

The northern half of this APE, from the Harlem River to 128th Street, was underwater into the late 19th century. Only the southern half of the APE, from roughly 128th Street to 125th Street, was depicted as dry land on topographic maps (Viele 1859, 1865, 1874). Since water levels have fluctuated over the past few thousand years, it is possible that what was under water 500 years ago was dry land much earlier. Thus, portions of the APE may have been conducive to Native American living, providing a habitat of rich faunal and floral resources. The northern portion of the APE, from the Harlem River shoreline to 128th Street, would have been completely under water in the late prehistoric period. Only a small portion of the potential shaft site at the northwest corner of Second Avenue and 128th Street was depicted as dry land. Although the shoreline itself would not have been used for habitation, since it would likely have been marshy, it is likely that it would have been a rich source of faunal resources. Thus, there is a high potential for precontact resources to be located in the APE on the west side of Second Avenue between 129th and 128th Streets. The two potential shaft site/staging areas on the block west of Second Avenue between 127th and 126th Streets also have precontact potential.

In addition, the areas east and west of the Second Avenue roadbed between the Harlem River and 125th Street (where potential underground storage tracks could be constructed) also have precontact potential.

*Historic Period.* Archaeological investigations conducted in 1998 roughly two blocks east of the APE at the East River between 119th and 116th Streets revealed the possibility of the presence of late 19th-century historic remains related to two-story brick buildings that stood until sometime between 1951 and 1976. However, due to disturbance from grading, only the remains of mid-20th century features were identified during investigations. The presence of these nearby resources indicates that the APE could also be sensitive for such resources.

Documentary research for this project determined that several areas in the APE may also possess historic-period potential, in the form of residential mid-19th century wells/privies. These include the potential shaft site/staging area at the northwest corner of Second Avenue and 128th Street and the southern shaft site/staging area on the west side of Second Avenue between 127th and 126th Streets. The APE also possesses historic-period potential for a large group of outbuildings associated with the Ingraham estate that stood in the Second Avenue roadbed between 127th and 126th Streets.

In addition, portions of the areas east and west of the Second Avenue roadbed in the area of the potential storage tracks between the Harlem River and 125th Street have historic-period archaeological potential.

*125th Street, Fifth Avenue to Second Avenue*

*Precontact Period.* Beginning at Fifth Avenue, the 125th Street APE has a gentle downward slope of about 10 feet as it heads east toward Second Avenue. Several hundreds of years ago, the hill at Mount Morris, just to the south near Fifth Avenue, would have provided a commanding view of the flat meadowlands to the north and the marshy environs to the south, thus providing a high potential for habitation sites in this area. The marshy areas to the south and along the Harlem River would have provided a habitat conducive to faunal and floral resources and may have been favorable to settlement. Potential precontact resources in this APE would exist between about 3 and 23 feet below grade.

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*Historic Period.* As described above, although archaeological investigations were conducted in 1988 roughly 12 blocks east of the APE at the East River between 119th and 116th Streets, documentary research did not indicate the potential presence of any historic-period resources located within the APE.

### *125th Street to 96th Street*

*Precontact Period.* Several inventoried precontact sites were identified in the files at the New York State Museum relatively close to or within this APE, indicating a likelihood that Native Americans may have used the APE as well. As described earlier, NYSM Site #4063 was a village/camp site that may have extended into the APE in the vicinity of Second Avenue near 110th Street. Another inventoried precontact/contact site in the vicinity was the historic aboriginal village of Konaande Kongh, which was occupied until 1669. The site was located from Harlem Hill to 91st Street, as far west as Fifth Avenue and to Hellgate Bay on the East River. A similar site, NYSM Site #4064, was identified as a camp on the banks of 121st Street. The boundaries of this site could potentially fall within the vicinity of the project corridor. Further, although no precontact materials were recovered in the excavations conducted in 1998 in the area near the East River between 119th and 116th Streets, the whole site had been identified as extremely sensitive by the LPC and the SHPO, indicating that the site, prior to historic development, possessed characteristics that would have made it attractive for use by Native Americans. Planting areas and old fields are shown along much of this area, especially in the vicinity of First and Second Avenues. Further, the area in the vicinity of 101st to 97th Street was identified by one archaeologist as a major Native American settlement. Another archaeologist identified a precontact village between Lexington and Madison Avenues and 100th and 98th Streets.

Early topographic maps indicate that numerous locations within this section of the APE would have had characteristics attractive to Native Americans including hills and proximity to fresh water sources. Potential prehistoric resources may be located beneath the fill on the block west of Second Avenue between 125th and 124th Streets, on 124th Street, and at the southwest corner of Second Avenue and 124th Street. Potential resources may be located beneath fill beneath Second Avenue between 124th and 121st Streets, outside the area of the existing tunnel on Second Avenue between 120th and 110th Streets, between 110th and 109th Streets, between 106th and 105th Streets, and outside the area of existing tunnel on Second Avenue between 105th and 99th Streets. In contrast, the area of the potential shaft site/staging area in the park on the east side of Second Avenue between 97th and 96th Streets is shown as inundated or covered with marshland on early topographic maps. Although the area may have provided resources for Native Americans, it is unlikely the area would have any resources associated with extended habitation.

*Historic Period.* Sections of this APE may possess potential historic-period resources related to residential development. The Dutch settlement of New Harlem, founded in 1658, was located in what is now northeast Harlem, including part of the APE. The irregularly shaped settlement covered the blocks generally between 128th and 122nd Streets east of Third Avenue, the blocks between 125th and 122nd Streets between Third and Lexington Avenues, and the blocks between 122nd and 118th Streets between Third and Park Avenues. Since then, the area has been continuously occupied. The block west of Second Avenue between 125th and 124th Streets, the 124th Street roadbed, and the southwest corner of Second Avenue and 124th Street have the potential to yield privies and/or wells with evidence of domestic occupation, and farm outbuildings, from the late 17th century through the late 19th century.

Other areas in the APE that have the potential for historic-period resources include the 19th century Chesterman and Waldron residential farm properties between 124th and 122nd Streets, and the 19th century George Bradish residential farm property between 112th and 111th Streets. The potential shaft site/staging area in the park on the east side of Second Avenue between 97th and 96th Streets possesses no historic-period archaeological potential.

*DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL  
UNDISTURBED RESOURCES*

*Harlem River to 125th Street*

*Precontact Period.* Based on soil borings taken in the area indicating the presence of peat in some borings (peat is an indicator of a precontact estuarial environment that suggests that habitation sites may be found in close proximity to the former marshland), precontact sensitivity has been identified in the APE as follows:

- Second Avenue, Harlem River to 125th Street: potential resources may be located between 12 to 25 feet below grade.
- Cut-and-cover construction/staging area at the northwest corner of Second Avenue and 128th Street: potential resources may be located up to 15 feet below grade.
- Cut-and-cover construction/staging areas on the west side of Second Avenue between 127th and 126th Streets: potential resources may be located between 16 to 21 feet below grade.
- 128th, 127th, 126th, and 125th Streets and Blocks 1790, 1791, 1792, 1793, 1802, 1803, 1804 and 1805 (the blocks on either side of Second Avenue between the Harlem River and 125th Street) for a distance of approximately 80 feet east and west of Second Avenue: potential resources may be located between 3 and 33 feet below grade.

*Historic Period.* In terms of potential historic-period resources, the potential shaft site at the northwest corner of Second Avenue and 128th Street has experienced some subsequent shallow disturbance. The southern shaft site/staging area on the west side of Second Avenue between 127th and 126th Street contains 19th century residences, many of which remained through the late 20th century without disturbance. It is expected that the stanchions for the Second Avenue Elevated, which was completed from 129th Street to Chatham Square in 1880, would have created pockets of disturbances on Second Avenue. It is not clear whether installation of utilities in the Second Avenue roadbed would have created disturbance to the potential historic-period resources relating to the Ingraham estate between 127th and 126th Streets. Therefore, the APE is sensitive for historic-period resources as follows:

- Second Avenue, 127th to 126th Street: mid 19th-century farm related features and buildings located up to 15 feet below grade.
- Shaft site/staging area at the northwest corner of Second Avenue and 128th Street: mid 19th-century residential features located up to 15 feet below grade.
- Southern shaft site/staging area on the west side of Second Avenue between 127th and 126th Streets: mid 19th-century residential features located up to 16 feet below grade.

In addition, the APE for the potential underground storage tracks north of 125th Street is sensitive for historic-period resources on the blocks east and west of Second Avenue for a distance of 80 feet, as follows:

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- Block 1793 (between the Harlem River and 128th Street on the west side of the avenue): mid-19th-century residential features located from the surface down to an unknown depth.
- Block 1792 (between 128th and 127th Streets on the west side of the avenue): mid-19th-century residential features located from the surface down to an unknown depth.
- Block 1790 (between 126th and 125th Streets on the west side of the avenue): mid-19th-century residential features located from the surface down to approximately 11 feet.
- Block 1804 (between 128th and 127th Streets on the east side of the avenue): mid-19th to 20th-century residential features located from the surface down up to an unknown depth.
- Block 1803 (between 127th and 126th Streets on the east side of the avenue): late 17th to 19th-century residential and park features located from the surface down to an unknown depth.
- Block 1802 (between 126th and 125th Streets on the east side of the avenue): late-19th-century residential features located from the surface down to approximately 12.2 feet below grade.

### *125th Street, Fifth Avenue to Second Avenue*

Precontact Period. Fill from the historic period may have protected precontact sites, although fill levels vary greatly in the APE. Additional historic disturbances to 125th Street include the construction of utilities in the roadbed and the construction of the Lexington Avenue subway line and station at 125th Street, which extends to a depth of 47 feet below grade. Therefore, it is expected that more shallow deposits would have been destroyed during the historic period through road grading, utility installation, and construction of rail transportation routes, although the exact depth of these disturbances are not known. The APE remains sensitive for precontact resources at a depth of between 3 and 15 feet below the surface on the north side of 125th Street and 14-23 feet below the surface on the south side of the street, except in locations where it is clearly disturbed, such as at Lexington and Park Avenues.

Historic Period. The APE contains a potential below-grade railroad structure. The railroad tracks of the New York Central and Hudson River Railroad once ran in a cut on Park Avenue, which was constructed as part of the Park Avenue Improvement project in 1874. When the present viaduct was built some 20 years later, the cut was filled in and the viaduct built above. It is possible that the architectural features of the cut, such as its retaining walls, remain in place beneath the street at the intersection with 125th Street.

### *125th Street to 96th Street*

Precontact Period. Subsurface conditions in the potential archaeologically sensitive areas differ, with varying layers of fill. Such layers of fill may have served to protect these areas from modern disturbance. Areas that did not experience later disturbances include sites later developed as yards that remained open and structures that did not have basements. Such sites, which therefore remain sensitive for precontact resources, include areas on the block west of Second Avenue between 125th and 124th Streets and on the southwest corner of Second Avenue and 124th Street. On Second Avenue, the foundations of the Second Avenue Elevated and installation of utilities would have created some disturbance though it is not clear to what degree these would have affected potential precontact resources. Therefore, areas of potential prehistoric sensitivity are as follows:

- West side of Second Avenue between 125th and 124th Streets, 124th Street, and southwest corner of Second Avenue and 124th Street: potential resources may be located beneath the fill, and range in depth from between 5 and 15 feet below the surface.
- Second Avenue between 124th and 121st Streets: potential resources may be located 12 to 17 feet below grade.
- Second Avenue between 120th to 111th Streets (outside existing tunnels between 120th and 110th Streets and shafts and excluding at 118th Street): potential resources may be located between 13 and 23 feet below grade.
- Second Avenue between 110th to 109th Streets: potential resources may be located between 18 to 23 feet below grade.
- Second Avenue between 106th and 96th Streets (outside of existing tunnels between 105th and 99th Streets): potential resources may be located up to 22 feet below grade.

*Historic Period.* The block west of Second Avenue between 125th and 124th Streets and the southwest corner of Second Avenue and 124th Street both experienced extensive development during the late 19th century. Therefore, the likelihood of finding early historic-period resources is not high. However, there are areas that have remained relatively undisturbed to the present day, possibly under the 124th Street roadbed, or within rear yard areas on the block between 125th and 124th Streets. It is also possible that late historic-period resources may still be present at the southwest corner of Second Avenue and 124th Street and discrete locations on Second Avenue. Therefore, areas of potential historic-period sensitivity have been defined as follows:

- Block west of Second Avenue between 125th and 124th Streets, Lots 10 to 21.5, 23, 25, 27, 28, 30 to 33, 35, 39, and 41 to 45: late 17th- to early 19th-century residential features located up to 15 feet below grade.
- 124th Street west of 2nd Avenue: late 17th to 19th century residential features located up to 15 feet below grade.
- Southwest corner of Second Avenue and 124th Street, Lot 28: late 17th- to early 19th-century residential features located up to 15 feet below grade.
- Second Avenue between 124th and 122nd Streets: early to mid 19th-century J. Chesterman residential features located up to 12 feet below grade and early to mid 19th-century Waldron residential features located between 10 to 18 feet below grade (between 123rd and 122nd Streets).
- Second Avenue between 112th and 111th Streets (east side): early 19th-century George Bradish residential features located up to 12 or 30 feet below grade.

**UPPER EAST SIDE (96TH TO 59TH STREET)**

*PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APE*

*Precontact Period*

As described earlier, Native American settlements have been documented not far from the Second Avenue corridor in East Harlem, just north of this APE. These include NYSM Site #4063 and a historic aboriginal village of Konaande Kongh, occupied until 1669, which

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extended from Harlem Hill to 91st Street, as far west as Fifth Avenue and to Hellgate Bay on the East River. This area may have extended into the APE. Planting areas and old fields are shown along much of this area, especially in the vicinity of First and Second Avenues. As described above, the vicinity of 101st to 97th Street was a major Native American settlement, although another archaeologist placed it between Lexington and Madison Avenues between 100th and 98th Streets.

In addition, the southern segment of this APE also had documented precontact use. Traces of occupation were also reported in the area of 59th Street near First and Second Avenues (NYSM Site #4061). The nature and extent of the Native American presence in this area is unknown, although it is possible that this site extended into the southern end of the APE. The Eastern Post Road, which followed the route of a former Native American trail, formerly passed through the area of the 63rd Street curves, intersecting what is now Second Avenue at approximately 62nd Street. The road, identified by archaeologists as Wickquasgek Road, once connected to the Old Albany Post Road (Broadway) and was used by Native Americans who were traveling to trade at Fort Amsterdam. LPC has flagged the areas surrounding the former stream that ran north and east of the area of the 63rd Street curves through Block 1439, between 65th and 64th Streets and First and Second Avenues, for potential precontact sensitivity. The presence of these Native American sites near the APE indicates that the APE may also have been used by Native Americans.

Early topographic maps and soil borings taken indicate that a number of locations within the APE on Second Avenue would have had characteristics attractive to Native Americans, including the area between 96th and 95th Streets, 79th and 77th Streets, 65th and 63rd Streets, and between 62nd and 59th Streets. The potential shaft site/staging area on 66th Street west of Second Avenue was partially covered by a small hill during the precontact era. The area of the 63rd Street curves contained elevated knolls and was located in proximity to a former freshwater stream, located approximately 200 feet away. The potential 53rd Street pedestrian site was also located in proximity to a freshwater stream.

### *Historic Period*

One previously inventoried historic-period archaeological site is located approximately four blocks east of the APE. The Gracie Mansion site at 90th Street and the East River is noted as one of the first American fortifications. Documentary research indicates that an early 19th century building was located on the southwest corner of the intersection of Second Avenue and 84th Street, within the APE. The dwelling, labeled “Yelles Hopper,” was situated at the base of a knoll. By 1851, the building had been relocated onto the adjacent block and off Second Avenue. Documentary research also indicates that four structures belonging to the mid-19th century Thorne property were sited on elevated land in the vicinity of 60th Street, with the larger of the structures extending into what is now Second Avenue, south of 60th Street. Two smaller structures were present on the west side of what is now Second Avenue, a few yards south of 61st Street and at the southern edge of 60th Street. The fourth building was between the two smaller buildings, partially extending into the block on the east side of Second Avenue.

Although not explored archaeologically, the Old Dove Tavern was once located one block to the northwest of the potential shaft site/staging area on 66th Street, at approximately Third Avenue and 67th Street. It was noted on 18th century maps and documents, and served the public before, during, and after the Revolutionary War. By 1851, a historic map indicates that the small hill present on 66th Street was removed, and a residence was built immediately south of what is now 66th Street, at approximately the northwest corner of 66th Street and Second Avenue. This

house may have had associated shaft features which fall within the APE. By 1857, the Third Avenue Depot was located on the block south of 66th Street, and contained a blacksmith shop, which may have left remains within the APE.

A number of farm properties were in the vicinity of the area of the 63rd Street curves during the 18th century. A major section of this area falls within the Abraham and William K. Beekman farm, including Block 1418, and most portions of Blocks 1419 and 1437, as well as the 63rd, 64th Street, and some of the 62nd Street roadbeds. The southernmost portion of the 63rd Street curves area, in Block 1436, falls within the Philip Brasher Farm, also called Mount Vernon. The area was named after a mansion built by William S. Smith in the mid-1790's; it burned down in 1826, but a combined stone coach house and stable east of the APE, at 421 East 61st Street, is still extant. The main house had a one-mile racecourse surrounding it, but it is not known if it would have fallen within the area of the 63rd Street curves. A very small portion of the northeast corner of Block 1419 falls into the area of the former Johannes Hardenbrook Farm. By the mid-19th century, development was sparse, and it wasn't until the 1880's that the blocks within the area of the 63rd Street curves were fully developed, with cycles of rebuilding continuing throughout the 20th century.

Documentary research indicates that no historic structures were located within or in close proximity to the 53rd Street pedestrian site. The closest resource is Cato's Tavern, an 18th century inn that was formerly located in the 54th Street roadbed approximately 200 feet east of Second Avenue.

#### *DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

##### *Precontact Period*

*Second Avenue between 96th and 59th Streets.* On Second Avenue, potential precontact resources may be buried beneath varying depths of historic-period fill, which may have served to protect precontact resources in the APE as follows:

- Second Avenue between 96th and 95th Streets: potential resources may be located up to 22 feet below grade.
- Second Avenue between 95th and 94th Streets: potential resources may be located 10 to 15 feet below grade.
- Second Avenue between 79th and 77th Streets, excluding at 79th Street: potential resources may be located 12 to 20 feet below grade.
- Second Avenue between 65th and 64th Streets and west side of Second Avenue between 64th and 63rd Streets: potential resources may be located 2.5 to 17 feet below grade.
- Second Avenue between 62nd and 61st Streets: potential resources may be located 14 to 19 feet below grade.
- Second Avenue between 61st and 60th Streets: potential resources may be located 5 to 10 feet below grade.
- Second Avenue between 60th and 59th Streets: potential resources may be located 15 to 20 feet below grade.
- Second Avenue at 59th Street: potential resources may be located up to 5 feet below grade.

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Potential 66th Street Shaft Site/Staging Area. As described above, the potential shaft site/staging area on 66th Street on and west of Second Avenue was once partially covered by a small hill. Removal of this hill during the 19th century, between approximately 1836 and 1850, would have destroyed any potential precontact resources in this location. A soil boring taken at the corner of Second Avenue and 66th Street confirmed that there is no evidence of any natural soils between the fill present on the site and bedrock. Therefore, the potential shaft site on 66th Street lacks precontact sensitivity.

63rd Street Curves Area. Due to the presence of a nearby stream and elevated land in the APE, portions of the area of the 63rd Street curves may be sensitive for precontact resources which may be buried beneath existing buildings and varying levels of fill as follows:

- Block 1419: potential resources may be located five to 17 feet below grade.
- Block 1418: potential resources may be located five to 18 feet below grade.
- Block 1437: potential resources may be located four to 25 feet below grade.
- Block 1436: potential resources may be located four to 19 feet below grade.
- 64th Street between Second and Third Avenues: potential resources may be located 5 to 10 feet below grade.
- 63rd Street between Second and Third Avenues: potential resources may be located up to 13 feet below grade.
- 63rd Street between First and Second Avenues: potential resources may be located four to nine feet below grade.
- 62nd Street between First and Second Avenues: potential resources may be located four to nine feet below grade at the eastern end and 14 to 24 feet below grade at the western end.
- 61st Street between First and Second Avenues: potential resources may be located five to ten feet below grade.

Potential 53rd Street Pedestrian Site. As described above, the potential 53rd Street pedestrian site was located in proximity to a freshwater stream. Soil borings indicate that potential precontact resources may lie in the 53rd Street roadbed and sidewalks between seven and 12 feet below grade.

### *Historic Period*

Second Avenue between 96th and 59th Streets. In the potentially sensitive area between 84th and 83rd Streets, the bedrock is very close to the surface and little or no soil lies beneath the historic-period fill, which ranges from 2 to 6 feet in depth. Within this area of the APE, many of the utility lines beneath Second Avenue are buried within the bedrock and their installation would have required drilling and blasting through the bedrock to accommodate them. In addition, the foundations of the Second Avenue Elevated would also have created some discrete pockets of disturbance in the APE. The subsurface conditions indicate that potential historic-period resources relating to the Hopper House no longer remain. If there were once natural soil levels over bedrock that could have accommodated shaft features relating to this structure, they have either been removed or so disturbed that they now appear as fill levels. In addition, it is also possible that the shallow bedrock in the area prohibited the construction of these types of



subsurface features, which therefore would have been sited elsewhere. In either case, there is no historic-period sensitivity remaining between 84th and 83rd Streets.

Soil borings taken in the potentially sensitive area between 62nd and 59th Streets indicated that the water table was encountered between 6 and 19 feet below grade. On the east side of Second Avenue, it was reported at about 7 feet below grade. Therefore, in the absence of documentation of extensive and deep disturbance to Second Avenue in the APE, potential wells associated with any of the structures may still extend anywhere from the surface down to 6 to 19 feet below grade, with more shallow building foundations located closer to the surface.

*Potential 66th Street Shaft Site/Staging Area.* Research indicates that removal of the small hill once located on 66th Street near the eastern end of the street occurred before historical development of the block took place. Therefore, the grading activities that destroyed any precontact resources would not have disturbed historic-period resources. East 66th Street had already been laid out, and once the hill was removed in this location, the street was used as a common thoroughfare. The block immediately south of 66th Street, which was once occupied by a 19th century residence and later by a rail depot, has since been developed with an apartment building (Manhattan House) and its driveway. The proposed shaft site is within that driveway, in an area that was previously developed with historic-period uses. Soil borings indicate that subsurface conditions have changed little since the removal of the hill in the 19th century, and that there is the potential for historic-period features relating to residential shaft features and the blacksmith shop to be located in the Manhattan House driveway, once part of the block south of 66th Street, at a depth of up to 17 feet below the surface.

*63rd Street Curves Area.* As described above, portions of this area fell within 18th century farms, with intense 19th century development of the blocks within this area commencing during the 1880's and continuing through the 20th century. 19th and 20th century development on these blocks may have destroyed the potential for 18th century farm resources in some locations. In addition, 19th century residential development itself may have left shaft features such as privies, cisterns, and wells that may not have been disturbed by subsequent construction episodes; buildings erected in the mid- to late- 20th century with subterranean garages would have had greater impacts on potential 19th century residential resources than buildings without basements. A portion of the area of the 63rd Street curves is also sensitive for 19th century industrial resources. Potential historic-period resources may be located in the 63rd Street APE as follows:

- Block 1418: potential 18th century farm resources, including outbuildings and shaft features, may be located within areas of Block 1418 from zero, five, and ten feet below the surface to the depth of the water table, which is unknown.
- Block 1437: potential 19th century residential resources (privies, wells, and cisterns) and industrial resources relating to a rope manufacturer may be located within areas of Block 1437 at depths ranging from the surface down to 6.5 feet and possibly deeper, to between five or 10 to 20 feet below grade.
- Block 1436: potential shaft features relating to four early-to mid-19th century residential structures may be located within areas of Block 1436 at depths ranging from the surface down, or from beneath existing foundations down, to eight feet below grade and possibly deeper depending on the depth of the water table, and from below existing foundations to a depth of 20 feet below grade.

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- 63rd Street between Second and Third Avenues: potential 18th century farm resources may be located within the 63rd Street roadbed and sidewalks from the surface down to eight feet below grade.

Potential 53rd Street Pedestrian Site. As described above, no historic structures have been documented in the 53rd Street pedestrian site APE. While there is a slight possibility that unmapped features related to Cato's Tavern could have been located as far away as in the APE, the distance and lack of fill in soil borings taken in the area closest to the tavern, which may have served to protect any historic-period resources, makes it highly unlikely. Therefore, the potential 53rd Street pedestrian site is not sensitive for historic-period resources.

### EAST MIDTOWN (59TH TO 34TH STREET)

#### *PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APE*

##### *Precontact Period*

Documentary sources indicate two Native American resources in proximity to the APE. Wickquasgeck Road was a well-traveled Native American trail that ran from the northern to the southern tip of Manhattan. This trail was west of the APE, except at approximately 57th Street, where it appeared to run near the west side of Second Avenue. In addition, as described above, traces of occupation were reported in the area of 59th Street near First and Second Avenues (NYSM Site #4061).

Early topographic maps suggest that there is one location within the APE on Second Avenue that would have had characteristics attractive to Native Americans, at Second Avenue and 42nd Street. This location was a well-drained area north of a stream that crossed Second Avenue at 37th Street, and that emptied into the East River less than one block away.

The potential 42nd Street pedestrian site was located approximately 100 feet from a freshwater stream, and therefore there is the potential for precontact resources.

The potential shaft site/staging area at St. Vartan Park was once located between two streams that emptied into Kips Bay on the East River. The area would thus have had both a riverine and an estuarine environment, making it suitable for hunting, fishing and, just east of the APE, collecting of shellfish. It also may have contained discrete sections of habitable land. Therefore, the site has a moderate potential for precontact resources.

##### *Historic Period*

A previously inventoried historic-period site in the vicinity of the APE is NYS Site A061.01.009530, where archaeological investigations of the Bernard M. Baruch College Site B were undertaken on the block between 25th and 24th Streets and Third and Lexington Avenues, about 10 blocks southwest of the APE. Excavations revealed a subsurface drainage network with piping and slate-capped brick drains as well as cobbled surfaces dating to the 19th century. Its location near the APE indicates the potential for nearby areas, including within the APE, to contain similar resources.

The APE on Second Avenue has the potential for the presence of a number of resources associated with 19th century residential properties. An early 19th century Turtle Bay Farm structure between 45th and 44th Streets, an early 19th century Kips Bay Farm structure between 39th and 38th Streets, and a 19th century Kips Bay Farm structure between 36th and 35th

Streets, may yield historic period resources in the form of building foundations and shaft features, which could contain important archaeological artifacts associated with refuse disposal.

While the 42nd Street pedestrian site fell within what was once an 18th century farm, historic maps do not show any historic structures within this area. Historic maps indicate that the main structures of the farm were located approximately 250 feet away, and, therefore, there is only a minimal probability that subsurface features associated with the farm may lie within the 42nd Street pedestrian site.

The potential shaft site/staging area at St. Vartan Park was originally part of the Kips Bay Farm, a large land tract associated with the descendents of Jacob Hendricksen Kip who emigrated from the Netherlands to New Amsterdam at the beginning of the 17th century. After 1804, the Kips Bay Farm was laid out into lots and was divided by various members of the Kip family. One structure, probably a residence, was present in the APE by 1820, though no longer present in 1850. It is likely that shaft features associated with this structure may be located within the APE, as well as any structural foundations of the house itself. There is also the possibility that historic remains exist within the APE relating to another Kip structure, located across 35th Street south of the APE. However, the placement of this 17th century house is questionable, and it and any potential shaft features associated with it may have been located in or near the APE. In addition, the APE is also sensitive for 19th century residential remains associated with buildings that were erected on the site following the subdivision of the Kip property. Shaft features from the second half of the 19th century could be present in the former areas of the backyards of these buildings.

*DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

*Precontact Period*

Second Avenue between 59th and 34th Streets. Soil borings indicate that potential precontact period resources may lie on the west side of Second Avenue at the intersection of 42nd Street between 2 and 6 feet below grade.

Potential 42nd Street Pedestrian Site. Soil borings taken in the western half of the APE show approximately seven feet of fill, which may have served to protect any potential precontact resources from subsequent 19th and 20th century disturbance. In the eastern half of the APE, soil borings indicated that either there is no fill over natural soils, or there is fill over no or little natural soils, indicating that it is unlikely that potential precontact resources exist. Therefore, only the western half of the APE contains precontact sensitivity, which is estimated at between five to seven feet below grade.

Potential Shaft Site/Staging Area at St. Vartan Park. Soil borings indicate that the potential shaft site/staging area at St. Vartan Park contains a layer of historic-period fill ranging from 7 to 15 feet in depth that either represents building demolition debris or added fill introduced in the mid 19th century. If this layer is introduced fill, it could have protected precontact resources from later construction, except for where deep shafts (such as for 19th century wells and privies) may have been excavated. Therefore, the potential shaft site retains a moderate potential for precontact resources, which may lie below the fill between 7 and 20 feet below the surface.

*Historic Period*

Second Avenue between 59th and 34th Streets. Soil borings taken in the vicinity of the area potentially sensitive for the Turtle Bay Farm structures between 45th and 44th Streets show fill

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layers ranging from 10 feet over bedrock on the west side of Second Avenue between 45th and 44th Streets to 5 feet over bedrock on the east side of Second Avenue. Groundwater was struck at depths of 14 and 16 feet, respectively. This area is also traversed by buried telephone and electric ducts as well as 12-inch water pipes with a soil cover of 4 feet buried beneath the sidewalks in this location. A 12-inch sewer had been installed in the middle of Second Avenue in 1868, and the stanchions of the Second Avenue elevated train ran along Second Avenue. The site of the potential Turtle Bay Farm structure and any potential associated shaft features may have been left undisturbed, and, therefore, the area of Second Avenue between 45th and 44th Streets is considered sensitive for the 19th century Turtle Bay Farm structure and potential associated shaft features at a depth of up to 16 feet below the surface.

Historic disturbance in the area of the potential Kips Bay Farm structure between 39th and 38th Streets includes the stanchions for the Second Avenue elevated, a 5-by-4-foot sewer line in the middle of Second Avenue just above bedrock, and other utilities including electric and telephone ducts in the roadbed adjacent to the sidewalk, as well as gas and water lines less than 24 inches in diameter. A larger water line also ran along East 38th Street. The foundations of the house and wells or other shaft features associated with the Kips Bay Farm structure may lie in the APE between 39th and 38th Streets. Since the water table in this area is reported at about 12 feet below grade, it is expected that a well associated with the house may be encountered from the surface up to 12 feet below grade.

The site of the Kips Bay Farm structure between 36th and 35th Streets has been traversed by similar utilities as those described above for the Turtle Bay Farm structure and Kips Bay Farm structure between 39th and 38th Streets. In addition, a buried postal cable for telegraphs crossed this area as well. Soil borings reported the water table at about 6 feet below grade at 35th Street and at 18 feet below grade at 26th Street. Therefore, foundations as well as any potential wells associated with the house could extend from the surface down to 18 feet below grade.

Potential 42nd Street Pedestrian Site. As described above, no historic structures have been documented on the site of the potential pedestrian connection on 42nd Street. In addition, most soil borings taken in the area indicate a lack of any natural soils. Therefore, the potential 42nd Street pedestrian site lacks historic-period sensitivity.

Potential Shaft Site/Staging Area at St. Vartan Park. In addition to 19th century filling, construction of the present St. Vartan Park began in 1901, and involved the removal of all the 19th century structures. The APE is now predominantly paved and contains basketball and handball courts. Various utilities appear to be present. However, it is not expected that large portions of the APE were disturbed by construction of the park, and it is possible that the construction activity may have helped preserve any potential historic-period resources beneath the park. Therefore, this potential shaft site/staging area is sensitive for 17th to mid 19th century residential features at a depth of up to 20 feet below the surface.

### **GRAMERCY PARK/UNION SQUARE (34TH TO 10TH STREET)**

#### *PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT IN THE APE*

##### *Precontact Period*

There are three possible Native American resources documented in proximity to the APE. The Wickquasgeck Road, described above, was a well-traveled Native American trail that ran from

the northern to the southern tip of Manhattan. A second potential resource is located approximately at 10th Street and consists of a second Native American trail, crossing from planting fields located west of the APE near the Hudson River to a habitation site. In addition, a Native American settlement called Schepmoes was reported in the area of Second Avenue in the vicinity of 14th Street, although this site has also been placed farther south, closer to Second Avenue and 10th Street. A number of areas within the APE on Second Avenue appear to have had characteristics favorable to Native American use. These include the area on Second Avenue between 23rd and 19th Streets which was shown on predevelopment maps once as an elevated area north of a stream and marshland and near the East River, and the area on Second Avenue between 16th and 15th Streets, which was shown on predevelopment maps as a well drained location between two streams surrounded by a marsh, and located approximately one block from the original East River shoreline.

The potential shaft site/staging area on Second Avenue between 33rd and 32nd Streets and extending east on 33rd Street was shown on predevelopment maps as well-drained, elevated land in proximity to a fresh water stream and the East River. This predevelopment characteristic, as well as the former presence of a stream that flowed through the block east of Second Avenue, indicates that the APE has the potential for precontact resources.

The eastern end of the 14th Street pedestrian site appears to have been wetlands. While the wetlands themselves would not likely contain precontact resources, Native American settlements and food procurement activities may have located on the margin of the wetlands. Therefore, this site has the potential for precontact resources.

#### *Historic Period*

As described above, archaeological investigations were undertaken at the Bernard M. Baruch College Site B on the block between 25th and 24th Streets and Third and Lexington Avenues (NYS Site A061.01.009530), one block west of the APE, revealing a drainage network and cobbled surfaces dating to the 19th century. Documentary research indicates the potential for a number of historic-period resources to be located within the APE on Second Avenue. Potential historic-period residential resources relating to two early 19th century Kips Bay Farm structures may be present on Second Avenue between 31st and 29th Streets; potential shaft features relating to the early 19th century Petersfield Farm, which was the principal residence of Peter G. Stuyvesant, the son of the Dutch Governor Peter Stuyvesant may be present between 14th and 13th Streets; and two early 19th century structures associated with St. Marks-in-the-Bowery Church may be present between 11th and 10th Streets.

The potential shaft site/staging area on Second Avenue between 33rd and 32nd Streets and extending east on 33rd Street was once owned by the Kip family, described above. After 1804, a Kip family member built a house on the south side of what is now 33rd Street, as well as a smaller structure, perhaps a barn, in the present 33rd Street roadbed within the APE. Therefore, this potential shaft site/staging area is sensitive for foundation remains of these structures as well as any associated shaft features on 33rd Street.

The potential 14th Street pedestrian site once fell within the boundaries of the circa 17th- early 19th century Stuyvesant Farm. One street passed adjacent to the eastern end of the 14th Street pedestrian site, which led to the residence of Peter Stuyvesant, approximately one-and-a-half blocks east of Second Avenue and 14th Street.

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### *DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

#### *Precontact Period*

Second Avenue between 34th and 10th Streets. Cartographic and subsurface documentation indicates that four areas within the APE on Second Avenue are sensitive for potential precontact resources. These resources may be found beneath historic-period fill levels that vary within the APE, and which may have served to protect precontact resources, as follows:

- Second Avenue between 23rd and 21st Streets excluding the west side of Second Avenue between 23rd and 22nd Streets: potential resources may be located 4 to 10 feet below grade.
- Second Avenue between 21st and 20th Streets: potential resources may be located 19 to 25 feet below grade.
- Second Avenue at 19th Street: potential resources may be located 9 to 13 feet below grade.
- Second Avenue, 16th to 15th Street: potential resources may be located 12 to 17 feet below grade.

Potential 33rd Street Staging Area. In addition, the potential shaft site/staging site on 33rd Street is sensitive for precontact resources located beneath the fill, which ranges from 6 to 18 feet below the surface. Therefore, potential precontact resources may exist below the depth of fill for another 5 feet, at a depth of between 6 and 23 feet below grade.

Potential 14th Street Pedestrian Site. The 14th Street roadbed has previously been disturbed by cut and cover construction to build the L subway station. Soil borings taken north of the site on 15th Street indicate that ground water was present nine to 11.5 feet below grade, confirming that the area contained a marsh. Soil borings taken on 14th Street during the 1930's do not identify fill layers, though more recent borings taken on 15th Street identify fill layers of four to five feet, and possibly deeper to nine to 13 feet. Therefore, the sidewalks on 14th Street not affected by the construction of the L subway station and associated subway vents are sensitive for precontact resources from five to 18 feet below grade.

#### *Historic Period*

Second Avenue between 34th and 10th Streets. Subsurface disturbance in the area of the potentially sensitive Kips Bay Farm structures between 31st and 29th Streets includes the construction over a portion of one of the former building locations of the three-story Kips Bay Plaza building, a sewer in the center of Second Avenue, as well as assumed gas and water pipe, electrical and telephone ducts, and buried postal cables for telegraphs on the east side of Second Avenue, and supports for the Second Avenue Elevated. Soil borings indicate the depth of the water table at 18 feet, indicating that potential shaft features may be encountered between the surface and 18 feet below the surface.

Between 14th and 13th Streets, at the potentially sensitive site of the "Petersfield" estate, a sewer line, gas and water lines, as well as an electrical duct are present beneath the Second Avenue roadbed. Borings indicate a level of fill of about 4 feet, with the water table located at approximately 15 feet below the surface. Therefore, this portion of the APE is sensitive for historic-period shaft features associated with the Petersfield estate from the surface down to 15 feet below grade.

In the potentially sensitive area between 11th and 10th Streets, fill is shown to extend for about 5 feet below the surface, with the water table reported at approximately 11 feet below grade. Disturbance in this area also includes some utilities, including a sewer pipe down Second Avenue and other utilities located on the east and west sides of Second Avenue. The depth of fill and the location of the water table indicate that this portion of the APE is sensitive for the foundations of the two structures associated with the church, as well as for any potential shaft features, for a depth between up to 11 feet below the surface.

*Potential 33rd Street Shaft Site/Staging Area.* It is expected that wells, privies, or cisterns associated with the Kip property on 33rd Street may be found on 33rd Street at a depth of up to 40 feet, the reported depth of the water table, beneath fill layers that range from 5 feet to 18 feet below the surface. The reported level of fill on 33rd Street may have served to protect such resources from the impact of any utilities installed on 33rd Street.

*Potential 14th Street Pedestrian Site* Disturbance caused by the construction of the existing L station, as well as the lack of documentary evidence of historic structures in the APE, makes it unlikely that any historic-period resources are present in the portions of the 14th Street sidewalks not affected by the subway station construction. Therefore, the 14th Street Pedestrian site is not sensitive for historic-period resources.

## **EAST VILLAGE/CHINATOWN/LOWER EAST SIDE (10TH STREET TO BROOKLYN BRIDGE)**

### *PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APE*

#### *10th Street to Houston Street*

*Precontact Period.* As detailed above, two Native American sites have been documented in the vicinity of the APE, the Wickquasgeck Road, and the Native American trail west of 10th Street. Based on topographic maps and comparative site location data, the Second Avenue roadbed in this APE has a moderate potential for precontact resources between 9th and 6th Streets and between 6th and Houston Streets. The potential shaft site at the northeast corner of Second Avenue and 1st Street possesses no precontact potential.

*Historic Period.* Sections of this APE are sensitive for historic-period resources, particularly in terms of potential human remains associated with historic-period burials. Historical burials may be located beneath the west side of Second Avenue and beneath the adjoining sidewalk between 2nd and 1st Streets, relating to the 19th century Methodist Cemetery of the Methodist Episcopal Church. Prior to the construction of Second Avenue in 1817, a portion of this cemetery extended into the APE. Therefore, it is possible that human remains may have been inadvertently left in place when Second Avenue was built over the cemetery. Burials may also be present in some locations on the block bounded by Houston and 1st Streets and Second and First Avenues (Block 442). Lot 6 of this block, where a vent plant for the Houston Street Station may be built, is sensitive for burials related to the First Baptist Church that once stood on this lot. In addition, the southern portion of the block along Houston Street, consisting of former lots 53-59, may be sensitive for burials relating to the former early 19th century First Baptist Cemetery in that location. The north side of the block along 1st Street, consisting of Lots 12-15, was once owned by St. Stephen's Episcopal Church. Documentary research has found references to a cemetery on this site; therefore, these lots are sensitive for burials relating to a potential cemetery operated by St. Stephen's Episcopal Church. In addition, the potential shaft site/staging area at the northeast

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corner of Second Avenue and 1st Street may possess historic-period potential for mid-19th century residential features, as there may be remains of deeply buried and truncated mid-19th century domestic shaft features associated with the former 19th century buildings located at 30 and 32 East 1st Street.

*Area Bounded by Houston Street, Canal Street, Chrystie and Forsyth Streets, including Sara D. Roosevelt Park*

Precontact Period. The APE for areas south of Houston Street has a moderate potential for precontact resources that may lie 3 to 4 feet beneath the base of the fill layers within the Chrystie, Forsyth, Grand and Canal Street roadbeds, and beneath Sara Delano Roosevelt Park. In addition, the sites of potential ancillary facilities on Broome and Grand Streets between Chrystie Street and Bowery were in the immediate vicinity of a piece of land called “Werpoes” by Native Americans, and, therefore, it is possible that Native American habitation or activity sites may have been located in these APEs.

Historic Period. Several cemeteries were once located in or near the northern end of Sara D. Roosevelt Park, described below. Some burials may be located in the northern two-thirds of the former block bounded by Houston, Stanton, Chrystie, and Forsyth Streets, now part of Sara D. Roosevelt Park, which was once the site of the 19th century Presbyterian Cemetery (in operation between 1803 to 1865). In addition, the boundaries of this cemetery may extend into the South Houston Street sidewalk, and sidewalks on the east side of Chrystie Street and west side of Forsyth Street, due to the widening of Chrystie and Forsyth Streets over the original block that contained the cemetery (see discussion below, “Documentation of Disturbance/Identification of Potential Undisturbed Resources.”) In addition, abutting the southern boundary of the Presbyterian Cemetery was the Stanton Street Baptist Church, which fronted on Stanton Street between circa 1836 and 1881 when this street was a through street between Chrystie and Forsyth Streets prior to the construction of Sara D. Roosevelt Park. While documentary research did not find references to a cemetery in this location, the church had an approximately 3,000-square-foot yard, and, therefore, it is possible that burials may have been undertaken on the church property surrounding the church or beneath the church itself.

Burials from other cemeteries located just outside the APE may also extend beneath the sidewalks within the APE. These include burials associated with the 18th and 19th century Dutch or German Evangelical Mission (in operation between 1796 and 1866), which stood just east of Forsyth Street between Houston and Stanton Streets, just outside of the APE, with the possibility that burials extended out under the east sidewalk of Forsyth Street between Houston and Stanton Streets (the Dutch Evangelical Mission predates an 1823 restriction banning burials beneath sidewalks by at least 27 years). These also include burials associated with the 18th and 19th century Negro Burying Ground, St. Philip’s Cemetery in operation between 1795 and 1852, once located just outside the APE between Stanton, Rivington, and Chrystie Streets, and the Bowery. There is the possibility that burials from this cemetery, from between 1795 to 1809, extended beneath the west Chrystie Street sidewalk in front of the cemetery between Stanton and Rivington Streets (this cemetery also predates the 1823 restriction on burials beneath sidewalks).

In addition, there is the possibility that burials may be present in Sara D. Roosevelt Park in the area that was formerly the southeast corner of Chrystie Street and Broome Street, when Broome Street was a through-street between Chrystie and Forsyth Streets prior to the construction of Sara D. Roosevelt Park (see discussion below, “Documentation of Disturbances/Identification of Potential Undisturbed Resources”). The potential burials relating to the early 19th century St. Stephen’s Episcopal Church Cemetery were reportedly removed, though burials may have



inadvertently been left behind. Burials may also be located in Sara D. Roosevelt Park in the area of the northeast corner of Chrystie and Delancey Streets. This site was once the location of the circa 1819-1856 Bethel Baptist Church and Cemetery. Though this site was subsequently redeveloped a number of times (see discussion below, “Documentation of Disturbance/Identification of Potential Undisturbed Resources), a newspaper article from 1964 indicates that approximately 200 burials were encountered during construction of the present Sara D. Roosevelt Park Golden Age Center in that location.

The APE north of Grand Street, excluding Delancey Street but including Sara D. Roosevelt Park and the Forsyth and Grand Street roadbeds and sidewalks, may contain 17th and/or 18th century farm building remains, as could Sara D. Roosevelt Park south of Grand Street. Sara D. Roosevelt Park between former Broome and Grand Streets, as well as the site of potential ancillary station facilities on Grand Street between Chrystie Street and Bowery, may also contain remains of late 18th century British fortifications. Potential shaft features associated with 19th century tenements and remains from a 19th century foundry that once stood in the area of present Sara D. Roosevelt Park may also be present.

#### *Canal Street to Brooklyn Bridge*

*Precontact Period.* Early topographic maps show the APE between Bayard and Division Streets as flat meadowland located about four blocks from the nearest mapped fresh water source. Farther south, Chatham Square appears on historic maps as a gentle slope, located several blocks from the nearest mapped water source. The APE on St. James Place appears as meadowland with a stream that ran from the Collect Pond, a fresh water source, close by. Pearl Street from its junction with St. James Place to the Brooklyn Bridge was directly on the East River shoreline at the time of European contact, and could have been the site of Native American encampments. Therefore, the area on the Bowery between Bayard and Division Streets, Chatham Square, the majority of the APE on St. James Place, and Pearl Street, are considered to possess moderate potential for precontact resources.

*Historic Period.* Chatham Square was historically an open area that by 1812 was converted into a park. The earliest development around what is now Chatham Square can be seen on maps as early as 1744. Several of the structures that were on the eastern side of the square may fall within the APE. These include an 18th century ropewalk (a location where rope was manufactured), an unlabeled 18th century building, a late 18th century watch house, and possibly the Presbyterian Church, which dates to the late 18th century.

St. James Place possesses moderate potential for historic-period resources dating from the 17th century onward. St. James Place between Chatham Square and James Street was historically the site of the Shearith Israel Cemetery, a portion of which still exists on the east side of St. James Place between Oliver and James Streets. In addition, the block around the cemetery was also developed from at least the 1760s onward, as was the area farther south on St. James Place and on Pearl Street. Therefore, these areas have the potential to contain historic-period residential features dating from the 18th and 19th centuries.

#### *DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

##### *10th Street to Houston Street*

*Precontact Period.* There is a moderate potential for precontact resources to be located within the APE between 9th and 6th Streets beneath the historic-period fill, at an estimated depth of

between 7 and 15 feet below the surface. There is also a moderate potential for precontact resources to be located between 6th and 1st Streets at a depth of between 2 and 23 feet below grade, with the exception of the west side of Second Avenue and the adjoining sidewalk between 2nd and 1st Streets, which could have been disturbed by the interment of human burials associated with the Methodist Cemetery of the Methodist Episcopal Church. It is assumed for the purposes of this analysis that precontact potential would have been eliminated through the interment of burials. However, if this is not the case, then this area would be considered to possess precontact sensitivity. The center of Second Avenue is sensitive for precontact resources at a depth of 24-29 feet below grade. The potential shaft site/staging area at the northeast corner of Second Avenue and 1st Street possesses no archaeological sensitivity as a result of the extensive disturbance that has occurred on the site, including the construction of 19th century dwellings, followed by the erection of a court building (the Fourth District Court) in 1885, Turkish Baths in 1926, and the present gas station.

*Historic Period.* Potential human remains associated with the Methodist Cemetery may be located beneath the west side of Second Avenue and the adjoining sidewalk between 2nd and 1st Streets at a depth of up to 13 feet below the surface. Human remains associated with the First Baptist Church and Cemetery, as well as the potential St. Stephen's Episcopal Church Cemetery, may be located on portions of the block bounded by Houston and 1st Streets and Second and First Avenues (Block 442, Lots 6, 12-15, and former Lots 53-59) at a depth of up to 36 feet below grade. The potential shaft site/staging area at the northeast corner of Second Avenue and 1st Street may retain truncated portions of shaft features from the former 19th century residences located on the site. While the 19th century residences were replaced by the Fourth District Court, followed by a new structure housing Turkish Baths, and finally by the present gas station, it is expected that the deeper portions of any potential shaft features—which could range in depth up to 70 feet below the surface—may have survived and may be present on the site.

*Area Bounded by Houston Street, Canal Street, Chrystie and Forsyth Streets, Including Sara D. Roosevelt Park*

*Precontact Period.* According to soil borings, the water table is very deep in this area. In the sections of this APE where 19th century buildings with basements were once present, such as in the area of the present Sara D. Roosevelt Park, excavations for these structures may have disturbed any precontact remains. However, this depends on the depth of fill added prior to the excavation of any basements. If deep fill levels were added prior to and during the intensive 19th century development of the area, precontact resources may be buried deep enough to have not been disturbed. Therefore, precontact sensitivity is estimated in the APE as follows:

- Chrystie Street, Forsyth Street, and Sara D. Roosevelt Park north of Delancey Street (excluding sidewalks adjacent to north half of Sara Roosevelt Park, existing subway tunnels, west side of Chrystie Street between Stanton and Rivington Streets, and east side of Forsyth Street between Houston and Stanton Streets): potential resources may be located between 2 and 23 feet below grade, below the fill, which ranges from 2 to 18 feet below grade.
- Chrystie Street between Delancey and Broome Streets, except existing subway tunnel: potential resources may be located between 6 and 21 feet below grade.
- Sara D. Roosevelt Park and Forsyth Street between Delancey and Broome Streets, including the former Broome Street roadbed now incorporated into Sara D. Roosevelt Park: potential resources may be located between 16 and 21 feet below grade, below the fill, which extends approximately 15 feet below grade.

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- Chrystie Street between Broome and Grand Streets, except existing subway tunnel: potential resources may be located between 4 and 18 feet below grade.
- Site of potential ancillary station facilities on Broome Street between Chrystie Street and Bowery: potential resources may be located between 10 and 20 feet below grade.
- Sara D. Roosevelt Park and Forsyth Street between Broome and Hester Streets and including the Grand Street and former Hester Street roadbeds: potential resources may be located between 15 and 20 feet below grade in general, and at about 23 to 28 feet below grade at the corner of Chrystie and Grand Streets.
- Chrystie Street between Grand and Hester Streets, except existing subway tunnel: potential resources may be located between 3 and 24 feet below grade.
- Chrystie Street between Hester and Canal Streets: potential resources may be located between 13 and 21 feet below grade.
- Sara D. Roosevelt Park and Forsyth Street between Hester and Canal Streets, including the Canal Street roadbed: potential resources may be located between 19 and 24 feet below grade.

There is no precontact potential where the existing subway tunnel runs beneath Chrystie Street from Houston to Canal Street. There is also no precontact potential beneath the northern half of Sara D. Roosevelt Park and adjacent sidewalks on Houston, Chrystie and Forsyth Streets, where the former Presbyterian Cemetery stood, nor is there such potential on the site of the former Stanton Street Baptist Church or at the northeast corner of Chrystie and Delancey Streets where the Bethel Baptist Church and Cemetery were located. Further, there is no precontact potential on the west side of Chrystie Street and the east side of Forsyth Street, where the respective Negro Burying Ground/St. Philip's Episcopal Church Cemetery and German Evangelical Mission Cemetery potentially could have extended out from the adjacent blocks beneath the sidewalks. However, as discussed above, should burials have not extended into the APE, these areas would be considered to possess precontact sensitivity.

*Historic Period.* Between 1907 and 1913, the existing subway beneath Delancey Street was built via cut-and-cover construction, eliminating any potential archaeological sensitivity. During the 19th and early 20th centuries, the blocks now occupied by Sara D. Roosevelt Park underwent a number of development and redevelopment episodes, including the locations of cemeteries located in Sara D. Roosevelt Park. Documentary research indicates that the site of the Stanton Street Baptist Church was redeveloped with an industrial complex, and the site of the Bethel Baptist Church and Cemetery at the northeast corner of Chrystie and Delancey Streets redeveloped as a school and later a hotel. However, since burials were encountered during the 1960's at the site of the Bethel Baptist Church even though a number of redevelopment episodes had occurred there, these sites are conservatively assumed to retain potential for human remains as outlined below. In 1934, Sara D. Roosevelt Park was built on seven blocks formerly fully developed with buildings and other uses. The original design and construction of the park included the creation of playing surfaces approximately 6 feet below current grade. The sunken playing areas were recently raised to street level. In conjunction with the construction of the park, which commenced with the acquisition of the land (Block 420) in 1929, Chrystie and Forsyth Streets were each widened by approximately 25 feet; Chrystie Street was widened on its east side and Forsyth Street widened on its west. In addition, Stanton, Rivington, Broome, and Hester Streets were closed between Chrystie and Forsyth Streets and the park built over the

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former roadbeds. In 1960, the existing subway beneath Chrystie Street was built. This tunnel was built by cut-and-cover construction on Chrystie Street and Houston Street in the APE, eliminating any archaeological potential in these areas. In addition, utilities were installed under Houston Street, creating disturbance to potential resources. Therefore, the APE is sensitive for historic-period resources, including human burials, as follows:

- Northern end of Sara D. Roosevelt Park and adjacent sidewalks: historic burials associated with the 19th century Presbyterian Cemetery, located up to 12 feet below grade.
- Sara D. Roosevelt Park, former north side of Stanton Street: potential historic burials associated with the 19th century Stanton Street Baptist Church, located up to 16 feet below grade.
- Sara D. Roosevelt Park between Houston and Delancey Streets: 19th-century foundry and tenements located up to 34 feet below grade.
- Forsyth Street (east side) between Houston and Stanton Streets: historic burials associated with the Dutch/German Evangelical Mission Cemetery, located up to 12 feet below grade.
- Chrystie Street (west side) between Stanton and Rivington Streets: historic burials associated with the 18th and 19th century Negro Burying Ground, St. Philip's Cemetery, located up to 14 feet below grade.
- Sara D. Roosevelt Park, northeast corner of Chrystie and Delancey Streets and adjacent east Chrystie Street sidewalk and Chrystie Street roadbed not disturbed by the existing subway beneath Chrystie Street: historical burials associated with the 19th century Bethel Baptist Church and Cemetery, located up to 36 feet below grade.
- Sara D. Roosevelt Park between Delancey and Canal Streets: 17th to 18th century farm building remains beneath the fill between 14 and 33 feet below grade and 19th century residential shaft features located up to 33 feet below grade.
- Sara D. Roosevelt Park between former Broome Street and Grand Street (northern two-thirds of former block north of Grand Street): 18th century British fortifications below the fill from about 14 to 33 feet below grade.
- Sara D. Roosevelt Park, former southeast corner of Chrystie Street and Broome Street: historic burials associated with the early 19th century St. Stephen's Episcopal Church, located up to 20 feet below grade.
- West side of Forsyth Street between Delancey and Canal Streets: 19th century residential shaft features up to 33 feet below grade.
- Forsyth Street between Delancey and Grand Streets: 17th to 18th century farm remains beneath the fill between 14 and 33 feet below grade.
- Chrystie Street between Delancey and Broome Streets, except existing subway tunnel: 18th to 19th century residential features located up to 34 feet below grade.
- Chrystie Street between Broome and Grand Streets, except existing subway tunnel: 18th to 19th-century residential features located up to 30 feet below grade.
- Grand Street between Chrystie and Forsyth Streets: 17th to 18th century farm building remains beneath the fill between 14 and 33 feet below grade.

- Site of potential ancillary station facilities on Grand Street between Chrystie Street and the Bowery: 18th century British fortifications located up to 22 feet below grade.
- Chrystie Street between Grand and Hester Streets, except for existing subway tunnel: 18th to 19th-century residential features located up to 37 feet below grade.
- Chrystie Street between Hester and Canal Streets: 18th to 19th century residential features located up to 37 feet below grade.

*Canal Street to Brooklyn Bridge*

Precontact Period. Soil borings indicate the presence of fill layers that vary throughout the APE, and that may have served to protect potential precontact resources. Areas in the APE that may contain potential precontact resources are as follows:

- Bowery between Bayard and Division Streets (outside the area of the existing subway tunnel): potential resources may be located 10.6 to 27 feet below grade.
- Chatham Square: potential resources may be located between 16 and 21 feet below grade.
- St. James Place between James and Madison Streets: potential resources may be located between 12.5 to 32 feet below grade.
- St. James Place at Madison Street: potential resources may be located between 18 and 24 feet below grade.
- St. James Place between Roosevelt and Pearl Streets: potential resources may be located between 14.6 and 30 feet below grade.
- Pearl Street between St. James Place and the Brooklyn Bridge, excluding the east side of Pearl Street: potential resources may be located between 9 and 26 feet below grade.

Historic Period. Historic disturbance in the APE includes the construction of New Bowery, now St. James Place, and construction of the existing subway tunnel beneath the Bowery. All of the buildings in the route of New Bowery, as well as the Shearith Israel Graveyard burials, were removed, and the road laid out. The APE on St. James Place has the potential for both cemetery shafts and remains that were unintentionally left in place when the road was built. Although records indicated that hundreds of bodies were reinterred elsewhere, the possibility exists that some remains were left in place. The APE on St. James Place is also sensitive for potential shaft features for the 18th and 19th century residential buildings located in the APE on St. James Place. The area of the APE on the Bowery between Canal and Division Streets is not sensitive for historic-period resources. Specific areas of sensitivity on St. James Place, Chatham Square, and Pearl Streets, are as follows:

- Chatham Square (east side between Division Street and East Broadway): ca. 1744 rope walk, unlabeled building, ca. 1796 watch house, and ca. 1789 New Presbyterian Church, features located up to 16 feet below grade.
- St. James Place between Oliver and James Streets: ca. 1656-1831 Shearith Israel Cemetery burials located at up to 8 feet below grade and 19th-century residential features located at up to 26.5 feet below grade.
- St. James Place between James and Madison Streets: 19th-century residential resources located at up to 27 feet below grade.

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- St. James Place at Madison Street: 19th century residential resources located up to 19 feet below grade.
- St. James Place between Roosevelt and Pearl Streets: 18th and 19th-century residential features located up to 25 feet below grade.
- Pearl Street between St. James Place and the Brooklyn Bridge: 18th and 19th-century residential and commercial features located up to 41 feet below grade.

### **LOWER MANHATTAN (BROOKLYN BRIDGE TO PETER MINUIT PLAZA)**

#### *PRELIMINARY IDENTIFICATION OF THE POSSIBILITY OF ARCHAEOLOGICAL RESOURCES BEING PRESENT WITHIN THE APE*

##### *Brooklyn Bridge to Wall Street*

*Precontact Period.* Documentation by early European settlers of Lower Manhattan includes references to Native American place names for several areas in Lower Manhattan, indicating the presence of Native Americans there. The southern tip of Manhattan was called Kapsee by Native Americans in the 17th century and was described as a ledge of rocks at the southernmost point of Manhattan Island, probably in the vicinity of what is now Battery Park. To the north, the landform termed “Ashibic” by Native Americans may have been a narrow ridge or ancient cliff north of Beekman Street in Lower Manhattan that was bounded by marsh to the south. The Native American term “Catiemuts” for another nearby area most likely referred to a fort or hill located several blocks west of the project site near Pearl Street and Park Row.

Early topographic maps indicate that many areas of the APE were meadowlands, not far from fresh water. Thus, these areas may have been attractive for Native American habitation. The APE south of and including Fulton Street was land under water at the time of European contact, but prior to this there may have been sections that were exposed and were habitable during the precontact period. Archaeologists have reported that the southern tip of Manhattan was probably exploited by Native Americans for shellfish harvesting and even perhaps habitation. West of the APE near Pearl Street, where the ca. 1600 shoreline ran, early chroniclers reported abundant shellfish remains and speculated that the area functioned as a Native American canoe landing.

No precontact sites have been documented or inventoried within the APE. The preservation of precontact sites in an urban environment is rare, which is particularly true in Lower Manhattan, where intensive development has occurred for more than 300 years. Despite this, some precontact material has been recovered in recent years from archaeological excavations in Lower Manhattan outside the APE, including at excavations on Stone Street in 1980, where aboriginal pottery and stone materials were found. In a later field investigation on Broad Street, a precontact period feature was found in direct association with the Dutch West India storehouse.

Areas within the APE on Pearl and Water Streets, between Avenue of the Finest and Wall Street, have been identified as possessing the potential for precontact resources.

*Historic Period.* Numerous historic period sites have been identified in the vicinity of the APE, and include a ferry landing, a foundry, Dutch living surfaces (artifacts associated with the early Dutch occupation of Lower Manhattan), and 17th through 20th century residential and commercial features and landfill. These sites include the Municipal Ferry Pier, Castle Clinton at Battery Park, and portions of the South Street Seaport Historic District, all of which are listed on

the National Register of Historic Places. The Fraunces Tavern Block Historic District lies immediately west of the APE.

A review of documentary and cartographic research, as well as a review of soil borings taken nearby, indicate that the APE possesses historic period potential. These could include 18th and 19th century fill and fill retaining devices, including wharves, piers, bulkheads and sunken ships. Resources potentially extend from the surface down to the deepest reported fill, and possibly down to what may have been the 17th century river bottom.

*Wall Street to Coenties Slip*

*Precontact Period.* When Europeans first arrived in New York, the East River shoreline was farther west than it is today, and much of this APE was underwater. The southernmost tip of the APE was fast land (a natural land form as opposed to man-made land [fill]). but this section of the East River shoreline did not appear to be estuarial at the time of European contact, and, therefore, was probably not a site of shellfish gathering. Historic maps and documents dating between the 17th and 19th centuries depict the southernmost shoreline as somewhat rocky. Therefore, the APE on Water Street, as well as the potential spoils conveyance sites on Gouverneur Lane, Old Slip, and Vietnam Veterans Plaza, (which were land under water at the time of European contact) were determined to lack precontact archaeological potential.

*Historic Period.* Similar to the APE between the Brooklyn Bridge and Wall Street, the southernmost portion of the APE on Water Street is sensitive for such historic-period resources as fill and fill-retaining devices, including wharves, piers, bulkheads and sunken ships. Resources potentially extend from the surface down to the deepest reported fill, and possibly down to what may have been the 17th century river bottom. The entire APE between Wall Street and Coenties Slip has been identified as potentially sensitive for historic-period resources.

The potential spoils conveyance site on Gouverneur Lane was submerged in the early 17th century, but it may have been the location of early waterfront features, including wharves, piers or docks. Landfilling activity took place in the late 18th century that may have protected potential 17th and 18th century features. Since a considerable amount of landfill activity occurred in the area between Water Street and South Street, fill and fill-retaining devices (such as bulkhead and dumping boards) may be present beneath Gouverneur Lane. An early drainage system was installed in the Gouverneur Lane roadbed. Since this system was connected to street grates, the buried remains may still be present close to the surface. Thus, Gouverneur Lane is considered sensitive for these potential features.

In the vicinity of the potential spoils conveyance sites on Old Slip and at Vietnam Veterans Plaza, excavations at 55 Water Street revealed an extensive number of artifacts, as well as the original log crib footing under the northeast end of Cruger's Wharf, dating to 1740. At the Assay site, on Block 35 (northeast of the APE), documentary and cartographic research concluded that the block was potentially sensitive for historic-period resources. Subsequent field investigations found several of the lots to possess potentially significant resources and they were designated as a SHPO site (A061.01.1284).

Cartographic and documentary research indicates that Old Slip is potentially sensitive for historic period resources. Since Old Slip was once part of the East River, then became a slip, and was subsequently filled, it may be sensitive for fill—including potential sunken ships, cribbing, and fill-retaining devices—as well as discard from the historic markets that once stood on or near the APE. The southwest side of Old Slip also is potentially sensitive for remnants of the early 18th century Cruger's Wharf, while the northeast side is potentially sensitive for remnants

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of the late 18th century Low's Wharf. Thus, Old Slip is considered potentially sensitive for early historic material (dating from the mid-17th through 18th centuries).

Documentary and cartographic evidence indicates that the potential spoils conveyance site at Vietnam Veterans Plaza is sensitive for historic-period resources, including 19th century fill and fill-retaining devices, including wharves, piers, bulkheads, and sunken ships. The Middle Pier, built at the end of the 18th century, may have also been incorporated into the landfill, and therefore this APE is also sensitive for this resource.

### *Coenties Slip to and Including Peter Minuit Plaza*

*Precontact Period.* Similar to the APE between Wall Street and Coenties Slip, cartographic research indicates that Water Street between Coenties Slip and Peter Minuit Plaza near State Street was under water during the precontact period. However, it is possible that there may have been times when these areas were not submerged. Archaeological research has shown that shellfish beds were located at least several miles south of the APE, so it is unlikely that shellfish exploitation and the building of shell middens would have occurred in these areas. In any case, since this portion of the APE was inundated and any potential resources subjected to tidal action—as well as dredging in later years—and subsequently buried beneath landfill, this APE was determined to lack precontact archaeological potential.

*Historic Period.* Portions of Water Street, State Street, and Peter Minuit Plaza are sensitive for historic-period resources similar to those identified in the other Lower Manhattan APEs, such as 17th and 18th century fill, including sunken ships and fill-retaining devices. In addition, portions of the APE were once developed city blocks prior to the widening of Water Street to the east. Therefore, portions of the APE also possess potential for resources related to the 18th through 20th century structures that once were located east of Water Street.

## *DOCUMENTATION OF DISTURBANCE/IDENTIFICATION OF POTENTIAL UNDISTURBED RESOURCES*

### *Brooklyn Bridge to Wall Street*

*Precontact Period.* Potential precontact sensitivity is anticipated on Pearl and Water Streets within the APE beneath existing fill layers, except in areas where historic shipping slips were located and would have involved dredging. These locations are where Fulton, John, and Wall Streets, as well as Maiden Lane, cross Water Street. Therefore, potential precontact resources identified in the APE are as follows:

- Pearl Street between the Brooklyn Bridge and Peck Slip: potential resources may be located between 9 and 26 feet below grade.
- Pearl Street between Peck Slip and Beekman Street: potential resources may be located between 15 and 28 feet below grade.
- Pearl Street between Beekman and Fulton Streets: potential resources may be located between 14 and 23.5 feet below grade.
- Fulton Street at Pearl Street: potential resources may be located at an unknown depth.
- Water Street between Fulton and John Streets (excluding John Street): potential resources may be located between 14 and 23 feet below grade.



- Water Street between John Street and Maiden Lane (excluding Maiden Lane): potential resources may be located between 15 and 33 feet below grade.
- Water Street between Maiden Lane and Wall Street (except Wall Street): potential resources may be located between 18 and 28 feet below grade.

*Historic Period.* The Water Street APE, which was land underwater at the time of European contact, is located entirely on landfill created by the leveling of hills and deposition of the soil along the shoreline, by garbage, soil removed for the construction of building basements, and fill-retaining devices such as ships and wharf cribbing. Filling commenced at the end of the 17th century. Water Street was first built as a wharf, paralleling the East River shoreline, in 1691. By 1757, filling had occurred east of the wharf, though shipping slips still interrupted the path of Water Street at Coenties Slip and Burling Slip at John Street. These slips were eventually also filled. In the late 1960s, Water Street was widened on its east side, from a width of 30 feet to its current width of approximately 80 feet. The buildings on its east side were razed, and the street expanded over this area with the locations of former 19th and 20th century buildings lying within the present Water Street roadbed. The potential historic-period resources in the APE extend from the surface down to the deepest reported fill, reported at 19 feet below grade, and what possibly may have been the 17th century river bottom, extending down to 25 feet below grade. Specific areas of historic-period sensitivity are as follows:

- Pearl Street (west side) between the Brooklyn Bridge and Peck Slip: 18th and 19th-century residential and commercial features located up to a depth of 21 feet below grade.
- Pearl Street between Peck Slip and Beekman Street: 18th and 19th-century residential and commercial features located up to 23 feet below grade.
- Pearl Street between Beekman and Fulton Streets: Revolutionary War Redoubt located up to 18 feet below grade.
- Pearl Street between Beekman and Fulton Streets: 17th to 19th-century residential and commercial features located up to 18.5 feet below grade.
- Fulton Street between Pearl and Water Street: 18th century fill (including ships), cribbing and fill retaining devices located up to 19 feet below grade.
- Water Street between Fulton and John Streets: pre 1730s wharf, mid-18th to 19th-century fill, fill-retaining devices, and 18th to 20th-century residential features located up to 18 feet below grade.
- Water Street between John Street and Maiden Lane: fill, cribbing, fill retaining devices, foundation of Fly Market, ca. 1730s wharf, and 18th to 19th-century residential and commercial features within the eastern 50 feet of Water Street where Water Street extended over a portion of an existing city block in the 1960's, located up to 28 feet below grade.
- Water Street between Maiden Lane and Wall Street: pre 1730s wharf, fill, fill-retaining devices, and 18th to 20th century residential and commercial features within the eastern 50 feet of Water Street where Water Street extended over a portion of an existing city block in the 1960s, located up to 23 feet below grade.

## Second Avenue Subway FEIS

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### *Wall Street to Coenties Slip*

Precontact Period. As described above, the APE south of Wall Street is not considered sensitive for precontact resources, including the APEs on Water Street, Gouverneur Lane, Old Slip, and Vietnam Veterans Plaza.

Historic Period. As described above, potential historic-period resources extend from the surface down to the deepest level of fill, and may even extend to the original 17th century river bottom. Subsequent disturbance on Gouverneur Lane includes the installation of 19th and 20th century utility pipes, though the potential impact on potential historic-period resources in Gouverneur Lane resulting from this installation are unknown. Disturbance on Old Slip includes the construction of the Clark Street subway tunnels, associated subway ventilation shaft, and subsurface utilities. Historic-period sensitivity would be expected to be present on Old Slip with the exception of these areas. In summary, potential historic-period resources may be present within the APE on Water Street as follows:

- Water Street from Wall Street to Old Slip: pre 1730s wharf, fill, fill-retaining devices, and 18th to 20th-century residential and commercial features within the eastern 50 feet of Water Street where Water Street was extended over a portion of an existing city block in the 1960s, located up to 32.2 feet below grade.
- Water Street between Old Slip and Coenties Slip: pre 1730s wharf, fill, fill-retaining devices, and Cruger's Wharf as well as 18th to 20th-century residential and commercial features within the eastern 50 feet of Water Street where Water Street was extended over a portion of an existing city block in the 1960s, located up to 40.8 feet below grade.

In addition, the potential spoils conveyance site on Gouverneur Lane is sensitive for historic-period resources at a depth of up to 30 feet below the surface, including 17th to 18th-century docks, wharfs, landfill and a drainage system. The spoils conveyance site on Old Slip is sensitive for historic-period resources outside the area of the existing Clark Street subway tunnels, ventilation shaft, and utility lines. Potential resources include mid-17th to 18th-century wharfs, fill, and fill-retaining devices located up to 32 feet below grade, except over the existing Clark Street tunnels, where potential resources are located at up to 25 feet below grade.

### *Coenties Slip to and Including Peter Minuit Plaza*

Precontact Period. As described above, the APE, including Water Street, State Street, and Peter Minuit Plaza, is not considered sensitive for precontact resources.

Historic Period. As described above, potential historic-period resources may be located within portions of this APE. These resources may be located from the surface down to the deepest level of fill, and may extend to the original 17th century river bottom. Some portions of the APE have been disturbed through the construction of subway and vehicular tunnels, including the Brooklyn Battery Tunnel underpass, the N R subway under Whitehall Street, and the Battery Loop of the 4 5 subway beneath portions of State Street and Peter Minuit Plaza. Archaeological investigations undertaken at Peter Minuit Plaza for a previous project indicated that the majority of the plaza had been previously extensively disturbed. In summary, potential historic-period resources may be present within the APE as follows:

- Water Street from Coenties Slip to Broad Street: 17th century fill and fill-retaining devices beneath Water Street; evidence of a quay for the Great Dock and Basin beneath the east side of Water Street; cribbing, fill, and fill-retaining devices at Coenties Slip; and 18th to 20th century residential and commercial features on the east side of Water Street where Water

Street was extended over a portion of an existing city block in the 1960s, located up to 28 feet below grade.

- Water Street from Broad to Moore Streets: resources similar to those described above on Water Street from Coenties Slip to Broad Street and at a similar depth, and including the Long Bridge wharf, fill, and fill-retaining devices at Broad Street.
- Water Street from Moore to Whitehall Streets (excluding Whitehall Street): fill and fill-retaining devices beneath Water Street and 18th to 20th century residential and commercial features on the east side of Water Street, located at an unknown depth.
- State Street: northern portion, 17th to 18th century fill and fill-retaining devices, located at an unknown depth.
- Peter Minuit Plaza: northeast corner, 18th century fill-retaining structure, located up to 10 feet below grade.

#### **STORAGE YARDS**

No potential precontact or historic-period resources were identified in the 207th Street Yard in Manhattan, since proposed work within an existing building would have no potential impacts on archaeological resources. The APEs within the Concourse Yard in the Bronx and 36th-38th Street Yard in Brooklyn were determined to have no potential for precontact or historic-period resources, since either precontact and historic-period potential was not identified within the APEs, or subsequent construction that has occurred within the APEs has eliminated potential precontact and historic-period potential. Therefore, no further archaeological study is warranted for the potential yards.

#### **C. COMPARISON OF ALIGNMENTS SOUTH OF HOUSTON STREET PRESENTED IN THE SDEIS**

As described elsewhere in the FEIS, the Shallow Chrystie and Forsyth Street Options are no longer under consideration. As had been presented in the SDEIS, the Shallow Chrystie and Forsyth Street Options would have had the potential to adversely affect archaeological resources not affected under the Deep Chrystie Option. Table H-1 presents a comparison of potential effects under the Shallow Chrystie, Forsyth Street and Deep Chrystie Options. A comparison of the potential effects under the three options is also shown on Figure H-1. \*

**Table H-1**  
**Areas of Archaeological Sensitivity and Potential Project Effects—APE between Houston Street and Pearl Street at Peck Slip**

Location of Potential Resource	Type of Potential Resource	Depth of Potential Resource	Potential for Effects from Construction Disturbance?								
			Shallow Chrystie <sup>1</sup>			Deep Chrystie			Forsyth Street <sup>2</sup>		
			No	Yes	Why	No	Yes	Why	No	Yes	Why
<b>HOUSTON STREET TO PEARL STREET AT PECK SLIP (corresponds to Figure H-1)</b>											
<b>Area bounded by Houston, Canal, Chrystie, and Forsyth Sts, including Sara D. Roosevelt Park<sup>3</sup></b>											
Sara D. Roosevelt Park, Houston to Delancey Sts	Precontact	2-23 feet		✓	C&C	✓		TB	✓		TB
	Potential former Presbyterian Cemetery burials in northern end of the park and adjacent sidewalks	0-12 feet		✓	C&C	✓ <sup>5</sup>		TB	✓		TB
	Potential former Stanton Street Baptist Church Burials on north side of Stanton Street <sup>4</sup>	0-16 feet	✓		TW	✓		TB	✓		TE
	Potential former Bethel Baptist Church Cemetery Burials on the northeast corner of Chrystie and Delancey Streets <sup>4</sup>	0-36 feet		✓	C&C	✓		TB	✓		TE
	19th century foundry and tenement remains	0-34 feet		✓	C&C	✓		TB	✓		TB
Forsyth St, Houston to Delancey Sts	Precontact	2-23 feet	✓		TW	✓		TW	✓		TB
	Potential former Dutch Mission Cemetery burials in east side of Forsyth St between Houston and Stanton Sts	0-12 feet	✓		TW	✓		TW	✓		TB
Chrystie St, Houston to Delancey Sts (excluding area of existing subway tunnel)	Precontact	2-23 feet		✓	C&C	✓		TB	✓		TE
	Potential former Negro Burial Ground burials in west side of Chrystie St between Stanton and Rivington Sts	0-14 feet		✓	C&C	✓		TB	✓		TE
Sara D. Roosevelt Park, Delancey to Hester Sts	Precontact	15-21 feet		✓	C&C		✓	C&C		✓	C&C
	17th-18th century farm house building remains	14-33 feet		✓	C&C		✓	C&C		✓	C&C
	19th century residential features	0-33 feet		✓	C&C		✓	C&C		✓	C&C
	18th century British fortifications within the northern 2/3 of former block north of Grand St	14-33 feet		✓	C&C		✓	C&C		✓	C&C
	Potential St. Stephen's Church former burials at former southeast corner of Chrystie and Broome Sts	0-20 feet		✓	C&C		✓	C&C		✓	C&C
Sara D. Roosevelt Park, Hester to Canal Sts	Precontact	19-24 feet		✓	C&C	✓		TB	✓		TB
	17th-18th century farm building remains	14-33 feet		✓	C&C	✓		TB	✓		TB
	19th century residential features	0-33 feet		✓	C&C	✓		TB	✓		TB
Forsyth St, Delancey to Hester St.	Precontact	15-21 feet	✓		TW	✓		TW		✓	C&C
	17th-18th century farm building remains between Delancey and Grand Sts and including Grand St	14-33 feet	✓		TW	✓		TW		✓	C&C
	19th century residential shaft features on the west side of Forsyth St	0-33 feet	✓		TW	✓		TW		✓	C&C
Forsyth St, Hester to Canal St	Precontact (including Canal St)	19-24 feet	✓		TW	✓		TW	✓		TB
	17th-18th century farm building remains	14-33 feet	✓		TW	✓		TW	✓		TB
	19th century residential features on the west side of Forsyth St	0-33 feet	✓		TW	✓		TW	✓		TB
Chrystie St, Delancey to Broome Sts (excluding area of existing subway tunnel)	Precontact	6-21 feet		✓	C&C		✓	C&C		✓	C&C
	18th-19th century residential features	0-34 feet		✓	C&C		✓	C&C		✓	C&C
Ancillary Station Facilities on Broome St, Chrystie St to approx. 185 feet west of Chrystie St.	Precontact	10-20 feet	✓		NC		✓	C&C	✓		NC
Chrystie St, Broome to Grand Sts (excluding area of existing subway tunnel)	Precontact	4-18 feet		✓	C&C		✓	C&C		✓	C&C
	18th-19th century residential features	0-30 feet		✓	C&C		✓	C&C		✓	C&C
Ancillary Station Facilities on Grand St, Chrystie St to approximately 150 feet west of Chrystie St	Precontact	0-22 feet	✓		NC		✓	C&C	✓		NC
Grand St, Chrystie to Forsyth Sts	Precontact	15-28 feet		✓	C&C		✓	C&C		✓	C&C
	17th-18th century farm building remains	14-33 feet		✓	C&C		✓	C&C		✓	C&C
Chrystie St, Grand to Hester Sts (excluding area of existing subway tunnel)	Precontact	3-24 feet		✓	C&C		✓	C&C		✓	C&C
	18th-19th century residential features	0-37 feet		✓	C&C		✓	C&C		✓	C&C
Chrystie St, Hester to Canal Sts (excluding area of existing subway tunnel)	Precontact	13-21 feet		✓	C&C	✓		TB	✓		TE
	18th-19th century residential features	0-37 feet		✓	C&C	✓		TB	✓		TE
Canal St, Chrystie to Forsyth Sts	Precontact	19-24 feet		✓	C&C	✓		TB	✓		TB
<b>Canal St to Brooklyn Bridge</b>											
Bowery, Pell to Division Sts	Precontact	10-17 feet		✓	C&C		✓	C&C		✓	C&C
Chatham Square	Precontact	0-unknown depth		✓	C&C		✓	C&C		✓	C&C
	18th century features on east side of square between Division St and East Broadway	0-unknown depth		✓	C&C		✓	C&C		✓	C&C
St. James Pl, Oliver to James Sts	Potential Shearith Israel Graveyard former burials	0-8 feet		✓	C&C		✓	C&C		✓	C&C
	19th century residential features	0-27 feet		✓	C&C		✓	C&C		✓	C&C
St. James Pl, James to Madison Sts	Precontact	12-18 feet		✓	C&C		✓	C&C		✓	C&C
	19th century residential features	0-16.5 feet		✓	C&C		✓	C&C		✓	C&C
St. James Pl at Madison St	Precontact	19-24 feet		✓	C&C		✓	C&C		✓	C&C
	19th century residential features	0-19 feet		✓	C&C		✓	C&C		✓	C&C
St. James Pl, Roosevelt to Pearl Sts	Precontact	14-20 feet		✓	C&C		✓	BU		✓	BU
	18th-19th century residential features	0-18 feet		✓	C&C		✓	BU		✓	BU
Pearl St, St. James Pl to the Brooklyn Bridge	Precontact	9-26 feet		✓	C&C		✓	BU		✓	BU
	18th-19th century residential and commercial features	0-21 feet		✓	C&C		✓	BU		✓	BU
<b>Brooklyn Bridge to Peck Slip</b>											
Pearl St, Brooklyn Bridge to Dover St	Precontact	9-26 feet		✓	C&C	✓		TB	✓		TB
	18th-19th century residential and commercial features	0-21 feet		✓	C&C	✓		TB	✓		TB
Pearl St, Dover St to Peck Slip	Precontact	9-26 feet		✓	C&C		✓	C&C		✓	C&C
	18th-19th century residential and commercial features	0-21 feet		✓	C&C		✓	C&C		✓	C&C

**Notes:**  
C&C = Cut and Cover; TB = Tunnel Below Depth of Potential Resources; TW = Tunnel Entirely West of Potential Resource; TE = Tunnel Entirely East of Potential Resource; NC = No Construction Under Alignment Option; BU= Building and Other Structural Underpinning.  
1 The Shallow Chrystie Option is no longer under consideration.  
2 The Forsyth Street Option is no longer under consideration.  
3 Three alignment options were under consideration between Houston Street and Peck Slip: Shallow Chrystie Option, Deep Chrystie Option, and the Forsyth Street Option. Each option would have the potential to affect the various potential resources differently. The potential effects include only those known at this time. The locations of some project elements have not yet been finalized, and it is possible that additional potential effects to those described above may occur.  
4 Area of sensitivity not presented in the SDEIS.  
5 The removal of soldier piles would be required to construct the Houston Street Station within the Chrystie Street and Second Avenue roadbeds at the intersection with Houston Street. Current plans for this work do not call for construction in any areas sensitive for burials, e.g., the north side of Houston Street within Block 442 (potential First Baptist Cemetery burials) and south Houston Street sidewalk between Chrystie and Forsyth Streets (potential Presbyterian Cemetery burials).  
This table is new for the FEIS.