Empire Station

SITE 7: BLOCK 808, LOT 7501

AND ADJACENT STREETBED OF WEST 32ND STREET

NEW YORK, NEW YORK

Archaeological Documentary Study of the Former B'nai Jeshurun Cemetery

Prepared for:

Empire State Development
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Management Summary

LPC UPID:	350423
OPRHP Review Number:	20PR03875
Involved Agencies:	New York State Urban Development Corporation d/b/a Empire State Development (ESD)
Phase of Survey:	Archaeological Documentary Study
Location Information	
Location:	Manhattan
Minor Civil Division:	06101
County:	New York County
Survey Area	
Block/Lot:	Block 808, Lot 7501 and adjacent streetbed of West 32nd Street
Length:	400 feet
Width:	227.5 feet
Area:	91,000 square feet (2.09 acres)
USGS 7.5 Minute Quadrangle Map:	Central Park and Brooklyn Quadrangles
Report Author:	Elizabeth D. Meade, PhD Registered Professional Archaeologist #16353
Date of Report:	November 2020

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Chapter 1: Introduction and Project Description

A. INTRODUCTION

In January 2020, Governor Andrew M. Cuomo announced the "Empire Station Complex" among his State of the State initiatives, establishing the proposed blueprint for an integrated public transportation complex that will revitalize New York's Pennsylvania Station (Penn Station) area and give New York City the world-class intercity transportation hub it deserves (see **Figure 1**). The proposed Complex will include the soon-to-be-completed Moynihan Train Hall at the historic Farley Post Office and a reimagined and expanded Penn Station following the relocation of Amtrak's operations to Moynihan Train Hall. The expansion of Penn Station will include opening up its confined concourses and creating new entrances, inviting in natural light, improving retail and other user amenities, increasing safety and security, consolidating support functions, rationalizing pedestrian flows, and making it easier for passengers to navigate within the station as well as connect to their destinations beyond. The railroads are also undertaking planning for the southward expansion of Penn Station into Block 780 and parts of Blocks 754 and 806, to accommodate up to nine additional tracks and five new platforms.

The Proposed Project, a comprehensive redevelopment initiative to create a modern, transit-oriented commercial district centered around Penn Station, is critical to fulfilling the Empire Station Complex vision. The Proposed Project would create a new, revitalized commercial district where transit-oriented development would incorporate and help fund improvements within and around Penn Station. Specifically, the Proposed Project would result in new commercial buildings on eight development sites in the Project Area. The Proposed Project's new developments would incorporate onsite new entrances and access ways for public transportation, including additional facilities for train station entrance and egress. It would revitalize the Project Area by introducing public realm improvements to address pedestrian, bicycle, and vehicular circulation and enhance the surrounding streetscape. Such redevelopment would also generate much-needed revenue for substantial passenger rail and transit improvements at Penn Station and area subway stations. The Proposed Project would enable the expansion of Penn Station into the blocks south of the existing station to allow for the creation of new, below-grade tracks and platforms, significantly increasing the station's capacity. The Proposed Project would support the expansion of Penn Station by accommodating additional rail infrastructure beneath three of the proposed development sites.

B. PROJECT DESCRIPTION

The area of the Proposed Project is generally bounded by Sixth and Ninth Avenues to the east and west and West 30th and West 34th Streets to the south and north in Midtown Manhattan (see **Figure 1**). The Project Area includes all or portions of nine Manhattan blocks—Blocks 754, 755, 780, 781, 783, 806, 807, 808, and 809—that encompass Penn Station, Madison Square Garden (MSG), Moynihan Train Hall and surrounding blocks. However, the Proposed Project would not result in any new commercial buildings at the existing Penn Station, MSG, or Moynihan Train Hall. The development sites are shown in **Figure 2** and summarized in **Table 1-1**.

Table 1-1
Summary of Development Sites

Development Site	Location	Potential Transportation Improvements
Site 1	Block 754, Lots 34–41, 44, 51, and 63	New Penn Station tracks and platforms and connections with publicly accessible in-building connections on Seventh and Eighth Avenues.
Site 2	Block 780, all lots	
Site 3	Block 806, Lots 1, 3, 6, 9, 69, and 76	
Site 4	Block 783, Lot 1 and part of Lot 70	New Penn Station entrance at the corner of Eighth Avenue and West 33rd Street incorporating a new West 33rd Street subway entrance; new West 34th Street subway entrance; and widening of the uptown local C/E platform between West 33rd and West 34th Streets
Site 5	Block 783, Lot 34, 48, and part of Lot 70	New Penn Station entrance on West 34th Street; new West 33rd Street subway entrance; new West 34th Street subway entrance; and widen the downtown local No. 1 platform between West 33rd and West 34th Streets.
Site 6	Block 809, Lots 1, 3, 4, 5, 8, 16, 17, 69, 73, 80, and 82	Widen the uptown local No. 1 platform between West 33rd and West 34th Streets; new West 33rd Street subway entrance and new West 34th Street subway entrance.
Site 7	Block 808, Lot 7501	Widen the uptown local No. 1 platform between West 32nd and West 33rd Streets; replace the West 32nd Street subway entrance just east of Seventh Avenue; and replace the West 33rd Street subway entrance just east of Seventh Avenue and add a new ADA-compliant elevator adjacent to this entrance. Establish an east-west underground corridor connecting the 34th Street–Herald Square and the 34th Street-Penn Station (Seventh Avenue) Subway Stations and providing direct access to Site 7.
Site 8	Block 808, Lot 40	Reconstruct the street-level stairs at West 32nd Street and Sixth Avenue and add new street-level stairs at West 33rd Street and Sixth Avenue; reconstruct two mezzanine stairs connecting the N/Q/R/W and B/D/F/M; and reconfigure the fare control area at the B/D/F/M mezzanine level.

Sites 1 through 8 would be developed in accordance with design guidelines referenced in the General Project Plan (GPP). The expansion of Penn Station would encompass Block 780 immediately to the south (bounded by Seventh and Eighth Avenues and West 30th and West 31st Streets), the western portion of Block 806 on the east side of Seventh Avenue, and the eastern portion of Block 754 on the west side of Eighth Avenue. The specific construction means and methods for an expanded Penn Station would be developed through further design and engineering studies by the involved commuter railroad entities. For the purposes of this Archaeological Documentary Study, it is conservatively assumed that the expanded Penn Station would employ "cut and cover" construction, which would require the removal of all buildings currently existing on Sites 1, 2, and 3 within the Project Area. The development sites are shown in **Figure 2**. The Proposed Actions would override use, bulk, density, and potentially other requirements of the New York City Zoning Resolution.

Furthermore, the Proposed Project would involve a number of potential public transportation improvements. In addition to those summarized in **Table 1-1**, other joint transit improvements would occur at the 34th Street–Penn Station (Seventh Avenue) Subway Station including the widening of the downtown local No. 1 stairs to Penn Station Level A and new express No. 2/3 platform stairs at the south end of the station. In addition, a potential north–south below-grade concourse east of Seventh Avenue (between approximately West 30th Street and West 34th Street), two new crossings below Seventh Avenue to connect Penn Station to the potential new north–south concourse, and an underground passage from the proposed expansion of Penn Station South to Moynihan Train Hall are under consideration subject to additional analysis for engineering, feasibility, and cost.

To allow for the implementation of the Proposed Project, the New York State Urban Development Corporation d/b/a Empire State Development (ESD) is proposing to seek its Directors' approval of a GPP

that would, among other things, authorize ESD to override certain provisions of the Zoning Resolution and other local laws, as applicable, in accordance with the New York State Urban Development Corporation Act (UDC Act). The Proposed Actions require discretionary approvals subject to environmental review under the New York State Environmental Quality Review Act (SEQRA), Article 8 of the Environmental Conservation Law, and its implementing regulations at 6 NYCRR Part 617. ESD is serving as the lead agency for the environmental review.

C. ENVIRONMENTAL REVIEW AND STUDY AREA FOR THIS STUDY

Pursuant to SEQRA, and Section 14.09 of the New York State Historic Preservation Act, consultation was initiated with the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). In a comment letter dated July 14, 2020, LPC determined that the lots included within Sites 1 through 6 and Site 8 were not archaeologically significant. LPC determined that Site 7 (Block 808, Lot 7501) was the site of a 19th century cemetery and requested an Archaeological Documentary Study of the site to determine its archaeological sensitivity and the possibility that it could contain human remains. In a subsequent comment letter issued on September 10, 2020 in response to a request to review the streetbeds included within the Project Area, LPC determined that the streetbed of West 32nd Street adjacent to Site 7 (Block 808, Lot 7501) should also be included in the study. In comments transmitted through the New York State Cultural Resource Information System (CRIS) on July 27, 2020, OPRHP similarly requested an Archaeological Documentary Study of Site 7 and stated that the remaining development sites are not archaeologically significant and therefore do not require additional analysis.[1] Therefore, the study area for this Archaeological Documentary Study includes only Site 7 (Block 808, Lot 7501), which is bounded to the west by Seventh Avenue, to the north by West 33rd Street, and to the south by West 32nd Street and the adjacent streetbed of West 32nd Street (see **Figure 2**).

D. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS OF SITE 7

Site 7 was previously included within the study area for the Access to the Region's Core (ARC) project, although this project was terminated before it was constructed. The project as proposed would have included a new passenger rail terminal adjacent to New York's Pennsylvania Station and a new two-track tunnel underneath the Hudson River. As part of the environmental review coordinated by the lead agency, the Federal Transit Authority (FTA), a Draft Environmental Impact Statement (DEIS) for the ARC project was issued in February 2007 and a Supplemental Draft Environmental Impact Statement (SDEIS) was published in March 2008. The DEIS included a detailed analysis of cultural resources, including archaeological resources, and was prepared in accordance with the National Environmental Policy Act (NEPA), the New Jersey Register of Historic Places Act, the New York State Historic Preservation Act of 1980, Section 4(f) of the United States Department of Transportation Act, and Section 106. As part of the archaeological resources assessment, a Phase 1A Archaeological Documentary Study of the ARC project site was prepared by Transit Link Consultants (TLC) in 2005. While the Development Site was included within the Area of Potential Effects (APE) examined for the project, the Phase 1A study did not reference or identify the former cemetery on the site, and as such, no archaeological sensitivity was identified and no additional archaeological analysis was recommended.

[1] OPRHP's comment letter did not specifically comment on the archaeological sensitivity of streetbeds; however, as the entire Project Area was submitted for review, it is presumed that OPRHP does not have concerns regarding the archaeological sensitivity of streetbeds within the Project Area.

Chapter 2: Research Goals and Methodology

A. RESEARCH GOALS

This Archaeological Documentary Study of the Empire Station Complex Site 7 has been designed to follow the guidelines of the New York City Landmarks Preservation Commission as issued in 2018 and it follows the guidelines of the New York Archaeological Council (NYAC) as issued in 1994 and adopted by OPRHP in 1995 and the report format guidelines issued by OPRHP in 2005. The study documents the development history of Site 7 (the "Development Site") and its potential to yield archaeological resources, including both precontact and historic cultural resources. In addition, this report documents the current conditions of the Development Site, as well as previous cultural resource investigations that have taken place in the vicinity.

Given extensive previous disturbance that has occurred within the Development Site as a result of the construction of the existing Hotel Pennsylvania and the railroad and subway tunnels that underlie it, this Archaeological Documentary Study focused on an intensive assessment of the history of landscape modification on the Development Site and the specific history of the cemetery site. As such, a detailed assessment of the precontact occupation of the area and the historic occupation of the remainder of the Development Site outside the boundaries of the cemetery was determined to be unnecessary. This Study therefore has five major goals: (1) to determine the effect of subsequent development and landscape alteration on any potential archaeological resources that may have been located within the Development Site; (2) to document the history of the establishment of the cemetery formerly located on the Development Site and its subsequent redevelopment with the goal of determining its boundaries and the extent to which human remains may still be present; (3) to make a determination of the Development Site's potential archaeological sensitivity; and (4) to make recommendations for further archaeological analysis, if necessary. The steps taken to fulfill these goals are explained in greater detail below.

The first goal of this documentary study is to make a determination of the extent to which the landscape of the study area was modified as a result of the construction of the existing hotel and the underlying rail tunnels. This was accomplished through a review of historical maps depicting elevation information that pre-and post-dated the construction of the Hotel Pennsylvania to determine changes to the historical ground surface that occurred in the early 20th century. Where possible, historical datums—the point from which surface elevations are measured—were converted to a permanent modern datum to allow for comparison.

The second goal of this study is to document the history of the cemetery formerly located within the Site's boundaries. The cemetery's history has been previously documented in other sources (e.g., Amanik 2014; Meade 2020); however, a specific sensitivity assessment for the site has not yet been made. The documentation of the cemetery site was completed through a thorough review of property records, historical maps, and other information, as described in greater detail in the following section.

The third goal of this study is to determine the likelihood that archaeological resources could have survived intact within the Development Site after development and landscape alteration (i.e., erosion, grading, filling, etc.). Potential disturbance associated with paving, utility installation, and other previous

construction impacts was also considered. As described by NYAC in their Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State:

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

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

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

The fourth and final goal of this study is to make recommendations for additional archaeological investigations where necessary. According to NYAC standards, Phase 1B testing is generally warranted for areas determined to have moderate sensitivity or higher. Archaeological testing is designed to determine the presence or absence of archaeological resources that could be impacted by a proposed project.

B. RESEARCH METHODOLOGY

To satisfy the research goals as outlined above, documentary research was completed to establish a chronology of the Development Site's development and landscape alteration, identify any individuals who may have owned the land or worked and/or resided there, and determine if buildings were present there in the past. Intensive research was completed with respect to the former cemetery that occupied the site. Data was gathered from various published and unpublished primary and secondary resources, such as historic maps, topographical analyses (both modern and historic), historic and current photographs (including aerial imagery), newspaper articles, local histories, and previously conducted archaeological surveys. These published and unpublished resources were consulted at various repositories, including the Main Research Branch of the New York Public Library (including the Local History and Map Divisions), the Library of Congress, and the Manhattan Office of the City Register of the New York City Department of Finance. File searches were conducted at LPC, OPRHP, and the New York State Museum (NYSM). Information on previous cultural resources assessments on file with OPRHP and NYSM was accessed

through the New York State Cultural Resource Information System (CRIS).[1] Online textual archives, such as Google Books and the Internet Archive Open Access Texts, were also accessed.

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

Chapter 3: Environmental and Physical Settings

A. CURRENT CONDITIONS

The Development Site is currently occupied by the Pennsylvania Hotel (see **Photographs 1 and 2** on **Figure 3**). The hotel is a 20-story building with a basement, subsurface mezzanines, and sub-cellar that were constructed between 1917 and 1919 (Colton 1919). Railroad tracks leading to Penn Station run under portions of the building, and subway tunnels are also situated under the building, with subway entrances located along the West 32nd and West 33rd Street façades of the hotel. The hotel's subbasement was constructed 39 feet below the grade of the adjacent streets and around the railroad easements that underlie the hotel (ibid). Prior to the hotel's construction, the site was divided into nearly three dozen historical lots, each of which was developed with residential and/or commercial/industrial buildings. The property was originally divided into lots for development in the 1820s and 1830s, and all buildings on the properties were demolished in advance of the construction of the railroad tunnels and/or the hotel in the 1910s.

B. GEOLOGY, TOPOGRAPHY, AND SOILS

The island of Manhattan is found within a geographic bedrock region known as the Manhattan Prong of the New England (Upland) Physiographic Province (Isachsen, et al. 2000). Bedrock in the vicinity of the Development Site is represented by the Manhattan Formation (Fisher, et al. 1970). Surficial geology in the immediate vicinity of the Development Site includes a mix of glacial till and exposed bedrock (Cadwell, et al. 1986). The glacial till was left behind by massive glaciers up to 1,000 feet thick that retreated from the area towards the end of the Pleistocene. There were four major glaciations that affected the region until approximately 12,000 years ago when the Wisconsin period—the last glacial period—came to an end (Schuberth 1968). This type of bedrock dates to the Middle Ordovician Period of the Paleozoic Era and was likely formed more than 435 million years before present (Isachsen, et al. 2000). The surface geology in this part of Manhattan is characterized by glacial till of variable texture in an area where some bedrock is shallower, extending to within 1 to 3 meters (approximately 3 to 10 feet) of the ground surface (Cadwell 1989).

The 1937 Rock Data Map compiled by the Office of the Manhattan Borough President includes nine soil borings advanced in the streetbed of West 33rd Street between Sixth and Seventh Avenues by the Pennsylvania, New York, and Long Island Rail Road. The borings indicate that bedrock or decaying bedrock was encountered at depths of 10 to 34.5 feet below the ground surface, with shallower bedrock depth typically located towards the eastern end of the block.[1] One boring located near the northeast corner of the intersection of Seventh Avenue and West 33rd Street identified bedrock at a depth of 2 feet below the ground surface. Five of the nine borings identify a layer of fill or "filled ground" ranging between 2 and 14 feet below the ground surface. Nine additional borings located in West 32nd Street indicated a

[1] The map provides neither the exact year of the borings nor the datum used to calculate elevations, though it is assumed to be relative to the Manhattan Borough Datum.

similar depth for the bedrock, ranging between 4.5 and 36 feet below the ground surface. Six of those borings identified a fill layer ranging from 1 to 17.2 feet below the ground surface.

Finally, the "Web Soil Survey" maintained by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) indicates that soils in the vicinity of the Development Site are associated with the complex known as "Urban land, till substratum" (UtA). The typical soil profile for this complex includes up to 15 inches of cement or pavement underlain by gravelly sandy loam. These soils are typically found in level areas with slopes ranging from 0 to 3 percent.

C. ASSESSMENT OF LANDSCAPE MODIFICATION

The landscape of Manhattan has changed dramatically since the island was first settled by Europeans. The topography of the island prior to human occupation was formed through the advancement and retreat of glaciers, which left behind sandy hills and low-lying swamps (Schuberth 1968). Geologist Louis P. Gratacap described the transformation of Manhattan's natural landscape as:

> *A manifold mound of drifted material, a surface formation of gravel, stones, sand, and earth, sculptured by streams and interrupted by natural subsidences or dips in the underlying rocks, which the engineering requirements of the city encountered as the population steadily moved northward in its peaceful conquest of this wild and beautiful region* (Gratacap 1904: 5)

The construction of the city's street grid beginning in the early 19th century contributed greatly to the large-scale transformation of Manhattan Island, as hills were cut down and the resulting sediments used to fill in low-lying areas (Koeppel 2015). The 1865 Viele map indicates that a stream ran through a valley formerly located within the Development Site (see **Figure 4**). Extensive landscape modification therefore appears to have occurred at two points in history: the first involved the transformation of the Development Site into level, developable land in the early 19th century. The second involved the demolition of 19th century development and the construction of extensive rail infrastructure and the Hotel Pennsylvania in the early 20th century.

RECONSTRUCTION OF 19TH CENTURY TOPOGRAPHY

Information regarding street corner elevations in the general vicinity of the Development Site in the 19th century was collected from historic and modern maps: the 1811 Bridges map; the ca. 1820 Randel Farm maps; the 1850 Hayward profile drawing of Northern Manhattan. This section describes the efforts made to reconstruct the landscape modification that occurred in the first half of the 19th century as the Development Site was transformed from an inundated valley between hills to an urban residential and commercial block.

CALCULATION AND CONVERSION OF ELEVATION DATA RELATIVE TO HISTORICAL DATUMS

A significant problem with the comparison of these data sets is the lack of an accurate, consistent datum across all maps. A datum is the point from which surface elevations are measured (where the elevation is considered to be 0). Elevations of the same ground surface, recorded at the same time, but taken relative to different datum points, will obviously differ despite the fact that they refer to the same location. Datums have historically been linked to tidal action—either mean sea level (representing the average of high and low tide) or the high water mark. Therefore, understanding the datum from which an elevation was measured is critically important to an analysis of historic elevations and landscape change. However, given historic surveying techniques and inaccuracies that may exist in measuring tides and elevations, especially during the 19th century, as well as sea level rise, discrepancies may be encountered when

comparing current and historic elevation data. See **Table 3-1** for a comparison of historic and current datum information.

Table 3-1
Comparison of Historic Datum Elevations

	ca. 1820 Randel Farm Map Datum*	NGVD29	NAVD88	Manhattan Borough Datum
Elevation (in feet)	5.63	2.75	1.65	0 (datum)
	3.98	1.1	0 (datum)	-1.65
	2.88	0 (datum)	-1.1	-2.75
	0 (datum)	-2.88	-3.98	-5.63

Notes:
NGVD29 = National Geodetic Vertical Datum of 1929
NAVD88 =North American Vertical Data of 1988
Source: *As calculated by Rose-Redwood (2003).

Two of the earliest maps that show elevation information were both created by the same cartographer: the 1811 Bridges map of the city's proposed street grid (based on surveys by John Randel) and John Randel's ca. 1820 farm maps. However, elevations were measured relative to different datum points (Rose-Redwood 2003). The datum used for the 1811 map has been determined to be similar or identical to the modern Manhattan Borough Datum (MBD), which is 2.75 feet higher than the National Geodetic Vertical Datum of 1929 (NGVD29), an approximation of mean sea level at Sandy Hook, New Jersey (ibid: 125).[1] Geographer Reuben Rose-Redwood completed an extensive analysis of the datum used on Randel's ca. 1820 Farm Maps and concluded that the Farm Map datum was 5.63 feet below the 1811/Manhattan Borough Datum and 2.88 feet below NGVD29. The NGVD29 datum has largely been replaced by the North American Vertical Datum of 1988 (NAVD88), the 0-point of which is approximately 1.1 feet higher than the 0-point of NGVD29.

Small differences in elevation between historical maps may therefore vary according to the datum that was used to calculate the elevation as well as the exact point where the elevation was measured, which likely also varied as some cartographers measured the center of intersections and others measured specific street corners. Furthermore, the National Oceanic and Atmospheric Administration (NOAA) has calculated that since 1850, the mean sea level near the Battery at the southern end of Manhattan has risen at a rate of approximately 0.11 inches per year, or almost one foot over the course of a century. Therefore, while the location of sea level should not contribute greatly to differences in elevation as depicted on historical maps, some variation may be the result in the change of sea level itself or in inaccurate ways of measuring sea level and high tide during the historic period.

19TH CENTURY TOPOGRAPHY IN THE VICINITY OF THE DEVELOPMENT SITE

The 1811 map does not provide elevation information for the immediate vicinity of the Development Site, though it does indicate elevations at the avenues crossing the corridor of 34th Street. Randel's ca. 1820 Farm Maps include elevation information only where streets crossed Eighth Avenue and for Fifth Avenue north of West 34th Street. Therefore, the Eighth Avenue and 34th Street corridors were selected for the reconstruction of the 19th century topography in the absence of information on the area immediately surrounding the Development Site. This information is summarized in **Table 3-2**.

[1] Therefore, the same ground surface that is measured at 0 feet relative to the MBD would be measured at 2.75 feet relative to NGVD29.

Table 3-2
19th Century Street Corner Elevations

Elevation at the Intersection of:	Historical Map: 1811 Bridges (MBD)	1820 Randel	1850 Hayward (MBD)	2013 Lidar (NAVD88)
Fifth Avenue and West 34th Street	54.2	55.7 (50.07 MBD)	50	52 (50.35 MBD)
Eighth Avenue and West 34th Street	30.4	35.66 (30.03 MBD)	32.1	35 (33.35 MBD)
Eighth Avenue and West 32nd Street	*No data*	34.41 (28.78 MBD)	*No data*	33 (31.35 MBD)
Eighth Avenue and West 33rd Street	*No data*	34.77 (29.14 MBD)	*No data*	34 (32.35 MBD)

Notes: The datums used for the original maps include: 1811 Bridges: MBD or equivalent (Rose Redwood 2003); 1820 Randel: "Medium between low and high tides", which Rose-Redwood [2003] indicates is the mean of high and low tide; 1850 Hayward: datum not given, assumed to be MBD; and 2013 LIDAR: NAVD88. For the sake of comparison, the elevations from the c. 1820 Randel map and the 2013 Lidar data have also been converted to MBD.

Using Rose-Redwood's (2003) calibration method and other conversions to calculate all elevations relative to MBD, an increase in elevation appears to have occurred along the West 34th Street corridor in the early 19th century. This was likely the result of the grading, filling, and paving that accompanied the construction of the modern street grid (Koeppel 2015). The more than 5 feet of fill that appears to have been added in the vicinity of Eighth Avenue and West 34th Street appears to have been used to fill a small valley seen in that location on the 1865 Viele map. Approximately 1.5 feet of fill may have been added in the vicinity of Fifth Avenue and West 34th Street, which is shown as a sloping hillside on the 1865 Viele atlas. These shallow fill deposits may be represented in some of the soil borings noted on the 1937 Rock Data Map as described above.

ADDITIONAL LANDSCAPE MODIFICATION IN THE 20TH CENTURY

While some disturbance to the site would have occurred as a result of 19th century development (see discussion in **Chapter 4, "Documentation of the B'nai Jeshurun Cemetery"**), the most dramatic landscape modification occurred as a result of the construction of the Hotel Pennsylvania and the adjacent railroad easements. As such, landscape modification associated with only the latter developments is addressed in this section. Several historical maps published in the late 19th and early 20th centuries include additional data regarding the elevation of street corner intersections immediately surrounding the Development Site, as presented below in **Table 3-3**. This suggests that the general grade of the streets surrounding the Development Site has remained more or less consistent since the late 19th century with minor differences likely being a result of differences in the datum points from which the elevations were measured. This therefore indicates that the construction of the extensive subsurface infrastructure associated with the railroad tunnels and Penn Station did not involve the addition of fill material to raise the ground surface above the late 19th century ground surface. As such, the railroad infrastructure and the basement levels of the Hotel Pennsylvania would have resulted in the removal and disturbance of the underlying soils and subsoils, to a depth of at least 39 feet below the ground surface as noted above. The railroad easement extends beneath the streetbed of West 32nd Street adjacent to Lot 7501 (see **Figure 5**) and therefore deep excavation appears to have extended through the streetbed as well.

Table 3-3
Street Corner Elevations as Identified on Historic Maps

Historic Map	Elevation at the Intersection of:			
	West 32nd Street and 7th Avenue	West 32nd Street and 7th Avenue	West 32nd Street and 6th Avenue	West 33nd Street and 6th Avenue
1865 Viele	35	36	41	42
1885 Robinson	35.6	39.1	41.6	41.4
1891 Bromley	35.6	36.6	41.6	42.4
1930 Sanborn	35	36	42	42
1937 Rock Data Map	35.6	36.5	42	43
1951 Sanborn	35	36	42	42
2019 Sanborn	35	36	42	42

Notes: Some of the maps included above do not indicate the datum from which the elevation was measured while others present elevations "above high tide." Therefore, it is assumed that all measurements are with respect to sea level as it was measured at the time the map was produced or to MBD.

Given the depth of bedrock as noted in the 1937 Rock Data map, excavation to a depth of 39 feet or more would have extended to the depth of, and possibly into, bedrock. The construction of nearby Penn Station is known to have required the blasting of rock to create the station and its connecting tunnels (Churella 2013). The construction of the tunnels east of Penn Station has been described as follows:

> *East of the site of Pennsylvania Station, the United Engineering & Contracting Company built the Crosstown Tunnels…[which] skirted a seemingly endless maze of building foundations, buried utilities, and subway routes that were complete, under construction, or merely in the planning stages. Working from five shafts, tunnelers dug through bedrock, boulders, pockets of sand, and even long forgotten underground streams* (Churella 2013: 776).

The railroad easements that underlie the Development Site extend in a V-shape from a point near Seventh Avenue between West 32nd and West 33rd Streets and diverge to the northeast and southeast. The subsurface levels of the Hotel Pennsylvania were constructed in the gap formed by the diverging tunnels, and therefore, the hotel's lowest levels are of irregular size and shape (Colton 1919).

Chapter 4: Documentation of the B'nai Jeshurun Cemetery

A cemetery was first established by the congregation B'nai Jeshurun on the Development Site in 1826, before the organization acquired land for a house of worship (Amanik 2019). The ca. 1820 Randel farm map indicates that the area surrounding the cemetery's future location was situated at the southeastern corner of a larger parcel of land owned by the Arden family. The map also indicates that a stream originally ran through the center of the block along what was later the northern side of the cemetery. Jacob S. and Rosamund Arden and Rachel Arden, the widow of Jacob S. Arden, Sr., had sold a portion of the estate to Francis Arden, Peter Wilson, George Wilson, and Peter Wilson, Jr. in 1810 (Manhattan Liber 93, Page 287). The property that later became the cemetery was conveyed by Francis Arden and George Wilson to John J. Hart on May 1, 1826 (Manhattan Liber 203, Page 390).

The property was sold by John J. and Maria Hart to the trustees of the congregation of B'nai Jeshurun for $600 as described in a deed recorded on June 27, 1826 (Manhattan Liber 207, Page 100). The original purchase included what were then known as lot numbers 138, 139, 140, which measured 75 feet in length (along West 32nd Street) and 98 feet 9 inches in width, and lot 141, which measured 31 feet 4 inches in length and 99 feet and 0.5 inches in width. The land grant also included the northern half of the mapped line of West 32nd Street facing the four lots. The deed stipulated that the 30-foot-wide portion of the mapped streetbed was not to be developed but was instead to remain a publicly accessible road and it is therefore not expected that the streetbed portion of the property was used for burials. The irregular size and shape of historical lot 141 is the result of the farm boundary that formerly separated the Arden estate from the properties to the east. The 1875 Holmes map depicts these historical lot boundaries, which were excluded from a larger parcel that was sold to James R. Whiting in 1835 (see **Figure 6**).

John J. Hart was the first president of B'nai Jeshurun when it was founded in 1825 by a group of members of the congregation of Shearith Israel seeking to worship according to the "Ashkenazic form of ritual" (Cohen 1945: 30). The congregation worshipped at a synagogue on Elm Street in lower Manhattan until 1850, when they relocated to a new house of worship on Green Street (*New York Tribune* 1850). The congregation would relocate several more times but have worshipped from a synagogue on West 88th Street since 1918 (B'nai Jeshurun 2020). Jewish custom dictates that burial grounds be placed at a distance from places of worship, and as such, the relocation of the temple did not influence the congregation's burial ground (Meade 2020).

The cemetery is depicted on the 1836 Colton map. The 1852 Dripps map depicts the cemetery's irregular shape and identifies it as "Jews Cemetery." The 1854 Perris atlas identifies it as "Jews Burial Ground" and depicts a small brick structure at the center of the cemetery's West 32nd Street frontage (see **Figure 6**). The map is the last to depict the cemetery as it was closed shortly after its publication. Continued interment in burial grounds south of the line of 86th Street was banned by the City of New York in 1851 (Meade 2020). In the years that immediately followed the passage of that law, the human remains in many of Manhattan's cemeteries were disinterred and transported to large, rural cemeteries in other parts of what would become New York City (ibid). The removal of remains from the cemetery appears to have occurred in the 1850s. In 1853, a group of individuals including D. Samson petitioned the city's aldermen to remove the remains from a cemetery on 32nd Street to Cypress Hills (*New York Daily Herald* 1832). David Samson was a former president of the congregation (Goldstein 1930). The reference to Cypress Hills appears to refer not to Cypress Hills Cemetery, but to Beth-Olam Cemetery, a rural cemetery

established in part by the congregation of B'nai Jeshurun adjacent to the non-sectarian Cypress Hills Cemetery in 1852 (Amanik 2019). A backlash ensued against the action, with congregants accusing congregation leaders of "selling out their…dead" while the leaders claimed they only intended to restore damaged graves (ibid: 179). The city granted permission for removal "to Long Island" on the condition that it be completed by May 1, 1853 (*The Asmonean* 1853: 282). The proposed disinterment was controversial, however, as the removal of remains from Jewish cemeteries remained taboo except in those instances where urban development presented a direct threat to the burial ground (Amanik 2014: 176-177). However, "the prospect of families removing loved ones to new synagogue cemeteries clearly gained traction if not a degree of inevitability among congregation leaders as much as their members" (ibid: 181). As such, some graves, but not all, appear to have been removed as a result of the events of 1853 (ibid).

In 1856, New York State passed a bill to allow the congregation to "alter and protect their cemetery" (*New York Times* 1856: 1). These alterations appear to have included the construction of a narrow brick building along the eastern side of the burial ground, as shown on the 1859 Perris atlas. The building appears to have been an extension of an "artificial whalebone factory" that had been constructed on the lot to the north of the cemetery as shown on that map. Those graves that still remained within the cemetery were reportedly removed in 1857 and reinterred at Beth-Olam Cemetery in Queens (Inskeep 2000; Amanik 2014). The congregation reportedly then sold the property to the City of New York (Amanik 2014).

The 1867 Dripps and 1879 Bromley atlases of Manhattan depict the southwestern corner of the former cemetery as undeveloped and indicates that the Killian Brothers furniture factory occupied the remainder of the site. The maps appear to depict the same buildings seen on the 1859 Perris atlas on the location of the former cemetery. The 1885 Robinson atlas continues to depict the furniture factory on the property, but also identifies the undeveloped portion as a cemetery. By the publication of the 1890 Sanborn map and the 1891 Bromley atlas, two five-story (with basement) brick tenements had been constructed at 161 and 163 West 32nd Street, within the former undeveloped yard of the factory, which remained extant at that time. The 1899 Sanborn map depicts the former cemetery site in a similar manner, but indicates that the former furniture factory building had been expanded to the west, covering more of its formerly undeveloped side yard. The 1911 Sanborn map reflects the demolition of many of the buildings on the block in advance of the construction of the rail tunnels leading to Penn Station (see **Figure 5**). This included the tenement constructed at the western end of the former cemetery location at 163 West 32rd street; however, the other buildings on the former cemetery remained at that time. The 1911 Bromley atlas suggests that all of the buildings on the former cemetery site and nearly all of the buildings within the location of the Development Site had been demolished; the 1916 Bromley atlas depicts the same buildings as the 1911 Sanborn map, suggesting that they were not yet demolished.

Chapter 5: Conclusions and Recommendations

A. CONCLUSIONS

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

ASSESSMENT OF PREVIOUS DISTURBANCE

The landscape reconstruction completed as part of this documentary study concluded that two phases of modification took place on the Development Site and the adjacent streetbed of West 32nd Street. The first occurred in the early 19th century, when the area was first transformed from vacant farmland into a developable urban block. This involved filling a stream that formerly ran through the Site. Following this transformation, the Development Site was divided into dozens of historical lots, each of which was developed with a number of residential or commercial/industrial buildings and a cemetery. The cemetery site was later developed with additional structures following the disinterment of the remains buried within ca. 1857. These additional structures were all demolished by the early 20th century. The second phase of landscape modification occurred in the early 20th century, when the existing railroad tunnels and the Hotel Pennsylvania were constructed. The basement, mezzanine levels, and sub-basement of the Hotel Pennsylvania are known to extend to depths of at least 39 feet below the ground surface, far exceeding the expected depth of any fill that may have been added in the early 19th century. Between the excavation completed within the railroad easement and for the sub-surface levels of the hotel, the footprint of the Development Site has been disturbed in its entirety, including the site of the former B'nai Jeshurun cemetery.

ARCHAEOLOGICAL SENSITIVITY ASSESSMENT

The extensive subsurface disturbance associated with the construction of the railroad infrastructure and the hotel's subsurface levels is believed to have resulted in the excavation of soils to the depth of bedrock within the entire footprint of the Development Site and the adjacent streetbed. The scale of the excavation would presumably have limited the possibility that any human remains not removed from the site of the cemetery. In addition, the boundaries of the cemeteries were confirmed through a review of historical maps and property records, and the cemetery is not expected to have extended into the streetbed of West 32nd Street, which was mapped prior to the establishment of the burial ground, or elsewhere outside the limits of the Development Site. The Development Site and the adjacent streetbed are therefore determined to have no archaeological sensitivity.

B. RECOMMENDATIONS

The Development Site is not believed to be sensitive for archaeological resources, including human remains associated with the cemetery formerly located on the Site. No further archaeological analysis is recommended for the Development Site or the adjacent streetbed of West 32nd Street.

References

Amanik, Allan
2014 "From Dust to Deeds: Family and Community in New York Jewish Burial, 1655-1955." Doctoral dissertation, Department of Hebrew and Judaic Studies, New York University.
2019 *Dust to Dust: A History of Jewish Death and Burial in New York*. New York: New York University Press.

The Asmonean
1853 "Is the Tomb Inviolate?" *The Asmonean* April 1, 1853: 283. New York, NY.

B'nai Jeshurun
2020 "Our History." Accessed august 17, 2020: https://www.bj.org/history/.

Bridges, William
1811 *Map of the city of New York and island of Manhattan, as laid out by the commissioners appointed by the legislature, April 3d, 1807*. New York: unknown.

Bromley, G.W. and Company
1879 *Atlas of the City of New York, Complete in One Volume*. New York: George W. Bromley and E. Robinson.
1891 *Atlas of the City of New York, Manhattan Island, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
1916 *Atlas of the Borough of Manhattan, City of New York: Desk and Library Edition*. Philadelphia: G.W. Bromley & Co.

Cadwell, Daniel, compiler/editor
1989 *Surficial Geologic Map of New York: Lower Hudson Sheet*. New York State Museum-Geological Survey, Map and Chart Series #40. Albany: New York State Museum.

Churella, Albert J.
2013 *The Pennsylvania Railroad, Volume I: Building an Empire, 1846-1917*. Philadelphia: University of Pennsylvania Press.

Cohen, Simon
1945 *Shaaray Tefila: A History of its Hundred Years, 1845-1945*. New York: Greenburg.

Colton, Frederick G.
1919 "Mechanical and Kitchen Equipment of Hotel Pennsylvania." *The Architectural Forum* 30(4):97-103.

Colton, J.H.
1836 *Topographical Map of the City and County of New York and the Adjacent Country*. New York: J.H. Colton and Co.

Dripps, Matthew
1852 *Map of the City of New York Extending Northward to Fiftieth St Surveyed and Drawn by John F. Harrison*. New York: M. Dripps.
1867 *Plan of New York City from the Battery to Spuyten Duyvil Creek*. New York: Matthew Dripps.

Fisher, Donald W., Yngvar W. Isachsen, and Lawrence V. Rickard, compilers/editors
1995 *Geologic Map of New York: Lower Hudson Sheet*. Originally published 1970, reprinted 1995. New York State Museum and Science Service Map and Chart Series No. 15. Albany: New York State Museum.

Goldstein, Israel
1930 *A Century of Judaism in New York: B'nai Jeshurun, 1825-1925: New York's Oldest Ashkenazic Congregation*. New York: Congregation B'nai Jeshurun.

Gratacap, Louis P.
1909 *Geology of the City of New York*. New York: Henry Holt & Co.

Hayward, G.
1850 "Profile of the Twelve Avenues of the City of New York." Compiled for *D. Valentine's Manual for 1850*. New York: G. Hayward.

Holmes, John B.
1875 *Map of Various Estates Bounded by the following maps already published viz. Hermitage Farm Map on the North, Glass House Farm on the West, Murray Hill Farm Map on the East, and James A. Stewart Farm Map on the South*. New York: John B. Holmes, City Surveyor.

Inskeep, Carolee
2000 *The Graveyard Shift: A Family Historian's Guide to New York City Cemeteries*. Provo, UT: Ancestry.com.

Isachsen, Y.W., E. Landing, J.M. Lauber, L.V. Rickard, W.B. Rogers, editors.
2000 *Geology of New York: A Simplified Account*. Second Edition. New York: New York State Museum Educational Leaflet 28.

Koeppel, Gerard T.
2015 *City on a Grid: How New York Became New York*. Boston: DaCapo Press.

Meade, Elizabeth D.
2020 "Prepare for Death and Follow Me: An Archaeological Survey of the Cemeteries of New York City." Doctoral dissertation, Department of Anthropology, The Graduate Center of the City University of New York.

New York Archaeological Council
1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*. The New York Archaeological Council.

New York City Landmarks Preservation Commission
2018 *Guidelines for Archaeological Work in New York City*. https://www1.nyc.gov/assets/lpc/downloads/pdf/2018_Guidelines%20for%20Archaeology_Final_high%20res.pdf

New York Daily Herald
1853 "Petitions." *New York Daily Herald* March 16, 1853: page 8. New York, NY.

New York Times
1856 "State Affairs." *New York Times* March 8, 1856: page 1. New York, NY.

New York Tribune
1850 "City Items." *New York Tribune* October 28, 1850: page 3. New York, NY.

National Oceanic and Atmospheric Administration (NOAA)
n.d. "Relative Sea Level Trend, 8518750 The Battery, New York." Accessed October 2019: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8518750

Office of the President of the Borough of Manhattan
1937 *Rock Data Map of Manhattan, Showing Locations of Borings, Excavations, Etc., Borough of Manhattan, City of New York*. New Edition. New York: Civil Works Administration and the Works Progress Administration.

Perris, William
1854 *Maps of the City of New York Surveyed Under Directions of Insurance Companies of Said City*. New York: Perris and Browne.
1859 *Maps of the City of New York: Third Edition*. New York: Perris and Browne.

Randel, John
Ca. 1820 "The Randel Farm Map."

Robinson, E. and R.H. Pidgeon
1885 *Robinson's Atlas of the City of New York, 1883-1888*. New York: E. Robinson

Rose-Redwood, Reuben S.
2003 "Re-Creating the Historical Topography of Manhattan Island." *Geographical Review* 93(1): 124-132.

Sanborn Map Company
1890 *Insurance Maps of the City of New York*. New York: Sanborn-Perris Map Co.
1898 *Insurance Maps of the City of New York*. New York: Sanborn-Perris Map Co.
1911 *Insurance Maps of the City of New York, Borough of Manhattan*. New York: Sanborn Map Co.
1930 *Insurance Maps of the City of New York, Borough of Manhattan*. New York: Sanborn Map Co.
1951 *Insurance Maps of the City of New York, Borough of Manhattan*. New York: Sanborn Map Co.
2019 *Insurance Maps of the City of New York, Borough of Manhattan*. New York: Sanborn Map Co.

Schuberth, Christopher J.
1968 *The Geology of New York City and Environs*. Garden City, New York: The American Museum of Natural History, the Natural History Press.

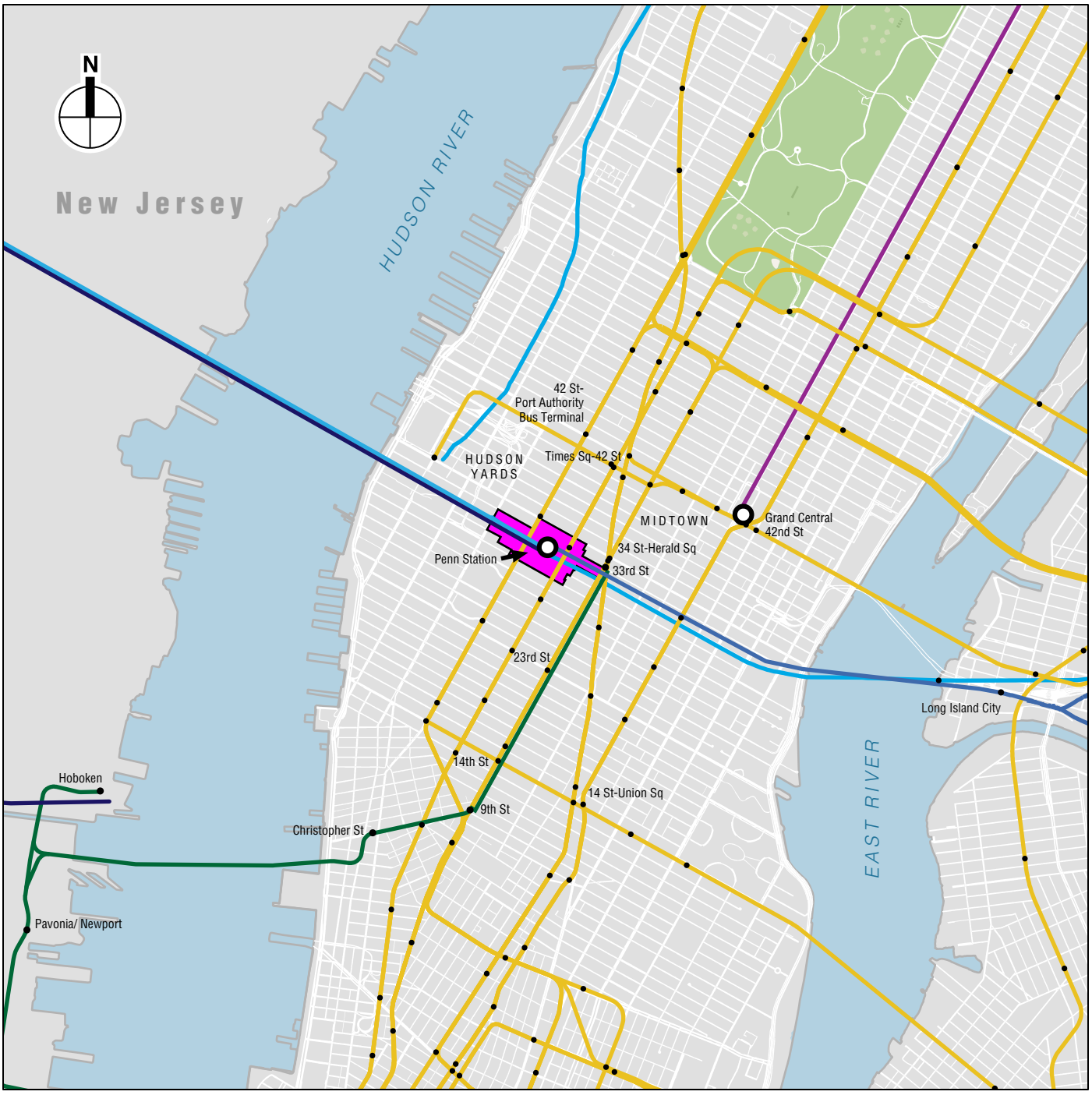
Transit Link Consultants [TLC]
2005 *Access to the Region's Core: Draft Environmental Impact Statement; Phase 1A Archaeological Survey Report*. Version 2.0. Prepared for: New Jersey Transit. In association with: Lawler, Matuskey & Skelly, Louis Berger & Associates, K.S. Engineers, K.M. Chang, Matrix, Zetlin Strategic Communications, Robinson Aerial Surveys, Inc., In-group, Inc., Anne Strauss-Weider, Inc., Organizational Learning Associates, and A.D. Marble Company.

United States Geological Survey
2013 "USGS New York CMGP Sandy Lidar." Accessed through: LAS.xml

Viele, Egbert L.
1865 *Sanitary & Topographical Map of the City and Island of New York*. New York: Ferd. Mayer & Co.

Figures

8.26.20



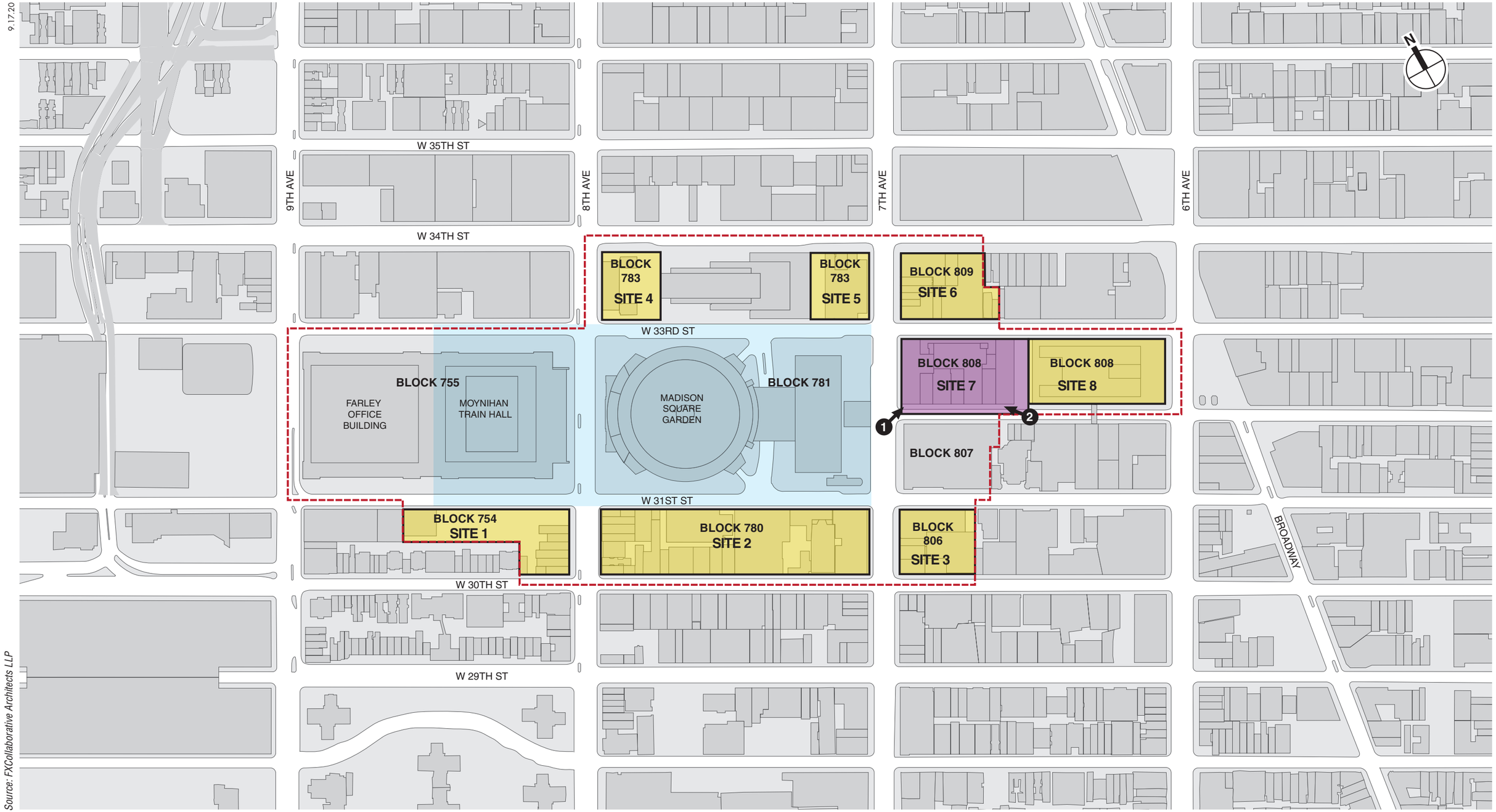
- *Project Area*
- *Long Island Rail Road*
- *Metro North Railroad*
- *PATH*
- *New Jersey Transit*
- *Amtrak*
- *New York City Transit Subway*
- • *Subway Station*

Regional Context

EMPIRE STATION COMPLEX

Figure 1

9.17.20



Source: FXCollaborative Architects LLP

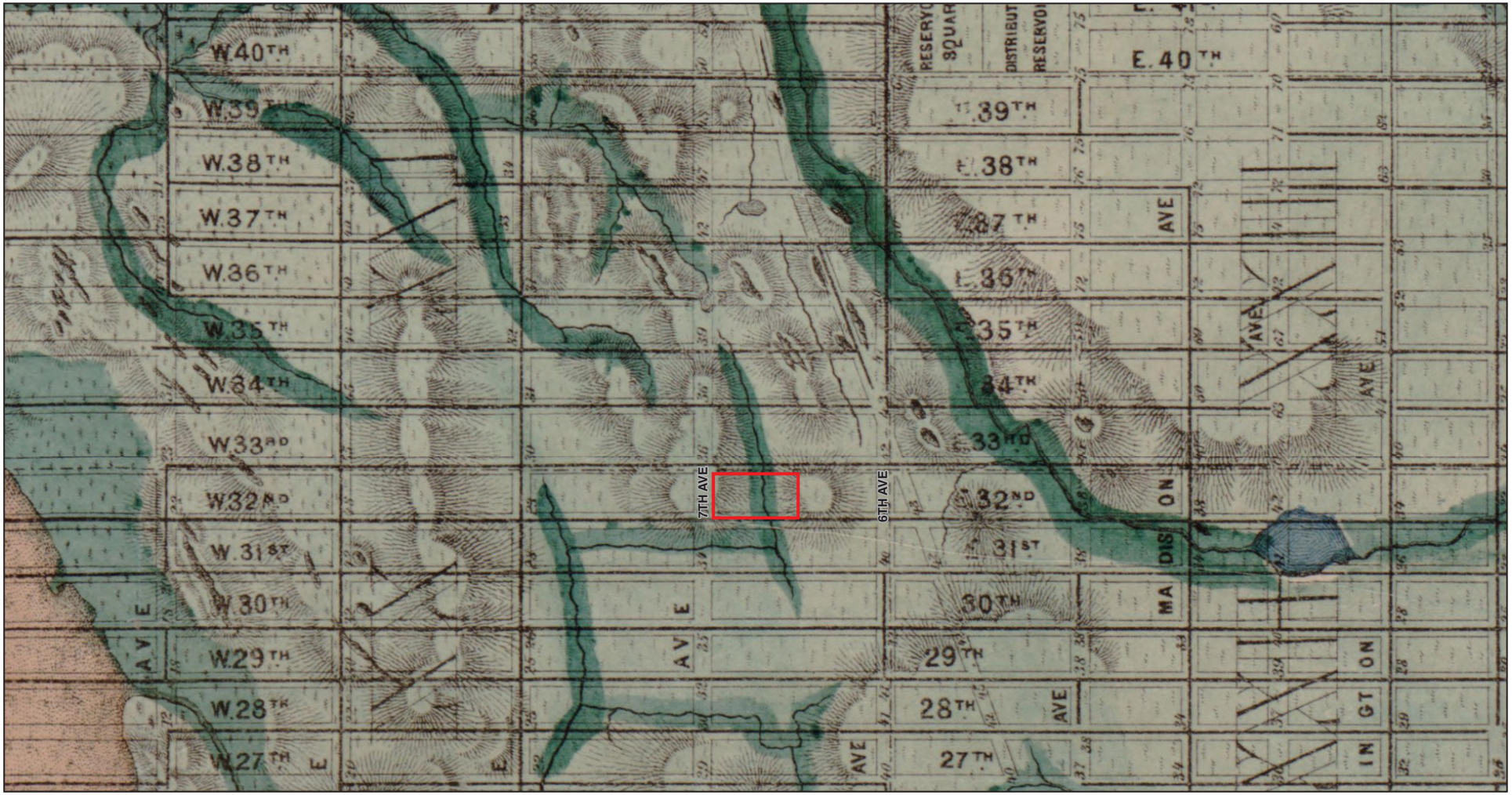
EMPIRE STATION COMPLEX

Project Location
Figure 2

View of the Seventh Avenue façade of the Hotel Pennsylvania looking north from West 32nd Street **1**

Looking west along West 32nd Street at the southern façade of the Hotel Pennsylvania; this is the location of the former B'nai Jeshurun cemetery **2**

9.16.20



ORIGINAL SCALE UNKNOWN

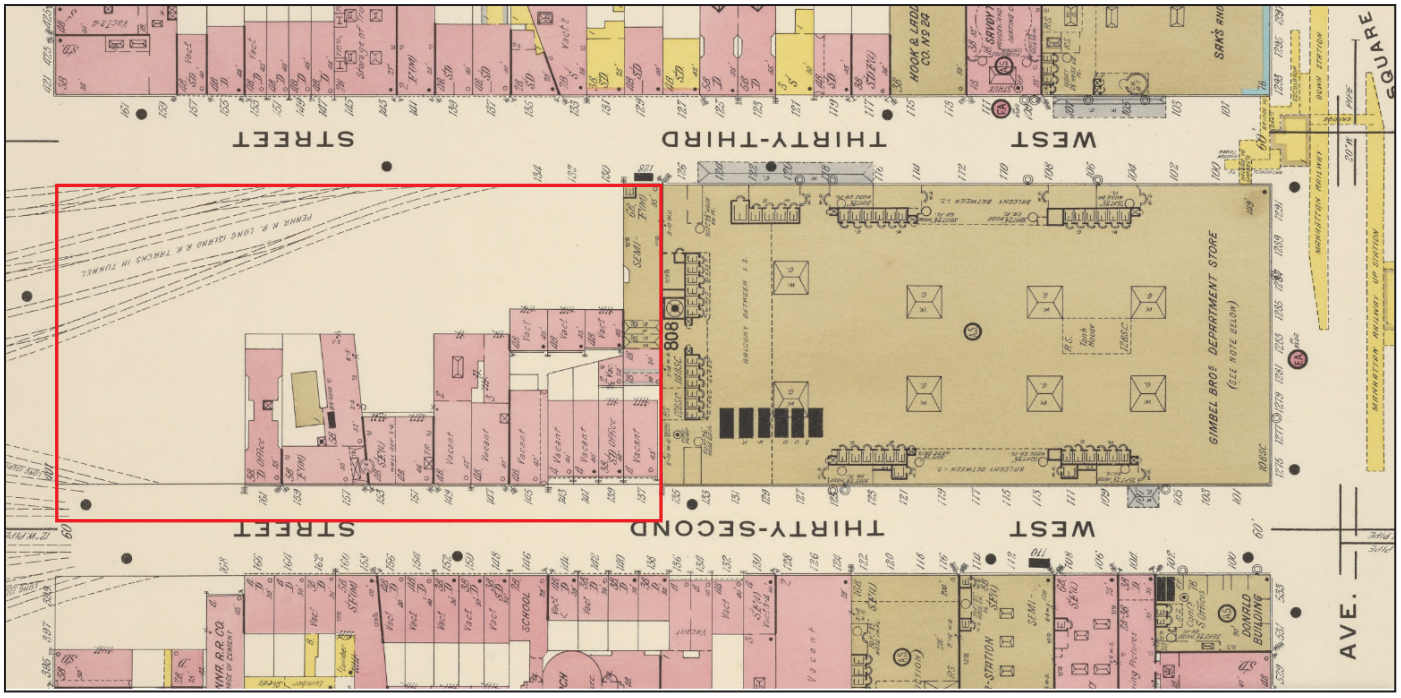
Study Area

1865 Viele Map

EMPIRE STATION COMPLEX

Figure 4

9.16.20



1911 Sanborn map showing rail easements

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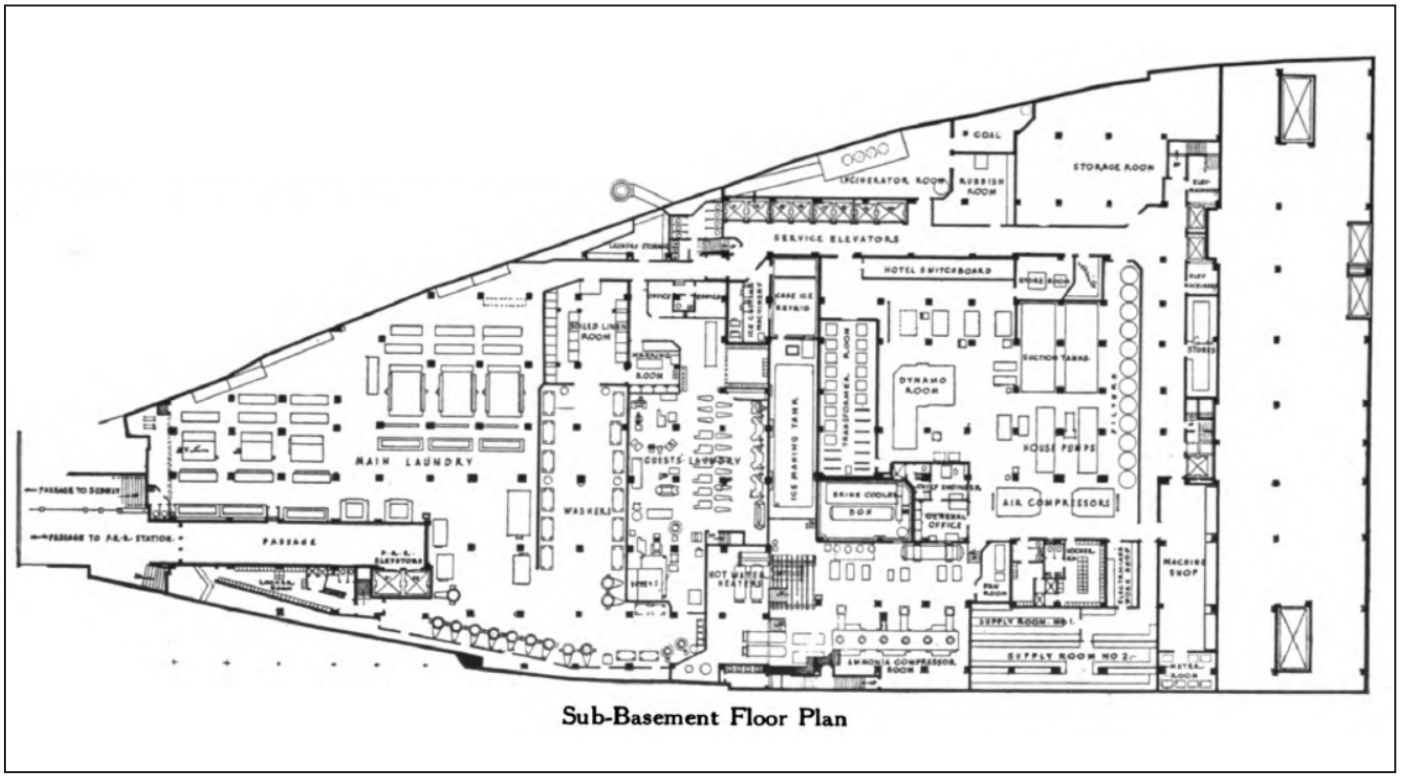
Study Area



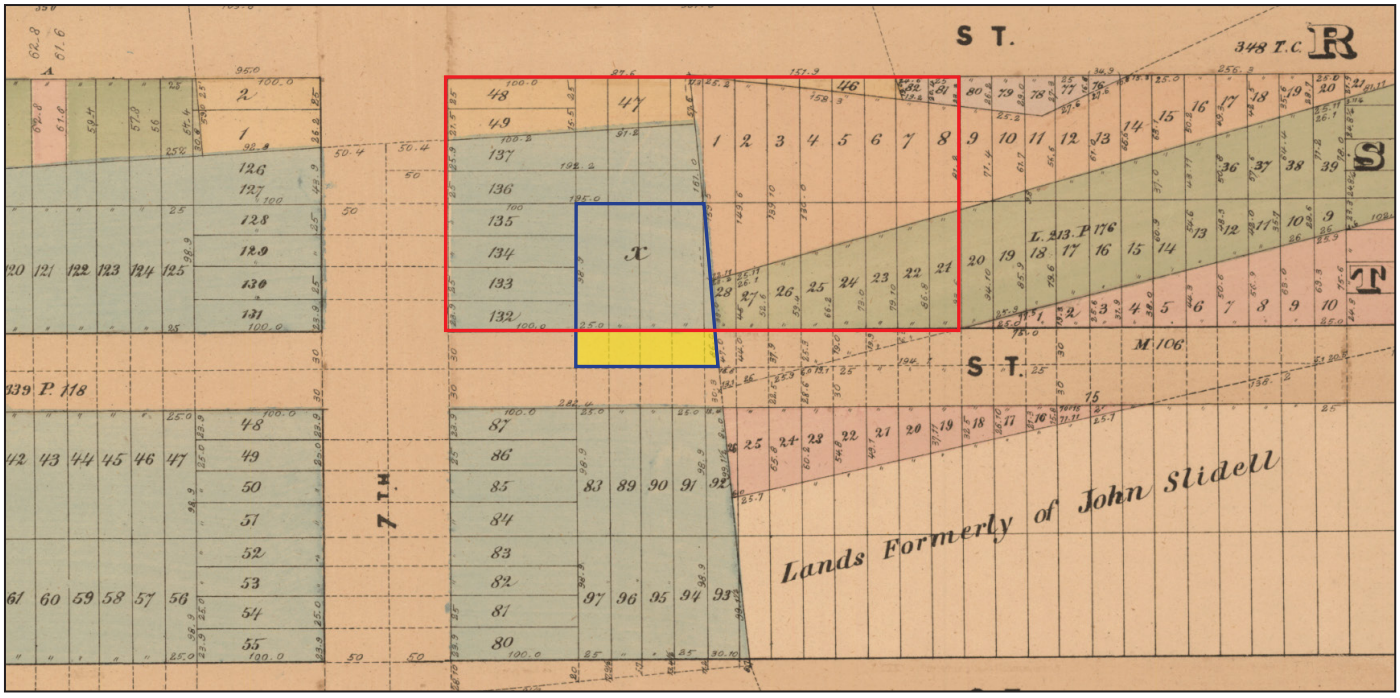
Floorplan of the sub-basement (lowest level) of the Hotel Pennsylvania from Colton (1919)

1911 Sanborn Map and Hotel Floor Plans

EMPIRE STATION COMPLEX

Figure 5

9.21.20



1875 Holmes map

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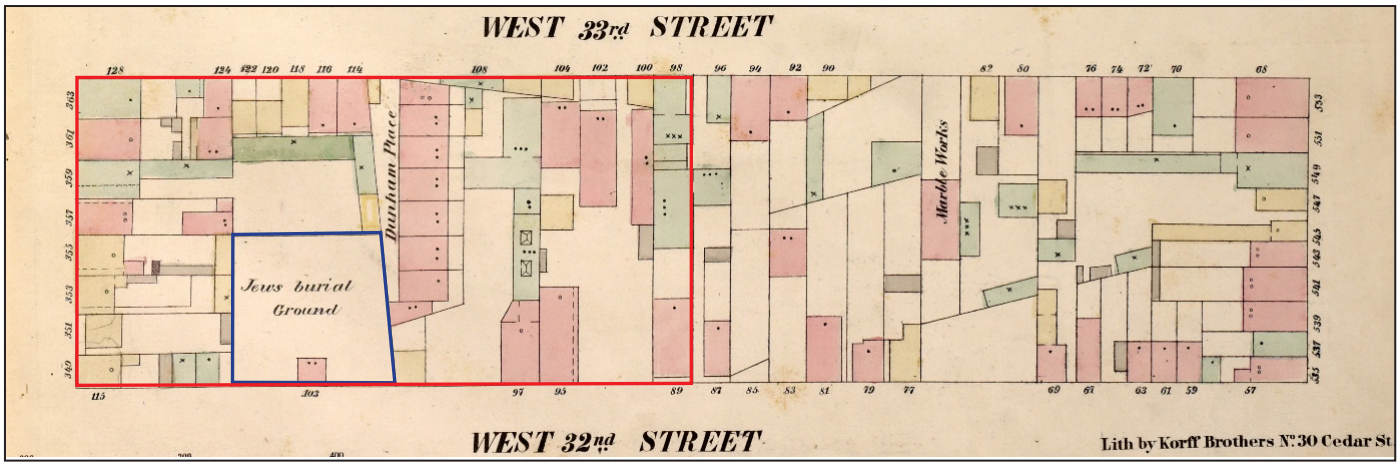
Site 7

Cemetery property purchased in 1826

Portion of cemetery property to be left as undeveloped thoroughfare per stipulations of original deed



1854 Perris Atlas

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Site 7

Cemetery Site

Maps Showing Cemetery Location

Figure 6

EMPIRE STATION COMPLEX