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**SECOND AVENUE
SUBWAY
PHASE 1A
ARCHAEOLOGICAL
ASSESSMENT**

**SUPPLEMENTAL ANALYSIS OF
BORING LOGS**



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**SECOND AVENUE SUBWAY
PHASE 1A ARCHAEOLOGICAL ASSESSMENT
SUPPLEMENTAL ANALYSIS OF BORING LOGS**

Prepared by:

Historical Perspectives, Inc.
P.O. Box 3037
Westport, CT 06880

Prepared for:

AKRF, Inc.
117 East 29th Street
New York, NY 10016

December 9, 2003

Primary Author:

Faline Schneiderman-Fox (RPA)

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EXECUTIVE SUMMARY

MTA New York City Transit (MTA NYCT) has prepared a Supplemental Draft Environmental Impact Statement (SDEIS) for a proposed full-length Second Avenue Subway extending from 125th Street to Lower Manhattan (SDEIS, March 2003). The Environmental Impact Statement (EIS) for the project is being prepared for the Federal Transit Administration (FTA) as lead agency, in accordance with the National Environmental Policy Act (NEPA). As per Section 106 of the National Historic Preservation Act of 1966, an archaeological resources analysis was prepared for the project. This document, *Second Avenue Subway, Phase 1A Archaeological Assessment* (Kearns et al. 2003) established Areas of Potential Effect (APEs) for the project (e.g. the areas where the proposed project may affect potential archaeological resources), identified designated and potential archaeological resources that may be affected by the proposed project, and assessed the proposed action's effects on those resources. This Phase 1A was accepted by the New York State Historic Preservation Office (SHPO). It was also accepted by the New York City Landmarks Preservation Commission (LPC).

Under Section 106, a draft Programmatic Agreement (PA) was also prepared and is included in the SDEIS, to be executed by FTA, MTA NYCT, and SHPO. The draft Programmatic Agreement sets forth protocols to be followed pertaining to Archaeological Properties in the Second Avenue Subway APE. At all sites where the potential for archaeological resources were identified, and where construction might occur, further research is to be conducted. The first step in the process of additional research includes the review by a professional archaeologist of additional soil borings taken as part of the project's geotechnical analysis (Exhibit G, II A "Additional Evaluation for Archaeologically Sensitive Areas" of the PA). The purpose of reviewing the soil boring logs is to better evaluate subsurface conditions, such as previous disturbance including filling and grading, and/or the presence of original soils, to assess the potential, or lack thereof, for archaeological resources. The Draft PA further stipulated that following completion of any borings, MTA NYCT shall prepare a report summarizing the results and shall submit this report(s) as addenda to the Phase 1A to SHPO, FTA, and LPC.

Soil borings were undertaken by Geotechnicians in 2002 throughout the entire project corridor, except where archaeologists previously identified potential burial grounds. These locations were specifically avoided. Following the completion of all borings, logs were reviewed by project archaeologists. This report describes how the borings were interpreted and the results of these interpretations. Where indicated, revisions to assessments of archaeological sensitivity provided in the Phase 1A study were identified. This includes the adjustment to depths of potential resources and the elimination of and/or modification to locations of potential archaeological resources. In some instances, borings suggested that no potential for archaeological resources remained either due to the extensive depth of disturbance (e.g., 30 or more feet below grade) or evidence of disturbance down to bedrock. In other cases, borings confirmed the previously estimated depths of resources. In one location, borings indicated a new area of potential precontact sensitivity.

I. INTRODUCTION

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II. RESEARCH GOALS AND METHODS

The goal of reviewing the additional boring logs, undertaken for the geotechnical study of the proposed Second Avenue Subway corridor, was to further evaluate subsurface conditions and archaeological potential. Some borings were taken in locations where prior borings had been conducted, but others were placed where there was uncertainty as to subsurface conditions or no prior was information available. Borings logs were reviewed from tests conducted in the following locations:

- Second Avenue
- East 125th Street, between Second and Fifth Avenues
- Chrystie Street
- Bowery
- St. James Place
- Pearl Street
- Fulton Street, and
- Water Street

Most of the borings helped elucidate subsurface conditions. However, some were refusals and provided little, if no, information.

The analysis of soil boring logs to help determine subsurface conditions can also aid in approximating the potential depths of resources where they were previously identified in the Phase 1A study. However, the difficulty in interpreting subsurface conditions and archaeological potential arises because borings cannot reveal 1) if upper sensitive levels were removed; and/or, 2) if “fill” represents the addition of new strata or the disturbance of natural strata. To complicate the issue, the topography of Manhattan prior to historic development is vaguely understood, at best. The unique contours that once characterized the island (e.g., as shown on Viele 1865), have long since been obliterated. This makes it difficult to determine how the historic versus modern surface and subsurface conditions differ. Few early topographic maps record actual elevations tied to a vertical datum point.

One of the ways that soil borings can aid in the reconstruction of the precontact environment is through the recordation of certain indicators, or markers, suggesting precontact sensitivity. The presence of peat, indicative of a tidal marsh, may suggest precontact potential in the vicinity as was found at the Old Place site on northwestern Staten Island (Ritchie 1980:140). Archaic period artifacts at the site coincide with radiocarbon dates taken from a layer of sand lying between adjacent tidal marsh peats (Thieme 2000:5). Other indicators for potential precontact habitation include the presence of buried soil, which is one of the most sensitive elements of landform stability (Ibid.:23).

Soil boring logs were reviewed despite their limitations. Conservatively, fill levels were considered to represent potential historic deposits, and underlying sand, silt, and/or peat was considered to potentially represent the precontact living surface. Where fill overlaid natural soils, typically sand in Manhattan, it was estimated that precontact potential could exist at the level where the fill meets the natural soils (the bottom of fill) down to about five feet below

the fill; the assumption was that precontact resources would probably not have been deeply buried beneath the precontact land surface due to a lack of alluvial accretion. Where fill extended to depths of greater than 30', and no evidence of a deep ravine having been filled could be found, it was assumed that there was extensive disturbance to the precontact surface and that no precontact potential remained.

III. RESEARCH RESULTS

A total of 86 additional soil boring logs from within the Second Avenue APE were available for review. Soil borings were taken between Second Avenue at 128th Street on the north and Water Street near Broad Street on the south. The following logs were prepared by Jersey Boring and Drilling Company, and were completed in 2002.

BW-6	BW-5 B	W-4A	BW-4	BW-3	BW-25
BW-24	BW-23	BW-22	BW-21	BW-20	BW-2
BW1-A	BW-19	W-18	BW-15	BW-12	BW-1
BP-8	BP-5	BP-4	BP-3	BP-2	BP-1
BJ-6	BJ-4	BJ-3	BJ-1	BH-2	BH-1
BC-6	BC-5	BC-4	BC-3	BC-2	BC-1
BB-8	BB-7	BB-6	BB-3	BB-2	B94-1U
B92-2	B92-1	B90-1	B84-1	B83-1	B79-1
B78-2	B78-1	B77-1	B73-1	B70-1A	B70-1
B6-1	B50-1	B47-1	B46-1	B43-2	B43-1
B42-1	B41-1	B4-1	B40-1	B-34-1	B33-1
B32-1	B28-1	B25-1	B22-1	B2-1	B19-1
B16-1	B14-1	B128-1	B127-1	B126-1A	B125-5
B125-4	B125-3	B125-2	B125-1	B117-1A	B117-1
B115-1A	B115-1				

Some of the above listed borings were not completed due to a variety of circumstances, and the logs categorized them as "refusals." Typically, where a boring was terminated prematurely, a second boring was undertaken nearby. The following refusals were noted:

BC-2, BC-4, BC-1, BJ-1, BP-1, BW-6, BW-1

Table 1 summarizes the results of the boring logs analysis. The refusals are not included in the table as they did not yield information to affect determinations of sensitivity. Included in each entry is:

- The chapter designation from the Phase 1A study that the log pertains to;
- The boring number and location;
- The name of any prior borings reviewed in the vicinity;
- Revisions to archaeological sensitivity based on the new information; and,
- An explanation as to why there were or were not revisions, additions, or deletions.

TABLE 1: SUMMARY OF NEWLY REVIEWED BORING LOGS

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY¹	REASON
SECTION 4.1 Second Avenue, Harlem River to East 125th Street					
4.1	B128-1	W side 2nd Ave., just N 128th Street	None	REVISE: Precontact Sensitivity WAS 20-25' below grade NOW 15-20' below grade	0-15' fill over organic clay w/fibers; Precontact could be as shallow as 15'.
4.1	B127-1	W side 2nd Ave., just N of 127th Street	None	REVISE: Precontact Sensitivity WAS 20-25' below grade NOW 12-17' below grade	0-12' fill over silty sand; Precontact could be as shallow as 12'.
4.1	B126-1A	W side 2nd Ave., just N of 126th Street	None	REVISE: Precontact Sensitivity WAS 20-25' below grade NOW 17-22' below grade	0-17' fill over sand and some silt; Precontact could be as shallow as 17'.
SECTION 4.2 East 125th Street, Second Avenue to Fifth Avenue					
4.2	B125-1	125th Street, S side, W of 2nd Ave	None	REVISE: Precontact Sensitivity WAS 3-15' below grade NOW 16-21' below grade near 2nd Avenue (no prior borings)	0-16' fill over silty sand; Precontact could be as shallow as 16'.

¹ Although these additional borings have provided greater understanding of subsurface conditions, all depths below grade are still considered **approximate** since they are based on a limited number of soil borings undertaken for each APE. Furthermore, soil borings can not substitute for field verification of potential sensitivity.

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
4.2	B125-2	125th Street, S side, E of 3rd Ave	None	REVISE: Precontact Sensitivity WAS 3-15' below grade NOW 14-19' below grade near 2nd Avenue (no prior borings)	0-14' fill over sand with grass, peat, organics; Precontact could be as shallow as 14'.
4.2	B125-3	125th Street, S side, Lexington to Park Aves	None	REVISE: Precontact Sensitivity WAS 3-15' below grade NOW 18-23' below grade (no prior borings)	0-18' fill over silt; Precontact could be as shallow as 18'.
4.2	B125-4	125th Street, S side, W of Madison	None	REVISE: Precontact Sensitivity WAS 3-15' below grade NOW 16-21' below grade at Madison Ave. (no prior borings)	0-16' fill over Sand, silt; Precontact could be as shallow as 16'.
4.2	B125-5	125th Street, S side, W of 5th Ave	None	REVISE: Precontact Sensitivity WAS 3-15' below grade NOW 17-22' below grade at 5th Ave. (no prior borings)	0-17' fill over sand, silt; Precontact could be as shallow as 17'.
SECTION 4.3 Second Avenue, East 125th Street to East 63rd Street					
4.3	B117-1A	W side 2nd Ave., S side 118th Street	B2-106	REVISE: Precontact Sensitivity WAS 13-18' from 110th- 120th NOW No Sensitivity at 118th Street	0-4' fill over decomposing rock and bedrock.
4.3	B117-1	W side 2nd Ave., just S 118th Street	B2-106.	REVISE: Precontact Sensitivity WAS: 13-18' below grade NOW No Precontact Sensitivity adjacent to tunnel	0-26' fill adjacent to tunnel.

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY¹	REASON
4.3	B115-1A	W side 2nd Ave., just south of 115th Street	B2-102	REVISE: Precontact Sensitivity WAS 13-18' below grade from 110th-120th NOW 18-23' below grade at 115th Street	0-18' fill over silty sand; Precontact could be as shallow as 18'.
4.3	B115-1	W side 2nd Ave., 115th-116th Street	B2-103	NO CHANGE: No Sensitivity adjacent to tunnel	0-29' fill. Boring terminated @ 29'.
4.3	B94-1U	W side 2nd Ave., 94th-95th Street	B2-82	REVISE: Precontact Sensitivity WAS No Sensitivity NOW 10-15' below grade	0-10' fill over silt with organics.
4.3	B92-2	E side 2nd Ave., 92nd-93rd Street	None	NO CHANGE: No Sensitivity	0-18' fill over silt, sand, rock.
4.3	B92-1	W side 2nd Ave., 92-93rd Street	None	NO CHANGE: No Sensitivity	0-22' fill over dense sand, decomposing rock.
4.3	B90-1	E side 2nd Ave., 90th-91st Street	None	NO CHANGE: No Sensitivity	0-12' fill over dense sand, glacial till.
4.3	B84-1	E side 2nd Ave., just S of 85th Street	None	NO CHANGE: No Sensitivity	0-13' fill over decomposing rock.
4.3	B83-1	E side 2nd Ave., N side 83rd Street	B2-68	NO CHANGE: No Sensitivity	0-10' fill over dense sand, decomposing rock.
4.3	B79-1	W side 2nd Ave., 79th-80th Street	None	NO CHANGE: No Sensitivity	0-13.5' fill over dense sand, decomposing rock.
4.3	B78-2	E side 2nd Ave., just S 79th Street	None	REVISE: Precontact Sensitivity WAS 14.5-20' below grade NOW No Sensitivity at East 79 th Street	0-13' fill over dense sand, decomposing rock.

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY¹	REASON
4.3	B78-1	E side 2nd Ave., N side 78th Street	None	REVISE: Precontact Sensitivity WAS 14.5-20' below grade NOW 12.5-20' below grade	0-12.5' fill over silt and sand; Precontact resources could be as shallow as 12.5'.
4.3	B77-1	E side 2nd Ave., just N of 77th Street	B2-59	NO CHANGE: No Sensitivity	0-16' fill over 2" peat, 20' sand, rock. Not a sensitive site.
4.3	B73-1	W side 2nd Ave., just S of 74th Street	None	NO CHANGE: No Sensitivity	0-28' fill over sand, rock.
4.3	B70-1A	W side 2nd Ave., 70th-71st Street	None	NO CHANGE: No Sensitivity	0-14' fill over decomposing rock.
4.3	B70-1	W side 2nd Ave., 70th-71st Street	None	NO CHANGE: No Sensitivity	0-13' fill over rock.
SECTION 4.4 Second Avenue, East 63rd Street to East 6th Street					
4.4	B50-1	E side 2nd Ave., south of 51st Street	None	NO CHANGE: No Sensitivity	0-7' fill over sand, rock.
4.4	B47-1	E side 2nd Ave., 47th-48th Street	None	NO CHANGE: No Sensitivity	0-16' fill over sand, clay, rock. Not a sensitive site.
4.4	B46-1	W side 2nd Ave., S of 47th Street	Boring 2-15, W side 2nd, 46th-47th	NO CHANGE: No Sensitivity	0-8' fill over sand, gravel, rock. Not a sensitive site.
4.4	B43-2	W side 2nd Ave., 43rd-44th Street	None	NO CHANGE: No Sensitivity	0-6' fill over rock.

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4.4	B43-1	E side 2nd Ave., 43rd-44th Street	Boring 2-10, same approx. location	NO CHANGE: No Sensitivity	0-12' fill over rock.
4.4	B42-1	W side 2nd Ave., 42nd-43rd Street	Boring 2-9 E side 2nd	NO CHANGE: No Sensitivity	1-14' fill over decomposing rock, rock.
4.4	B41-1	E side 2nd Ave., 41st-42nd Street	Boring 2-8 E side 2nd	NO CHANGE: No Sensitivity	0-14' fill over rock.
4.4	B40-1	W side 2nd north of 40th Street	Boring 2-6 W side 2nd, south of 40th	NO CHANGE: No Sensitivity	0-21' fill over rock.
4.4	B-34-1	E side 2nd Ave., 34th-35th Street	None	NO CHANGE: No Sensitivity	0-14' fill over clay, sand, rock.
4.4	B33-1	W side 2nd Ave., 33rd-34th Street	None	NO CHANGE: No Sensitivity	0-15' fill over sand, clay, glacial till.
4.4	B32-1	W side 2nd Ave., 32nd-33rd Street	None	NO CHANGE: No Sensitivity	0-15' fill over rock.
4.4	B28-1	E side 2nd Ave., 28th-29th Street	None	NO CHANGE: No Sensitivity	0-6' fill over rock.
4.4	B25-1	E side 2nd Ave., 25th-26th Street	None	NO CHANGE: No Sensitivity	0-9' fill over rock.
4.4	B22-1	W side 2nd Ave., 22nd-23rd Street	M64, same location	REVISE: Precontact Sensitivity WAS 4-10' below grade NOW No Sensitivity	0-11' fill over decomposing rock.
4.4	B19-1	E side 2nd Ave., 19th-20th Street	Boring M60 on W side of 2nd Ave	REVISE: Precontact Sensitivity WAS 9-14' below grade NOW 9-32' below grade on E side of 2nd Avenue	Fill over silty clay with vegetation @22-32' below grade.

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
4.4	B16-1	W side 2nd Ave. at 16th Street	None	REVISE: Precontact Sensitivity WAS 9-14' below grade NOW 12-17' below grade at 16th Street	0-12' fill over sand and silt; Precontact could be as deep as 17'.
4.4	B14-1	W side 2nd Ave., 14th- 15th Street	None	NO CHANGE: No Sensitivity	0-15' fill over sand, rock (filled wetlands – No Sensitivity).
4.4	B6-1	W side 2nd Ave., 6th-7th Street	None	NO CHANGE: No Sensitivity	0-29' fill over sand, rock.
SECTION 4.5 Second Avenue, East 6th Street to East Houston Street					
4.5	B4-1	E side 2nd Ave., south of 5th Street	C7-1NX	REVISE: Precontact Sensitivity WAS 2-23' below grade NOW 15-22' below grade	0-15' fill, over silty sand, rock; Precontact could be as deep as 22'.
4.5	B2-1	E side 2nd Ave., 2nd-3rd Street	C7-2NX	REVISE: Precontact Sensitivity WAS 2-23' below grade NOW 18-23'	0-9' fill over concrete/fill; fill 15-18', over 18- 55' sand; Precontact could be as deep as 23'.
4.5	BC-5	W Side 2 nd Ave., 1 st Street to East Houston Street	125.22	REVISE: Precontact Sensitivity WAS 3-23' below grade NOW No Sensitivity West side of Street	0-35 fill over sand; Precontact surface probably disturbed by deep fill.
4.5	BH-1	E side 2 nd Ave., 1 st Street to East Houston Street	120.26	REVISE: Precontact Sensitivity WAS 3-23' below grade NOW No Sensitivity East side of Street	0-39 fill over sand; Precontact surface probably disturbed by deep fill.

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4.5	BH-2	Center of 2 nd Avenue, 1 st Street to East Houston Street	120.26	REVISE: Precontact Sensitivity WAS 3-23' below grade NOW 24-29' below grade in Center of 2 nd Ave	0-24' fill over sand; Precontact resources could be as deep as 29' below grade.
SECTION 4.6 Forsyth Street Option, Delancey to Canal Streets, Including Sara Delano Roosevelt Park					
4.6	BC-3	Grand Street, Chrystie to Forsyth Street	C6-9	REVISE: Precontact Sensitivity WAS 15-24' below grade NOW 14-24' below grade	0-14' of fill over sand; Precontact could be as shallow as 14'.
SECTION 6.1 Water Street Alignment					
6.1	BC-6	E side Chrystie Street, Hester to Canal Streets	C6-2	NO CHANGE: Precontact Sensitivity remains 13-21' below grade NO CHANGE: Historic Sensitivity remains 0-37' below grade	0-12' fill. Boring terminated due to obstruction.
6.1	BB-3	E side Bowery, Canal to Bayard Street	None	NO CHANGE: No Sensitivity	No Sensitivity due to modern disturbance.
6.1	BB-8	E side Bowery, Canal to Bayard Street	None	NO CHANGE: No Sensitivity	No Sensitivity due to modern disturbance.
6.1	BB-2	E side Bowery, Bayard to Division Street	C5-5, C5-2	REVISE: Precontact Sensitivity WAS 10.6-16.6' below grade NOW 10.6-27' below grade NO CHANGE: No Historic Sensitivity	0-18' fill over sand; Precontact minimum depth of 10.6' below grade based on Borings C5-5 and C5-2, maximum depth of 27' below grade based on Boring BB-7 (see below).

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
6.1	BB-7	E side Bowery, N of Division (Bayard to Division Street)	C5-5, C5-2	REVISE: Precontact Sensitivity WAS 10.6-16.6' below grade NOW 10.6-27' below grade NO CHANGE: No Historic Sensitivity	0-22' fill over sand; Precontact minimum depth of 10.6' below grade based on Borings C5-5 and C5-2, maximum depth of 27' below grade based on Boring BB-7.
6.1	BB-6	Bowery at Doyers Street (Chatham Square)	None	REVISE: Precontact Sensitivity WAS Unknown NOW 16-21' below grade REVISE: Historic Sensitivity WAS Unknown NOW 0-16' below grade	0-16' fill over sand.
6.1	BJ-6	W side St. James Place at James Street (James to Madison Street)	MI-26	REVISE: Precontact Sensitivity WAS 12.5-17.5' below grade NOW 12.5-32' below grade REVISE: Historic Sensitivity WAS 0-16.5' below grade NOW 0-27' below grade	0-27' fill over sand; Precontact could be as deep as 32' and Historic could be as deep as 27'.
6.1	BJ-4	W side St. James Place, James to Madison Street	MI-25	REVISE: Precontact Sensitivity WAS 19-24' below grade NOW 18-24' below grade NO CHANGE: Historic Sensitivity remains 0-19' below grade	0-18' fill over sand; Precontact could be as shallow as 18' below grade.

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6.1	BJ-3	W side St. James Place, Chestnut to Pearl Street	MI-24	REVISE: Precontact Sensitivity WAS 14.6'-19.6' below grade NOW 14.6'-30' below grade REVISE: Historic Sensitivity WAS 0-17.4' below grade NOW 0-25' below grade	0-25' fill over sand; Precontact minimum depth of 14.6' below grade based on Boring MI-24, maximum depth of 30' below grade based on Boring BJ-3. Historic could be as deep as 25' below grade.
6.1	BP-3	E side Pearl Street, St. James Place to Ave. of Finest	MI-23	REVISE: Precontact Sensitivity WAS 9-26' below grade NOW No Precontact on East side of Pearl Street between St. James and Ave. of Finest REVISE: Historic Sensitivity WAS 0-21' below grade NOW 0-41' below grade in same location	0-41' fill over sand and gravel adjacent to Al Smith Housing; Precontact surface disturbed and Historic could be as deep as 41' below grade.
6.1	BP-2	E side Pearl Street, S of Dover Street (Avenue of the Finest to Peck Slip)	MI-22	NO CHANGE: Precontact Sensitivity Remains 9-26' below grade NO CHANGE: Historic Sensitivity remains 0-21'	0-13' fill over sand; confirms fill depth between 9-21' below grade.
6.1	BP-8	W side Pearl Street, S of Dover Street (Avenue of Finest to Peck Slip)	MI-22	NO CHANGE: Precontact Sensitivity Remains 9-26' below grade NO CHANGE: Historic Sensitivity remains 0-21'	0-14' fill over sand; confirms fill depth between 9-21' below grade.

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REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
6.1	BP-5	W side Pearl Street, Peck Slip to Beekman Street	MI-20, MI-19	REVISE: Precontact Sensitivity WAS 15-20' below grade NOW 12-28' below grade REVISE: Historic Sensitivity WAS 0-18' below grade NOW 0-23' below grade at Beekman Street	0-12' fill over sand; Precontact minimum depth of 12' below grade based on Boring BP-5, maximum depth of 28' below grade based on Boring BW-5 (see below). Historic could be as deep as 23' below grade (see Boring BW-5).
6.1	BW-5	E side Pearl Street, Peck Slip to Beekman Street	MI-20, MI-19	REVISE: Precontact Sensitivity WAS 15-20' below grade NOW 12-28' below grade at Beekman Street REVISE: Historic Sensitivity WAS 0-18' below grade NOW 0-23' below grade at Beekman Street	0-23' fill over sand; Precontact minimum depth of 12' below grade based on Boring BP-5, maximum depth of 28' below grade based on Boring BW-5. Historic could be as deep as 23' below grade.
6.1	BP-4	W side Pearl Street at Beekman Street	MI-18	REVISE: Precontact Sensitivity WAS 18.5-23.5' below grade NOW 14-23.5' below grade NO CHANGE: Historic Sensitivity remains 0-18.5'	0-16' fill over sand; Precontact could be as shallow as 14' below grade (see Boring BW-25)

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY¹	REASON
6.1	BW-25	E side Pearl Street, Beekman to Fulton Street	MI-18	REVISE: Precontact Sensitivity WAS 18.5-23.5' below grade NOW 14-23.5' below grade NO CHANGE: Historic Sensitivity remains 0-18.5'	0-14' fill over sand; (see Boring BW-24)
6.1	BW-24	E side Pearl Street, N side Fulton	MI-18	REVISE: Precontact Sensitivity WAS 18.5-23.5' NOW 7-23.5' below grade NO CHANGE: Historic Sensitivity remains 0-19' below grade	0-7' fill over sand; Precontact resources may be as shallow as 7' below grade based on Boring MI-18, and as deep as 23.5' based on Boring BW-24. Historic Sensitivity remains 0-19' based on Boring MI-18.
6.1	BW-20	SE side Water Street N of John Street (Fulton Street to John Street)	MI-16	REVISE: Precontact Sensitivity WAS 16-21' below grade NOW 14-23' below grade REVISE: Historic Sensitivity WAS 0-16' below grade NOW 0-18' below grade	0-18' fill over silty clay; Precontact could be as shallow as 14' based on Boring BW-4A, and as deep as 23' below grade based on Boring BW-20.
6.1	BW-21	W side Water Street, Fulton Street to John Street	MI-16	REVISE: Precontact Sensitivity WAS 16-21' below grade NOW 14-23' below grade REVISE: Historic Sensitivity WAS 0-16' below grade NOW 0-18' below grade	0-15' fill over sand; Precontact could be as shallow as 14' based on Boring BW-4A, and as deep as 23' below grade based on Boring BW-20.

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REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
6.1	BW-23	SE side Water Street just S of Fulton (Fulton Street to John Street)	MI-16	REVISE: Precontact Sensitivity WAS 16-21' below grade NOW 14-23' below grade REVISE: Historic Sensitivity WAS 0-16' below grade NOW 0-18' below grade	0-15' fill over sand; Precontact could be as shallow as 14' based on Boring BW-4A, and as deep as 23' below grade based on Boring BW-20.
6.1	BW-4	SE side Water Street, Fulton Street to John Street	MI-16	REVISE: Precontact Sensitivity WAS 16-21' below grade NOW 14-23' below grade REVISE: Historic Sensitivity WAS 0-16' below grade NOW 0-18' below grade	0-14' fill (note Boring terminated due to wrench dropped in hole); (see Boring BW-20 and BW-4A).
6.1	BW-4A	SE side Water Street, Fulton Street to John Street	MI-16	REVISE: Precontact Sensitivity WAS 16-21' below grade NOW 14-23' below grade REVISE: Historic Sensitivity WAS 0-16' below grade NOW 0-18' below grade	0-14' fill over clayey silt; Precontact could be as shallow as 14' based on Boring BW-4A, and as deep as 23' below grade based on Boring BW-20.
6.1	BW-22	W side Water Street at John Street	MI-16	NO CHANGE: No Precontact Sensitivity NO CHANGE: Historic Sensitivity remains 0-16' below grade at John Street	0-16' fill over sand; however no Precontact Sensitivity due to Historic dredging at John Street.

Second Avenue Subway Phase 1A Archaeological Assessment – Supplemental Analysis of Boring Logs

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY ¹	REASON
6.1	BW-18	E side Water Street at Fletcher Street (John Street to Maiden Lane)	C2-19, C2-15, MI-14	REVISE: Precontact Sensitivity WAS 17-22' below grade NOW 15-33' below grade REVISE: Historic Sensitivity WAS 0-22' below grade NOW 0-28' below grade	0-28' fill over sand; Precontact could be as shallow as 15' based on Boring BW-19, and as deep as 33' below grade based on Boring BW-18.
6.1	BW-19	W side Water Street, at Fletcher Street (John Street to Maiden Lane)	C2-19, C2-15, MI-14	REVISE: Precontact Sensitivity WAS 17-22' below grade NOW 15-33' below grade REVISE: Historic Sensitivity WAS 0-22' below grade NOW 0-28' below grade	0-15' fill over sand; Precontact could be as shallow as 15' based on Boring BW-19, and as deep as 33' below grade based on Boring BW-18.
6.1	BW-3	E side Water Street, N of Pine Street (Maiden Lane to Wall Street)	C2-8, 11, 12 MI-13	REVISE: Precontact Sensitivity WAS 23-28' below grade NOW 18-28' below grade north of Pine Street NO CHANGE: Historic Sensitivity remains 0-23' below grade	0-20' fill over silt and sand; Precontact could be as shallow as 18' based on Boring BW-15.
6.1	BW-15	W side Water Street, Maiden Lane to Pine Street (Maiden Lane to Wall Street)	C2-8, 11, 12 MI-13	REVISE: Precontact Sensitivity WAS 23-28' below grade NOW 18-28' below grade north of Pine Street. NO CHANGE: Historic Sensitivity remains 0-23' below grade	0-18' fill over silt; Precontact could be as shallow as 18' below grade.
6.1	BW-2	W side Water Street, S of Wall Street (Wall Street to Old Slip)	1.1.452	NO CHANGE: No Precontact Sensitivity NO CHANGE: Historic Sensitivity remains 0-32.2' below grade	0-20' fill over sand confirms minimum depth of fill reported in other boring.

REPORT SECTION NUMBER	BORING NO.	LOCATION	PRIOR BORINGS REVIEWED NEARBY	CHANGES TO SENSITIVITY¹	REASON
6.1	BW-12	W side Water Street, Wall Street to Governor Lane (Wall Street to Old Slip)	MI-11	NO CHANGE: No Precontact Sensitivity NO CHANGE: Historic Sensitivity remains 0-32.2' below grade.	0-13.5' fill over dense clayey silt; likely sediment accretion between Historic piers.
6.1	BW1-A	E side Water Street, Coenties Slip to Broad Street	1.1.120	NO CHANGE: No Precontact Sensitivity REVISE: Historic Sensitivity WAS 0-23.7' below grade NOW 0-28' below grade	0-28' fill over rock; Historic Sensitivity could extend to 28' below grade.

Table 2 summarizes only those areas which require revisions, additions, or deletions to the assessments of archaeological sensitivity presented in the Phase 1A Archaeological Assessment (March 2003). Where the analysis of boring logs lead to the addition of new areas of potential sensitivity or the deletion of previously identified areas of potential sensitive, corresponding sensitivity figures from the Phase 1A study were also revised (See Revised Figures 4.3-7b, 4.3-7f, 4.3-7g, 4.4-8f, 4.5-5a and 6.1-6e).

TABLE 2: SUMMARY OF REVISIONS TO ARCHAEOLOGICAL SENSITIVITY

SECTION 4.1	
W side 2nd Ave., N of 128th Street	REVISE: Precontact Sensitivity to 15-20' below grade
W side 2nd Ave., just N of 127th Street	REVISE: Precontact Sensitivity to 12-17' below grade
W side 2nd Ave., just N of 126th Street	REVISE: Precontact Sensitivity to 17-22' below grade
SECTION 4.2	
125th Street, S side, W of 2nd Ave	REVISE: Precontact Sensitivity to 16-21' below grade near 2nd Avenue
125th Street, S side, E of 3rd Ave	REVISE: Precontact Sensitivity to 14-19' below grade near 2nd Avenue
125th Street, S side, Lexington to Park Aves	REVISE: Precontact Sensitivity to 18-23' below grade
125th Street, S side, W of Madison	REVISE: Precontact Sensitivity to 16-21' below grade at Madison Ave.
125th Street, S side, W of 5th Ave	REVISE: Precontact Sensitivity to 17-22' below grade at 5th Ave
SECTION 4.3	

W side 2nd Ave., S side 118th Street	REVISE: Precontact Sensitivity to No Sensitivity at 118th Street FIGURE 4.3-7b
W side 2nd Ave., just S 118th Street	REVISE: No Precontact Sensitivity adjacent to tunnel FIGURE 4.3-7b
W side 2nd Ave., just south of 115th Street	REVISE: Precontact Sensitivity to 18-23' below grade at 115th Street
W side 2nd Ave., 94th-95th Street	ADD: Precontact to 10-15' below grade FIGURE 4.3-7f
E side 2nd Ave., just S 79th Street	REVISE: Precontact Sensitivity to No Sensitivity at East 79 th Street FIGURE 4.3-7g
E side 2nd Ave., N side 78th Street	REVISE: Precontact to 12.5-20' below grade
SECTION 4.4	
W side 2nd Ave., 22nd-23rd Street	REVISE: Precontact Sensitivity to No Sensitivity FIGURE 4.4-8f
E side 2nd Ave., 19th-20th Street	REVISE: Precontact Sensitivity to 9-32' below grade on E side of 2nd Avenue
W side 2nd Ave. at 16th Street	REVISE: Precontact Sensitivity to 12-17' below grade at 16th Street
SECTION 4.5	
E side 2nd Ave., south of 5th Street	REVISE: Precontact Sensitivity to 15-22' below grade
E side 2nd Ave., 2nd-3rd Street	REVISE: Precontact Sensitivity to 18-23' below grade
W Side 2 nd Ave., 1 st Street to East Houston Street	REVISE: Precontact Sensitivity to No Sensitivity West side of Street FIGURE 4.5-5a
E side 2 nd Ave., 1 st Street to East Houston Street	REVISE: Precontact Sensitivity to No Sensitivity East side of Street FIGURE 4.5-5a
Center of 2 nd Avenue, 1 st Street to East Houston Street	REVISE: Precontact Sensitivity to 24-29' below grade in Center of 2 nd Ave
SECTION 4.6	
Grand Street, Chrystie to Forsyth Street	REVISE: Precontact Sensitivity to 14-24' below grade
SECTION 6.1	
E side Bowery, Bayard to Division Street	REVISE: Precontact Sensitivity to 10.6-27' below grade
E side Bowery, N of Division (Bayard to Division Street)	REVISE: Precontact Sensitivity to 10.6-27' below grade
Bowery at Doyers Street (Chatham Square)	REVISE: Precontact Sensitivity to 10.6-21' below grade REVISE: Historic Sensitivity to 0-16' below grade
W side St. James Place at James Street (James to Madison Street)	REVISE: Precontact Sensitivity to 12.5-32' below grade REVISE: Historic Sensitivity to 0-27' below grade
W side St. James Place, James to Madison Street	REVISE: Precontact Sensitivity to 18-24' below grade

W side St. James Place, Chestnut to Pearl Street	REVISE: Precontact Sensitivity to 14.6'-30' below grade REVISE: Historic Sensitivity to 0-25' below grade
E side Pearl Street, St. James Place to Ave. of Finest	REVISE: Precontact Sensitivity to No Precontact FIGURE 6.1-6e REVISE: Historic Sensitivity to 0-41' below grade
W side Pearl Street, Peck Slip to Beekman Street	REVISE: Precontact Sensitivity to 12-28' below grade REVISE: Historic Sensitivity to 0-23' below grade at Beekman Street
E side Pearl Street, Peck Slip to Beekman Street	REVISE: Precontact Sensitivity to 12-28' below grade at Beekman Street REVISE: Historic Sensitivity to 0-23' below grade at Beekman Street
W side Pearl Street at Beekman Street	REVISE: Precontact Sensitivity to 14-23.5' below grade
E side Pearl Street, Beekman to Fulton Street	REVISE: Precontact Sensitivity to 14-23.5' below grade
E side Pearl Street, N side Fulton	REVISE: Precontact Sensitivity to 7-12' below grade
SE side Water Street N of John Street (Fulton Street to John Street)	REVISE: Precontact Sensitivity to 14-23' below grade REVISE: Historic Sensitivity to 0-18' below grade
W side Water Street, Fulton Street to John Street	REVISE: Precontact Sensitivity to 14-23' below grade REVISE: Historic Sensitivity to 0-18' below grade
SE side Water Street just S of Fulton (Fulton Street to John Street)	REVISE: Precontact Sensitivity to 14-23' below grade REVISE: Historic Sensitivity to 0-18' below grade
SE side Water Street, Fulton Street to John Street	REVISE: Precontact Sensitivity to 14-23' below grade REVISE: Historic Sensitivity to 0-18' below grade
SE side Water Street, Fulton Street to John Street	REVISE: Precontact Sensitivity to 14-23' below grade REVISE: Historic Sensitivity to 0-18' below grade
E side Water Street at Fletcher Street (John Street to Maiden Lane)	REVISE: Precontact Sensitivity to 15-33' below grade REVISE: Historic Sensitivity to 0-28' below grade
W side Water Street, at Fletcher Street (John Street to Maiden Lane)	REVISE: Precontact Sensitivity to 15-33' below grade REVISE: Historic Sensitivity to 0-28' below grade
E side Water Street, N of Pine Street (Maiden Lane to Wall Street)	REVISE: Precontact Sensitivity to 18-28' below grade north of Pine Street
W side Water Street, Maiden Lane to Pine Street (Maiden Lane to Wall Street)	REVISE: Precontact Sensitivity to 18-28' below grade north of Pine Street
E side Water Street, Coenties Slip to Broad Street	REVISE: Historic Sensitivity to 0-28' below grade

IV. CONCLUSIONS AND RECOMMENDATIONS

The soil borings undertaken by Geotechnicians in 2002 throughout the entire project corridor, except where archaeologists previously identified potential burial grounds which were specifically avoided, provided new and additional information on subsurface conditions within the Second Avenue APE. Following the completion of all borings, logs were reviewed by project archaeologists. The information that was gleaned from the 86 boring logs indicates that revisions should be made to the original assessments of archaeological sensitivity detailed in the Phase 1A Archaeological Assessment (March 2003) for approximately 45 locations (Tables 1, 2).

As noted in Table 1, in some cases archaeological sensitivity remained unchanged from the assessment made in the earlier Phase 1A study. In other cases depths of sensitivity were revised, and in yet others, sensitivity was dismissed due to the presence of fill down to bedrock or the depth of disturbance (e.g., greater than 30 feet). In one location, a new area of precontact sensitivity was identified. The final set of revisions is presented in Table 2.

The Conclusions and Recommendations presented in the Phase 1A Archaeological Assessment should be modified to reflect the changes in anticipated resource depths for those areas that are still considered sensitive for precontact or historical archaeological resources. However, where sensitivity has been dismissed due to documented disturbance, no further consideration is warranted.

Areas sensitive for precontact and historic period resources that will be disturbed through subsurface construction, and for which there will be an effect to potential resources, would be subjected to subsurface testing, in consultation with SHPO and LPC. Areas sensitive for historic period resources that will be disturbed through subsurface construction may first undergo additional documentary study. The specifics of these tasks are outlined in the Programmatic Agreement, which sets forth protocols to be followed pertaining to Archaeological Properties in the Second Avenue Subway APE.

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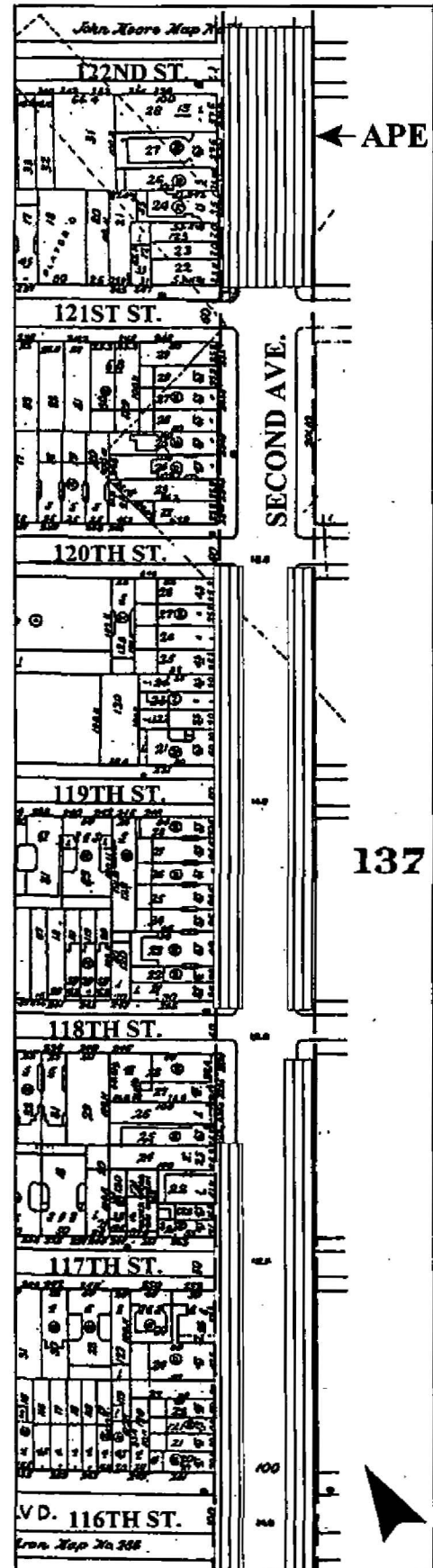
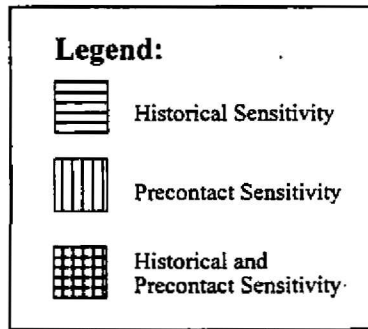
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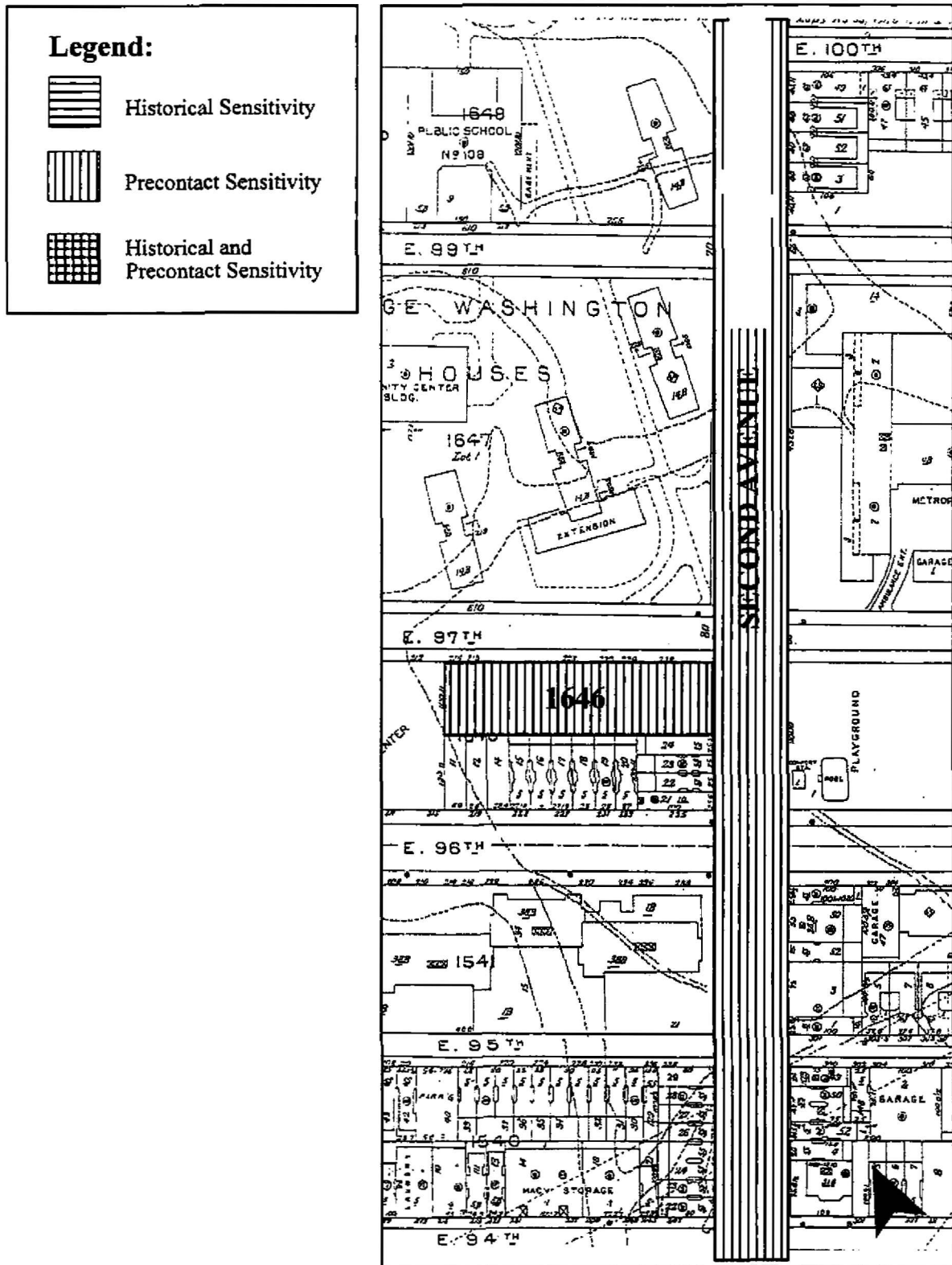
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REVISED FIGURE 4.3-7b

Area of Potential Archaeological Sensitivity.
 East 122nd Street to East 116th Street.
 Sanborn 2001.

Approximate Scale: 1/2 inch = 60 feet.

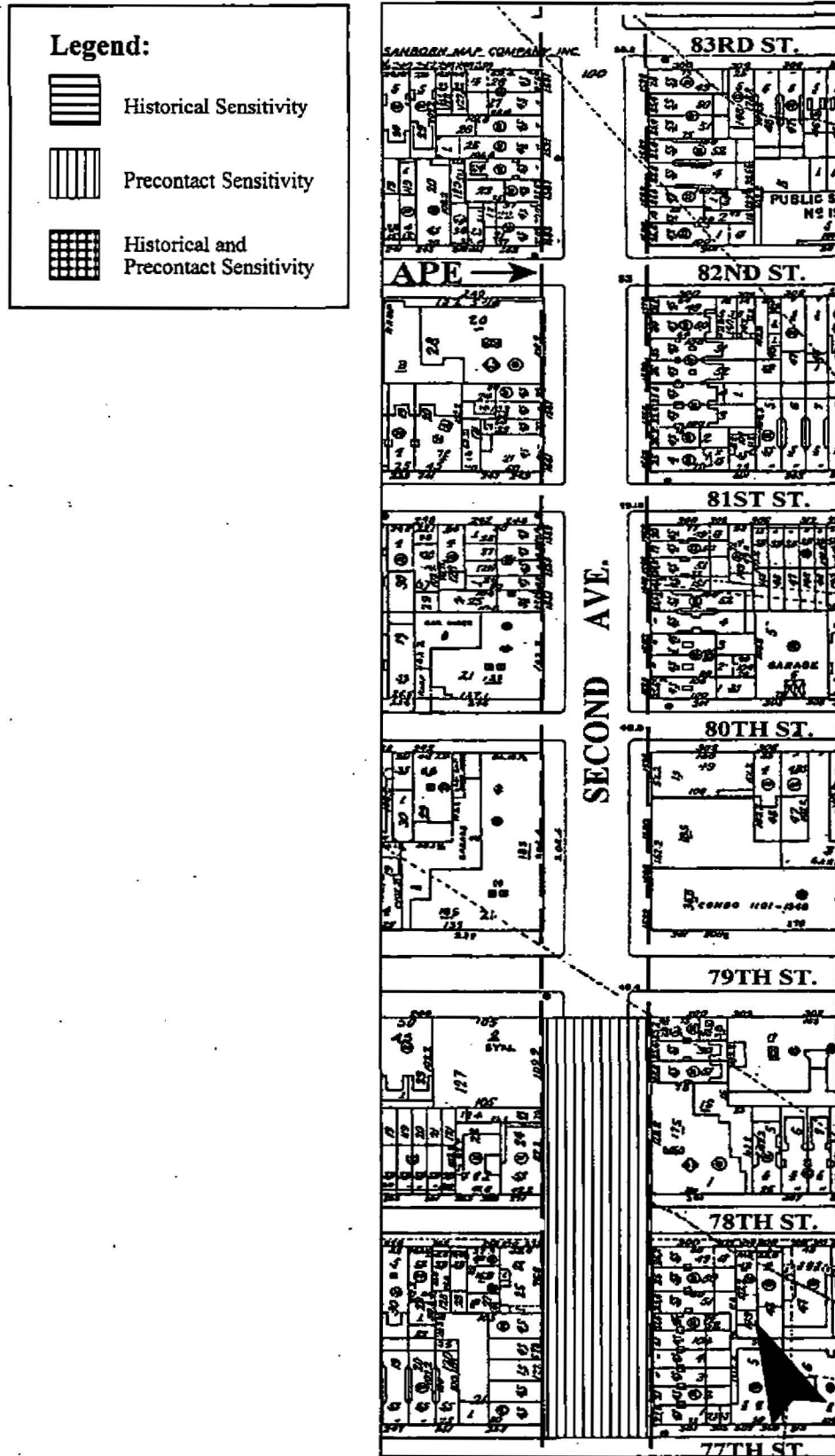


REVISED FIGURE 4.3-7f

Area of Potential Archaeological Sensitivity.

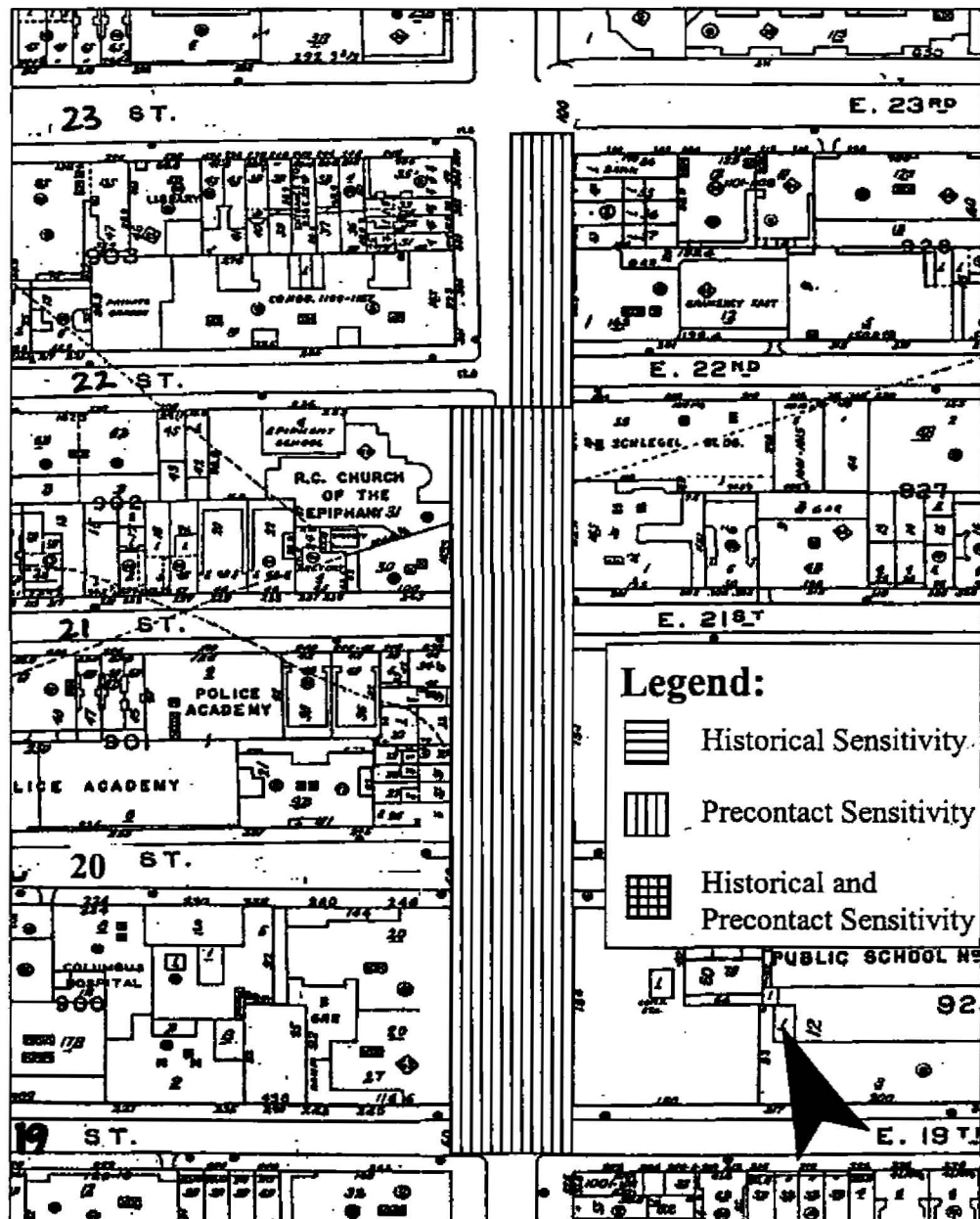
East 100th Street to East 94th Street and Block 1646. Sanborn 2001.

Approximate Scale: 1 inch = 200 feet



REVISED FIGURE 4.3-7g

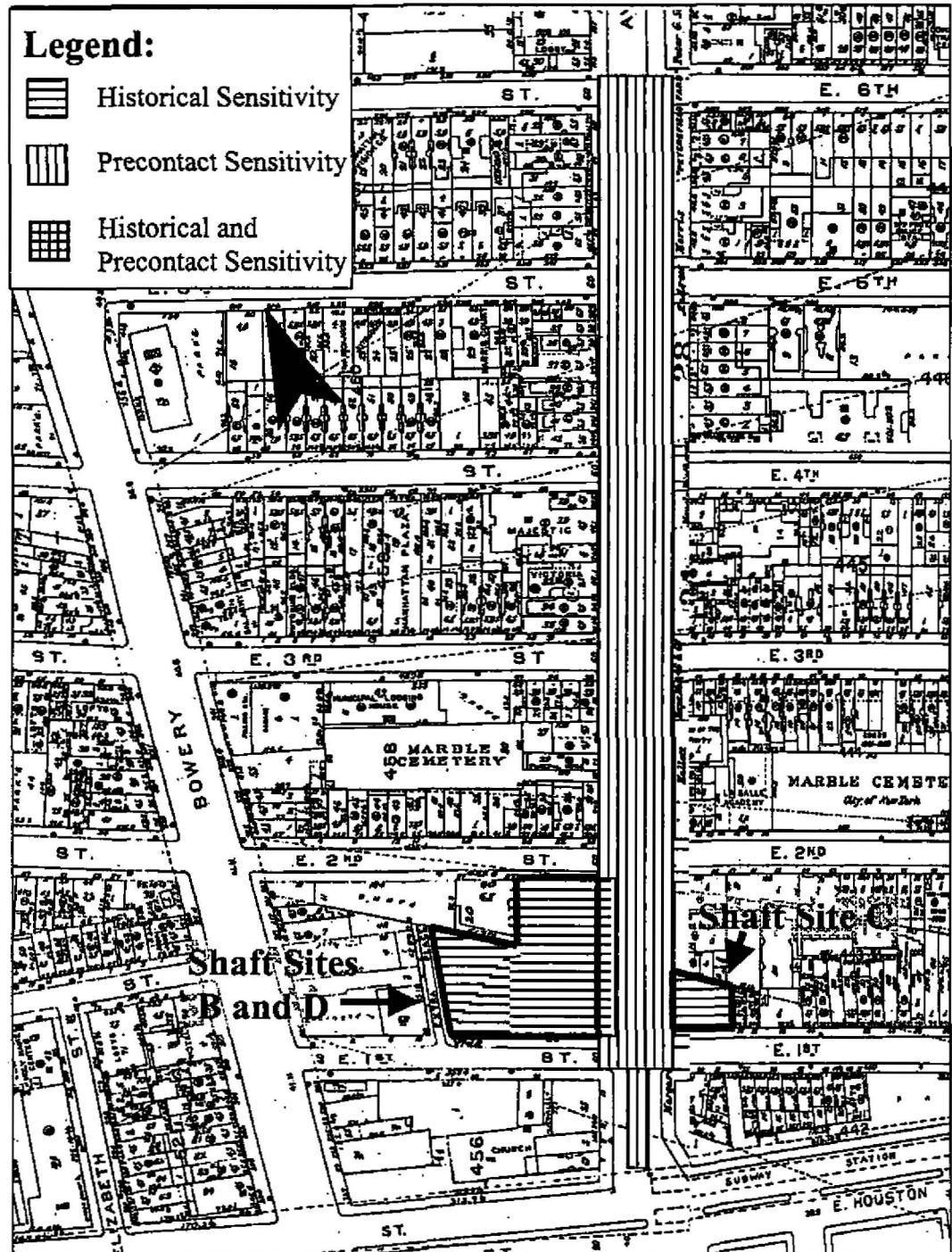
Area of Potential Archaeological Sensitivity.
 East 79th Street to East 77th Street. Sanborn 2001.
 Approximate Scale: ½ inch = 80 feet



REVISED FIGURE 4.4-8f

Area of Potential Archaeological Sensitivity.
 Second Avenue, East 23rd to East 19th Streets.
 Sanborn 2001.

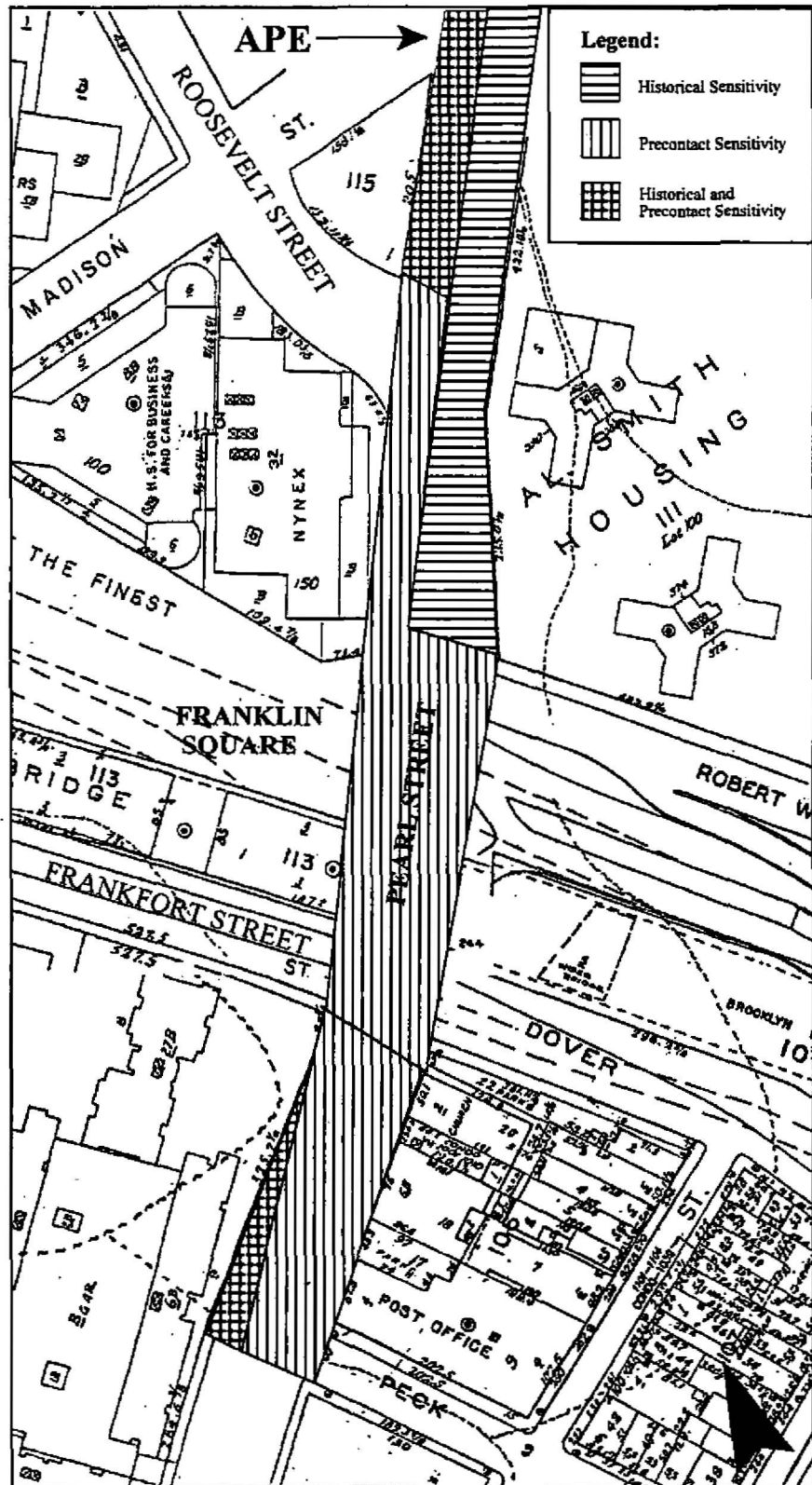
Approximate Scale: 5/8 inch = 100 feet



REVISED FIGURE 4.5-5a

Area of Potential Archaeological Sensitivity.
Second Avenue, East 6th Street to East Houston Street. Sanborn 2001.

Approximate Scale: ½ inch = 100 feet



REVISED FIGURE 6.1-6e

Area of Potential Archaeological Sensitivity.

Pearl Street, Madison Street to Peck Slip. Sanborn 2001.

Approximate Scale: ½ inch = 90 feet