



**Replacement of Willis Avenue Bridge over the Harlem River**  
**BIN No. 2-24005-9/A/B Total Design; Contract No. HBM 1124**  
**New York and Bronx Counties, NY**  
**Manhattan Approach**  
*NYS OPRHP No. 03PR00939*  
*LPC No. DOT/LA-CEQR-X*

**Final Summary of Archaeological Monitoring**  
**Manhattan Approach**  
**January 2009 through April 2012**

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**Final Summary of Archaeological Monitoring  
Manhattan Approach  
January 2009 through April 2012**

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## EXECUTIVE SUMMARY

A Phase IA Archaeological Assessment of the Willis Avenue Bridge Replacement Area of Potential Effect (APE) completed by Historical Perspectives, Inc. (HPI) in 2001, as well as a Topic Intensive Documentary Study of the same project completed by HPI in 2004, found the potential for an historic cemetery, originally associated with the Reformed Low Dutch Church of Harlem, which was once located to the west of the bridge APE. As a result of this heightened sensitivity, an Archaeological Monitoring Zone, and later an Extended Archaeological Monitoring Zone (Zone), was established along East 126<sup>th</sup> and 127<sup>th</sup> Streets as well as First Avenue between these two cross streets. This Zone was established to ensure that no human remains were inadvertently disturbed during any stage of bridge construction or associated activities (Figures 1 and 2).

From 2009 through 2012, Historical Perspectives, Inc. (HPI) undertook archaeological monitoring of Willis Avenue Bridge Company (WAB) construction activities in the Zone at First Avenue, East 127<sup>th</sup> Street and East 126<sup>th</sup> Street, as per *Monitoring Protocol* approved by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) and New York City Landmarks Preservation Commission (LPC).

Over the course of the monitoring, a total of eleven archaeological monitoring memos were prepared by HPI and one email memo was circulated by Martha Holstein of Strategic Urban Solutions, Inc., a public relations subcontractor to the New York City Department of Transportation. The following table lists the twelve memos that were completed, the monitoring dates that they included, and the general locations where the monitoring occurred.

Memo Date	Monitoring Dates	Locations
1/14/09 (interim)	1/12/09, 1/13/09	Trench 1 and 2 in First Avenue
8/6/09 (final)	1/12/09, 1/13/09	Trench 1 and 2 in First Avenue
5/5/09 (via email)	5/5/09	Fill near the Harlem River at the Willis Avenue Bridge
11/1/10	10/30/10	First Avenue utility trench
12/1/10	11/23/10	4 small trenches in First Avenue
12/15/10	12/7/10-12/8/10	2 test units within trenches in First Avenue
2/18/11	1/24/11-2/3/11	First Avenue and East 126 <sup>th</sup> Street, trenches and catch basin
4/22/11	3/11	9 trenches in East 127 <sup>th</sup> Street and First Avenue
5/24/11	3/25/11-4/14/11	Northern section of East 127 <sup>th</sup> Street between the Marginal Street ramp and First Avenue
9/8/11	4/21/11-8/3/11	Various construction locations in and adjacent to East 126 <sup>th</sup> Street, East 127 <sup>th</sup> Street and First Avenue
9/30/11	8/4/11-8/27/11	Various construction locations in and adjacent to East 127 <sup>th</sup> Street and First Avenue
4/12/12	3/27/12	Sidewalk on south side of East 127 <sup>th</sup> Street near First Avenue

In May 2012, after completion of the WAB monitoring program and at the request of the project sponsors, HPI re-submitted the twelve monitoring memos, along with a summary memo, as a complete package to the OPRHP and the LPC. The LPC responded that the package of memos should be revised into one report with one map showing where the monitoring occurred (Sutphin 2012). As such, HPI has reworked the monitoring data to present the following report, which organizes the information so as to summarize the work according to location and resources in addition to dates completed. Figure 3 illustrates the overall boundaries of the monitored areas within the Zone, Figure 4a illustrates locations where specific trenches and other excavations were monitored and Figure 4b illustrates locations of specific roadbed, curb, and sidewalk monitoring.

Results of the monitoring activities showed that with the exception of one location ca. 6.6 feet under First Avenue where original wetland soils were encountered, all soils excavated as part of the WAB project consisted of fill and all artifacts within the fill derived from a secondary deposition. Included were a number of artifacts found in East 127<sup>th</sup> Street which likely derived from the use of Block 1803 (currently occupied by the MTA Bus Depot) for Sulzer's Harlem River Park and Casino from the 1870s through the late 1910s. During the archaeological monitoring program, only several bones were recovered, all of which were examined by the archaeologists, Medical

Examiner and/or the Forensic Anthropologist and determined to be non-human bones. No evidence of the former cemetery or remains associated with the cemetery was identified during any of the excavations for the Willis Avenue Bridge Reconstruction project.

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## I. INTRODUCTION

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## II. METHODOLOGY

HPI's archaeological monitoring adhered to the established definition of monitoring, in accordance with the current *Standards for Cultural Resources Investigations and Curation of Archaeological Collections in New York State of the New York Archaeological Council* (NYAC), the Landmarks Preservation Commission's (LPC) "Guidelines for Archaeological Work in New York City" (2002) and the "Guidelines for the Use of Archaeological Monitoring as

an Alternative to Other Field Techniques [DRAFT]" (NYAC, 9/6/2000). The on-site Project Director was Sara F. Mascia, Ph.D., RPA. The on-call Forensic Anthropologist was Tom Amorosi, Ph.D. Additional HPI personnel who served as archaeological monitors over the course of the nearly 3.5 year-long project included Cece Saunders, M.A., RPA; Faline Schneiderman, M.A., RPA, William Sandy, M.A., RPA; Christine Flaherty, M.A.; Dawn Brown, M.A.; Rosita Tirado, Edgar Billanes, and Michael Thomas. The individual monitoring memos were written by Mascia, Saunders, Schneiderman, Sandy, and Flaherty. An email memo was sent by Martha Holstein of Strategic Urban Solutions, Inc., a public relations subcontractor to the New York City Department of Transportation.

The majority of the archaeological monitoring occurred during planned excavations within the Zone by the project sponsor and in one case, by Consolidated Edison (ConEd). HPI archaeologists were notified by the project sponsor ahead of the excavation schedule, and were present on site during the work. In one case HPI archaeologists and the Medical Examiner were called to the site to examine a bone that was found in landfill near the Harlem River and well outside the Zone, but which was determined by all parties to be non-human (5/5/09 email memo).

Initial work within the Zone consisted primarily of trenching below the roadbed for exploratory purposes to locate subsurface utilities, and to replace or install additional utilities. Other trenches were excavated to better understand subsurface conditions, including the location of former pilings. Pits were excavated to plant new trees along the East 127<sup>th</sup> Street sidewalk at the end of the project. Figure 4a illustrates the locations of the majority of the discrete trench locations excavated over the course of the project.

Subsequent work within the Zone consisted of replacing the existing roadbeds of First Avenue, a small portion of East 126<sup>th</sup> Street, and East 127<sup>th</sup> Street, as well as adjacent sidewalks and curbs. During the course of these excavations, additional utilities and other subsurface features were encountered and documented by the archaeological monitors. Figure 4b illustrates the locations of the archaeological monitoring for the roadbed, sidewalks, and curbs.

As noted in the table presented in the Introduction, the archaeological monitoring occurred both in very limited sessions of only one or two days at a time, as well as in much longer stretches of time when multiple areas were examined. In some cases, areas were excavated, backfilled, and then reopened at a later time (Figures 4a and 4b). Archaeological monitoring memos were prepared by HPI after work for sets of planned excavations were completed. Some of these planned excavations for discrete areas were over in only one or two days, while others stretched over several months and included larger numbers of individual locations.

The sequence of the archaeological monitoring was not always straightforward. While usually the trenching within the roadbeds and sidewalks occurred prior to replacement of these areas with new paving, in some cases additional trenching occurred after the new paving had been laid. And although in general the trenching within First Avenue and East 126<sup>th</sup> Street was the first to be completed, in some cases work was occurring throughout the three streets within the Zone at the same time. The archaeological monitoring memos were written to summarize work done over the course of certain time periods, regardless of location within the project area. However, to better understand specific conditions and results within each segment of the project area (First Avenue, East 126<sup>th</sup> Street, and East 127<sup>th</sup> Street) the following monitoring results are presented by street location, with the deeper (and usually initial) trenching results presented first, followed by results from the roadbed, sidewalk and curb replacements. Because often long stretches of time elapsed between monitoring periods, and because the individual monitoring memos often were prepared by different HPI personnel, the original dates of the memos have been referenced in the results, including the figures and photographs, to provide greater clarity. While the data presented below has not changed from the individual memos, in places the text has been reworked to standardize the presentation. Unless otherwise specified, all measurements noted are based on depths below the existing grade.

### III. MONITORING LOCATIONS AND RESULTS

#### A. First Avenue and East 126<sup>th</sup> Street

##### 1. Trenches

- 8/6/09 memo

On January 12 and 13, 2009, a series of four shallow exploratory trenches were excavated by the construction team adjacent to the south sidewalk of First Avenue (Figure 4a). A team of archaeologists was on site to monitor Trench 1 and Trench 2, the only trenches to fall within the Zone. In Trench 1, a limited and light scatter of domestic refuse was recovered in a fill pocket adjacent to the sidewalk at a depth of approximately 54 cm [ca. 21 inches] below the surface.

The remains were identified just below a mixed fill level containing fragments of asphalt, sewer pipe, and unidentified plastic (not collected). At the top of the domestic trash deposit and within the same soil matrix (identified visually and by texture and Munsell chart), the Kiewit/Weeks excavator revealed bone fragments, identified as Area A of Trench 1. As per protocol, Tom Amorosi, PhD, the on-call forensic archaeologist was called to the site. The investigation of the domestic deposition found that the main pocket was less than 15 cm by 20 cm in size and was adjacent to a utility trench containing asphalt fragments and a single fragment of unidentified shell (not collected). Adjacent to the pocket were several soil lenses, also containing a handful of artifacts (identified as Areas B-D) (Figure 5). The mixing and folding of strata is not unusual in street beds or locations where construction (associated with the abutment wall and sidewalk) and utility installation has occurred. Dr. Amorosi confirmed the bone recovered as food/animal remains that were consistent with domestic refuse and the deposit has been identified as domestic fill of unknown origin (Photographs 1 and 2). The WAB Zone collection of recoveries is temporarily housed in the Historical Perspectives archives unit, an environmentally controlled facility. The collection is stored in a discrete file container, labeled WAB/ManhattanMonitoring/1.09. The following list details the materials found in the fill from Trench 1.

##### Trench 1 (Area A)

*Ovis/Capra* (Domestic Sheep/Goat) - One femoral shaft (adult age range) and 1 proximal tibia shaft (adult age range).

Medium Terrestrial Mammal - Two long bone shaft fragments.

Medium Terrestrial Mammal - One long bone shaft fragment.

1 smoking pipe bowl fragment

3 large ceramic sewer pipe fragments

3 red brick fragments

3 twentieth century soft paste porcelain fragments, undecorated (one with fragment of mark [expr] "essely for")

1 coarse body yellowware

1 unidentified white plastic fragment

2 twentieth century machine made green bottle fragments

1 twentieth century machine made tinted bottle fragment

1 hard shell clam fragment

##### Trench 1, (Area C)

*Sus scrofa* (domestic pig) - 3 distal, unfused metapodial epiphyses (all within the young adult age range).

2 Sewer Pipe Fragments

1 fragment of ceramic twentieth century bathroom tile

1 twentieth century soft paste porcelain undecorated saucer fragment

1 fragment of ceramic – whiteware, undecorated

1 colorless window glass fragment

2 twentieth century machine made colorless bottle fragments

1 brick fragment

1 twentieth century machine made amber bottle fragment

1 fragment of anthracite coal

1 fragment of furnace slag; 1 fragment of furnace scale  
1 nail fragment coated with oxidation

Trench 1, (Area D)

Medium Terrestrial Mammal (goat/sheep) - One long bone shaft fragment.

The archaeology team also observed the excavation of a second trench within the monitoring zone, Trench 2 (Figure 6; Photograph 3). Clean fill was observed beneath the modern bedding in Trench 2. No cultural resources were present in Trench 2. The Trench 2 fill was likely associated with a deep utility installation which was later observed in the opened Trench 3, just south and outside of the monitoring zone. Although Trench 3 was outside of the monitoring zone, a photograph was taken for illustrative purposes (Photograph 4).

- **11/1/10 memo**

ConEd excavated a trench for utilities in the First Avenue Roadbed of the Zone. On Saturday, October 30, 2010, archaeologist Faline Schneiderman, RPA and William Sandy, RPA met with on-site construction personnel Alyson Aulet and Jose Jardim from Willis Avenue Bridge Construction (WABC) and proceeded to monitor the excavation of the trench. Damiano Vella, an inspector for Con Ed, was also present when excavations began.

Con Ed personnel hand-excavated an east-west trench roughly 32.5 ft (9.9m) in length between two existing manholes – one immediately beneath the WAB First Avenue Ramp and the other in the First Avenue roadbed. Blacktop was removed using a jack hammer, as were two underlying layers of pavement and concrete (Photographs 5 and 6). Hand excavations then proceeded beneath the three layers of road surface for about another three to five inches (7.6-12.7 cm). Total excavation depth ranged between 18 and 24 inches (45.7-61cm) below surface elevation. Stratigraphy of the trench appeared as follows.

Depth (below grade)	Level
0"-3"	Blacktop
3"-6"	Old Blacktop
6"-15"	Concrete
15"-18" (24)"	Sandy Gravelly Fill

No historical artifacts or osteological material was observed in the trench excavation. Only sand, ash, and gravel bedding for the original road surface was removed from beneath the lowest level of concrete. Artifacts within this fill level were extremely minimal, and were confined to several small brick fragments, and a few small pieces of coal and slag. Two small pieces of oyster shell were also encountered, as were several small roots. Immediately adjacent to the westernmost manhole were several small pieces of wood staking of modern origin (Photograph 7).

- **12/1/10 memo**

On Tuesday, November 23, 2010, Sara F. Mascia, Ph.D., RPA monitored the installation of sono tubes adjacent to (south of) existing utilities in the extended archeological monitoring zone.

The installation of four sono tubes (14 inches diameter – 35 cm) entailed the hand excavation of four small trenches by two construction team members. The trenches were between 3 - 4 feet (.9 - 1.2m) square and were excavated to depths of approximately 4 ft (1.2m) below the surface (Photographs 8, 9, and 10).

The excavation revealed two mixed fill strata beneath the asphalt: a sandy bedding layer (10YR 3/2- very dark grayish brown coarse sand) and a mixed fill layer (10YR 3/3 dark brown coarse silty sand mixed with 10YR 3/2 dark grayish brown coarse sand). Each of the exposed strata contained modern materials (bricks, a pair of nylons, bottle glass, plastic fragments, unidentified iron fragments, asphalt fragments and sewer pipe fragments). The excavation also exposed two metal (utility) pipes running north-south at depths of approximately 17-19 inches (45-50 cm) below the surface. The four tubes were installed and the trenches were backfilled.

No historical features or undisturbed soil strata were revealed during the limited excavation.

- **12/15/10 memo**

Sara F. Mascia, Ph.D., RPA monitored the hand excavation of two exploratory trenches within the Zone on Tuesday and Wednesday, December 7 and 8, 2010 (Figure 4a). Two test units were hand excavated by the construction team to determine presence/absence of any active utilities.

Unit 1 (Photograph 11) was approximately 3 ft x 2.6 ft (90 cm x 80 cm) in size and was excavated to a depth of approximately 4.5 ft (1.36m) below the surface. Beneath the approximately 32 cm of mixed asphalt, the excavation revealed three fill strata: a thin black (10YR 3/1) sandy bedding layer (32 - 40cm below the surface [cmbs]), a thick - very dark grayish brown (10YR 3/2 coarse sand fill layer (40 - 52 cmbs), and a strong brown (7.5YR 4/6) sandy fill layer (53 - 136 cmbs). An abandoned iron utility pipe was exposed crossing the trench at approximately 72 cmbs.

Unit 2 (Photograph 12) was approximately 2.6 ft x 2.3 ft (80 cm x 75 cm) in size and was also excavated to a depth of approximately 4.8 ft (1.5m) below the surface. Beneath the mixed asphalt layers (0 - 34cmbs), the excavation revealed one fill stratum: a thick black (10YR 3/1) sandy layer (34 - 150 cmbs) that had a strong petroleum odor. The lower 40 cm of the unit was wet.

Once the trenches were excavated and photographed, the construction team backfilled them. No historical features or undisturbed soil strata were revealed during the limited excavation.

- **2/18/11 memo**

Three excavation locations designed to locate the actual path of reported utilities in order to plan for future excavations related to the Manhattan Approach reconstruction were monitored. HPI monitors were archaeologists William Sandy, RPA and Sara Mascia, PhD, RPA.

Three (3) locations were monitored. (Location 1) Excavations took place at the south end of the Zone in First Avenue, just east of the local business Broadway Collision and Towing Co. These excavations took place between January 24 and February 3, 2011 (“TR 1-24 to 2-3” on Figure 4a). (Location 2) A short distance to the north, the proposed location of Catch Basin 21A was located within the Zone on East 126<sup>th</sup> Street (“CB21A” on Figure 4a). (Location 3) Finally, two small trenches were dug in the Zone within First Avenue on February 2 and February 3, 2011 (“TR 2-2/2-3” on Figure 4a).

TR 1-24 to 2-3 (Photographs 13 and 14) was composed of two contiguous excavations, each 3m x 3m. Each of these excavation trenches had a secondary 4m x 1m trench attached to the east (Figure 7). These excavations exposed several utility lines, most notably a huge concrete electric main on the east and a large brick and concrete storm sewer to the west. All of the soils encountered were fill associated with the construction and backfilling of these massive utilities. A typical profile follows.

Depth	Description
0-28cm	Macadam/Asphalt
28-61cm	Concrete
61-190cm	Yellowish brown (10YR4/6) loamy sand with gravel and concrete fill

The proposed location of Catch Basin 21A (Photograph 15) was examined with a 3m x 3m test excavation (“CB21A” on Figure 1). The exposed profile follows.

Depth	Description
0-26cm	Macadam/Asphalt
26-40cm	Concrete
40-93cm	Yellowish brown (10YR4/6) sand fill

Two small trenches, both 1.25m wide and referred to as Trenches A and B were dug in First Avenue. They were in a line leading to an existing manhole on the sidewalk by the MTA Bus Depot/Block 1803 (Figure 8). Trench A was 6.9 to 10.6m from the curb. Trench A located two sets of six electric lines at 95 cmbs+. The profile follows.

Depth	Description
0-35cm	Macadam/Asphalt and Concrete
35-104cm	Yellowish brown (10YR4/4) loamy sand with gravel and concrete
104-110cm	Black (10YR2/1) loamy sand with gravel

Trench B was adjacent to the curb line and was 2.75m long. Trench B located water and electric lines. The profile, listed below, reflects fill material.

Depth	Description
0-40cm	Macadam/Asphalt and Concrete
40-150cm	Yellowish brown (10YR4/4) loamy sand with gravel and concrete

Utility installation debris (asphalt/macadam, concrete, and gravel) was noted in each of the monitored trenches. No *in situ* artifacts were observed in any of the three excavation areas. All the soils encountered were determined severely disturbed.

- **4/22/11 memo**

HPI archaeologists monitored the excavation of nine exploratory trenches (TT1-TT9), located within the Zone on East 127<sup>th</sup> Street and First Avenue, during March 2011 (Figure 4a). The trenching was conducted by the construction team to identify/locate existing utilities, and in some cases, alter the existing lines to facilitate the installation of new utilities related to the Manhattan Approach reconstruction. Another goal of the construction exploratory trenches was to locate the truncated pilings, which supported the demolished bridge access ramp. HPI monitors for the multi-week examination included archaeologists Sara Mascia, Ph.D., RPA, William Sandy, RPA, Christine Flaherty, and Rosita Tirado.

Of the nine trenches, one trench (TT3) was located adjacent to the west sidewalk in First Avenue, to the north of the intersection with East 126<sup>th</sup> Street (Figure 4a). The trench was excavated in order to alter a portion of the existing 12-inch water main to a higher elevation for the installation of a new utility line (Photographs 16 and 17). All of the soils encountered were fill strata associated with the installation and backfilling around the water main. Along the eastern edge of the trench, beneath a fiber optic line, a third unidentified utility line was exposed within a different fill stratum (Figure 9). The stratigraphy of the trench was recorded as follows.

Depth	Description
0-18cm	Asphalt
18-38cm	Concrete
50-168cm West Half	Dark Gray (7.5 YR 4/1) silty sand fill in the location of the water main
40-170 cm East Half	Dark yellowish brown (10YR 5/6) sandy silt beneath fiber optic line in the location of unidentified utility

Excavation halted between approximately 168-170 cmbs. No features, concentrations of artifacts, or potential shafts were found.

Utility installation debris (asphalt/macadam, concrete, and gravel) was noted in each of the monitored trenches. No *in situ* artifacts were observed in any of the excavation areas. Each of the soil levels encountered was determined to be completely disturbed by either twentieth century utility installation or the road support system.

- 9/8/11 memo

**New Stormwater Main Crossing First Avenue:** Test trenches were excavated across First Avenue to identify the location of existing utilities. The original test trench described in a memo dated 4/22/11 was designated Trench 2/2 – 2/3 (HPI memo 4/22/2011). Those previous excavations located several utilities crossing beneath the streetbed, including two sets of six (three over three) PVC conduits carrying electric lines down First Avenue on the east side of the trench. On the west, close to the curb adjacent to the extant 126<sup>th</sup> Street Bus Depot, there was a defunct telephone line, and two major water lines (one active and one defunct).

The expanded Trench 2/2 – 2/3 measured 12.8m (42 ft) long (east-west) by 2m (6.6 ft) wide (Figure 10, Photographs 18 and 19). It was excavated to a depth of approximately 2.3m (7.6 ft) below street grade, and extended from the existing manhole in the sidewalk by the MTA Bus Depot on the west to an existing open excavation box on the east. Mechanical excavations were undertaken where possible, while hand excavations were employed near the locations of utility lines.

Numerous utilities, both active and defunct, were encountered in the First Avenue streetbed. Starting from the west, these included two sets of six electric lines (three over three), buried about 70 cm (2.3 ft) below street level and about 8m (26.4 ft) and 9m (29.7 ft) east from the curb by the MTA Bus Depot (Photographs 20 and 21). Less than 4m (13.2 ft) from the curb was an 8-inch (0.2m) diameter abandoned water line at about 1.2m (4 ft) below street level. It was removed. About 2.25m (7.4 ft) east of the curb was an 18-inch (0.5m) diameter cast iron water main, located about 0.5m (1.6 ft) below grade elevation. About 1m (3.3 ft) east of the curb was an abandoned telephone line in a steel conduit; it was at a depth of about 0.55m (1.8 ft) below the road (Photograph 18). At 0.5m (1.6 ft) east of the curb was a concrete conduit holding electric lines. It was 0.7m (2.3 ft) below the surface of First Avenue.

Beneath the concrete roadbed, mixed fill extended to a depth of about 2m (6.6 ft) below grade elevation. It was olive brown (2.5Y4/3) loam mixed with dark yellowish brown (10YR4/6) loam and sand fill (Photograph 20). At about 2.0m below surface, there was a layer of dark brown (10YR3/3) or very dark gray (10YR3/1) clay loam with plant stems, roots and other vegetation. This layer was about 0.2m (0.7 ft) thick. Below it was olive brown (2.5Y4/3) loam (Photograph 21). Four samples of the dark brown organic soils were retrieved and are listed in the following table. This buried organic layer could represent an old surface. If this is correct, the olive brown loam below it represents intact wetlands subsoil.

#### Soil Samples from Trench

Sample #	Date	Volume (liters)	Description	Munsell Color	Depth (m) below grade
1	4-21-11	0.1	Clay loam w/ plant stems and roots	10YR3/1	2.0
2	4-28-11	6.5	Clay loam with sand	10YR3/2	2.5
3	4-29-11	3.0	Loamy clay w/ plant stems and roots	10YR3/2	1.95
4	5-3-11	1.5	Clay loam w/ plant stems and wood	10YR3/2	2.0

Soil samples were sorted by flotation, and botanicals were sent to Dr. Lucinda McWeeney, archaeobotanist, for analysis (6/2/11). The results indicate that the macrofossils from Sample 1 suggest terrestrial (Cedar family stem) and wetland plants-bullrush seeds, grasses and moss stems, which strongly suggests a fresh water environment (McWeeney personal communication 8/20/11).

At the extreme western end of the trench immediately adjacent to the existing manhole was mixed grey wet fill with plastic, food wrappers, plastic water bottles, chunks of blacktop, modern bottle glass, and brick fragments. No bones were found in any of the fill. In this area, there was no evidence of the dark brown layer with vegetation observed in the eastern portion of the trench. Instead, the mixed soils confirmed that this area had been previously disturbed with the installation of the manhole. At 1.8m (6 ft) below grade next to the manhole was a large (80 cm x 20 cm x 20 cm) chunk of cement. Also at the extreme western end of the trench, a 2 inch x 4 inch piece of wood

was found protruding from the south wall at 1.8m (6 ft) below grade. The board was removed with a chain saw, and appeared to be modern with wire nails protruding from it. Two layers of concrete were encountered in the northwest corner of the trench at 1.4m (4.5 ft) below grade (Photograph 22), and in the southwest corner of the trench at about 1.8m (6 ft) below grade. These appeared to be concrete supports for the manhole, and cement protruding from the manhole was chipped off to allow for shoring.

**Electrical Line Installation:** An electric line trench was excavated to connect the light on East 127<sup>th</sup> Street with those on the west side of First Avenue. On First Avenue the trench was up to 0.6m (2.0 ft) deep and only mixed fill was encountered. Grading of the sidewalk area removed about 0.2m (0.7 ft) of fill. Excavation for a light pole continued to 1.25m (4 ft) below grade, and the entire profile was mixed sand and sandy gravel fill. Another light pole excavation near the northwest corner of First Avenue and East 126<sup>th</sup> Street exposed a profile of 1.1m (3.6 ft) of mixed fill. Artifacts noted, but not retained, included an automotive light bulb and part of a 55-gallon metal drum. Soils bore a strong smell of petroleum.

On the north end of First Avenue, contractors excavated small (0.4m x 0.4m or 1.3 ft x 1.3 ft) holes for bollards on both sides of an extant fire hydrant. The following soil profile was observed in this location.

Depth	Description
0-0.5m	10YR4/3 mixed sandy gravel fill
0.5 – 1.15m	10YR2/1 sand, oily

- **9/30/11 memo**

Prior to the replacement of the roadway, HPI monitored the excavation of a trench for an electric line in the north end of the west lane of First Avenue on August 15 and 16, 2011 (Photograph 23). The profile consisted of up to 1.0m (3.3 ft) of mixed fill.

The fire hydrant located in the sidewalk at the northwest end of First Avenue was relocated further from the curb than the old hydrant. Previously, HPI monitored the excavations for bollards on both sides of the hydrant. Only fill was observed here. At a depth of 0.8m (2.6 ft) to 2m (6.6 ft) the soil was contaminated by petroleum. The fill contained modern architectural and road-related construction debris (brick with mortar, cobblestone) and fragments of modern bottle glass, Styrofoam, and a piece of undecorated hotel china. Only the china was collected. At a depth of 1.27m (4.2 ft) to 1.83m (6.0 ft), the remains of a ceramic sewer pipe and a brick drain were observed.

Archaeologists also monitored water and sewer line trenches in First Avenue servicing the new bridgetender’s house (Photograph 24). The water line trench was dug on August 17, 2011. Soils within the trench were all fill, containing a mixture of modern/historic architectural debris (brick, window glass, wood), road debris (asphalt, gravel), modern artifacts (plastic), and some modern/historic artifacts such as an early twentieth century glass flask and non-diagnostic ceramic fragments.

Depth	Description
0-15cm	macadam road surface
15 – 40cm	concrete
15 – 40cm	10YR 3/2 and 10YR 4/4 mixed gravelly sand fill with asphalt and wood
90 – 130cm	10YR 6/1 sandy clay mixed w/ 7.5YR 4/3 sand

The sewer line connection to the south side of the new bridgetender’s house was excavated on August 22 and 23, 2011. The new pipe was to be connected to the sewer main that was installed in March 2011, which runs east/west. The trench, running northeast/southwest, needed to be deep enough to allow the connecting sewer pipe to be installed underneath existing electrical conduits running north/south, which were approximately 0.7m (2.3 ft) below the current road surface. Several wooden pilings were noted in the middle section of this trench at approximately 1.0m (3.3 ft) below surface. The surrounding fill had a heavy petroleum odor, and was a very dark brown (10YR 2/2) coarse silty sand with gravel and some cobbles. The fill contained window glass and Belgian blocks.

Deeper excavation of this trench revealed a line of vertically driven boards next to the previously encountered pilings, probably indicating a bulkhead or a retaining wall built in conjunction with the original construction of the Willis Avenue Bridge in the late nineteenth century (Photograph 25). A concrete wall was present to the northeast of the bulkhead, outside of the Zone, but was probably associated with prior bridge construction and was since removed. Oily fill continued to the base of this trench, approximately 1.4m (4.6 ft) below surface.

When the vertical boards were removed from the trench, a long horizontal timber was found to be abutting them, some form of lagging or brace serving as a reinforcing timber for the bulkhead or wall. The horizontal timber was 3.24m (10.6 ft) long and 30 x 17 cm (12 x 7 inches) wide. One end was broken, and the other end had a 5cm (2 inches) wide hole at 11 cm (4 inches) from the cut edge of the timber. The vertical timbers had tongue and groove construction on the long edges, and were beveled on the bottom (Photograph 26). Three timbers were examined; all were 30 cm (12 inches) wide, but none were intact lengthwise. Their lengths were 1.63m (5.3 ft), 1.8m (5.9 ft), and 2.1m (6.9 ft). Two were 8 cm (3.1 inches) thick and one was 6 cm (2.4 inches) thick, and one had an embedded iron nail.

## 2. Roadbed, curbs, and sidewalks

- 9/8/11 memo

**First Avenue Sidewalk and Curbing:** HPI monitored the replacement of the sidewalk and curb to the east of the extant MTA Bus Depot on the west side of First Avenue, between East 126<sup>th</sup> Street and East 127<sup>th</sup> Street (Figure 4b). These investigations took place between June 22 and July 18, 2011. This area measured about 75m (250 ft) long and was 5m (16.5 ft) to 6m (19.8 ft) wide, extending about 1m (3.3 ft) into the street. Subsurface conditions were typically found to be 0.6m (2.2 ft) of mixed fill. Excavations exposed a number of pollution monitoring wells previously placed to monitor ground water. Near East 126<sup>th</sup> Street, where there are buried diesel storage tanks nearby, excavations uncovered two horizontal four-inch diameter metal pipes just below the sidewalk. These are presumably abandoned fuel oil or diesel fill lines.

Near the north end of the First Avenue sidewalk, the crew hand dug a 0.6m (2.0 ft) by 2m (6.6 ft) hole for the installation of a water shutoff valve at the “Auto Sprinkler – Standpipe Connection.” The entire profile was 0.8m (2.6 ft) of mixed brown and yellowish brown loamy sand fill.

**First Avenue Grading and Repaving:** HPI monitored macadam/concrete removal and excavation of material of the lane of First Avenue closest to the MTA Bus Depot between July 19 and August 3, 2011. The Zone extended a short distance south and west of the intersection with East 126<sup>th</sup> Street (Figure 4b). A test was dug north of the intersection. A level of gravel and one of concrete observed below grade were related to an existing electric line.

### Profile 16m North of East 126<sup>th</sup> Street at One Meter West of Curb

Depth	Description
25-40cm	10YR4/3 mixed sandy gravel fill
40 – 55cm	concrete (electric lines?)
55 – 120cm	mixed 2.5Y3/3 Dark olive brown sand (oily)

Note: all measurements below Top of Curb (TOC) = 1.86m =6.13 ft ASL

A massive grouping of utilities at the east end of East 127<sup>th</sup> Street and the north end of First Avenue included electric lines lying shallowly in the profile (i.e., immediately under the concrete). In order to avoid disturbing these critical lines, machine excavations were limited in this area to less than the desired depth of 2.5 ft (0.8m). Deeper hand excavations were undertaken to locate a water main at about 45 inches (1.1m) below the modern road surface. A nineteenth/twentieth century bottle, ceramic sewer pipe, white tile, asphalt, sheet metal, Belgian blocks and timbers were found in this excavation location.

Nearby, a power line trench excavation continued across the east lane of First Avenue. It measured approximately 1m (3.3 ft) in width, and was placed near the north end of the bridgetender’s house. Concrete and asphalt were the only finds here, and stratigraphy was as follows.

Profile 10m East of MTA Bus Depot by Bridge House

Depth	Description
0-15cm	Macadam road surface
15 – 39cm	Concrete road
39 – 49cm	10YR4/3 sand fill
49 – 59cm	Concrete fill
59 – 89cm	10YR3/3 and 2.5Y3/2 mixed loam fill

HPI monitored the removal of the curb on First Avenue on the southwest corner of East 126<sup>th</sup> Street. This area had a high density of utilities, including manholes, a light pole, and a Fire Department call box. The profile was entirely clean fill; no artifacts were observed.

Southwest Corner First Ave and East 126<sup>th</sup> Street Curb Excavation

Depth	Description
0-10cm	concrete sidewalk
10 – 30cm	10YR2/1 mixed w/ 10YR6/1 coal ash fill
30 – 70cm	10YR5/8 sand fill

The curb excavations on the opposite (east) side of this part of First Avenue showed a profile entirely of modern construction related fill.

- **9/30/11 memo**

HPI monitored excavations related to the replacement of the east lane of First Avenue north of East 126<sup>th</sup> Street, and the entire roadbed from the north end of East 126<sup>th</sup> Street to the southern end of the monitoring zone, between August 15 and August 26, 2011 (Photograph 27). Additionally, several trenches were excavated in the west lane of First Avenue north of East 126<sup>th</sup> Street, which were also monitored. Several major utilities lie buried in First Avenue. Electric lines, a water main, and a telecommunication conduit are located in the west side of the roadbed, a large gas main is in the center, and a cluster of six electric lines are in the east side (Photographs 28 and 29). These roadbed replacement excavations were not deep, only about 0.9m (2.9 ft) below the top of the existing curb. Only modern fill and roadbed gravel was observed. In two locations north of East 126<sup>th</sup> Street, excavations went slightly deeper. Up to 0.4m (1.3 ft) of additional excavation produced mixed olive brown (2.5Y 4/3) loam and dark yellowish brown (10YR 4/6) sandy loam fill. Soils at the base of this excavation were oily. Other than coal, no artifacts were observed.

Excavations undertaken in the west lane of First Avenue at the southernmost end of the Zone were observed on August 15 and 16, 2011. A soil profile taken south of the East 126<sup>th</sup> Street intersection revealed levels of fill.

First Ave at East 126th Street by Fire Dept. Box

Depth	Description
0-15cm	macadam road surface
15 – 30cm	concrete
30 – 40cm	10YR4/3 and 10YR4/6 mixed gravelly sand fill

## B. East 127<sup>th</sup> Street

### 1. Trenches

- 4/22/11 memo

The first two excavation trenches examined (TT1 and TT2) were located in East 127<sup>th</sup> Street near the northwestern end of the Zone (Figure 4a).

Test Trench 1 (TT1) was an irregular T-shaped test trench (Figure 11). The excavation trench extended from the roadbed through the sidewalk (Photograph 30). Three existing utilities (water main, electric conduit lines, arranged in a three over three pattern, and a concrete box for a fiber optic line) were exposed during the excavation. All of the soils encountered were deposited during the filling episodes associated with the installation and backfilling around these utilities. The profile of the trench follows.

Depth	Description
0-18 cm	Asphalt
18-38 cm	Concrete
38-185 cm	Brown (10YR4/3) sandy loam fill mixed with yellowish brown (10YR4/4), gray (10YR6/1) and dark brown (10YR3/3) loamy sand
Utility Trench fill (above Electric Conduits)	Yellowish brown (10YR5/6) coarse sand
Utility Trench fill (above Water Main)	Dark grayish brown (10YR 4/2) sandy silt

Excavation halted at a depth of approximately 185 cmbs. No features, concentrations of artifacts, or potential shafts were noted in TT1.

TT2 was located within East 127<sup>th</sup> Street at the end of the Marginal Street ramp (Figure 4a). TT2 was approximately 3m (10 ft) by 3m (10 ft) in size. The excavation of this trench exposed a deep fill horizon and both a water main and a cable line (Photograph 31). Below is the stratigraphy noted in TT2.

Depth	Description
0-20cm	Macadam
20-50cm	Concrete
50-200cm	Brown (10YR4/3) sandy loam fill mixed with yellowish brown (10YR4/4) sand (below water main)

Excavation halted at approximately 200 cmbs. No features, concentrations of artifacts, or potential shafts were found.

TT4 and TT5 were small trenches excavated in the East 127<sup>th</sup> Street roadbed (Figure 4a). Four metal I-beams used to support the former ramp, were exposed in Trench 4 (Photograph 32). Excavation halted at approximately 140cmbs. No features, concentrations of artifacts, or potential shafts were found.

The exposed profile for both trenches follows.

Depth	Description
0-28cm	Asphalt/Concrete
28-140cm	Dark brown (10YR 4/3) loamy sand fill

No features, concentrations of artifacts, or potential shafts were found.

TT6 was up to 1.05m (42 inches) deep and approximately 1.05m (42 inches) wide (Figure 4a). No features were identified. The existing PVC encased electric conduits (seen in TT1) were exposed. Soil was a mixed fill, with green “stone dust” sand and gravel covering the conduits. TT7 was excavated about 10m (33 ft) to the east, near an

existing manhole. The water main was exposed at a depth of approximately one meter (39 inches). No other features were uncovered in TT6 or TT7.

TT8 was excavated within the roadbed of East 127<sup>th</sup> Street and the Marginal Street access ramp in order to expose pilings that formerly supported a ramp structure (Figure 4a, Photographs 33 and 34). They were exposed and truncated, and the new road built over the truncated *in situ* pilings. All the soil was disturbed fill. The southwest portion of the trench falls in the Zone. Excavation was 9 m (29.7 ft) by 3m (6.6 ft) by 1.5m (5 ft) deep. No features, concentrations of artifacts, or potential shafts were found.

TT9 was actually a series of exposed test pits in a line, located on the north side of East 127<sup>th</sup> Street near First Avenue (Figure 4a). Each test pit was about 3m (10 ft) by 3.5m (11.6 ft) in size. The investigation of this location exposed five pilings that were spaced approximately 4m (13.2 ft) apart (Photograph 35). Excavation continued to a depth of 3.5 ft (1.1m) below the top of curb. Soil was dark brown loamy sand fill that contained modern trash (plastic bags, beer cans, etc.). The exposed pilings were truncated and the lower portion of each was left in place. No features, concentrations of artifacts, or potential shafts were found.

Utility installation debris (asphalt/macadam, concrete, and gravel) was noted in each of the monitored trenches. No *in situ* artifacts were observed in any of the excavation areas. Each of the soil levels encountered was determined to be completely disturbed by either twentieth century utility installation or the road support system. No archaeological features, concentrations of artifacts, or potential shafts were identified.

- **9/8/11 memo**

Excavations within the East 127<sup>th</sup> Street sidewalk area were required for street lamps, a utility box, and related electric line trenches (Photograph 36). The streetlamp excavation revealed 0.9m (2.7 ft) of mixed brown gravelly loamy sand fill. The utility trench below the sidewalk had 0.45m (1.5 ft) of fill. A typical utility trench profile was as follows.

Soil Profile at 12 meters east from west end of excavations

Depth	Description
0-0.3m	10YR4/3 mixed fill
0.3 – 0.45m	10YR4/6 gravelly loamy sand fill with oyster shell and modern bottle glass

On the east end of the East 127<sup>th</sup> Street excavations, this trench also encountered a cast iron water pipeline with a brass valve. This abandoned supply line was previously found in the roadway to the north.

## **2. Roadbed, curbs, and sidewalks**

- **5/24/11 memo**

The HPI team monitored the removal of the northern section of East 127<sup>th</sup> Street between the Marginal Street ramp and First Avenue between March 25 and April 14, 2011 (Figure 4b). HPI monitors were archaeologists William Sandy, RPA, Sara Mascia, PhD, RPA, Christine Flaherty, and Rosita Tirado.

The construction team initially removed the surface asphalt for recycling, followed by the concrete road base (Photograph 37). They also removed the concrete sidewalk, which was immediately north of the Zone. Numerous utilities, both active and defunct, were encountered during the excavation of the streetbed (e.g., drains, electric lines). HPI monitors noted that a one-meter wide concrete protective cover was located above the six (three over three) PVC conduits for electric lines running the length of East 127<sup>th</sup> Street (Photograph 38). During excavation, unanticipated concrete-encased electric lines were also encountered (Photograph 39), which slowed the progress of the project.

The overall area that was monitored measured approximately 8m (27 ft) wide and about 65m long (215 ft) (Figure 4b). All soils encountered during monitoring were clearly mixed fill strata. A few artifacts were noted in the fill but

not collected. They included pieces of bathroom fixtures, sewer pipe fragments, whiteware and grey salt-glazed stoneware sherds, a single pipe stem, brick, firebrick, a glass bottle, unidentified metal fragments, and modern plastic trash. Two pieces of large mammal bone, likely from a cow, were recovered immediately beneath the sidewalk near the intersection with First Avenue. Both bone fragments had saw markings, indicating that they were food bone. Two bird bones, likely food-related, were recovered from the roadbed fill. The osteological material was sent to the HPI laboratory faunal analyst and was confirmed as food bone.

Following the clearing of the roadbed, steel plates were used to cover the utilities and clean fill was introduced into the roadbed (Photographs 40 and 41).

- **9/8/11 memo**

**East 127<sup>th</sup> Street Excavations, Grading, Sidewalk Curbs:** The East 127<sup>th</sup> Street sidewalk and curbs on the north side of the MTA Bus Depot and east of Marginal Street were replaced in late June and July, 2011 (Figure 4b, Photograph 40). The excavations for the sidewalk itself were shallow, and only approximately 0.6m (2.0 ft) deep for the curbing.

In addition to the curbing and sidewalk, the south (eastbound) lane of East 127<sup>th</sup> Street removal and replacement was monitored between mid-June and early July, 2011 (Figure 4b, Photograph 42). The first excavations involved testing to identify the location of utilities. Most of these test excavations were relatively shallow, up to 1.1m (3.6 ft) deep. This western segment of East 127<sup>th</sup> Street was about 97m (320 ft) long by 7.5m (25 ft) wide. Almost all of the test excavations had profiles consisting entirely of mixed fill with artifacts dating to the late nineteenth century. At a depth of about 0.9m (3 ft) below current street level, two tan glaze stoneware bottles were found. One bottle, impressed "J. AXTMANN" was from the Hoboken, New Jersey bar of John Axtmann. He produced weiss beer (a German wheat beer) from 1875 until 1895 (Hoboken Historical Museum n.d.). The other bottle was impressed "TAUNUS BRUNNEN/BY APPOINTMENT" and "J. FRIEDRICH/GROSSKARBEN/B(/)FRANKFURT A(/)M". This appears to be a wine or gin bottle dated to the late nineteenth-early twentieth century.

On the west side of the road trench, a small area adjacent to a utility line was the only place that excavations extended below the proposed roadway subgrade (Photograph 43).

Profile at 12 Meters East From West End of Excavations

Depth	Description
0-0.3m	macadam roadway
0.3 - 0.7m	concrete roadway
0.7 -1.45m	10YR4/3 & 10YR5/8 mixed gravelly sand fill with shell, lumber, plastic
1.45 -1.60m	2.5Y3/2 clay loam (petroleum odor) Fill or buried A?

In this profile, the basal stratum could either be a buried A Horizon or a sterile fill level. This stratum was not observed in excavations elsewhere on East 127<sup>th</sup> Street or First Avenue.

On the east end of the excavations, a cluster of no fewer than 14 utility lines, colloquially known as the "rats' nest" was exposed. Some of these lines were unexpectedly shallow, one being immediately below the concrete road base (Photograph 44). A variety of ceramic and glass artifacts were collected from the fill on East 127<sup>th</sup> Street in this area. They include ceramics from the era 1886 – 1910, and a bottle stopper of similar vintage. These and the few pieces of faunal material recovered (e.g., cut cow bone) may have originated from Sulzer's Harlem River Park and Casino that served as a beer garden and was on City Block 1803 at the turn of the twentieth century. A few vertical posts or logs were noted in an approximate line on East 127<sup>th</sup> Street, turning to the south at First Avenue. These may be the remnants of an early twentieth century fence line. Overall, it was obvious that the East 127<sup>th</sup> Street roadbed immediately below the concrete and pavement contained ash and cinder fill. Where utility lines were installed, trench lines were backfilled with a lighter color soil that bisected the cinder fill.

**First Avenue Sidewalk and Curbing:** HPI monitored the replacement of the sidewalk and curb to the east of the extant MTA Bus Depot on the west side of First Avenue, between East 126<sup>th</sup> Street and East 127<sup>th</sup> Street (Figure 4b). These investigations took place between June 22 and July 18, 2011. This area measured about 75m (250 ft) long and

was 5m (16.5 ft) to 6m (19.8 ft) wide, extending about 1m (3.3 ft) into the street. Subsurface conditions were typically found to be 0.6m (2.2 ft) of mixed fill. Excavations exposed a number of pollution monitoring wells previously installed to record ground water data. Near East 126<sup>th</sup> Street, excavations uncovered two horizontal four-inch diameter metal pipes just below the sidewalk. This location is in proximity to buried diesel storage tanks and the exposed piping is presumably abandoned fuel oil or diesel fill lines.

Near the north end of the First Avenue sidewalk, the crew hand dug a 0.6m (2.0 ft) by 2m (6.6 ft) hole for the installation of a water shutoff valve at the “Auto Sprinkler – Standpipe Connection.” The entire profile was 0.8m (2.6 ft) of mixed brown and yellowish brown loamy sand fill.

- **9/30/11 memo**

HPI monitored the remaining eastern segment of the north lane of East 127<sup>th</sup> Street on August 17, 18, 20, 23, and 24, 2011. As in the southern lane, areas of dark ashy soil and truncated fence posts were observed (Photograph 45). These fence posts, approximately 20cm (8 inches) in diameter, were arranged in a linear pattern 2.4m (8 ft) apart, making a right angle at the juncture of East 127<sup>th</sup> Street and First Avenue. The dark soil had a heavy concentration of artifacts, and appears to have been a series of garbage middens that were plowed flat when East 127<sup>th</sup> Street was paved in the twentieth century. The dark soil stains were on top of and directly to the north of the fence line. The dark areas were disturbed to the north and east by the installation of utility lines (Photograph 46). No human remains or evidence of burial shafts were noted in this area.

Numerous artifacts were found throughout each of the flattened middens. The most intriguing were a number of bisque porcelain doll fragments, toy tea set components, and many wine goblets and glass beer mugs dating to the late-nineteenth and early twentieth centuries. Additionally, a number of beer bottles and institutional (restaurant) china fragments were found. These artifacts likely originated from Sulzer’s Harlem River Park and Casino, which occupied Block 1803 (currently occupied by the MTA Bus Depot) from the 1870s until the late 1910s. This private park housed amusements such as a carousel, a shooting gallery, and most likely other arcade stalls.

The park regularly hosted the annual celebrations of organizations such as benevolent societies, labor groups, and businesses (Figure 12). In 1891, the annual celebration of the Bavarian Society was described as such:

Young ladies and their escorts sought the dancing pavilion, the men flocked around the wine house in the garden, tried their strength on various machines, and the women and children showed their preference for the swings and the merry-go-rounds (*The World*, 1891).

Some of the artifacts found, such as the doll parts, frozen charlottes (small immovable porcelain dolls), miniature tea sets, marbles, and kaolin pipes were probably prizes for the arcades at the park. The numerous beer mugs and wine glasses may have been from food service at the park, but may have also been part of an arcade game such as a penny pitch.

Dateable artifacts included items such as a fragment from an undecorated oval ironstone platter, impressed with the mark for Greenwood Pottery of Trenton, New Jersey. The mark on the platter was used from 1886 to c. 1910, and the company specialized in hotel ware. Another undecorated ironstone plate or platter was made by the Glasgow Pottery, also in Trenton, between 1895 to c. 1910. A Hutter-type bottle stopper imprinted with “SLS” in gothic lettering came from S. Liebmann’s Sons Brewing Company in Brooklyn. The stopper dates from 1893 to c. 1920. A bottle embossed with the name “Albert Krumenaker” originated from a brewery on West 166<sup>th</sup> Street, which opened in 1888 (*NY Tribune*, 1899).

One post hole was excavated to attempt to date the construction of the fence (Photograph 47). The artifacts found within the post hole appear to date to the late nineteenth century and early twentieth century, and include similar cultural material to that found elsewhere within the roadbed.

On August 18 and 19, 2011 HPI monitored excavations related to curb installation on the north side of East 127<sup>th</sup> Street, including the area adjacent to the Harlem River Drive/FDR Drive. Only fill containing modern trash was observed. This is no doubt related to the twentieth century construction of the roads.

In the northwest part of the Zone, HPI monitored excavation of a triangular piece of East 127<sup>th</sup> Street at the intersection of Marginal Street on August 23 through 26, 2011 (Photograph 48). A few artifacts dating to around the turn of the twentieth century were collected from the fill, including beer mug fragments. There were a number of utilities in this area including electric lines and fiber optics. Most of the excavations were limited to 0.8m (2.7 ft) or less. The deepest excavations were on the west end, near a fiber optics access box. The basal stratum resembled the fill encountered previously in the south lane of East 127<sup>th</sup> Street.

East 127<sup>th</sup> Street at Marginal Street, One Meter South of Fiber Optics Access Box

Depth	Description
0-70cm	Concrete
70 – 120cm	10YR 4/3 sandy gravel fill
120–150cm	10YR 4/6 sand fill
150 – 180cm	2.5Y 3/2 mixed clay loam fill

- **4/12/12 memo**

Monitoring was required for the planting of seven trees in the sidewalk on the south side of East 127<sup>th</sup> Street near First Avenue. This required the hand excavation of seven pits, each 1.5m (5 ft) square, to a depth ranging from 70 - 80 cmbs (2.3-2.6 ftbs) (Photograph 49). This area had been monitored previously when the sidewalk was replaced in July, 2011.

Excavation pits were numbered (for HPI reference only) one through seven from west to east. Pits 1 and 3 both had fill mixed with road gravel and road sub-base to nearly the bottom depth of excavation (Photograph 50). However, the remainder of the pits (2 and 4-7) only had the same composition of fill in the topmost level, extending down to 32-37cmbs (1.0-1.2ftbs). Underneath this fill level in pits 2 and 4 was a level of compact dark yellowish brown (10YR 4/6) fine sandy fill extending to approximately 50cmbs (1.6ftbs) (Photograph 51). Beneath this was a layer of compact brown (7.5YR 4/4) silty sandy fill, extending to the bottom of the pit. Pits 3 and 5-7 either did not have the dark yellowish brown layer or only had a thin lens on one side of the soil profile (Photograph 52). For these pits, the brown silty sand fill was present directly below the top layer of gravel. While the top gravel layer was a recent deposition, as evidenced by a sheet of newspaper found in Pit 5 which dated to March 13, 2011, the lower fill levels appear to have been deposited at a much earlier time, as the artifacts found in these levels dated no later than the early twentieth century.

Fill, composed of fragments of brick, pieces of coal and some shell fragments, was on top of a dark yellowish brown compact layer. Brick, coal, and shell (mostly whole oyster and clam) were also seen in the brown layer, and Pit 4 contained a kaolin pipe stem fragment and a salt-glazed stoneware shard. Pit 5 contained a late nineteenth century bottle top, a glazed redware fragment, and a butchered sheep’s bone. Pit 6 contained a fragment of a gilt-decorated saucer and a fragment of embossed whiteware. These artifacts are similar to what was previously encountered in various trenches and deposits within the East 127<sup>th</sup> Street roadbed (HPI Monitoring Memo 9/8/11). Some of those artifacts, particularly those found in the remains of a garbage midden in the East 127<sup>th</sup> Street roadbed, appear to have been associated with the prior occupation by Sulzer’s Harlem River Park and Casino on the site. This private park housed amusements such as a carousel, a shooting gallery, and most likely other arcade stalls. Items such as the kaolin pipe stem were likely prizes given out in the arcade. No evidence of human remains or grave shafts was recovered.

**IV. CONCLUSIONS AND RECOMMENDATIONS**

Results of the monitoring activities showed that with the exception of one location ca. 6.6 feet under First Avenue where original wetland soils were encountered, all soils excavated as part of the WAB project consisted of fill and all artifacts within the fill derived from a secondary deposition. Included were a number of artifacts found in East 127<sup>th</sup> Street which likely derived from the use of Block 1803 (currently occupied by the MTA Bus Depot) for Sulzer’s Harlem River Park and Casino from the 1870s through the late 1910s. During the archaeological monitoring program, only several bones were recovered, all of which were examined and none were determined by the archaeologists, Medical Examiner and/or the Forensic Anthropologist to be human bones. No evidence of the

former cemetery or remains associated with the cemetery was identified during any of the excavations for the Willis Avenue Bridge Reconstruction project.

## V. REFERENCES

### Historical Perspectives, Inc. (HPI)

- 2001 *Stage 1A Archaeological Assessment: Willis Avenue Bridge Reconstruction, PIN. X575.00, Bronx County and New York County, New York.* Prepared for the New York City Department of Transportation and AKRF, New York.
- 2004 *Topic Intensive Documentary Study, Willis Avenue Bridge Reconstruction, Bronx County and New York County, New York. PIN X757.00, BIN No. 2-24005-9\A\B, CONTRACT No. HBM1124, #96PR073.* Prepared for Hardesty & Hanover, LLP, and New York City Department of Transportation.
- 2008 Willis Avenue Bridge Reconstruction, New York County, New York, NYS OPRHP No. 03PR00939, Monitoring Protocol: Manhattan, For Work Associated with Potential Historic Cemetery Known to Have Been Located Just Beyond the Project Area.
- 2012 Replacement of Willis Avenue Bridge over the Harlem River, BIN No. 2-24005-9/A/B Total Design; Contract No. HBM 1124, New York and Bronx Counties, NY, Manhattan Approach, NYS OPRHP No. 03PR00939 Final Report and Summary of Archaeological Monitoring Memos: Manhattan Approach, January 2009 through April 2012.

### Hoboken Historical Museum

- n.d. Object Record, Bottle: J. Axtmann; embossed glazed stoneware. Hoboken, n.d., ca. 1860-1880. <http://hoboken.pastperfect-online.com/32340cgi/mweb.exe?request=record:id=4ADF2D9A-8719-4BD4-9DF3-174694332349;type=101>. Accessed July 24, 2012.

### Landmarks Preservation Commission (LPC)

- 2002 *Landmarks Preservation Commission Guidelines for Archaeological Work in New York City.*

### New York Archaeological Council (NYAC)

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

### New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP)

- 2005 *Phase I Archaeological Report Format Requirements.*

### New York Tribune

- 1899 *New-York Tribune*, December 30, p. 9.

### Sutphin, Amanda

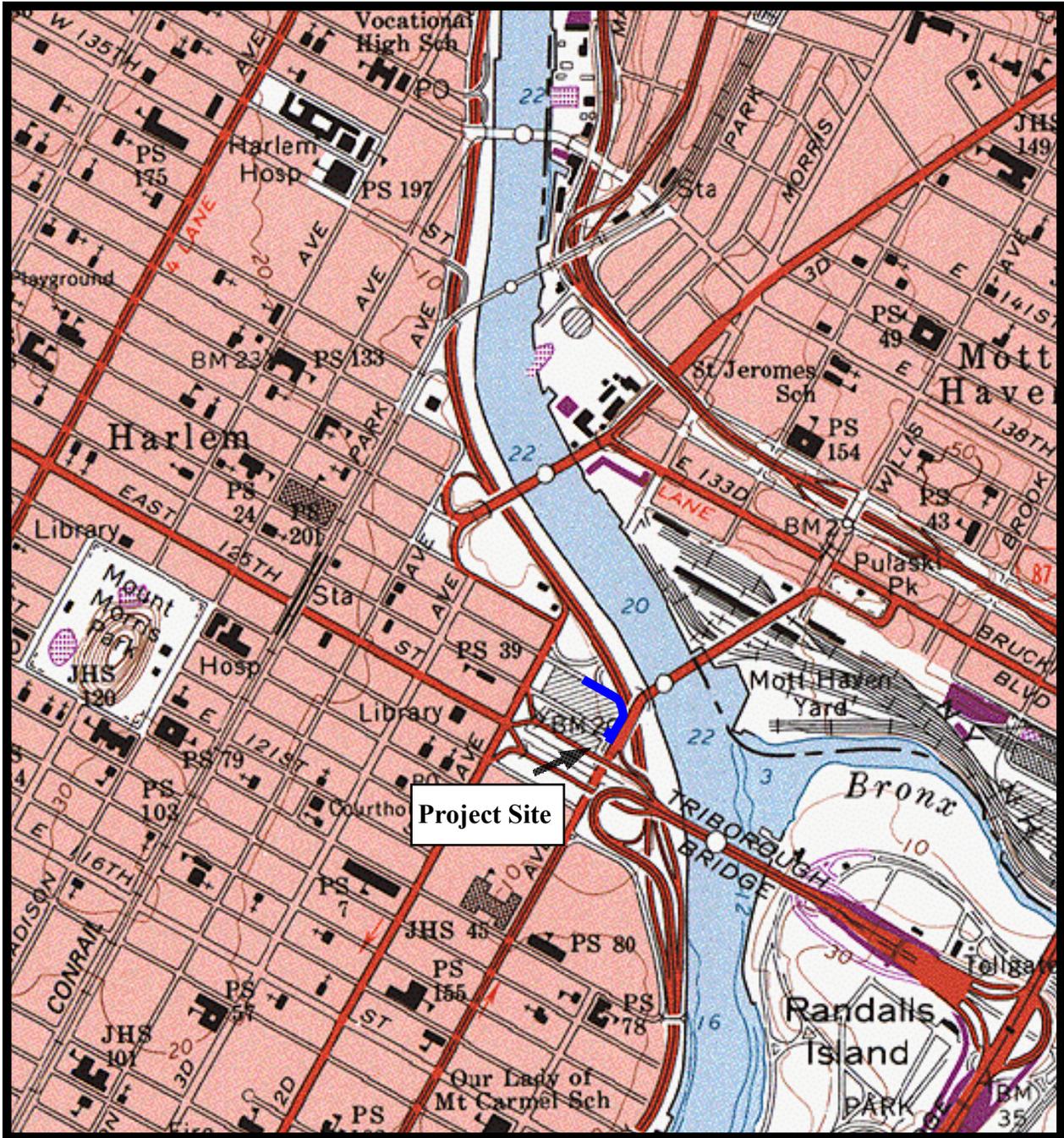
- 2011 Archaeology Review, Landmarks Preservation Commission. June 29, 2012.

### The World

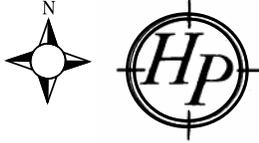
- 1891 "They Unveiled Bavaria." *The World*, New York. August 17, p. 9.

### United States Geological Survey (U.S.G.S.)

- 1999 *Central Park, N.Y.-N.J. 7.5 Minute Topographic Quadrangle.*

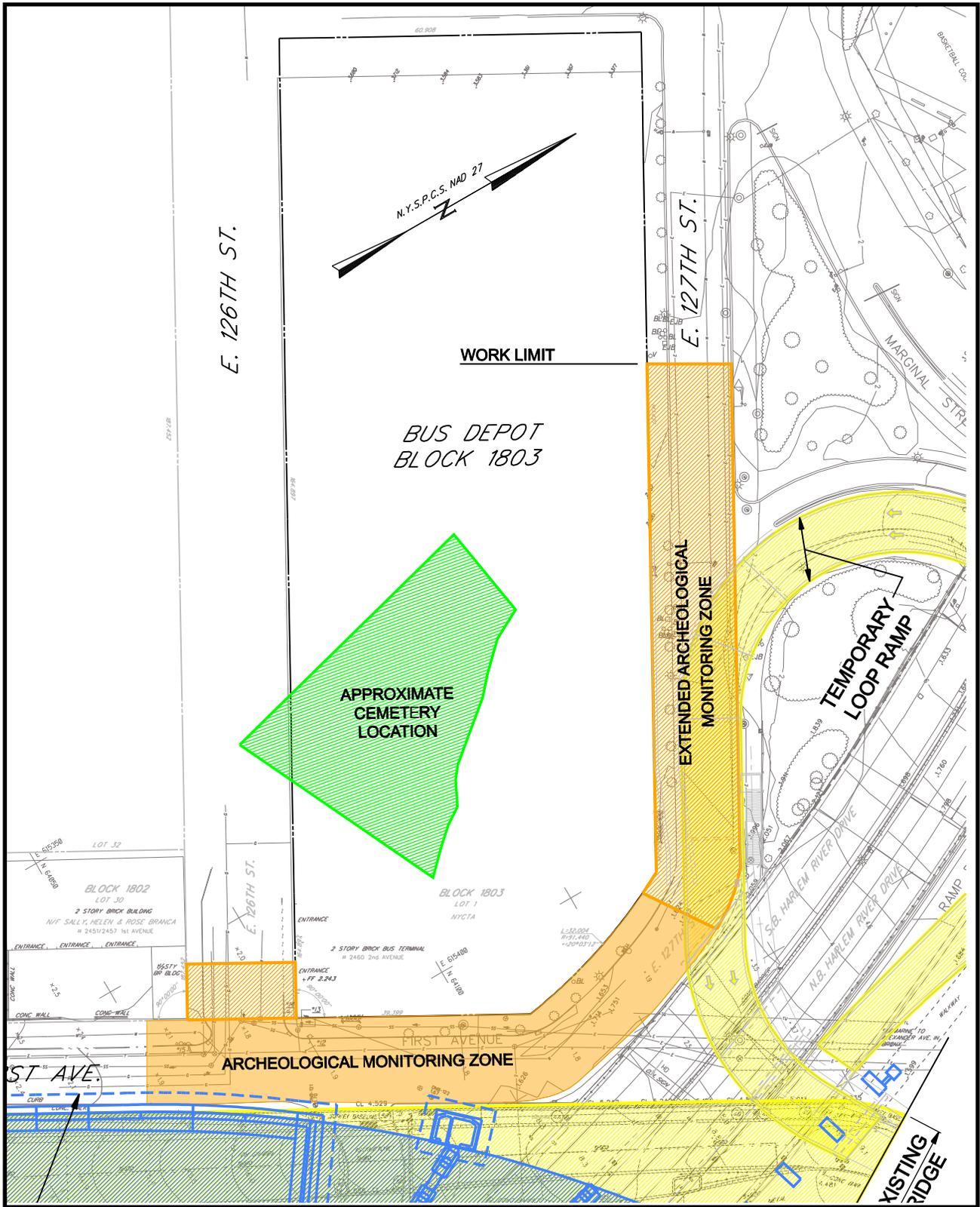


**FIGURE 1: Willis Avenue Bridge project site location on Central Park, N.Y. U.S.G.S. 7.5 Minute Quadrangle (U.S.G.S. 1999).**



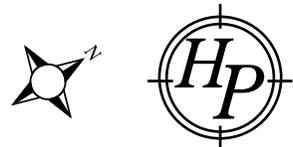
0 500 1000 1500 2000 2500 FEET

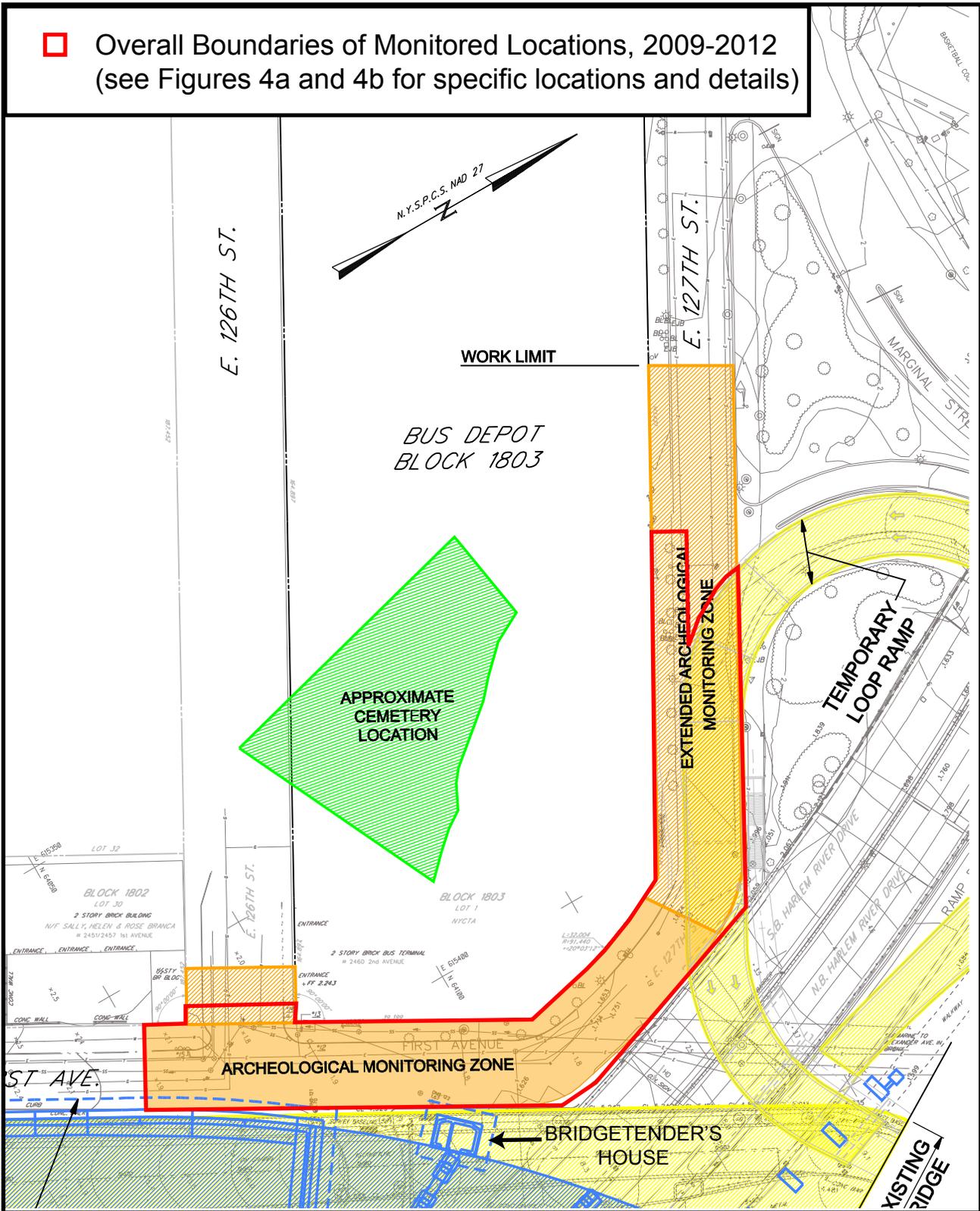




**FIGURE 2: Archaeological Monitoring Zone and Extended Archaeological Monitoring Zone.**  
 Base map source: City of New York DOT 2010.

0 40 80 120 160 200 FEET

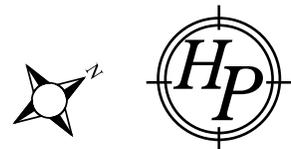


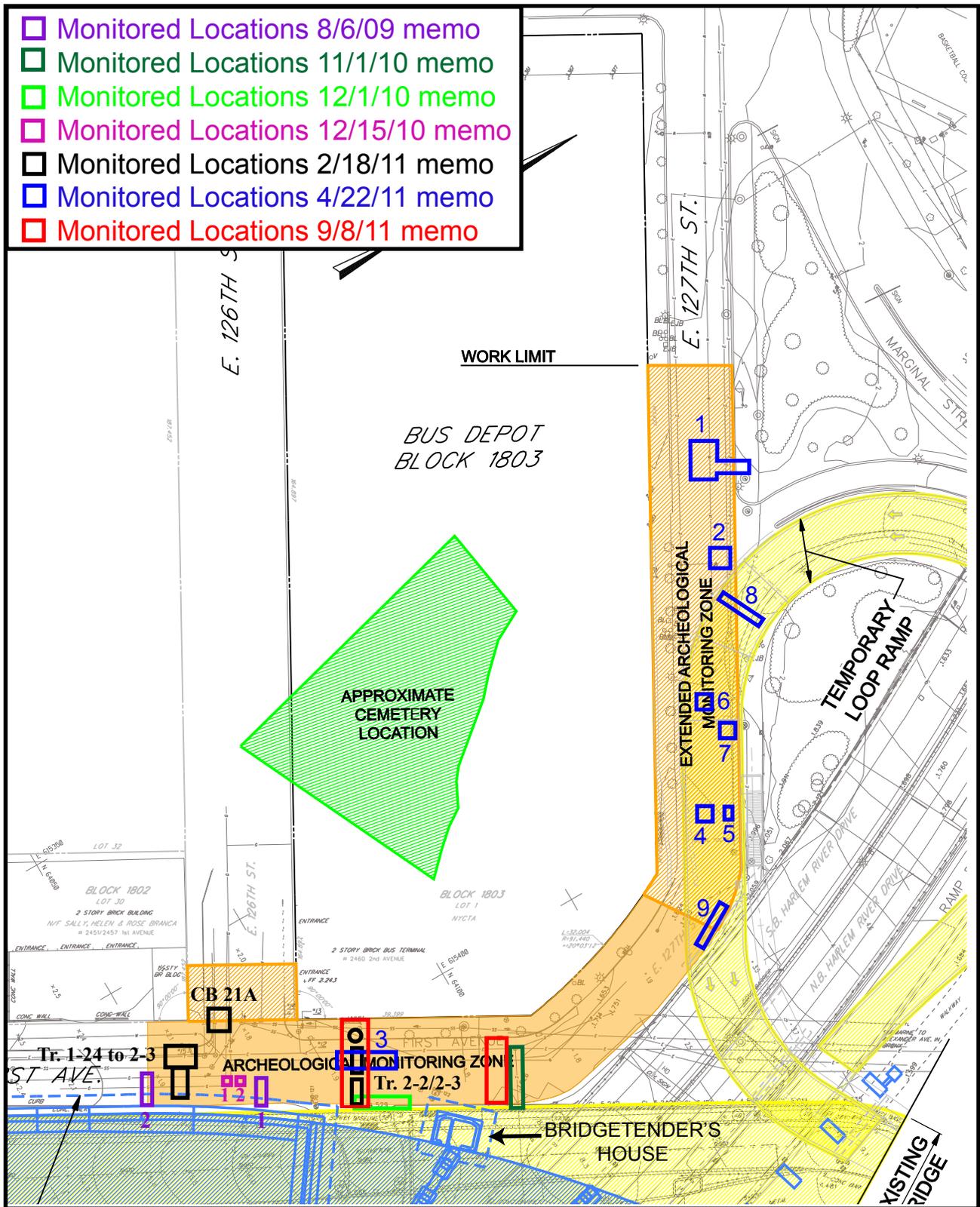


**FIGURE 3: Overall Boundaries of Monitored Locations within Archaeological Monitoring Zone and Extended Archaeological Monitoring Zone, 2009-2012.**

Base map source: City of New York DOT 2010.

0 40 80 120 160 200 FEET

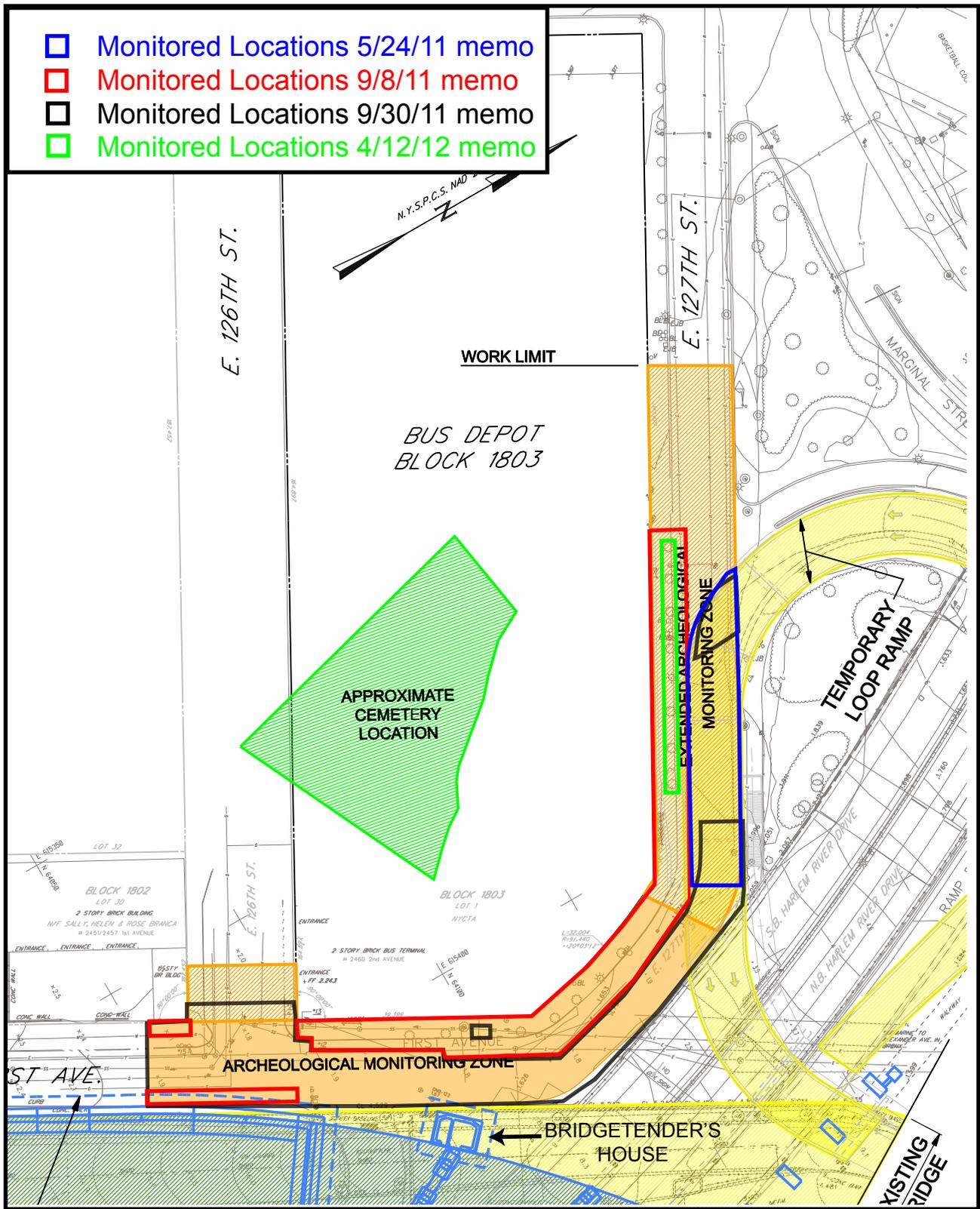




**FIGURE 4a: Trench monitoring locations and numbering designations.**

Base map source: City of New York DOT 2010.

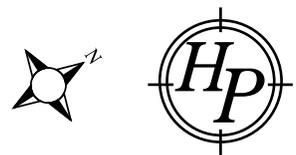




**FIGURE 4b: Roadbed, curb, and sidewalk monitoring locations.**

Base map source: City of New York DOT 2010.

0 40 80 120 160 200 FEET



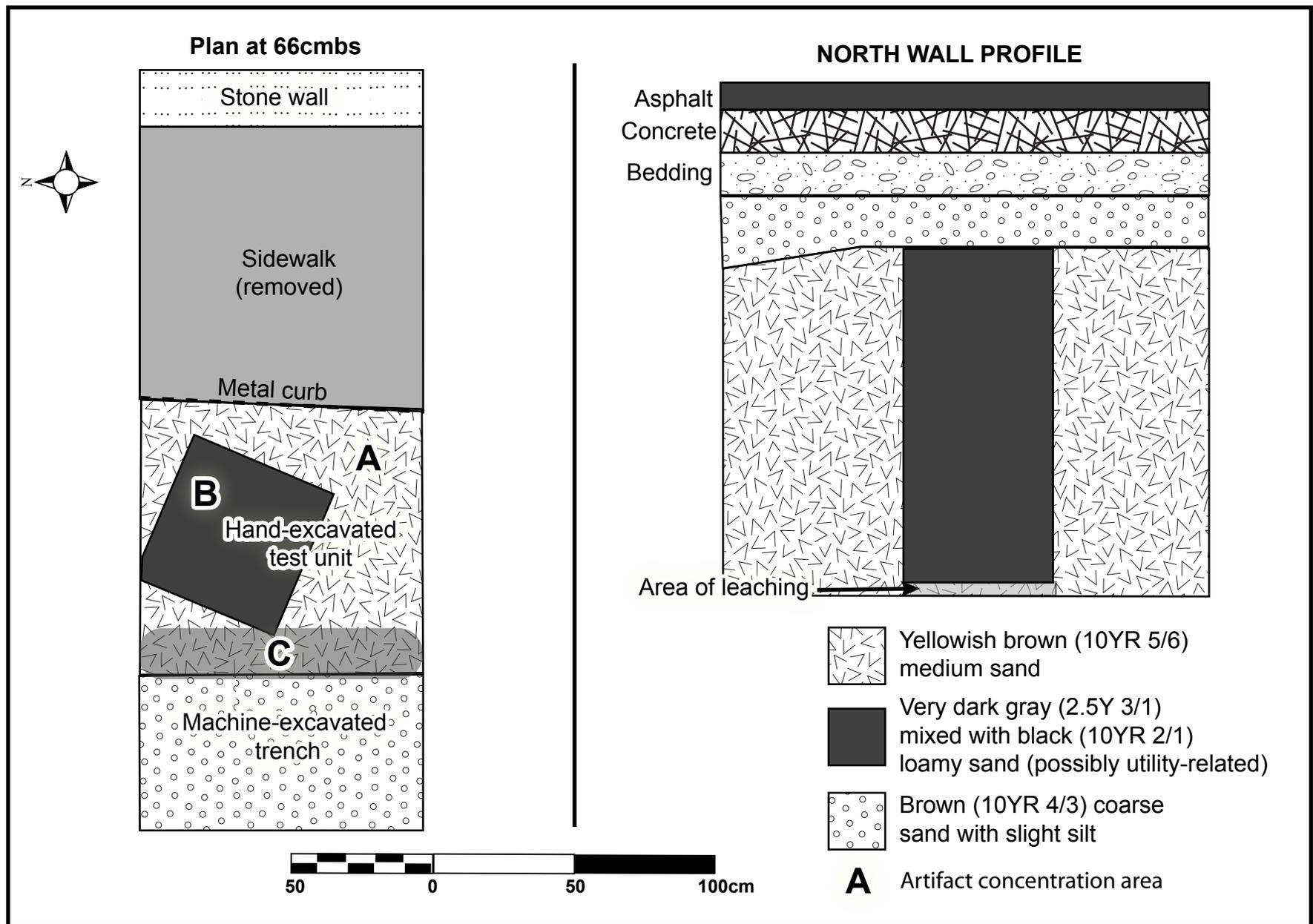


Figure 5. First Avenue, Trench 1 plan (left) and profile of north wall (right).



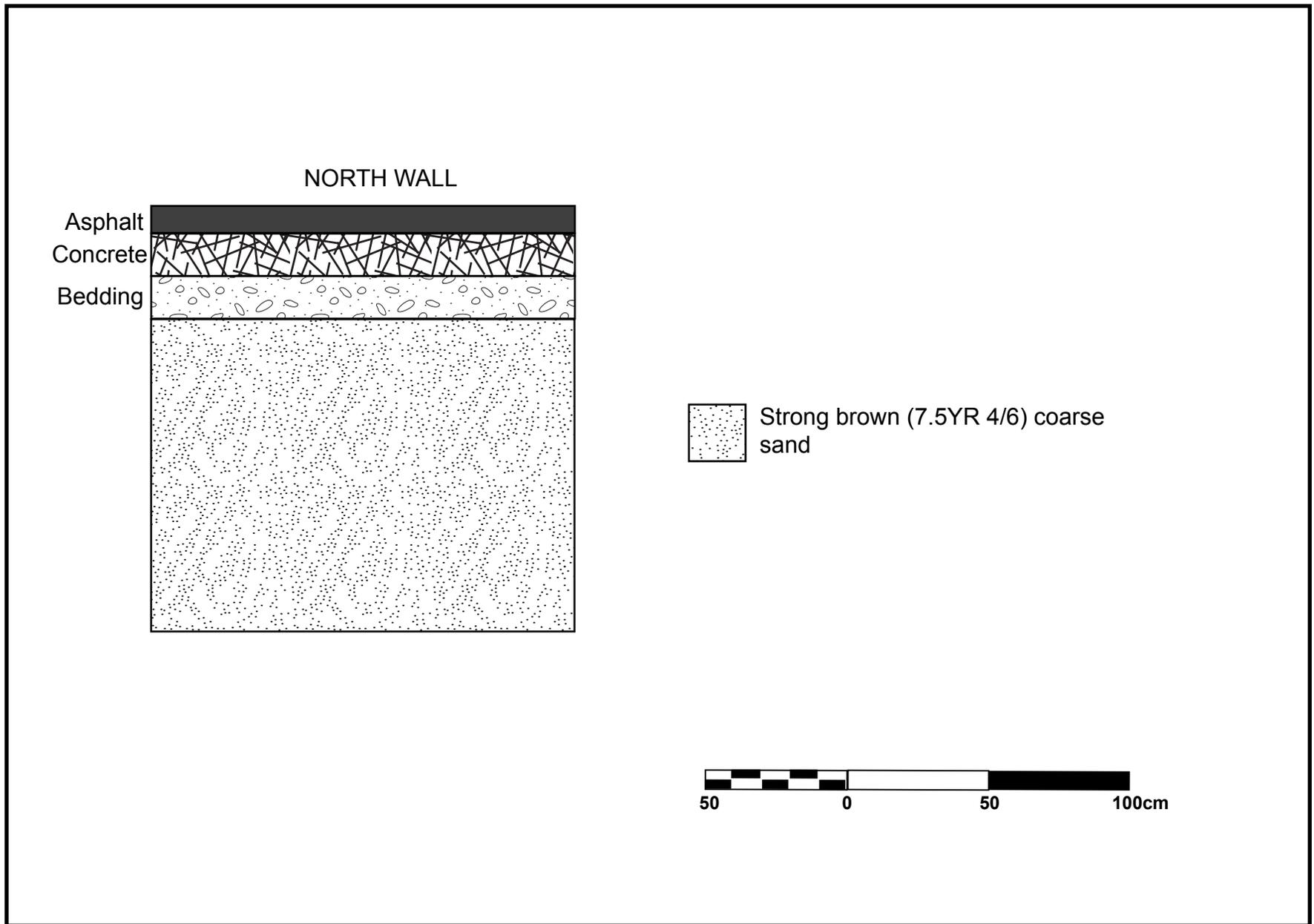


Figure 6. First Avenue, Profile of Trench 2, north wall.



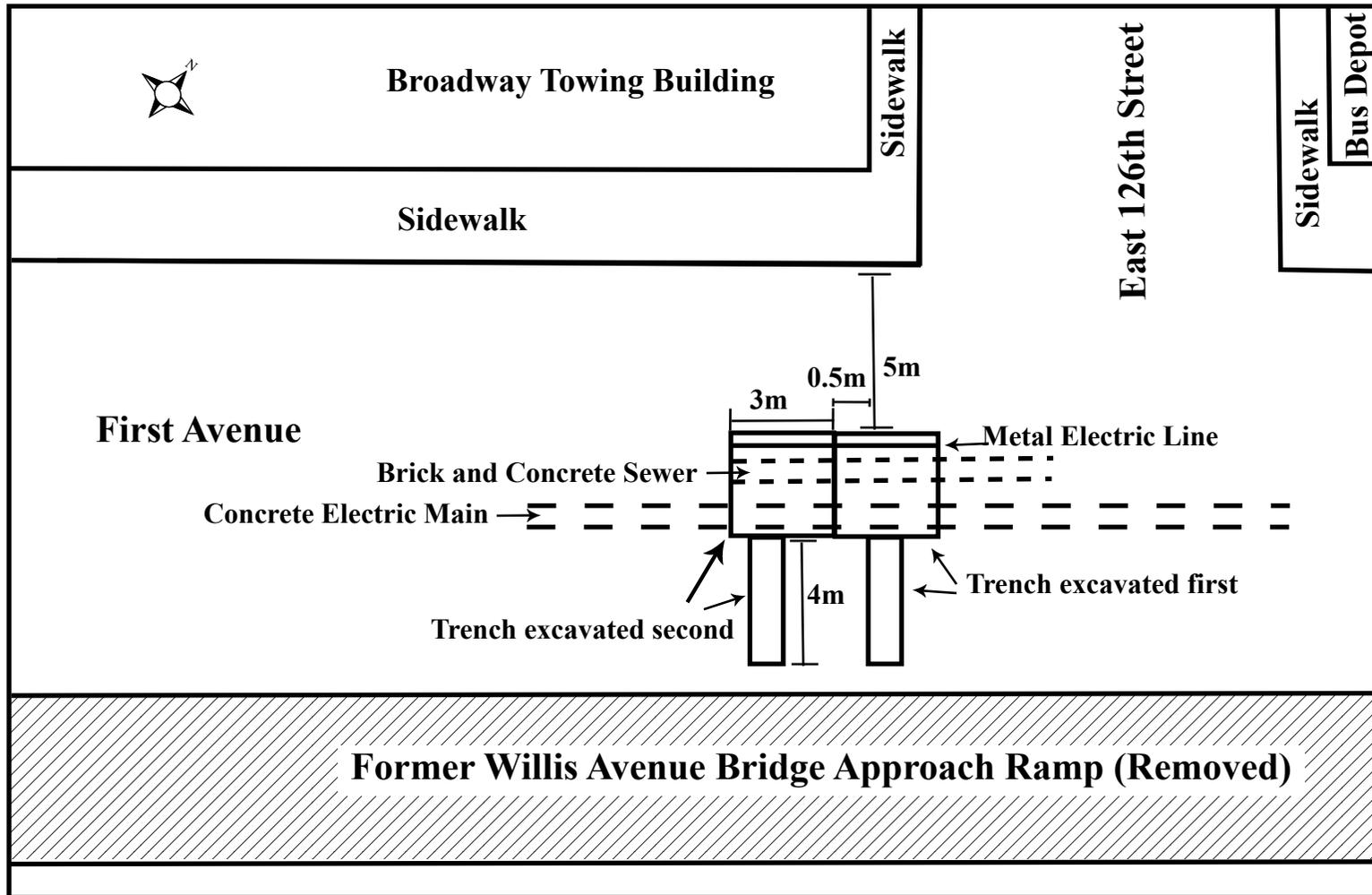


Figure 7: First Avenue, Sketch plan of utilities trench monitored 1-24-11 to 2-3-11.  
 Not to scale.



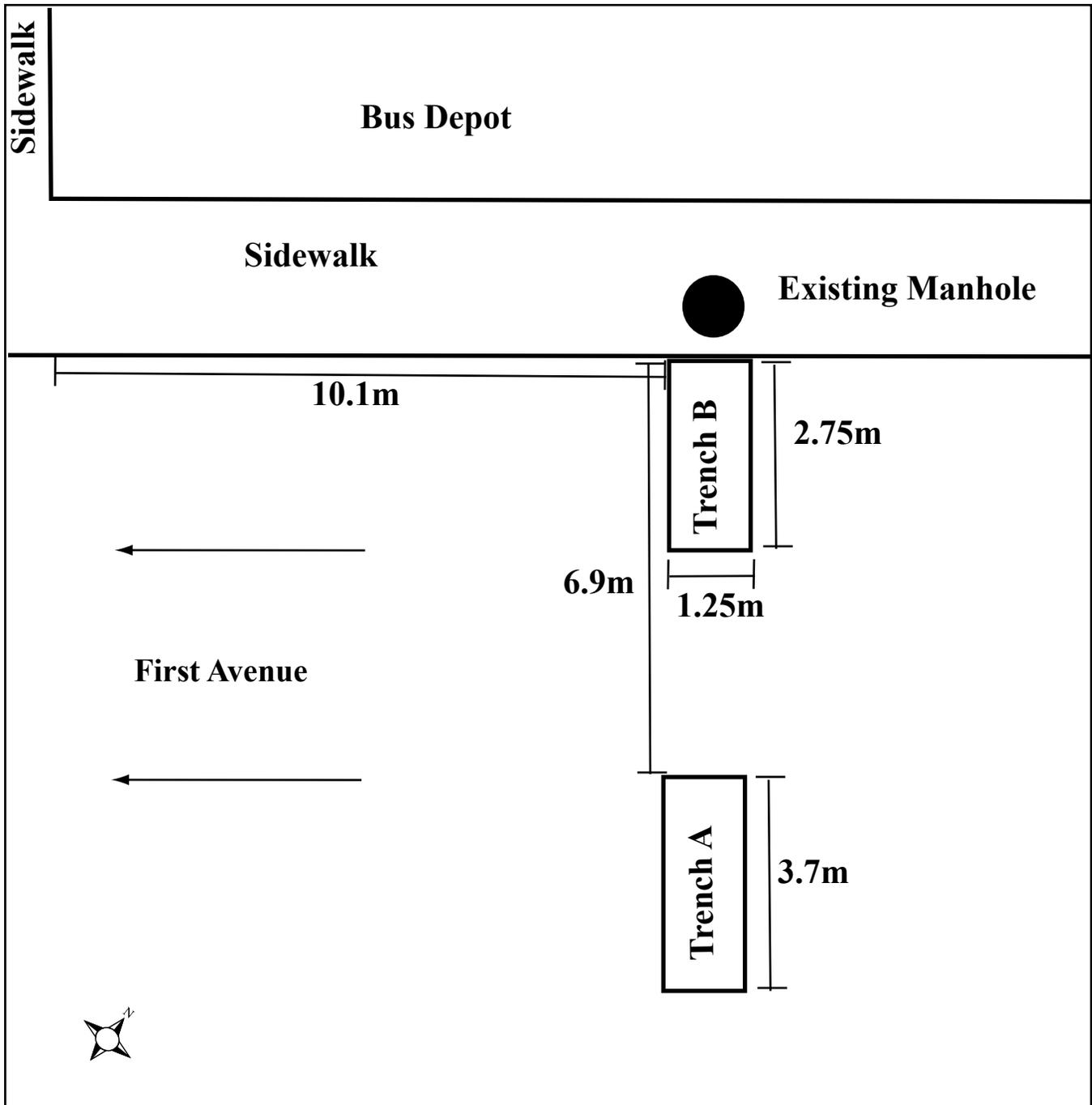
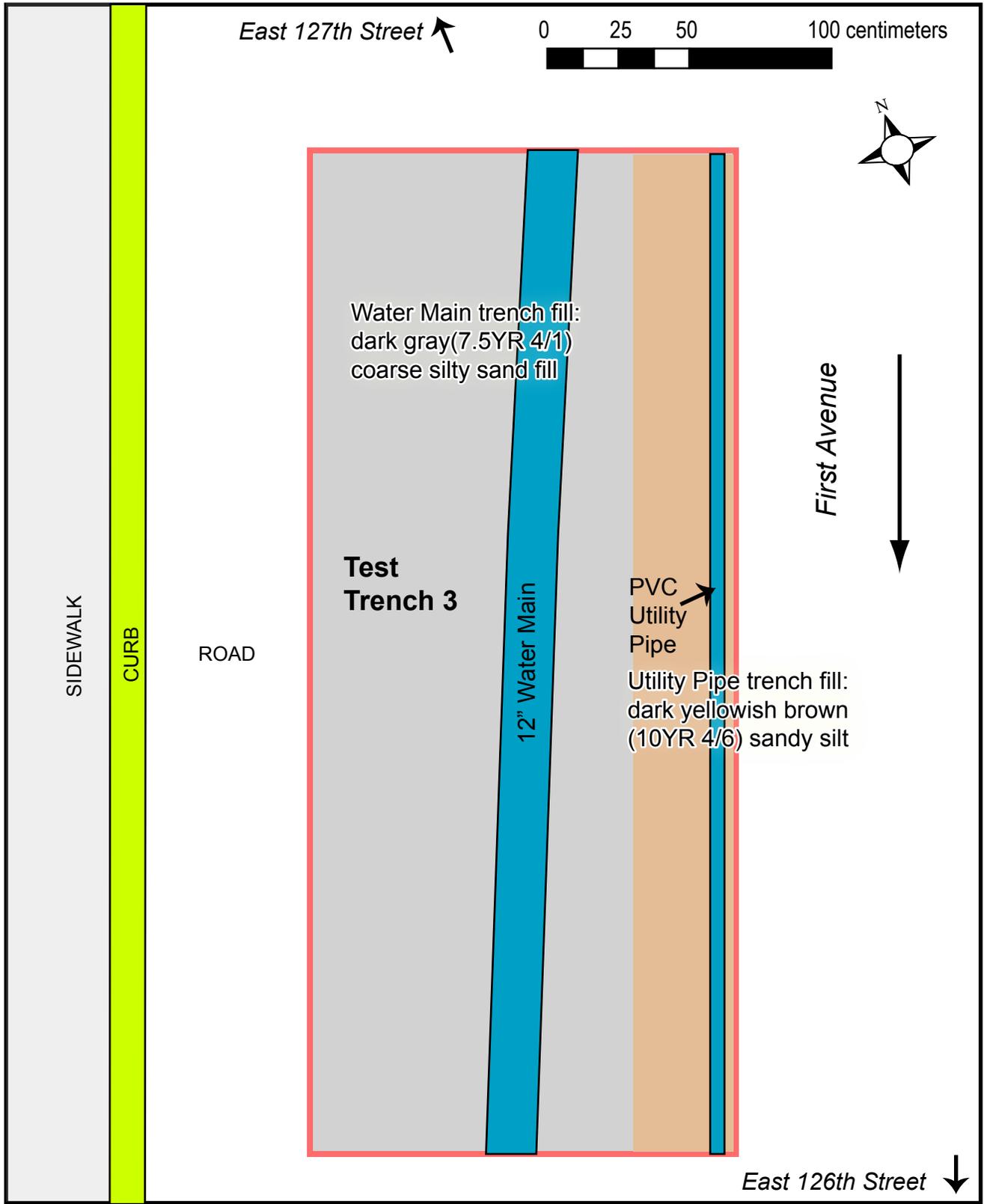


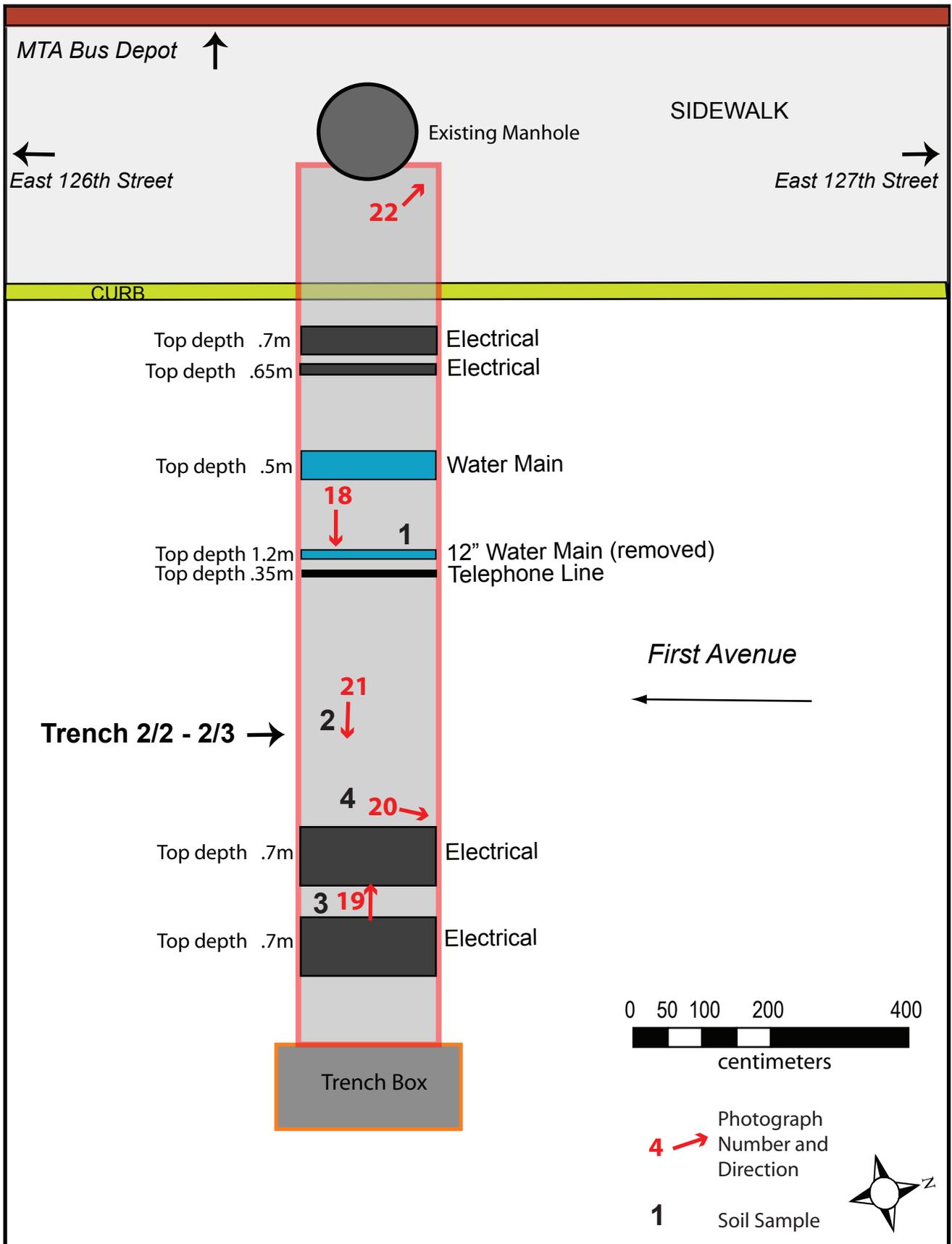
Figure 8: First Avenue, Sketch plan of Trenches A and B monitored on 2-2-11 and 2-3-11. Not to scale.





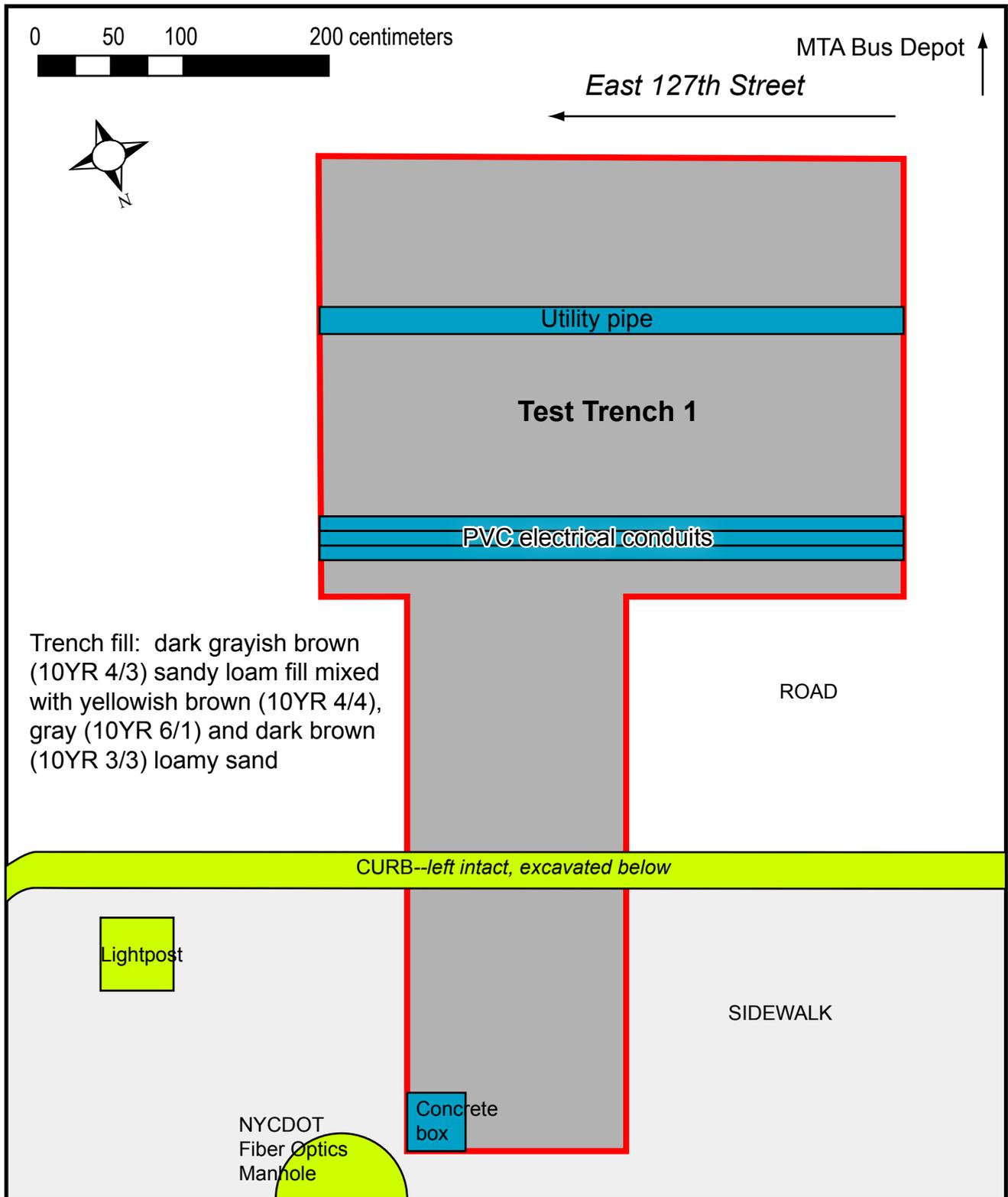
**FIGURE 9: First Avenue, Test Trench 3, between East 126th and East 127th Streets.**





**FIGURE 10: First Avenue, Utility Trench 2/2 - 2/3, between East 126th and East 127th Streets, April-May 2011.**





**FIGURE 11: East 127th Street, Test Trench 1.**





THIRD SEASON.  
GRAND ANNUAL  
SUMMERNIGHTS FESTIVAL  
OF THE  
Manhattan Elevated Railway Employees,  
— TO BE HELD AT —  
Sulzers Harlem River Park,  
126 & 127 Streets, and 2d Ave.,  
On FRIDAY EVENING AUGUST 10th, 1883.  
**Tickets adm. Gent & Ladies 25c.**  
Payable at the gate  
Music by Prof. SMITH. Dancing to commence at 7 P. M.  
A handsome Club Frame valued at \$50.00 will be presented  
to the Assn. or Social Club most largely represented by them-  
selves or Friends, on this occasion.

---

The Great Atlantic and Pacific Tea Co.,  
SELL THE BEST  
TEAS & COFFEES.  
**IS THAT YOU TOMMY?**

---

The Largest Importers and Retailers in the World.  
125 Stores in the U. S. Headquarters 35 & 37 Vesey St. N. Y.

FIGURE 12: Advertising Card for the Summernights Festival at Sulzer's Harlem River Park, 1883.



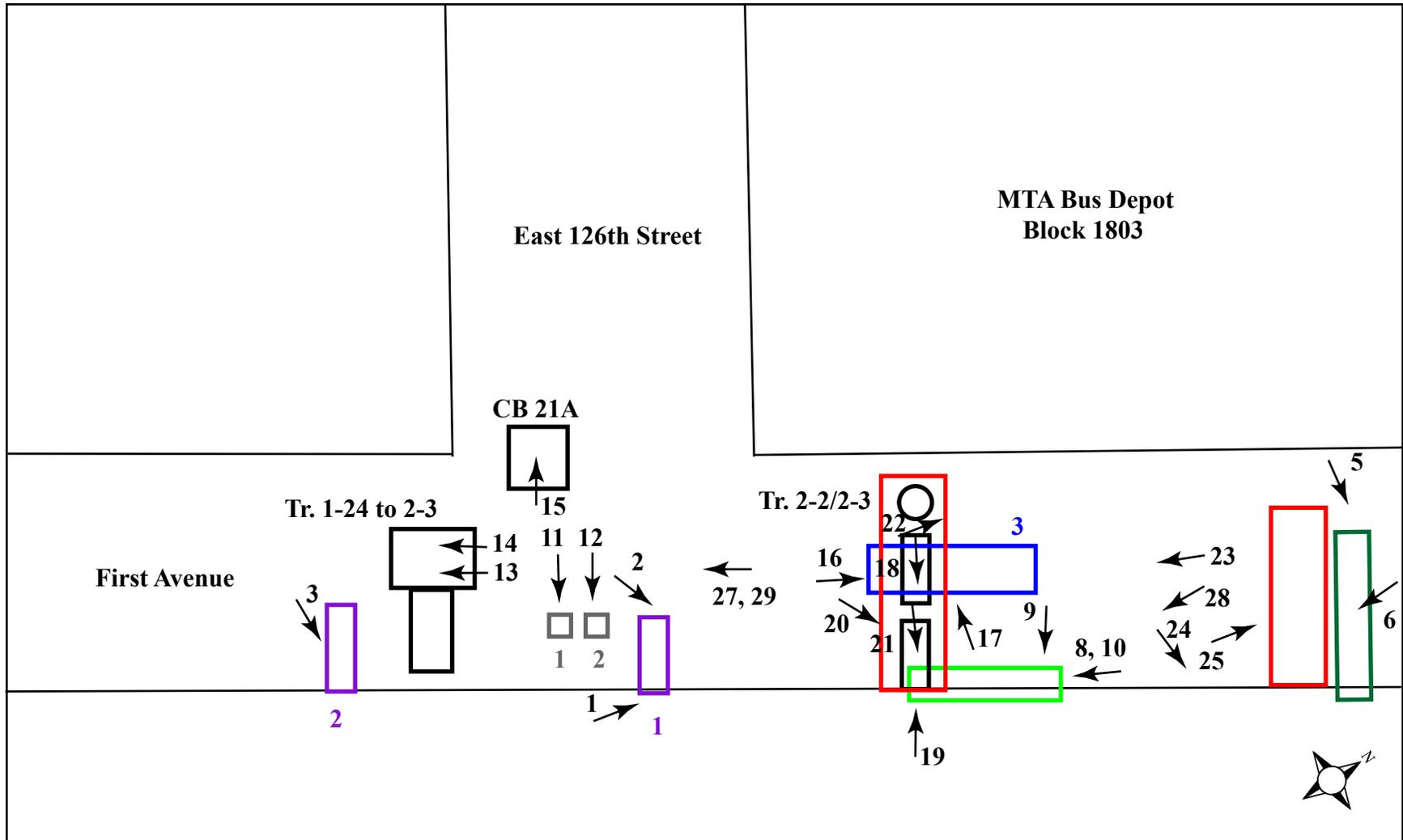


Figure 13a: Photograph locations on First Avenue

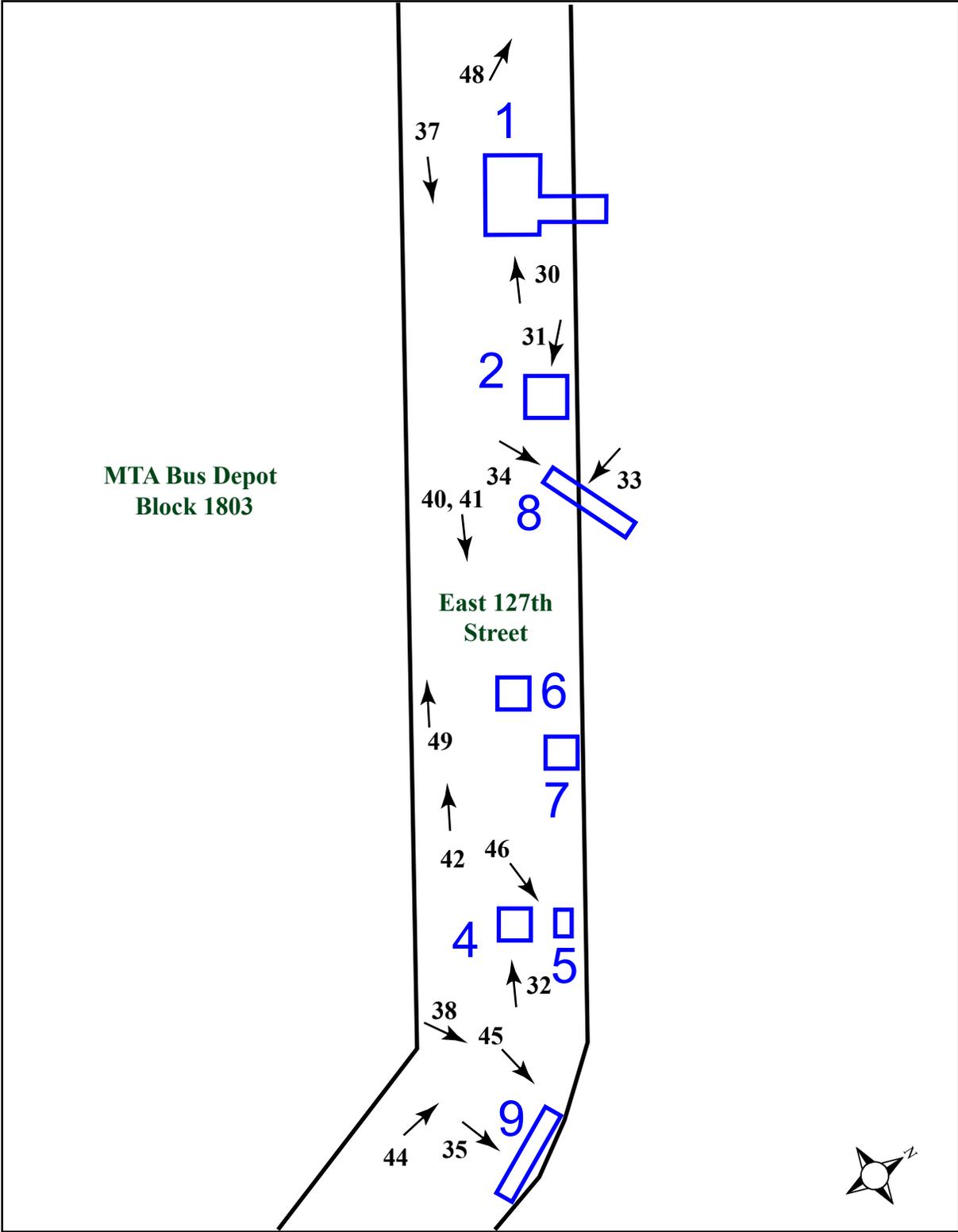


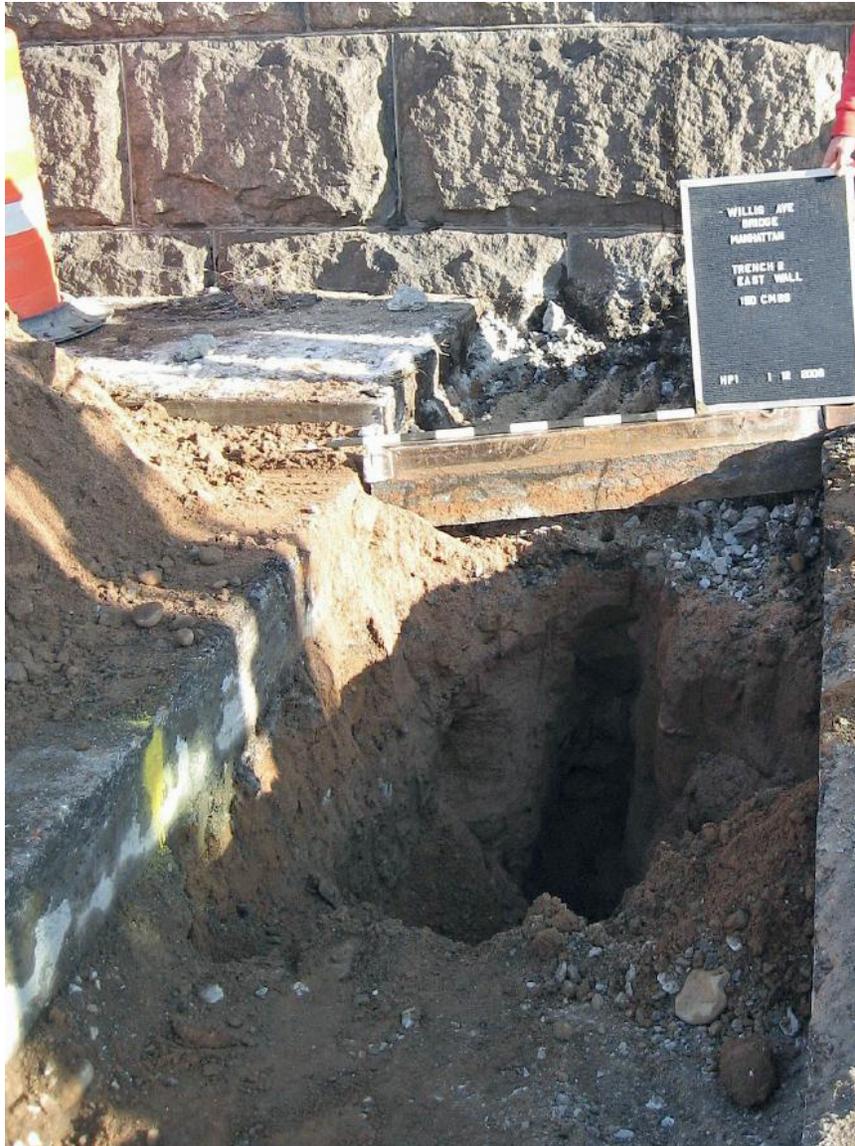
Figure 13b: Photograph locations on East 127th Street.



Photograph 1: (8/6/09 memo) First Avenue, hand-excavated portion of Trench 1 at 66 cmbs, looking north.



Photograph 2: (8/6/09 memo) First Avenue, Trench 1 after machine excavation at 110 cmbs, looking east.



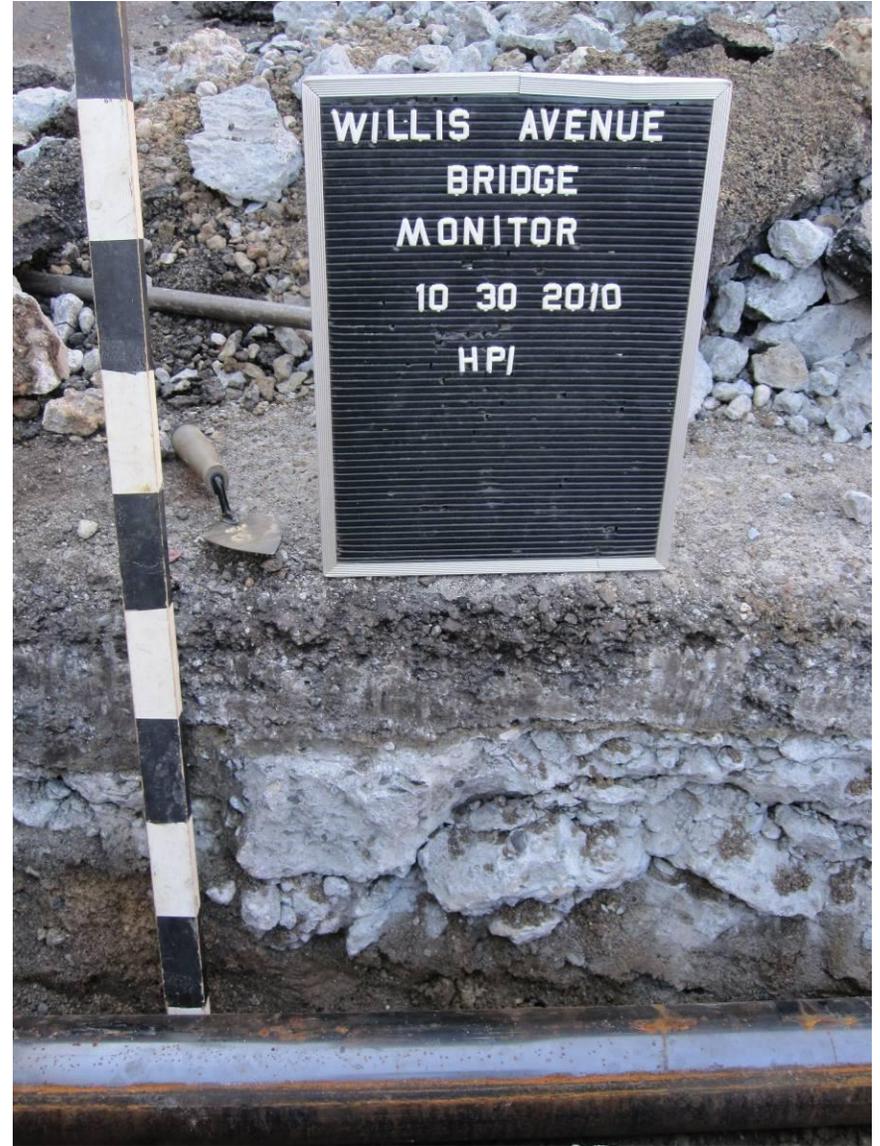
Photograph 3: (8/6/09 memo) First Avenue, Trench 2 after machine excavation, looking east.



Photograph 4: (8/6/09 memo) First Avenue, Trench 3 (outside monitoring zone) after machine excavation, looking east.



Photograph 5: (11/1/10 memo) First Avenue, monitoring hand-excavation of trench.



Photograph 6: (11/1/10 memo) First Avenue, south profile of hand-excavated utility trench. Note the multiple levels of blacktop and concrete above ash fill, and final installation of 4" iron utility pipe.



Photograph 7: (11/1/10 memo) First Avenue, close up of wood stake fragment recovered from western end of trench immediately adjacent to existing manhole.



Photograph 8: (12/1/10 memo) First Avenue, Sono tube excavation.





Photograph 11: (12/15/10 memo) First Avenue, Test Unit 1 profile.



Photograph 12: (12/15/10 memo) First Avenue, Test Unit 2 profile.



Photograph 13: (2/18/11 memo) First Avenue, "TR 1-24 to 2-3".



Photograph 14: (2/18/11 memo) First Avenue, “TR 1-24 to 2-3”.



Photograph 15: (2/18/11 memo) First Avenue, "CB21A".



Photograph 16: (4/22/11 memo) First Avenue, Test Trench 3, looking north.



Photograph 17: (4/22/11 memo) First Avenue, Test Trench 3, looking west after pipe replacement.



Photograph 18: (9/8/11 memo) First Avenue, Utility Trench 2/2 – 2/3 facing east. Water main in foreground and telephone conduit at center of photograph.



Photograph 19: (9/8/11 memo) First Avenue, Utility Trench 2/2 – 2/3 facing west. Utility lines are visible in foreground and at center of photograph. Shoring walls is in progress.



Photograph 20: (9/8/11 memo) First Avenue, Utility Trench 2/2 – 2/3, facing northeast to north wall. Note electrical lines at .7m below grade at right.



Photograph 21: (9/8/11 memo) First Avenue, Utility Trench 2/2 – 2/3 facing east.



Photograph 22: (9/8/11 memo) First Avenue, Utility Trench 2/2 – 2/3 facing north. Note the freshly broken cement at the northwesternmost corner of the trench demarcated by the arrow.



Photograph 23: (9/30/11 memo) First Avenue, between East 126<sup>th</sup> and 127<sup>th</sup> Streets, looking south.



Photograph 24: (9/30/11 memo) First Avenue, north end by bridgetender's house, looking east. Trench for water connection to bridgetender's house.



Photograph 25: (9/30/11 memo) Remains of former bulkhead at intersection of First Avenue and access road, looking north. Tops of upright planks have been sheared off. Oily water can be seen at right.



Photograph 26: (9/30/11 memo) First Avenue, one of the upright planks from the bulkhead. Note tongue and groove construction and beveled base.



Photograph 27: (9/30/11 memo) First Avenue at initial grading, looking south from the intersection at East 126<sup>th</sup> Street.



Photograph 28: (9/30/11 memo) First Avenue looking south, near bridgetender's house, showing utility line.



Photograph 29: (9/30/11 memo) First Avenue looking south, from intersection at East 126<sup>th</sup> Street. Orange paint shows location of large gas main.



Photograph 30: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 1, looking west.



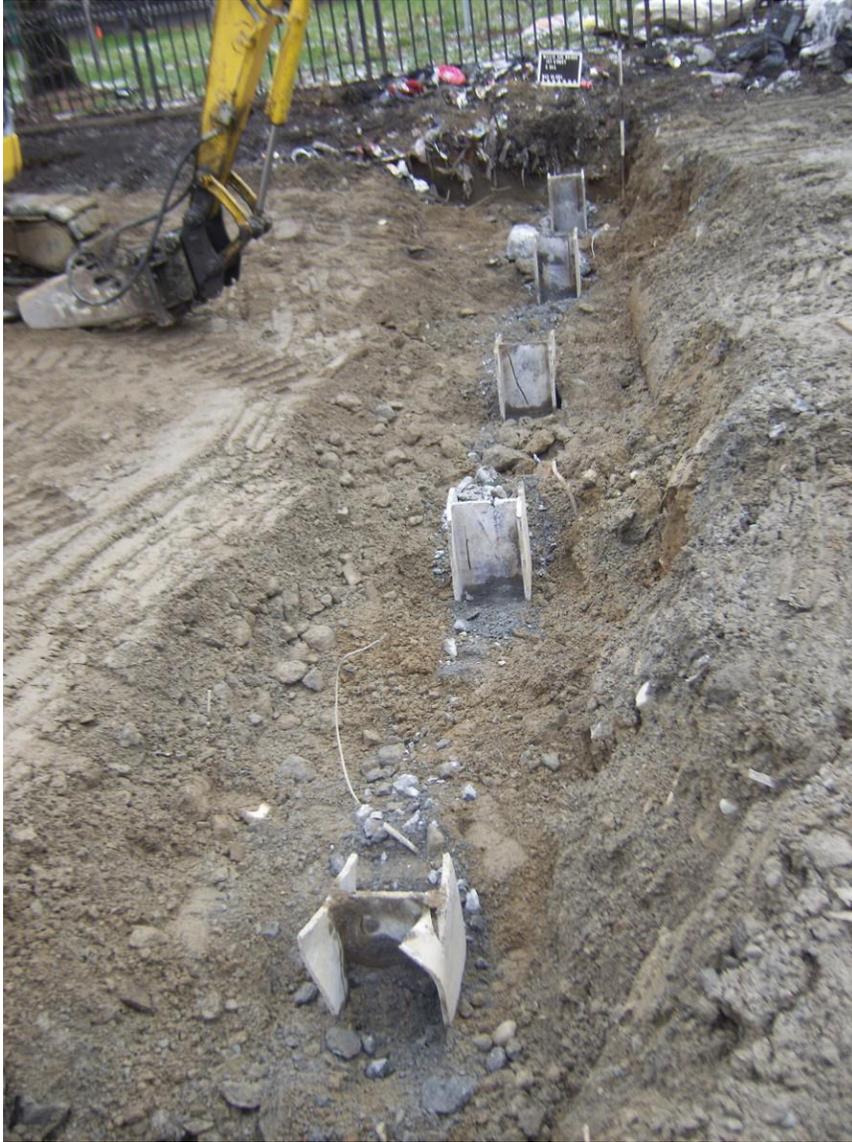
Photograph 31: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 2, looking southeast.



Photograph 32: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 4, looking west.



Photograph 33: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 8, looking southeast.



Photograph 34: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 8, looking north showing truncated pilings.



Photograph 35: (4/22/11 memo) East 127<sup>th</sup> Street, Test Trench 9, looking northeast.



Photograph 36: (9/8/11 memo) East 127<sup>th</sup> Street, excavating for lamp post installation.



Photograph 37: (5/24/11 memo) East 127<sup>th</sup> Street removal of asphalt, looking east.



Photograph 38: (5/24/11 memo) East 127<sup>th</sup> Street, utility pipes running east-west, looking northwest.



Photograph 39: (5/24/11 memo) East 127<sup>th</sup> Street, electrical conduits, looking north.



Photograph 40: (5/24/11 memo) East 127<sup>th</sup> Street, utility pipes covered by steel plates, looking east.



Photograph 41: (5/24/11 memo) East 127<sup>th</sup> Street roadbed after final grading.



Photograph 42: (9/8/11 memo) East 127<sup>th</sup> Street, view looking west following the removal of the southern sidewalk, curb, and south lane roadbed.



Photograph 43: (9/8/11 memo) East 127<sup>th</sup> Street, view looking southeast at deep test at the west side of the south lane.



Photograph 44: (9/8/11 memo) East 127<sup>th</sup> Street, view looking northwest at some of the many utilities at intersection of the north end of First Avenue.



Photograph 45: (9/30/11 memo) East 127<sup>th</sup> Street, fence line marked out in north lane, looking east. Orange flags mark fence posts. Fence makes a right angle at northern curb at left and continues toward First Avenue. Fence posts were also present in southern lane of East 127<sup>th</sup> Street, along same line.



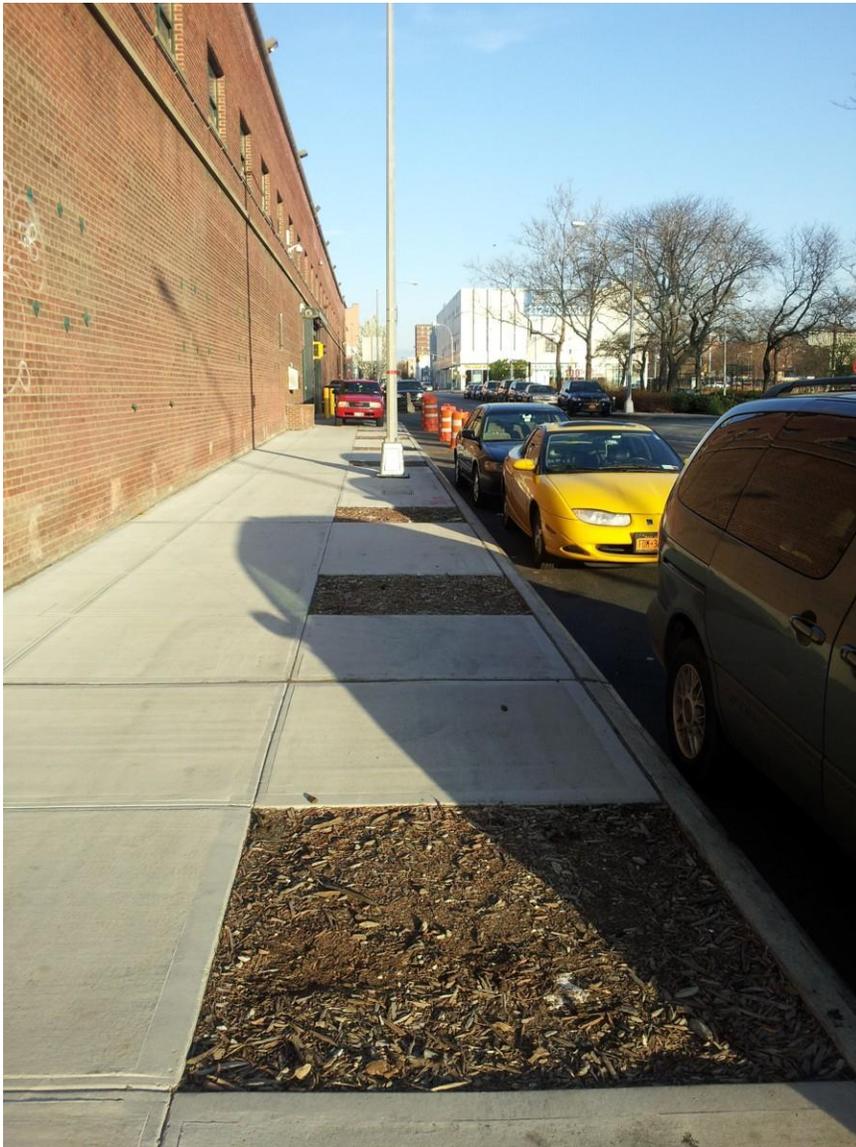
Photograph 46: (9/30/11 memo) East 127<sup>th</sup> Street, view of the dark ashy soil present in the roadbed, looking east. Note the disturbance caused by the installation of utility lines at left.



Photograph 47: (9/30/11 memo) East 127<sup>th</sup> Street, excavation of post hole in north lane roadbed, looking north. Truncated post is still present.



Photograph 48: (9/30/11 memo) East 127<sup>th</sup> Street, excavations at juncture of Marginal Street, looking northwest.



Photograph 49: (4/12/12 memo) East 127<sup>th</sup> Street, south side, looking west, showing pits before excavation for tree planting. MTA Bus Depot wall is at left.



Photograph 50: (4/12/12 memo) East 127<sup>th</sup> Street, south side, Pit 1, looking east, showing gravel and road sub-base throughout pit.



Photograph 51: (4/12/12 memo) East 127<sup>th</sup> Street, south side, Pit 4, looking south, showing sub base over a layer of dark yellowish brown fine sandy fill over a brown fine sandy fill level.



Photograph 52: (4/12/12 memo) East 127<sup>th</sup> Street, south side, Pit 5, looking south, showing sidewalk sub base over brown silty sandy fill. The measuring tape is set at one meter (3.3ft) in length.