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Manhattan West Field Testing: The Hudson River Railroad Platforms

CEQR No. 86-268M



Manhattan West February 1994

Prepared for
The Brodsky Organization
Prepared by
Joan H. Geismar, Ph.D.
February 1995

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Graphics: Amy Geller

Photos: Joan H. Geismar

INTRODUCTION

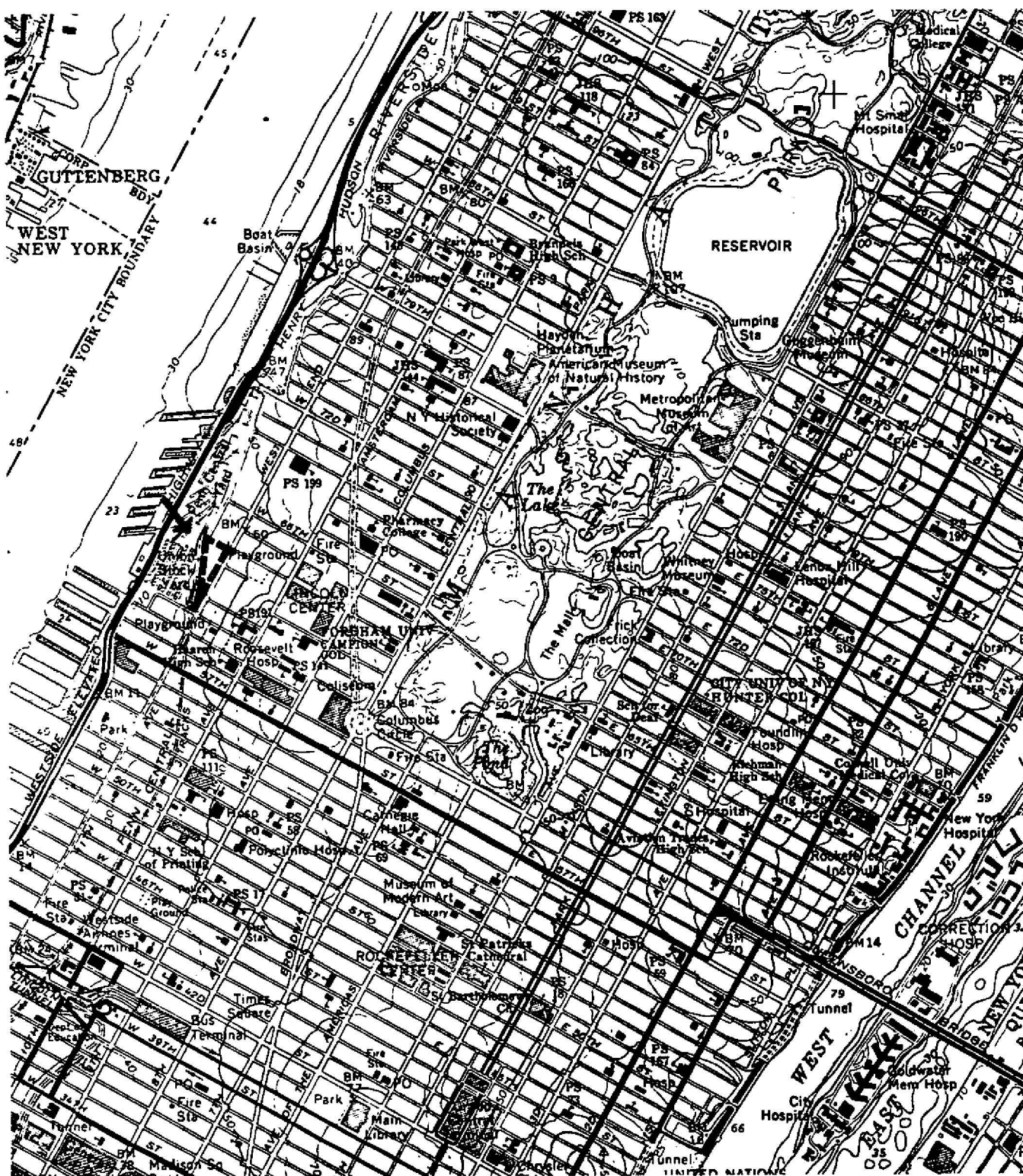
Based on documentary research (Geismar 1987), and following a scope of work approved by the New York City Landmarks Preservation Commission (Geismar 1994; see Appendix A), testing was initiated at the Manhattan West site on Friday, February 18, and completed on Tuesday, February 22, 1994. It was carried out under the direction of the writer, Dr. Joan H. Geismar, assisted by John Killeen, Shelly Spritzer, and Cas Stachelberg. The work was undertaken at the request of Daniel Brodsky of the Brodsky Organization, the site's developer, who was fulfilling a commitment "to document the method used to construct the track bed of the Hudson River Railroad and sample mid-nineteenth century fill" (Miner 1993).

The project site is situated on the west side of West End Avenue between West 61st and West 64th Streets in Manhattan (Figure 1). The goal of testing was to locate, identify, and document fill constructions erected by the Hudson River Railroad Company to maintain a straight road bed and run its line partly off shore through a Hudson River lagoon. These constructions, built between 1847 and 1851, represent the first known landfill efforts in the site vicinity. Completion of the southern segment of the railroad in 1851 provided an overland link between Albany and New York City that had been under consideration since 1832 (Geismar 1987:31). The Hudson River Railroad later became part of the New York Central Railroad system (see Appendix B for a detailed history of the railroad in the site area taken from Geismar 1987:31-37).

FIELD METHOD

Following the findings of the documentary research, a monitoring program coordinated with planned construction was recommended in 1987. This entailed monitoring the excavations for foundation piers to determine the construction techniques employed to build the track bed for the Hudson River Railroad, an embankment expected to be deeply buried under fill (Geismar 1987:42-44). However, six years later when site development began, tight schedules complicated by the severe weather conditions experienced during the winter of 1993-1994 made archaeological testing rather than monitoring a more viable solution to fulfilling the research goals.

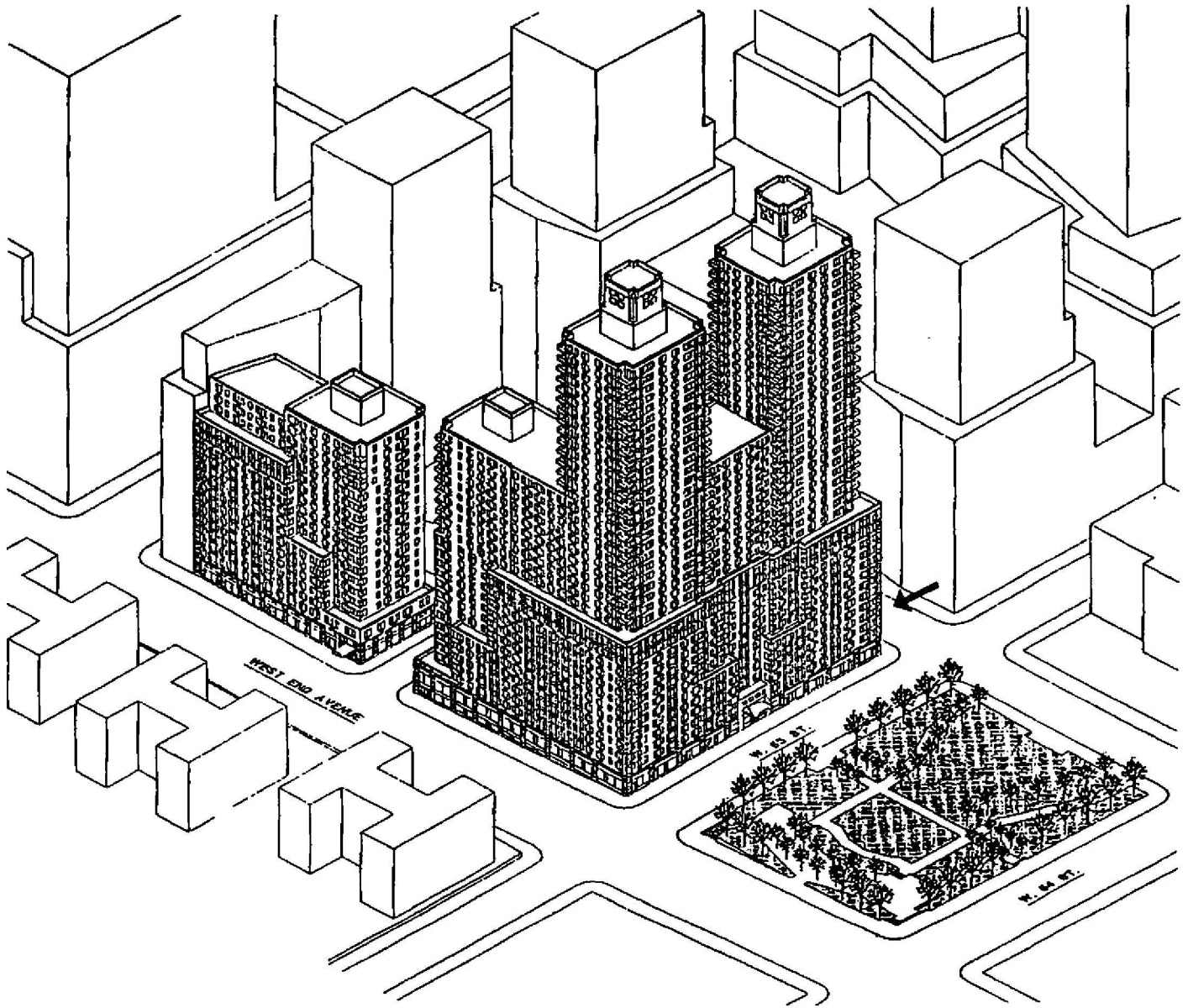
At Mr. Brodsky's request, a revised field testing program that called for machine-assisted, monitored trenching was implemented in the vicinity of the northern limit of high-rise apartment and commercial development on a line with the south side of West 63rd Street (Figure 2). Although the Hudson River Railroad tracks also extended through the lagoon north of these buildings, a park and open space is planned on this part of the site that will not impact subsurface resources. In addition, construction of the New York Times building on the northern part of the site in 1959, a four-story structure with a deep basement, undoubtedly encroached on, or destroyed, this more northerly segment of the former man-made embankment. The Times building was demolished in 1976 (Geismar 1987:29; see Figure 12 in that report).



--- project site

0 2000
ft.





← area of concern

no scale



The revised testing strategy called for a monitored, machine-excavated, east-west trench in the vicinity of the West 63rd Street line. The backhoe was supplied by the developer and was operated by the foundation construction foreman who dug a large test trench just south of the West 63rd Street line.

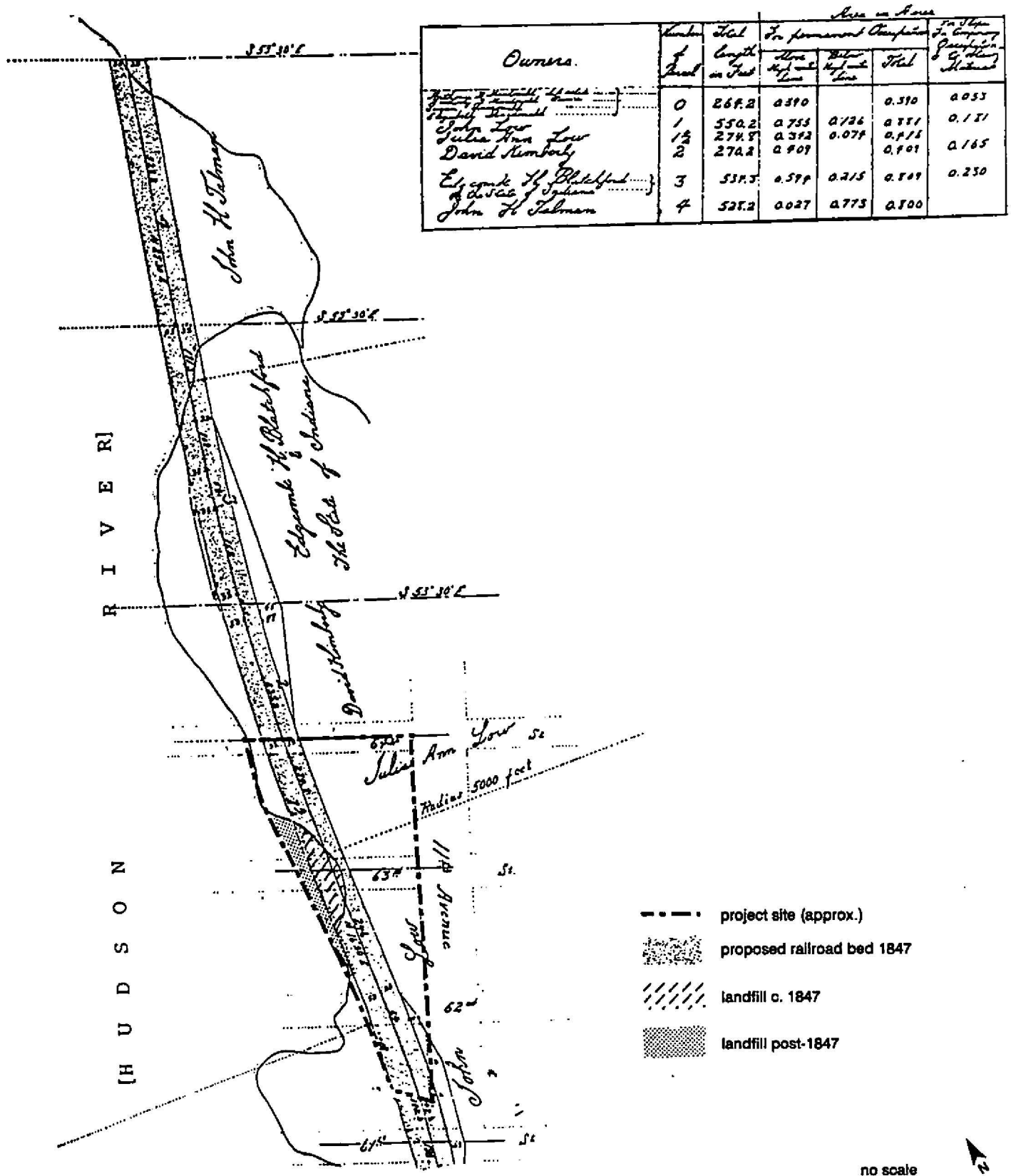
Testing revealed two massive soil-filled platforms, or "Blocks," structured by approximately 3-ft. thick, mortared stone walls that were the surviving remnants of the sought-after Hudson River Railroad embankment. Based on information from the more southerly construction (Block 2), these platforms appear to measure over 100 ft. north to south. Their east to west measurement was approximately 50 ft., and they were separated by a 21-ft. gap. This gap became water filled during testing. The exposed end wall of each block, which ran perpendicular to the river, was of dressed stone while the stones of the western walls that paralleled the shore were not dressed. No eastern walls were found, suggesting these constructions were incorporated into the filled shoreline.

The two blocks were located within the railroad right-of-way in the lagoon area as indicated on the 1847 plan for the railroad in the site vicinity (Figure 3). Although construction disturbance at the site made it impossible to determine exact measurements, the truncated walls of the railroad embankment were covered by at least 20 ft. of fill (see Figure 4). This is consistent with information obtained from soil borings in 1986 where 5 to 27 ft. of fill were documented throughout the site (Geismar 1987:37-41; also Appendix A in that report).

The end of each platform was partially cleared and photographed on Friday, February 18 (Figures 4-6). More recently built foundation piers encountered throughout the site had intruded on both platforms (Figure 7). The function of these later piers is somewhat unclear since, with the exception of the Times building north of West 63rd Street, no modern buildings are documented that would have required these supports. It seems likely they provided stability to the ever-expanding railroad operations that developed on the site over time. The eastern end of Block 1, the more northerly block, was truncated by such a pier, as was the southern end of the long wall of Block 2 to the south. These encroachments made it impossible to determine absolute wall lengths.

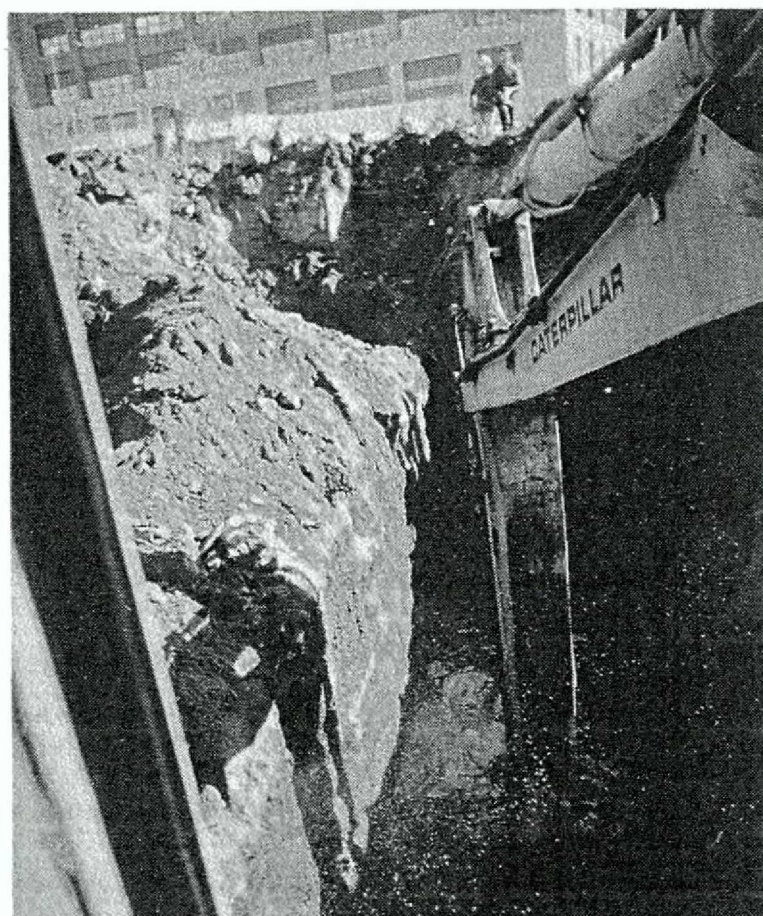
After photo documenting what had been exposed, the archaeologists left the site for the day. At the writer's request, the blocks were surveyed and mapped by the site engineers on Saturday, February 19 (see Figure 7). Mr. Brodsky had a number of the dressed stones set aside to be used as a design element in the park planned on the northern part of the site. At this writing, the test area has been developed and the park is being created. The salvaged stones have been incorporated into its landscape design (Quennell 1995:personal communication).

On Monday, February 21, soil samples were collected from Block 1, the more northerly platform (Figure 9). Unfortunately,





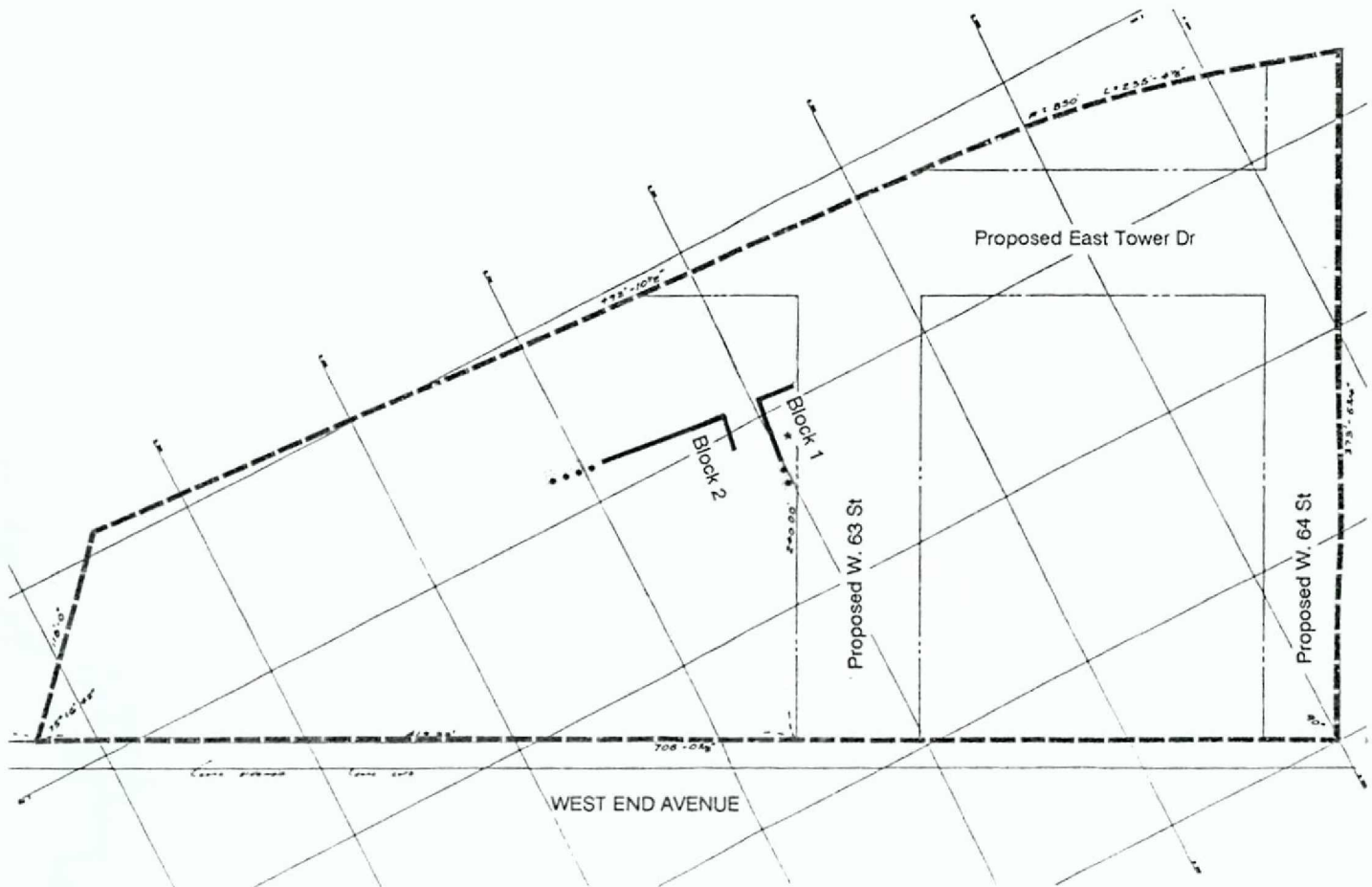
4 Western corner of exposed southern wall of Block 1 (arrow). The mortared, dressed stone wall was truncated but the corner was intact. (Geismar 2/18/94)



5 Looking east toward West End Ave and W 63 St from the cab of the backhoe. Block 1, with the shadow of the backhoe arm, is on the left. The backhoe bucket is immersed in water that filled the gap dividing Blocks 1 and 2. (Geismar 2/18/94)



6 Archaeologists clearing the top of the western wall of Block 1. The top of the remaining courses of the mortared, dressed stone of the southern wall (black arrow) is visible. The northern wall of Block 2 (white arrow), which is cast in shadow, parallels Block 1 but has not yet been cleared. The view, taken from above the test area, is south toward the Con Edison plant (formerly an IRT powerhouse) on 59th St. (Geismar 2/18/94)



- project site
- documented railroad constructions (Block 1 and Block 2)
- approximate extent of railroad constructions, not fully excavated
- · — · — development or park parcels
- * sample pit location (approximate)

[base map courtesy of Leonard J. Strandberg Engineers and The Brodsky Organization]



8 Concrete foundation columns in wooden forms were found throughout the site (arrow). Similar constructions destroyed the eastern end of the southern wall of Block 1 and the southern end of the unmortared western long wall of Block 2. Note wooden logs, probably former pilings or possibly wharves. View is northeast toward W 63 St and West End Ave. (Geismar 2/21/94)



9 Samples of fill collected from a column approximately 12 ft deep excavated in Block 1. Seven 5-gal buckets of material were collected from each 4-ft level of fill for a total sample of 21 buckets. The material was later water screened. (Geismar 2/21/94).

back filling the test trench on Friday and inclement weather on Monday made it impossible to measure in the exact location of the sample pit, but it was approximately in the center of Block 1 north of the dressed stone wall (see Figure 7). Block 1 was chosen as the sampling site because the fill appeared to be less contaminated with oil or petroleum than in Block 2. (This was a problem since the site became, and remained for decades, a railroad yard and then was the location of a gas station and an auto repair shop.)

Because the long-buried railroad platforms were undoubtedly created by filling in what amounts to a single episode, it was anticipated that the fill material would prove to be homogeneous (it should be noted that these platforms had been truncated by subsequent site development as a railroad yard). Sampling the fill entailed collecting twenty-one 5 gal. buckets of soil. Although sampling was originally planned at 1-ft. intervals, soil was ultimately collected from three segments of a test, or sample, pit, each approximately 4 ft. deep: from 0-4 ft., from 4-8 ft., and from 8-11+ ft. where water was reached. This last sample was somewhat mixed when rain caused the pit walls to collapse. This method was adopted because of unstable soil conditions that were quite hazardous, the problems created by bad weather, and because the fill--a sandy soil laden with pebbles, ash, and cinders--was obviously homogeneous (this assessment was confirmed during the washing and cataloguing process).

The sample was water screened through 1/4 in. wire mesh on Tuesday, February 22, and the artifacts--a fragmentary redeposited fill--were bagged by sample unit. These were then washed and catalogued (Appendix C). The samples were laced with small fragments of unidentifiable glass, ceramics, animal bone, and miscellaneous debris--including a leather shoe sole, unfortunately all of an indeterminate age. The one "large" ceramic artifact, two fragments of a small, undecorated oval Whiteware or Graniteware dish from the uppermost segment that mended almost whole (MW S1-1), did not provide a date more specific than post-1820. Other ceramic fragments were identified by the writer as post-dating 1840 (see Appendix C), the latest identified date and the fill terminus post quem (the date after which it was deposited). This small collection of fill artifacts will be returned to the developer.

FINDINGS

The massive, stone-wall structured fill constructions built to run the Hudson River Railroad through a Hudson River lagoon on the project site were not exactly what had been anticipated based on documentary research. This had suggested that a stone embankment might be present, but not of the proportions uncovered during testing.

John B. Jervis, a man who has been called "one of America's foremost antebellum civil engineers" (Kemp 1994:personal communication), was the designer of the Hudson River Railroad. He kept a diary (Jervis 1847-1849), wrote articles (Jervis 1850), created

promotional literature (e.g., Jervis 1846), and generated enough material to produce a reminiscence (Fitzsimmons 1971) and a biography (Larkin 1990) that mention or describe construction of this railroad. However, none of these sources provide as-built plans or detailed accounts, nor does the Jervis Library in Rome, New York, have any in its collection (Kinna 1986:personal communication).

Based on Jervis's writings and treatises by others on nineteenth century engineering techniques, it had been anticipated that a stone embankment might be encountered. Based on mid- to late-nineteenth century railroad construction techniques, it was also possible that a wood cribbing might have been incorporated into the construction (Geismar 1987:36). Jervis's writings suggest stone foundations might be as many as 26 to 30 ft. wide (Jervis 1846:18). Moreover, in his edited reminiscences (Fitzsimmons 1971), there is a passage similar to one found in his 1850 article on the railroad:

Embankments had to be built across bays and along the shore of the river, and it was necessary to protect the earthworks from river erosion by a wall of stone fill...the wall was about seven feet thick at the base, and three feet at the top (Fitzsimmons 1971:115).

He also replied to those who worried about the railroad being a detriment to the natural beauty along its route that, it would, in fact be improved by the addition of stone walls:

the shores washed by the river would be protected by the walls of the railway; and the trees, no longer undermined and thrown down by the river surf, would grow more beautiful...(Fitzsimmons 1971:178)

And, finally, as noted in 1987, Jervis had indicated that the road was to be wide for reasons of safety (Jervis 1846:8, 18 cited in Geismar 1987:35; see Appendix B).

These passages suggest that constructions with stone walls would be found, and this proved to be the case. They also suggest stone fill; instead, an earth fill was found. This may reflect the difference between what was planned and what turned out to be practicable. Or, it may reflect a choice made by local contractors who were used to using redeposited fill for land reclamation. What is not suggested, or explained, is why two platforms, rather than one long embankment, were present at the site.

While the two parallel dressed stone walls found at the Manhattan West site might be remnants of what was originally an arched passage before the constructions were truncated, what purpose this passage served remains a mystery. Queries to William Worthington, a museum specialist at the Smithsonian Institution, and Emory Kemp, Professor Emeritus and director of the Institute for the

History of Technology and Industrial Archaeology at West Virginia University, an expert on John Jervis, did not provide any explanation for this construction.

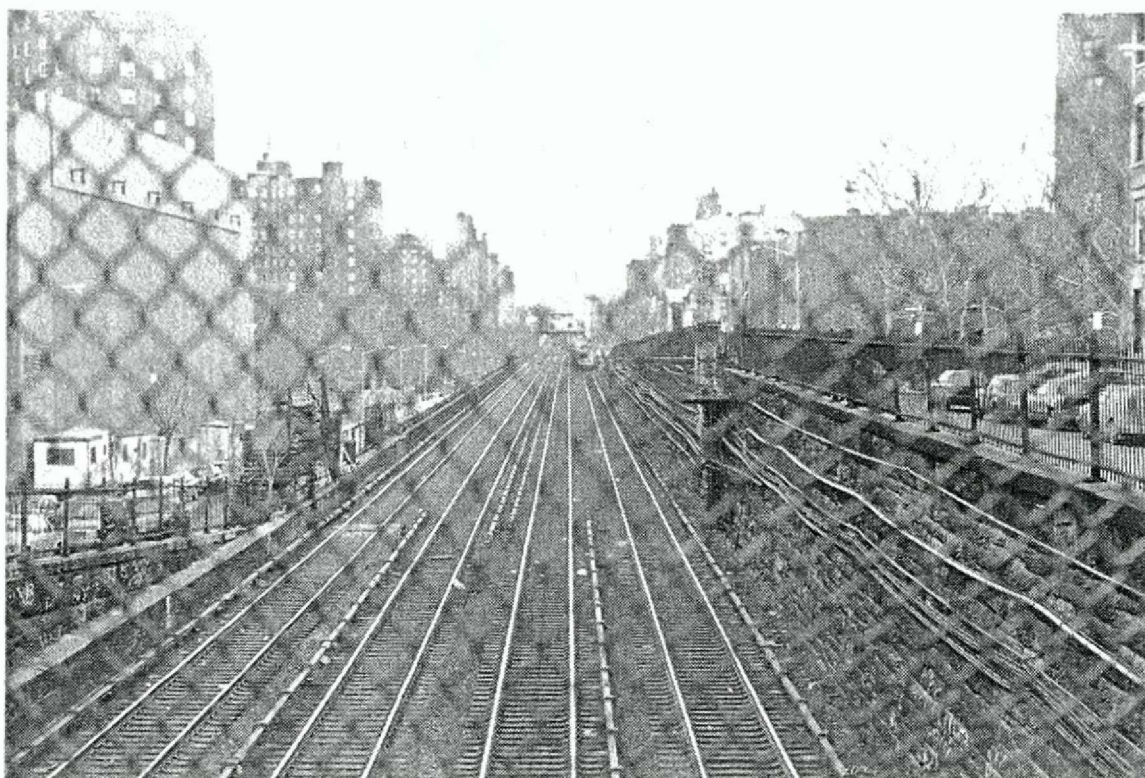
It appears the Manhattan West embankment and platforms may have been similar to the late-nineteenth century masonry viaduct that runs on Park Avenue between 97th and 111th Streets (Figures 10 and 11 this report), albeit with major differences. Not least among them is the fact that the constructions at Manhattan West crossed a lagoon and extended a shoreline while the Park Avenue viaduct created a track bed on land. Built twenty years after Jervis's Hudson River Railroad (the viaduct was constructed between 1869 and 1871 as an approach line to Grand Central Terminal [Condit 1968:134]), it has massive dressed stone walls analogous to the parallel stone walls found at Manhattan West. Of particular note are the viaduct's arched passages that allow cars and pedestrians to pass under the track (see Figure 11). Just why a similar passage was needed along the Hudson remains a question.

CONCLUSIONS

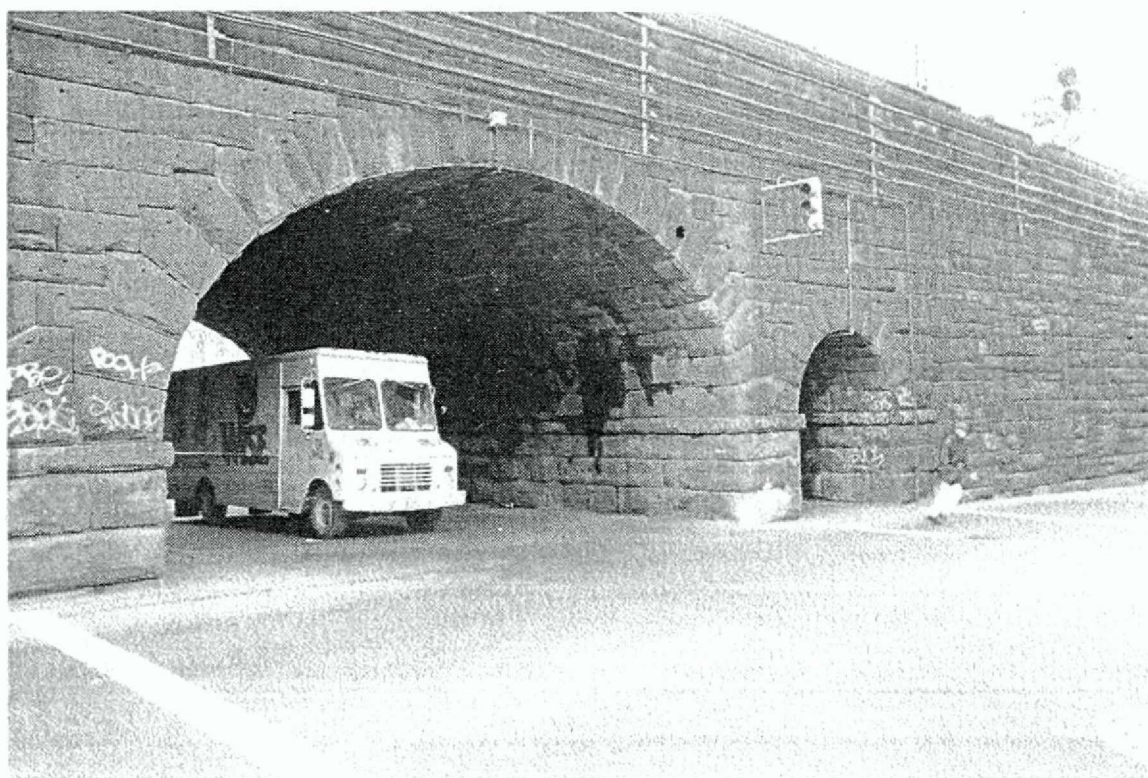
Backhoe trenching at the Manhattan West site just south of the West 63rd Street line revealed truncated but massive remnants of the stone-wall structured Hudson River Railroad embankment that allowed the track bed to pass through a Hudson River lagoon. While these mid-nineteenth century constructions proved to be larger than anticipated, a greater surprise was offered by the implication that a passage once cut through the railroad embankment to the shore. The need or reason for this passage is at present unknown.

The artifactual material water-screened from 105 gallons of soil taken from a sample pit in the more northerly platform (Block 1) indicated the homogeneity of the fill. It also confirmed the assessment that filling was done in the equivalent of one episode: while this may actually have taken days, weeks, or months to complete, a single source of fill is suggested as is an unbroken period of time; if it was done in phases, it is not detectable through archaeological investigation. Just what that fill source might have been is not known, but it provided a pebbly, ashy, cinder-laden soil that contained extremely fragmentary artifactual material that did not offer concrete dates. A general terminus post quem for the fill appears to be 1840.

In documenting the railroad embankment and testing the fill contained in that construction, the Brodsky Organization has fulfilled its commitment regarding cultural resources at the Manhattan West Site.



10 Conrail-Amtrak tracks, formerly NY Central, running on a filled platform on Park Ave looking north from 97th St. Note dressed stone wall on right is higher than wall to left. (Geismar 1/23/95)



11 Same as above from Park Ave at 99th St. This railroad platform was built between 1869 and 1871. A similar arched viaduct may have joined Blocks 1 and 2 at Manhattan West, but only the foundation walls remained. (Geismar 1/23/94).

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February 9, 1994

Ms. Gina Santucci
Director of Environmental Review
Landmarks Preservation Commission
100 Old Slip
New York, NY 10005

Re: Scoping for Archaeological Testing, Manhattan West Project
Site, CEQR No. 86-268M

Dear Gina:

As we discussed, Daniel Brodsky, the site's developer, would like to carry out archaeological testing for evidence of the filled section of the 1847 Hudson River Railroad bed prior to excavating for pilings as originally suggested in my 1987 report. (It should be noted that excavation to bedrock beyond the area of concern, but where the line was also documented on maps, did not reveal any evidence of an early railroad bed. I have visited the site and witnessed excavations that also did not reveal any evidence of the railroad line although they were dug to water; in one instance, what appeared to be river silt was reached at about 28 ft. below the ground surface within an area that included the line's possible route.) Based on Mr. Brodsky's desire to test as soon as possible, the following test plan is proposed.

Since no structures are planned north of 63rd Street (see attached construction plan, Figure 1), this part of the site is not a concern even though lagoon filling also occurred in this area. It is proposed that a section south of 63rd Street be tested with an archaeologically monitored, machine-excavated, east-west trench as indicated on the attached plan (Figure 2). This trench would explore a section of the railroad's route across the lagoon that required filling (e.g., Figure 13 from 1987 report, attached)--the earliest land reclamation in the project area.

If evidence of the railroad bed is found, it will be photo documented and samples of the surrounding fill taken. This fill will be excavated by backhoe and 35-gallon samples taken at approximately 12 in. intervals--a method and sample comparable to what was used and taken at 175 Water Street, Telco, and Site 1 of the Washington Street Urban Renewal Area fill sites (e.g., Geismar 1987, Landfill and Health, a Municipal Concern in North-east Historical Archaeology 16:49-57). These samples will be water screened. Weather permitting, this will be done at the time of excavation, or the sample will be saved for future pro-

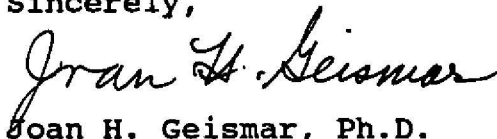
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cessing if the weather makes it impossible to proceed. A report on findings would then prepared. Should no evidence of the railroad bed or a significant fill be found, which seems a possibility based on current field information, the test methods and findings will be documented in a letter and photos that will be submitted for Landmarks review.

Given this winter's harsh weather, Mr. Brodsky would like to schedule testing as soon as possible to avoid further complications to his construction schedule (thus the switch from monitoring to trenching). This plan could be implemented as soon as Landmarks and the weather permit. Of course, Landmarks will be advised when this occurs.

Thank you for your consideration and prompt attention.

Sincerely,



Joan H. Geismar, Ph.D.

Attachments

cc D. Brodsky, The Brodsky Organization

[EXTRACTED IN ITS ENTIRETY FROM GEISMAR 1987:31-37]

THE HUDSON RIVER RAILROAD IN NEW YORK CITY

General Development

The site's initial and major development depended on the mid-nineteenth-century introduction of the Hudson River Railroad, later part of the New York Central Railroad. Although the Vanderbilt name is associated with the New York Central Railroad and is found in the conveyance history of the project site (e.g., LD 497:306), Cornelius Vanderbilt was not an organizer of the Hudson River Railroad and did not become involved with it until after it was a successful venture.

The Hudson River Railroad was intended to provide an overland link between Albany and New York City and was under consideration as early as 1832 (Carter 1909:180) or about the same time the Harlem River Railroad to the east was chartered (Anon. n.d.). Finally, in May of 1846, after several aborted attempts to get action, the state legislature incorporated its charter and authorized construction of a roadway between New York and Albany (Stokes V 1926:1798). A stipulation was that this new enterprise, then the most costly railroad in the United States (White 1986:personal communication), would not infringe on the Harlem River Railroad. One month later, the entire capital stock of \$3,000,000 had been subscribed, mainly in New York City (Carter 1909:180), but two subsequent extensions for starting deadlines indicate that work was initially delayed.

In May of 1847, the city's Common Council permitted the railroad to "construct a double track along the Hudson River from Spuyten Devil [sic] Creek to near 68th Street occupying 12th Avenue where it lies along the shore, thence winding from the shore to intersect the 11th Avenue at or near 60th Street..." (Stokes V 1926:1803). From here it was to run through the middle of the avenue to 32nd Street, a route that became known as Railroad or "Death" Avenue (NYPL Photographs 1933:1037 A4). It then was to curve to 10th Avenue at 30th Street where it would run on the avenue to West Street (Stokes V 1926:1803). (It should be noted that steam engines were prohibited below 30th Street and horses were used to draw the train between 33rd and Chambers Streets [Stokes V 1926:1803]). On the 30th of September, 1849, a locomotive ran the 48 miles from 30th Street to Peekskill (Stokes V 1926:1822). By October, 1851--with its first station at Chambers Street and College Place--the railroad was ready for passengers.

In 1853, apparently in response to agitation over the unexpected competition the railroad presented to the Erie Canal, consolidation of ten independent railroads made history, and the New York Central Railroad was formed (Carter 1909:180-181). Its charter was for 500 years and its capital was fixed at 23 million dollars. It wasn't until 1863 that Cornelius Vanderbilt, by then a multi-millionaire from his ferry and steamship lines, became involved with the Hudson River Railroad. Five years later, after he had maneuvered a takeover of the New York Central, the Hudson River Railroad merged with it. At about

this same time, in his drive to improve the railroad, Vanderbilt erected the first Grand Central Station at 42nd Street and a depot for the Hudson River Railroad at once-fashionable St. John's Park in what is now TriBeCa.

Nineteenth-century maps show a steady increase in trackage on and around the site; this included tracks laid on the more recently filled land just west of the project site (for example, compare the 1854 Harrison & Magrane Map, Figure 3a this report, with the 1879 Bromley Map, Figure 8). By the time the New York Central merged with the Pennsylvania Railroad in 1968, the original Hudson River tracks were no longer in operation (Kaplan 1986:personal communication). As noted in the historical section, in the first decades of the twentieth century most if not all the site's development continued to center around railroads and included platforms and other low structures to service them (see Plates 3 and 4).

The Railroad in the Site Area

Deeds document the Hudson River Railroad's land acquisition in the site area in 1848 (e.g. LD 502:102, 502:104, 497:306), and an 1847 route map indicates its planned location on the site (Figure 13)*. In the vicinity of 63rd Street, this was just off shore and would have required some kind of landfill to lay the track. Although no plans have been found, contemporary reports provide some information about this undertaking and a treatise on nineteenth-century engineering techniques offers additional clues. For example, John B. Jervis, the chief engineer of the project (and, incidentally, of the Croton water

* Figure 3 this report

system), published reports before and after the railroad was built; the earlier of these was obviously promotional and perhaps must be approached with a degree of caution. In addition, he kept a journal that documents work on the railroad but does not mention the site area specifically; however, it does indicate that work in Section 1, which included the site, proceeded well, and by January 1, 1849, preparation for the superstructure was almost complete (Jervis 1847-1859:189).

Prior to construction, Jervis described the river's shore as "generally favorable for an embankment where it is necessary" (Jervis 1846:3). This included areas between points of land such as those found north and south of 63rd Street where embanking was required to keep the track route straight (Figure 13). Of special interest is his comment that "the depth of water, as far out as the embankment will extend...mostly or entirely in the river, is generally from one to two feet at ebb tide; and in no place [along the shore] exceeds three feet" (Jervis 1846:3-4). This implies a relatively simple maneuver although, for reasons of safety, the line's road was to be wide (Jervis 1846:9, 18), entailing the construction of substantial foundations to support embankments. For a distance of about ten miles above 14th Street, 190,000 cubic yards of embankment and 29,000 cubic yards of protective walls were planned (Jervis 1846:23).

What had sounded simple in plan turned out to be more complicated in practice. Land acquisition was costly and difficult, the river banks rugged and irregular, and the river bottom uncertain (Jervis 1850:4-5). Another problem concerned the in-

experience of the many contractors involved--it was a new kind of engineering undertaken under difficult conditions--but by September 1, 1847, the project was mainly contracted.

The following is a description of the planned embankment construction that theoretically applies to the project site:

...it was necessary, in all earth work, to construct a river wall, to protect the earth from being carried away by the surf from the river... an artificial foundation is made by filling in a mass of loose stone, which is brought up to low water level, and then levelled off and the wall commenced. The wall is about seven feet thick at the base, and three feet at the top (Jervis 1850: 5).

Jervis notes that excavated earth and rock were used to form embankments; this increased the cost of excavation but prevented the countryside from being mutilated to provide materials (Jervis 1850:7). He does not, however, describe the timber framework or "sheet piling" recommended by some late-nineteenth-century engineers to support embankments and provide stability (Giespie 1871:167-168). In addition, it should be noted that concave fill levels, no more than 3 ft. thick, were also recommended (Giespie 1871:167-168). Jervis undoubtedly knew of these techniques and may have used them. Unfortunately, his journal, mentioned earlier, does not reveal the specific construction methods used in the site area (Jervis 1847-1849).

Among the general engineering problems encountered were the rugged shoreline and the difficulties of running and maintaining the line in the numerous bays (Jervis 1850:8). Therefore, it is possible some contractors may have found it neces-

sary to use timber to fashion and stabilize embankments. If so, these constructions would differ from those planned by Jarvis, and the fill, which conceivably would not be randomly deposited but layered, would contrast with that deposited solely for land reclamation.

Comparison of water levels and fill depths suggests that a great deal of fill has been introduced across this portion of the site. This is based on the 1 to 3 ft. water depth at ebb tide noted by Jarvis, and the fill depths recorded in borings from the site's western periphery (14 to 28 ft. below the current surface). Foundation excavations in this area should determine whether portions of the fill are systematically deposited for embankment construction or merely randomly deposited for land reclamation. If deep enough, they might also reveal the techniques used to support the railroad embankment that ran approximately 100 ft. north and south of the 63rd Street mid-line.

MANHATTAN WEST Artifact Catalogue

Cat. No.	Depth in Ft.	Art. No.	Material	Description	Ware/Color	Count	Remarks/Date
S1	0-4	1	Ceramic	Dish, sm oval, undec; almost whole	W/G	2	(Post 1820)
		2		Unid hollowware frag, undec	W/G	1	(Post 1820)
		3		Unid hollowware frag, undec	W?G	1	(Post 1820)
		4		Misc frags, undec	W?G	3	Unrelated, unnumbered (Post 1820)
		5		Plate frag, undec	P	1	
		6		Cup? body frag, undec	P	1	
		7		Misc frags, undec	P	3	Unrelated, unnumbered
		8		Plate?/tile? frag	S?	1	Unglazed
		9	Glass	Unid frag, molded?	C	1	Unnumbered
		10		Bottle? frags, misc	C	2	Unnumbered
		11		Bottle frags, unrelated	G	3	Wine? bottle frags; unnumbered
		12		Bottle frags, exfoliated	Am	2	Unnumbered
		13		Misc frags, 2 flat	A	5	3 poss bottle glass, 2 window; unnumbered
		14		Unid frag, sm, thin	C	1	Unnumbered
		15		Bottle? frag, side,	C/F	1	Extract? bottle frag, weathered
		16		Tableware? frag, red flash	C/R	1	Unnumbered
		17	Metal	Nails, wrought, badly corroded		2	Corroded but identifiable; unnumbered
		18		Unid metal frag, strip		1	
		19		Unid rolled frag		1	Corroded
		B1	Bone	Bone frag, unid, burned, longbone?		1	Unnumbered
		B2	Shell	Oyster shell, whole & frags		11	Plus sm uncounted frags; unnumbered
S2	4-8	1	Ceramics	Soup bowl/dish rim frag, undec	W/G	1	(Post 1820)
		2		Unid hollowware base frag, blue TP	W	1	Large? vessel (Post 1840?)
		3		Unid hollowware frag, sm, tr cobalt	W	1	Cobalt design?/residue (Post 1820)
		4		Unid rim frag, undec	W	1	(Post 1820)
		5		Unid hollowware frag, sm	W/G	1	(Post 1820)
		6		Misc frags	W/G	10	Unnumbered
		7		Plate? rim frag, undec	P	1	
		8		Crock? frag, Albany slip	S?	1	
		9		Mineral water bottle frag, sm	S	1	Imported, prob from Germany
		10		Flower pot frag, sm	R	1	
		11	Glass	Tableware? frags, sm, unrelated	C	2	Unnumbered
		12		Tableware (stem?)/stopper?	G	1	
		13		Bottle frags, unrelated	C	6	Unnumbered
		14		Bottle? frags, unrelated	A	10	2 are flat; poss window glass? unnumbered
		15		Bottle? base? frag	LG	1	
		16		Misc frags	O	2	Unnumbered
		17		Unid frag	T	1	Unnumbered
		18	Metal	Nails		4	Badly corroded; almost whole; unnumbered
		19		Unid frag		1	Badly corroded; unnumbered
		20	Brick?	Unid frags		2	Different materials, but poss brick; one may be a flowerpot frag; unnumbered
		21	Wood	Frag		1	Unnumbered
		22	?	Chalk-like frags		2	Unnumbered
		23	Mortar/Plaster	Frag		1	Unnumbered
		24	Leather	Shoe, heel & sole, hand sewn & nailed; tr of upper; square toe		1	Although unlaced, wear on heel suggests a left shoe; may be mate to S3-28
		B1	Bone	Rib bone frag, sm mammal (Ovis/Capra?)		1	Tr of butchering, poss lamb chop frag; unnumbered

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Cat. No.	Depth in Ft.	Art. No.	Material	Description	Ware/Color	Count	Remarks/Date
		B2	Shell	Oyster (7) & Clam (1) frags		8	Unnumbered
S3	8-11+	1	Ceramic	Cup rim frag, thick body, undec	G	1	Tr of handle attachment (Post 1840)
		2,4		Saucer rim frags (M), fluted w/ well for cup	W/G	2	(Post 1840)
		3		Plate/cup rim frag, undec	G	1	(Post 1840)
		5		Tableware, unid, base frag, undec	G	1	No evidence of wear (Post 1840)
		6		Tableware, unid, blue TP	W	1	Floral pattern, light blue (Post 1840)
		7		Misc frags, undec	W/G	5	Unnumbered
		8		Plate frag, rim and base, undec	P	1	Similar to tableware from Mugavero Site, a mid to late 19thC site in Brooklyn (Geismar 1992)
		9		Cup base frag, fluted	P	1	Similar to teaware from above mentioned Mugavero Site
		10		Figurine frag, sm human figure	P	1	Stomach & navel depicted; sm object
		11		Unid frag, sm, banded	S?	1	Green, blue, & white bands
		12		Storage vessel frag, sm, Albany Slip interior, salt glaze	S		
		13		Storage vessel frag, sm, Mustard glaze, Albany slip int	S	1	
		14	Glass	Bottle body frag, embossed	C	1	"...[Ne]W YO[ork].../[o]NE HAL..."
		15		Bottle base, French square, embossed, snap case	C	1	"...CO.../...ORT"
		16		Bottle base? frag	A	1	Interior of base
		17		Misc frags, unrelated	C	4	Unnumbered
		18		Misc frags, unrelated	A	19	15 are flat glass; unnumbered
		19		Bottle body frag	Am	1	Unnumbered
		20		Bottle frags	O	2	Unnumbered
		21	?	Flat disk, 1/2 in diam w/ hole at the top		1	Composite?; to be checked
		22	Metal	Nail frag, wrought		1	
		23		Nails, badly corroded		9	1 wrought?; unnumbered
		24,25	Ceramic	Tile? frags w/ mortar, unid		2	Remnants of chimney flue?
		26	Stone	Slate pencil tip frag		1	
		27	Wood	Frags, unid, unrelated		5	Unnumbered
		28	Leather	Shoe frags, including heel & part of sole, w/ part of upper; hand sewn and nailed		5	Wear on heel suggests right shoe; possible mate to S2-24
		B1	Bone	Distal epiphysis of med mammal bone		1	Juvenile animal
		B2		Rib frag, unid mammal		4	Unnumbered
		B3		Bird, unid, frags		3	Prob chicken (Gallus gallus); unnumbered
		B4	Shell	Frags, oyster (3) & clam (3)		6	Badly eroded; clam very fragmentary; unnumbered
		F1	Seeds	Peach/nectarine pits, whole & frags		5	4 whole, 1 frag; 2 quite sm; unnumbered

ABBREVIATIONS: diam=diameter; frag=frag; int=interior; (M)=mend; med=medium; prob=probably; poss=possibly; sm=small; tr=trace; undec=undecorated; unid=unidentified; (W)=whole

COLOR ABBREVIATIONS-GLASS: A=aqua; Am=amber; C=clear; C/F=clear/frosted; C/R=clear/red; G=green; LG=light green; O=olive; T=teal

WARE ABBREVIATIONS-CERAMICS: G=granitware; P=porcelain; R=redware; S=stoneware; W=whiteware; W/G=whiteware/granitware