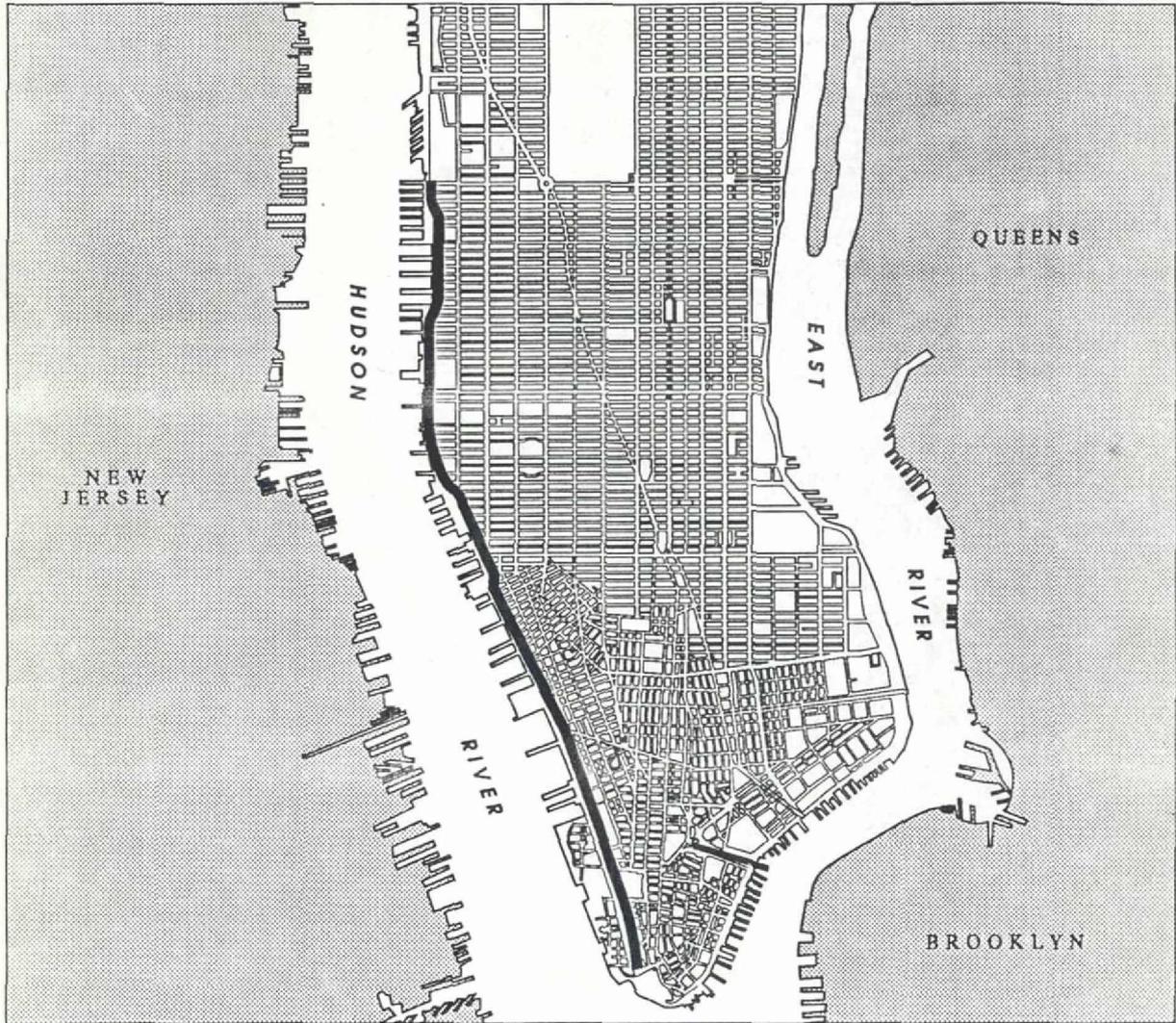


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R O U T E 9 A

RECONSTRUCTION PROJECT



DRAFT

ARCHEOLOGICAL ASSESSMENT REPORT

BATTERY PLACE TO HARRISON STREET

March 1990

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R O U T E 9 A
RECONSTRUCTION PROJECT

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ARCHEOLOGICAL ASSESSMENT REPORT
BATTERY PLACE TO HARRISON STREET

March 1990

Prepared By:

Hartgen Archeological Associates, Inc.
in association with
Historical Perspectives, Inc.

Prepared For:

New York State Department of Transportation
in cooperation with
Federal Highway Administration & The City of New York

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EXECUTIVE SUMMARY

INTRODUCTION

The Route 9A Reconstruction Project from Battery Place to West 59th Street has been undertaken in a collaborative effort between the New York State Department of Transportation (NYSDOT), the City of New York, and the Federal Highway Administration (FHWA). The planning and engineering process of the proposed reconstruction entails preparing an Environmental Impact Statement (EIS). As part of this EIS, potentially sensitive archeological resources within the archeological study area are being identified, and the effects of prior disturbance (demolition, excavation, or a change in historic context) on these cultural resources are being determined. The object of this study is the preparation of a list of sites which may meet the criteria for nomination to the National Register of Historic Places and an assessment of the impacts of the various alternatives on each of these resources. Hartgen Archeological Associates, Inc. (HAA), in association with Historical Perspectives, Inc. (HPI), has undertaken preparation of an inventory of potential archeological resources in the archeological study area, an investigation of prior disturbance, and the final assessment of the impact of the proposed project alternatives.

The sites preliminarily identified as potentially sensitive archeological resources for this study area of the Route 9A project area will be re-evaluated after completion of research on the entire project area.

ARCHEOLOGICAL STUDY AREA

The proposed Route 9A Reconstruction Project spans from Battery Place to West 59th Street. This report is concerned with the section between Battery Place and Harrison Street. On the west, the study area is bounded by the U.S. Bulkhead line. On the east, it is bounded by the west ends of numbered city blocks and includes sidewalks along the block ends. At cross roads the study area extends an additional 50 feet east to include the street and the sidewalks. There are two exceptions to this:

- o At Chambers Street, a proposed pedestrian overpass required the project bounds to include approximately an additional 100 feet of land to the east, on the north side of the street.
- o At Battery Place the eastern boundary is 50 feet east of State Street, with 50 feet north and south on Broadway and State Street included.
- o The study area then runs north up Greenwich Street and turns west to join West Street at Joseph P. Ward Street.

METHODOLOGY

Background research was conducted to establish a prehistoric and historic framework for the interpretation of potential resources. As part of this context, general categories were defined for these resources. The following categories were utilized for classifying potentially sensitive archeological remains:

- A) prehistoric remains
- B) historic remains
 - 1) dwellings and associated outbuildings
 - 2) industrial buildings/complexes
 - 3) piers and wharves
 - 4) landfill
 - 5) other

Archeologically sensitive areas were identified through archival and cartographic research. Several phases of research have been performed including documentary research, cartographic analysis, and site files review at numerous repositories in Manhattan and Albany, New York. Reports from previous archeological projects and the New York City Landmarks Preservation Commission's predictive model from archeological site formation for New York City were consulted for data pertinent to the Route 9A project area.

A block by block summary of development in the project area was compiled based on this research. The disturbance record, which includes road construction and reconstruction, utility line installation, and general demolition activities, has been established based on utility maps and the documented historical development of the area.

Cartographic reconstruction of the prehistoric shoreline is necessary in order to assess the potential for deeply buried prehistoric archeological sites to exist beneath landfill. Data from the cultural resource report prepared for the Westway project in 1983 by Historic Conservation and Interpretation, Inc. (HCI) was applicable to this section of the project area since it addressed potential sensitivity between Battery Place and West 44th Street. Specific areas categorized as potentially sensitive for prehistoric habitation were identified based on topography and characteristics known to be conducive for prehistoric habitation, now deeply buried beneath nineteenth century fill and river silts.

PREHISTORIC SENSITIVITY

Professional and amateur archeologists have been excavating prehistoric sites on Manhattan since the late nineteenth century. However, until after the 1930s, their field techniques and recording procedures were not comparable to the more scientific procedures that are used today. The data from the earlier excavations are generally ambiguous so that findings cannot be assigned to a particular period and properly assessed. Thus it is necessary to continue trying to gather additional information on prehistoric lifeways in the metropolitan New York area.

HCI identified nine areas as having the potential to possess prehistoric archeological remains. These potential sites lie between Morris and Harrison Streets, and were recorded as Areas 1 through 7, 10, and 18. These areas are now between 30 to 50 feet below the current sea level. We consider it impractical to attempt the recovery of such resources, since the construction of docks, piers, and wharves, and constant dredging of the river bottom may have disturbed these potential resources. The water depth also hinders the ability to excavate such resources. Therefore, it is considered untenable to consider the recovery of such deeply buried prehistoric resources.

HISTORIC SENSITIVITY

Archeologists have become increasingly concerned with research issues focusing on the development of urban landscape and the development and change in waterfront construction, two issues important for understanding the process of urbanization. Resources that can potentially address these issues include: 1) early dwellings or 2) industrial buildings and complexes located along the shorefront, 3) piers and wharves, 4) possible sunken ships, and 5) landfill, including architectural features such as retaining devices. The significance of potential cultural resources located within the project area must be examined in this light.

Historical development has altered many of the natural topographic features that once characterized Manhattan. Prior to filling and development during the nineteenth century, the area was characterized by knolls and coves along the Hudson River and rolling hills with intermittent streams. Development was slow in this area since the shores of the Hudson River were steep and rocky and undesirable for docking. Shoreline development has contributed to the disturbance of these natural topographic features.

The extensive documentary and cartographic research to date for the project area between Battery Place and Harrison Street has revealed the location of several areas potentially sensitive for cultural remains. Prior impacts were assessed and a final list of areas deemed to be potentially sensitive was created. A preliminary evaluation of the resources in each of five categories as applicable is presented here. These include dwellings and outbuildings; industrial complexes; piers and wharves; landfill; and other. The conclusions presented may be altered when research on the entire project area is completed and a final list of all potentially sensitive areas along the entire length of the project corridor is compiled.

Numerous piers and wharves dating to the eighteenth and nineteenth centuries were located in the current route of West Street and Marginal Street and may have become part of the landfill. Construction techniques varied through time and with individual owners. It would be impractical to attempt either excavation or avoidance of all of these features. However, the importance of such resources cannot be denied. The sample chosen and presented here for further consideration is preliminary and was based on age of construction, affiliation of the owner, and the potential for answering specific questions regarding shoreline development. It includes:

Route 9A Reconstruction Project

- o Old Pier 13, also known as Swartwouts Wharf, was located between Albany and Cedar Streets in the Albany Basin. Dating from c. 1796-1846, it became part of West Street landfill by 1839-1846. [Clarification of the building sequence for the wharves and piers is available in the Block History section of this report.]
- o Rhinelanders Dock, dating from c. 1797-1824, was located between Park Place and Murray Street and became part of West Street landfill by 1824.
- o Rhinelanders Shipyards, c. 1803-1808, was located between Warren and Chambers Streets and became part of West Street landfill by 1808. This site is particularly sensitive because it has the potential to include sunken ships and discard materials associated with the shipyard.
- o New Pier 25 was associated with the Hoboken Ferry from c. 1826-1902. Located at the foot of Barclay Street, it became part of Marginal Street landfill between 1897-1902.
- o Dating from c. 1827-1879, New Pier 29 was located at the foot of Warren Street and became part of Marginal Street landfill between 1874-1879.
- o New Pier 34, located between Jay and Harrison Streets, provided docking for Rondout and Kingston Boats from c. 1836-1902. It became part of Marginal Street landfill between 1897-1902.
- o New Pier 4 was associated with Steam Ships for Charleston from c.1852-1913. Located between Battery Place and Morris Street, it became part of Marginal Street landfill by 1902-1913.

Identified landfill features which may warrant archeological investigation are possible sunken ships. Documentation indicates that a ship sank at the Chambers Street wharf in 1827. A second ship may be located at the intersection of Warren and West Streets. Further documentary research on these two locations may assist in determining whether the ships may exist as potentially sensitive archeological resources.

Only one area, between Vesey and Barclay Streets, was identified through documentation as containing cribbing used as a landfill retaining device. It is highly probable that other undocumented piers, wharves, quays, and fill retaining devices were incorporated into the fill during the land reclamation process. Since a diverse number of methods of shoreline expansion were used in Manhattan, varying with age of construction and individualistic techniques, these resources are considered an important research issue toward documenting the development of the city.

Battery Place to Harrison Street

Fort Amsterdam and an associated well, both dating to the seventeenth century, were in the route of Battery Place near the intersection of Broadway and State Street. The fort protected the first settlement on Manhattan. Potentially the well could provide archeologists with a neat time capsule documenting life at this first Manhattan fort. Further research is necessary to determine the extent of disturbance and the likelihood that these resources still exist.

As stated above, this is a preliminary evaluation and the conclusions presented may be altered when research on the entire project area is completed.

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A. INTRODUCTION

The Route 9A Reconstruction Project from Battery Place to 59th Street has been undertaken in a collaborative effort between the New York State Department of Transportation (NYSDOT), the City of New York, and the Federal Highway Administration (FHWA). The planning and engineering process of the proposed reconstruction entails preparing an Environmental Impact Statement (EIS). Part of this EIS entails identifications of potentially sensitive archeological resources within the project area, and then to determine the effects of prior demolition, excavation, or a change in historic context on these cultural resources. The result of this study is a preparation of an inventory of probable archeological sites, and recommendations of which sites are potentially significant and may meet the criteria for National Register of Historic Places nomination. This introductory chapter provided for each individual report will eventually be replaced by a final overall introductory section.

Vollmer Associates is coordinating the preparation of the EIS, while Allee King Rosen and Fleming, Inc. (AKRF) is directing the cultural resources portion of the EIS. Hartgen Archeological Associates, Inc. (HAA), in affiliation with Historical Perspectives, Inc. (HPI), has undertaken preparation of an inventory of potential archeological resources in the project area, an investigation of prior disturbance, and an assessment of the impact of the proposed project alternatives.

The proposed Route 9A Reconstruction spans from Battery Place to West 59th Street. This section of the report is concerned with the section between Battery Place and Harrison Street (Figure 1-1). The archeological study area bounds are as follows: The northern boundary is Harrison Street and the southern boundary is Battery Place. On the west the area is bounded by the U.S. Bulkhead line. On the east it is bounded by the west ends of numbered city blocks, and includes sidewalks along the block ends. At cross roads the project area extends an additional 50 feet east to include the first 50 feet of the crossroad and sidewalks on the north and south borders of the road. There are two exceptions to this. At Chambers Street, a proposed pedestrian overpass required the project bounds to include approximately an additional 100 feet of land to the east, on the north side of the street. In addition, the eastern boundary at Battery Place is 50 feet east of State Street, with 50 feet north and south on Broadway and State Street included. The project area then runs north up Greenwich Street and turns west to join West Street at Joseph P. Ward Street. This deviation resulted in several blocks being included within the project area bounds (Figure 1-2).

The Miller Elevated Highway is locally referred to as the West Side Highway (hereafter referred to as the Highway). Marginal Street borders between the 70 foot span of West Street and the U.S. Bulkhead line to the west. Battery City Park is located between Battery Place and Duane Street, west of Marginal Street. Prehistorically, Battery Place east of Greenwich Street was on original land. In

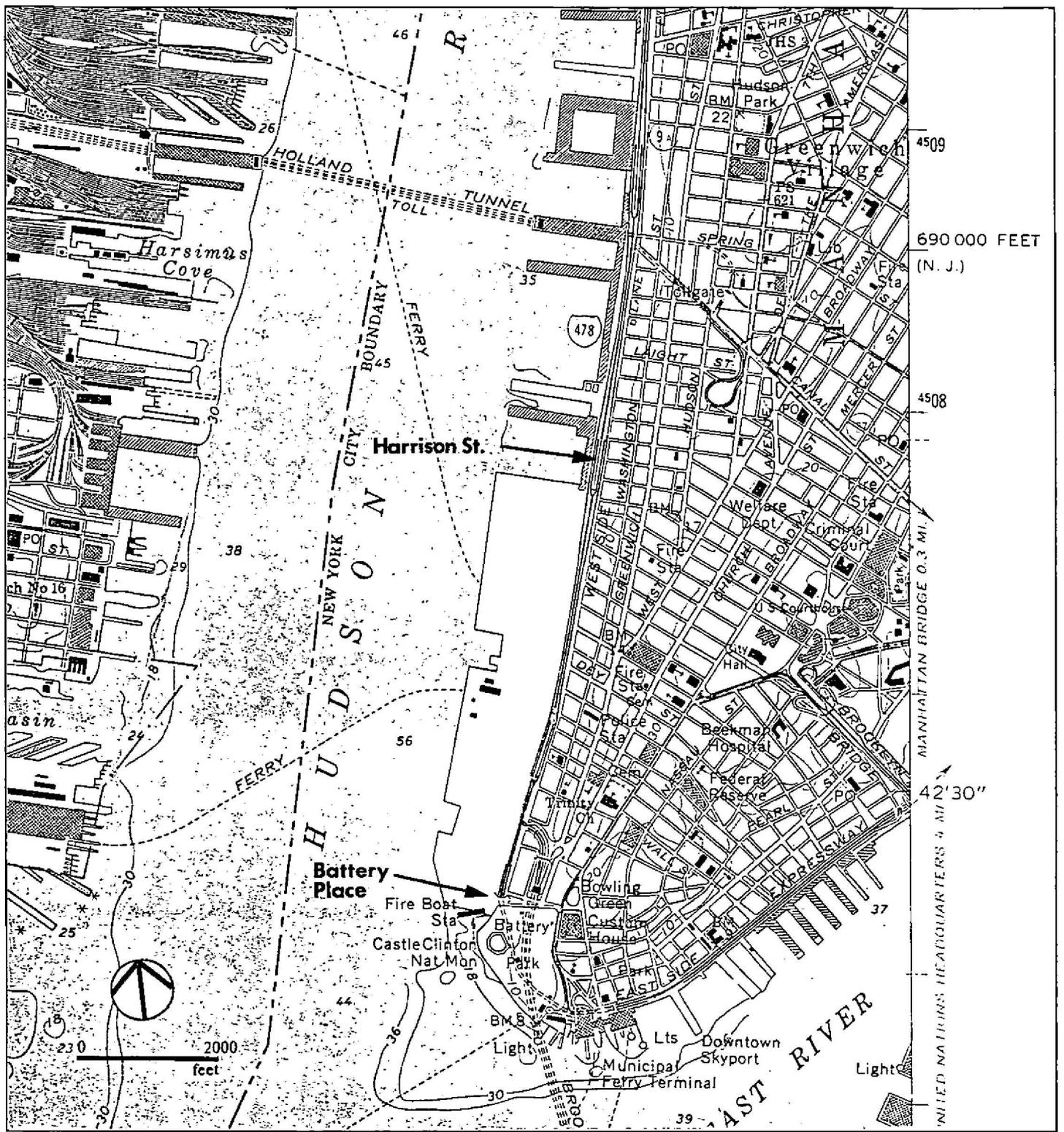
Route 9A Reconstruction Project

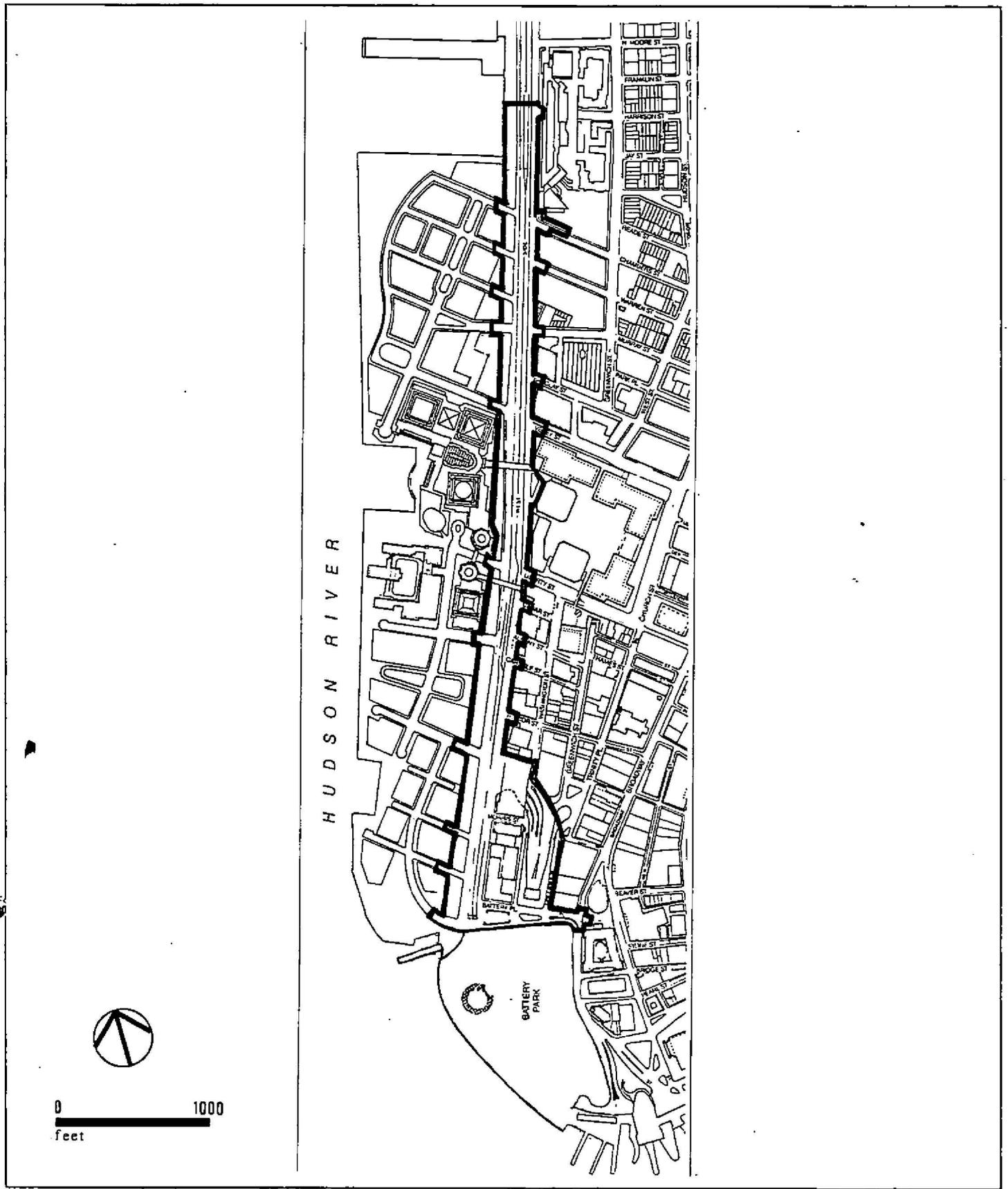
other words, it was an exposed landform prior to European settlement. The project area to the west, including the path of West Street and Marginal Street, was land beneath water. At various points in time following deglaciation about 15,000 years ago, water levels were lowered exposing land along the shore. The width of the Hudson River was reduced, and areas submerged at the time of European settlement were exposed for habitation by various flora and fauna. These drowned shorelines were probably once utilized by Native Americans for resource procurement and processing, as well as habitation. The estuarial environment and nearby uplands would have provided necessary resources to sustain prehistoric populations.

The shoreline reconstruction compiled by Historic Conservation and Interpretation, Inc. (HCI) in 1983 for the Westway project has been utilized to determine the degree of prehistoric sensitivity for those areas submerged at the time of European settlement. The reconstruction of the drowned shoreline identified areas having the potential to possess Native American remains is based on topographic and environmental features. A number of potentially sensitive areas were identified by HCI between Battery Place and Harrison Street, now beneath 30 to 50 feet of landfill.

Historically, development and landfilling was slower along the Hudson's shoreline than on the East River since the Hudson was deep and difficult to fill, and the East River accommodated the needs of early shippers. However, by 1628 a gristmill and fort stood near the intersection of Battery Place and Broadway, within the project area. As new technologies were introduced, the use of the Hudson River increased and filling moved the shoreline west from its original route along Greenwich Street west to include West Street and Marginal Street. The process of landfilling was slow, and often garbage, sunken ships and shoreline features associated with shipping, became part of the fill. The remnants of these activities have been encountered in a few places in lower Manhattan and probably exist in the project area.

The following archeological study addresses the potential prehistoric and historical archeological sensitivity of the project area between Battery Place and Harrison Street. The analysis has provided a synopsis of these potentially sensitive areas, together with a record of the subsequent disturbance to these areas. A final list was compiled to present those features considered to be archeologically sensitive and previously undisturbed.





ROUTE 9A RECONSTRUCTION PROJECT

Legend
 — Archeological Study Area

Archeological Study Area Boundaries
 Battery Place to Harrison Street

Figure 1-2

A. METHODOLOGY

Background research was conducted to establish a prehistoric and historical framework for the interpretation of potential resources. Areas of prehistoric and historical sensitivity were identified through archival and cartographic research. The previously compiled Cultural Resource report prepared for the Westway project in 1983 by Historic Conservation and Interpretation, Inc., was applicable to this section since it addressed potential sensitivity between Battery Place and West 44th Street.

The focus of the prehistoric sensitivity section of the 1983 Cultural Resource report for Westway differed from the focus of this report. The previous project area encompassed a large area outboard of the current shoreline together with several inboard interchanges, and only extended as far north as West 44th Street. The research conducted in 1983 entailed reconstructing the prehistoric shoreline beneath the West Side Highway landfill and the outboard area. Prehistoric Sensitivity was assessed based on prehistoric topography and the degree of likelihood that Native Americans once found such topographic features attractive for subsistence and settlement. The final analysis sufficiently assessed prehistoric archeological sensitivity for the current project area south of West 44th Street based on current theoretical and methodological issues. It was not necessary to conduct any additional research for the corridor south of West 44th Street.

The historic research conducted for the Westway project also differed from that conducted in this report due to the differences in project area boundaries as well as changes in methodological and theoretical concerns. Research concerns have changed through time as new techniques became available and topics of investigation became more refined. The research conducted for this report is guided by such projects. The previous report provided details of historical development at interchange areas, outside of the current project area. Because of boundary differences, a cartographic reconstruction of historical development in the current corridor has been compiled, and landowner lists and building histories were acquired for areas where the Highway traversed previously lotted city blocks. Episodes of filling, construction, and disturbance were also traced for the entire length of the corridor.

Currently, several phases of research have been performed including documentary research, cartographic analysis, and site files review. The scope of each of these is presented below. The disturbance record has been established based on utility maps and the documented historical development.

DOCUMENTARY RESEARCH

A literature search was conducted of available ethnographic and historic accounts, and reports and data pertinent to the historical and prehistoric archeological record. Archeological reports for the surrounding area were reviewed. In addition, permit applications from various state, city and federal agencies were examined. Where

Route 9A Reconstruction Project

available, photographic, print and clipping files were also reviewed. The following libraries and agencies were contacted and researched in New York City and Albany.

American Museum of Natural History
Holland Society Library
Municipal Art Society Library
Museum of the City of New York-Reference Collection
New York City Landmarks Preservation Commission
New York City Municipal Reference Library
New York City Municipal Archives
New York City Society of Mechanics and Tradesmen Library
New York Historical Society Library
New York Public Library
New York State Library-Manuscripts and Special Collections
New York State Museum
New York State Office of Parks, Recreation and Historic Preservation (SHPO)
Port Authority of New York and New Jersey
Regional Plan Association Library
Society of Engineers Library
South Street Seaport Library
U.S. Army Corps of Engineers

CARTOGRAPHIC ANALYSIS

Historical maps and atlases were obtained, and were examined to establish the presence of standing structures and features within the project parcel throughout documented history, and to establish the prehistoric topographic and environmental conditions. Numerous maps and atlas were reviewed. It was sufficient to review maps and atlases at five-to-ten year intervals, since buildings of shorter duration would probably not greatly contribute to the archeological record. In addition, short-term temporary structures which would have stood for less than five-to-ten years, usually lack permanent subterranean foundations and therefore do not cause substantial disturbance.

In addition to the above libraries researched, the Olmstead Center in Flushing, Queens was contacted for maps of early parks existing within the project area. Maps at the United States Army Corps of Engineers were also reviewed for shoreline disturbance, at specific loci and time periods. At the Borough President's Office, the Topographic Bureau provided historical and geological maps.

PROPERTY RESEARCH

In order to determine the previous owners of land currently within the bounds of the project parcel, and the development and subsurface disturbance of these parcels, land transaction records were reviewed at the New York City Department of Finance, Index Division. Individual lot development was followed by obtaining Block and Lot files and microfiche from the New York City Buildings Department. This

Chapter III:

level of research was limited to reviewing ownership records, and did not include deed research. If appropriate, this documentation would be reviewed during the Stage 2 investigations.

SITE FILES REVIEW

The New York City Landmarks Preservation Commission (NYCLPC) was contacted for information on culturally significant areas previously identified in the project area and vicinity. In addition, the NYCLPC provided a predictive model of prehistoric site location for the project area. Site files were also reviewed at the New York State Museum and the State Office of Parks, Recreation and Historic Preservation.

FIELD VISIT

A walkover survey was conducted of the entire project area between Battery Place and Harrison Street, and photographs were taken at each intersection of a cross road with Battery Place and West Street. Photographs were taken facing north and south at each corner on Battery Place, and east and west at each corner on West Street. Additional photographs were taken as deemed necessary.

A. PROJECT AREA CONDITIONS

ENVIRONMENTAL CONDITIONS

During the Pleistocene period, ice advanced in North America four times. In the last 50,000 years, the Wisconsinian period, ice was 1,000 feet thick over Manhattan. Gravel and boulders deposited at the ice sheet's melting margin formed Long Island about 15,000 years ago (Kieran 1982:26). During the last 10,000 years, glacial till and outwash was covered by the fluvial deposits of the Hudson River. Sea levels have gradually risen as glaciers retreated, and the velocity of the Hudson River has decreased (Vollmer Associates 1989:6). Estuary formation in the Hudson began between 11,000 to 12,000 years ago. Between 8,000 and 10,000 years ago, the river experienced a reduction in salinity, which then increased between 7,000 and 8,000 years ago when the estuary obtained its maximum extent (Rutsch et al. 1983:25). The Hudson River is known for freezing up in the winter, with ice floating down river during spring thaws (Luke 1953:10).

The project area between Battery Place and Harrison Street along the Hudson River is part of the embayed section of the Coastal Plain which extends along the Atlantic Coast and ranges from 100 to 200 miles wide (Figure 4-1). The Manhattan prong, which includes southwestern Connecticut, Westchester County and New York City, is a small eastern projection of the New England uplands, characterized by 360 million year old highly metamorphosed bedrock (Schuberth 1968:11). The Manhattan ridge generally rises in elevation towards the north, and sinks towards the south. South of 30th Street, the bedrock dips down several feet beneath the earth surface, and south of Washington Park it plunges down below 100' forming a valley. Near Chambers Street the bedrock rises to less than 100' below the current surface (Barlow 1971:18).

The prevalent gneissoid formation is known as Hudson River metamorphosed rock. The city is characterized by a group of gneissoid islands, separated from each other by depressions which are slightly elevated above tide and filled with drift and alluvium. The southern section of Manhattan is a flat tongue-shaped projection. This area is characterized by drift with underlying crystalline rocks including stratified gneiss, mica schist, hornblende gneiss and hornblende schist with some feldspar and quartz (Gratacap 1909:27).

Historical development has altered many of the natural topographic features that once characterized Manhattan (Gratacap 1909:5). Between Battery Place and Harrison Street, the land now supporting West Street was submerged through at least the early nineteenth century. Prior to that time the Hudson River shoreline meandered between what are now Greenwich and Washington Streets. Prior to historical development, Battery Place, then Marketfield Street, met the Hudson River at approximately Greenwich Street. Here, Battery Place was characterized by low-lying ground (Gilder 1936:3). Below Barclay Street on the Hudson River,

shoreline rocks sloped down to the river. Development has obliterated and hidden these natural topographic features (Gratacap 1909:5).

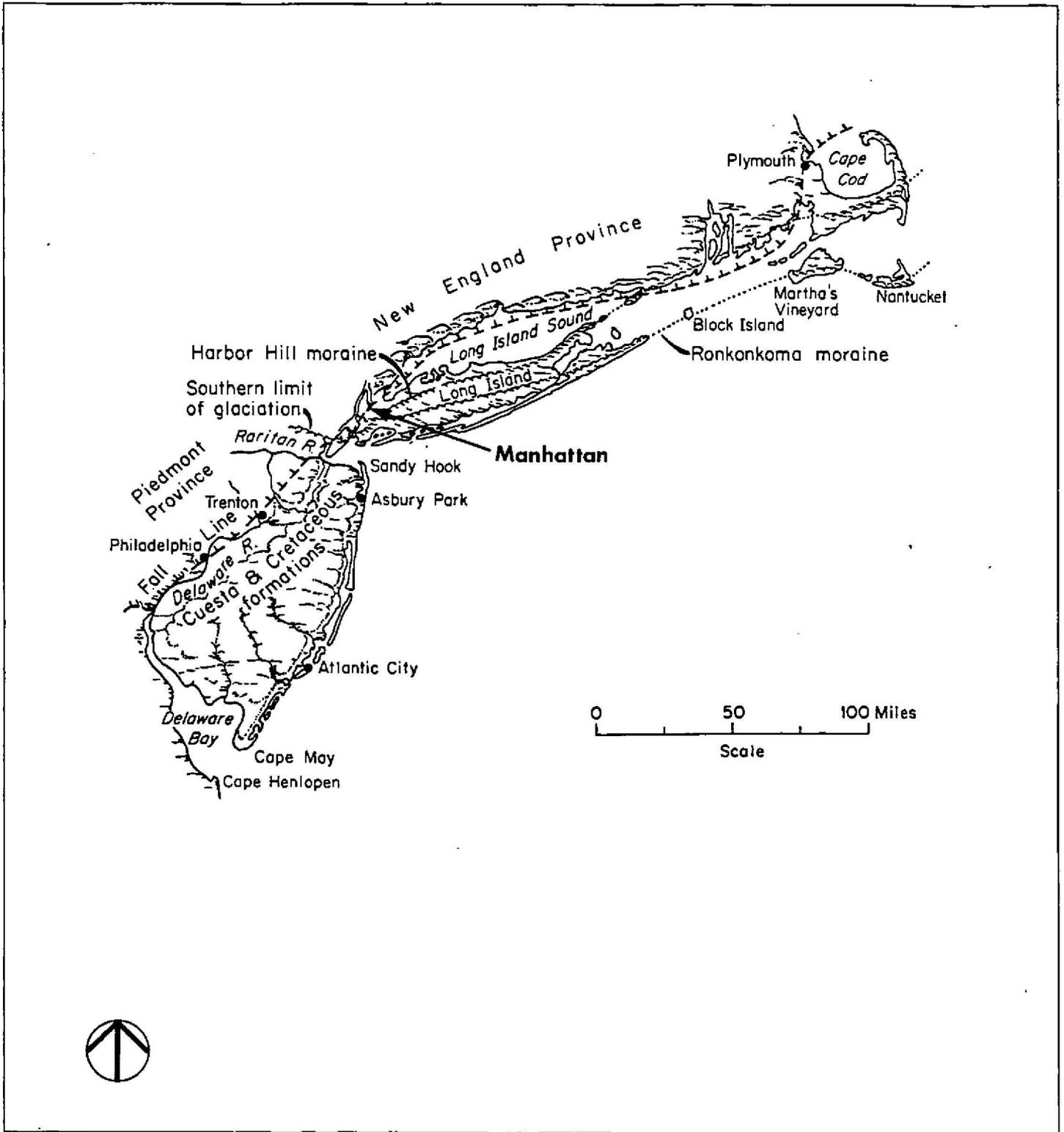
Soil within Manhattan is mostly glacial till, clay, sand, gravel, mud and assorted debris (Kieran 1982:24). Within the project area, the soils include landfill, silty clay, clayey silt and fine sand, silty coarse to fine sand, and glacial till (Vollmer Associates 1989:7). The groundwater level fluctuates with tidal variations in the river (Ibid.:9).

CURRENT CONDITIONS

The original elevated West Side Highway has been removed from this section of the project area, and an at-grade roadway exists where West Street was prior to the Highway's construction. Project area photographs show the current area conditions along the shoreline between Battery Place and Harrison Street, and east on Battery Place (Figure 4-2). The area is generally non-residential, characterized by shipping related facilities and tall office buildings of lower Manhattan. The piers within this section, active through the nineteenth and twentieth centuries, have experienced a decline in use.

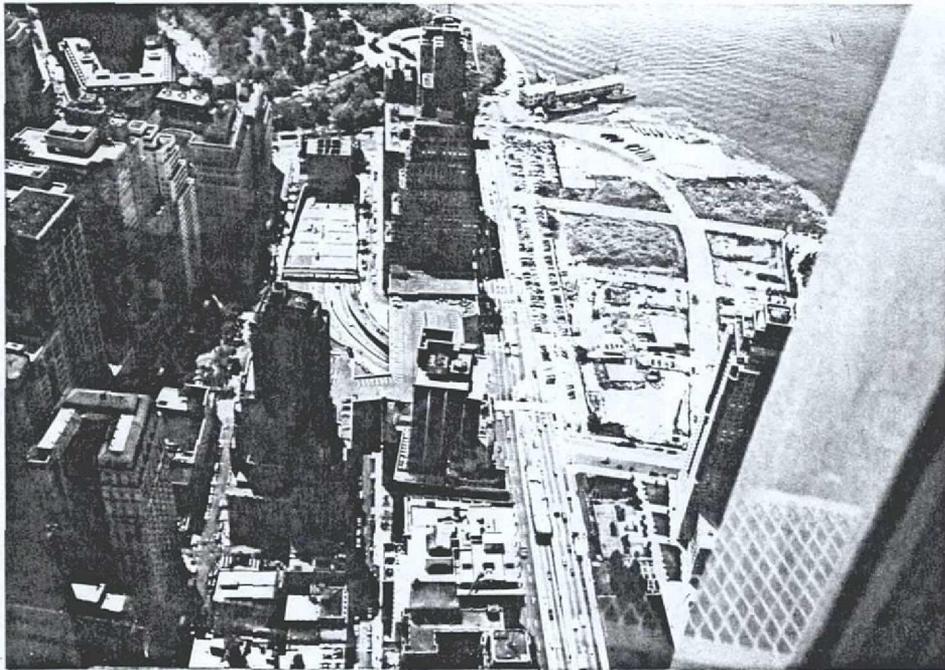
Battery City Park is on the western side of Marginal Street between Battery Place and Chambers Street, and thus the bulkhead can not be viewed between these streets. The bulkhead between Chambers and Harrison Streets is made of timber piles supporting concrete and granite blocks. South of Harrison Street, approximately 3 feet of the capstone is missing, and the land along the bulkhead immediately to the east in Marginal Street, has settled approximately one-and-a-half feet (Mueser Rutledge 1988:4).

There are two PATH tubes beneath the project area in the vicinity of the World Trade Center between Vesey and Liberty Streets. These were built in the late 1800s and early 1900s, and were replaced when the World Trade Center was constructed in the 1970s. In addition, the Brooklyn Battery Tunnel entrance is at the intersection of West Street and Joseph P. Ward Street, in the southern portion of the project area. The tunnel then runs through portions of Block 18 between Battery Place, Morris Street, Greenwich Street and Western Union International Plaza. The project area between Battery Place and Harrison Street is situated partially on original land, and partially on landfill. Subsurface conditions undoubtedly "contain cribs, old bulkheads, sections of old piers, abandoned utility lines and other remnants of abandoned previous construction" (Vollmer Associates 1989:11). More recent utility lines are also present.



Physiographic Map of the North End of the Embayed Section of the Coastal Plain
 Source: Eisenberg 1976:10

Archeological Study Area Site Photographs



Southernmost section of archeological study area
From top left: Battery Park, Battery Place, Brooklyn-Battery Tunnel entrance
From left: Greenwich Street, Washington Street, and West Street at center
View from World Trade Center observation deck 8/22/89

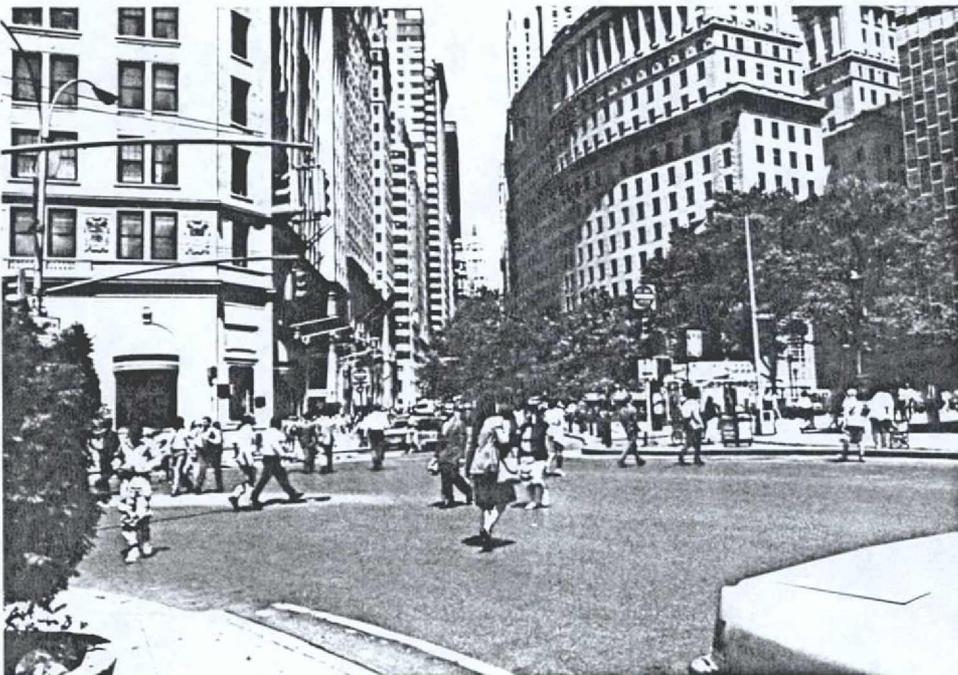


Battery Park and the intersection of State Street, Battery Place, and Broadway
Facing southwest from Bowling Green 8/22/89

This section contains photographs of present site conditions. Included are photographs showing the east and west extensions of the archeological study area into the streets intersecting West Street.



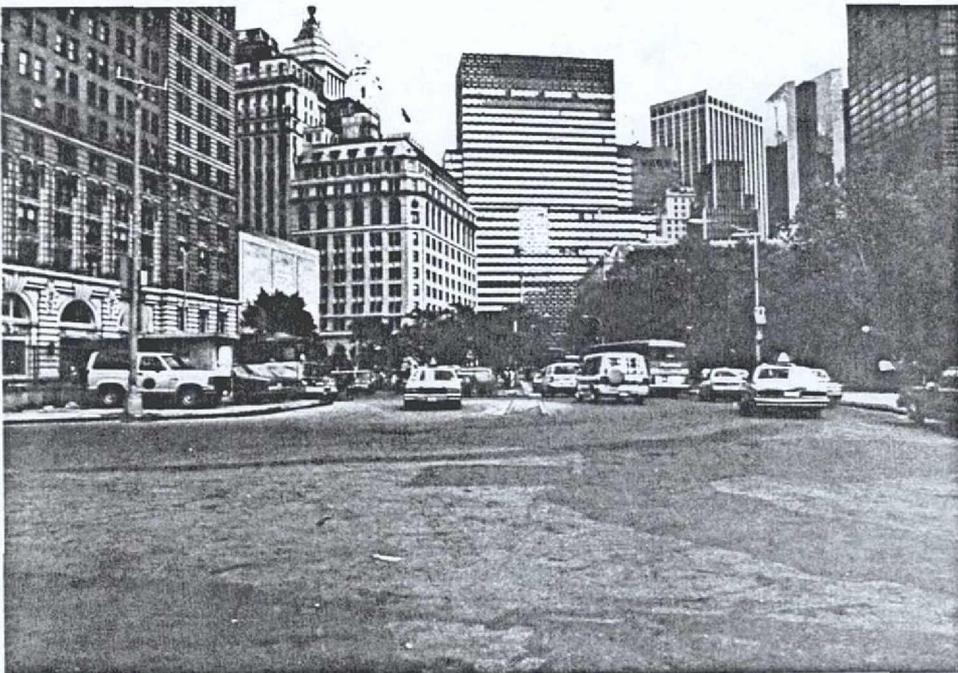
State Street
Facing south from the corner of Broadway and Battery Place 8/22/89



Broadway
Facing north from the corner of Battery Place and State Street 8/22/89

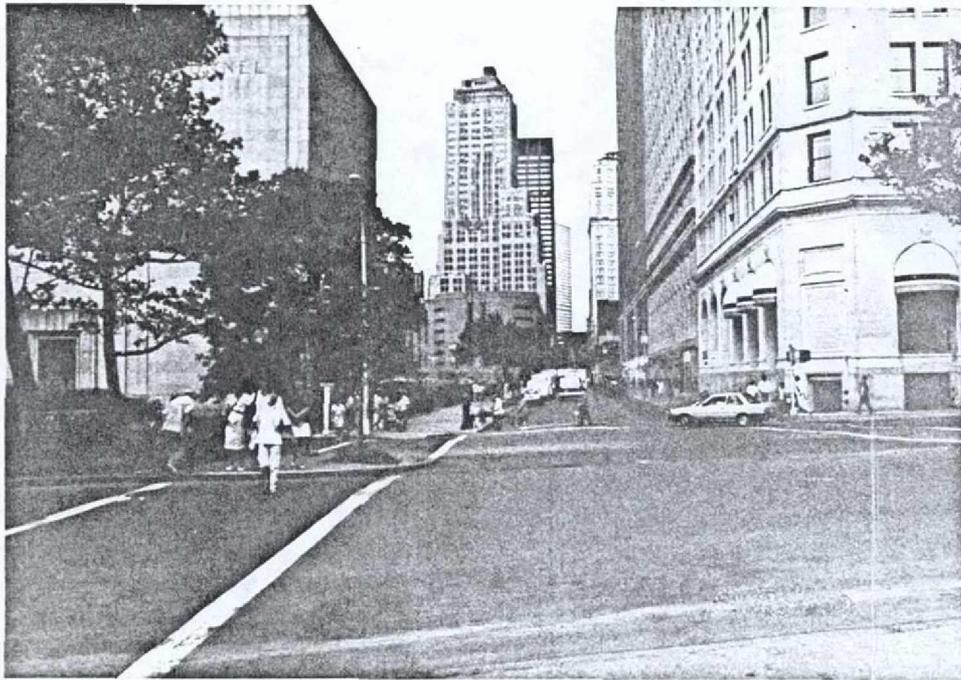


Battery Place
Facing west from Bowling Green 8/22/89



Battery Place
Facing east from West Street 8/22/89

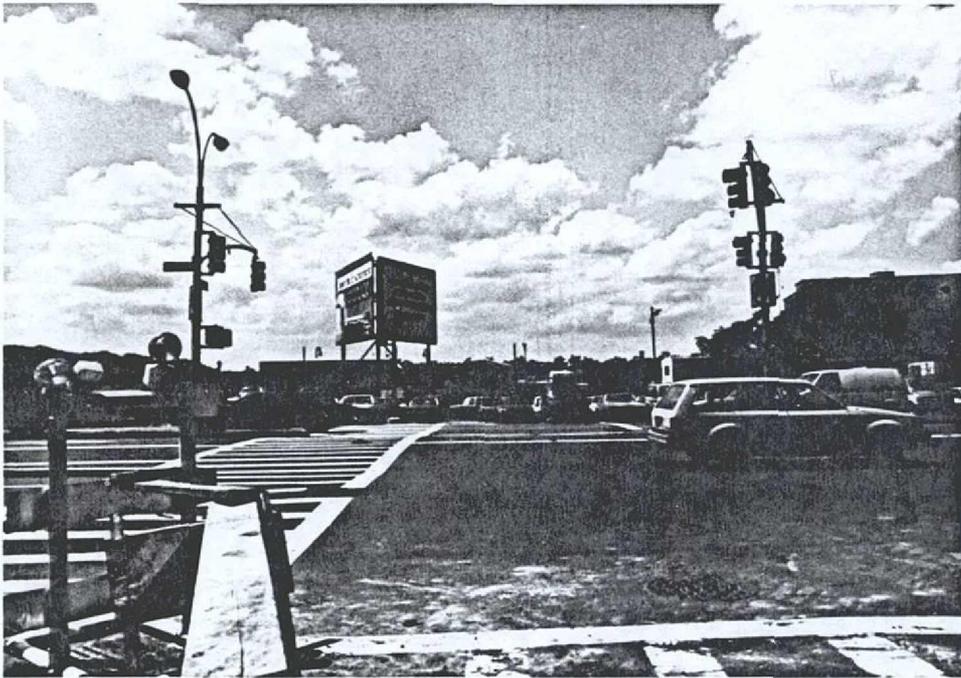
Figure 4-2 (cont'd)
IV-6



Greenwich Street
Facing north from Battery Place 8/22/89



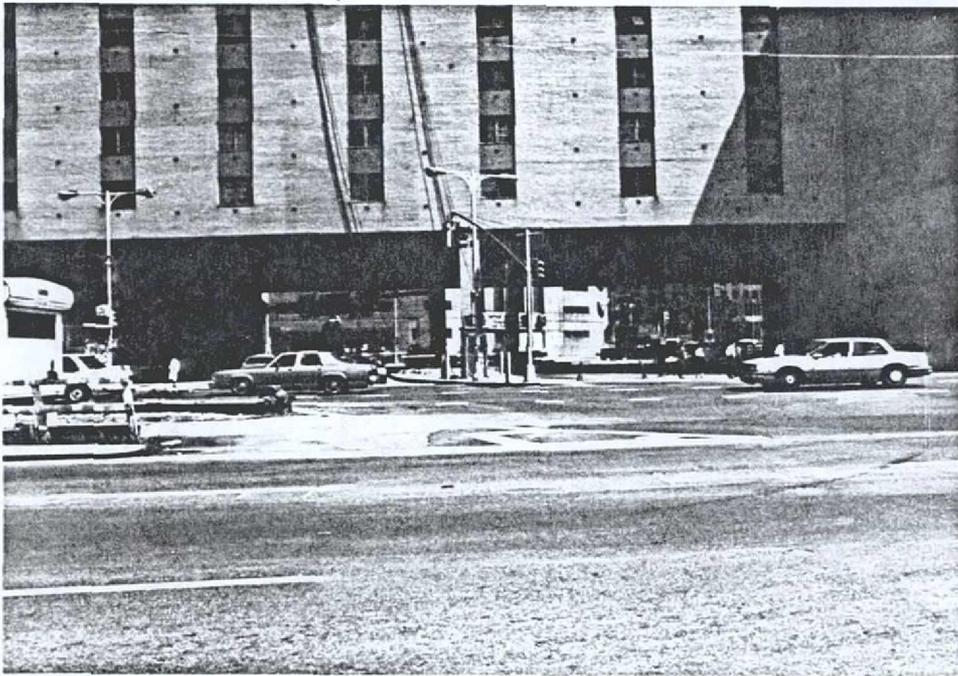
Battery Place and Battery Park
Facing south from Greenwich Street 8/22/89



2nd Place, Parking within Study Area in Marginal Street
Facing west from Morris Street 8/22/89



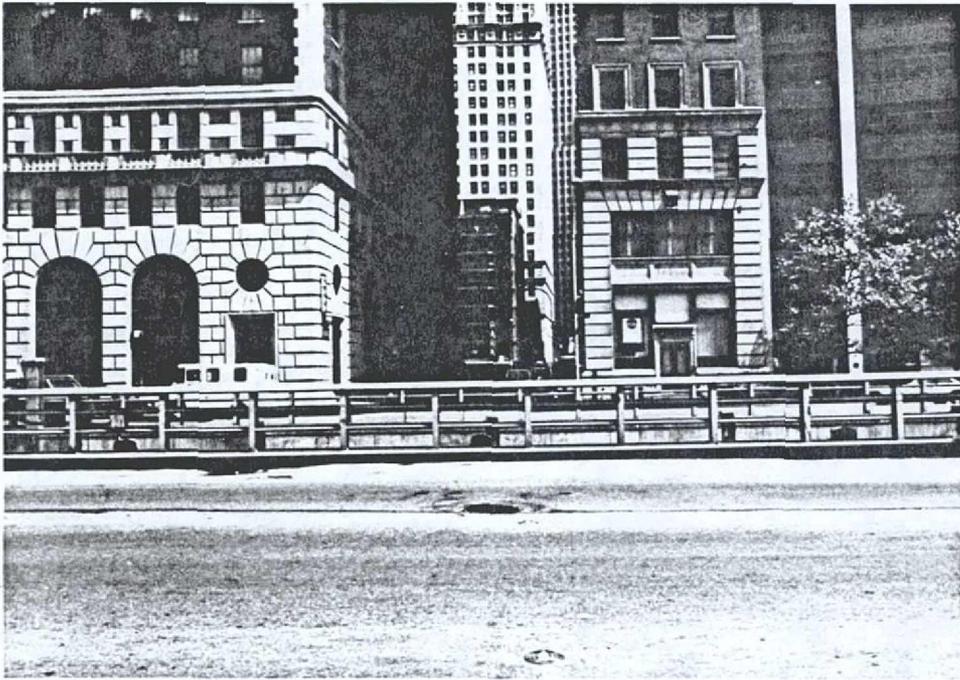
Morris Street
Facing east from Marginal Street



Brooklyn Battery Tunnel West Street ramp entrance
Facing east from Marginal Street between Morris and Rector Streets 8/22/89



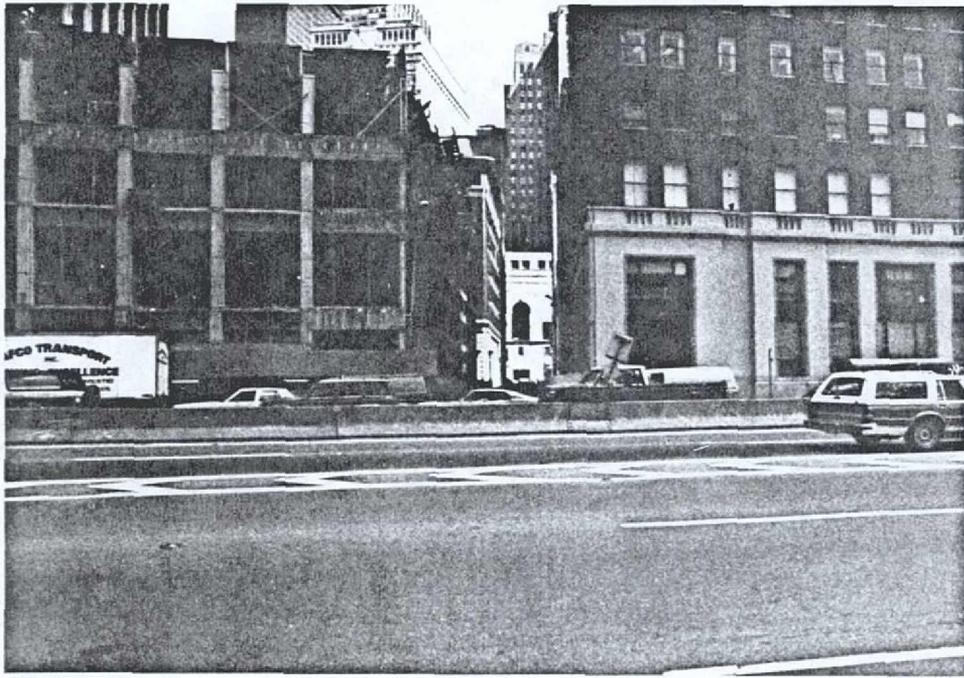
Battery Park City, Parking within Study Area in Marginal Street
Facing west from Brooklyn-Battery Tunnel entrance 8/22/89



Rector Street
Facing east from Battery Park City sidewalk 8/22/89



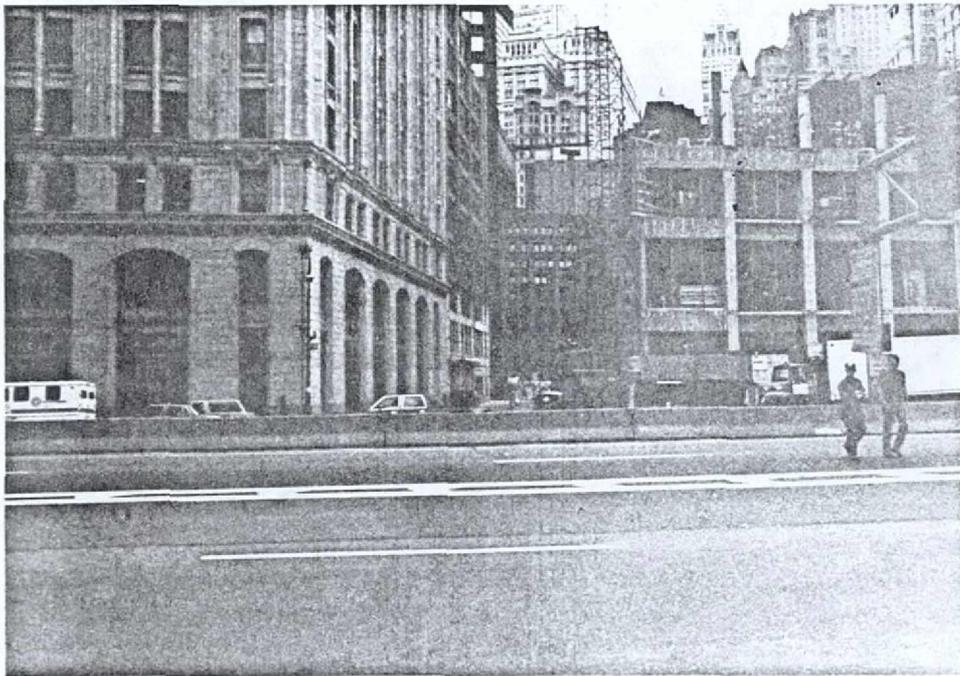
Battery Park City apartment buildings, West Street as Study Area boundary
Facing west from Rector Street 8/22/89



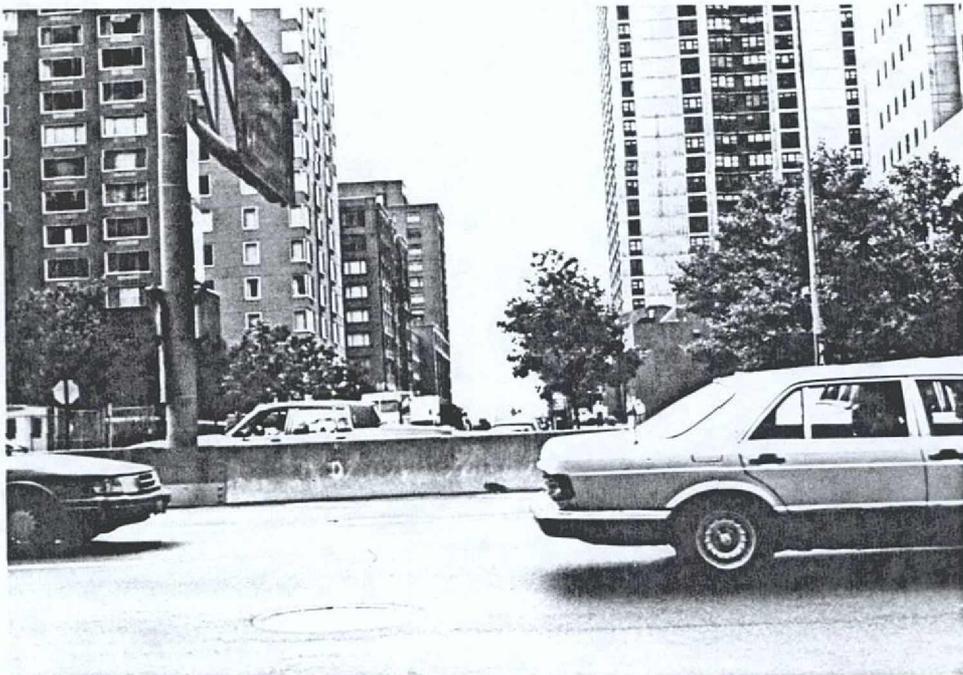
Carlisle Street
Facing east from Battery Park City sidewalk



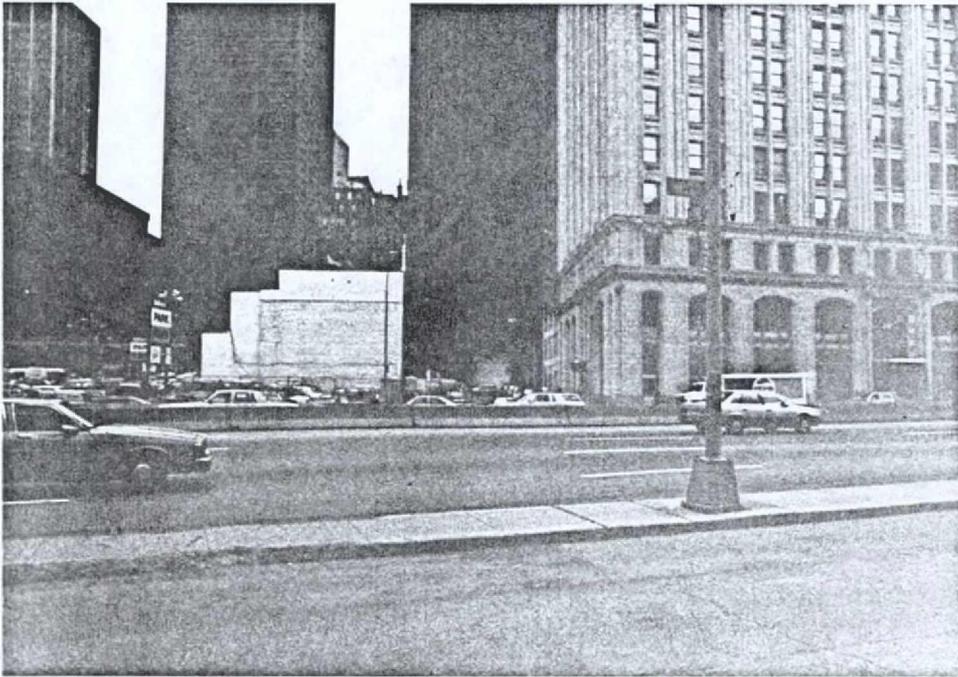
Battery Park City
Facing west from Carlisle Street 8/22/89



Albany Street
Facing east from foot of Battery Park City Albany Street extension



Battery Park City apartments and Albany Street extension
Facing west from Albany Street 8/22/89



Cedar Street
Facing east from Battery Park City office buildings 8/22/89

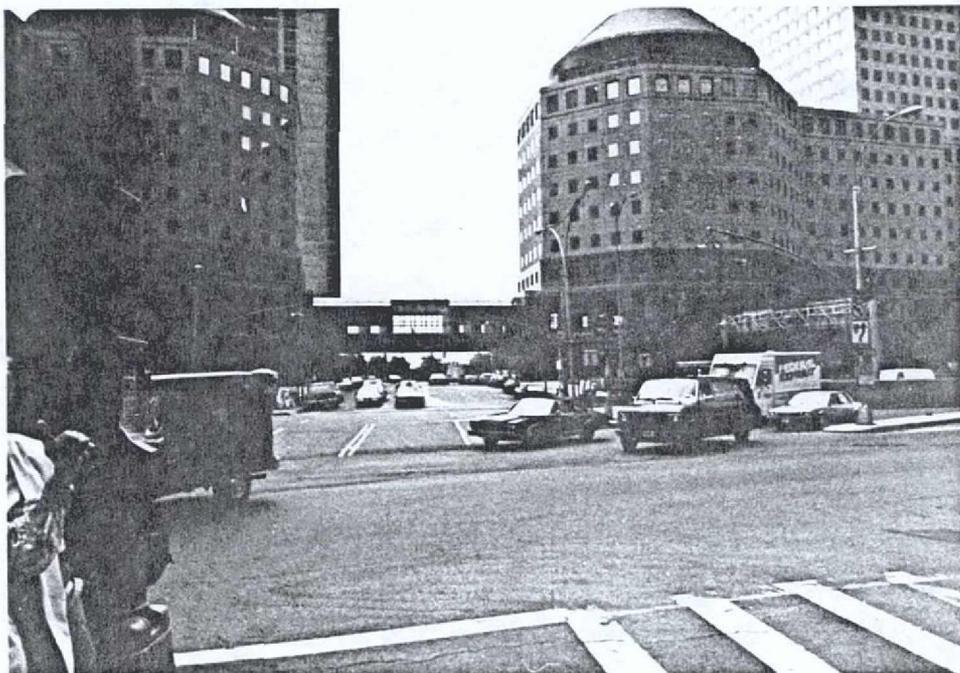


Battery Park City office complex
Facing west from Cedar Street 8/22/89



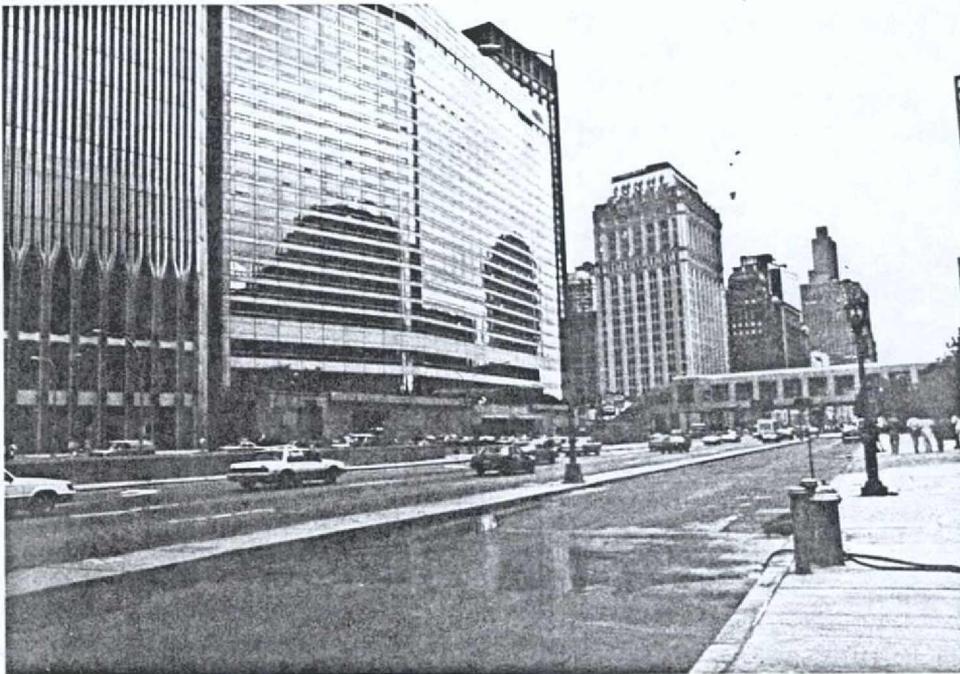
Liberty Street

Facing east from corner of Battery Park City Liberty Street extension 8/22/89

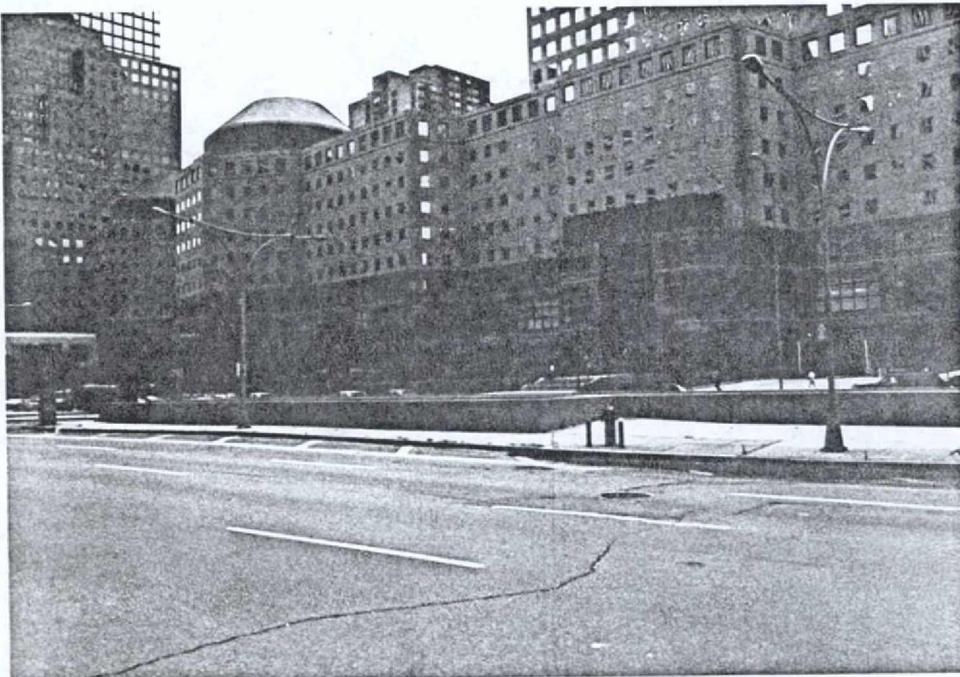


Battery Park City office buildings, Liberty Street extension

Facing west from Liberty Street 8/22/89



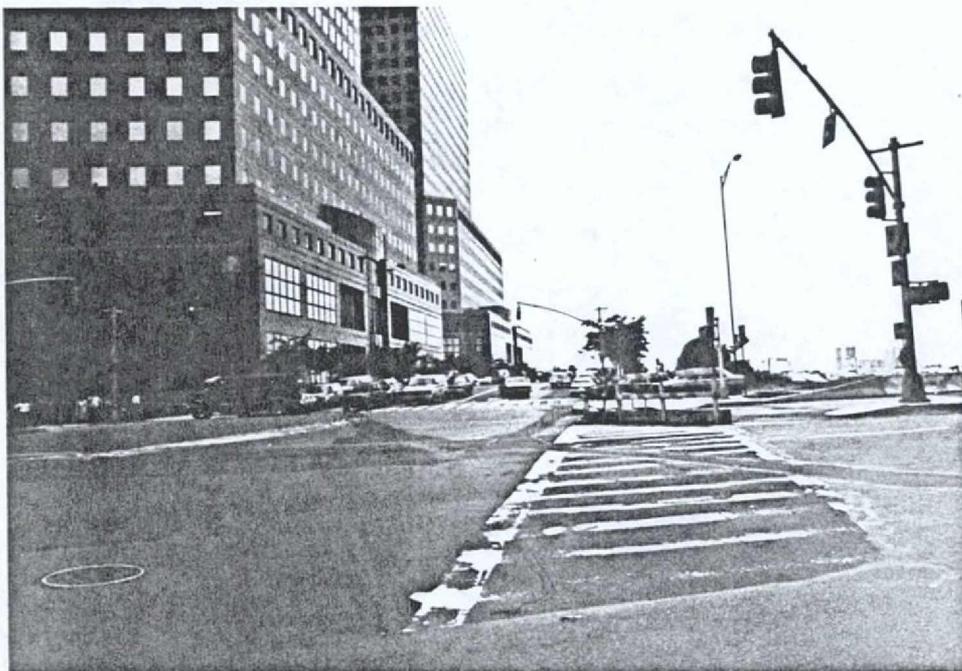
World Trade Center office complex, Marginal Street, pedestrian overpass
Facing southeast from Vesey Street extension towards Liberty Street 8/22/89



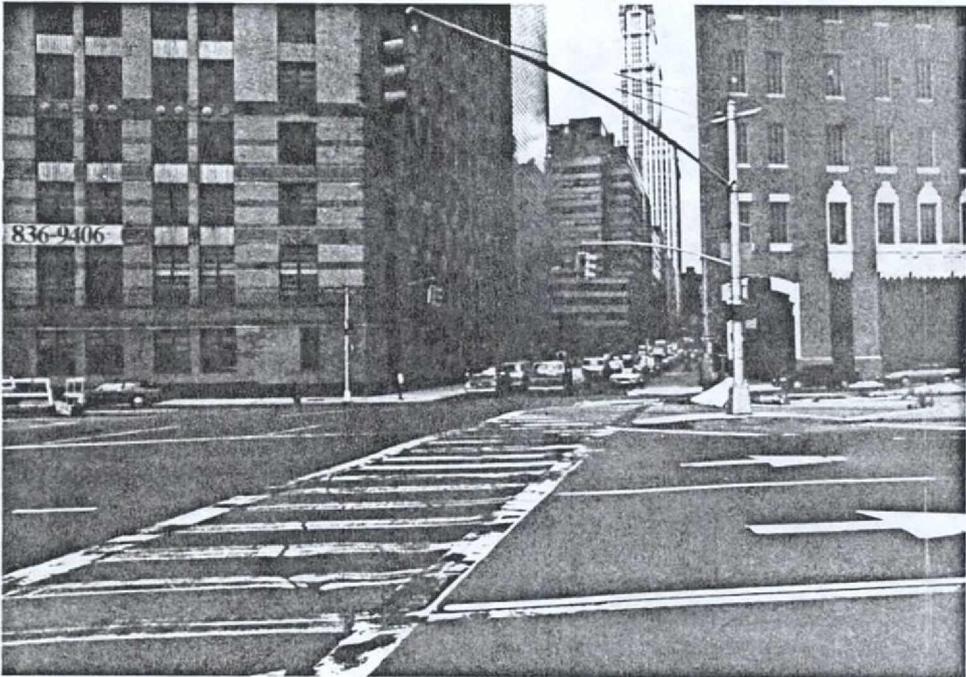
Battery Park City office complex
Facing southwest from Vesey Street towards Liberty Street extension 8/22/89



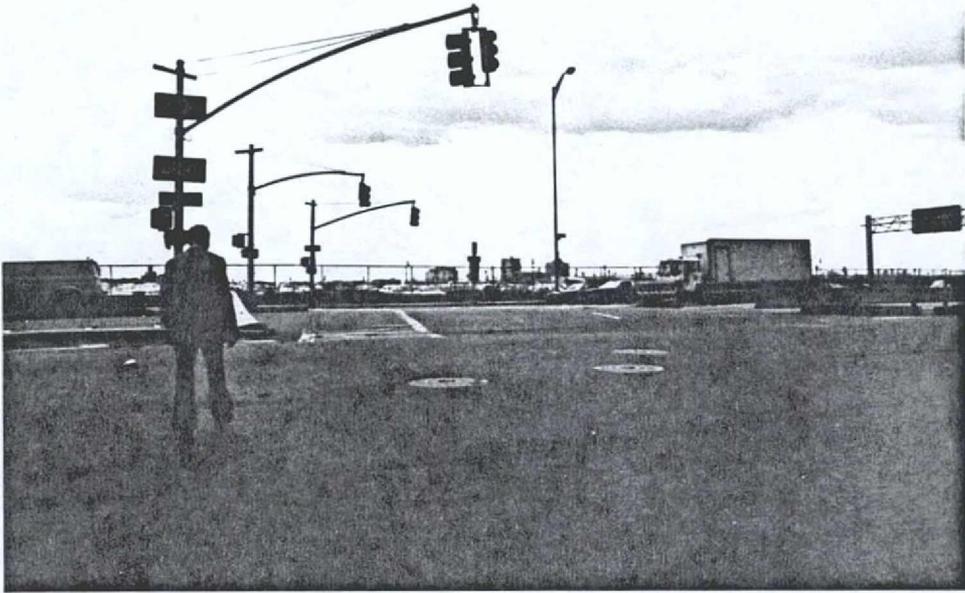
Vesey Street
Facing east from corner of Marginal Street and Vesey Street extension 8/22/89



Battery Park City Vesey Street extension
Facing west from Vesey Street 8/22/89



Barclay Street
Facing east from Marginal Street 8/22/89



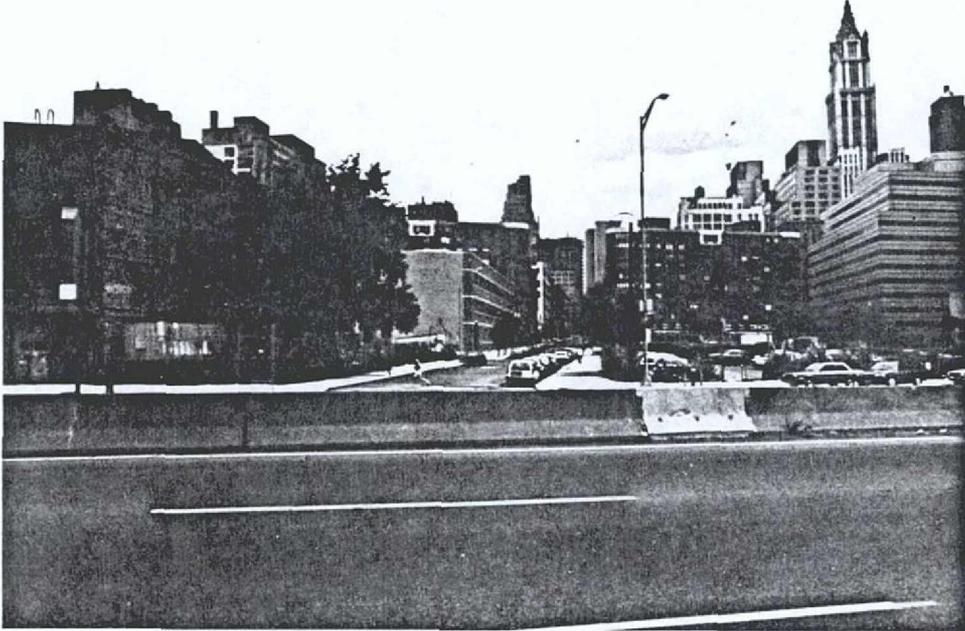
**West Street, Marginal Street as Study Area boundary, parking lots on
Battery Park City filled land**
Facing west from Barclay Street 8/22/89



Murray Street
Facing east from Marginal Street 8/22/89



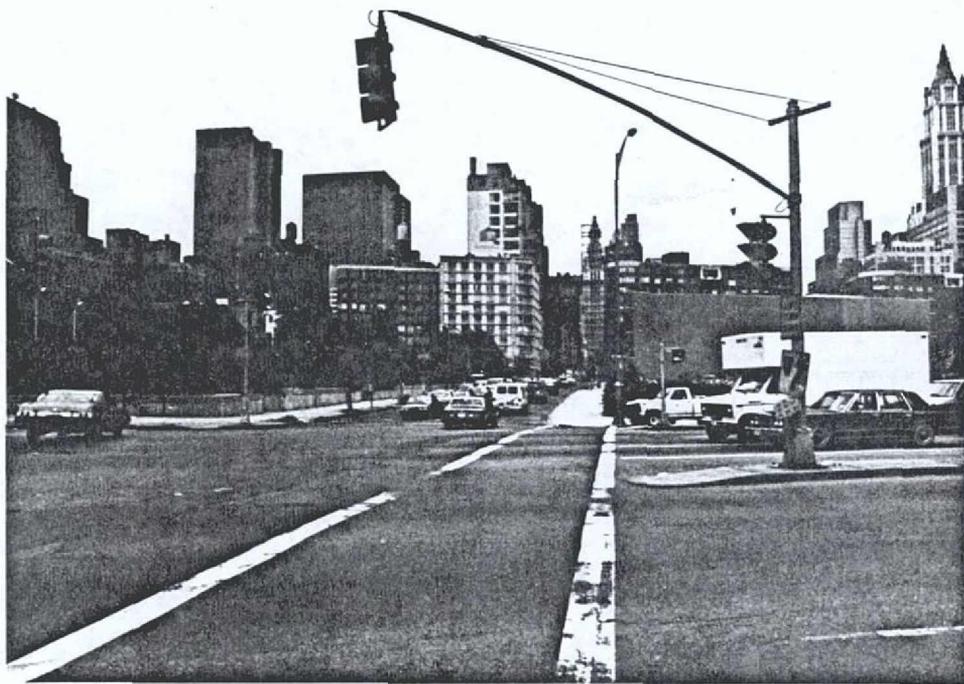
Battery Park City Murray Street extension
Facing west from Murray Street 8/22/89



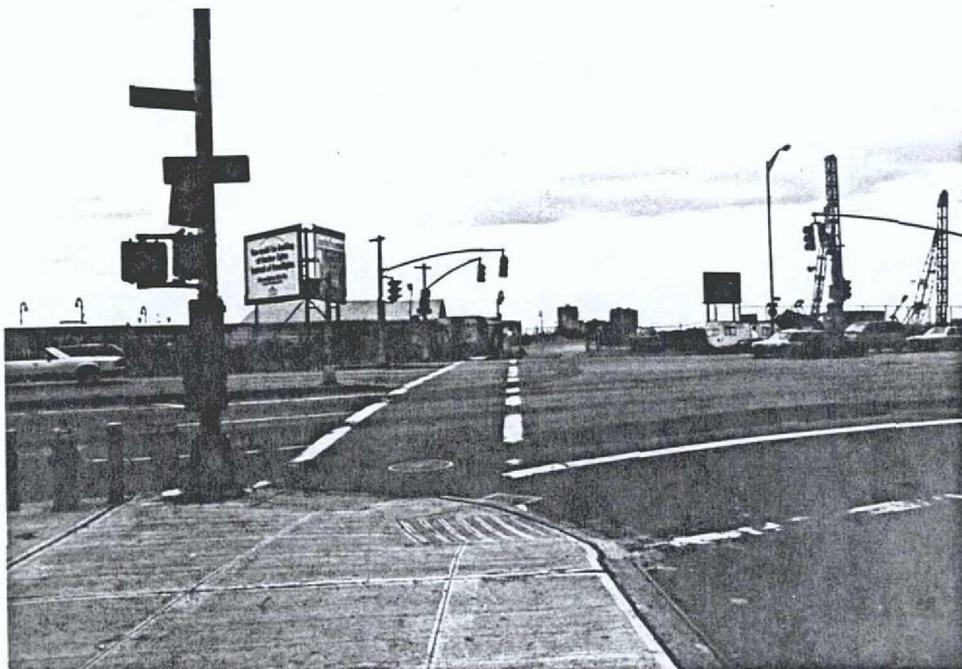
Warren Street
Facing east from Marginal Street 8/22/89



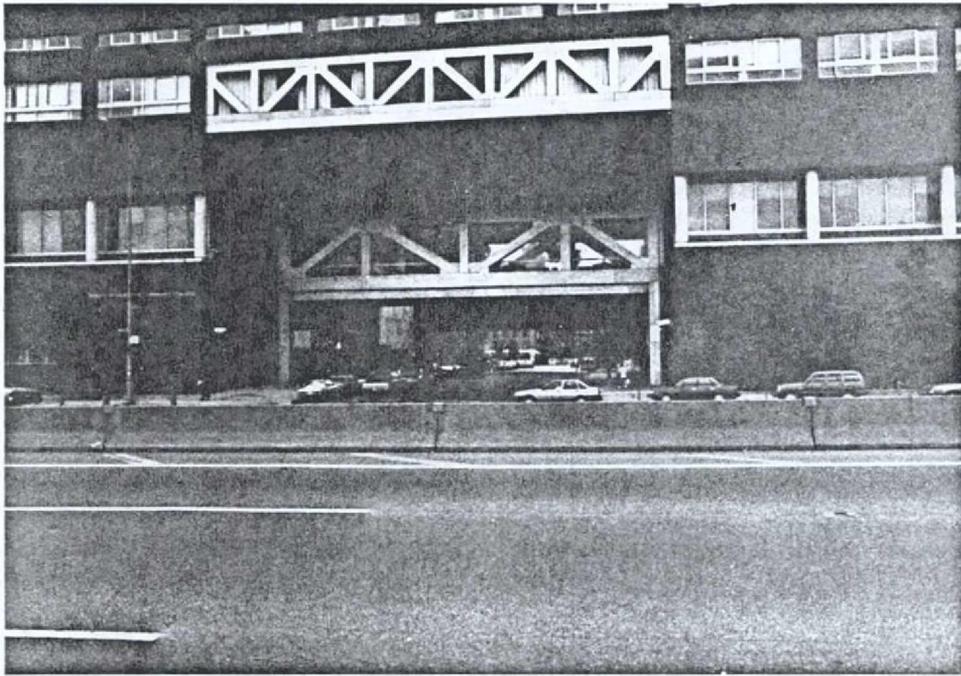
Battery Park City unopened Warren Street extension
Facing west from Warren Street 8/22/89



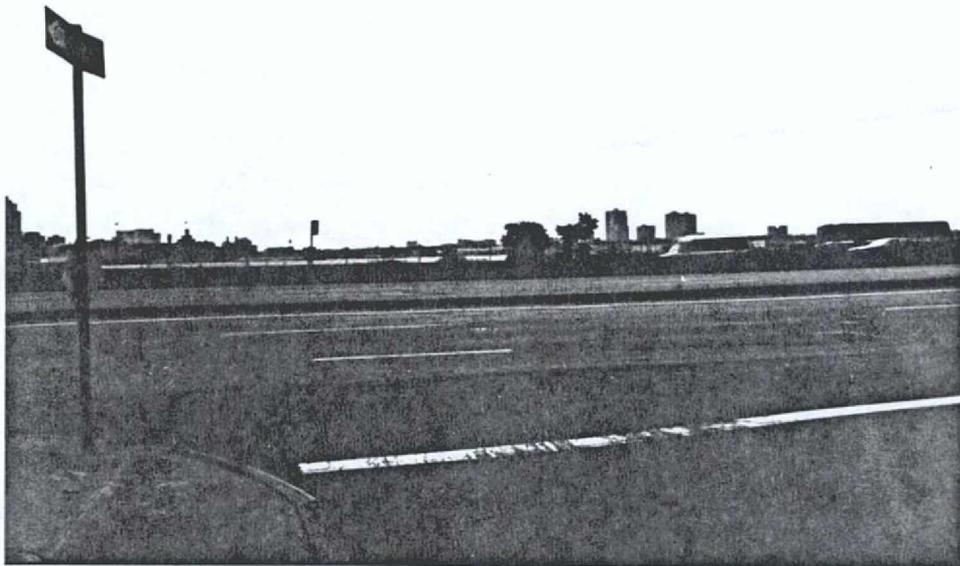
Chambers Street, Washington Market Park at center
Facing east from Marginal Street 8/22/89



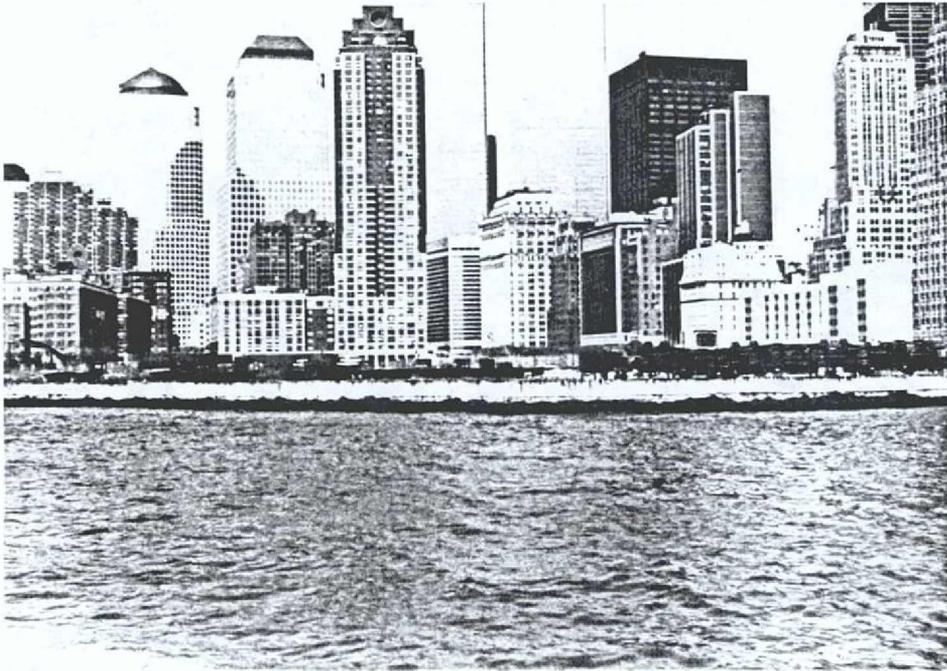
Battery Park City Chambers Street extension
Facing west from Chambers Street 8/22/89



Harrison Street and Manhattan Community College
Facing east from Marginal Street 8/22/89



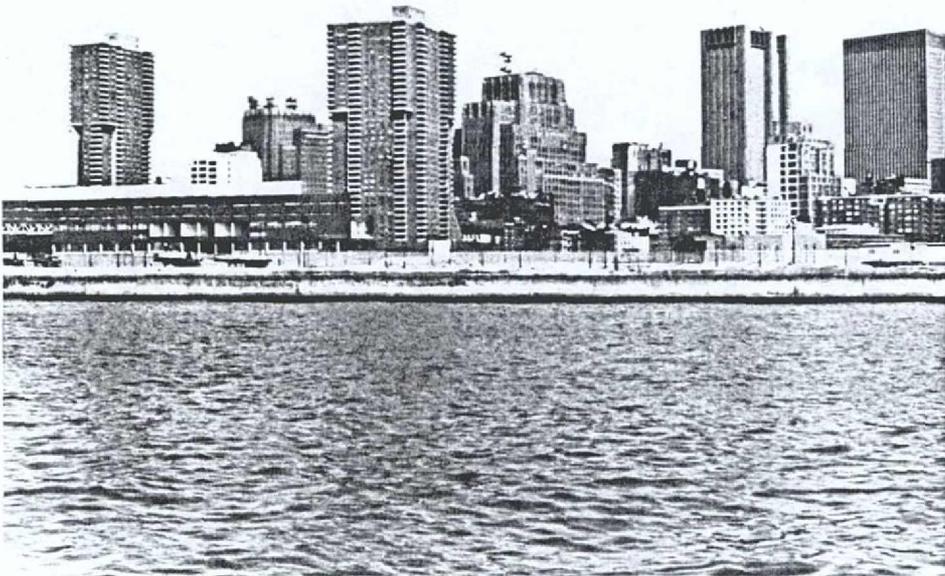
Parking in Study Area in Marginal Street
Facing west from Harrison Street 8/22/89



Bulkhead, South Park, Battery Park City office complex, World Trade Center
View from the Hudson River facing northeast 4/27/89



Bulkhead, South Cove, South Park
View from the Hudson River facing southeast towards Battery Park 4/27/89



Bulkhead, northernmost corner of filled Battery Park City development
View from Hudson River facing northeast 4/27/89



Bulkhead, Manhattan Community College from Harrison to Chambers Streets
View from the Hudson River facing east 4/27/89

A. PREHISTORIC RESEARCH

PREHISTORIC BACKGROUND

The scant archeological record that characterizes Manhattan renders it necessary to rely on regionally established models of prehistoric sequences for a comparative reference. Prehistoric settlement and subsistence trends have been established for the lower Hudson Valley and coastal New York areas, providing a contextual understanding of prehistoric land and resource utilization. The outline presented summarizes the prehistory of the region, based on long term archeological research. It should be noted that as research in the area continues, theoretical issues become more refined, affecting this regional chronology.

Prior to the arrival of Native Americans and subsequently Europeans, the Northeast experienced heavy glacial activity. During the last episode of the Pleistocene in the Northeast, the Wisconsin, ice reached its maximum advance between 18,000 and 16,000 years ago. After this period, glaciers slowly began to retreat north, with glacial gravel being deposited along the melting margin. By 13,000 years ago, ice had retreated north far enough so that the lower Hudson Valley and surrounding area was open for the re-establishment of flora and fauna. As ice melted, glacial lakes formed, eventually filling with sediments and becoming swamps. Current studies indicate that shortly after deglaciation, Native American populations arrived in the Northeast.

PaleoIndian Period (12,000-9,500 B.P.)

Between 14,000 and 12,000 years ago the Northeast was generally characterized as open woodland, rich in spruce. By 10,000 years ago, this had changed and the region was predominately pine (Gaudreau 1988:240). Pollen analysis shows that the southeastern New York region was comprised of a mixed coniferous- hardwood forest following deglaciation (Salwen 1975:43). The post glacial environment supported a diverse array of mega-fauna including mammoth, giant ground sloth, horse, and giant beaver, undoubtedly hunted for prehistoric subsistence. The PaleoIndian period represents the earliest documented human occupation in the Northeast, dating approximately between 12,000 to 9,500 B.P. (Before Present).

Few remnants of these first inhabitants have been encountered. It is quite possible and probable that Native Americans first occupied the continental shelf which was exposed during glaciation. The massive amount of water locked up in ice sheets and glaciers drastically lowered the sea level, extending the Atlantic coastline twenty to thirty miles south and east of what it currently is (Ibid.). The exposed continental shelf, now submerged beneath the ocean, would have possessed the resources necessary to support the emergent PaleoIndian population (Edwards and Emory 1977:19).

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Artifacts attributed to this period from sites in the Hudson River Valley and throughout the Northeast include diagnostic Clovis-type fluted projectile points and processing tools such as scrapers, graters, and drills. Often these were made from cherts originating in eastern New York, and jasper from Pennsylvania and New Jersey. Lithics recovered far from their sources suggest well-defined or extensive travel or trade networks in operation at that time. Research in the Northeast has led to the postulation that small bands of hunters nomadically roamed large territories, relying predominantly on post-pleistocene megafauna. Alternative hypotheses based on research in eastern New York suggest that PaleoIndians inhabiting the area utilized a wide array of resources and had a restricted territory in which they operated (Eisenberg 1978:139). Additional research continues to assist in developing and refining models of subsistence and settlement.

There are many unanswered questions regarding the settlement and subsistence systems of PaleoIndians. Sites that have been identified tend to be located in three specific geographic locals: on lowland waterside camps near coniferous swamps and near larger rivers; on upland bluffs in areas where deciduous trees dominated; and on ridge tops also dominated by deciduous trees (Eisenberg 1978:138). Throughout the Northeast it has been more common to locate isolated spot finds of diagnostic artifacts than habitation sites. The lack of recovered habitation sites may be due to post-glacial changes in topography or development where habitation sites once existed (Saxon 1973:252). The rising sea levels and resultant changes in water courses have probably inundated numerous encampments. However, since the Hudson River is a fjord (a narrow inlet of the sea bordered by steep cliffs), it is possible that early occupation sites may be preserved along the naturally elevated post-glacial shoreline (Snow 1980:180). Currently, no habitation sites have been identified on Manhattan Island.

Nearby on Staten Island, a PaleoIndian habitation site was located at Port Mobil (Ritchie 1980:xvii). The site was situated on high ground, sloping down to the Arthur Kill, about 1000 feet away. Although the site experienced significant disturbance, several fluted points were recovered together with additional tools made of eastern Pennsylvanian tan and yellow jasper, and eastern New York Normanskill flint. Nearby along the tidal beach of the Arthur Kill, six fluted points were also found, made of jasper and New York and exotic flints (Ibid.).

This represents the only PaleoIndian component recovered within the metropolitan New York area. Spot finds further north have occurred along the Hudson River and its tributaries (Funk 1976:205).

Archaic Period (9,500-3,000 B.P.)

The Archaic period, spanning approximately 6,500 years, has been subdivided into the Early, Middle, Late, and Terminal periods. During the Early Archaic (9,500-7,000 B.P.) fluctuations in the environment occurred, eventually giving way to a gradual warming trend, allowing newly available resources to become established. Although sea levels were rising, New York Harbor was still considerably smaller than it is today (Salwen 1975:49). As a result of environmental changes, it

appears that the primary dependence on big game gave way to a hunting, fishing, and gathering economy, reliant upon a diversity of resources. The more reliable resource base may have facilitated population growth.

Artifacts of the period include bifurcate-base points which are often found along major drainages. Early Archaic sites in the coastal New York area tend to be located on tidal inlets, coves, and bays, and on fresh water ponds (Ritchie 1980:143). Few inland sites of the Early Archaic period have been found in northern New York and New England. However on Staten Island four sites containing cultural materials dating to this period were reported (Salwen 1975:50). Salwen attributes the earlier and more prolific population of the southeastern New York area to the early establishment of hardwood forests in that region (Ibid.). Although resources may have been abundant in the more northern areas, the climatic instability would not have provided a reliable resource base. The established hardwood forests may have attracted people to the more stable, southern New England and New York area (Dincauze and Mulholland 1977:450).

Middle Archaic cultures thrived from about 7,000 to 5,500 years ago, as the climate continued to warm allowing new flora and fauna to become established. Dincauze and Mulholland (1977) suggest that at this time seasonal movements based on the exploitation of specialized resources became well established, which may have encouraged territoriality. Tool kits expanded in response to diverse resource utilization, and artifacts include Neville and Stark projectile points. During the Middle Archaic period the exploitation of oysters along the Hudson River is evidenced by numerous shell middens. At Croton Point and Montrose Point, north of the project area along the Hudson in Westchester County, shell middens yielded dates of between 5,600 to 5,800 B.P. (Brennan 1974:85).

From approximately 5,500 to 4,000 B.P., Late Archaic cultures flourished across the Northeast. Warming trends promoted a resource-rich environment. Point types diagnostic of this period include small stemmed points such as Lamokas and Taconics, as well as Squibnocket and Brewerton Points. The lower Hudson Valley experienced increased habitation, with numerous shell middens along it dating to this period (Brennan 1974:87). Sites of this period include rockshelters, open woodland camps and high bluffs along the Hudson. Archaic points found in the metropolitan New York area represent a high percentage of quartz use for this period (Suggs 1966:42). The dependence on local lithics could represent decreased areas of seasonal migration or a reduction in trade with neighboring groups.

The subsistence pattern in operation may have been one of a centrally based wandering pattern focused on the exploitation of seasonal resources. A high degree of cultural complexity is represented by the wide range of site types and the great diversity in site locations. More Late Archaic sites have been reported than either of the two previous periods. The increase in the number of sites may reflect either an increase in the population brought on by the stabilizing environment, or a bias in site visibility. By the Late Archaic period, sea levels were much as they are today, and sites of this period would have less of a chance of being inundated. In addition, archeologists in the Northeast have postulated that small stemmed quartz points

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attributed to this period, actually represent an underlying cultural tradition, persistent through later periods (McBride 1984:133). Therefore, sites attributed to this period based on projectile point typologies, may actually have been misidentified.

Three cultural traditions persisted in the Northeast during the Terminal Archaic period (4,000-3,000 B.P.). These include the Laurentian tradition represented by the Vergennes phase and the Vosberg complex; the small stemmed tradition represented by the Sylvan Lake complex; and the Susquehanna tradition represented by the Snook Kill and Orient phases (Funk 1976:250). Although Funk defines these three separate traditions as persisting in the Hudson River valley, Snow reassesses the distribution of Terminal Archaic points and suggests that the Susquehanna tradition dominated the first half of the period, comprised of Snook Kill, Perkiomen and Susquehanna Broad points, while the latter half of the period was dominated by the Orient complex characterized by the Orient Fishtail point (Snow 1980:237). The precise sequence of Terminal Archaic traditions, complexes and phases is a continued source of debate.

It is postulated that these traditions, based on distinct projectile point types, have different settlement patterns representing utilization of specific resource niches. According to Funk and Ritchie, authors of Aboriginal Settlement Patterns in the Northeast, sites of the Snook Kill Tradition, predominant in the southern sub-area, tend to be located on high, sandy river terraces (1973:342). Orient phase habitation and burial sites have been recovered from eastern Long Island (Ibid.:344). Whether these three distinct traditions, Laurentian, small stemmed and Susquehanna, represent the migration of new people into the area, or the spread of technologically new ideas, has yet to be determined. Lithic technologies were predominantly based on locally available raw materials, with the small stemmed point tradition relying heavily upon quartz.

Terminal Archaic groups ground and polished soapstone into bowls and other items. The majority of sites encountered in the region thus far existed along the Hudson River and its major tributaries. This appears to result from high visibility along major river drainages as opposed to the actual lack of sites in remote settings, as continued research from interior areas has produced sites of this period. Orient points have been radiocarbon-dated to approximately 4,000 to 2,800 B.P. in the Hudson Valley.

Woodland Period (3,000-500 B.P.)

The Woodland period persisted in the Northeast from approximately 3,000 to 500 years ago. Again divided into three sub-categories, this period consists of the Early, Middle and Late periods. The first of these, the Early Woodland period, lasted from about 3,000 to 1,700 years ago and is represented by the Middlesex phase in eastern New York. This period is marked by the introduction of ceramic vessels as part of the material culture. Crude, undecorated pottery called Vinette 1 was often tempered with steatite. Simply designed pottery of this type has largely been recovered from sites on major waterways and tributaries. Early Woodland, Middlesex Phase sites are commonly discovered during sand and gravel mining

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operations near a lake or river, as sites tend to be located on well drained knolls adjacent to fresh water (Ritchie 1980:201).

During this period a gradual cooling of the climate occurred, perhaps limiting resource availability. Settlement systems varied as a result of the desire to exploit alternative resources. Coastal resources providing year round stability were often sought, while upland hunting and gathering remained an important activity. Fish runs in rivers provided a stable and reliable resource. Woodland period fish weirs were utilized in the Hudson and smaller tributary rivers for the recovery of large quantities of anadromous fish (Brumbach 1986:35).

The Middle Woodland period, lasting from ca. 1,700 to 1,000 B.P., is marked by regional changes in ceramic styles. Stone tool assemblages of this period are characterized by Jack's Reef Corner Notched and Pentagonal as well as Fox Creek projectile points. A significant amount of exotic lithic materials were utilized, perhaps indicating increased trade networks. By this time, subsistence and settlement seem to have been characterized by semi-permanent settlements with task-specific locations utilized for the purpose of exploiting target resources. Ritchie and Funk identify several settlement types for Middle Woodland cultures including recurrently occupied small and semi-permanent large camps, small temporary camps, cemeteries, burial mounds and workshops (1973:349).

Numerous shell middens along the coast and the Hudson River attest to the importance of aquatic resources. During this period, maize was introduced from Meso-America and horticultural practices were slowly adapted into the lifeways of local Indians. The nature and extent of maize use prehistorically has been much debated by archeologists working in the Northeast. Research on Long Island has led to the hypothesis that prior to European contact, maize was not cultivated on the sandy, nutrient-poor soils of the island. The desire to trade with Europeans led Native Americans to settle more permanently along the coast where shells were available for Wampum manufacturing. Concurrent with this shift in the settlement system was the need for a stable, storable economic resource. It is thought that maize horticulture was adopted to provide the support required for these villages (Ceci 1979:72). In addition to the research conducted in coastal New York areas, archeologists throughout the Northeast are now questioning the distribution and adoption of non-indigenous horticultural goods.

Material items of this period include ornamental pendants, pins, and the bow and arrow. Ceramics became technologically more advanced as walls became thinner and overall shape became rounded. It is suggested that the change to a rounded bottom corresponds with the introduction of maize and resulted from the desire to cook food longer (Braun 1980:100). Netmarking became a popular mode of decoration associated with this period. Ornamentation of the collars and bodies of pots also increased, often suggesting the cultural affiliation of the maker. Overall the remains representative of this period recovered from eastern New York are limited in number, compared to those found further to the west in the Great Lakes region (Funk 1976:298). This may be a misrepresentation resulting from biased sampling and preservation rather than the actual lack of sites.

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The Windsor tradition was established in this period, with components of this tradition found along the Long Island Sound, and the Hudson and Connecticut drainages. In the lower Hudson Valley and on western Long Island, the tradition is represented by the Windsor North Beach and Clearview phases (Snow 1978:63). The Fox Creek Phase of the Middle Woodland period appears to have its center of distribution in the New York coastal region, and in the eastern New York drainages (Ritchie and Funk 1973:356). Settlement patterns reflect a restricted wandering system, excluding large base camps and semi-permanent villages. However, general trends of the period show a move toward a settlement system incorporating semi-permanent village occupations.

During the Late Woodland period, 1,200 to 500 years ago, the climate was similar to that of today. The documented settlement pattern indicates the use of diverse environmental settings including inland rockshelter sites, coastal and island sites, inland sites on major drainages, and campsites located near swamps and along streams. There is marked evidence of an overall increase in site size, abundance and artifact frequencies. An annual subsistence round of seasonal movements between riverine, coastal and inland wintering sites may have existed. The increase in horticultural activities may have affected seasonal movements, with spring and summer spent planting crops. While maize, beans, and squash became available, these did not comprise the entire subsistence base, as deer, small mammals, nuts, berries, and shellfish continued to be utilized. The semi-permanent settlement pattern may have led to competition and defense of arable land, contributing to regional territoriality (Mulholland 1988:163).

Artifact types of this period include the Levanna triangular projectile point and Cayadutta Incised pottery. The Windsor tradition was replaced by the East River tradition by about 600 B.P., and the Bowmans Brook and later Clasons Point phases are local manifestations of this period (Snow 1978:63). It is thought that the Bowmans Brook culture entered New York from New Jersey through Staten Island, where artifacts of this phase have been found (Ritchie 1980:269). Sites of this phase are situated on tidal streams or coves, with large village sites containing between fifty to one hundred pit features (Ibid.). Shellfish utilization is apparent at such sites. Ritchie notes that sites of the Clasons Point culture tend to be located on the second rise of ground above high-water level, on tidal inlets, and have many of the characteristics of the Bowmans Brook Phase (Ibid.:271).

Contact Period (500-300 B.P.)

The Contact period dating from 500 to 300 B.P. is typified by the initial interactions between Native American groups and Europeans. Native settlement patterns at the beginning of this period were essentially the same as those of the Late Woodland, and consisted of seasonal hunting and gathering. In spring and fall, areas along streams were occupied to take advantage of fish runs. Upland and inland task specific sites were occupied for short periods for hunting, trapping, and lithic procurement activities. Semi-permanent villages near planted fields were also located in the interior, containing oval and round, bark and mat covered houses. Large pits were used for storing dried meat, fish, and corn, and it was common practice to burn

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fields to facilitate hunting, trapping and planting. It was not uncommon for horticultural villages to move to new locations after ten or twenty years as soil fertility, firewood and nearby game resources were depleted (Salwen 1975:57).

The first contacts between Native Americans and Europeans occurred when early explorers began to trade with the native population. As European materials were introduced, settlement and subsistence patterns changed drastically. Traditional tools were replaced by adopted European goods such as copper and iron. Shell beads and wampum were produced and furs were collected by Native Americans as a medium of exchange. Europeans were anxious to acquire furs from Native Americans, and thus numerous trading posts were established along the Hudson River. Although early historic accounts suggest the presence of stockaded villages or forts in the Hudson Valley and coastal New York, archeological data indicate they were not present prior to the middle of the seventeenth century (Ritchie and Funk 1973:368).

During the seventeenth century, Manhattan was occupied by Indians speaking a Munsee dialect of the Eastern Algonquian language (Goddard 1978b:73; Figure 5-2). Northern Manhattan was primarily occupied by Native Americans, identified by the colonists as Wiechquesgeck (Grumet 1981:60). Large scale conflicts did not break out in New York until the arrival of Governor Willem Kieft in 1638, who maintained a hard-line policy with the local Indians. This policy caused the death of 1000 Native Americans between 1640 and 1645 due to conflicts (Washburn 1978:98). In 1655 Native Americans attacked New Amsterdam, and the ensuing Esopus Wars, named so for the involvement of the Esopus Indians, lasted until 1664. As a result, Algonquian bands in the lower Hudson Valley lost independence and fell under Dutch control (Ibid.).

The subsequent breakdown of native sociopolitical organization during the seventeenth century was caused by intertribal stress, plagues, and the desire of newcomers to obtain land rights. The plagues of 1616-1620, introduced by Europeans, depopulated many groups, with population losses in southern New England and New York estimated between 70-90 percent (Snow 1980:34). The conflicts engendered by rapid colonial expansion, war and epidemics, caused many Native American groups either to leave the area or take up habitation in established communities (Brasser 1978:85).

At the time of European contact, the closest known Native American habitation site to the project area between Battery Place and Harrison Streets was Sapohanikan Point now in Greenwich Village (Figure 5-1). Bolton reports that Sapohanikan was probably a landing place for canoes arriving from and departing to New Jersey (Bolton 1934:53). However, Skinner states that Sapohanikan was an Indian village probably near the block between Gansevoort, Little West 12th, West, and Washington Streets, and that there was an Indian settlement there as late as 1661 (Skinner 1961:52). He also notes that the name may have been applied to the general area. Skinner also reported Site 9, a village site on the Collect Pond near Canal Street, which possessed a large deposit of shells (Skinner 1961:630).

Several other nearby features noted by Grumet as possessing Native American names include "Kapsee," a ledge of rocks now under Battery Park (Figure 5-1). Bolton suggested that this translated to "where the sharp rocks are," however Grumet notes that this was probably a derivation of the Dutch word "Kaaphoekje," meaning a little cape or promontory (Grumet 1981:17). In addition, "Catiemuts" was possibly a "fort or hill located near Pearl Street and Park Row" (Ibid.:8). "Ishpatena" was identified as a hill between Chatham and Varick Streets, which has since been leveled (Ibid.:16). "Werpoes," a label seen on many historic maps such as the MacCoun 1609 Hudson River map (MacCoun 1909a), was a derivative of the Delaware word "Wipochk" which meant a bushy place or thicket (Ibid.:58). This was the name given to an area of elevated land below Canal Street. At the time of European settlement, Native Indians referred to the Hudson River as "Mahicanituk," which translated to "the great waters or seas, which are constantly in motion" (Grumet 1981:22). The island of Manhattan itself was called "Minna-atn" which meant "Island of Hills" (Bolton 1934:47).

Established cultural chronologies are based on prehistoric sites found in the Metropolitan New York Area. On Staten Island, numerous prehistoric sites have been reported, ranging from the PaleoIndian through Woodland periods. A burial site on the southern portion of the island was found on a bluff overlooking the shoreline. The Tottenville site may include a wampum manufacturing station (Jacobson 1980:5). In total, over one hundred prehistoric sites have been reported from Staten Island, although significantly fewer have been scientifically studied. It has been postulated that cultural groups occupying the island were probably affiliated with groups in New Jersey and the mid Atlantic region. The island may have been between the bounds of New York and New Jersey groups (Ritchie 1980:145). If this is the case, then the role of Manhattan Island may have been similar. Because of the closeness of New Jersey cultural groups, as well as Long Island Sound groups, cultural traits of Manhattan Indians would undoubtedly reflect these associations.

The apparent settlement systems established for the coastal New York area have primarily been based upon the large and highly visible shell midden sites along the coast. An intensive survey of Shelter Island in the Long Island Sound has yielded a number of small short term lithic workshops and food processing stations, previously unseen and excluded from settlement pattern studies (Lightfoot et al. 1985:59). Further research and unbiased testing strategies in upland areas have shown that numerous sites exist in these locales. While the coast of Manhattan was undoubtedly attractive for Native American habitation, smaller interior sites may have been utilized as well.

SITE SURVIVABILITY

Professional and amateur archeologists were excavating on Manhattan from the late nineteenth century to the 1930s, but their field techniques and recording procedures are not comparable to the more scientific procedures that are used today. While there are records of these excavations, the data are generally ambiguous so that findings cannot be assigned to a particular period (Baugher-Perlin et al. 1982:5). According to Alanson Skinner's research at the turn of this century, in southern Manhattan there had been Indian settlements at the Collect Pond along the east end of Canal Street, on Corlear's Hook at the East River, and at the village of "Sappokanican," situated on the Hudson River just south of 14th Street. His estimation was that the only Indian remains left on Manhattan Island apparently were located at the extreme northwestern end (Skinner 1926:51). He does note, however, that the preponderance of findings from northern Manhattan is a reflection of both lower Manhattan's earlier development and northern Manhattan's relatively late occupation by Native Americans.

It has been demonstrated that prehistoric archeological sites do still exist in the highly developed borough of Manhattan. "In 1980 during the excavation of Stone Street, as part of the Stadt Huys block, aboriginal pottery and lithics were found in the lowest levels of the excavation" (Baugher-Perlin et al. 1982:12). In the later Broad Street field investigation led by Joel Grossman, an *in situ* Contact period feature was found in direct association with the Dutch West India stockhouse (Karen Rubinson, personal communication to Cece Kirkorian, June 27, 1989). In addition to these *in situ* prehistoric finds, secondary deposits of prehistoric materials have also been recovered.

SHORELINE RECONSTRUCTION

Reconstructing the prehistoric shoreline is necessary in order to assess the potential for deeply buried prehistoric archeological sites to exist beneath landfill. A subsurface soil and fill profile of West Street was constructed by Historic Conservation and Interpretation, Inc. during the original survey for the Westway project. Based on core samples, paleoecologists and prehistorians reconstructed the post glacial shoreline between Battery Place and West 44th Street (Rutsch et al. 1983:17). Research was largely concerned with the nature of shoreline development outboard of current West Street. The research concluded that prior to European settlement West Street was submerged beneath the Hudson River, while Battery Place was partially on original land. Historically, "the area south of Lighthouse Street was considerably modified by artificial fill right down to nearly the level of the glacial gravels" (Rutsch et al. 1983:21). This would include West Street between Battery Place and Harrison Street.

Borings taken south of Charles Street showed a stratum of organic gray silt up to 90 feet thick overlying various sand strata. Above this, along West Street, were deposits of historical period landfill (Rutsch et al. 1983:43). The silt stratum was the result of river silt deposited after inundation, while the underlying sand was glacial outwash deposited as glaciers retreated north (Ibid.). Several small islands,

knolls, and headland areas between Battery Place and Harrison Street were identified, now beneath the West Street fill. These specific areas will be addressed in the Prehistoric Sensitivity section of this report.

Soil borings were also reviewed from other projects within the vicinity (See Appendix 4, Kirkorian and Tidlow 1984:105). According to Rock Data Maps at the New York Topographic Bureau, 23 borings were taken between 1934 and 1935 between Chambers and Murray Streets within West Street. At Warren, Chambers and Murray Streets, fill extended to a depth of 18 to 23 feet. Three borings on the east side of West Street at these cross roads yielded similar results. However, three borings taken from the center of West Street at these cross roads, indicated there was 20' of fill over clay, 6' of fill over 6' of wood over 8' of fill over clay, and 15' of fill over wood over clay. The levels of wood encountered could have resulted from historical features constructed along the shoreline or from landfill.

PREHISTORIC SENSITIVITY

It has been demonstrated that sites tend to be located on well drained elevated soils near fresh water resources. Environments providing diverse resource availability are conducive for prehistoric habitation. Coastal and riverine areas are particularly attractive habitation spots for this reason, providing a mix of aquatic, estuarial, and terrestrial resources. In particular, the confluence of streams and/or rivers were considered primary spots for habitation and have a high potential to yield prehistoric archeological resources. Coves and inlets, providing protection from the strong winds coming down the Hudson would have also been desirable habitation sites. Archeological research on islands within the southern New England area shows that settlement patterns are often affected by strong prevalent winds. Research on Nantucket and Block Island, each with strong northerly winds, shows a preference for settlement on south facing slopes (Little 1985:26). Presumably the strong winds coming down the Hudson would have had a similar affect on settlement patterns.

According to a study done by the New York City Landmarks Preservation Commission (NYCLPC), which identified areas potentially sensitive for prehistoric archeological remains within Manhattan, there are no sensitive areas within this section of the project parcel (Figure 5-3). It should be noted that the model is based on the potential to recover sites from the area of Manhattan that existed as original land at the time of European settlement. The model does not attempt to determine the potential sensitivity of drowned shorelines, once exposed for habitation. However, this particular task was attempted for the project parcel during the original Westway project.

Research, conducted for the Westway project by Historic Conservation and Interpretation, Inc. for the New York State Department of Transportation (see Rutsch et al. 1983), entailed reconstructing prehistoric shoreline development prior to historical filling. Battery Place, east of Greenwich Street, was on original land at the time of European Contact. West of Greenwich Street, both Battery Place and all of West Street were submerged beneath the Hudson River. However, during various prehistoric time periods when water levels were reduced, these areas were

Chapter V:

exposed and the Hudson's shoreline was further west. These historically submerged areas may have supported Native American populations prehistorically.

The paleoenvironmental study of the Westway project between Battery Place and West 44th Street was conducted by Richard R. Pardi and Dennis Weiss of Queens College and City College, respectively. The following is a synopsis of their conclusions (for a full description of research conducted, see Rutsch et al. 1983: Appendix 2). Radiocarbon and chemical samples from cores were used to establish the prehistoric chronological development of the shoreline. Specific areas categorized as potentially sensitive for prehistoric habitation were identified, based on topography and characteristics known to be conducive for prehistoric habitation. These areas are currently deeply buried beneath nineteenth century fill and river silts.

Nine areas were identified by HCI as having the potential to possess prehistoric archeological remains between Morris and Harrison Streets, and were recorded as Areas 1 through 7, 10 and 18. The areas presented in this report are only those identified along West Street east of the bulkhead line, in the bounds of the current project area. Sites identified during the Westway survey, which were considered potentially suitable for aboriginal habitation, are now about 30 to 40 feet below the surface (Vollmer Associates 1987:3-1). As described in the Shoreline Reconstruction section of Project Area Conditions in this report, soil borings have shown that fill ranges in depths between at least 18 to 25 feet, and that beneath the fill lies a level of organic silt deposited by the river following inundation. The potentially sensitive areas identified by HCI are shown on Figure 5-4 and are described as follows.

The southernmost area identified existed near the intersection of Morris and West Streets (Area 1). Here there was a small hill next to a depression, which was possibly a pond. The feature was identified as existing approximately 30 feet below the current sea level as an island about 6,500 years ago, and existing 40 feet below sea level as a hill around 7,000 years ago (Rutsch et al. 1983:64). As both an island and a hill, this parcel would have been sensitive for prehistoric archeological remains.

Between Carlisle and Cortlandt Streets, between 30 to 40 feet below the current sea level, a bay existed approximately 6,500 years ago (Rutsch et al. 1983:50). The headlands of the bay are beneath West Street, and may have been attractive for habitation due to the proximity of aquatic and estuarine resources (Area 2). The southernmost headlands had a knoll which would have also been attractive for Native American occupation (Ibid.) (Area 3). It should be noted however, that the top of the knoll may not be as sensitive for prehistoric remains as the south facing slope may be, due to deterrent northerly winds and the preference for settlements in protected areas.

In the vicinity of Cedar Street, several small islands existed about 6,500 to 7,000 years ago, now 40 feet below the current sea level (Rutsch et al. 1983:57) (Area 5). A possible bay also may have extended from Cedar Street to Vesey Street (Ibid.). Between approximately Cortlandt and Vesey Streets there was a spit of land at the northern end of a bay, also 6,500 to 7,000 years ago, and now 40 feet

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below the current sea level (Area 4). At the intersection of West and Vesey Street was another cove about 30 feet below the current sea level dating to 6,000 years ago (Area 6). All of these topographic features were identified as potentially sensitive for prehistoric habitation.

Between Vesey and Harrison Streets there were also several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below West Street (Rutsch et al. 1983:50) (Area 7). Two coves existed extending from south of Barclay Street to Park Place dating to about 7,500 years ago, now about 50 feet below the current sea level (Ibid.:57) (Areas 18 and 18A). There may have also been a marsh in a part of this area as well, another eco-niche attractive for Native American habitation (Ibid.:50). In addition, at the intersection of Murray and West Streets, 30 feet below the current sea level, a small spit of land extended into the river between 6,500 to 7,000 years ago (Area 10). The headlands of these coves and the jut of land extending into the river could have been inhabited by Native Americans at that time (Ibid.).

Although numerous other prehistoric topographic features were noted and described in detail, these were not designated as potentially sensitive for prehistoric remains. The sinuous shoreline which existed between 6,500 to 7,000 years ago, is now beneath between 30 and 50 feet of historical fill. It is quite possible that habitation sites existed in the areas cited, and as previously noted, shell middens dating to the Middle Archaic period were recovered along the Hudson River to the north in Westchester County (Brennan 1974:85). It is quite possible that shellfishing, fishing, hunting and gathering were all activities performed along the shoreline in these loci.

No areas of potential sensitivity were identified along Battery Place. At the time of European Contact, Battery Place was not submerged east of Greenwich Street. The submerged area west of Greenwich Street was not deemed sensitive for prehistoric remains by HCI, since no buried topographic features likely to have once been inhabited were identified. However, it should be noted that somewhere in the vicinity of Greenwich and Edgar Streets, north of the project area, a seventeenth century fortification known as the "Oyster Pasty mount" stood, which may have been named for nearby shell deposits associated with Native American populations (Geismar 1987:13). Although prehistoric peoples may have occupied the original land now encompassed by Battery Place, it is highly unlikely that any remnants of these activities currently exist. The extensive development, construction, and reconstruction of this street suggests that potential prehistoric remains, which may have once existed near the surface, are now substantially disturbed.

As outlined above, the only prehistoric remains which may have been deposited within this portion of the project area, which have the potential to be disturbed by proposed reconstruction, exist between 30 and 50 feet below the current sea level, beneath West Street east of the bulkhead line. These areas may have the potential to yield information on prehistoric lifeways in Manhattan, a subject poorly documented as of date due to the lack of undisturbed sites recovered from the island.

Chapter V:

A block by block synopsis of prehistoric sensitivity as discussed above is presented below.

Battery Place

No Sensitivity. The shoreline reconstruction performed by HCI indicated that there was no sensitivity for those areas drowned prior to historical settlement, and the extensive historical development on the original land area has undoubtedly caused substantial disturbance to any potential prehistoric resources.

Battery Place to Morris Street

No Sensitivity. The project area was submerged at the time of historical settlement. There were no areas south of Morris Street identified as having the potential to possess prehistoric resources along the submerged shoreline.

Morris Street to Rector Street

A potentially sensitive feature was identified near the intersection of Morris and West Streets (Area 1). At 30 feet below the current sea level there was an island 6,500 years ago which would have been sensitive for prehistoric remains. Prior to this, the feature may have been a hill next to a pond dating to 7,000 years ago.

Rector Street to Carlisle Street

No Sensitivity. No areas of prehistoric sensitivity were identified between Rector and Carlisle Streets along the submerged shoreline.

Carlisle Street to Albany Street

Between Carlisle and Cortlandt Streets including this block, a bay existed 6,500 years ago (Area 2). Between 30 to 40 feet below the current sea level, the headlands of the bay are now beneath West Street. The southernmost headland had a knoll which would have been attractive for Native American occupation (Area 3). Due to deterrent northerly winds, the top of the knoll may not be as sensitive for remains as the south facing slope. The southern slope is probably just slightly south of the location of the knoll identified by HCI, still within the project area.

Albany Street to Cedar Street

Between Carlisle and Cortlandt Streets including this block, a bay existed 6,500 years ago (Area 2). Between 30 to 40 feet below the current sea level, the headlands of the bay are now beneath West Street. The southernmost headland had a knoll which would have been attractive for Native American occupation (Area 3). However, due to deterrent northerly winds, the top of the knoll may not be as sensitive for remains as the south facing slope.

Cedar Street to Liberty Street

Between Carlisle and Cortlandt Streets including this block, a bay existed 6,500 years ago (Area 2). Between 30 to 40 feet below the current sea level, the headlands of the bay are now beneath West Street. In the vicinity of Cedar Street, several small islands existed about 6,500 to 7,000 years ago, now 40 feet below the current sea level (Area 5).

Liberty Street to Cortlandt Street

Between Carlisle and Cortlandt Streets including this block, a bay existed 6,500 years ago (Area 2). Between 30 to 40 feet below the current sea level, the headlands of the bay are now beneath West Street. Area 2 may have been occupied prehistorically

Cortlandt Street to Dey Street

Between Cortlandt and Vesey Streets including this block, there was a spit of land at the northern end of a bay to the south, between 6,500 to 7,000 years ago (Area 4). This is now about 40 feet below the current sea level.

Dey Street to Vesey Street

Between Cortlandt and Vesey Streets including this block, there was a spit of land at the northern end of a bay to the south between 6,500 to 7,000 years ago (Area 4). This area is now about 40 feet below the current sea level. In addition, at the intersection of West and Vesey Streets was a cove now about 30 feet below the current sea level, dating to 6,000 years ago (Area 6).

Vesey Street to Barclay Street

At the intersection of West and Vesey Streets was a cove, now about 30 feet below the current sea level, dating to 6,000 years ago (Area 6). Between Vesey and Harrison Streets were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7). Two coves and a possible marsh existed extending from south of Barclay Street to Park Place, dating to about 7,500 years ago and now about 50 feet below the current sea level (Area 18 and 18a).

Barclay Street to Park Place

Between Vesey and Harrison Streets including this block, were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7). Two coves and a possible marsh existed extending from south of Barclay Street to Park Place, dating to about 7,500 years ago, now about 50 feet below the current sea level (Area 18 and 18a).

Park Place to Murray Street

Between Vesey and Harrison Streets including this block, were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7). Two coves and a possible marsh existed extending from south of Barclay Street to Park Place, dating to about 7,500 years ago, now about 50 feet below the current sea level (Area 18 and 18a).

Murray Street to Warren Street

Between Vesey and Harrison Streets including this block were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7). At the intersection on Murray and West Street, 30 feet below the current sea level, a small spit of land extended into the river between 6,500 and 7,000 years ago (Area 10). Both of these areas may be sensitive for prehistoric remains.

Warren Street to Chambers Street

Between Vesey and Harrison Streets including this block were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).

Chambers Street to Reade Street

Between Vesey and Harrison Streets were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).

Reade Street to Duane Street

Between Vesey and Harrison Streets including this block, were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).

Duane Street to Jay Street

Between Vesey and Harrison Streets were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).

Jay Street to Harrison Street

Between Vesey and Harrison Streets were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).

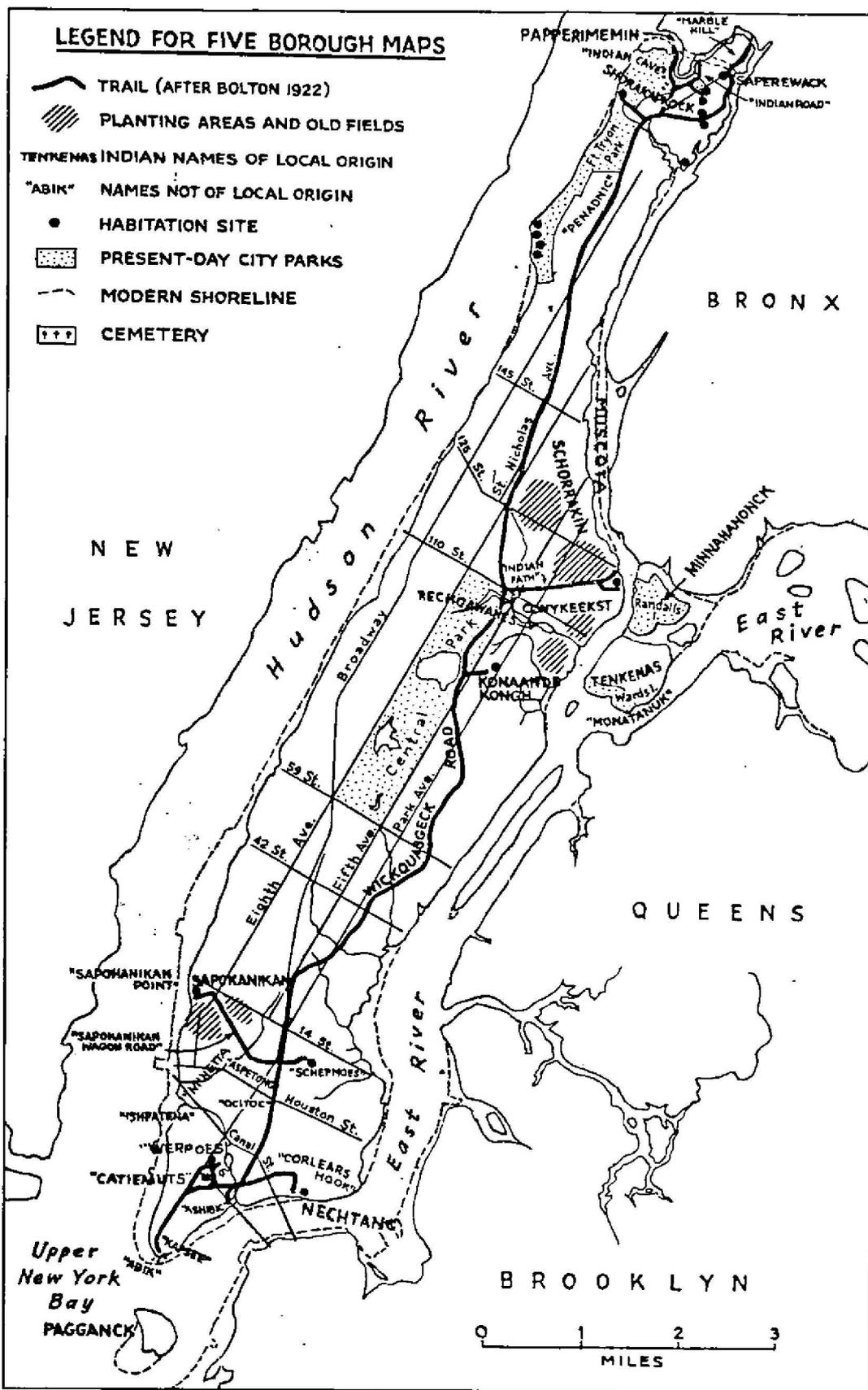
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Block 18

No Sensitivity. Extensive landfilling and subsequent land removal would have disturbed any potentially sensitive deeply buried prehistoric sites at this location.

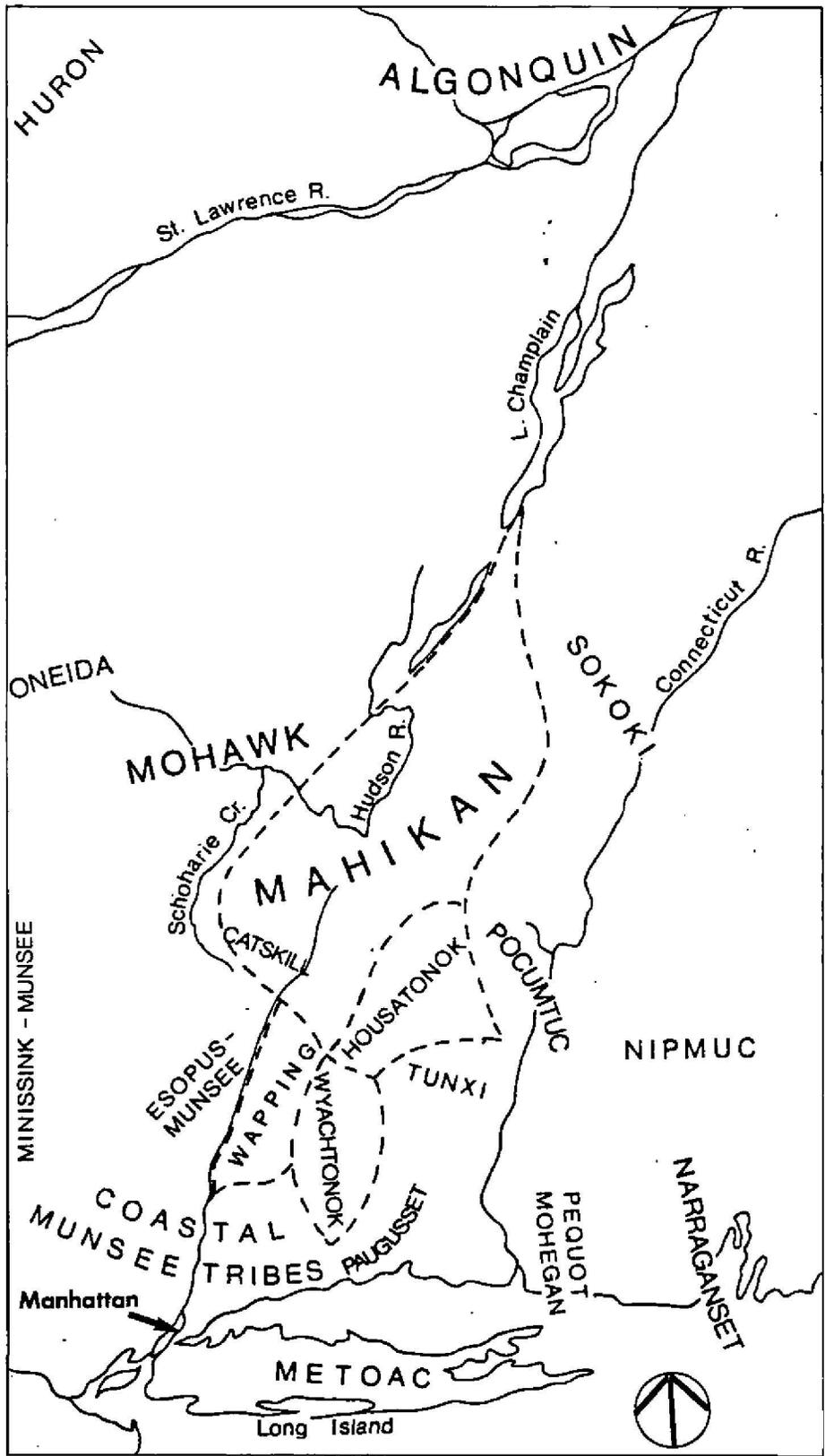
Block 139

Between Vesey and Harrison Streets were several coves and headlands dating to approximately 7,000 years ago, now about 40 feet below the current sea level (Area 7).



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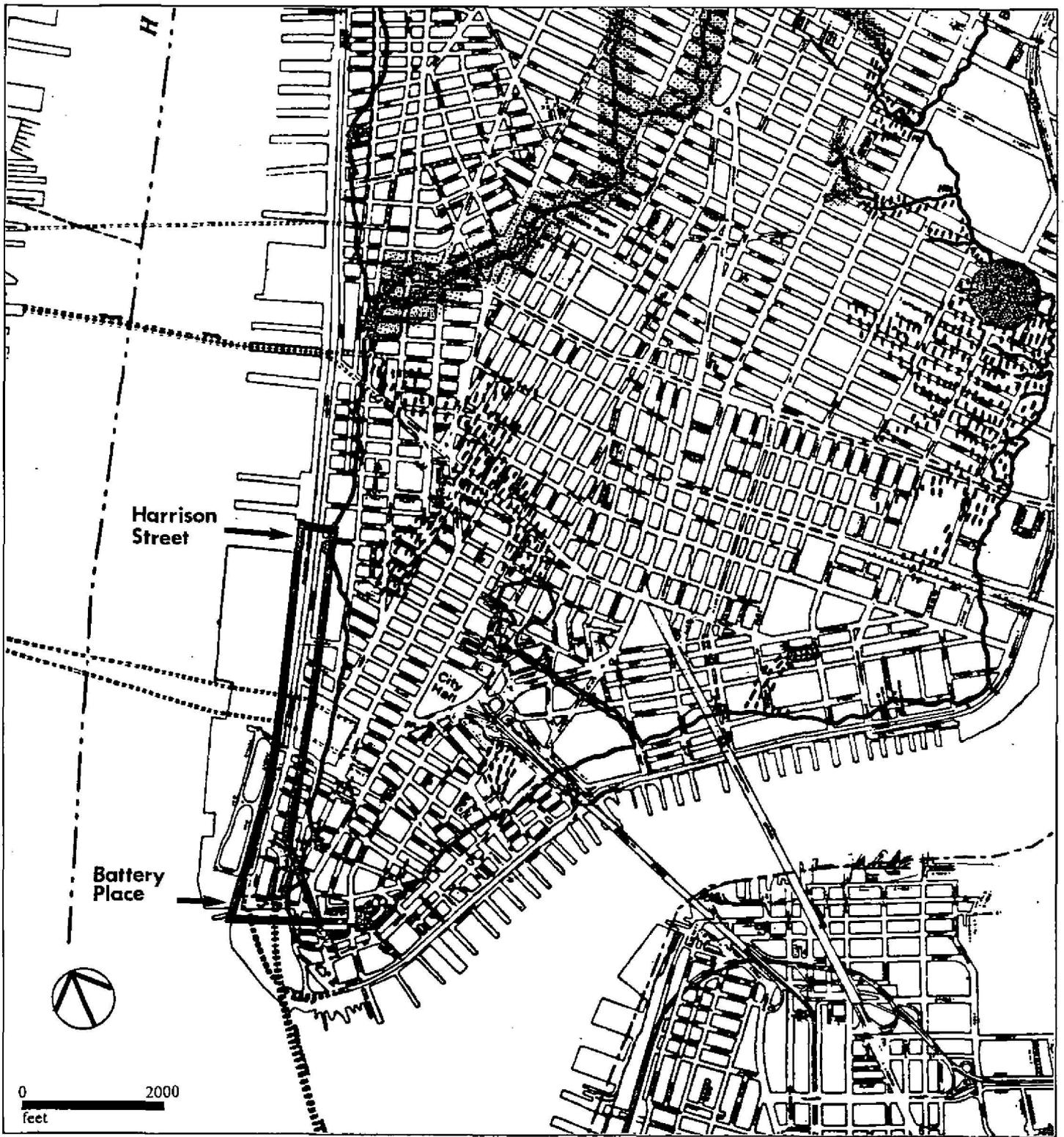
17th-century Native American Trails and Place Names on Manhattan Island



ROUTE 9A RECONSTRUCTION PROJECT

17th-century Native American Territories
 Source: Brasser 1974

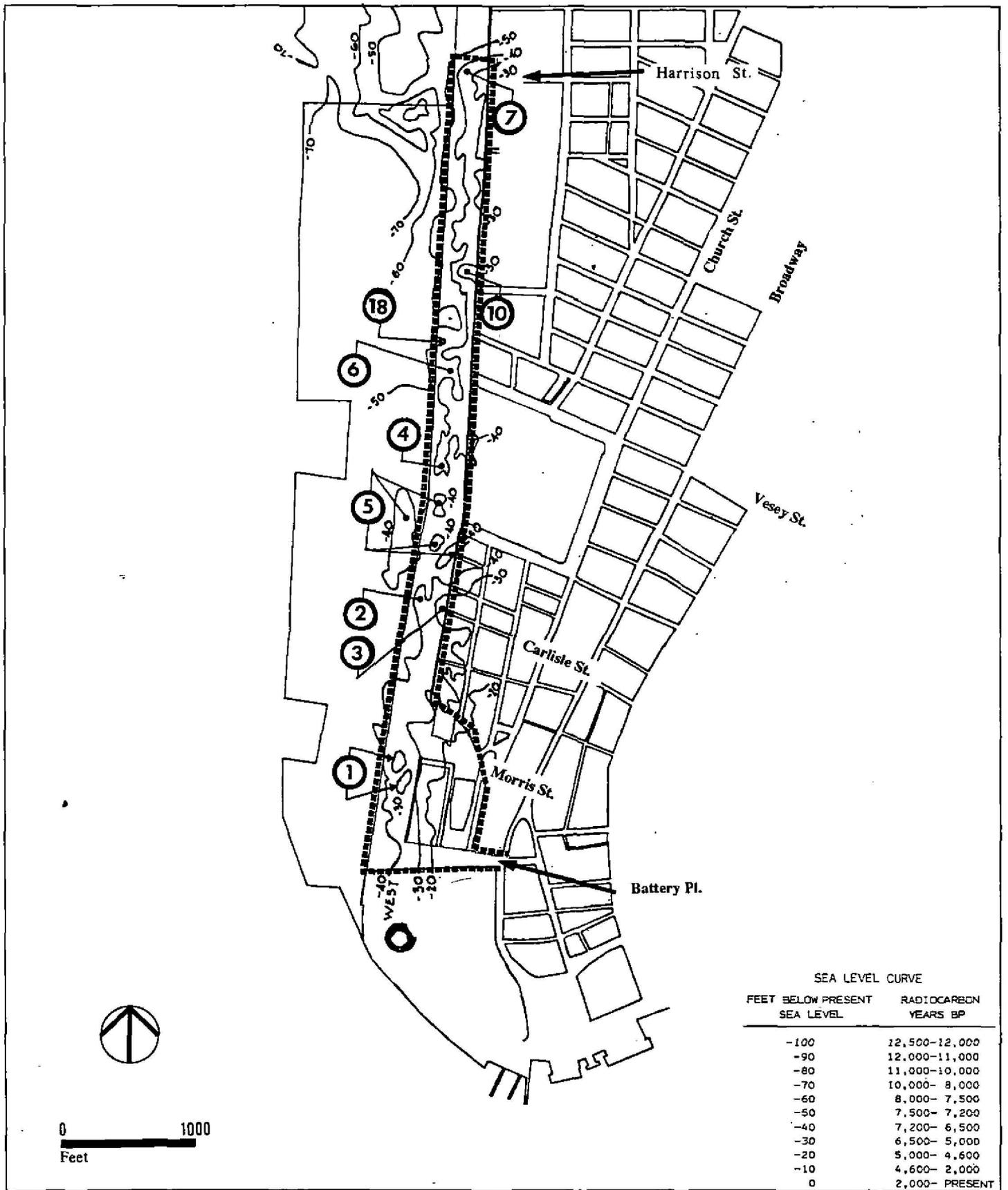
Figure 5-2



Legend

-  High Potential Site
-  Unexcavated Contact Site
-  Approximate Boundary of Study Area

Detail of Fig. 2: Prehistoric Sites, from the New York City Landmarks Preservation Commission Report "Towards an Archaeological Predictive Model for Manhattan: A Pilot Study"



SEA LEVEL CURVE	
FEET BELOW PRESENT SEA LEVEL	RADIOCARBON YEARS BP
-100	12,500-12,000
-90	12,000-11,000
-80	11,000-10,000
-70	10,000- 8,000
-60	8,000- 7,500
-50	7,500- 7,200
-40	7,200- 6,500
-30	6,500- 5,000
-20	5,000- 4,600
-10	4,600- 2,000
0	2,000- PRESENT

ROUTE 9A RECONSTRUCTION PROJECT

Legend

-  Extrapolation of Contour Lines
-  Map Reference Areas
-  Approximate Boundary of Study Area

**Prehistoric Sites Identified in the Westway Project Investigation
by Historic Conservation and Interpretation, Inc.**

Source: Rutsch, et al. 1983:48

Figure 5-4

A. HISTORICAL RESEARCH

HISTORICAL BACKGROUND

The first European to view Manhattan was probably Giovanni de Verrazano, when he sailed into New York harbor in 1524. Despite reports of Portuguese explorers entering into the bay prior to Henry Hudson's voyage, historical accounts are sketchy and often can not be verified (Kieran 1982:2). The nature of early trading voyages suggests that even if they did sail into the bay and up the Hudson River, activities were probably confined to the traders' ships, so as not to set foot on unexplored territory. It was not until 1609 when Hudson sailed up the great river, now bearing his name, that Europeans first landed on the island.

In 1613 the New Netherlands Company, which sponsored many voyages to the new world in search of trade goods, set up a storage and trade house on the southern tip of Manhattan (Wilson 1902:395). In addition, several shacks were built for traders settling on the island. As the fur trade grew, so did the population of Manhattan, and the small village expanded. In 1623 the Dutch West India Company received from the Dutch States General, a grant for all lands within Manhattan (Hoag 1905:32). Later, in 1626 Peter Minuit, the Director General, purchased Manhattan Island from the local Indians for what amounted to less than 25 dollars (Jones 1978:10). By 1664 the English had obtained possession of the island, and King Charles II granted the land to the Duke of York.

The early settlement on Manhattan was concentrated on the southern tip of the island. Prior to 1628 a gristmill stood at the fort near Battery Place, at Greenwich Street (Rutsch et al. 1983:334, Figure 6-1). The Wall Street stockade, built in 1653 by the Dutch, demarcated the northern boundary of the city (Works Progress Administration 1939:58). In 1699 the British removed the stockade and the city slowly began to expand northward. At that time, West Street between Battery Place and Harrison Street was submerged land, and the shoreline along the Hudson River ran between what are now Greenwich and Washington Streets. Battery Place, then Marketfield Street, was on original land east of Greenwich Street.

Despite the early settlers' reliance upon waterways for transportation, the Hudson (or North) River was not a popular place for docking, and the East River was more heavily relied upon. The depth of the Hudson and the high bluffs along the shore impeded its usage, and there were few coves to provide protection to ships from the strong northerly winds coming down the valley. In addition, during the winter months the Hudson was more likely to ice up than the East River (Buttenwieser 1987:27). All of these reasons contributed to the low usage of the Hudson shoreline during the seventeenth and eighteenth centuries.

In 1686 the Dongon Charter was put forth by Lieutenant Governor Thomas Dongon, who granted a charter to the Mayor Alderman of New York City, transferring land ownership from the Crown to the City of New York out to the low water mark

(Hoag 1905:32). Private expansion along the Hudson River was slow compared to that along the East River, largely because a small number of wealthy landowners controlled the use of the waterfront, and had no interest in expanding their properties. In addition, early landfilling skipped the area between Battery Place and Rector Street, since the depth of the Hudson River hindered filling (Buttenwieser 1987:32). The earliest filling episode documented along the Hudson was a grant issued to Meiser and others, between 1699 and 1701. As a result of the grant, three blocks between Cedar and Cortlandt Streets and Greenwich Street and Washington Street were either filled or had rudimentary docks built onto the original shoreline (Buttenwieser 1987:32). West Street remained submerged at that time.

In 1730 the Montgomery Charter extended owner privileges two blocks beyond the low water mark, and grants were issued that included the provision for three streets to be built parallel to the river (Hoag 1905:32). These streets, Greenwich, Washington and West, did not get built immediately (Buttenwieser 1987:34). Eighteenth century expansion continued to the north of this area, where land was cheap and could be developed more easily (Ibid.:35).

Some of the first docks constructed on the Hudson River, built ca. 1730, were Ellison's Wharf, north of Cedar Street, Thurman's Slip between Liberty and Cortlandt Street, Comfort's Dock at Thames Street and Elde's Slip at Battery Place near Broadway (Rutsch et al. 1983:240). By the 1740s there was also a slip in the vicinity of what is now Liberty Street (Valentine 1855:584). Dey's Dock was built in 1743, south of Dey Street (Rutsch et al. 1983:240).

By the 1740s civil defense construction, spurred by the surmounting conflict between the French and English, entailed erection of "a band of palisades...across the width of Manhattan from near the east side of Greenwich Street to Peck's Slip on the East River. Associated with the palisades were block houses and city gates...one such city gate at approximately the intersection of Greenwich Street and Chambers Street" (Kirkorian and Tidlow 1984:6). An eight-gun block house was also built on "Dominie's Hook" in the 1750s, possibly between West, Hubert, Greenwich, and North Moore Streets (Ibid.:7). In addition, according to Ratzler's 1767 map, a series of defense entrenchments were placed along the western edge of Greenwich Street, from Murray Street north to the battery on "Dominie's Hook" (Ibid.).

In an attempt to spur the construction of a street along the shore, in 1795 the Common Council passed an ordinance creating an outer street, 70 feet wide, beyond which no grants could be made and no buildings erected. Three years later this was named West Street (Buttenwieser 1987:28). The proposed construction of West Street was intended to compel landowners to pursue landfilling where they were granted water rights. At that time, only Greenwich Street was complete and West Street had yet to be built. By 1800 the city purchased water grants between Vesey and Fulton Streets, formerly belonging to Mayor Varick, and piers were lengthened and the slips between them were filled to expand the profitable Washington Market. The Albany Basin Piers, built in 1791 between Thames and Cedar Streets, were partially filled in by 1813 (Rutsch et al. 1983:241).

Chapter VI:

At the turn of the nineteenth century, there were numerous docks between Battery Place and Harrison Street. These included the Albany Basin between Thames and Cedar Streets and the Corporation Docks at Fulton and Vesey Street. Both of these were built prior to 1808 and were extended into the path of what was to become West Street by 1817 (Figure 6-2). There were also docks at Duane and Barclay Streets. Deans Dock at Murray Street, built in 1804, also lay within the path of West Street, as did Rhinelanders Shipyard between Warren and Harrison Streets, built in 1803. In 1804 the Common Council increased the distance from Washington to West Street from 160 feet to 200 feet, lengthening the blocks between the two streets (Rutsch et al. 1983:153).

In 1811 a city plan was devised to provide for a system of streets and avenues for Manhattan. The Commissioner's Plan laid a grid system over the city, disregarding natural topographic features which may have impeded road construction. Regulating the streets involved grading and filling, removing massive rocks and boulders, and tearing down houses standing in the path of proposed roadway construction. Although the plan was laid down on paper, many of the roads were not actually constructed until decades later. West Street was depicted as a mostly completed *outer street extending as far north as Christopher Street, although it was incomplete in far more places than shown, as reported in the Block Histories section.*

Frustrated by the lack of compliance, in 1825 the Common Council passed another ordinance to make West Street and fill lots between Cedar and Dey Streets. In 1828 they also requested that West Street extend across the slip at Washington Market between Fulton and Vesey Streets (Rutsch et al. 1983:161). Although the Common Council was active in their attempt to assure the complete construction of West Street, the filling and development was slow. By 1821 Battery Place was filled as far as the western line of Washington Street, and a bulkhead was built at that location (Figure 6-3). In 1835 the landowners west of Bowling Green petitioned for the extension of West Street south from Cedar Street to the Battery, and refuse from a recent downtown fire was used for fill beneath the street (Buttenwieser 1987:41).

Two distinct processes were associated with land reclamation and filling which entailed either unstructured harbor buildup and river accretion, or carefully engineered fill placed within deliberately placed retaining devices (Geismar 1983:672). In lower Manhattan, ships have been sunk as *cribbing in order to stabilize fill* (Berger 1983:9). After wharves and piers were built, derelict ships were often sunk, and together these features contributed to and operated to retain fill. In one such case, a burned seventeenth century Dutch ship named the "Tiger" was sunk, only to be encountered during subway excavation at the corner of Dey and Greenwich Streets in 1916 (Solecki 1974:109). During the excavation of the adjacent World Trade Center, archeologists unsuccessfully searched for a portion of the ship not found during the subway construction.

Wood was a popular material for maritime use since it preserves well in water. Wooden cofferdams, wharves, and bulkheads were also built as retaining devices, framed with hewn logs, filled with loose stone and covered with earth (Geismar 1983:30). The use of timber grillage as cribbing, common in Manhattan, has been

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traced to fifteenth century architect Marcus Vitruvius Pollio (Ibid.). Colonists continued to use this method as both the Dutch and English had previously, largely aided by the abundant supply of wood in the new world. Quays were built which entailed driving a row of wooden piles into the river with diagonal braces bolted to the inside, forming the face work of the quay. Behind this would be filled with earth and excavated materials, and the quay was then planked over to form a roadway level with adjacent streets (Ibid.:31). Wooden jetties helped to enlarge the accommodations of ports, and were built in the same manner as quays.

Landfill used to create West Street, Battery Place, and the necessary cross roads originated from a diverse array of sources. When the monetary value of clean fill from building excavations was realized, this ceased to be used for filling along the Hudson. Often wharves and piers were used as dumping boards, where collected garbage was eventually pushed overboard into scows. Between Battery Place and Harrison Street, dumping boards existed at Whitehall Slip next to the Battery and at Park Place (Buttenwieser 1987:42). Garbage collected on piers and wharves, only to be thrown into the adjacent slips as landfill. One such dump location in 1803 was between Harrison and Jay Streets at Washington Street (Kirkorian and Tidlow 1984:12). Rubbish, ballast, street trash, and previously excavated materials deposited along the Hudson pushed the shoreline further west.

Nineteenth century landfilling was responsible for the creation of what is now Battery Park. The West Battery fortification was originally built by the federal government around 1807, and stood on a cluster of rocks a short distance off shore (Works Progress Administration 1939:308). At that time, no encumbrances were permitted between the Battery and Eldes Slip at the intersection of Battery Place and Greenwich Street (Gilder 1936:49). The fort was renamed Castle Clinton after the War of 1812, and when it no longer served a military purpose, it was ceded to the city which leased the land in 1824 as a public garden. By the 1850s, Castle Gardens had been extended southward into the river, since the newly expanded West Street impeded the view from the Battery (NYC Special Committee on the Battery 1849:68). Fill for the project was acquired from the construction process involved with widening and repaving area streets (Ibid.).

By 1853 the New York City Board of Alderman realized that Battery Place was the only southerly outlet of West Street, and thus required widening from its original 40 feet. The battery railing was pushed southward to accommodate this widening (NYC Board of Alderman 1853:127, Figure 6-4). By that time Battery Place had been filled out to West Street, and by 1855 Castle Garden became a major immigrant station, and remained as such for 35 years. In 1867 an experimental elevated railway was authorized from Battery Place, northward on Greenwich Street, and in 1874 the railway adopted steam locomotives (Ibid.:212). The railway provided for the movement of immigrants north of the city bounds, where housing was cheaper. By 1882 the park land had been expanded to 21 acres (McCabe 1882:422). In 1896 Castle Garden reopened as an aquarium serving the city of New York, and subsequently was demolished in 1942 (Works Progress Administration 1939:307).

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Also built on landfill, the Washington Market, previously known as both the Bear and Oswego Markets, was established in 1771. The market stood between Fulton and Vesey streets, and Washington and West Streets, now the site of the World Trade Center (Rutsch et al. 1983:369). After burning, the market was rebuilt in 1812 on the same site, adjacent to the Corporation Docks (Figure 6-5). The Corporation Basin, built in 1817, came within a few feet of the west side of the market and interrupted the path of West Street (De Voe 1867:427). By the 1840s, West Street had been filled between Fulton and Vesey Streets, and created land west of West Street housed the new market area, known as West Washington Market (Rutsch et al. 1983:375). In 1856 permanent pier lines were established which made the West Washington Market an illegal encroachment on the river (Buttenwieser 1987:48). Several years later, the city purchased the illegal land from the state and was permitted to retain the market.

By the middle of the 1800s the use of the Hudson waterfront increased as newly designed ships required deeper berths. The introduction of the steamboat in 1807 and the production of larger vessels by local shipbuilders contributed to the need for longer piers in deeper water. The opening of the Erie Canal in 1825 and the demand for coal in New York City also contributed to this need (Buttenwieser 1987:39). Piers were built extending into the Hudson to accommodate these industries, and by 1839 *finger piers extended from every street end between Vesey and King streets* (Ibid.). Soon the city was transformed into a major market place and financial center.

Prior to 1844 private parties or individual owners built the piers, wharves, and slips along the rim of Manhattan (Hoag 1905:36). The waterfront conditions along either side of the island during the middle of the nineteenth century were considered deplorable. The solid base construction of the piers prohibited the flow of sewage out to sea, which created disease-infested waters (New York Pier and Warehouse Co. 1869:58). Recurrent plagues drove New Yorkers northward into cleaner residential districts. The piers themselves were also in a state of disrepair, and transportation of goods to and from the waterfront on the Hudson River was difficult due to the large volume of freight and numerous pedestrians.

In 1847 the owners of piers between Battery Place and Carlisle Street were made to construct a bulkhead, 100 feet from West Street, and to extend the piers up to 600 feet from the bulkhead line (Rutsch et al. 1983:98). Also that year, the Hudson River Railroad was organized and a track was laid from "Chambers Street at Hudson Street, up Hudson to Canal Street, from Canal to West Street, thence along Tenth Avenue to 30th Street" (Ibid.:258). The railroad served the waterfront docks, which helped to spur the industrial and commercial nature of the lower-west side of Manhattan.

In 1870 the Department of Docks was created and, in the following year, the Commissioner of the Land Office granted rights and land to New York City for the construction of wharves, bulkheads, docks, piers, basins, and slips. The McClellan plan resulted in the construction of a solid block and granite bulkhead wall around the southern half of Manhattan between West 61st and East 51st

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Streets. The wall was placed outside of the previously existing bulkhead to allow for the expansion of streets and the construction of Marginal Street. Directly along the shoreline adjacent to the bulkhead, Marginal Street was designed to handle shorefront traffic, relieving congestion from Twelfth Avenue (Buttenwieser 1987:73).

The width of West Street, together with Marginal Street, was slated as 250 feet, as per the McClellan Plan. However, in the 1890s West Street was still cluttered with intrusions (Rutsch et al. 1983:297). As late as 1910 "numerous encroachments into the right-of-way still existed, especially south of Cortlandt Street where some old bulkheads maintained the 70 foot width of West Street" (Ibid.:270, Figure 6-6). While West Street maintained its width of 70 feet, eventually the encroachments were cleared allowing for the additional 180 feet for Marginal Street.

With the adoption of the Department of Dock's McClellan plan, several stone and concrete docks were built, such as Pier 1 at the Battery. The pier was built on cement blocks, faced in granite and decked with concrete (Buttenwieser 1987:74). The plan enabled the available pier area to double. Beginning at the Battery, the Hudson River front had piers of the Pennsylvania Railroad and several steam ship lines. Above these were the ferry houses of the New Jersey Central and Pennsylvania Railroads (McCabe 1882:360). Railroads became more and more utilized and 1875 marked the completion of elevated railways in Manhattan, facilitating travel to and from the southern part of the city (Ibid.:239).

In the 1930s, West Street was edged with busy docks, and was the "main highway for the city's incoming and outgoing supplies" (Works Progress Administration 1939:58). Also on the lower west-side were some of the city's largest produce markets, and numerous warehouses interspersed with tenements (Ibid.). South of 23rd Street, the Hudson River was walled by an "almost unbroken line of bulkhead sheds and dock structures" (Ibid.:69, Figure 6-7). Cross streets experienced heavy traffic bound for the ferries at the ends of Chambers, Barclay, Cortlandt and Liberty Streets (Figure 6-8).

The West Side Highway (Highway) was constructed in the 1920s and 1930s to help alleviate waterfront congestion. The 1930s extension of the Highway went as far south as Duane Street where the entrance and exit ramps were located (Works Progress Administration 1939:71). By 1947 the elevated structure continued as far south as Rector Street. Between Rector Street and West 39th Street the "viaduct columns were supported on grillage-type footings which in turn were supported by 18 inch diameter steel pipe piles driven to bedrock and filled with concrete" (Vollmer Associates 1989:10). The Highway was demolished south of West 43rd Street in the 1970s, and an at-grade roadway was built to replace it (Ibid.). The remainder of the Highway was removed in 1989.

In the 1960s the previously established laws governing development west of the bulkhead line were altered, allowing for the extension of landfilling westward out to the pierhead line. The Battery City Park landfilling project was initiated in 1966 and was finally completed in 1974, although the land remained unused for some time

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thereafter. The landfill extended from Battery Place, north to Jay Street. The park currently encompasses 92 acres of created land, west of West Street and Marginal Street (Battery Park City Authority 1979:1).

WEST SIDE HIGHWAY CONSTRUCTION

In 1925 Nathan Miller, Manhattan Borough President, outlined plans for an elevated highway running from Canal to 72nd Street, to alleviate traffic from Twelfth Avenue and Marginal Street. The plan was approved by Governor Smith in 1926 and construction was started in 1927 (Stern et al. 1987:698). The City and Hudson River Railroad Company shared in the expense of construction. In 1929 the Depression caused a temporary halt in construction, and when funds ran low, Robert Moses convinced Governor Herbert Lehman that the entire highway was a continuous grade crossing and thus could receive funding from the Grade-Crossing Elimination Fund (Ibid.:698). Highway construction was completed between Canal Street and 72nd Street, and opened by 1938 (Csanyi 1938:177).

According to the Contract Bid proposal for the construction of the West Side Highway, the construction entailed numerous stages. The following is a list of requirements for the construction of the highway:

Fill and Backfill- "All trenches shall be backfilled, and backfill shall include clean earth, clean ash, clean cinders, and stone."

Sidewalks- "Sidewalks shall be graded to a depth of 10" below the finished sidewalk grade."

Piles- "Piles that are less than 24' shall be constructed of cement and reinforced steel." Some piles are over 40' long.

Width of Excavation- "For each as follows: sewers, basin counts, drains, manholes, inlets...6" wide pipe=2'6" wide trench. 8" wide pipe=2'8" wide trench. 10" wide pipe=2'10" wide trench. 12" wide pipe=3' wide trench. 15" wide pipe=3'3" wide trench. 18" wide pipe=3'6" wide trench. 24" wide pipe=4' wide trench. For all concrete sewers, one foot on each side of the sewer, above the foundation. For manholes, risers, basins, overflow chambers, and inlets, one foot on all sides of the structure above the foundation."

Depth of Excavation- "Water pipe trenches: 4" pipe=2.4' wide, and 1' below top of pipe. 6" pipe=2.5' wide, and 1.1' below top of pipe. 8" pipe=2.7' wide and 1.3' below the top of pipe. 12" pipe=3' wide and 1.6' below the top of pipe. 16" pipe=3.3' wide and 2' below the top of pipe. 20" pipe=3.7' wide and 2.3' below top of pipe. 24" pipe=4' wide and 2.7' below top of pipe."

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Hydrants- "Total excavation in addition to the pipe trench is 4' long and 4' wide, the depth to 15" below the bottom of the hydrant."

Restoration of Park Areas- "Excavate, regrade and replace top soil and subsoil within the limits of...park."

General construction activities which caused subsurface disturbance entailed the following:

Remove rock ledge from areas adjacent to sewer structures by blasting, barring and wedging....If necessary to relocate water lines-permission must be granted by the Department of Water Supply, Gas and Electric. Fence posts extend 3' into the ground. Existing granite-block pavement will be covered with cement. Install under-ground lead-covered cables in the conduit provided for the Fire Alarm System (City of New York 1926:45-138).

The construction of the highway during the 1930s entailed sinking cast-iron caissons between 40 and 48 feet deep, and 4 to 5 feet wide. In general, the construction along the shoreline for the highway caused a tremendous amount of disturbance. According to a report on the construction of the Miller Elevated Highway, subsurface conditions encountered during excavation proved to be quite interesting.

The original shoreline was much farther inland than it is at present and various buildings, docks and piers were built in what is now Twelfth Avenue. All these subsurface structures were allowed to remain when the area was filled in to form Twelfth Avenue...Rock-filled cribs and old bulkhead walls were frequently encountered. Such conditions were not at all unusual" (Harrington 1934:124).

BLOCK HISTORIES

The block histories presented are based on cartographic sources. An extensive array of maps and atlases were reviewed in order to detect potentially sensitive archeological features within the project area. Maps and atlases were reviewed at approximately five-to-ten year intervals. In some cases, several maps were used dating to the same period since the accuracy of each was difficult to ascertain. It was believed that this is sufficient to identify potentially sensitive areas and accurately track landfilling episodes. Buildings or features present for less than five to ten years rarely are constructed in such a manner as to leave a vertical or horizontal footprint on the landscape. Additionally, disturbance by these short term structures tends to be *minimal*. The chronological description presented is based on the atlases and maps reviewed. A full title list of cartographic sources referenced is provided in the Map and Atlas section of the Bibliography, and the repositories where research was conducted are listed in the Methodology section. This section only presents potentially sensitive areas without assessing disturbance. Subsequent impact to these areas is presented in the Subsurface Disturbance section.

Historical development has been traced along both Battery Place and West Street for the seventeenth through the twentieth centuries. The filling and development of West Street is presented from south to north, with each section demarcated by adjacent cross streets. Each section presented includes the development that occurred between the south boundaries of both the southern and northern cross streets, together with the additional 50 feet east on the southern cross road. The only exception to this is the block between Jay and Harrison Streets which extends northward to include the northern boundary of Harrison Street. In the case of Battery Place, historical development was not divided between cross streets, and is presented chronologically for the entire span of the street and the additional 50 feet north and south onto Broadway and State Street. The only other areas covered are the blocks encompassed in the southern portion of the project area where the project parcel is extended eastward, and an eastern spur onto Chambers Street where there is a proposed pedestrian overpass.

The actual routes of West Street and Battery Place were planned, and construction commenced as landfilling permitted. These areas were never subjected to lotting or development, and there would be little gained by acquiring land transaction records. Therefore, land transaction records were only reviewed for those sections of the project area that included parcels that were lotted at some time historically. Water lot grants were not included. Between Battery Place and Harrison Street, only several blocks within the project area bounds were actually included for review, as specified by the project area bounds.

Blocks currently numbered 18 and 139 (Figure 6-6) are the only two blocks within the project that have been lotted and developed historically.

While performing cartographic research, it was noted that there were several inconsistencies and problems with some of the resources as discussed below. It should be noted that the 1609 MacCoun map is a recreation, not an original document. The map was compiled in 1909. Unfortunately the 1819-1820 Randel

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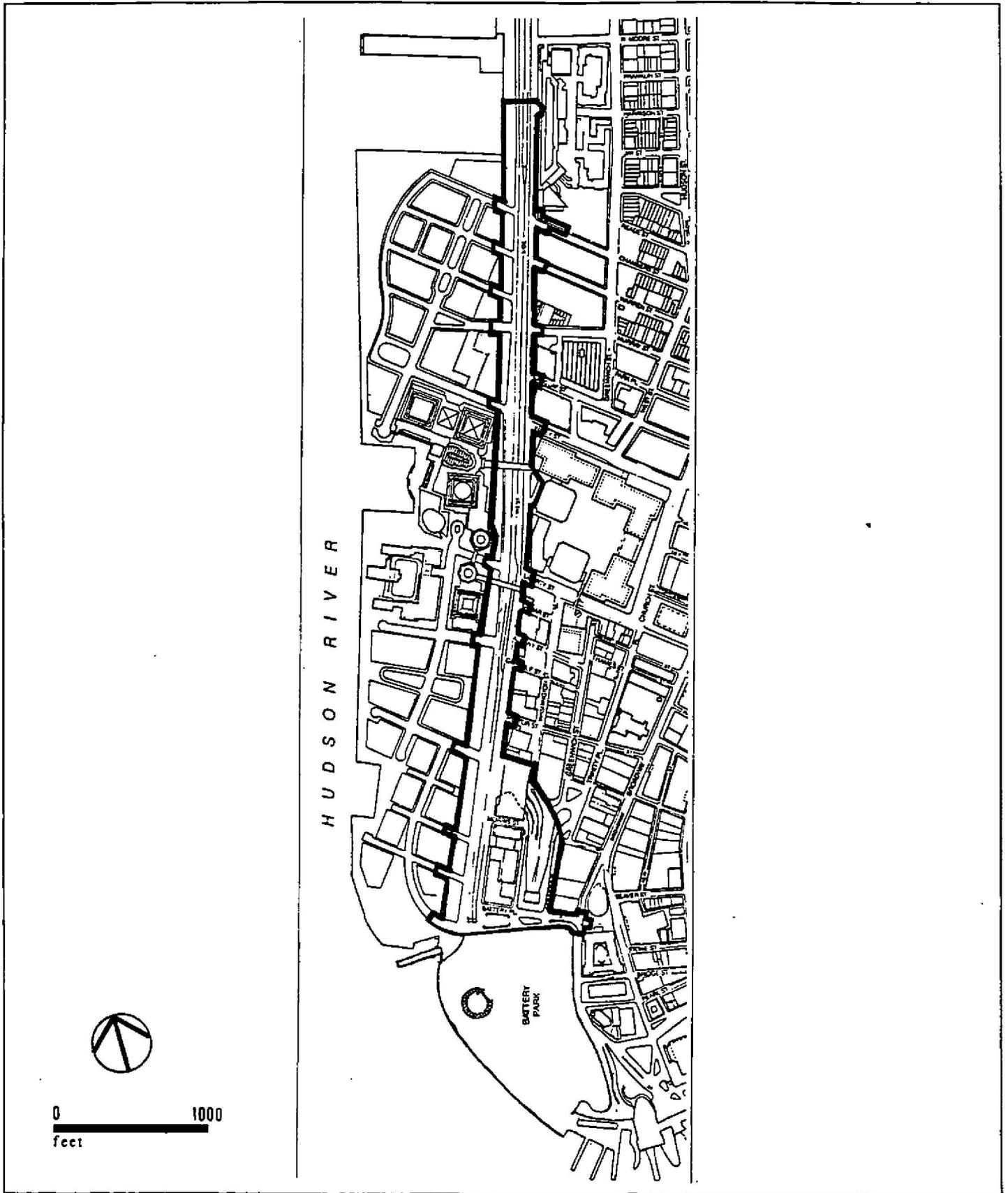
map, which was considered one of the more accurate sources of the geography at that time, was not available for the area south of 12th Street. Therefore it was not presented in the majority of this section, as it is in others. The 1859 Viele Map of the City of New York, showing the original topography of Manhattan Island, shows topography and the original shoreline east of the project parcel, so it was not included in this report.

There were problems with comparisons of the 1817 Poppleton and Longworth maps. Quite often, these two maps did not agree, even though they were produced at the same time. In some cases, later maps substantiated the information on the Longworth maps, and in other cases it substantiated the Poppleton maps. There is a handwritten notation on the 1817 Poppleton map which states that the surveying for the publication actually took place in 1814. This may account for the inconsistencies between the two maps. Therefore, each block was treated individually with regard to map accuracy, and both maps were included in the attempt to delineate the correct cartographic depiction for that date.

Another problem was with the 1834 and 1837 Burr maps. These were consistently found to more accurately reflect development shown in the 1850s. For this reason, they were not included in the historical reconstruction of the project area. In addition, the 1855 Miller map did not accurately reflect the 1855 shoreline, but presented the original high water mark and farm borders. Since both of these features were east of the project area, it was also not included in this assessment.

Documenting development in the 1860s posed a problem since there were few resources found dating to this period. During the Civil War, New York's cartographers were redirected, and atlases were not produced in the abundance that they were in the 1850s (Alice Hudson, Director of the Map Division, New York Public Library, personal communication to Faline Schneiderman-Fox, April 1989). The only detailed map found dating to this period, Dripps 1868 Plan of New York City, showed West Street as a continuous road along the shoreline of the river, uninterrupted by intrusions. It seems that Dripps simply depicted the road as it was supposed to be for convenience.

It should be noted that in the following section "original land" refers to an exposed landform that existed prior to 1620.



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Legend

— Archeological Study Area Boundaries

Reference map for the following section
Battery Place to Harrison Street

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Battery Place - Between Broadway and the bulkhead on the west side of West Street. Including the 50 feet north and south on Broadway.

CARTOGRAPHIC REVIEW

1609 MacCoun - (Figure 6-12) Battery Place is on original land as far west as the eastern border of Greenwich Street. West of this is land under water.

1653-1664 MacCoun-(Figure 6-1) Battery Place is not labeled, but is laid out. It is on solid land as far west as the eastern border of Greenwich Street, and west of this is still land under water. On Battery Place between Broadway and Greenwich Street, stood "Towns Public Mill," a public windmill. Fort Amsterdam is located at the eastern end of Battery Place on Broadway. It appears that the northern boundary of the fort may abut the southern border of the current route of Battery Place. The northeastern bastion of the fort, and an associated well, may have stood within the first 50 feet south of Battery Place on Broadway, in the project area.

1729 Lyne - (Figure 6-13) Battery Place is on solid land as far west as the eastern border of Greenwich Street. Fort Amsterdam appears to be slightly north of its previous location, and the 50 feet south of Battery Place on Broadway appear to traverse one of the north walls. This is within the project area.

1730 MacCoun - Battery Place is on solid land as far west as the eastern boundary of Greenwich Street, to the west of this is still submerged. The fort, now renamed Fort George, appears as it did in 1653, with the first 50 feet of Broadway south of Battery Place extending onto the northeastern bastion.

1766 Montresor - Battery Place is on solid land as far west as the eastern border of Greenwich Street, and is submerged west of this. The fort now appears as it did on the 1729 Lyne map, with the northern wall within the project areas in Broadway.

1767 Ratzer - (Figure 6-14) Battery Place is on solid land as far west as the western boundary of Greenwich Street, and is submerged west of this. This map places the fort further to the south, now south of the first 50 feet on Broadway, out of the project area.

1797 Taylor Roberts - (Figure 6-15) Battery Place is labeled "Marketfield Street," and exists as far west as mid-block between Greenwich and Washington Streets. The fort no longer appears on the map.

1808 Longworth - (Figure 6-2) Battery Place is labeled "Marketfield Street," and exists as far west as mid-block between Greenwich and Washington Streets.

1817 Longworth - (Figure 6-16) Battery Place is labeled "Marketfield Street" and exists as far west as the western border of Washington Street. West of this it is submerged. Extending southward from the corner of Marketfield Street and

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Washington Street is a short pier, which is in the path of what is now Battery Place. Castle Clinton has been built to the south of the project area.

1817 Poppleton - Appears the same as the 1817 Longworth.

1824 Hooker - Battery Place is labeled "Marketfield Street" and exists as far west as the western border of Washington Street. The pier that extended south from Washington Street is now part of landfill. Landfill also exists as far west as the western boundary of Washington Street on the southern border of Battery Place, which is now within the project area. Castle Clinton is shown to the south of the project area.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Same as the 1824 Hooker map.

1828 Hooker - Same as the 1824 Hooker map.

1836 Colton - Battery Place exists as far west as the western border of Washington Street. A pier extends west from the west end of Battery Place, off of Washington Street.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Battery Place extends as far west as the western side of Washington Street, and the pier off of this intersection no longer exists.

1846 Burr - Battery Place extends as far west as the western border of West Street. The landfill bordering the southern edge of Battery Place extends as far west as the western border of Washington Street, and does not extend all the way to West Street. This is now within the path of current Battery Place. The route of what will be Marginal Street is land under water. There is a pier which extends west from West Street at the end of Battery Place, which is in the line of what will be Marginal Street. Castle Garden still exists south of the project area.

1852 Dripps - Battery Place exists as far west as the western boundary of West Street. The pier at the end of Battery Place off West Street has been extended and possibly widened, and is labeled "Pier 1." A slip for the New Brighton/Staten Island ferry borders the southern side of Battery Place, mid-block between Washington and West Streets, and is within the path of current Battery Place. Pier 1 still extends west off of West Street at Battery Place in the route of what will be Marginal Street.

1854 Dripps - Battery Place extends as far west as the western border of West Street. Where the ferry slip was is now filled as far as the western border of West Street. Pier 1 still extends west off of West Street at Battery Place in the route of Marginal Street.

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1856 Bacon - (Figure 6-18) Same as the 1854 Dripps map.

1874 Viele - Same as the 1854 Dripps map.

1879 Bromley - (Figure 6-19) Battery Place has been widened to its current route, and extends as far west as the western border of West Street. Parts of Marginal Street have been filled. The original Pier 1 is still present, and there is an additional Pier 1 south of it. The northern Pier 1, labeled "Pennsylvania Railroad Co.," is in the path of what will be Marginal Street. There is a small mark labeled "Emigrant Depot" at the intersection of West Street and the Pennsylvania Railroad pier.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley.

1897 Bromley - Same as the 1879 Bromley atlas although the emigrant depot is shown as a rectangular building in the route of what will be Marginal Street, on landfill south of the wharf at the east end of Pier 1.

1902 Bromley - Same as the 1897 Bromley atlas, although the emigrant depot no longer exists.

1913 Hyde - (Figure 6-6) Battery Place extends as far west as the western border of Marginal Street which is entirely filled. There are no buildings in the path of Battery Place or Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - Same as the 1925 Bromley atlas.

SHORELINE FILL

The first episode of filling occurred between 1766 and 1767 in Battery Place at its intersection with Greenwich Street. By 1797 there was fill as far west as mid-block between Greenwich and Washington Streets, and by 1817 fill extended to the west side of Washington Street. A pier appeared by 1817 at the intersection of Battery Place and Washington Street extending to the south, which later became part of the landfill. Another pier to the west of this intersection appeared on the 1836 map, and was removed by 1839. Battery Place was filled to the western boundary of West Street between 1839 and 1846. A pier was built by 1846 in the path of Marginal Street at Battery Place, and in 1852 was numbered Pier 1. Between 1902 and 1913 Marginal Street was constructed, and what had been the Pier 1 wharf was either removed or became part of the landfill. There was a slip on the south side of Battery Place built by 1852. When Battery Place was widened in 1853, landfill extended it over the slip.

HISTORICAL SENSITIVITY

In addition to the piers which may be part of the landfill, there was a windmill which stood on Battery Place between Broadway and Greenwich Street, which is

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only seen on the 1653 to 1664 map (Figure 6-1). On the same map is a well associated with Fort Amsterdam. Both the well and a northern wall or bastion of the fort, which stood between at least 1653 and 1767 to 1797, may be within the first 50' south on Broadway, included within the project area. There was also an emigrant depot which stood between 1879 and about 1900 in the route of what is now Marginal Street (Figure 6-1).

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Battery Place to Morris Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) The route of West Street between Battery Place and Morris Street is land under water.

1817 Longworth - (Figure 6-16) There are two piers extending west from Washington Street into the path of what will be West Street, both between Battery Place and Morris Street. West Street itself is still land under water.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - The piers, numbered 2 and 3, still extend into the route of West Street. Pier 2 is labeled "Arden" and Pier 3 is labeled "White." West Street itself is still land under water.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Pier 2 is the same as in 1824. Between Pier 3 and Morris Street, then Beaver Street, landfill has extended as far west as the eastern side of West Street.

1828 Hooker - Same as the 1827 Ewen map.

1836 Colton - A pier has been added to the south of Pier 2, in the path of West Street. Piers 2 and 3 are still standing also in the path of West Street. There is no fill between the three piers.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) The three piers still exist extending out into the route of proposed West Street. Piers 2 and 3 are still owned by Arden and White. The route of West Street is still not filled.

1846 Burr - West Street has been filled entirely between Battery Place and Morris Street. Piers 2, 3 and the southern pier have become part of the landfill. A pier has been built south of the original location of Pier 2 and is labeled "Pier 1." Another pier has been built west of Pier 3 and is labeled "Pier 2." Both of these are now west of West Street and are in the path of what will be Marginal Street, and are now referenced as New Piers 1 and 2.

1852 Dripps - West Street is complete and filled and Marginal Street does not exist at all. Pier 1 is at the end of Battery Place and is labeled "Camden and Amboy Railroad Pier." Piers 2, 3, and 4 extend between this and Morris Street and are labeled "U.S. Mail Line/Boston," "Steam Ships Washington and Hermann for Bremen and Southampton," and "Steam Ships for Charleston" respectively. The present Pier 2 replaced what was called Pier 1 in 1846, Piers 3 and 4 are new piers, and the 1846

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pier called Pier 2 has been removed. Piers 1 through 4 are in the path of Marginal Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) Marginal Street has a number of wharves in its route between Piers 1 through 4, although there appears to be no actual filling. Pier 1 is labeled "Pennsylvania Railroad Co.," Pier 2 is "Lehigh Valley Railroad Co.," Pier 3 is "NY-Havana-Mexico S.S. Line," and Pier 4 is also labeled "Pennsylvania RR Co."

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Marginal Street is entirely filled and there are a number of piers to the west of it. There is an unlabeled building in West Street and Marginal Street mid-way between Piers 3 and 4.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - There is a line of pier sheds from Battery Place to Morris Street along the shorefront. These consist of wood and brick-faced two and three-story buildings located within the path of Marginal Street.

SHORELINE FILL

West Street was entirely filled between 1839 and 1846. Old Piers 2 and 3 occupied by Arden and White were built between 1808 and 1817, and became part of the West Street fill by 1846. An unnamed and unnumbered pier was built south of Old Pier 2 by 1836, and also became part of the landfill by 1846. New Piers 1 and 2 were built west of West Street in the line of Marginal Street by 1846 (Pier 1 was also discussed in the previous block). Piers 3 and 4 were built by 1852. These are hereafter referred to as New Piers 1, 2, 3 and 4. By 1879 there were wharves along the shore in the route of Marginal Street in addition to New Piers 1 through 4. Marginal Street was entirely filled between 1902 and 1913, and Piers 1 through 4 may have become part of the landfill.

HISTORIC SENSITIVITY

Potentially sensitive features include nineteenth century piers which may have become part of the landfill beneath West Street and subsequently Marginal Street. The only structures identified were an unlabeled building dating to 1913 extending

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into West Street and Marginal Street, and a number of pier sheds along the western edge of Marginal Street which existed in the twentieth century.

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Mooris Street to Rector Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) This section of West Street is land under water.

1817 Longworth - (Figure 6-16) Morris Street is called Beaver Lane. Going north from Beaver to Rector Street, there are five piers extending west off of Washington Street in the path of what will be West Street. These are numbered Piers 3 through 7.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - West Street is still nonexistent. The five piers have been renumbered 4 through 8 and are labeled "White," "Schermerhorn," "Edgar," "Arden," and "Kermit" consecutively.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Fill has been added from Washington Street into the path of West Street between Beaver Street and Pier 4. The piers appear as they did in 1824 and no other fill has been added.

1828 Hooker - The five piers still appear as they did in 1824. Between Pier 8 and the pier extending off of Rector Street fill has been added into the path of West Street.

1836 Colton - Piers 4 through 7 still appear the same. Pier 8 and the landfill to the north of it do not appear at all as they do on the 1828 Hooker map. There is still landfill between Morris Street and Pier 4.

1838 Hooker - Piers 4 through 8 all appear as they did in 1836 and the landfill between Pier 8 and Rector Street is present in the path of West Street.

1839 Burr - (Figure 6-17) Piers 4 through 8 still exist and there is a T at the end of Pier 6 in the path of what will be West Street. There has been no additional landfilling. The fill between Pier 4 and Morris Street does not appear to extend as far west as West Street as previous maps had shown.

1846 Burr - West Street appears filled completely between Morris and Rector Streets. There are four new piers north of Morris Street extending west from West Street, numbered 3 through 6. These appear to be west of the previous locations of Piers 4, 5, 6, and 7 and are in the route of what will be Marginal Street.

1852 Dripps - West Street still appears filled and there is still no filling in Marginal Street. Pier 3 has been removed, and Pier 4 now extends west at the intersection of Morris and West Streets and is labeled "Steamships for Charleston." The

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remaining piers have been renumbered, and are hereafter referred to as New Piers 5, 6 and 7. Piers 5 and 6 appear to be in the same location as previous piers 4 and 5. Pier 7, however, appears to be slightly north of the previous location of Pier 6, although this is probably just a cartographic error. All four of these are in the path of what will be Marginal Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) West Street is complete and Marginal Street has had sections filled. Piers 4 and 5, labeled "Pennsylvania Railroad Co.," have extended shoreline docks out to the new bulkhead line, filling in Marginal Street. Between Piers 6, 7 and 8, a small amount of filling has also begun on Marginal Street, not yet as far west as the bulkhead line.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - The filling between Piers 6, 7, and 8 has been extended, although it still does not extend as far west as the bulkhead line. All else is the same as on the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Marginal Street has been completely filled and there are several piers extending to the west. The Pennsylvania R.R. Freight Depot is a one-story pier shed in Marginal Street extending from Morris Street half way up to Rector Street. North of this is a three-story pier shed in Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - The Brooklyn/Battery Tunnel has been built and the entrance to the underpass is mid-way between Morris and Rector Streets. Bordering the entrance on the north side, Joseph P. Ward Street was created, exiting onto West Street. There are three-story wood pier shed buildings along the shore on Marginal Street.

SHORELINE FILL

The first episode of filling may have occurred between Morris Street and Old Pier 4 between 1826 and 1827, however an 1839 map contradicts this. The actual filling between Old Pier 4 and Morris Street may not have occurred until 1846 when all of West Street was filled. There is also filling between Old Pier 8 and Rector Street between 1827 and 1828. Old Piers 4 through 8, built between 1808 and 1817, stood in the route of West Street and may have become part of the landfill by 1846. New Piers 5, 6, and 7 were built by 1846 and, by 1852, New Pier 4 was built (New Pier 4 was also discussed in the previous block). These traversed the route of Marginal

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Street and may have become part of the landfill. Marginal Street first experienced filling by 1879 and was entirely filled by 1913.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and subsequently Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west border of Marginal Street.

Chapter VI:

Rector Street to Carlisle Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Rector and Carlisle Street is land under water.

1817 Longworth - (Figure 6-16) Pier 8 extends west from Rector Street into the path of West Street. North of this, Piers 9 and 10 also extend west into the path of West Street. There is no filling yet in West Street.

1817 Poppleton - Pier 8 does not appear to extend as far as West Street, however, Piers 9 and 10 still appear to extend as far as they did on the 1817 Longworth map.

1824 Hooker - Pier 8 has been renumbered Pier 9, labeled "Rector Street," Pier 9 has been renumbered 10 and is labeled "Schermerhorn," and Pier 10 has been shortened, renumbered as 11, and is labeled "Castle." There is no filling in the project area.

1826 Prior Dunning - Piers 9, 10 and 11 are still in the path of what will be West Street and there is no indication that any filling has taken place.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map.

1828 Hooker - Same as the 1826 Prior Dunning map.

1836 Colton - Same as the 1826 Prior Dunning map.

1838 Hooker - Same as the 1826 Prior Dunning map.

1839 Burr - (Figure 6-17) Same as the 1826 Prior Dunning map.

1846 Burr - West Street has been entirely filled, and Piers 9, 10 and 11 have probably become part of the landfill. Piers 7, 8 and 9 are west of the locations of Old Piers 9, 10, and 11. These are west of West Street, in the route of what will be Marginal Street.

1852 Dripps - Piers 7, 8 and 9 have been renumbered, and are now referenced as New Piers 8, 9, and 10. These are west of West Street in the route of what will be Marginal Street. There is still no filling in Marginal Street.

1854 Dripps - Same as the 1852 Dripps.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps.

1874 Viele - Same as the 1852 Dripps map.

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1879 Bromley - (Figure 6-19) There is some filling in Marginal Street between Piers 8, 9, and 10, although it does not extend as far west as the bulkhead line. Pier 8 is labeled "Central Railroad of New Jersey" and Piers 9 and 10 are labeled "Cromwells S.S. Line."

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is filled out to the bulkhead between Piers 8 and 9. Between 9 and 10, and north of 10, the fill has been extended westward, although it does not yet extend as far west as the bulkhead line.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas.

1925 Bromley - Marginal Street has been filled as far west as the bulkhead line. Two piers extend west of this and there are pier sheds on the west portion of Marginal Street, along the shore.

1950 Hyde - There are wooden pier sheds along the shoreline on the west side of Marginal Street, adjacent to the piers.

SHORELINE FILL

The first filling in West Street occurred between 1839 and 1846, and Old Piers 9, 10, and 11, built by 1817, may have become part of the landfill. Three piers were built west of West Street by 1846 and by 1852 were numbered as New Piers 8, 9, and 10. These possibly became part of the landfill for Marginal Street. The first filling in Marginal Street dates between 1874 and 1879, and the entire route was filled by 1925.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west border of Marginal Street.

Chapter VI:

Carlisle Street to Albany Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1797 Taylor Roberts - (Figures 6-12 and 6-15) West Street between Carlisle and Albany Streets is land under water.

1808 Longworth - (Figure 6-2) There is a pier at the west end of Carlisle Street but it does not appear to extend as far west as the path of West Street, which is still land under water.

1817 Longworth - (Figure 6-16) The Carlisle Street pier has been extended westward through the west side of West Street and is numbered 11. West Street is still land under water.

1817 Poppleton - The Carlisle Street pier appears shorter than on the 1817 Longworth map and appears as it did in 1808.

1824 Hooker - The pier has been renumbered 12 and it has been extended as on the 1817 Longworth map. The pier is labeled "Lawrence" and is hereafter referred to as Old Pier 12.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Same as the 1824 Hooker map.

1828 Hooker - Same as the 1824 Hooker map.

1836 Colton - Same as the 1824 Hooker map.

1838 Hooker - Same as the 1824 Hooker map.

1839 Burr - (Figure 6-17) Same as the 1824 Hooker map.

1846 Burr - West Street is entirely filled, and Old Pier 12 appears to have become part of the landfill. Pier 10 is west of where Old Pier 12 was, west of West Street in what will be Marginal Street.

1852 Dripps - There is still no filling in Marginal Street. Pier 10 has been renumbered and is hereafter referenced as New Pier 11 and is otherwise the same as in 1846.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

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1879 Bromley - (Figure 6-19) Pier 11 is the same and is labeled "Metropolitan Line to Boston." South of Albany Street, Marginal Street has some filling or a wharf built on it; however, it does not extend all of the way out to the bulkhead line.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Marginal Street is completely filled and there is a pier shed in Marginal Street at Carlisle Street.

1925 Bromley - West Street and Marginal Street are completely filled. There are pier sheds along the shoreline on Marginal Street adjacent to the piers.

1950 Hyde - There are wood and metal pier sheds on the shoreline along Marginal Street and the entire route of Marginal Street is filled.

SHORELINE FILL

The first episode of filling in West Street occurred between 1839 and 1846 when it was entirely filled. Old Pier 12, built by 1797 at the foot of Carlisle Street, appears to have been extended through the route of West Street between 1808 and 1817 and may have become part of the landfill by 1846. Marginal Street first experienced filling between 1874 and 1879. The entire route was filled by 1902. New Pier 11, built prior to 1846, may have become part of the landfill by 1913.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and subsequently Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Albany Street to Cedar Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street between Albany and Cedar Streets is land under water.

1797 Taylor Roberts - (Figure 6-15) Extending west of Albany Street is a pier named "Swartwout's Wharf." "Lukes Wharf" extends west at the end of Cedar Street, and will be discussed in the next block. Both piers extend through the path of what will be West Street. The Albany Basin is between these two piers.

1808 Longworth - (Figure 6-2) Same as the 1797 Taylor Roberts map. The basin is labeled "New Albany Basin."

1817 Longworth - (Figure 6-16) The Albany Basin is still present, and Swartwout's wharf is number 12. The basin has been filled to the eastern border of West Street, which still remains as land under water.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - The pier has been renumbered as 13, but all else is the same. The pier is hereafter referenced as Old Pier 13.

1826 Prior Dunning - There is a small pier mid-block between Albany and Cedar Streets, extending west through the path of West Street. Old Pier 13 appears the same, still in the path of West Street.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map.

1828 Hooker - The center pier between Albany and Cedar Streets, does not appear on this map; however, Old Pier 13 is still in the path of what will be West Street.

1836 Colton - The center pier, not seen in 1828, appears as it did in 1826. The remainder of the area is the same and West Street is still land under water.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Same as the 1836 Colton map.

1846 Burr - West Street is entirely filled between Albany and Cedar Streets. Extending west from where the previous piers were, Piers 11 and 12 extend west off of West Street in the path of what will be Marginal Street.

1852 Dripps - The two piers west of West Street have been renumbered, and are now known as New Piers 12 and 13. Pier 12 is labeled "Philadelphia Steamboats."

1854 Dripps - Same as the 1852 Dripps map.

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1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map. Pier 13 is labeled "Baltimore and Ohio Railroad Pier."

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) New Piers 12 and 13 are both labeled "Central Railroad of New Jersey" and both still extend west of West Street. There is filling between the piers along Marginal Street which has not yet extended west as far as the bulkhead line.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is filled half way between West Street and the bulkhead line. New Piers 12 and 13 are still in Marginal Street.

1913 Hyde - (Figure 6-6) Marginal Street is entirely filled. Piers 10 and 11 extend west of Marginal way, west of the project area.

1925 Bromley - Marginal Street is entirely filled. There is a freight station in Marginal Street at the end of Albany Street. There are pier sheds along the shoreline on the west side of Marginal Street.

1950 Hyde - There is a metal pier shed along Marginal Street adjacent to the piers.

SHORELINE FILL

The first episode of filling in West Street occurred between 1839 and 1846 when the route was entirely filled. Swartwout's wharf, also known as Old Pier 13, was part of the Albany Street Basin and was built in 1797 at the foot of Albany Street. This probably became part of the landfill by 1846. Another pier built mid-block in 1826 may also be part of the fill by 1846. The first filling in Marginal Street occurred between 1874 and 1879. New Piers 12 and 13, built by 1846, may have become part of the landfill in Marginal Street by 1913. Additional filling occurred by 1902 and the street was entirely filled by 1913.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west border of Marginal Street.

Chapter VI:

Cedar Street to Liberty Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street is land under water between Cedar and Liberty Streets.

1797 Taylor Roberts - (Figure 6-15) There is a pier labeled "Lukes Wharf" extending west from the end of Cedar Street into the path of what will be West Street.

1808 Longworth - (Figure 6-2) Same as the 1797 Taylor Roberts map.

1817 Longworth - (Figure 6-16) West Street is entirely filled. Lukes Wharf has been numbered Pier 14, and still extends through West Street and Marginal Street at Cedar Street.

1817 Poppleton - Same as the 1817 Longworth.

1824 Hooker - Same as the 1817 Longworth.

1826 Prior Dunning - Same as the 1817 Longworth.

1827 Ewen - (Figure 6-3) In addition to Pier 14, a second pier appears slightly south of Liberty Street, extending west of West Street. In 1817 the pier was situated at the foot of Liberty Street, and it now appears within this block. The pier is numbered 15.

1828 Hooker - Same as the 1817 Longworth map.

1836 Colton - Same as the 1817 Longworth map.

1838 Hooker - Same as the 1817 Longworth map.

1839 Burr - (Figure 6-17) Same as the 1817 Longworth map.

1846 Burr - Swartwout's Wharf, also known as Old Pier 14, has become part of the landfill. A new pier, numbered 13, is at the foot of Cedar Street. Pier 15 is still present. Marginal Street is still land under water.

1852 Dripps - The Cedar Street pier is now numbered as 14 and is labeled "Hudson Steamboat and Barge Pier." This is hereafter referenced as New Pier 14. Pier 15 now appears at the foot of Liberty Street, out of this block as it did in 1817. There is still no filling in what will be Marginal Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

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1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) Marginal Street is entirely filled and extends west beyond the bulkhead line. There is one pier and a possible pier shed west of Marginal Street.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Same as the 1879 Bromley atlas. The Royal Blue Central R.R. of New Jersey has a pier shed on the west part of Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas. There is a pedestrian overpass over West Street to the piers mid-block between Cedar and Liberty Streets.

1950 Hyde - Same as the 1925 Bromley atlas.

SHORELINE FILL.

West Street was filled entirely between 1808 and 1817. Lukes Wharf, also known as Old Pier 14, was part of the Albany Basin complex built before 1797 and may have become part of the landfill in West Street by 1846 when the Albany Basin was filled. New Pier 14 was built west of the previous pier by 1846, and may have become part of the landfill for Marginal Street. Pier 15 will be discussed in the next block. Marginal Street was entirely filled between 1874 and 1879.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. The only structures within the route of the project area were the possible nineteenth and definite twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Liberty Street to Cortlandt Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street is land under water between Liberty and Cortlandt Streets.

1817 Longworth - (Figure 6-16) West Street is entirely filled. There are three piers, numbered 15, 16, and 17, extending west through the path of what will be Marginal Street. Pier 15, the Liberty Street Pier, may extend as far west as West Street.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - Pier 16 is labeled "Wilkin" and Pier 17 is labeled "Albany Steam Boats." There is still no filling in what will be Marginal Street.

1826 Prior Dunning - There is some filling in Marginal Street between Liberty and Cortlandt Streets. Pier 15, previously seen at the foot of Liberty Street, now appears to the south, out of this block. There is one structure at the foot of Pier 16 and two smaller structures at the foot of Pier 17. All of these are in the path of what will be Marginal Street.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map.

1828 Hooker - Same as the 1826 Prior Dunning map.

1836 Colton - Same as the 1826 Prior Dunning map.

1838 Hooker - Same as the 1826 Prior Dunning map.

1839 Burr - (Figure 6-17) Same as the 1826 Prior Dunning map.

1846 Burr - Same as the 1826 Prior Dunning map.

1852 Dripps - There is some filling in Marginal Street between Piers 16 and 17, but it did not extend as far west as the bulkhead. Pier 15 now appears in its previous location at the foot of Liberty Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Marginal Street appears to be filled as far west as the bulkhead line between Pier 16 and Cortlandt Street. Between Liberty Street and Pier 16, Marginal Street has not been filled at all. A ferry landing has replaced Pier 17.

1874 Viele - The Jersey City Ferry has its landing west of Marginal Street. Marginal Street, south of Pier 16 to Liberty Street, has not yet been filled.

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1879 Bromley - (Figure 6-19) Marginal Street has been completely filled between Liberty and Cortlandt Streets as far west as the bulkhead line. Pennsylvania Railroad Company owns part of the upland area along Marginal Street and there may be a buildings along the shorefront within the project area.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Same as the 1879 Bromley atlas.

1925 Bromley - Same as the 1879 Bromley atlas. There is also a pedestrian overpass crossing West Street at Cortlandt Street.

1950 Hyde - There are two-story wood pier sheds along the shoreline on the western part of Marginal Street, adjacent to piers.

SHORELINE FILL

West Street was entirely filled between 1808 and 1817. Marginal Street first experienced filling between 1846 and 1852 and was entirely filled between 1874 and 1879. Piers 15, 16, and 17, built by 1817, and the 1826 buildings on Piers 16 and 17, may have become part of the Marginal Street fill by 1879

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and subsequently Marginal Street. The only structures within the route of the project area were the nineteenth century pier buildings on Piers 16 and 17 in the route of Marginal Street and twentieth century pier shed buildings on the west border of Marginal Street.

Cortlandt Street to Dey Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Cortlandt and Dey Streets is land under water.

1817 Longworth - (Figure 6-16) West Street is still land under water with the exception of the southernmost portion along Cortlandt Street which is filled to the western border. There is a pier extending off of West Street at Cortlandt Street, labeled "Powels Hook Ferry [Paulus Hook]." There is a second pier mid-block between Cortlandt and Dey Streets, extending west through what will be West Street. The piers are numbered 17 and 18.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - West Street is mostly filled between Cortlandt and Dey Streets. Pier 17 is now Pier 18 and still extends west off of West Street. Pier 19 is west of the original location of Pier 18, extending west of West Street.

1826 Prior Dunning - West Street is entirely filled. The two piers are as they were in 1824, in the route of what will be Marginal Street.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map. In addition, there are two structures on Pier 18 in the route of what will be Marginal Street.

1828 Hooker - Same as the 1826 Prior Dunning map.

1836 Colton - Same as the 1826 Prior Dunning map.

1838 Hooker - Same as the 1826 Prior Dunning map.

1839 Burr - (Figure 6-17) Pier 19 does not appear on this map, although everything else is the same as on the 1826 Prior Dunning map.

1846 Burr - Pier 19 reappears as on the 1826 Prior Dunning map.

1852 Dripps - There is a minute amount of filling in Marginal Street between Piers 18, 19, and Dey Street. It does not extend as far west as the bulkhead line. Between Pier 19 and Dey Street is an unidentified object in the water, not attached to either the pier or West Street. It may be a floating dock or possibly a scow. There is a nearby "Sailing Pier" label, however it is unclear as to whether it belongs with this feature.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

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1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) Marginal Street is filled half way to the bulkhead line between Cortlandt and Dey Streets. Pier 18 is labeled "Starins Trans. Line" and Pier 19 is "Del. Lack. and Western RR Co." Both still run through where Marginal Street will be.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is completely filled. One pier extends west of Marginal Street. There may be one pier shed along Marginal Street adjacent to the shoreline.

1913 Hyde - (Figure 6-6) Marginal Street is entirely filled and there are two-story pier sheds fronting the shoreline on Marginal Street.

1925 Bromley - Same as the 1902 Bromley atlas.

1950 Hyde - There are two and three-story pier heads along the shoreline in the route of Marginal Street between Cortlandt and Dey Streets. Mid-block, between West Street and the bulkhead line, are two unlabeled one-story wooden structures.

SHORELINE FILL

By 1817 West Street had been filled at its intersection with Cortlandt Street. Most of the filling had been completed by 1824 and the street was entirely filled by 1826. Old Pier 18, built by 1817, was in the route of West Street and may have become part of the landfill. Pier 17, later known as New Pier 18, was built by 1817 and traversed the route of Marginal Street. New Pier 19, built by 1824, was in the path of Marginal Street and may have become part of the landfill by 1902. In 1827 there were two structures on the eastern end of New Pier 18 in the path of Marginal Street, although they do not appear on later maps due to lack of detail. A possible third unlabeled pier may have also been in the path of Marginal Street. Marginal Street first experienced filling by 1852 and was entirely filled by 1902.

HISTORIC SENSITIVITY

Robert Fulton's steamship, the Clermont, although constructed in an East River shipyard, began passenger runs to Albany from a pier at Cortland Street about 1807. There are several theories on the final resting place of the Clermont but there is no documentary indication that the Clermont was ever sunk while berthed in Manhattan (Futcliffe 1909). The Clermont use of the Cortland Street pier does not make it potentially sensitive.

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. The only

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structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street and possibly two buildings on Pier 18 seen on the 1827 map.

Route 9A Reconstruction Project

Dey Street to Vesey Street - West Street and Marginal Street. Including Fulton Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street is land under water between Dey and Vesey Streets.

1797 Taylor Roberts - (Figure 6-15) The Corporation Dock extends west off of Fulton Street, then named Partition Street, into the path of what will be West Street. Another dock extended west from Vesey Street through the path of West Street.

1808 Longworth - (Figure 6-2) The two previous docks appear much shorter than on the 1797 Taylor Roberts map and do not necessarily extend through the path of West Street.

1817 Longworth - (Figure 6-16) West Street appears filled, however this is incorrect according to later maps and documentary sources.

1817 Poppleton - Between Dey and Fulton Streets is a basin. Piers 19 and 20 at the end of both streets extend into the path of what will be West Street. Between Fulton and Vesey Streets there is another basin. North of the Fulton Street pier are two additional piers; 21 is mid-block and 22 is at the end of Vesey Streets. Both extend through the future path of West Street. All four piers together are labeled "Corporation Docks." Otherwise, West Street is land under water. East of the project area, the Washington Market has been formed between Dey and Vesey Streets.

1824 Hooker - West Street is completed between Dey and Fulton Streets. Fulton to Vesey Streets is still a basin, although West Street appears to be filled on Vesey Street. Pier 19 at the end of Dey Street is now Pier 20 and is west of the location of Pier 19, now off of West Street. Pier 20 is now Pier 21 and is west of its original location, off of West Street. Pier 21 is now 22 and is in the same location, mid-block between Fulton and Vesey Streets. It still traverses the east half of what will be West Street. Pier 22 is now 23 and is west of its original location, extending off of West Street.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) There is some filling in the route of Marginal Street between Dey and Fulton Streets. Otherwise, everything is the same as on the 1824 Hooker map.

1828 Hooker - Same as the 1827 Ewen map.

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1836 Colton - Between Fulton and Vesey Streets, West Street has been entirely filled. Pier 22 which was mid-block, extends west from its original location, off of West Street. Everything else is the same as on the 1827 Hooker map.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Same as the 1836 Colton map.

1846 Burr - Same as the 1836 Colton map.

1852 Dripps - South of Pier 21 at the foot of Fulton Street, through Pier 23 at the foot of Vesey Street, Marginal Street has been filled entirely. There are two pier sheds along the route of Marginal Street between Piers 21 and 22, oriented east-west. Between Dey and Fulton, Marginal Street is still not entirely filled. Piers 21, 22 and 23 extend west of Marginal Street.

1854 Dripps - Filling has extended west of Marginal Street past the bulkhead line, from an area slightly south of Fulton Street to Vesey Street. Marginal Street, between Dey and Fulton Streets, is still not entirely filled.

1856 Bacon - (Figure 6-18) Marginal Street has been entirely filled between Dey and Fulton Streets. There is also fill west of Marginal Street between these two streets, where the West Washington Market is located.

1874 Viele - Same as the 1856 Bacon map.

1879 Bromley - (Figure 6-19) Six east-west oriented roads have been laid out over the West Washington Market fill, west of Marginal Street and the project area.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - The fill west of Marginal Street has been removed as far east as the bulkhead line and piers now extend west of Marginal Street. The Hudson and Manhattan Railroad Tunnel runs through Fulton Street and under West Street and Marginal Street.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas with the addition of two-story pier sheds fronting the shoreline in Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - There are two-story wood and metal pier sheds in Marginal Street along the shoreline between Dey and Vesey Streets.

SHORELINE FILL

The first filling in West Street occurred between 1817 and 1824 between Dey and Fulton Streets. The remainder of West Street, between Fulton and Vesey Streets, was filled between 1828 and 1836. The Vesey Street pier, Old Pier 22, and Corporation Dock off of Fulton Street, Old Pier 20, both first appear between 1767 and 1797 and may be within the fill of West Street. In addition, the remainder of the Corporation Dock Complex, which includes Old Pier 19 at Dey Street and Old Pier 21 mid-block between Fulton and Vesey Streets, were built between 1808 and 1817 and may also be part of the West Street fill. The first filling in Marginal Street between Dey and Fulton Streets occurred between 1826 and 1827 when it was partially filled. Between 1846 and 1852 Marginal Street was entirely filled between Fulton and Vesey Streets and, by 1856, it was entirely filled between Dey and Fulton Streets. New Piers 20 through 23, built by 1824, may be within the Marginal Street fill.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. The only structures within the route of the project area were the nineteenth and twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Vesey Street to Barclay Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Vesey and Barclay Streets is land under water.

1817 Longworth - (Figure 6-16) West Street appears entirely filled between Vesey and Barclay Streets.

1817 Poppleton - This probably reflects the 1814 shoreline since only part of West Street has been filled between Vesey and Barclay Streets. The only pier extending into the path of West Street is the Vesey Street pier discussed in the Dey to Vesey Streets section as part of the Corporation Dock Complex.

1824 Hooker - West Street appears to be entirely filled. Pier 24 extends west from West Street mid-block between Vesey and Barclay Streets in the path of what will be Marginal Street.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Same as the 1824 Hooker map.

1828 Hooker - Same as the 1824 Hooker map.

1836 Colton - Same as the 1824 Hooker map.

1838 Hooker - Same as the 1824 Hooker map.

1839 Burr - (Figure 6-17) Same as the 1824 Hooker map.

1846 Burr - Same as the 1824 Hooker map.

1852 Dripps - There are several small sheds on Pier 25 which extends south from the foot of Barclay Street, where Marginal Street will be. The pier is labeled "Hoboken Ferry Yards," and will be discussed in the next block. Pier 24 is labeled "Morning Line for Albany" and is also in the path of what will be Marginal Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - The Hoboken Ferry complex has been extended west of Marginal Street and the bulkhead line, filling Marginal Street partially between Vesey and Barclay Streets. South of this complex, Marginal Street has only been filled partially on its east side.

Route 9A Reconstruction Project

1879 Bromley - (Figure 6-19) Marginal Street has been completely filled to the bulkhead line between Vesey Streets and Pier 24 and is labeled "Fish Market." Between Pier 24 and the Hoboken Ferry Complex, the fill has extended westward, but not as far west as the bulkhead line. There is possibly a building on Marginal Street between Pier 24 and the Hoboken Ferry Complex.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is completely filled as far west as the bulkhead line.

1913 Hyde - (Figure 6-6) There are one and two-story pier sheds along the shoreline on Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - There are one and two-story wood pier sheds along the shoreline on Marginal Street.

SHORELINE FILL

West Street was entirely filled between 1808 and 1817. Marginal Street experienced some filling by 1852 and was sporadically filled until its completion by 1902. Pier 24 built by 1824, and the Hoboken Ferry Complex dating to 1852, may be in the Marginal Street fill.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and subsequently Marginal Street. The only structures within the route of the project area were the Hoboken Ferry pier buildings dating to about 1852 and twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Barclay Street to Park Place - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street between Barclay Street and Park Place is land under water.

1797 Taylor Roberts - (Figure 6-15) There is a pier extending west from Barclay Street into the path of what will be West Street. This may be part of Rhinelanders Dock. West Street is still land under water.

1808 Longworth - (Figure 6-2) Same as the 1797 Taylor Roberts map.

1817 Longworth - (Figure 6-16) West Street appears entirely filled.

1817 Poppleton - West Street shows no filling, although this probably reflects the 1814 shoreline.

1824 Hooker - West Street is completely filled between Barclay Street and Park Place. The Hoboken Ferry landing is at the foot of Barclay Street on West Street.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) In addition to what is shown on the 1824 Hooker map, there are three small buildings in West Street and Marginal Street at the foot of Barclay Street.

1828 Hooker - Same as the 1824 Hooker map.

1836 Colton - There is a pier off the end of Barclay Street extending through the path of what will be Marginal Street. A second pier is north of this, half way between Barclay Street and Park Place.

1838 Hooker - The Hoboken Ferry is occupying both of the Piers, west of West Street.

1839 Burr - (Figure 6-17) This map can not be read at this location due to its poor condition.

1846 Burr - The pier off of Barclay Street is numbered 24 and the second pier is absent.

1852 Dripps - Pier 24 has been renumbered 25 and is the Hoboken Ferry Landing. Two smaller piers are north of this, south of Park Place, also part of the Ferry complex. One of the piers is occupied by Steamships for Newark. Marginal Street is partially filled between all three of these piers, but not as far west as the bulkhead line. There are three structures, one on each pier, in the path of what will be Marginal Street.

Route 9A Reconstruction Project

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) There has been additional filling along Marginal Street between the three piers, however it still does not extend as far west as the bulkhead line. There are no structures present on this map and there is still no filling on Marginal Street between the northernmost pier and Park Place.

1874 Viele - Same as the 1856 Bacon map.

1879 Bromley - (Figure 6-19) Marginal Street has had additional filling, and extends all of the way between Barclay Street and Park Place, although it does not quite reach the bulkhead line. There appear to be several structures on Marginal Street.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street has been completely filled to the bulkhead line and one pier extends to the west. There appears to be a pier shed spanning between the two cross streets on Marginal Street, along the shoreline.

1913 Hyde - (Figure 6-6) Same as the 1879 Bromley atlas.

1925 Bromley - The pier shed on Marginal Street is labeled "NYC RailRoad Co., Barclay Street Station."

1950 Hyde - The building appears as a two-story wood pier shed in the route of Marginal Street along the shoreline.

SHORELINE FILL

West Street was entirely filled between 1808 and 1817. A pier which extended west off of Barclay Street, possibly part of Rhinelanders Dock, stood in the path of West Street in 1797. This may have become part of the West Street fill. By 1836 Pier 25 had been built at the foot of Barclay Street, which eventually housed the Hoboken Ferry Complex. By 1852 there was a building on the eastern end of this pier, and two additional piers to the north. All three were part of the Hoboken Ferry Complex and in the path of Marginal Street. Marginal Street first experienced filling by 1852 and was entirely filled by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill beneath West Street and Marginal Street. Structures within the route of the project area include the three buildings shown on the 1827 Ewen map at the foot of Barclay Street in Marginal Street and West Street, the Hoboken Ferry pier buildings built by 1852, and twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Park Place to Murray Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-2) West Street between Park Place and Murray Street is land under water.

1797 Taylor Roberts - There is a pier extending from Robinson Street into the path of what will be West Street labeled *Rhinelanders Dock*.

1808 Longworth - Same as the 1797 Taylor Roberts map.

1817 Longworth - (Figure 6-16) West Street is entirely filled between Park Place and Murray Street

1817 Poppleton - There is a pier extending from Robinson Street, into the path of what will be West Street, labeled "Rhinelanders Dock." Otherwise, West Street is land under water. This probably reflects the 1814 shoreline.

1824 Hooker - West Street is complete. Pier 25 extends west from West Street where Rhinelanders dock was previously.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) Same as the 1824 Hooker map.

1828 Hooker - Same as the 1824 Hooker map.

1836 Colton - Same as the 1824 Hooker map.

1838 Hooker - Same as the 1824 Hooker map.

1839 Burr - (Figure 6-17) Same as the 1824 Hooker map.

1846 Burr - Pier 25 is labeled "Steamboats to Albany" and is still in the path of what will be Marginal Street. Otherwise, nothing has changed from the 1824 Hooker map.

1852 Dripps - The pier has been renumbered 27, and is hereafter referred to as New Pier 27.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

Route 9A Reconstruction Project

1879 Bromley - (Figure 6-19) There is some filling in Marginal Street between Park Place and Murray Street, but is only filled about a third of the way to the bulkhead line. New Pier 27 is labeled "NY and Charleston S.C. Steamship Co." and is still in the path of what will be Marginal Street.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is entirely filled as far west as the bulkhead line. There appears to be a pier shed spanning Marginal Street between Park Place and Murray Street, along the shoreline.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas.

1925 Bromley - Same as the 1902 Bromley atlas.

1950 Hyde - There is a one-story wooden pier shed spanning the entire shoreline between Park Place and Murray Street.

SHORELINE FILL

All of the filling in West Street occurred between 1808 and 1817. Rhineland's pier, built prior to 1797, was in the path of West Street and may have become part of the fill by 1824. Marginal Street first experienced filling between 1874 and 1879 and was entirely filled by 1902. New Pier 27, built by 1824, was in the route of Marginal Street and may have been incorporated into the fill by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill in Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Murray Street to Warren Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Murray and Warren Streets is land under water.

1817 Longworth - (Figure 6-16) West Street appears to be entirely filled.

1817 Poppleton - Murray Street is filled to the eastern border of West Street, which is still land under water. This probably reflects the 1814 shoreline.

1824 Hooker - West Street is entirely filled between Murray and Warren Streets.

1826 Prior Dunning - There is a pier extending west from Murray Street into the path of Marginal Street.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map.

1828 Hooker - Same as the 1826 Prior Dunning map.

1836 Colton - Same as the 1826 Prior Dunning map.

1838 Hooker - Same as the 1826 Prior Dunning map.

1839 Burr - (Figure 6-17) Same as the 1826 Prior Dunning map.

1846 Burr - The pier is labeled "S.B. to Newburgh and Poughkeepsie" and is numbered 26. Otherwise, everything is the same as on the 1826 Prior Dunning map.

1852 Dripps - Same as the 1846 Burr map except Pier 26 is now Pier 28, and is hereafter referred to as New Pier 28.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) Same as the 1852 Dripps map. Pier 28 is now the "Old Colony S.S. Co., Fall River Line for Boston."

1885 Robinson - (Figure 6-20) There is some fill in the path of Marginal Street, not yet as far west as the bulkhead line, from Murray Street to slightly south of Warren Street.

Route 9A Reconstruction Project

1897 Bromley - Same as the 1879 Bromley atlas. This does not show the fill depicted on the 1885 Robinson atlas.

1902 Bromley - Marginal Street is entirely filled out to the bulkhead line. There is a pier shed on Marginal Street spanning the block, along the shoreline.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas.

1925 Bromley - The pier shed is labeled "Eastern Steamship Corp."

1950 Hyde - The pier shed is shown as a two-story wood building spanning the block along Marginal Street.

SHORELINE FILL

West Street was entirely filled between 1808 and 1817. Marginal Street first experienced filling between 1879 and 1885, and was filled entirely by 1902. New Pier 28, built by 1826, stood in the path of Marginal Street at Murray Street and may have been incorporated into the Marginal Street fill by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill in Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Warren Street to Chambers Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street between Warren and Chambers Street is land under water.

1797 Taylor Roberts - (Figure 6-15) West Street exists mid-block to Chambers Street. It appears to be filled, however the area is labeled "Tenbrooks Dock."

1808 Longworth - (Figure 6-2) West Street is filled from Warren to Chambers Street and Rhinelanders Shipyards are between these two streets in the vicinity of West Street.

1817 Longworth - (Figure 6-16) West Street is entirely filled.

1817 Poppleton - There is fill in West Street as it appears on the 1797 Taylor Roberts map.

1824 Hooker - West Street appears entirely filled.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) A pier extends west from the intersection of West and Warren Streets through what will be Marginal Street.

1828 Hooker - The pier on the 1827 Ewen map is absent.

1836 Colton - The pier, previously on the 1827 Ewen map, reappears on this map still at the corner of Warren and West Streets.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Same as the 1836 Colton map.

1846 Burr - Same as the 1836 Colton map and the pier is numbered 27.

1852 Dripps - The pier has been renumbered 29 and is hereafter referred to as New Pier 29. All else is the same as on the 1836 Colton map.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

Route 9A Reconstruction Project

1879 Bromley - (Figure 6-19) Marginal Street is completely filled to the bulkhead line. New Pier 29 has been moved west of Marginal Street and is labeled "Providence and Stonington S.S. Line."

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) Same as the 1879 Bromley atlas.

1925 Bromley - Same as the 1879 Bromley atlas.

1950 Hyde - Same as the 1879 Bromley atlas.

SHORELINE FILL

The first fill occurred in West Street between 1767 and 1797, and the route was entirely filled by 1808. Rhinelanders Shipyards were between these two streets in the vicinity of West Street, and may have become part of the West Street fill by 1808. Marginal Street was entirely filled between 1874 and 1879. New Pier 29, built by 1827, was in the route of Marginal Street and may have become part of the fill.

HISTORIC SENSITIVITY

The only potentially sensitive feature is the pier discussed above.

Chapter VI:

Chambers Street to Reade Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Chambers and Reade Streets is land under water.

1817 Longworth - (Figure 6-16) West Street is entirely filled between Chambers and Reade Streets.

1817 Poppleton - Chambers Street is filled to the eastern boundary of West Street, but West Street still appears as land under water. This probably reflects the 1814 shoreline.

1824 Hooker - West Street appears filled entirely.

1826 Prior Dunning - There is a pier extending west from Chambers Street in the path of what will be Marginal Street.

1827 Ewen - (Figure 6-3) Same as the 1826 Prior Dunning map.

1828 Hooker - Same as the 1826 Prior Dunning map.

1836 Colton - Same as the 1826 Prior Dunning map.

1838 Hooker - Same as the 1826 Prior Dunning map.

1839 Burr - (Figure 6-17) The pier is numbered 26, otherwise its the same as on the 1826 Prior Dunning map.

1846 Burr - The pier has been renumbered 28 and all else is the same as on the 1839 Burr map.

1852 Dripps - The pier has been renumbered 30 and is hereafter referred to as New Pier 30. All else is the same as on the 1846 Burr map.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) Marginal Street is completely filled as far west as the bulkhead line. New Pier 30 appears west of its original location, now west of Marginal Street.

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

Route 9A Reconstruction Project

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Same as the 1879 Bromley atlas.

1913 Hyde - (Figure 6-6) There is a two-story pier shed along the shoreline in Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - Same as the 1913 Hyde atlas.

SHORELINE FILL

West Street was completely filled between 1808 and 1817. Marginal Street was entirely filled between 1874 and 1879. New Pier 30, at the corner of West and Chambers Streets, was built by 1826 in the path of Marginal Street and may have become part of the landfill.

HISTORIC SENSITIVITY

The only potentially sensitive feature is the nineteenth century pier which may have become part of the landfill in Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Reade Street to Duane Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2) West Street between Reade and Duane Streets is land under water.

1817 Longworth - (Figure 6-16) A pier extends west from Reade Street and West Street has been completed at Reade Street, but not north of it.

1817 Poppleton - The pier exists at the end of Reade Street as on the 1817 Longworth map, but West Street has not been completed at Reade Street.

1824 Hooker - Same as the 1817 Longworth map. The pier is numbered 26.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) West Street is filled between Reade and Duane Streets. The pier does not appear at the end of Reade Street, but rather appears north of its original location, mid-block, west off of West Street in the path of Marginal Street.

1828 Hooker - Same as the 1827 Ewen map.

1836 Colton - Same as the 1827 Ewen map.

1838 Hooker - Same as the 1827 Ewen map.

1839 Burr - (Figure 6-17) The pier is now numbered 27 and all else is the same as on the 1827 Ewen map.

1846 Burr - The pier is now numbered 29 and all else is the same as the 1839 Burr map.

1852 Dripps - The pier has been widened and lengthened, is numbered 31 and labeled "Erie Railroad Co." The pier is hereafter referenced as New Pier 31. The pier is still in the route of Marginal Street.

1854 Dripps - Same as the 1852 Dripps.

1856 Bacon - (Figure 6-18) There is some filling in Marginal Street between New Pier 31 and Reade Street, but it does not extend as far west as the bulkhead line.

1874 Viele - The fill seen on the 1856 map does not appear in Marginal Street.

1879 Bromley - (Figure 6-19) The fill appears as it did in 1856. There is also some filling in Marginal Street between New Pier 31 and Duane Street, half way out to the bulkhead line.

Route 9A Reconstruction Project

1885 Robinson - (Figure 6-20) The fill has been extended as far west as the bulkhead line between Reade and Duane Streets.

1897 Bromley - The fill appears as it did in 1879, although it is not as far west as it appeared on the 1885 Robinson atlas. New Pier 31 appears as it did in 1879.

1902 Bromley - Marginal Street appears completely filled out to the bulkhead line as on the 1885 Robinson atlas. There are no piers west of Marginal Street.

1913 Hyde - (Figure 6-6) There is a two-story wood pier shed along the shore on Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - Same as the 1913 Hyde atlas.

SHORELINE FILL

Filling in West Street occurred between 1817 and 1827. A pier at the end of Reade Street ran through West Street by 1817 and may have become part of the fill by 1827. Marginal Street experienced some filling by 1856, although this same fill does not appear on the 1879 atlas, but reappears on the 1885 atlas. The entire route was filled by 1902. New Pier 31, which was mid-block between Reade and Duane Streets, was built by 1827 and stood in the path of Marginal Street. The pier may have become part of the fill by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill in West Street and Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Duane Street to Jay Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1808 Longworth - (Figures 6-12 and 6-2). West Street between Duane and Jay Streets is land under water.

1817 Longworth - (Figure 6-16) There is a pier mid-block between Duane and Jay Streets, extending into the path of what will be West Street. The pier is part of the Duane Street slips.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - The pier is numbered 27 and is labeled "Middle P." West Street is still land under water.

1826 Prior Dunning - The pier is now labeled "Middle Pier" and all else is the same as on the 1824 Hooker map.

1827 Ewen - (Figure 6-3) West Street appears filled and completed between Duane and Jay Streets. There is a pier extending mid-block off of West Street west of where previous Pier 27 was, in the path of what will be Marginal Street.

1828 Hooker - West Street appears to have not been filled and Pier 27 appears as it did on the 1824 Hooker map.

1836 Colton - The filling in West Street has reappeared, as on the 1827 Ewen map. Pier 27 also appears as it did in 1827.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Same as the 1836 Colton map.

1846 Burr - The pier has been renumbered 30 and all else appears the same as on the 1836 Colton map.

1852 Dripps - The pier has been renumbered 32 and all else appears the same as on the 1846 Burr map. The pier is hereafter referred to as New Pier 32.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

1879 Bromley - (Figure 6-19) There is some filling in Marginal Street, between Duane Street and slightly north of New Pier 32, although it does not extend as far west as the bulkhead line.

Route 9A Reconstruction Project

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is entirely filled and completed to the bulkhead. A pier extends west off of Marginal Street. There are pier sheds along the shoreline on Marginal Street extending from Duane Street north to the foot of the pier at mid-block. North of this, after a short vacancy, is another pier shed extending to Jay Street.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas.

1925 Bromley - Same as the 1902 Bromley atlas.

1950 Hyde - The West Side Highway appears, starting mid-block extending northward, traversing part of West Street and Marginal Street. There are one and two-story wood pier sheds on the shoreline between Duane and Jay Streets in Marginal Street.

SHORELINE FILL

West Street was filled completely between 1826 and 1827. Old Pier 27, located mid-block between Duane and Jay Streets, was built by 1817 and may have become part of the landfill by 1827. Marginal Street first experienced filling between 1874 and 1879 and was entirely filled by 1902. New Pier 32 built off of West Street by 1827 may have become part of the Marginal Street fill by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill in West Street and Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Chapter VI:

Jay Street to Harrison Street - West Street and Marginal Street.

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figures 6-12 and 6-14) West Street between Jay and Harrison Streets is land under water.

1797 Taylor Roberts - (Figure 6-15) Harrison Street appears filled as far as West Street. The fill between Jay and Harrison Streets, east of the project area, is labeled "Rhinelanders Dock," although there is no visible dock on the map.

1808 Longworth - (Figure 6-2) The area is filled east of the project area. West Street is land under water except at Harrison Street.

1817 Longworth - (Figure 6-16) West Street is completely filled from Jay through Harrison Streets. A pier extends west, just north of Jay Street, in the path of what will be Marginal Street.

1817 Poppleton - Same as the 1817 Longworth map.

1824 Hooker - The pier is numbered 28 and is still in the path of Marginal Street.

1826 Prior Dunning - Same as the 1824 Hooker map.

1827 Ewen - (Figure 6-3) There is some fill in Marginal Street at the end of Jay Street, but not as far west as the bulkhead line.

1828 Hooker - Same as the 1827 Ewen map.

1836 Colton - There is a pier extending west from Harrison Street, Pier 28 is still in the same location, and there has been no additional filling in Marginal Street.

1838 Hooker - Same as the 1836 Colton map.

1839 Burr - (Figure 6-17) Same as the 1836 Colton map.

1846 Burr - Pier 28 has been renumbered 31 and the Harrison Street pier is numbered 32. Both are west of West Street in the path of what will be Marginal Street.

1852 Dripps - Pier 31 is now Pier 33 and Pier 32 is now 34. The piers are hereafter referred to as New Piers 33 and 34. There is no additional filling in Marginal Street.

1854 Dripps - Same as the 1852 Dripps map.

1856 Bacon - (Figure 6-18) Same as the 1852 Dripps map.

1874 Viele - Same as the 1852 Dripps map.

Route 9A Reconstruction Project

1879 Bromley - (Figure 6-19) Pier 33 is labeled "Stonington Line for Boston" and Pier 34 is labeled "Rondout and Kingston Boats." There is still no additional filling in Marginal Street. The slip between the two piers is labeled "Peekskill, Sing Sing Ferry and Terrytown Steamboat Co."

1885 Robinson - (Figure 6-20) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - Marginal Street is completed and filled out to the bulkhead line. Two piers extend west of Marginal Street. There are pier sheds spanning the shoreline on Marginal Street between Jay and Harrison Streets.

1913 Hyde - (Figure 6-6) Same as the 1902 Bromley atlas.

1925 Bromley - Same as the 1902 Bromley atlas.

1950 Hyde - The West Side Highway appears in the middle of West Street and Marginal Street. The pier sheds are one and two-story buildings on the shoreline in Marginal Street.

SHORELINE FILL

By 1797 the first filling in West Street occurred at Harrison Street where Rhinelanders Dock was located. West Street was entirely filled between 1808 and 1817. Marginal Street experienced a small amount of filling by 1827, with the route being entirely filled between 1897 and 1902. New Pier 33, built by 1817 near Jay Street, and New Pier 34, built by 1836 at Harrison Street, both stood in the route of Marginal Street and may have become part of the landfill by 1902.

HISTORIC SENSITIVITY

The only potentially sensitive features are the nineteenth century piers which may have become part of the landfill in Marginal Street. The only structures within the route of the project area were the twentieth century pier shed buildings on the west portion of Marginal Street.

Block 18 - Bounded by West, Joseph P. Ward, Washington, and Morris Streets.

What is currently Block 18 was previously known as Blocks 14, 17 and 18, all of which are included in the project area. However, the northern two blocks, bounded by West Street, Joseph P. Ward Street, Washington Street and Morris Street, are completely disturbed by the Brooklyn Battery Tunnel entrance. The portion of Block 18 at the northern intersection of Morris and West Streets that does not include the tunnel, now houses the Port of New York Authority building, an eight-story building with a basement. Due to the tunnel and basement construction, it is believed that there is no sensitivity for prehistoric or historic remains at this locale. Therefore, block histories were not compiled for these blocks. However, a portion of Block 18 between Greenwich Street and Western Union International Plaza, south of Morris Street, which now possesses the blower house for the tunnel, may have historical sensitivity.

What was historically known as Block 14, bounded by Battery Place, Morris Street, Washington Street, and Greenwich Street, currently has the Brooklyn-Battery Tunnel entrance running through the block. A portion of this block was possibly undisturbed by tunnel construction. This parcel was the subject of an in-depth stage 1A archeological research project in 1987 (Geismar 1987:1). The cartographic development presented for other blocks and the streets within the project parcel was not performed for this block since in-depth research had already been conducted. A condensed version of development, as reported in the Stage 1A Archeological Evaluation of the Exchange Project Site, 10 Battery Place, New York City, is presented below. In addition, in order to avoid replicating research, a land owner list was not compiled, although the lists of landowners produced for the previous report are presented (Figures 6-9 and 6-10).

The entire block was originally land under water. Water lot grants...were issued by the city between 1739 and 1770...they were filled in several episodes...the first occurred between 1792 and 1803. Additional filling occurred in 1808. By 1817 non-residential or commercial structures such as stables and stores were situated adjacent to wharves and piers that extended from and perhaps created Washington Street. By 1808, members of New York City's merchant elite had begun to develop and live on newly filled lots situated on the west side of Greenwich Street. Many prominent early-nineteenth century merchants lived on the southern portion of Greenwich Street on the project block, when their adjoining lots to the rear on Washington Street were filled they were mainly non-residential properties. From 1816 until at least the 1850s, all other structures documented on Washington Street in the project area... were stables, warehouses, or shops.

Until 1821 tax data document wharves as well as piers and unimproved lots on this part of the block, suggesting it was not yet filled to Washington Street; after 1821, however, only

piers are listed, implying the block may have been filled...Names found on maps and tax rolls vary, pier-line configurations and placement shown on contemporaneous maps also differ...A crib wharf or pier uncovered and photographed during excavation for the Brooklyn-Battery tunnel in 1947 documents a wharf or pier that is not found on any map (Geismar 1987:2-25).

The research concluded that the block was severely disturbed during the excavation and construction of the Brooklyn-Battery Tunnel and associated blower building in 1947 (Geismar 1987:47). No sensitivity associated with landowner activities was identified, instead sensitivity lies with the landfilling process that took place to create the block in the eighteenth and nineteenth centuries. Geismar also concluded that out of the entire block, only two 25 by 110 foot strips of land on the east and west sides of the blower building may have been undisturbed by the tunnel construction (Ibid.). These strips may have archeological sensitivity for remnants of landfilling activity, as they are adjacent to either side of the cribbing uncovered during the 1947 tunnel excavation. These potentially sensitive strips of land parallel Greenwich Street and Western Union International Plaza in the project area. The "wharves, piers and bulkheads that initially served as shore front features and then provided the infrastructure for land-making...are the archeological concern here, not the houses and commercial buildings that developed on the filled lots. (Ibid.).

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Block 139 - Bounded by Chambers, Washington, Reade and West Streets.
The lots that are within the project area include Lots 19 through 27 and 39 (Figure 6-11).

HISTORIC LANDOWNERS

As per the Index Division's Block summary:
"This block lay wholly within the Trinity Church Farm."

* Indicates that this is a lease.

<u>GRANTOR</u>	<u>GRANTEE</u>	<u>LOTS</u>	<u>DATE</u>	<u>LIBER</u>	<u>PAGE</u>
W. Rhineland	E. Herring	19	1826	206	358
W. Paulding	W. Rhineland	19	1828	238	19
E. Herring	E. DePeyster	19	1844	451	99
E. DePeyster	T. Butler	19	1846	474	477
T. Butler	T. McNell	19	1883	1733	188
R. Goldfarb	Barber et al.	19	1920	3140	411
R. Goldfarb	Remsen et al.	19	1920	3152	13
W. Gamble Co.	R. Goldfarb	19	1920	3148	367
J. Brooks	W. Gamble Co.	19	1923	3324	281
L. Casazza	E. Casazza	19	1948	4564	436
E. Casazza	A. Casazza	19	1954	4868	11
W. Rhineland	M. Hunt	20	1829	254	596
H. Clark	M. Clark	20	1908	336	20
M. Clark et al.	G. Fish	20	1911	133	489
G. Fish	G. F. Fish Inc.	20	1920	3160	419
G. F. Fish Inc.	R. Allison	20	1921	3208	470
R. Allison	W. Duane St. Co.	20	1923	3371	226
W. Duane St. Co.	Schwartz/Steier	20	1957	4997	581

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<u>GRANTOR</u>	<u>GRANTEE</u>	<u>LOTS</u>	<u>DATE</u>	<u>LIBER</u>	<u>PAGE</u>
Schwartz/Steier	Landau Truck Co.	20	1957	5014	649
Hertell (exc)	M. Quigley	21	1866	980	127
M. Quigley	G. Welsh	21	1866	1000	246
Rhineland (exc)	G. Welsh	21	1866	1000	248
Lorillard	Kernochoan/Davis	21	1869	1092	138
S. Welsh	S. Welsh Jr.	21	1921	3222	403
S. Welsh Jr.	R. Allison	21	1944	4258	486
R. Allison	I. Fleischman	21	1958	5054	507
T. Hartell	E. Bancker	22	1829	256	563
E. Bancker	Lorillard	22	1836	356	461
T. Herring	Release	22	1836	356	463
Lorillard	Kernochoan/Davis	22	1869	1092	138
U.S. Trust Co./	Lorillard/Kernochoan/				
K. Pell	H. Pell	22	1917	3023	366
H. Pell et al.	I. Loewenthal	22	1921	3256	270
I. Loewenthal	Emigrant Savings	22	1945	4342	389
Emigrant Savings	Standish Investing	22	1949	4607	395
Standish Invest.	J. Mayvin	22	1949	4620	690
C. J. Mayvin	Bellaire Auto. Co.	22	1951	4725	239
Bellaire Auto	Soseen Realty	22	1951	4734	489
Soseen Realty	Albert Blair	22	1960	5118	316
T. Hartell	J. Everitt	23	1828	238	322
J. Everitt	C. Hall	23	1830	267	379

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<u>GRANTOR</u>	<u>GRANTEE</u>	<u>LOTS</u>	<u>DATE</u>	<u>LIBER</u>	<u>PAGE</u>
Hall	W. Wagstaff	23	1833	302	269
W. Wagstaff	A. Day	23	1837	379	509
A. McClenachan	H. Murray	23	1839	398	148
H. Murray	J. Mason trustee	23	1842	429	343
J. Mason	H. Murray	23	1848	503	323
E. Murray	J. Browning	23	1894	20	467
E. Browning	Rexall Realty Co.	23	1922	3318	125
Rexall Realty	Gansevoort Produce Exchange et al.	23	1923	3326	431
Gansevoort et al	Kaswin et al	23	1927	3618	65
Kaswin et al.	Landi & Alvino Co.	23	1930	3753	322
Landi/Alvino Co.	A. Landi	23	1941	4093	240
A. Landi	V. Zammataro et al.	23	1941	4119	405
Zammataro	A. Zammataro	23	1963	5252	196
A. Landi	Zammataro/Landi	23	1966	51	138
J. Everitt	T. Hartell	24	1828	238	325
T. Hartell	G. Greenly	24	1847	493	28
L. Squire	T. Southland	24	1856	718	321
A. Southland	D. Paige	24	1863	881	411
D. Ingraham ref.	D. Paige	24	1871	1147	666
G. Greenly	D. Paige	24	1891	7	234
D. Paige	J. Browning	24	1893	12	340
D. Paige	A. Tyler*	24	1893	19	1
Browning E.	Reade Realty Co.	24	1922	3318	89

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<u>GRANTOR</u>	<u>GRANTEE</u>	<u>LOTS</u>	<u>DATE</u>	<u>LIBER</u>	<u>PAGE</u>
Reade Realty	Balish Bros. Inc.	24	1925	2466	40
Balish Bros.	191 Reade St Co.	24	1925	3411	217
191 Reade St.	Amer. Fndt Blind	24	1943	4189	171
Fndt. Blind	1455 5th Ave. Co.	24	1946	4434	165
1455 5th Ave. Co.	A. Lodolce	24	1949	4630	442
Dir. Finance	City of New York	24	1964	5278	111
City of NY					
W. Rhineland	C. O'Connor	25	1826	202	354
C. O'Connor	E. Bancker	25	1830	265	558
E. Bancker	H. Van Vilet	25	1835	346	151
H. Van Vilet	G. Pride	25	1836	355	263
G. Pride	J. Inness	25	1839	395	324
J. Inness	G. Pride	25	1842	426	548
G. Pride	S. Wray	25	1844	445	442
M. Gordon (exc)	Chbers W. St Co.	25	1955	4932	273
W. Rhineland	C. O'Connor	26	1826	202	349
C. O'Connor	E. Bancker	26	1830	268	96
E. Bancker	H. Field	26	1836	364	56
H. Field	J. Inness	26	1838	383	356
G. Pride	J. Inness	26	1845	463	171
J. Inness	J. McMurray	26	1846	479	84
R. Harkness	E. Seely	26	1872	1240	125
J. Minne	W. Harrison	26	1873	1255	515

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J. McMurray	J. Graham	26	1874	1284	612
W. Harrison	E. Seely	26	1883	1764	75
J. Graham	E. Seely	26	1884	1762	447
E. Seely	M. Apgar	26	1884	1781	305
M. Barney	A. Miche	26	1898	49	338
heirs of Apgar	W. Boice	26	1899	51	454
E. Apgar	M. Barney*	26	1900	60	93
ref of Boice	H. Pell	26	1902	68	390
H. Pell	C. Pell	26	1926	3576	173
C. Pell	H.C. Pell	26	1929	3719	221
H. Pell	Rood Realty Corp.	26	1937	3951	288
Rood Realty	Chbers W. St. Co.	26	1955	4933	25
W. Rhineland	Stuart & Brennan	27	1826	199	423
C. Denison	S. Barney	27	1837	377	410
S. Barney	W. Oliver	27	1843	435	361
W. Oliver	S. Barney*	27	1844	443	619
Rhineland (exc)	N. Weed	27	1845	458	485
N. Weed	H. Smith*	27	1845	458	489
C. Sloan receiver	J. Harrison*	27	1852	606	373
H. Smith	J. Harrison*	27	1852	606	375
E. Warren	C. Sloan	27	1852	606	376
J. Harrison	H. Sinneman	27	1864	897	638
Rhineland (exc)	G. White*	27	1866	968	584

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GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
G. White	M. Patten*	27	1866	968	587
Rhinelanders (exc)	E. Edgar	27	1882	1645	30
J. Bowers	M. Swan	27	1882	1636	426
G. Kennedy	A. Kennedy*	27	1894	24	206
T. Patten	L. Dolphin*	27	1895	30	322
M. Swan	L. Dolphin*	27	1897	41	365
M. Callender	L. Dolphin*	27	1905	95	101
M. Callender	West St. Corp.	27	1922	3286	207
West St. Co.	Chbers W. St. Co.	27	1955	4932	269
Chambers W. Co.	Harmosa Oil Co.	27	1958	5028	651
Harmosa Oil Co.	R. Brick	27	1960	5129	114
T. Hartell	E. Bancker	31	1829	256	563
E. Bancker	Lorillard	31	1836	356	461
T. Herring	Release	31	1836	356	463
Hertell (exc)	M. Quigley	32	1866	980	127
M. Quigley	G. Welsh	32	1866	1000	246
Rhinelanders (exc)	G. Welsh	32	1866	1000	248
Lorillard	Kernochoan/Davis	32	1869	1092	138
W. Rhinelanders	M. Hunt	33	1829	254	596
W. Rhinelanders	E. Herring	39	1826	206	358
E. Herring	J. Mutt	39	1827	226	286
J. Mutt	J. Mills	39	1828	229	416

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W. Paulding	W. Rhineland	39	1828	238	19
A. Massey	W. Honay	39	1828	239	274
J. Mills	D. Johnson	39	1828	242	253
D. Johnson	Dunscomb, Clare	39	1829	251	376
E. Dunscomb	W. Dunscomb	39	1833	301	471
W. Honay	C. Jones	39	1836	361	182
W. Jones	E. Munroe	39	1839	394	233
E. Herring	A. Massey	39	1839	394	331
E. Munroe	P. Cutler	39	1840	409	112
Munroe/Cutler	R. Clark	39	1848	513	87
C. Northrop	E. Williken	39	1857	723	275
W. Little	W. Hustace	39	1882	1692	57
W. Hustace	R. Clark	39	1882	1696	155
Clark (exc)	J. Melnick Co.*	39	1908	116	67
J. Melnick Co.	R. Cochran*	39	1908	116	70
J. Melnick Co.	Linders & Co.*	39	1908	116	73
Bank of NY	F. La Barbera	39	1925	3461	241
F. La Barbera	Dingfelder Corp.	39	1929	3709	243
Dingfelder Co.	A. Essensfeld	39	1951	4727	418

CARTOGRAPHIC REVIEW

1609 MacCoun through 1767 Ratzer - (Figure 6-12 and 5-14) This parcel is land under water.

1797 Taylor Roberts - (Figure 6-15) The parcel is filled from Washington Street to just east of the eastern border of West Street. Lots 26 and 27 have not yet

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been filled, but all others have been. Chambers Street is filled about three-quarters of the way to West Street.

1808 Longworth - (Figure 6-2) Same as the 1797 Taylor Roberts map.

1817 Longworth - (Figure 6-16) All of the lots, Chambers Street and West Street have been filled.

1817 Poppleton - The block is labeled "William Rhineland. Granted May 1, 1807." No buildings appear on the block.

1824 Hooker - Same as the 1817 Poppleton map.

1826 Prior Dunning - Same as the 1817 Poppleton map.

1827 Ewen - (Figure 6-3) The block has been lotted, but the lots have not been numbered. The landowners include: C. Dennison, E. Herring, Tho. Hertell, J. Everett, M. Wheeler, M.E. Herring, A. Sitcher. There are still no structures shown on the lots.

1828 Hooker - No change from the 1827 Ewen map.

1838 Hooker - No buildings or lot divisions can be seen.

1839 Burr - (Figure 6-17) No buildings or lot divisions can be seen.

1846 Burr - No buildings or lot divisions can be seen.

1852 Dripps - Lots 24 through 27 span north-south from Chambers to Reade Street. Each possesses a building covering the entire lot. Lot 23 fronts Chambers Street and ends half way to Reade Street. A building covers the entire lot. Lots 19 through 22 front Chambers Street, also ending half way to Reade Street. There is a building on the southern three-quarters of each lot, fronting Chambers Street. Between Lot 19 and Lot 39, located at the

intersection of Chambers Street and Washington Street, there appears to be an open yard or alley way. On Lot 39, to the east of the alley, is a row of buildings fronting Chambers and Washington Streets.

1854 Dripps - Does not show any structures probably due to the cartographer rather than the actual lack of buildings.

1856 Bacon - (Figure 6-18) No buildings or lot divisions can be seen.

1874 Viele - No structures are shown on this map.

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1879 Bromley - (Figure 6-19) There are brick or stone-faced buildings spanning the entire block between Washington and West Streets on Chambers Street. It is unclear whether the alley still exists between Lots 19 and 39.

1885 Robinson - (Figure 6-20) The buildings appear as they did on the 1879 atlas and there is no alley between Lots 19 and 39.

1897 Bromley - There are brick or stone-faced buildings spanning the entire block between Washington and West Streets on Chambers Street. It is unclear whether the alley still exists between Lots 19 and 39.

1902 Bromley - Same as the 1897 Bromley atlas.

1913 Hyde - (Figure 6-6) Same as the 1897 Bromley atlas. The alley no longer exists between Lots 19 and 39.

1925 Bromley - The buildings still appear as they did in 1897, and are all listed as three-and-a-half, four and five-story buildings. No basements are shown in any of the buildings.

1950 Hyde - Some of the heights of buildings have been altered, however there are still no basements listed.

1988 Sanborn - The buildings have all been removed and the block is now part of the Washington Market Park, associated with the Manhattan Community College.

SHORELINE FILL

Filling in the block first occurred by 1797 east of Lot 26. By 1817 the entire block and Chambers Street were filled. There were no piers in either the street or the block.

HISTORIC SENSITIVITY

A row of what seems to be residential dwellings along Chambers Street first appeared by 1852. The buildings stood until at least 1950 and the lots are now part of the Washington Market Park. Any remnants of these buildings would be beneath the park.

HISTORICAL SENSITIVITY

Specific areas sensitive for potentially significant historical remains exist between Battery Place and Harrison Street. Few buildings actually stood in the route of either West Street or Battery Place, rather these areas are more sensitive due to the eighteenth and nineteenth century landfill and wharf features they possess. Areas identified are referenced in the Block Histories section, which is based largely on cartographic data. The following presentation also includes information gathered at the Buildings Department, Block and Lot Division, and from secondary sources.

Categories of sensitivity were devised, and include dwellings and associated outbuildings; industrial buildings/complexes; piers and wharves; landfill; and other. The blocks on West Street include the potential sensitivity for the cross street on the south, and Battery Place includes the sensitivity for the 50 feet north and south along Broadway and State Street. Going from south to north the following areas have been identified as being potentially sensitive for historical remains.

Dwellings and Associated Outbuildings

The only dwellings identified within this portion of the project area are the row of dwellings on the north side of Chambers Street, which once stood in the vicinity of the proposed pedestrian overpass (Figure 6-19). The row of buildings, spanning Lots 19 through 27 and 39 on Block 139, first appeared on maps by 1852 and stood through at least the 1950s (Figure 6-6). The lots are now beneath tennis courts. The only building that appeared to be replaced at any time, was the one on Lot 39. A new six-story building with a 10 foot deep foundation was constructed on this lot in 1888 (NB 572; Block and Lot File). In 1931 the building reportedly had a 7'3" deep basement (ALT 2200; Block and Lot File).

On Lot 19 at 189 Chambers Street, a four-story tenement building with a 10 foot deep basement was razed in 1968 (DM 14988; Block and Lot File). Lot 20 had a three-and-a-half-story tenement with a cellar at 191 Chambers Street. This building was demolished in 1967 (DM 13837; Block and Lot File). The only other buildings known to have basements on the block were those on Lots 23 and 39 (DM 13780:1967, DM 14989:1968; Block and Lot Files). The remainder of the buildings either had no records available or no mention of basements.

The Block and Lot information supports the cartographic interpretation that these were tenement buildings, some with store fronts at street level (DM 6580:1958, DM 75:1961, DM 13780:1967, DM 13778:1967, DM 13837:1967, DM 14989:1968, DM 14988:1968). Based on demolition permits, all of the buildings on the block appear to have been removed between 1958 and 1968 (DM 6580:1958, DM 14988:1968; Block and Lot Files). Since the proposed pedestrian overpass spans the southern sides of these lots across the row of buildings that had fronted Chambers Street, there is no sensitivity for associated back-yard features such as wells, cisterns or privies. The only features that may possibly be present in this particular area are architectural remains, that is the actual foundations of the buildings. These undoubtedly would have been filled with demolition materials, not archeologically

sensitive. In addition, there is no archeological sensitivity beneath the shallow cellars since the block is fill and no prehistoric resources would have been present. Since these are first-generation buildings, they would not have covered or sealed earlier potentially sensitive resources.

Industrial Buildings and Complexes

An emigrant depot stood at the intersection of Battery Place and Marginal Street between 1879 and 1900 (Figures 6-19 and 6-20). The construction and nature of the depot are unknown, although it is very unlikely that it had a permanent foundation, due to its small size and location on Marginal Street. The structure appeared to be attached to pier sheds built sometime prior to 1879.

Other structures identified in this category would be the pier buildings once present in the route of Marginal Street, on docks along the shoreline. These would include buildings on Pier 18 between Cortlandt and Dey Streets dating to 1827 (Figure 6-3), and the Hoboken Ferry buildings between Vesey Street and Park Place dating to 1852 (Figure 6-19). There would undoubtedly be no foundations associated with buildings on piers. The nature of the buildings, largely functioning as offices and storage sheds, together with the lack of foundations, renders these buildings not sensitive for archeological remains.

Almost the entire span from Battery Place to Harrison Street possessed mid-to-late nineteenth century and twentieth century pier sheds in the western portion of Marginal Street. The majority of these pier sheds located along the shoreline in Marginal Street stood through the middle of the twentieth century, and were removed with the construction of Battery City Park in the 1960s and 1970s (Figure 6-6).

Piers and Wharves

Numerous eighteenth and nineteenth century piers traversed the route of West Street and Marginal Street between Battery Place and Harrison Street, and the route of Battery Place prior to landfilling. Going from south to north, the following piers and wharves were identified.

In 1817 there was a pier at the corner of what is now Battery Place and Washington Street (Figure 6-16). The pier extended to the south and eventually appeared to become part of the landfill in Battery Place by 1824. Although a pier was built by 1836 at the same location, extending to the west, it was removed by 1839 and is therefore probably not sensitive. A slip for the New Brighton and Staten Island ferries was built on the south side of Battery Place by 1852 and was filled by 1853 for the widening of Battery Place (NYC Board of Alderman 1853:127). Pier 1, built by 1846 at the intersection of West Street and Battery Place, traversed the path of Marginal Street and may have become part of the landfill. This was originally the Camden and Amboy Railroad Pier, eventually becoming one of the Pennsylvania Railroad Piers. These were the only piers identified along Battery Place which may be in fill within the project area.

Between Battery Place and Morris Street, Old Piers 2 and 3, labeled "Arden" and "White," were built between 1808 and 1817 and stood in the path of West Street (Figure 6-16). A third unnumbered pier was built south of Old Pier 2 by 1836. The piers may have become part of the landfill by 1846. Subsequently, New Piers 2 and 3 were constructed west of West Street in the route of Marginal Street by 1852 (Figure 6-18). These piers were for the U.S. Mail Line/Boston and the Steam Ships Washington and Hermann for Bremen and Southampton respectively. By 1879, these had changed and New Pier 2 was for the Lehigh Valley Railroad Company while New Pier 3 was for the New York, Havana and Mexico Steam Ship Line. Docks parallel to the shoreline were built between the piers by 1879, in the route of Marginal Street. Both the docks and New Piers 2 and 3 probably became part of the fill for Marginal Street by 1913.

Between Morris and Rector Streets, Old Piers 4 through 8 were built in the path of West Street between 1808 and 1817 (Figure 6-16). In 1824 these were owned by White, Schermerhorn, Edgar, Arden and Kermit, consecutively. Pier 6 had a T at the western end, in the path of West Street. All five of these piers may have become part of the fill by 1846. Following the filling of West Street in 1846, New Piers 5, 6, and 7 were built in the path of Marginal Street. New Pier 4 was built by 1852. By 1885 New Piers 4 and 5 were for the Pennsylvania Railroad Company (Figure 6-20). All four of the new piers may have become part of the fill by 1913.

Between Rector and Carlisle Streets, Old Piers 9, 10, and 11 were built by 1817 in the path of West Street (Figure 6-16) and may have become part of the landfill by 1846. In 1824, these piers were labeled "Rector Street," "Schermerhorn," and "Castle." New Piers 8, 9, and 10 were built west of West Street by 1846 and may have become part of the Marginal Street landfill by 1925. In 1879 New Pier 8 was labeled "Central Railroad of New Jersey," while 9 and 10 were labeled "Cromwells S.S. Line" (Figure 6-19).

Between Carlisle Street and Albany Street Old Pier 12 was built at the west end of Carlisle Street by 1817 (Figure 6-2). By 1824 it was labeled "Lawrence." The pier may have become part of the West Street landfill by 1846. New Pier 11 was built off of West Street in Marginal Street by 1846. The pier was for the Metropolitan Line to Boston and may have become part of the Marginal Street landfill by 1913.

Old Pier 13 built by 1797, also known as Swartwouts Wharf, extended west of Albany Street in the path of West Street (Figure 6-15). This wharf formed the southern margin of the Albany Basin. Construction of the basin apparently began in 1791 and was completed by 1796 (Stokes 1918:1014). By 1826 a small pier was built between Albany and Cedar Streets through the route of proposed West Street (Figure 6-3). The two piers may have become part of the West Street landfill by 1846. After West Street was filled, New Piers 12 and 13 were built in the path of Marginal Street. New Pier 12 was for the Philadelphia Steamboats, while New Pier 13 was for the Baltimore and Ohio Railroad. Eventually both piers were utilized by the Central Railroad of New Jersey. The piers may have become part of the Marginal Street fill by 1913.

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Between Cedar and Liberty Streets, Lukes Wharf was built prior to 1797 and extended west from Cedar Street into West Street (Figure 6-15). The wharf was also known as Old Pier 14. In 1825 Hannah Murray owned the pier and had built a 40 foot extension with an L at its western end (Rutsch et al. 1983:102). The wharf may have become part of the landfill by 1846. New Pier 14 was built west of West Street prior to 1846 (Figure 6-16). In 1852 New Pier 14 was used by Hudson Steamboats and Barges, and it may have become part of the Marginal Street fill by 1879 (Figure 6-19).

No piers were built between Liberty and Cortlandt Streets prior to the filling of West Street in 1817. Following filling, Piers 15, 16, and 17 were built in the path of Marginal Street (Figure 6-16). By 1824 Pier 16 was used by Wilken, and Pier 17 was used for Albany Steam Boats. By 1856 a ferry landing replaced Pier 17. Both the ferry landing and Piers 15 and 16 may have become part of the Marginal Street fill by 1879 (Figure 6-19).

Between Cortlandt and Dey Street, Old Pier 17, built by 1783, extended off of Cortlandt Street and was labeled "Powels Hook Ferry" (Stokes 1918:1014, Figure 6-16). The pier was previously rented by Ann Smyth, and was used by the Jersey Steam Boat Company (Rutsch et al. 1983:122). This later became New Pier 18. North of this was a second pier, numbered Old Pier 18. Old Pier 18 may have become part of the West Street fill by 1824 (Figure 6-3). Although not labeled on maps, "Fultons Long Wharf repair, above Cortlandt Street, may be the site of the first steamboat voyage in 1807 by Robert Fulton" (Ibid.:104). New Pier 19 was built by 1824, west of West Street through the route of Marginal Street. A possible pier, floating dock, or ship of some sort appeared by 1852 between New Piers 18 and 19, but is not attached to either the shoreline or piers. The unidentified object is within the path of Marginal Street. New Pier 18 was used by Starins Trans. Line, and New Pier 19 was for the Delaware, Lackawanna and Western Railroad in 1879 (Figure 6-19). All three of these may have become part of the Marginal Street fill by 1902.

Between Dey and Vesey Streets, the Vesey Street Pier known as Old Pier 22, and Corporation Dock off of Fulton Street known as Old Pier 20, were built prior to 1797 (Figure 6-15). Both may have become part of the West Street fill by 1824. The Vesey Street pier was extended by 400 feet in 1814 (Rutsch et al. 1843:103). In addition, Old Pier 19 at Dey Street and Old Pier 21, mid-block between Fulton and Vesey Streets, were built between 1808 and 1817 and may have become part of the West Street fill (Figure 6-16). These were part of the Corporation Dock Complex which stood west of Washington Market. After West Street was filled, New Piers 20 through 23 were built west of West Street in Marginal Street by 1824, and may have become part of the Marginal Street fill by 1856 (Figures 6-3 and 6-18).

Between Vesey and Barclay Streets the only pier in the path of West Street was the Vesey Street pier, discussed above as part of the Corporation Dock Complex. Pier 24, built after West Street was filled by 1824, extended through the route of Marginal Street. The Hoboken Ferry Yards located near the foot of Barclay Street were built by 1852, also in the path of Marginal Street. Pier 24 was used by the

Route 9A Reconstruction Project

Morning Line for Albany in 1852. Both Pier 24 and the ferry complex may have become part of the Marginal Street fill by 1902.

By 1797, a pier, possibly part of Rhinelanders Dock, stood in the path of West Street at the foot of Barclay Street (Figure 6-15). This may have become part of the West Street fill by 1817 (Figure 6-16). By 1824 the Hoboken Ferry landing was at the intersection of West and Barclay Streets and, by 1826, the Barclay Street Pier, also known as Pier 25, had been extended 290 feet into the river (Rutsch et al. 1983:109). By 1836 a second pier stood in the path of Marginal Street between Barclay Street and Park Place. The northern pier was removed by 1846 and replaced by two smaller piers by 1852. One of the piers was used by Steamboats for Newark. At that time, all three piers were part of the Hoboken Ferry landing. These may have become part of the Marginal Street landfill by 1902.

A pier labeled "Rhinelanders Dock" extended into the path of West Street by 1797 at the foot of Park Place and may have become part of the West Street landfill shortly thereafter (Figure 6-15). Between Park Place and Murray Street, New Pier 27 was built by 1824 extending through the path of Marginal Street (Figure 6-16). In 1835 the Commissioner of Wharves and Piers approved an excavation 8 feet deep for a slip between Park Place and Warren Streets (Rutsch et al. 1983:132). In 1846 the pier was used by Steamboats for Albany. By 1879 the pier was occupied by the New York and Charleston Steamship Company (Figure 6-19). The pier and slip may have become part of the Marginal Street fill by 1902.

Between Murray and Warren Streets New Pier 28 was built west of West Street in Marginal Street by 1826 (Figure 6-3). By 1846 the pier was used by ships to Newburgh and Poughkeepsie, and by 1879 it was used by the Steam Ship line to Boston (Figure 6-19). The pier may have become part of the Marginal Street fill by 1902. Only one pier stood between Warren and Chambers Streets, however Rhineland Shipyard was located between Warren and Chambers Street by 1803, in the vicinity of West Street (Rutsch et al. 1983:333). By 1827 New Pier 29 extended through the route of Marginal Street at the intersection of West and Warren Streets (Figure 6-3). It may have become part of Marginal Street landfill by 1879 (Figure 6-19).

Between Chambers and Reade Streets New Pier 30 was built by 1826 off of West Street in the path of Marginal Street (Figure 6-3). The pier probably became part of the Marginal Street landfill by 1879. North of this between Reade and Duane Streets, a pier was built in the path of West Street at the end of Reade Street by 1817. This may have become part of the West Street fill by 1827. Also by 1827 a pier was built off of West Street mid-block between Reade and Duane Streets. New Pier 31 was used by the Erie Railroad Company and may have become part of Marginal Street fill by 1902.

By 1817 a pier extended mid-block between Duane and Jay Streets through the path of West Street (Figure 6-16). In 1824 the pier, numbered as Old Pier 27, was labeled "Middle Pier" and was part of the Duane Street slips. In 1811 a 30 by 40 foot dock was built over an obstacle in the Duane Street Basin, and in 1826 two

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lower bridges of the middle Duane Street Basin were repaired (Rutsch et al. 1983:137). The basin and piers may have become part of the West Street landfill by 1827 (Figure 6-3). Also by 1827, a pier was built west of Pier 27 off of West Street in the path of Marginal Street. By 1852 the pier had been numbered as New Pier 32 and may have become part of the Marginal Street landfill by 1902.

Between Jay and Harrison Streets, Rhinelanders Dock appeared in the path of West Street by 1797 and may have become part of the West Street fill by 1817 (Figures 6-15 and 6-16). Also by 1817 a pier extended west of West Street through the route of Marginal Street, slightly north of Jay Street. By 1824 the pier was numbered 28 and was renumbered 31 by 1846. In 1836 a second pier appeared at Harrison Street, also in Marginal Street, later numbered Pier 32. These were later renumbered as New Piers 33 and 34 used for the Stonington Line for Boston, and Rondout and Kingston Boats respectively. A slip between the two was for the Peekskill, Sing Sing Ferry and Terrytown Steamboat Company. Both piers and the slip may have become part of the Marginal Street landfill by 1902.

An archeological study of Block 18, bounded by Greenwich and Morris Streets, Western Union International Plaza and Battery Place, has shown that during the construction of a blower house for the Brooklyn-Battery Tunnel in the 1940s, log cribbing was exposed in the southwestern portion of the block (Geismar 1987:38). Although there were no known records of a pier or wharf existing at this locale, the feature was partially uncovered during construction activities. The research concluded that two 25 by 110 foot strips of land on either side of the blower building may still possess remnants of "wharves, piers and bulkheads that initially served as shore front features and then provided the infrastructure for land-making..." (Ibid.:47).

Landfill

The process of filling the shoreline and expanding the size of Manhattan began in the eighteenth century and has continued through the twentieth century. The earliest known episode of landfilling in West Street occurred sometime prior to 1797 between Warren and Chambers Streets (Figure 6-15). The majority of landfilling in West Street took place between 1808 and 1817 (Figures 6-2 and 6-16), with the remainder occurring by 1846. In Marginal Street landfilling dates as early as 1824, with the majority of filling done between 1879 and 1925 (Figures 6-19 and 6-6). Filling in Battery Place started between 1766 and 1767, continued through and extended as far as West Street by 1846 (Figure 6-14 and 6-17). Within Block 139 at Chambers Street, fill dates to between 1797 and 1817 (Figures 6-15 and 6-16).

The landfill in and of itself is not judged to be sensitive since filling episodes have been documented and artifacts found in this secondary context render little information. Numerous projects within Manhattan have documented land reclamation along both the shore of the East and Hudson Rivers (Figure 6-21). Records of the Common Council also documented landfilling as it occurred. In order for landfill itself to be considered worthy of subsurface archeological

Route 9A Reconstruction Project

investigation, the deposition must be tied in to a specific episode by a group or individual, such as a manufacturer discarding waste materials from the production process. Thus, if the resources are *in situ*, specific information can be gathered regarding manufacturing process or individual's lifeways. If deposition is simply the collection of trash from an undesignated area, together with materials excavated elsewhere and debris from disasters, the information that can be acquired in such a context is minimal.

Although the contents of landfill may not contribute to our knowledge of early historical lifeways and neighborhood development, the retaining devices designed to create fast land varied technologically and may be considered potentially sensitive. Undoubtedly construction techniques changed through time as new materials and methods were adopted. While these types of features are rarely documented cartographically, areas which experienced filling may be sensitive for these types of remains.

In addition, one particular feature which may exist in the fill, sunken ships, is considered to be important. Ships left to decay along the shoreline sometimes sank, adding to the landfill. Although the ships may have been stripped of cargo and valuables, information concerning Nautical engineering may be obtained from the hulls. Between Battery Place and Harrison Street at least one ship was loaded with bricks and sunk at the Chambers Street Wharf in 1827. This may have become part of the landfill (Vollmer Associates 1987:10).

Research on the block bounded by Chambers, Warren, Greenwich and West Streets has provoked further investigation into the issue of sunken ships in that locale (Kirkorian and Tidlow 1984:23, Grossman 1985:28). A piece of wood recovered from a trench at the intersection of Warren and West Streets was identified as teak, possibly the remnants of a sunken ship.

In 1815 the New Albany Basin had a dismantled sloop lying in it (Kirkorian and Tidlow 1984:22). Another vessel sank at the foot of Warren Street in 1828 (Ibid.). In 1830 the owners of the sloop Maria Ann were warned to raise the ship from where it lay in the basin at the foot of Jay Street (Ibid.). These are examples of recorded sunken ships between Battery Place and Harrison Street. If sunken vessels prohibited use of docks and piers, they were usually removed by a hired party or the owner. It should be noted that if sunken ships were not considered nuisances, their presence was not often recorded in the minutes of the Common Council, and they were ultimately left to lie where they sank.

Other

Several features identified in the project area do not fit into the above categories. These would include fortifications, wells, and early mills.

A windmill stood on Battery Place between Broadway and Greenwich Street, built by 1628 near Fort Amsterdam. The gristmill served the public, and was in ruins by 1662. Portions of the structure were probably reused for a later mill on the city

Chapter VI:

Commons (Stokes 1918:961). The mill appears on the 1653-1664 MacCoun map of Amsterdam in New Netherlands but does not appear on later maps (Figures 6-1 and 6-13). The regulating, widening and paving of Battery Place, and the fact that the mill was dismantled, suggests that there is little chance, if any, of recovering any remnants of this resource.

Fort Amsterdam was also built by 1628, the site now occupied by the U.S. Customs House (Figure 6-1). The fort was reportedly in a state of constant disrepair, and its "outer walls were frequently neglected and were continually in need of repair; sometimes sod was used, as were clay, earth, wooden planks, and posts and stone work" (Mackay 1987:10). The fort housed barracks for the colony's soldiers, a jail, storehouses of the Dutch West India Company, and a Dutch Church. The four bastions of the fort corresponded to the four points of the compass. The governor's house within the fort, built for Peter Stuyvesant, was razed in 1790 (Works Progress Administration 1940:66). Although the bastions were reported to correspond to the points of the compass, maps vary from year to year changing the exact orientation of the fort (Figures 6-1, 6-13, and 6-14). The northern bastion or northern wall may have been in the route of Battery Place within the project area. The fort no longer appears on maps by 1797 (Figure 6-15).

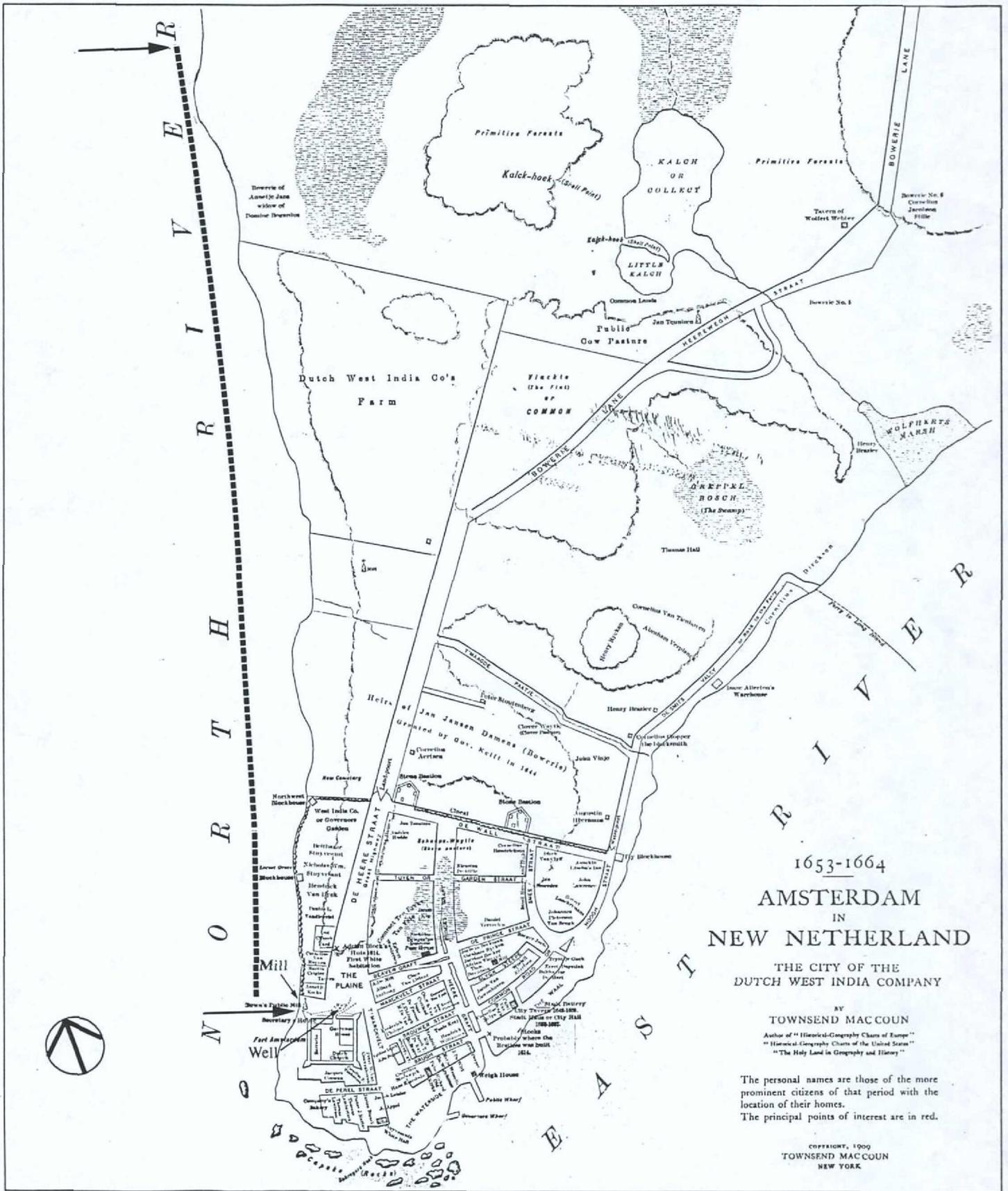
A well associated with the fort is considered sensitive for historical remains, as it was located north of the fort. One of the early methods of well construction entailed lining the shaft with wooden framing, sometimes using iron-hooped barrels to hold the walls (Hume 1987:12). Another method entailed lining the shaft with bricks. Construction techniques and well depths varied depending on the water table and the geological character of the ground. "In very low areas...the shafts were often no more than eight feet deep and rarely more than fourteen" (Ibid.:11). Since the Fort Amsterdam well was within 500 feet of the shoreline at that time, the shaft was probably relatively shallow, ranging between eight and fourteen feet. Wells provide a time capsule for archeologists since they are often filled with debris prior to being capped.

The potential sensitivity of the fort and well depends on the method of construction used for the subway running through the intersection of Broadway and Battery Place, continuing up Broadway. Two distinct methods of subway construction have been employed in Manhattan depending on the depth of the tunnel. In shallow areas, the cut and cover method was used. A large hole was dug out for the subway and then covered. In areas requiring deep tunnels the holes were actually blasted out, and land close to the surface was not disturbed (Mackay 1987:68). If the cut and cover method was used at the intersection of Battery Place and Broadway, then any subsurface remains, such as the fort or well, would have been completely obliterated.

Although it did not appear on maps consulted for this report, a block house or battery may have existed near the intersection of Harrison and West Streets (Stokes 1918:1014). The block house or battery of twenty guns, was built ca. 1745 on the Hudson River shore in preparation for the French and Indian war (Vollmer Associates 1987:10). According to Stokes, the block house appeared on maps in 1757. However, the 1766 and 1767 Montresor and Ratzel maps show a point of

Route 9A Reconstruction Project

land jutting out to the west between Jay and Harrison Streets with a foundry and a brewery on it, east of the route of West Street (Figure 6-14). Topographic maps show *this point of land definitely east of the project area*. It is highly unlikely that the block house or battery actually stood in the project area and is, therefore, not considered sensitive.



ROUTE 9A RECONSTRUCTION PROJECT

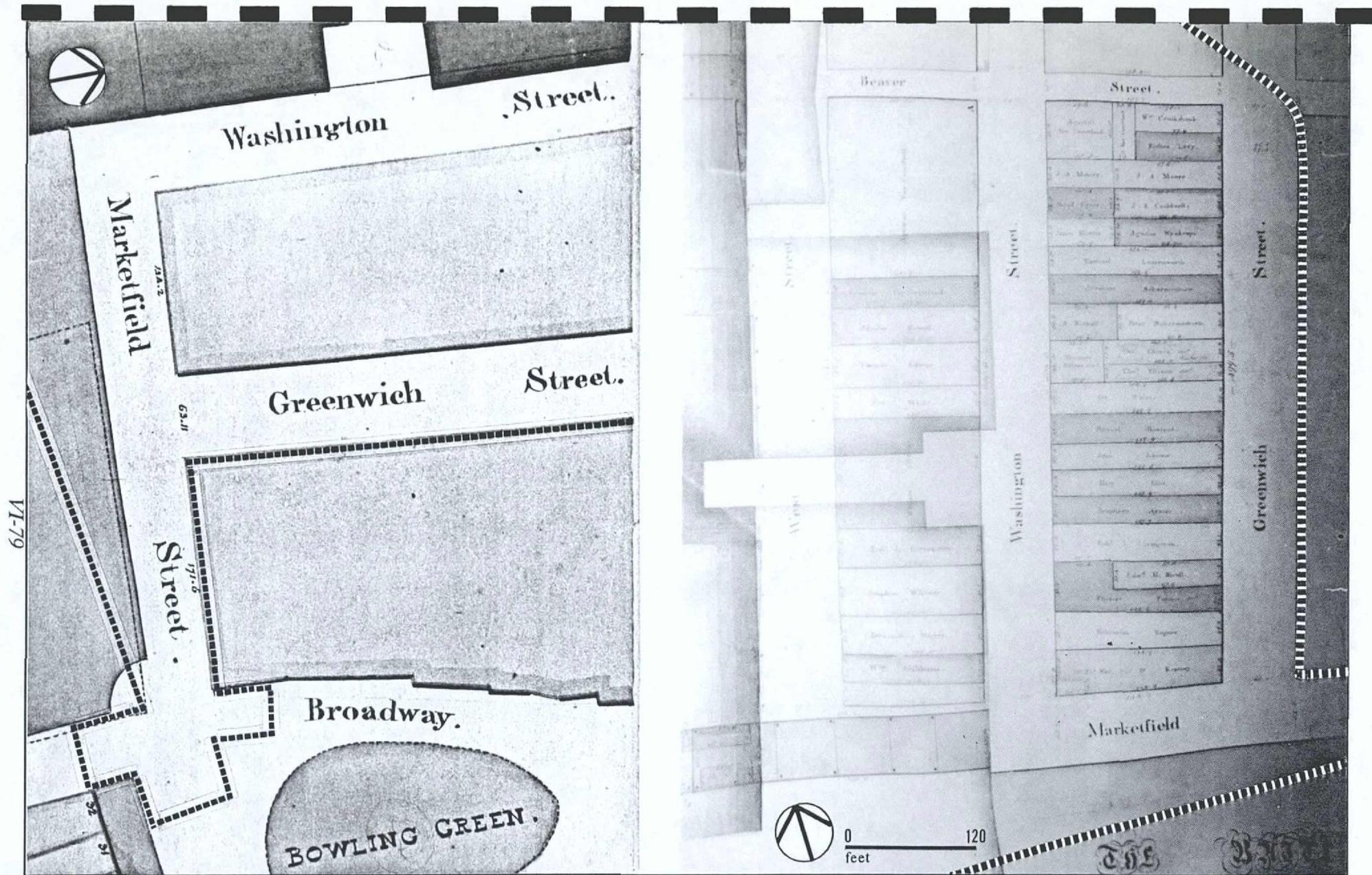
Legend

- Approximate Route of West Street
- Study Area Between Arrows
- No Scale

1653-1664 MacCoun Map of Amsterdam in New Netherland

VI-77

Figure 6-1



ROUTE 9A RECONSTRUCTION PROJECT

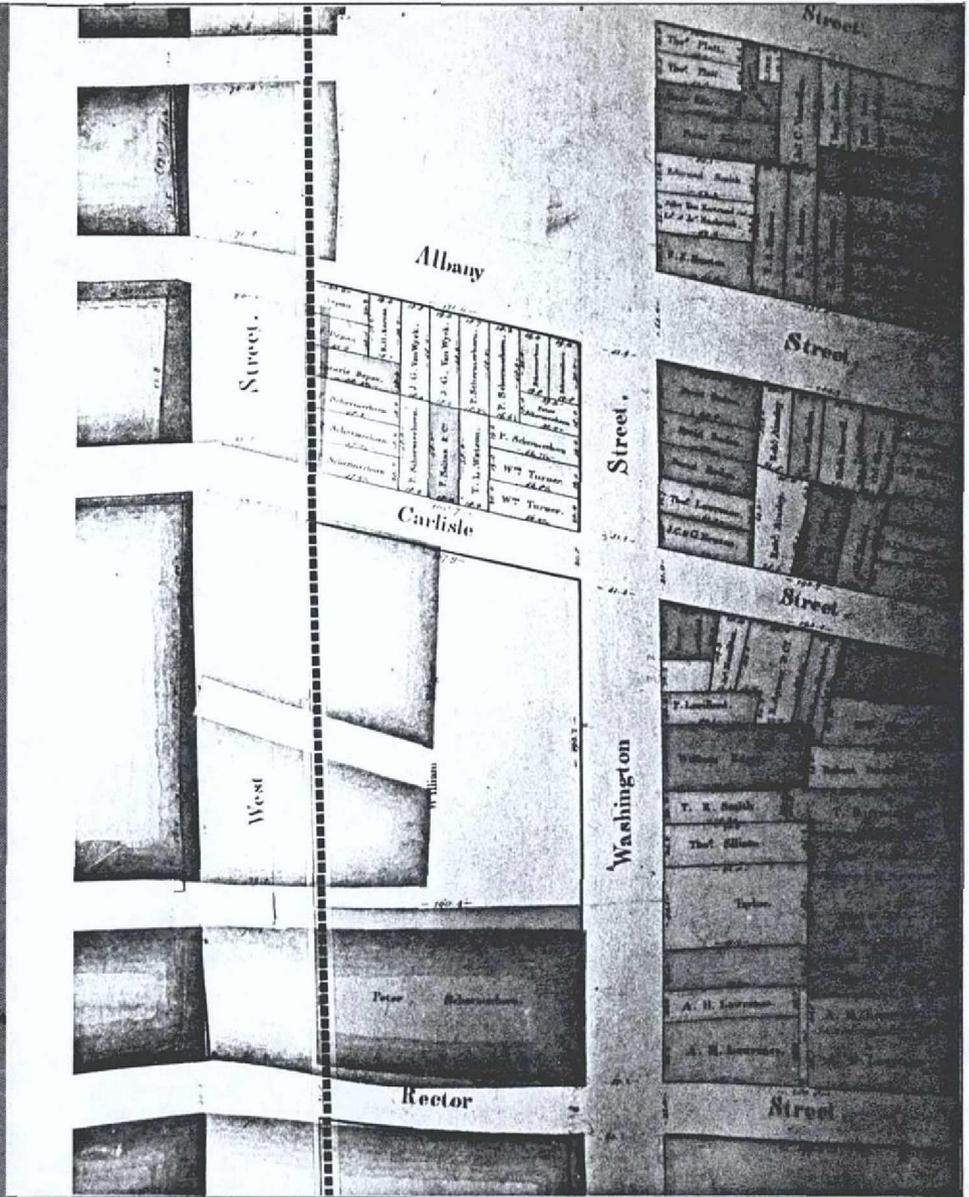
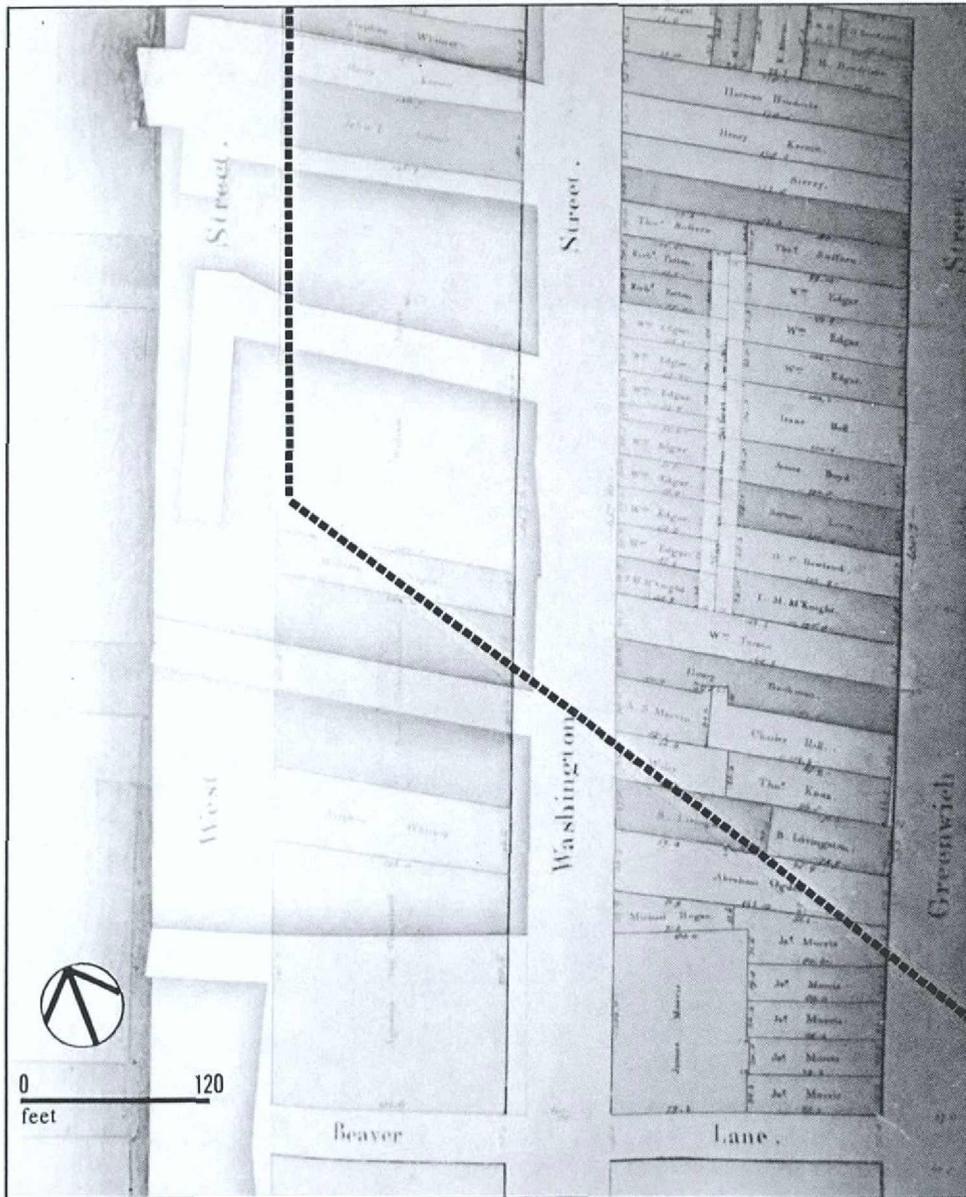
Legend

----- Approximate Eastern Boundary of Study Area

1827-1830 Ewen Maps and Surveys of the City of New York
 Courtesy of the Manhattan Borough Presidents Office

Figure 6-3A

08-14



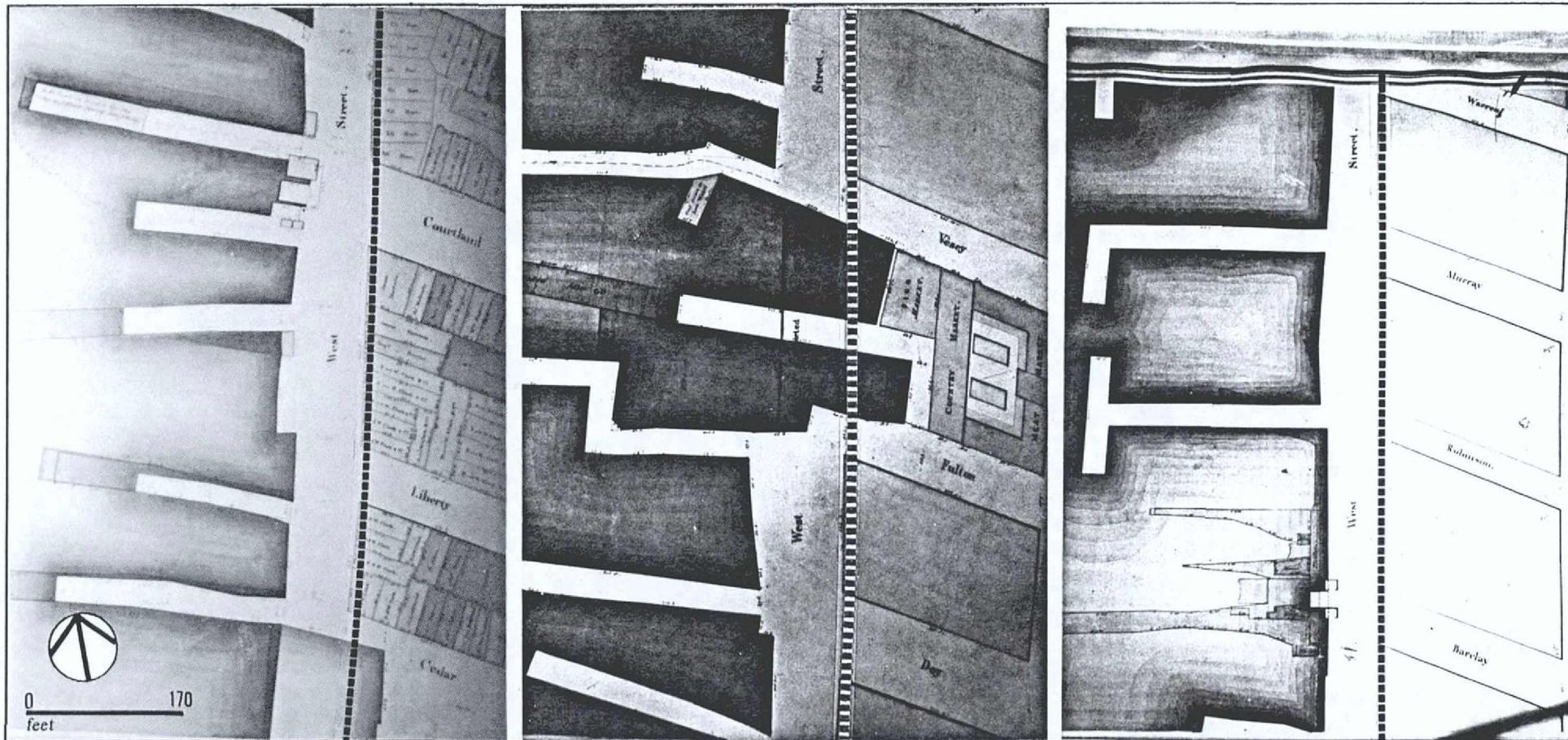
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- *Approximate Eastern Boundary of Study Area*

1827-1830 Ewen Maps and Surveys of the City of New York
Courtesy of the Manhattan Borough Presidents Office

Figure 6-3B



ROUTE 9A RECONSTRUCTION PROJECT

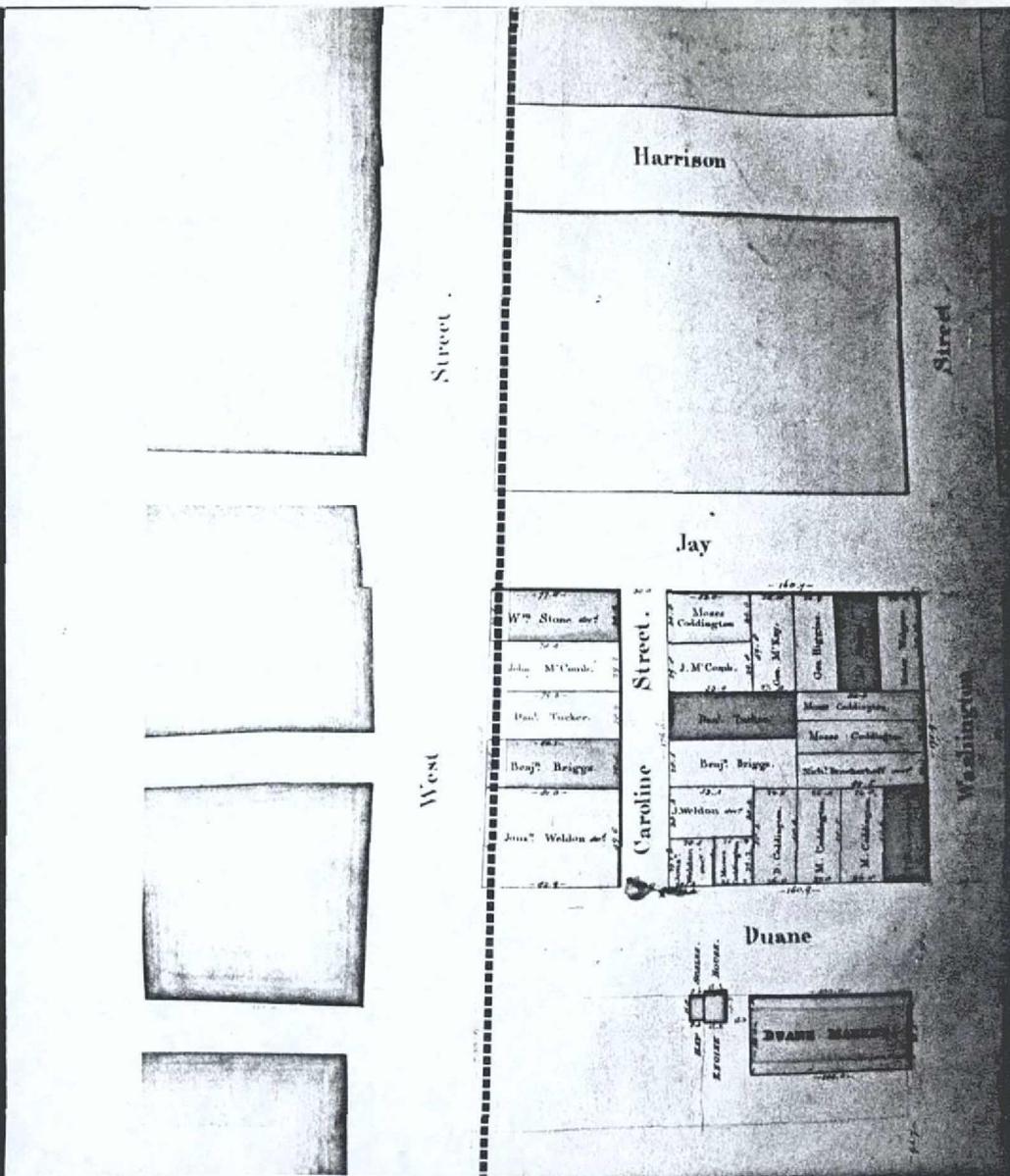
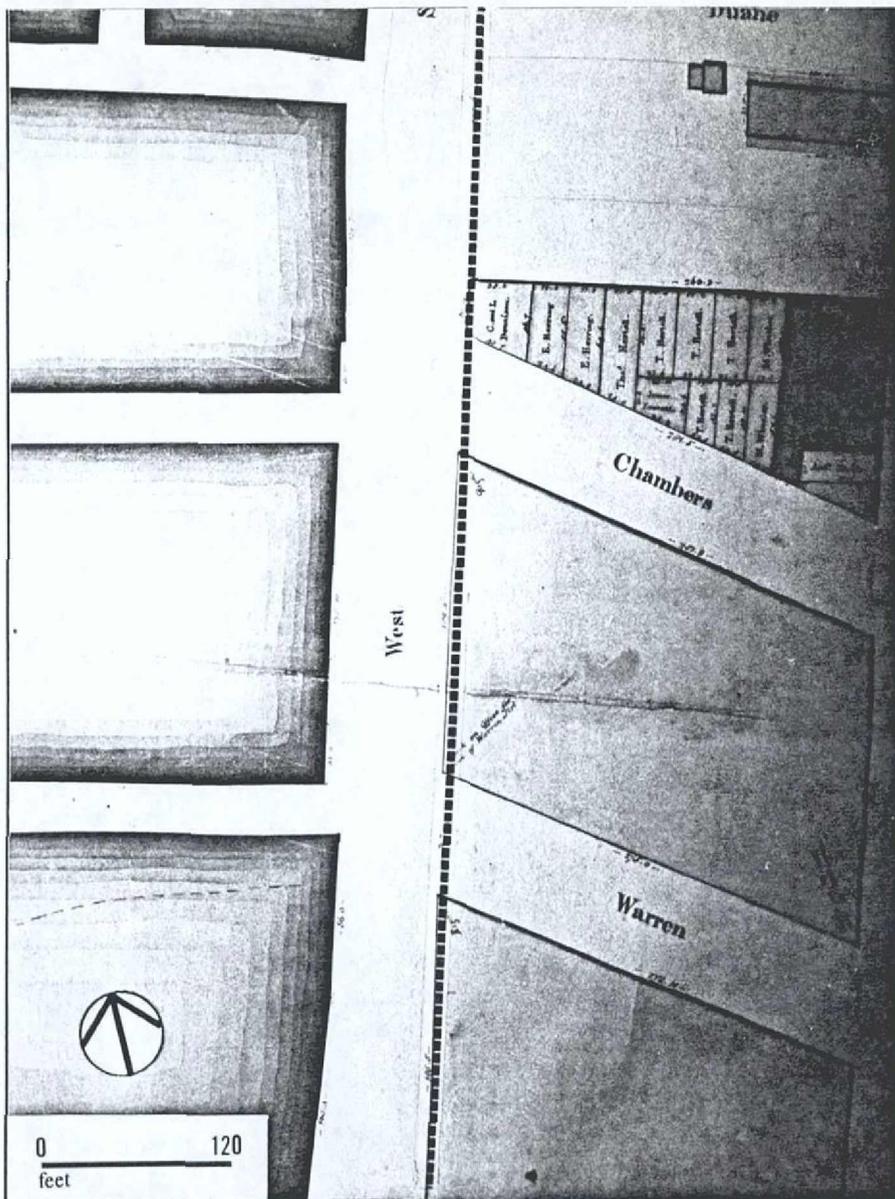
Legend

----- Approximate Eastern Boundary of Study Area

1827-1830 Ewen Maps and Surveys of the City of New York
Courtesy of the Manhattan Borough Presidents Office

Figure 6-3C

VI-82



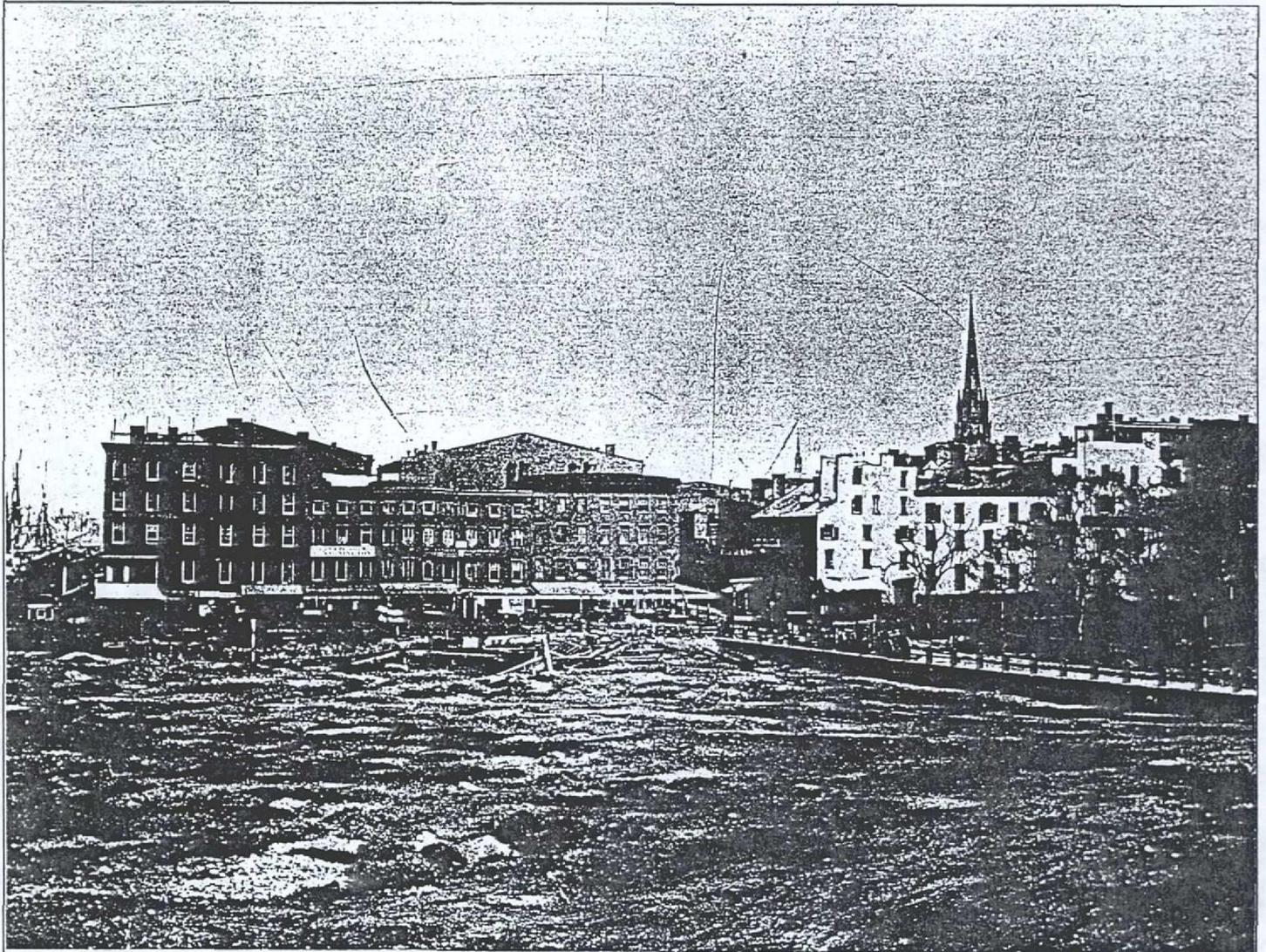
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1827-1830 Ewen Maps and Surveys of the City of New York
Courtesy of the Manhattan Borough Presidents Office

Figure 6-3D



[PLATE 5]
Battery Place, 1853

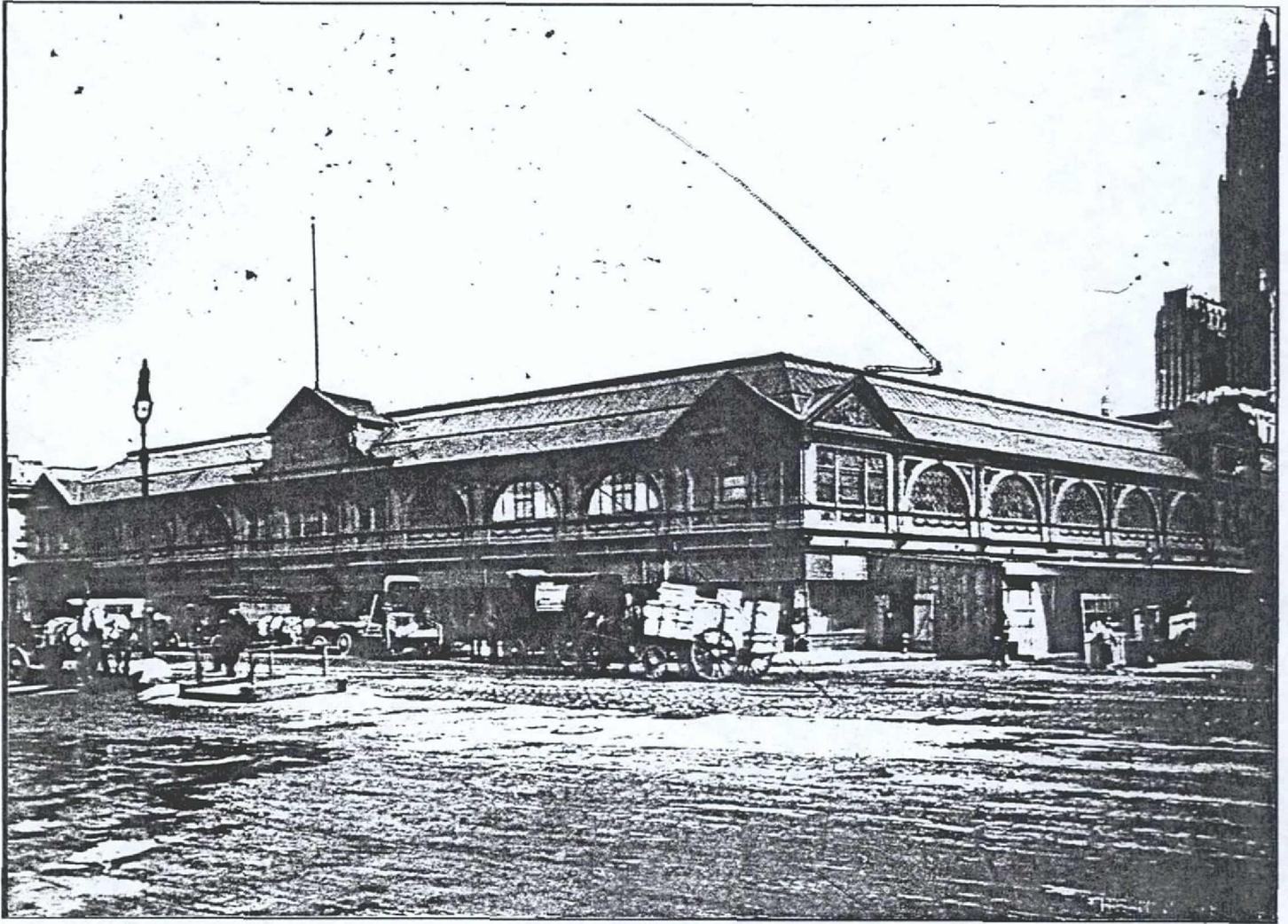
This early view looking north from Battery Place was taken by the French photographer Victor Prevost, who came to New York in 1848. Soon after his arrival he began work on one of the earliest existing photographic records of the city. The present

picture is one of the earliest outdoor photographs of New York known today. Taken while the Battery was being enlarged, it shows the steeples of nearby Trinity Church and, in the distance, St. Paul's Chapel.

Photo, V

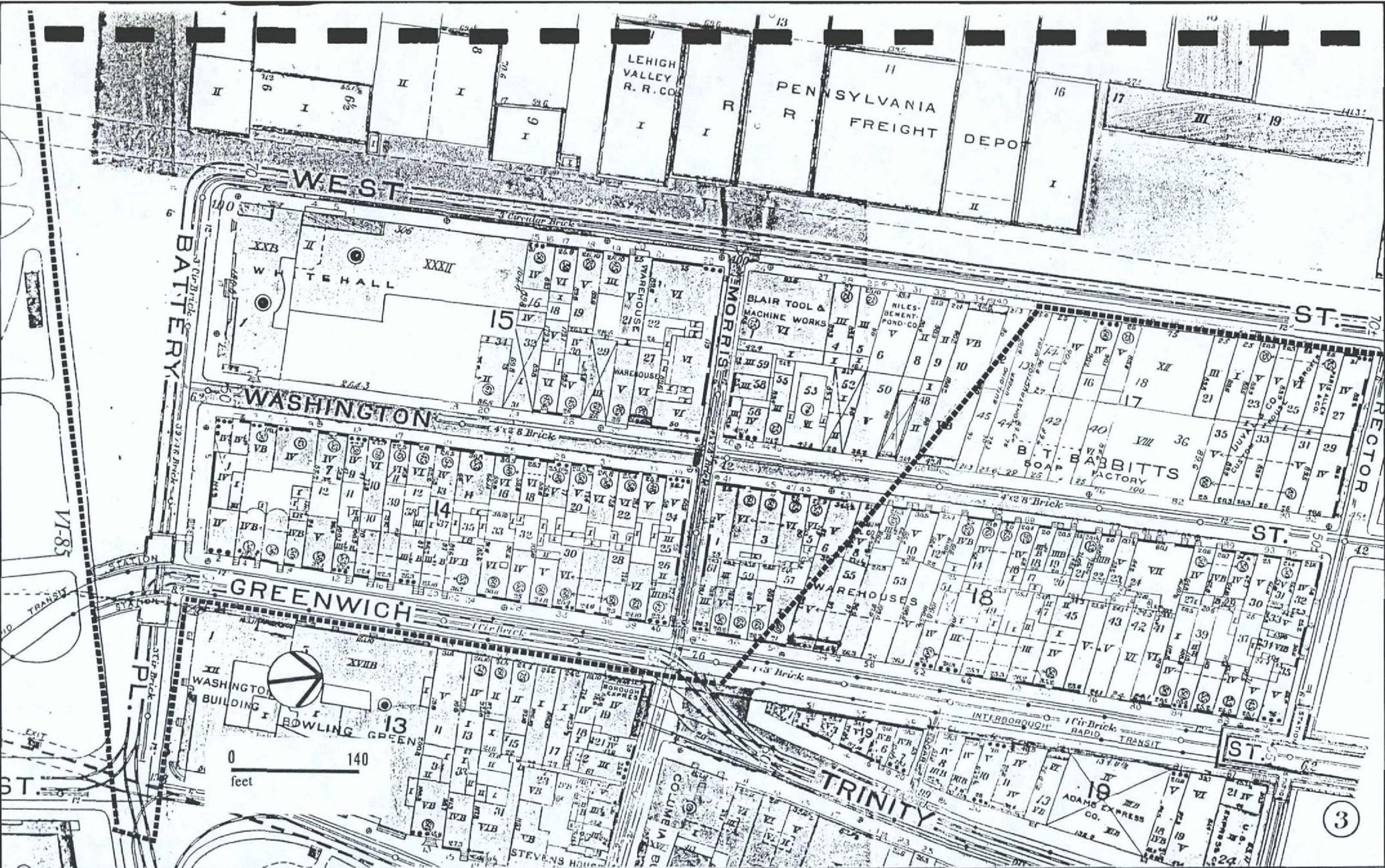
ROUTE 9A RECONSTRUCTION PROJECT

View North from Battery Place in 1853
Source: Black 1973



ROUTE 9A RECONSTRUCTION PROJECT

Photograph of Washington Market and West Street ca. 1915
View Northeast Between Fulton and Vesey Streets
Courtesy of the New York Public Library



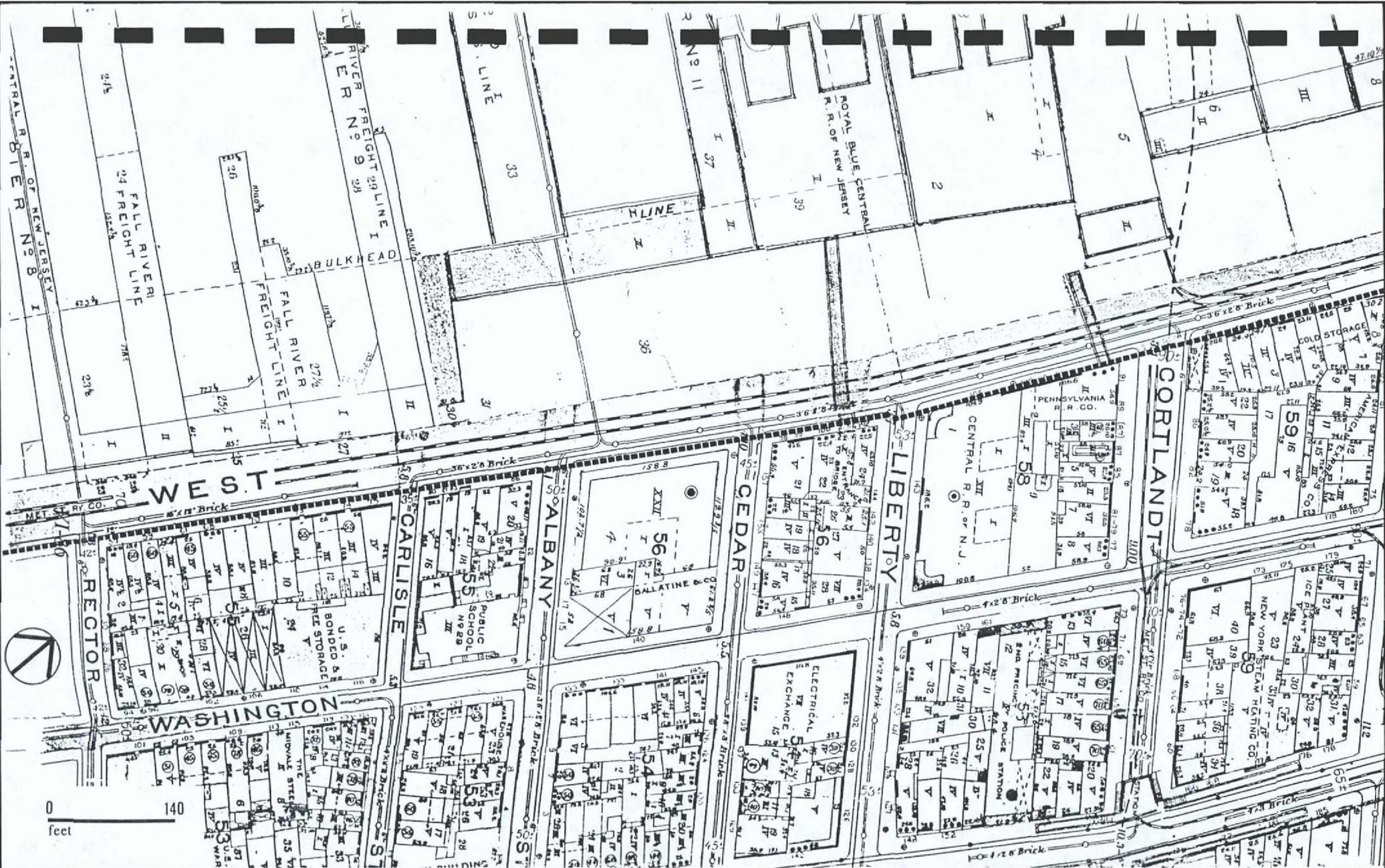
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-6A



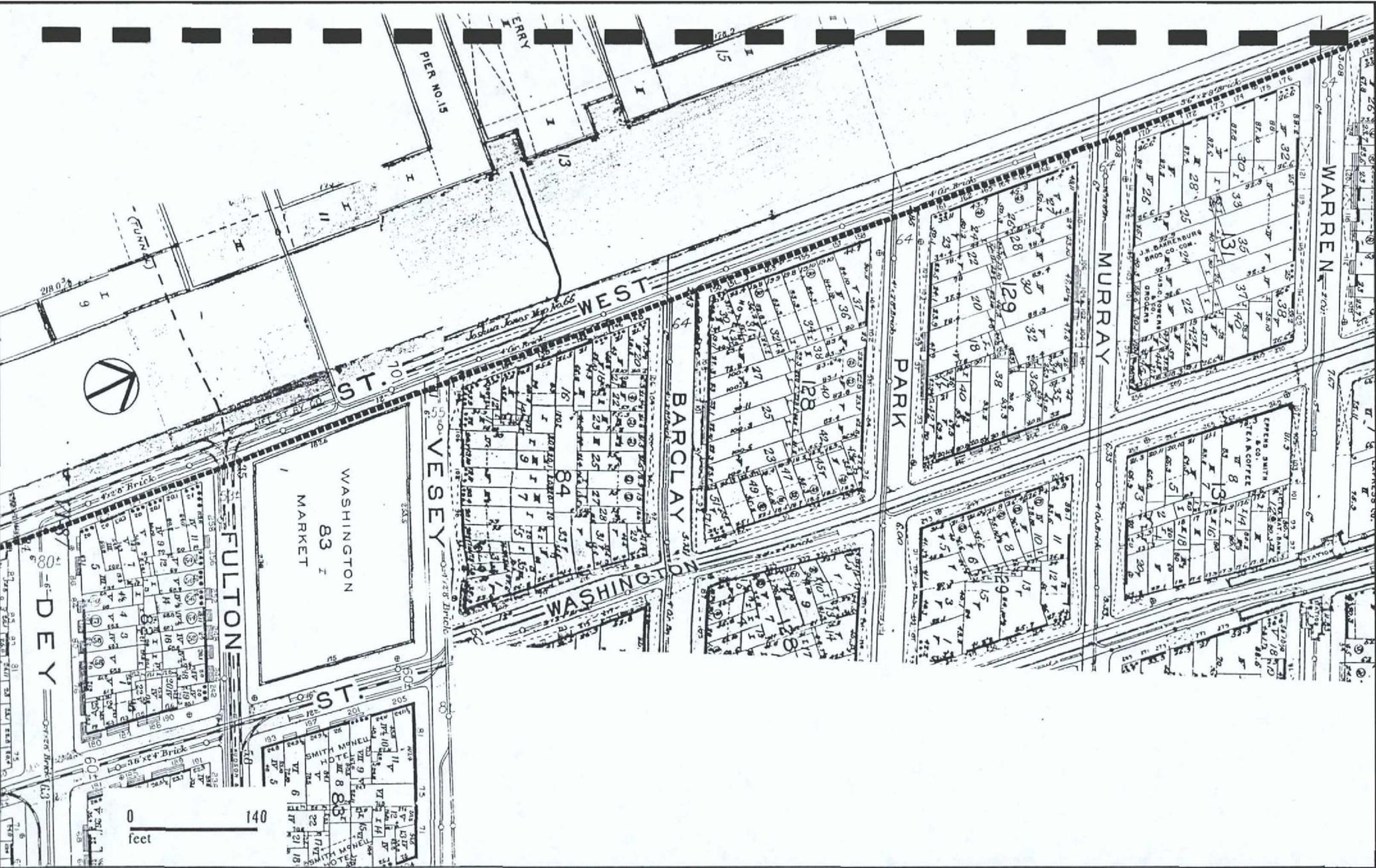
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-6B



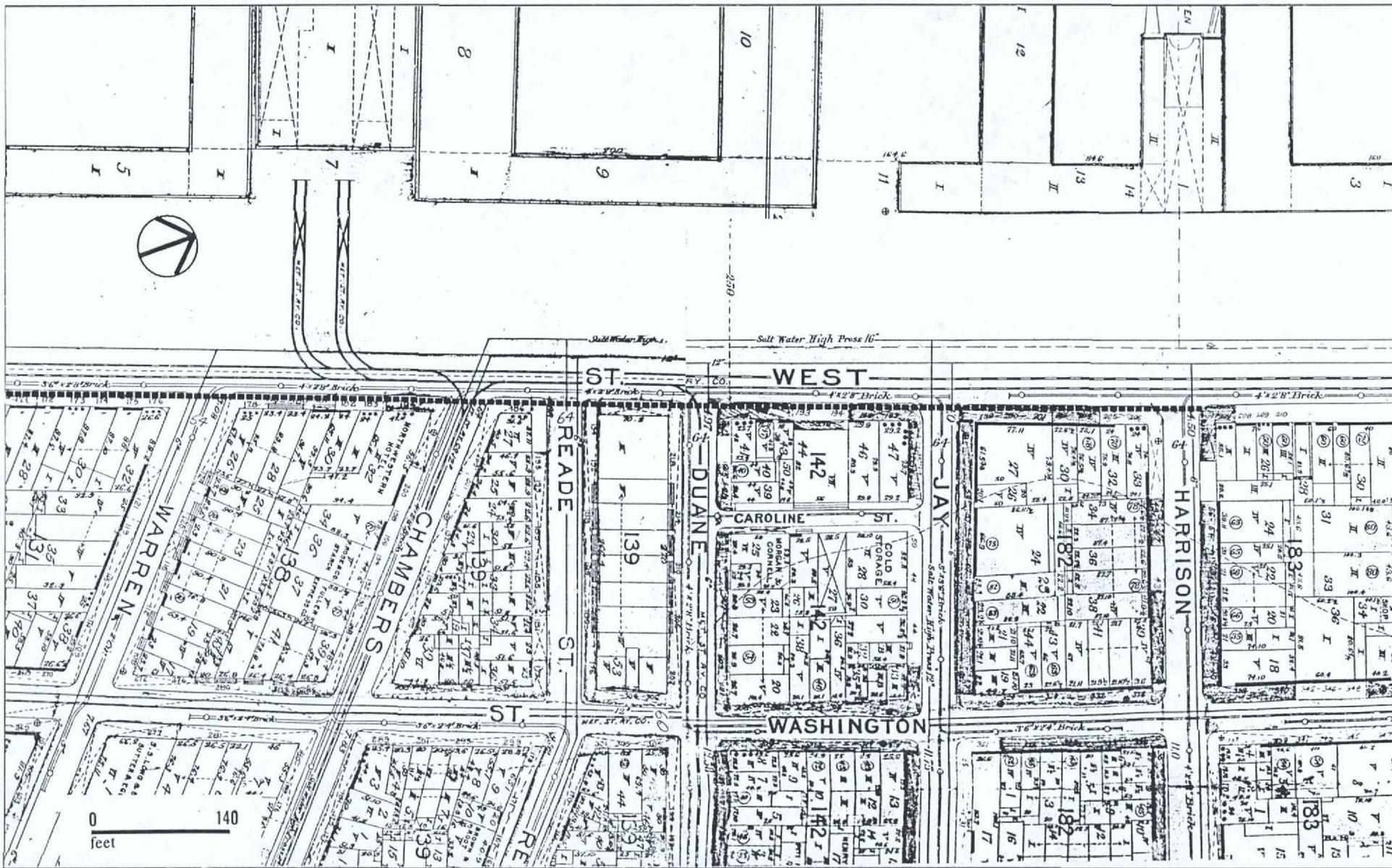
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-6C



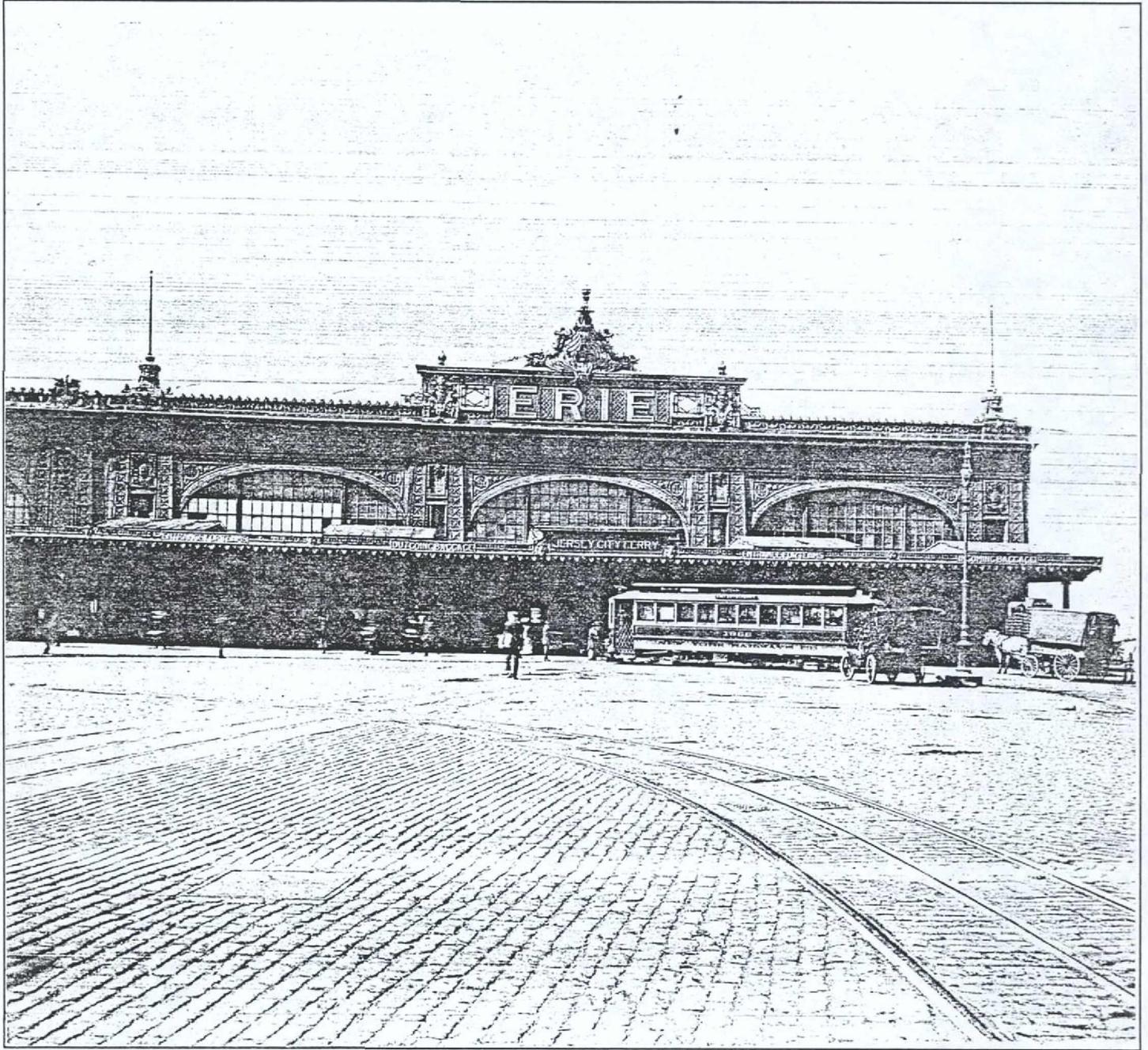
VI-88

ROUTE 9A RECONSTRUCTION PROJECT

Legend 1913 Hyde Atlas of the Borough of Manhattan

----- Approximate Eastern Boundary of Study Area

Figure 6-6D



ROUTE 9A RECONSTRUCTION PROJECT

Erie Railroad Pier shed ca. 1900
Located at Duane and Reade Streets
Courtesy of the South Street Seaport Herman Melville Library



DOWNTOWN NEW YORK

Photograph, $7\frac{7}{8} \times 13\frac{3}{8}$ in., taken with Model F Leica, F/2 Summar lens stopped to f/6.3, with K-1 yellow gelatine filter 3.40 p.m., September 11, 1935, while flying solo at 1800 ft., by Julien J. Proskauer, war-time flyer and amateur photographer.

ROUTE 9A RECONSTRUCTION PROJECT

Aerial View of Lower Manhattan in 1935
From Battery Place to Cortlandt Street
Source: Gilder, Rodman 1936

MORRIS ST.

506.3 ft.

WASHINGTON STREET

WASHINGTON STREET

GREENWICH STREET

GREENWICH STREET

26.1	60.3	23	72.4	23.4
24	82	25	26	23.3
252	23		27	24.0
254	78.1		28	25
26.8	77.8		29	24.9
235	77.4		30	25.4
230	77.0		31	24.8
257	76.8		32	25
30.9	59.6	30.0	33	30.11
184	58.6		34	30.3
184	65		35	30.3
26.5	46		37	30.11
26	53	14	38	26.3
22.5	45.9		39	22.5
22.4	10		40	22.4
22.3	47	77.9	41	22.6
32	47		42	32.1
20.9	52.3		44	32.1
20.4	48.2		45	31.4
5	48.2		46	30.6
32	57.6	35	48	30.6
3	57		48	30.6
36.2			48	30.6
37	36.2		48	30.6
36.2			48	30.6

- August Van Courtlandt 1755
- John Chambers 1739
- Henry Bogert 1739
- John Searle 1770
- Walter Heyer 1770
- Henry White 1770
- Francis Van Courtlandt 1770
- John Stevens 1770
- Catherine Ledge 1772
- Jonathan Mallet 1770
- Archibald Kennedy 1770
- Robert Kennedy nd

BATTERY PL.

based on 1916 Index of Libers, Block 14, Section 1



ROUTE 9A RECONSTRUCTION PROJECT

Legend
 --- Grant Lines

Lot Owners, Block 14, 1739-1770
 Source: Geismar 1987

157.7

31.8	Augustus Van Courtland	A. Van Courtland	Wm. Cruickshank	25.14
			Richea Levy	24.10
28.4	J.A. Moore	J.A. Moore		25.0
24.8	David Rogers	J.P. Caldwell		24.6
20.8	James Morris	Augustus Wynkoop		25.4
24.8	Rachael Leavenworth			20.8
25.5	Abraham Schermerhorn			25.0
30.9	A. Nicholl	Peter Schermerhorn		30.11
38.8	Thomas Ellison	Thomas Ellison		20.1
		Thos. Ellison		16.4
506.0	Eve White [widow of Henry?]			35.10
26.0	Samuel Howland			24.3
22.5	John Johnson			22.5
22.4	Mary Ellis			22.4
22.1	Benj. Aymer			22.0
32.0	Robert L. Livingston			32.1
37.0	<div style="border: 1px dashed black; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;">Edward H. Nicoll</div> <div style="border: 1px solid black; padding: 2px;">Thomas Farmer dec'd</div> <div style="border: 1px solid black; padding: 2px;">Rehemyah Rogers</div> <div style="border: 1px solid black; padding: 2px;">Dr. J^r Wall & Dr Keagney</div> </div>			27.7
				22.7
				21.7
				22.2

Washington Street

Greenwich Street

506.0

499.0

144.2

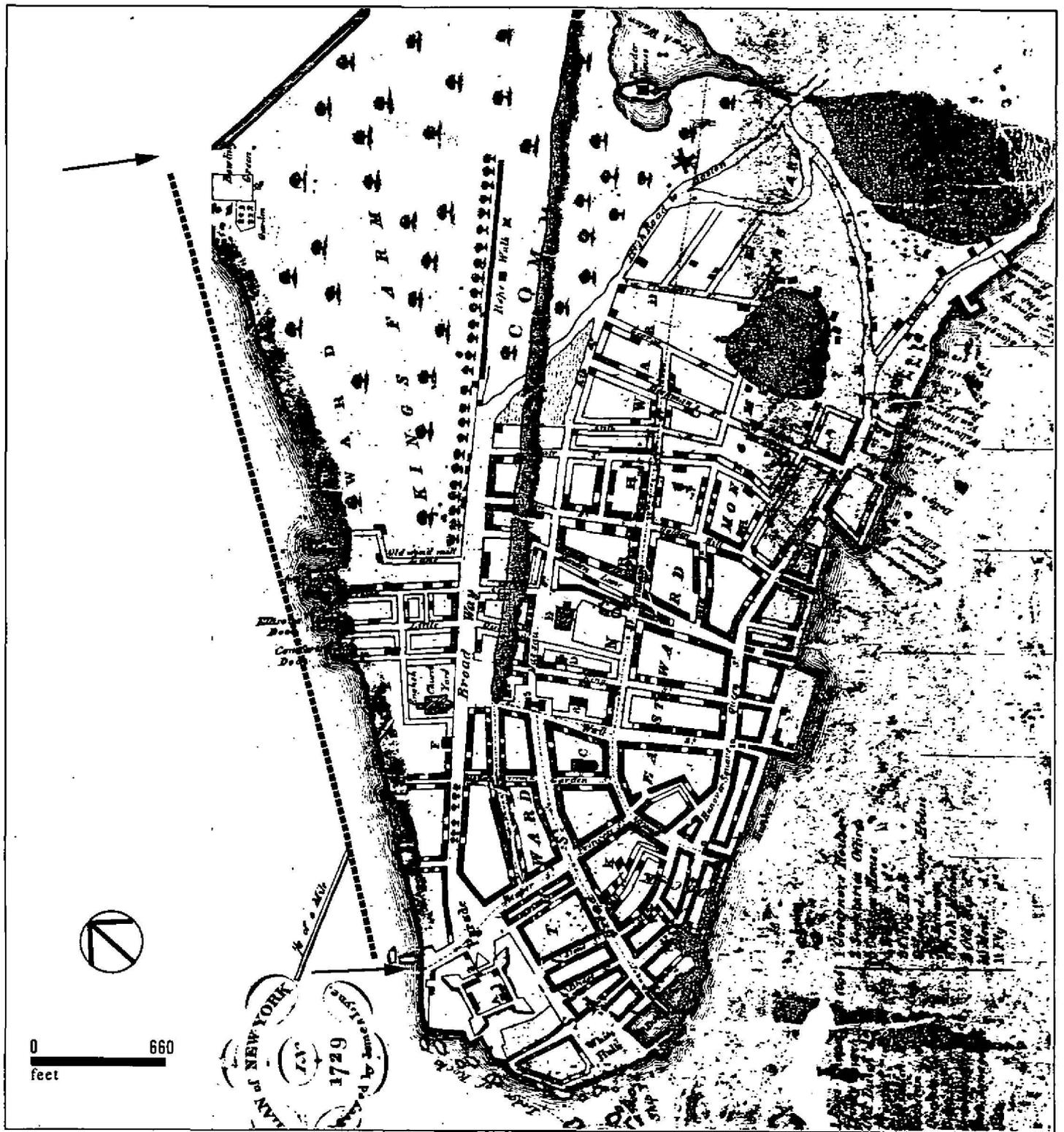
Marketfield Street



ROUTE 9A RECONSTRUCTION PROJECT

Lot Owners, Block 14, 1827-1830

Source: Geismar 1987

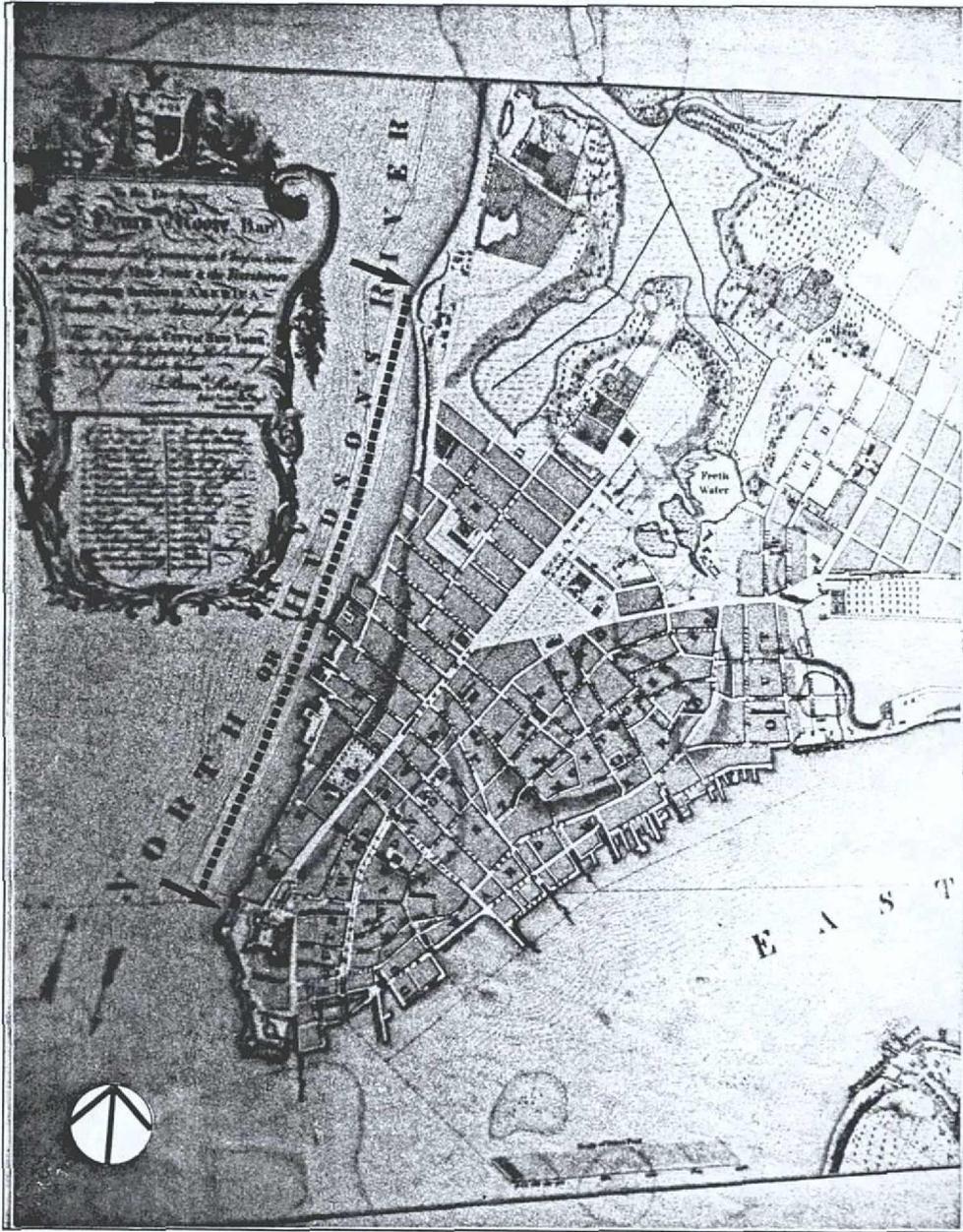


ROUTE 9A RECONSTRUCTION PROJECT

1729 Lyne Plan of New York

Legend

- Approximate Route of West Street
- Study Area Between Arrows



ROUTE 9A RECONSTRUCTION PROJECT

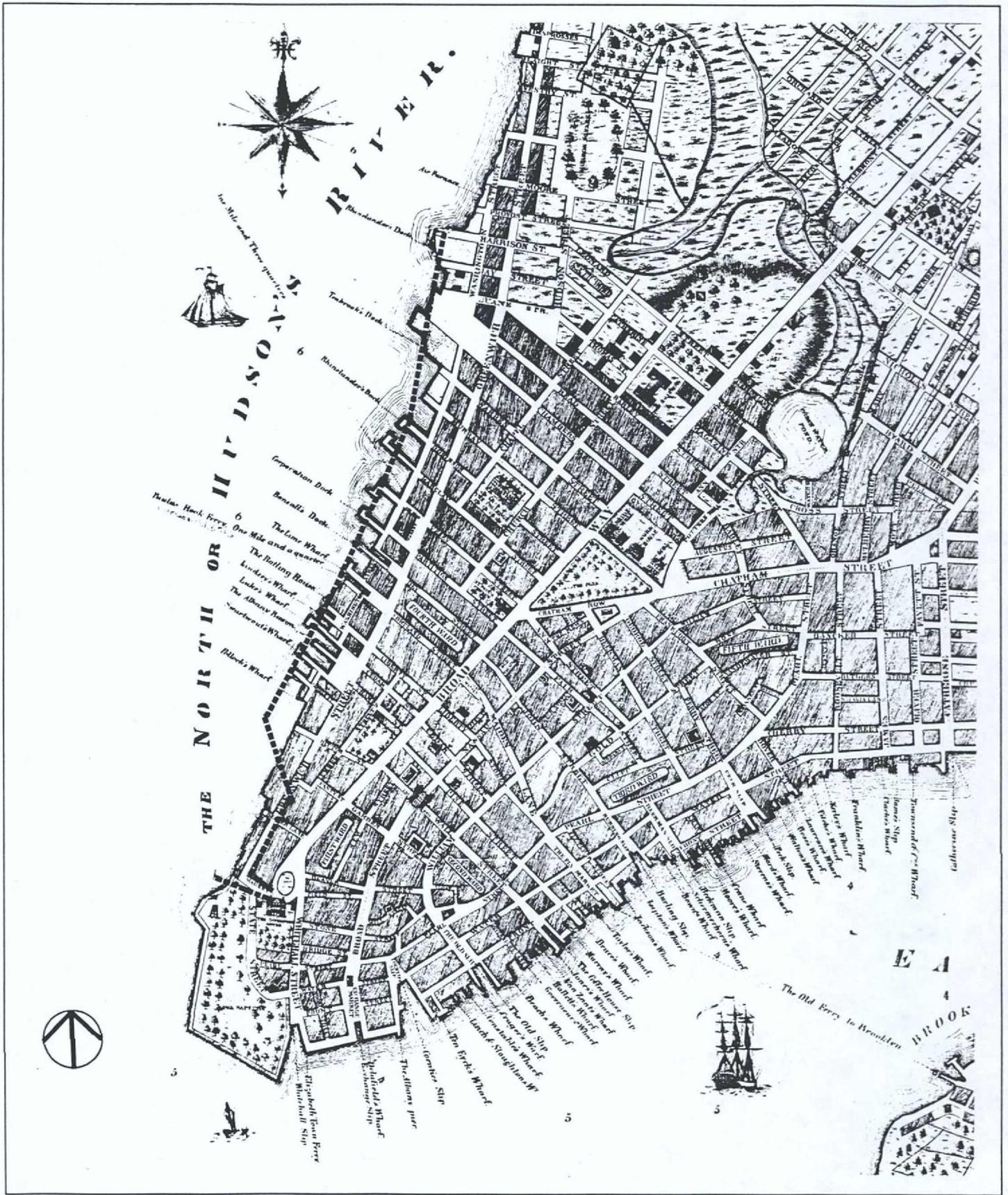
Legend

1766-1767 Ratzel Map of New York City

----- *Approximate Route of West Street*

Study Area Between Arrows

No Scale

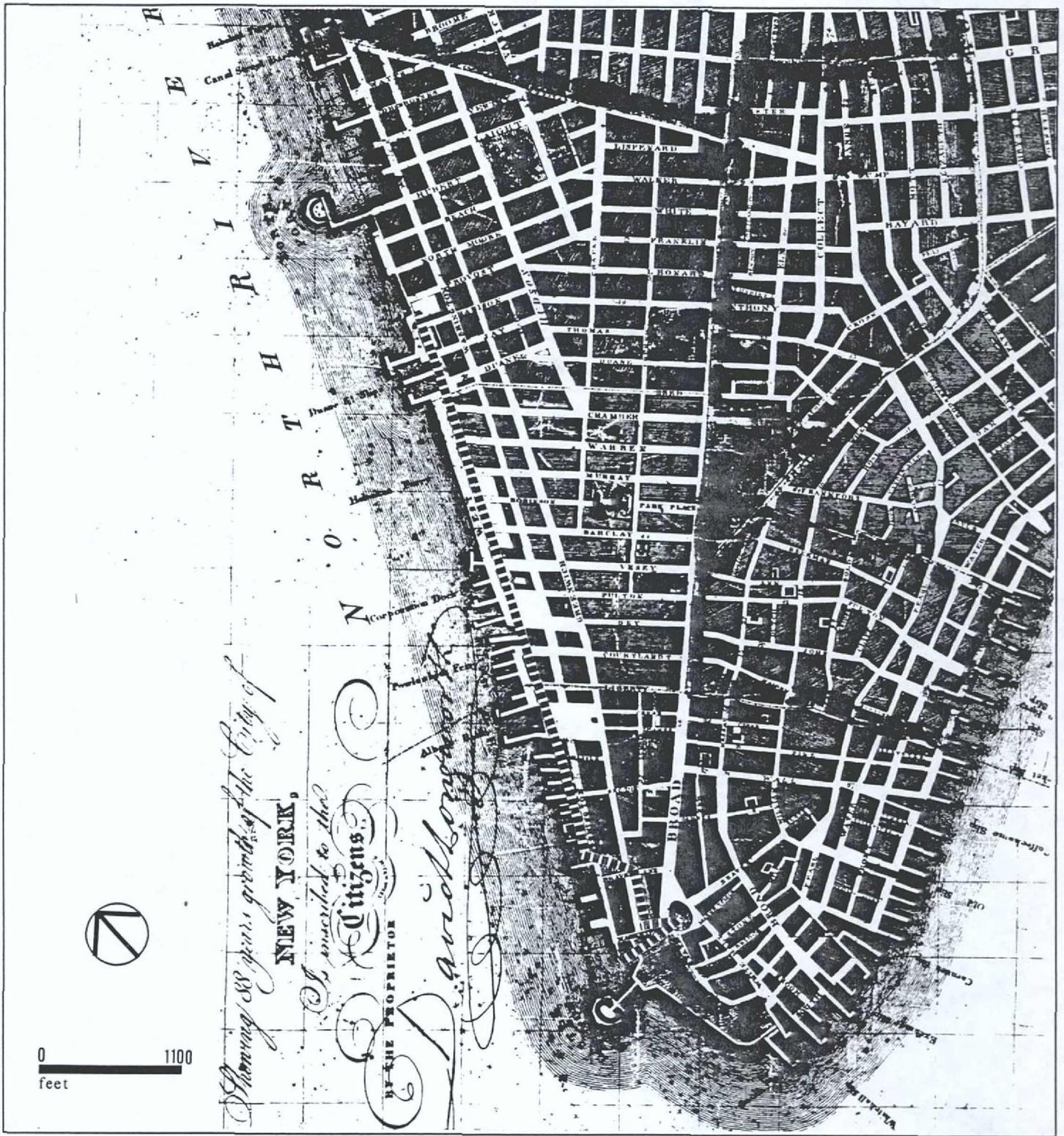


ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area
 No Scale

1797 Taylor-Roberts: A New and Accurate Plan of the City of New York

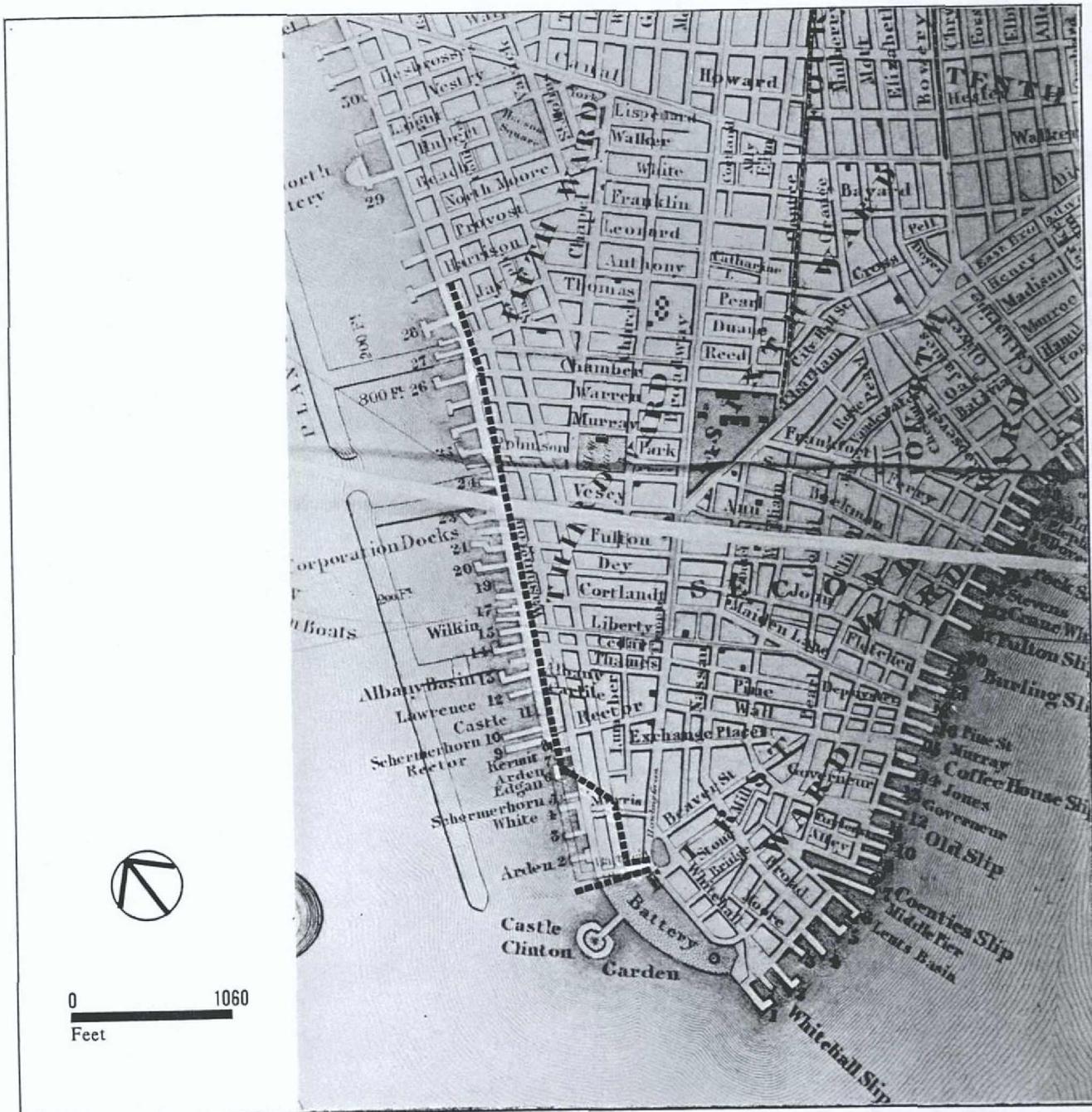


ROUTE 9A RECONSTRUCTION PROJECT

Legend

■■■■■ Approximate Eastern Boundary of Study Area

1817 Longworth Actual Map and Comparative Plan of New York



0 1060
Feet

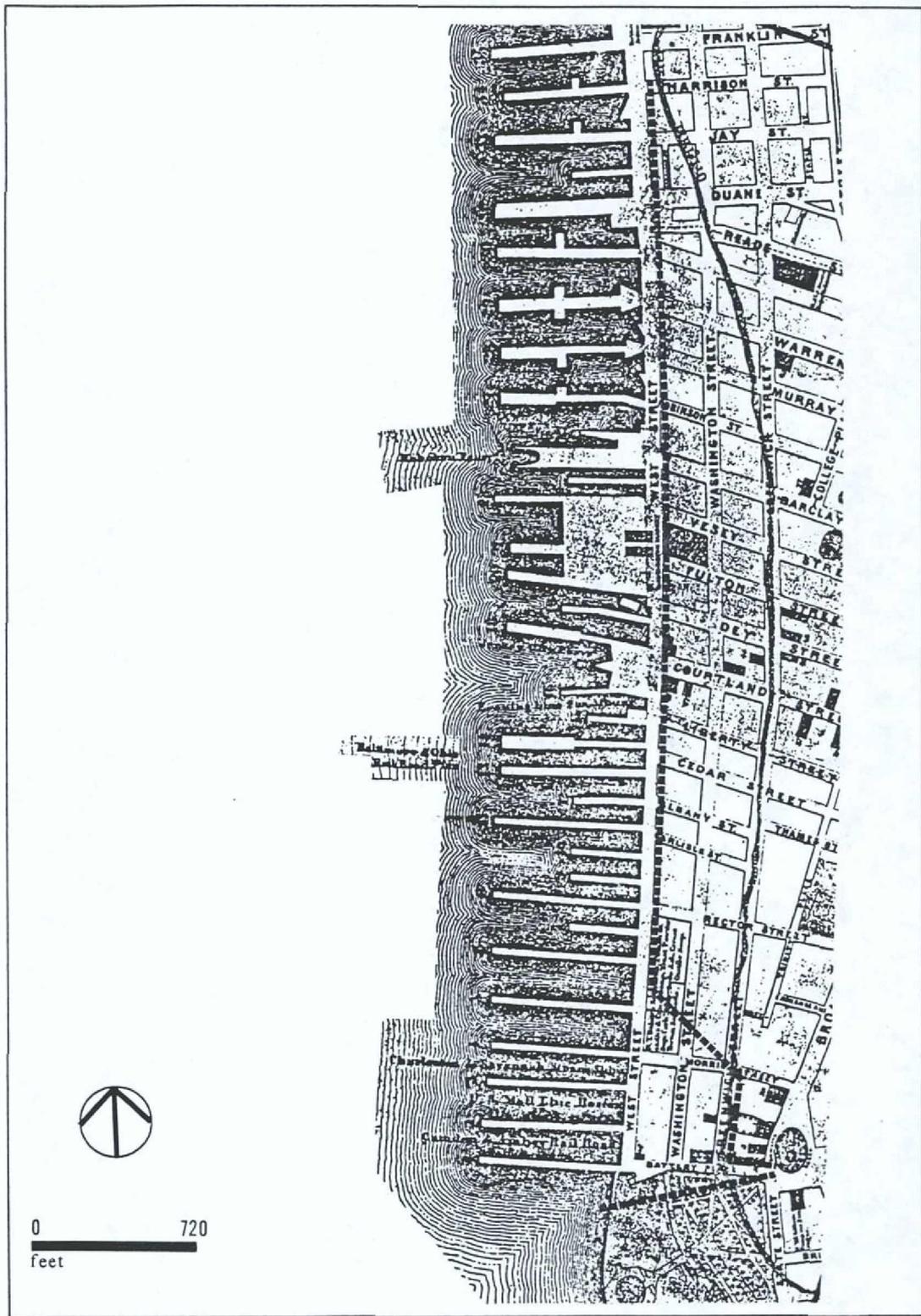


ROUTE 9A RECONSTRUCTION PROJECT

Legend
 - - - - - Approximate Eastern Boundary of Study Area

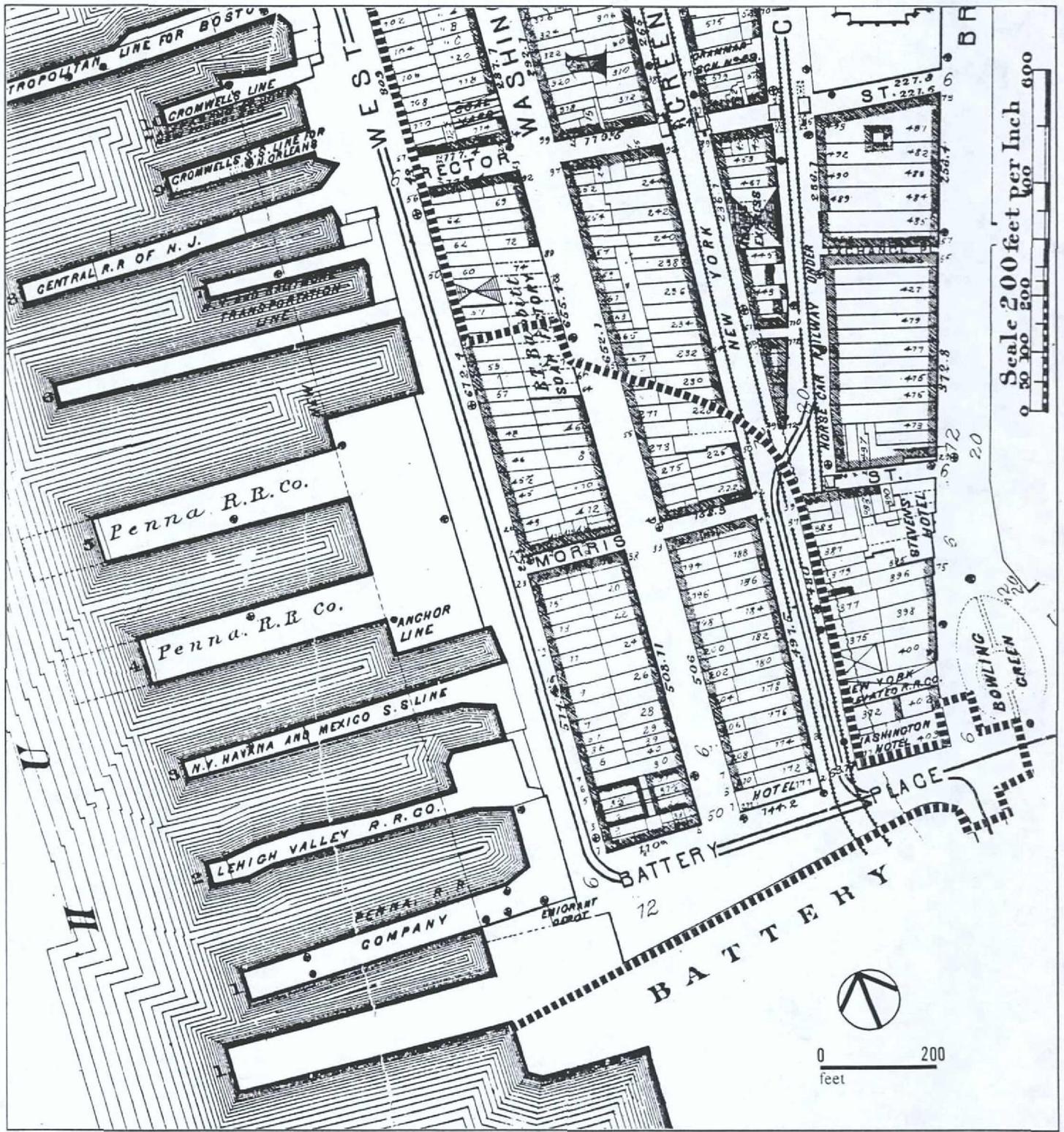
1839 Burr Map of the City and County of New York

Figure 6-17



ROUTE 9A RECONSTRUCTION PROJECT

Legend 1856 Bacon Barnitz Pier Map of the City of New York
 ----- *Approximate Eastern Boundary of Study Area*



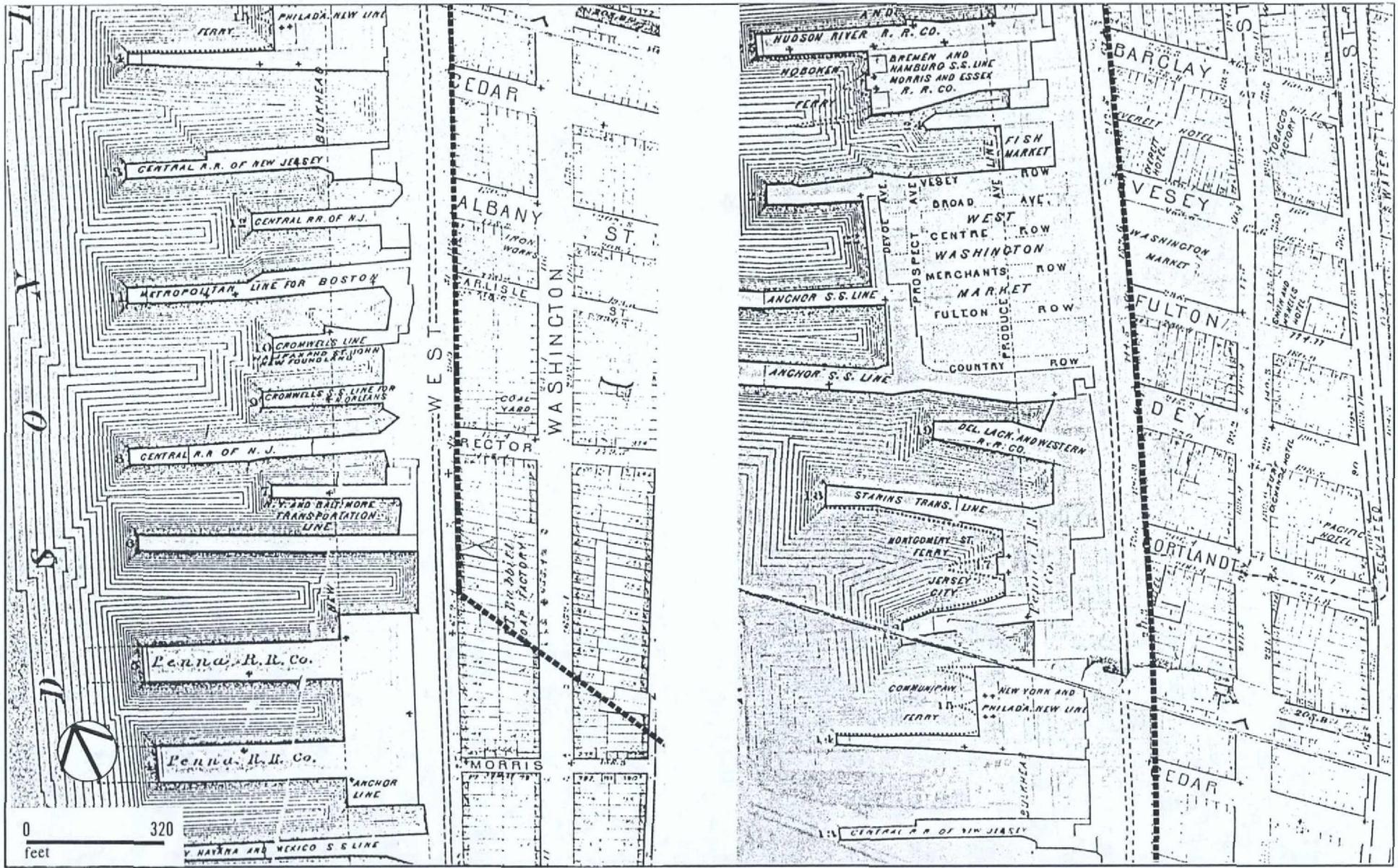
ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1879 Bromley Atlas of the City of New York

VI-102



ROUTE 9A RECONSTRUCTION PROJECT

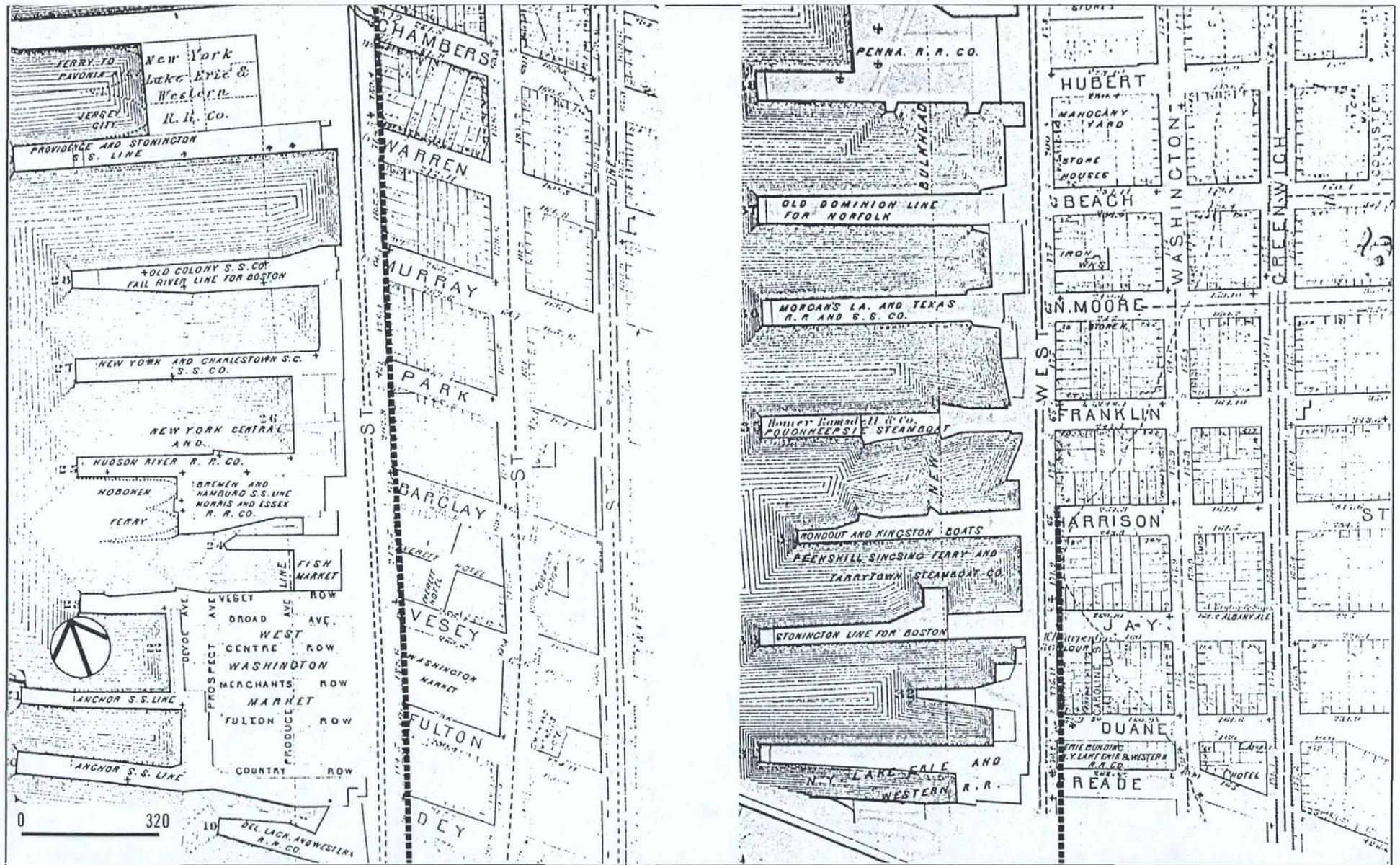
Legend

----- Approximate Eastern Boundary of Study Area

1879 Bromley Atlas of the City of New York

Figure 6-19B

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ROUTE 9A RECONSTRUCTION PROJECT

Legend

----- Approximate Eastern Boundary of Study Area

1879 Bromley Atlas of the City of New York

Figure 6-19C

Project	Landfill Dates*	Number of Blocks From Original Shore	Types of Waterfront Constructions	Year Tested/Excavated	Sources	Remarks
64 Pearl Street	Late 17th C.	1	Stone foundation walls	1980	Rothschild 1986; Personal Communication	First east-side fill site excavated. Basement excavations Landfill structures similar in time and type to those at Hanover Sq. (see below).
7 Hanover Square	Late 17th C.*	1	Stone foundation walls	1971	Rothschild 1982	Stone foundations similar to those at 64 Pearl (see above)
Old Silp and Cruger's Wharf	1690-1800	3	Massive timber wharves (undressed logs)	1969	Huey 1984	Episodic wharf-building and landfilling. Observed wharves appear analogous to 175 Water St.
Telco Block	c. 1740-1775*	2	Cobb-crib (log) wharves; planked bullhead	1981	Rockman et al. 1983; Wall 1986	Dates apply to episodic wharf construction. Possible that block and bridge construction was used, but speculative at present.
175 Water Street	c. 1740-1780	2	Wharf/grillage**; ship tied into planked bulkhead and stabilized with pilings	1981-1982	Gelsmar 1983: 672-712	Block structured c. 1754 when ship incorporated, but landfill process continued as late as 1780 or, with secondary filling, 1795.
209 Water Street	between 1775 and 1800(?)	2	Partially excavated ship	1978	Henn et al. N.D.; Brouwer 1980	Ship side and deck beams excavated. Landfill in and around hull.
Assay Site	1780s-1790s* (wharf and pier only)	3	Cobb wharf, block and bridge pier	1984	Wall and Henn 1986; Personal Communication	Time span of full fill maneuver presently unknown. Data currently being analyzed (Louis Berger & Associates, Inc.)
Barclays Bank	1694-1702*	1	Stone foundations and log cobb wharf.	1983-1984	Klein and Cohen 1986; Personal Communication	Stone foundations similar to 64 Pearl St. and 7 Hanover Sq.; Cobb wharf part of Rotten Row (Water St.)
Schermerhorn Row	1780-1810*	3	Log crib works	1977	Kardas and Larrabee 1979, 1980	Basement excavations, therefore dimensions of constructions unknown.
Site 1, Washington St. Urban Renewal Area	1797-1801 1807-1817	1 2	Log block and bridge (?) probably a pier	1984	Gelsmar 1986	First west side fill site investigated. Relatively rapid filling; no major fill-retaining features (large bulkhead, ship, etc. located in site).

* Fill dates based mainly on historical documentation.

** Wharf/grillage is a term used to define wharfing later used as block foundations (Gelsmar 1983:672-712).

ROUTE 9A RECONSTRUCTION PROJECT

Landfill Sites Excavated in Manhattan
Source: Geismar 1987:Table 1

A. SUBSURFACE DISTURBANCE

The research conducted has identified several areas potentially sensitive for archeological remains. In order to determine the degree of potential for recovering such resources, it is necessary to reconstruct prior disturbance to these areas. Prior disturbance may have resulted from road construction and reconstruction, utility line installation, tunnel construction and demolition activities. The known disturbances are reported here to assess potential survivability of cultural resources.

Each potentially sensitive area was evaluated as to the amount of disturbance the area had received. Five categories were used:

- o Very disturbed - 100% of the area appears to have been disturbed.
- o Disturbed - 75-100% of the area appears to have been disturbed.
- o Somewhat disturbed - 50-75% of the area appears to have been disturbed.
- o Fairly undisturbed - 25-50% of the area appears to be disturbed.
- o Undisturbed - 0-25% of the area appears to be disturbed.

Although the archeological potential of an area may not be totally destroyed by prior disturbances, sites that appear to be over 50% disturbed have not been recommended for additional investigation.

There are several tunnels running through the project area. There are two PATH tubes between New York and New Jersey in the vicinity of the World Trade Center, between Vesey and Liberty Streets. These were originally built in the late 1800s and early 1900s and replaced in the 1970s when the World Trade Center was constructed. According to the "provisions of the franchise," these tracks were installed at such an elevation that depth was provided at Greenwich Street for a subway which might be constructed in the future above the tube tunnels (Davies 1909:V,704). At the Church Street station, at least two blocks east of the Route 9A project corridor, the tube tracks were laid approximately 40 feet below street grade (Ibid.) The Church Street and Dey Street station construction, the power support plant construction, and the tunnel caissons for these PATH tubes were all east of the project corridor (Davies 1909:I,496). The Brooklyn Battery Tunnel entrance is at the intersection of West Street and Joseph P. Ward Street, in the southern portion of the project area. The tunnel then runs through portions of Block 18 between Battery Place, Morris Street, Greenwich Street and Western Union International Plaza. The entrance is open-air and construction only left the southernmost block in its path undisturbed. The block bounded by Greenwich Street, Western Union International Plaza, Morris Street and Battery Place retained two strips of land undisturbed by tunnel and blower house construction.

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There are also two subway lines crossing Battery Place at Greenwich Street and Broadway. A subway station is located at the intersection of Broadway and Battery Place. Since the subway on Greenwich Street was relatively shallow, the cut and cover method was used, rendering the entire route of the subway disturbed (Solecki 1974:111). Although the method of construction on Broadway has not been confirmed, there is no reason to believe that the same method was not employed, especially due to the shallow nature of the island in this vicinity. Only in deeper upland areas was the tunneling method needed. Therefore, everything in the route of Broadway is undoubtedly completely disturbed as well. The construction probably did not disturb Battery Place to the east and west of Broadway and Greenwich Street.

Numerous utility lines exist in Battery Place, West Street and Marginal Street. These include water, gas, electric, and telephone lines, as well as private facilities for other purposes. A report on utilities in the Final Environmental Impact Statement for the West Side Highway Project stated the following:

Between Battery and Harrison Streets, the highway mainline is depressed and partially covered in the bed of West Street. Water main systems...are located near the surface of the City's streets. The sizes of the mains vary from six to 30 inches in diameter. Gas mains, including manholes, regulators, drip traps and pumping standpipes are located near the east property line in West Street. The size of gas mains in the Corridor are four to six inches in diameter. Steam lines coming from Rector Street, King Street and 15th Street terminate in West Street. Electric power lines are located throughout the Study Corridor. Telephone lines, including splice chambers and terminal boxes are located throughout the Study Corridor (Federal Highway Administration 1975:135).

In the 1940s a report by the Works Progress Administration stated that the WPA was recurbing sidewalks and doing road adjustments along Marginal Street at that time (Works Progress Administration 1940:4). At that time, there were 14.14 miles of sewers in New York, and 98 sewers discharged into the Hudson (Ibid:58).

In addition to the public utility lines mentioned, there are air conditioning facilities located under West Street at the World Trade Center between Liberty and Vesey Streets, which connect to a pumping station near the river. Subsurface pipes included in this facility include two 60 inch steel pipes, two 20 inch concrete pipes, and a 36 inch iron pipe (Federal Highway Administration n.d.:135). Due to the extensive construction for the World Trade Center and associated facilities, any potential remains between Liberty and Vesey Streets are considered substantially disturbed.

Plans compiled by the Environmental Protection Administration, Department of Water Resources (EPA) dating to 1968, show some of the subsurface conditions in the route of the project area (Figure 7-1). Old and new utility lines are shown

Chapter VII:

in relation to the present configuration of West Street and Marginal Street. In addition, a more recent utilities map compiled by Vollmer Associates shows the same utility lines together with any more recent additions. The 1968 EPA maps also include the locations of the 1857 bulkhead, piers built prior to filling Marginal Street, old cribs, West Side Highway footings, electric, telephone, gas, water, and sewer lines. The majority of utility lines run through the center of the 70 foot width of West Street, and at cross roads branch off to run through the center of those as well. Sewer and utility lines are generally less than five feet below the surface, with the exception of the interceptor sewer line which is between 10 to 20 feet below the paved surface. The majority of old cribs and piers shown appear in the route of Marginal Street beneath the West Side Highway and have been bisected by few utility lines.

Several features considered to be of historical interest were shown on the 1968 EPA map. The placement of utilities and footings for the West Side Highway has deemed some of these more disturbed than others. In one case, New Pier 32 between Duane and Jay Streets, four footings for the Highway together with numerous utility lines traversed the pier. Thus it was probably sufficiently disturbed to not warrant subsurface investigations. It should be noted that the map was compiled prior to the construction of the World Trade Center, therefore not including disturbance caused by its construction. The following features were shown in outline on the map, labeled simply as old piers. In order to avoid confusion, the designation of piers as either Old or New is consistent with those designations assigned in the Block Histories section. The degree of disturbance to these features caused by utility lines and West Side Highway construction was determined based on the map locations and specifications, and the disturbance caused by utility line installations described in Section 6-B.

New Pier 2 between Battery Place and Morris Street deemed somewhat disturbed.

New Pier 3 between Battery Place and Morris Street deemed fairly undisturbed.

New Pier 4 at Morris Street deemed fairly undisturbed.

New Pier 5 between Morris Street and J.P. Ward Street deemed fairly undisturbed.

New Pier 6 at J.P. Ward Street deemed somewhat disturbed.

New Pier 7 between J.P. Ward Street and Rector Street deemed somewhat disturbed.

New Pier 8 at Rector Street deemed somewhat disturbed.

New Pier 10 between Rector and Carlisle Streets deemed somewhat disturbed.

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New Pier 11 at Carlisle Street deemed somewhat disturbed.

New Pier 12 at Albany Street deemed somewhat disturbed.

New Pier 13 between Albany Street and Cedar Street deemed somewhat disturbed.

New Pier 14 at Cedar Street deemed somewhat disturbed.

Crib bulkhead at Dey Street deemed undisturbed.

New Pier 24 between Vesey Street and Barclay Street, together with foundations of the abandoned D.L. and W. Railroad footbridge on piles deemed fairly undisturbed.

Crib bulkhead between Vesey and Barclay Streets deemed fairly undisturbed.

New Pier 27 at Park Place deemed fairly undisturbed.

New Pier 28 at Murray Street deemed fairly undisturbed.

New Pier 29 at Warren Street deemed fairly undisturbed.

New Pier 30 at Chambers Street deemed fairly undisturbed.

New Pier 31 at Reade Street deemed fairly undisturbed.

New Pier 32 between Duane Street and Jay Street deemed disturbed.

New Pier 33 at Jay Street deemed disturbed.

New Pier 34 at Harrison Street is deemed fairly undisturbed.

The following piers were known to exist in the route of Marginal Street and did not appear on the 1968 utilities map. Their location has been correlated with the utilities present and the potential sensitivity has been assessed. Any resources within the World Trade Center construction area were not included.

New Pier 1 at Battery Place and West Street deemed disturbed.

New Pier 9 between Rector Street and Carlisle Street deemed disturbed.

New Pier 23 at Vesey Street deemed fairly undisturbed.

New Pier 25 between Barclay Street and Park Street deemed fairly undisturbed.

Old Pier 2 between Battery Place and Morris Street deemed disturbed.

Old Pier 3 between Battery Place and Morris Street deemed disturbed.

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Old unnamed pier between Battery Place and Morris Street deemed disturbed.

Old Pier 4 between Morris and Rector Streets deemed disturbed.

Old Pier 5 between Morris and Rector Streets deemed disturbed.

Old Pier 6 between Morris and Rector Streets deemed disturbed.

Old Pier 7 between Morris and Rector Streets deemed disturbed.

Old Pier 8 between Morris and Rector Streets deemed disturbed.

Old Pier 9 at Rector Street deemed disturbed.

Old Pier 10 between Rector and Carlisle Streets deemed disturbed.

Old Pier 11 between Rector and Carlisle Streets deemed disturbed.

Old Pier 12 between Carlisle and Albany Streets deemed disturbed.

Old Pier 13 between Albany and Cedar Streets deemed fairly undisturbed.

Unnumbered pier between Albany and Cedar Streets deemed disturbed.

Old Pier 14 between Cedar and Liberty Streets deemed fairly undisturbed.

Unnumbered pier possibly part of Rhinelanders Dock at Barclay Street deemed fairly undisturbed.

Unnumbered pier between Barclay Street and Park Place deemed fairly undisturbed.

Unnumbered pier between Barclay Street and Park Place deemed fairly undisturbed.

Rhinelander's Dock at Park Place deemed fairly undisturbed.

Unnumbered pier at Reade Street deemed fairly undisturbed.

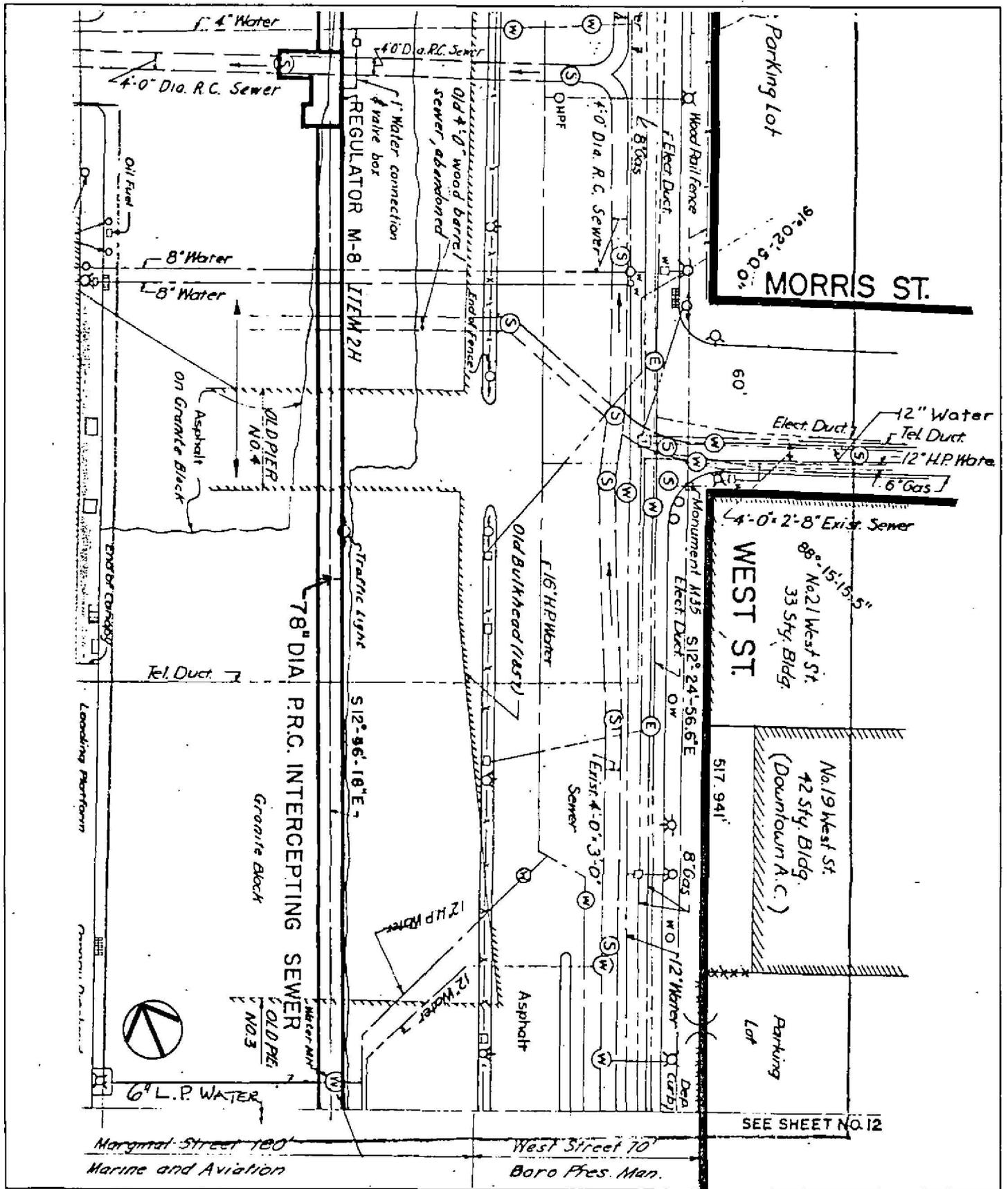
Old Pier 27 between Duane and Jay Streets deemed disturbed.

Rhinelander's Dock between Jay and Harrison Streets deemed fairly undisturbed.

Unfortunately neither the 1968 EPA map nor the 1989 utilities map compiled by Vollmer Associates included Battery Place east of West Street. Undoubtedly the same utility lines that traverse West Street and the included cross roads, also extend through Battery Place, Broadway and State Street. Few soil borings could be located for Battery Place, and even fewer were located for the intersection of Battery Place,

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Broadway and State Street. On State Street, boring 65, reported by the Subsurface Exploration Section of the Manhattan Borough President, showed top-soil 9 feet deep, over 5 feet of sand and mica over rock. The surface elevation in 1937 on State Street near Battery Place was 13'4" (Department of Borough Works 1937:Vol.1, Sheet 2). Unfortunately, the soil boring can not tell us how much soil has been added or removed with development.



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Legend

Archeological Study Area Boundaries

Example of Utilities in Archeological Study Area

A. SUMMATION OF POTENTIALLY SENSITIVE AREAS

The following categories were utilized for classifying potentially sensitive archeological remains:

- A) **PREHISTORIC REMAINS**
- B) **HISTORIC REMAINS**
 - 1) **Dwellings and associated outbuildings**
 - 2) **Industrial buildings/complexes**
 - 3) **Piers and wharves**
 - 4) **Landfill**
 - 5) **Other**

A list of sensitive resources within each category is provided below. Location of each resource is referenced in relation to the corresponding cross streets. The following list of areas includes potential sensitivity for West Street bordering the block to the west, and the cross road forming the southern border. For example, West Street between Duane and Reade Streets would include potential sensitivity for West Street, and the 50 foot span on Reade Street, the southern of the two cross streets. Exceptions to this include the northernmost span between Jay and Harrison Streets which includes the potential sensitivity of Harrison Street. Battery Place also includes the potential sensitivity of the 50 foot span north and south on Broadway and State Street.

Much of the subsurface disturbance record has been documented, therefore areas identified as sensitive in the prehistoric and historic sensitivity sections have been excluded due to prior disturbance. Features considered either somewhat disturbed or disturbed were not considered to have the potential to yield intact resources, and were therefore excluded from this list. Figure 8-1 shows the historically sensitive areas within this portion of the project area, discussed in this section.

PREHISTORIC SENSITIVITY

Areas 1 through 7, 10, and 18 were identified during the Westway survey between Battery Place and Harrison Street. These areas are now between 30 to 50 feet below the current sea level. We consider it impractical to attempt the recovery of such resources, since the construction of docks, piers, and wharves, and constant dredging of the river bottom may have disturbed these potential resources. The depth also hinders the ability to excavate such resources. Therefore, it is considered untenable to consider the recovery of deeply buried prehistoric resources.

HISTORIC SENSITIVITY

1. Dwellings

NONE.

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2. Industrial Buildings and Complexes

NONE.

3. Piers and Wharves

Battery Place and Washington Street intersection

- o Pier, c.1817, part of Battery Place landfill by 1817-1824.

Battery Place, south side between Washington and West Streets

- o Slip, c.1852, part of Battery Place landfill by 1853.

Battery Place to Morris Street

- o New Pier 3, Steam Ships for Breman, c.1852-1913, part of Marginal Street landfill by 1902-1913.
- o New Pier 4, Steam Ships for Charleston, c.1852-1913, part of Marginal Street landfill by 1902-1913.

Morris Street to J.P. Ward Street

- o New Pier 5, Pennsylvania RR Piers, c.1846-1913, part of Marginal Street landfill by 1902-1913.

Albany Street to Cedar Street

- o Old Pier 13, Swartwouts Wharf, 1796-1846, part of Albany Basin, part of West Street landfill by 1839-1846.

Cedar Street to Liberty Street

- o Old Pier 14, Lukes Wharf, part of Albany Basin, 1796-1846, part of West Street landfill by 1839-1846.

Vesey Street to Barclay Street

- o New Pier 23, c.1824-1856, part of West Street landfill by 1854-1856.
- o New Pier 24, Morning Line for Albany, c.1824-1902, part of Marginal Street landfill by 1897-1902.

Barclay Street to Park Place

- o Pier, maybe part of Rhinelanders Dock, c.1797-1817, part of West Street landfill by 1808-1817.
- o New Pier 25, part of Hoboken Ferry Complex, c.1826-1902, part of Marginal Street landfill by 1897-1902.
- o Two Piers, part of the Hoboken Ferry Complex, c.1852-1902, part of Marginal Street landfill by 1897-1902.

Park Place to Murray Street

- o Pier, Rhinelanders Dock, c.1797-1824, part of West Street landfill by 1824.
- o New Pier 27, Steamboats for Albany, c.1824-1902, part of Marginal Street landfill by 1897-1902.

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Murray Street to Warren Street

- o New Pier 28, Steamships to Newburgh, c.1826-1902, part of Marginal Street landfill by 1897-1902.

Warren Street to Chambers Street

- o Possibly Rhinelanders Shipyards, c.1803-1808, part of West Street landfill by 1808.
- o New Pier 29, c.1827-1879, part of Marginal Street landfill by 1874-1879.

Chambers Street to Reade Street

- o New Pier 30, c.1826-1879, part of Marginal Street landfill by 1874-1879.

Reade Street to Duane Street

- o New Pier 31, c.1827-1902, part of Marginal Street landfill by 1897-1902.
- o Unnumbered Pier, c.1817-1827, part of West Street landfill by 1826-1827.

Duane Street to Jay Street

- o New Pier 32, c.1827-1902, part of Marginal Street landfill by 1897-1902.

Jay Street to Harrison Street

- o Rhinelanders Dock, c.1797-1817, part of West Street landfill by 1808-1817.
- o New Pier 34, c.1836-1902, Rondout and Kingston Boats, part of Marginal Street landfill by 1897-1902.

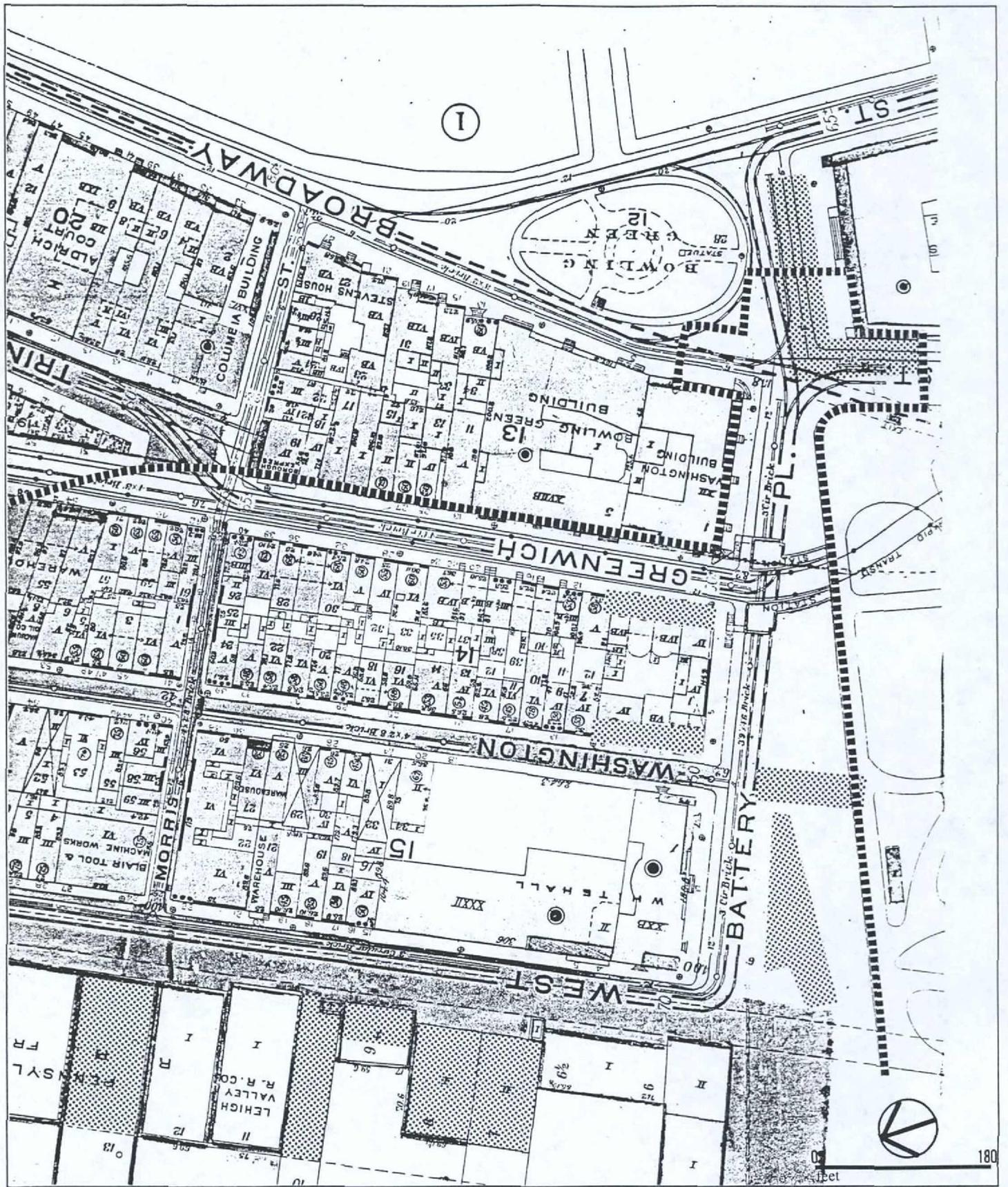
Block 18-Greenwich Street, Morris Street, Western Union International Plaza and Battery Place-Although there are no records of a pier or wharf at this locale, 1940s construction uncovered log cribbing. Two strips of land measuring 25 by 110 feet each on the east and west sides of the Brooklyn-Battery tunnel blower building, were judged sensitive for these types of remains (Geismar 1987:38).

4. Landfill

- o Possible sunken ship, Warren and West Streets.
- o Possible sunken ship, Chambers Street Wharf-1827.
- o Possible fill retaining devices such as the crib bulkhead shown on the 1968 EPA map between Vesey and Barclay Streets, and Dey Street.

5. Other

- o Fort Amsterdam stood between at least 1628 and 1790, near the intersection of Battery Place and Broadway. The northern wall appears to be in the project area and the fort is potentially sensitive.
- o A well associated with the fort in Battery Place is also potentially sensitive.



ROUTE 9A RECONSTRUCTION PROJECT

Legend

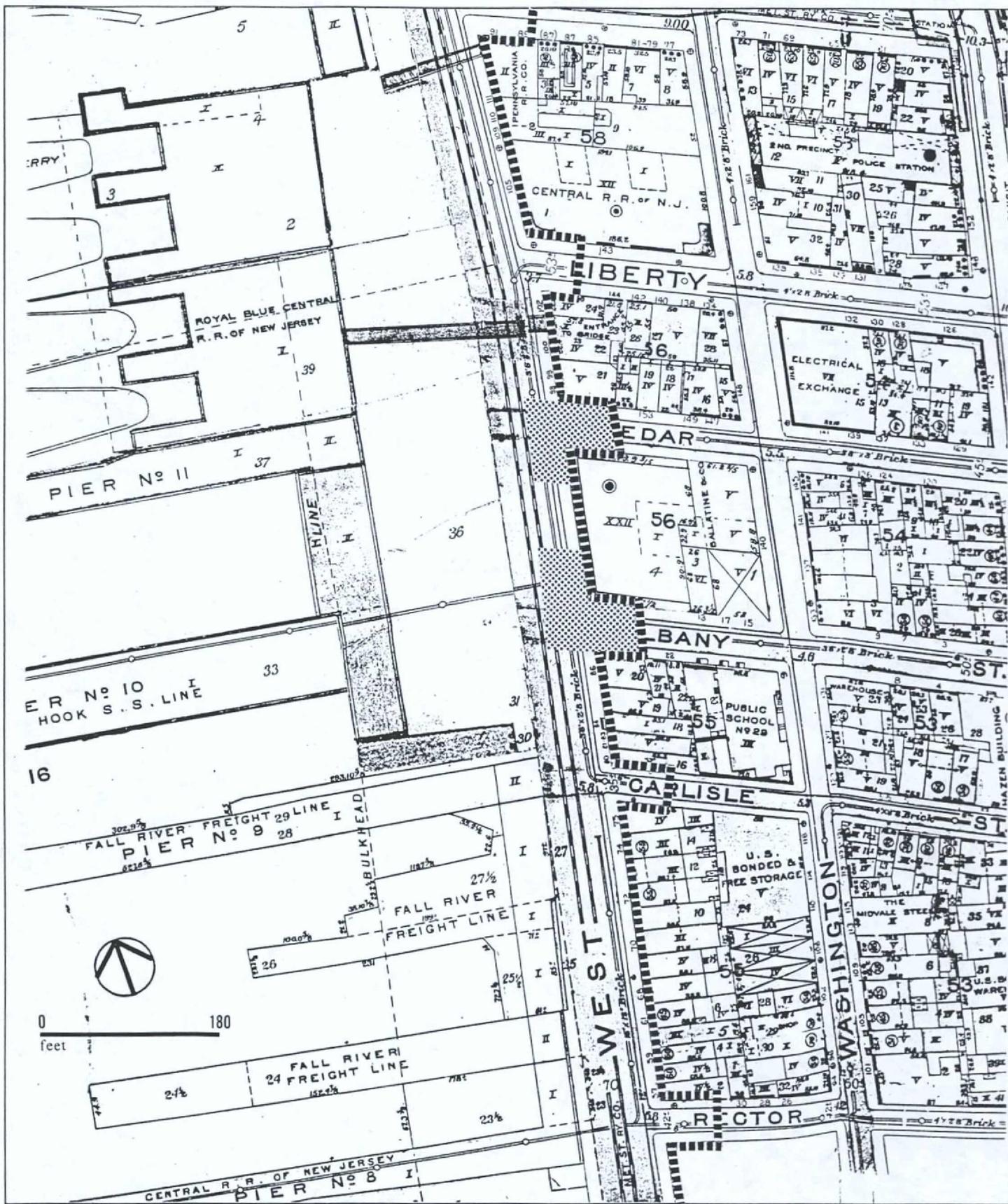
▨ Historic Sensitivity

▬ Approximate Eastern Boundary of Study Area

Base map contained depiction of original shore line

Areas of Potential Sensitivity - Battery Place to Harrison Street
 Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan

Figure 8-1A

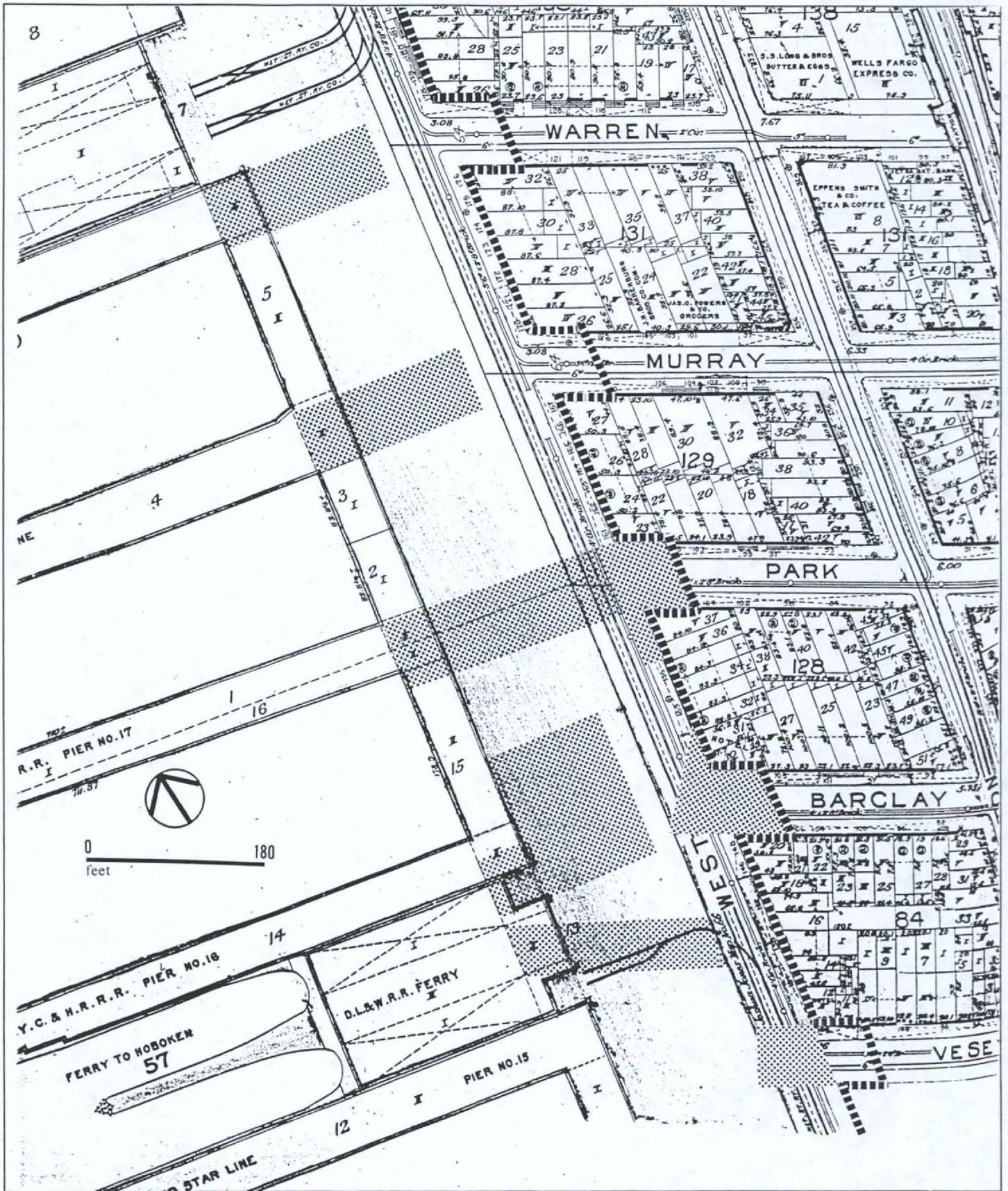


ROUTE 9A RECONSTRUCTION PROJECT

Legend

-  Historic Sensitivity
-  Approximate Eastern Boundary of Study Area
-  Base map contained depiction of original shore line

Areas of Potential Sensitivity - Battery Place to Harrison Street
 Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan

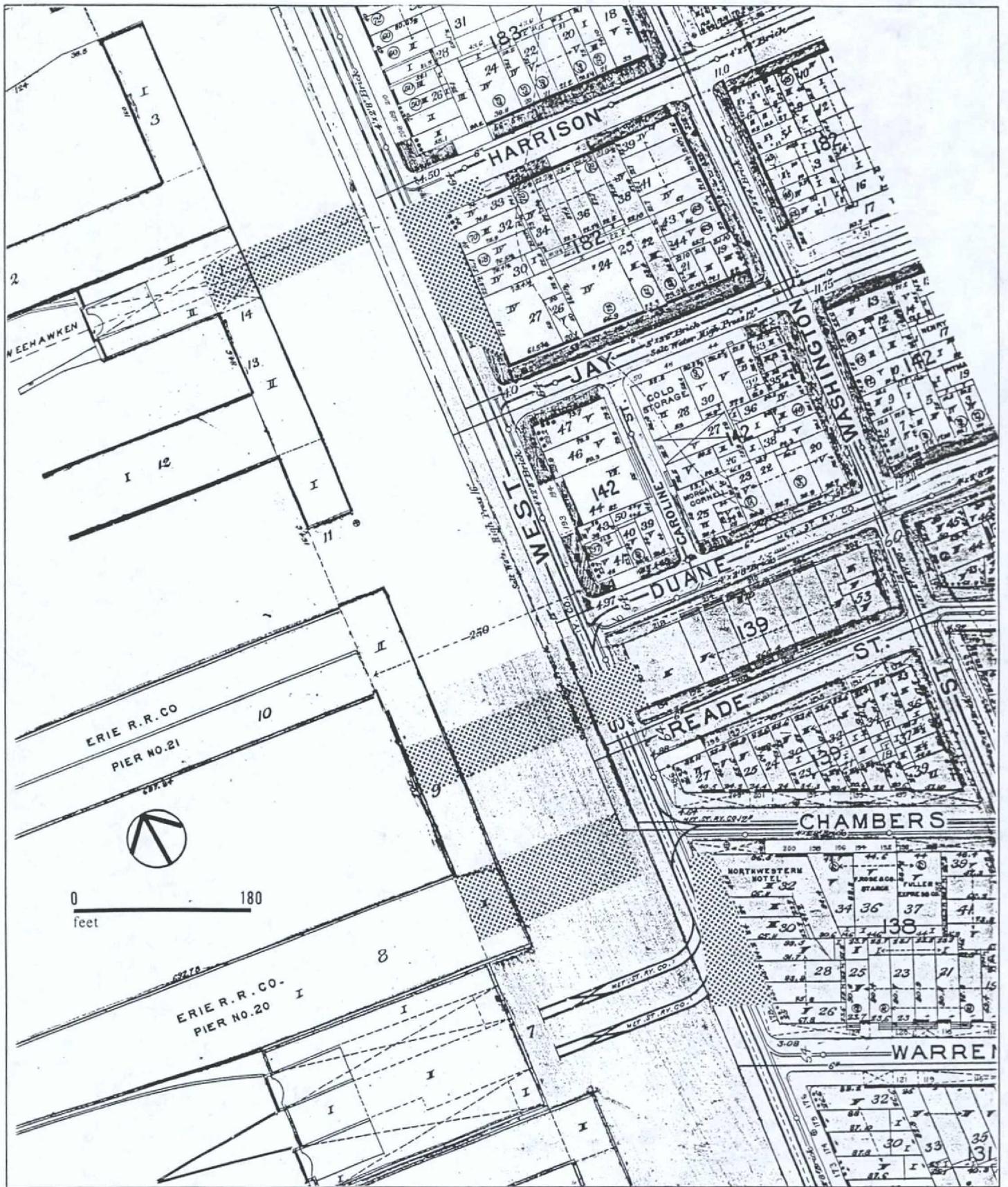


ROUTE 9A RECONSTRUCTION PROJECT

Legend

-  Historic Sensitivity
-  Approximate Eastern Boundary of Study Area
-  Base map contained depiction of original shore line

Areas of Potential Sensitivity - Battery Place to Harrison Street
 Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan



ROUTE 9A RECONSTRUCTION PROJECT

Legend

▨ Historic Sensitivity

▬ Approximate Eastern Boundary of Study Area

Base map contained depiction of original shore line

Areas of Potential Sensitivity - Battery Place to Harrison Street
 Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan

A. SUMMARY AND RECOMMENDATIONS

The extensive documentary and cartographic research to date of the project area between Battery Place and Harrison Street has revealed the location of several areas potentially sensitive for historical cultural remains. Potential remains were initially identified in the prehistoric and historical sensitivity sections. Prior impacts were assessed and a final list of areas deemed to be potentially sensitive was presented in Chapter VIII. Each of the categories is discussed below and a preliminary evaluation of significance is made here. It should be noted, however, that the conclusions presented in this preliminary evaluation may be altered when research on the entire project area is completed and a final list of potentially sensitive areas is compiled.

Numerous piers and wharves dating to the eighteenth and nineteenth centuries were in the route of West Street and Marginal Street and may have become part of the landfill. It would be impractical to attempt either excavation or avoidance of all of these features. However the importance of such resources cannot be denied. Construction techniques varied through time and with individual owners. It is possible that a sampling of piers could be monitored during construction, and photographic and documentary records be kept concerning feature size, composition, and method of construction. The sample chosen and presented here is preliminary and was based on age of construction, affiliation of the owner, and the potential for answering specific questions regarding shoreline development. The following list of shoreline features represents different periods of construction.

Old Pier 13-Swartwouts Wharf, c.1796-1846, part of the Albany Basin between Albany Street and Cedar Street, part of West Street landfill by 1839-1846.

Rhinelanders Dock-c.1797-1824, between Park Place and Murray Street, part of West Street landfill by 1824.

Rhinelanders Shipyards-c.1803-1808, between Warren Street and Chambers Street, part of West Street landfill by 1808. This site has the potential to also yield sunken ships and discard material from the shipyard.

New Pier 25-c.1826-1902, Hoboken Ferry complex, at the foot of Barclay Street, part of Marginal Street landfill between 1897-1902.

New Pier 29-c.1827-1879, at the foot of Warren Street, part of Marginal Street landfill between 1868-1879.

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New Pier 34-c.1836-1902, Rondout and Kingston Boats, between Jay and Harrison Streets, part of Marginal Street landfill by 1897-1902.

New Pier 4-c.1852-1913, Steam Ships for Charleston, between Battery Place and Morris Street, part of Marginal Street landfill by 1902-1913.

Landfill features identified which may warrant archeological investigations include two possible sunken ships, one at the Chambers Street Wharf dating to 1827, and another at the intersection of Warren and West Streets. Ships and their associated artifacts found in this context are often well preserved and can provide tremendous information of historical value concerning Nautical engineering. The possibility of recovering a ship from the landfill at either Warren or Chambers Street is plausible. Teak, possibly from a ship, has already been found at the Warren Street intersection. The Chambers Street ship could have conceivably sunk adjacent to New Pier 30, which was built by 1826 and became part of the landfill by 1879. The depth of fill is generally between 10 and 20 feet below the current surface and utility lines in West Street and Marginal Street are generally less than 10 feet deep. It is also quite possible that the ship is below the 20 feet of fill since the vessel may have sunk into riverbed silt, as was the case with the seventeenth century Dutch ship, the Tiger (Solecki 1974:109). Unless the ship was removed, it probably became part of the landfill and is currently in the project area. Further documentary research may assist in determining whether either of the ships are still potentially archeologically sensitive.

It is also quite possible that during excavations for the Route 9A Reconstruction project, that undocumented piers, wharves, quays, and fill retaining devices may be found. The only cartographic reference to cribbing was found on the 1968 EPA map between Vesey and Barclay Streets. Although other references were not encountered, it is highly probable that these features were constructed during the land reclamation process. Since a diverse number of methods of shoreline expansion were used in Manhattan, varying with age of construction and individualistic techniques, these resources are considered an important research issue toward documenting the development of the city.

Fort Amsterdam and an associated well were in the route of Battery Place near the intersection of Broadway and State Street. The fort is the earliest such construction in Manhattan, once protecting the first settlement on the island. The well would provide a precise time capsule of the lifeways of fort occupants, a rare find in Manhattan. The potential survivability of these resources depends on the method of nearby subway construction employed and the extent of this impact. It is quite possible that subway excavations were performed west of the site of the fort and well, leaving subsurface remains intact. The lack of soil borings for this vicinity makes it difficult to assess prior impacts. Further research designed to determine the extent of disturbance caused by subway construction at Battery Place will clarify the degree of potential for these resources to still exist.

Chapter IX:

As stated above, this is a preliminary evaluation and the conclusions presented in this chapter may be altered when research on the entire project area is completed.

BIBLIOGRAPHY

Adams, Arthur G.

- 1981 The Hudson: A Guidebook to the River. State University of New York Press, Albany, New York.

Alexander, Cooper Associates

- 1979 Battery Park City Report and 1979 Master Plan. Prepared for Battery Park City Authority, New York.

Barlow, Elizabeth

- 1971 The Forests and Wetlands of New York City. Little Brown, and Co., Boston.

Baugher-Perlin, Sherene, M. Janowitz, M. Kodack and K. Morgan

- 1982 "Towards an Archaeological Predictive Model for Manhattan: A Pilot Study." Ms. on file with the New York City Landmarks Preservation Commission.

Berger, Louis and Associates

- 1983 Barclays Bank Site, 100 Water Street, New York, New York. The Cultural Resource Group of Louis Berger, Inc.

- 1987a Archaeological Investigation of Site 1 of the Washington Street Urban Renewal Area, New York City. Prepared by Louis Berger and Associates for Shearson Lehman/American Express through the New York City Public Development Corporation, New York.

- 1987b Druggists, Craftsmen and Merchants of Pearl and Water Streets, New York: The Barclays Bank Site. The Cultural Resource Group of Louis Berger, Inc.

- 1989 Archaeological and Historical Investigations at the Assay Site BNlock 35, New York, New York. Prepared by Louis Berger and Associates for HRO International, Ltd., New York.

Billings, Wilson

- 1930 "The Development of Transportation in the Port of New York District." The Industrial Museum of New York 1(2).

Route 9A Reconstruction Project

Black, George Ashton

- 1891 "The History of Municipal Ownership of Land on Manhattan Island." Columbia University Studies in History, Economics and Public Law, 1(3). Columbia University, New York.

Black, Mary

- 1973 Old New York in Early Photographs, 1853-1901. Dover Publications, Inc., New York.

Board of Estimate and Apportionment

- 1930 Report of the Chief Engineer of the Board of Estimate and Apportionment of the City of New York. Board of Estimate and Apportionment, New York.

Bolton, Reginald P.

- 1922 Indian Paths in the Great Metropolis. Indian Notes and Monographs, Museum of the American Indian, Miscellaneous Papers 23, New York.
- 1934 Indian Life of Long Ago in the City of New York. Boltions Books, New York.

Booth, Mary L.

- 1859 History of the City of New York. W.R.C. Clark and Meeker, New York.

Borough President of Manhattan

- 1957 Miller Highway West Side Elevated Improvement. Borough President of Manhattan, Triborough Bridge and Tunnel Authority, New York.

Brasser, Ted J.

- 1974 Riding on the Frontier's Crest: Mahican Indian Culture and Culture Change. National Museum of Man, Mercury Series. Ethnology Division Paper No. 13, National Museum of Canada, Ottawa.
- 1978 "Early Indian-European Contacts." In Northeast, edited by Bruce G. Trigger, pp. 78-88. Handbook of North American Indians, Vol. 15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Chapter X:

Braun, David P.

- 1980 "On the Appropriateness of the Woodland Concept in Northeastern Archaeology." In Proceedings of the Conference on Northeastern Archaeology, Research Report 19, edited by James Moore, University of Massachusetts, Amherst. pp. 93-108.

Brennan, Louis A.

- 1974 "The Lower Hudson: A Decade of Shell Middens." Archaeology of Eastern North America 2(1):81-93.

Brown, Henry Collins

- 1913 Book of Old New York. The Lent and Graff Co., New York.

Bruce, Wallace

- 1901 Panorama of the Hudson. Bryant Literary Union, New York.

Brumbach, Hetty Jo

- 1986 "Anadromous Fish and Fishing: A Synthesis of Data From the Hudson River Drainage." Man in the Northeast, 32:35-66.

Burr, S. D. V.

- 1885 Tunneling Under the Hudson River. John Wiley and Sons, New York.

Buttenwieser, Ann L.

- 1987 Manhattan Water Bound. New York University Press, New York.

Byrne, Austin T.

- 1892 A Treatise on Highway Construction. John Wiley and Sons, New York.

Byrnes, Clara

- 1918 Block Sketches of New York City. Radbridge Co., New York.

Ceci, Lynn

- 1979 "Maize Cultivation in Coastal New York." North American Archaeologist 1(1):45-74.

Route 9A Reconstruction Project

Citizens Association of New York

- 1865- Report of the Council of Hygiene and Public Health Upon
1866 the Sanitary Condition of the City. Appleton and Co., New York.

City History Club of New York

- n.d. Syllabus of a General Lecture on the History and Development of the
City of New York. City History Club of New York, New York.

City of New York

- 1926 Contract for Viaduct Construction: Proposal for Bids and Agreement.
2 vols. Office of the President of the Borough of Manhattan, Bureau of
Engineering. The City of New York, New York.

City of New York Department of Parks

- 1902 Commissioners Report for the Year 1902. Martin B. Brown, New York.

Clary, Martin

- 1929 Mid-Manhattan. Forty-Second Street Property Owners and Merchants
Association, Inc., New York.

Cotter, John L.

- 1962 Archaeological Observations at Castle Clinton. Ms. on file at State Office
of Parks, Recreation and Historic Preservation, Albany, New York.

Csanyi, Ladis H.

- 1938 "The Circumferential Highway System of Manhattan." The Municipal
Engineers Journal 24(4):169-194.

Daley, Robert

- 1859 The World Beneath the City. J.B. Lippincott Company,
Philadelphia.

Davies, J. Vipond

- 1909 "The Hudson - Manhattan Tunnel System, II." Railroad Age Gazette
9/24/1909. pp. 539-545.
- 1909 "The Hudson - Manhattan Tunnel System, V." Railroad Age Gazette
10/15/1909. pp. 702-706.

Chapter X:

1909 "The Hudson - Manhattan Tunnel System, I." Railroad Age Gazette 9/17/1909. pp.449-494.

Department of Public Parks

1897 Catalogue of Buildings, Sheds, Etc. on That Portion of Land Acquired for Public Parks in the 7th, 10th 11th and 13th Wards. Department of Parks, New York.

De Voe, Thomas F.

1867 The Market Assistant. Riverside Press, New York.

1873 Report Upon the Present Condition of the Public Markets of the City and County of New York. Evening Post Steam Presses, New York.

Dickens, Roy S., Jr.

1982 Preface. In Archaeology of Urban America: The Search for Pattern and Process, edited by R.S. Dickens, Jr., pp. XIV-XX. Academic Press, New York.

Dincauze, Dena and Michael Mulholland

1977 "Early and Middle Archaic Site Distributions and Habitats in Southern New England." In Amerinds and Their Paleo-environments in Northeastern North America. Annals of New York Academy of Sciences 288:439-456.

Douglas, R. W. and S. Frank

1972 A History of Glassmaking. G.T. Foulis and Co., Ltd., Oxfordshire, England.

Edwards, Dean, G. Kelcey, and L. Beck

1956 Study of Improvements to the Miller Highway, New York. Ms. on file New York Municipal Reference Library, New York.

Edwards, Robert L. and K. O. Emery

1977 "Man on the Continental Shelf." (As reprinted in The Coastal Archaeology Reader, Vol. V, of Readings in Long Island Archaeology and Ethnohistory. Suffolk County Archaeological Association, 1982.) pp. 12-21.

Route 9A Reconstruction Project

Eisenberg, Leonard

- 1978 "Paleo-Indian Settlement Patterns in the Hudson- Delaware River Drainages." Occasional Publications in Northeastern Anthropology, No. 4.

Engineering News-Record

- 1933 Engineering News-Record. Vol. 110, January-June, 1933. McGraw-Hill Publishing Co., New York.
- 1934 Engineering News-Record. Vol. 112, January-June, 1934. McGraw-Hill Publishing Co., New York.
- 1936 Engineering News-Record. Vol. 114, January-June, 1936. McGraw-Hill Publishing Co., New York.

Federal Highway Administration

- 1975 West Side Highway Administration Action, Final Environmental Impact Statement and Section Four Statement, U.S. Department of Transportation, Federal Highway Administration and NYS Department of Transportation. Albany, New York.

Fisher, Frank L.

- 1895 A Complete List of West Side Dwellings. West Side Real Estate, New York.

Funk, Robert E.

- 1976 Recent Contributions to Hudson Valley Prehistory. New York State Museum Memoir 22. The State Education Department, Albany, New York.

Funk, Robert E. and William A. Ritchie

- 1973 Aboriginal Settlement Patterns in the Northeast. New York State Museum Memoir 20. The State Education Department, Albany, New York.

Futcliffe, Alice

- 1909 Robert Fulton and the Clermont. The Century Co.

Chapter X:

Gaudreau, Denise C.

- 1988 "The Distribution of Late Quaternary Forest Regions in the Northeast: Pollen Data, Physiography and the Prehistoric Record." In Holocene Human Ecology in Northeastern North America, George P. Nichols, ed. Plenum Press, New York. pp. 215-256.

Gehring, Charles T. ed.

- 1980 New York Historical Manuscripts: Dutch. Volumes GG, HH, and II, Land Papers. Genealogical Publishing Co., Inc., Baltimore.

Geismar, Joan

- 1983 The Archaeological Investigation of the 175 Water Street Block, New York City. Soil Systems Division of Professional Services Industries, Inc.

- 1986 Seventeen State Street, An Archaeological Phase 1 Documentation. Prepared for Seventeen Vista Associates, New York.

- 1987 Stage 1A Archaeological Evaluation of the Exchange Project Site, 10 Battery Place, New York City. Prepared for EEA, Inc., New York.

- 1987b "Landfill and Health, A Municipal Concern or, Telling It Like It Was." Northeast Historical Archaeology 16:49-57.

- 1988 UPS Manhattan South Facility, Phase 1A Archaeological Assessment. Prepared for Allee King Rosen and Fleming, Inc., New York.

Gilder, Rodman

- 1936 The Battery. Houghton Mifflin Company, Boston.

Gilbert, G.H. and L.I. Wightman

- 1912 The Subways and Tunnels of New York. John Wiley and Sons, New York.

Goddard, Ives

- 1978a "Delaware." In Northeast, edited by Bruce G. Trigger, pp. 213-239. Handbook of North American Indians, Vol. 15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

- 1978b "Eastern Algonquian Languages." In Northeast, edited by Bruce G. Trigger, pp. 70-77. Handbook of North American Indians, Vol. 15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.

Route 9A Reconstruction Project

- Grafton, John
1977 New York in the Nineteenth Century. Dover Publications, New York.
- Granick, Harry
1947 Underneath New York. Rinehart and Company, New York.
- Gratacap, Louis P.
1909 Geology of the City of New York. Henry Holt & Co., New York.
- Greene, Carlton
1917 Wharves and Piers. McGraw-Hill Book Company, New York.
1927 Obstacles Overcome in the Hudson River Bridge. Engineering News Record Editorial. Port of New York Authority, New York.
- Greene, Nelson, ed.
1931 History of the Valley of the Hudson. Volume 1. S.J. Clarke Publishing Co., Chicago.
- Gretarex, Eliza
1875 Old New York from the Battery to Bloomingdale. G.P. Putnam's Sons, New York.
- Grossman, Joel
1985 Project, Site 5C, Archaeological/Historical Sensitivity Analysis, Draft Report. Greenhouse Consultants, Inc. Prepared for Public Development Corp., New York.
- Grumet, Robert Steven
1981 Native American Place Names in New York City. Museum of the City of New York, New York.
- Hardesty and Hanover
1976 West Side Highway Inspection and Engineering Evaluation, 42nd to 59th Street. Submitted to The City of New York Transportation Administration, New York.

Chapter X:

Harrington, Raymond J.

- 1934 "The Elevated Public Highway Along the Hudson River Waterfront in the Borough of Manhattan." The Municipal Engineers Journal 20 (4):116-130.

Haskell, Daniel C., ed.

- 1931 Manhattan Maps, A Cooperative List. The New York Public Library, New York.

Henn, Roselle, Diana Wall, Laurie Boros, Valerie DeCarlo and Jed Levin

- 1985 "Preindustrial Waterfront Technology in Lower Manhattan." Paper presented at the Annual Meeting of the Society for Industrial Archeology, Newark, Delaware.

Hershey, William D.

- 1963 Castle Clinton at the Battery. Ms. on file State Office of Parks, Recreation, and Historic Preservation, Albany, New York.

Hill, George E. and George E. Waring, Jr.

- 1897 "Old Wells and Water-Courses of the Island of Manhattan." Halfmoon Series, 1(10). New York City History Club. Maud Wilder Goodwin, New York.

Hoag, S.W., Jr.

- 1905 Dock Department and New York Docks. The Municipal Engineers of the City of New York, New York.

Hodgson, A. W.

- 1910 Ventilation of the Hudson River Tunnels. Garwood Electric Company, Garwood, New Jersey.

Hollyer, Samuel

- 1905 Old New York: Views by S. Hollyer. Samuel Hollyer, New York.

Huey, Paul R.

- 1984 "Old Slip and Cruger's Wharf at New York: An Archaeological Perspective of the Colonial American Waterfront." Historical Archaeology 18(1):15-37.

Route 9A Reconstruction Project

Hume, Ivor Noel

- 1987 The Wells of Williamsburg, Colonial Time Capsules. Colonial Williamsburg Archaeological Series No. 4. The Colonial Williamsburg Foundation, Williamsburg, Virginia.

Innes, J.H.

- 1902 New Amsterdam and Its People, Studies, Social and Topographical of the Town under Dutch and Early English Rule. C. Scribner's Sons, New York.

Jacobson, Jerome

- 1980 Burial Ridge: Archaeology at New York City's Largest Prehistoric Cemetery. The Staten Island Institute of Arts and Sciences, New York.

Johnson, Harry and Frederick S. Lightfoot

- 1980 Maritime New York in Nineteenth Century Photographs. Dover Publications Inc., New York.

Jones, Pamela

- 1978 Under the City Streets. Holt, Rinehart and Winston, New York.

Kieran, John

- 1982 A Natural History of New York City. Second edition. Fordham University Press, New York.

Kirkorian, Cece and Evelyn Tidlow

- 1984 Phase One Archaeological Impact Report for Sites 1A, 1B, 5B and 5C, Washington Street Urban Renewal Area, New York City, New York. Prepared for Allee King Rosen and Fleming, Inc., New York.

Kolff, Cornelius G.

- n.d. Waterfronts and Factory Sites of New York Harbor. Cornelius G. Kolff, New York.

Konvitz, Josef W.

- 1989 "William J. Wilgus and Engineering Projects to Improve the Port of New York, 1900-1930." Technology and Culture 30:398-425.

Chapter X:

Lawrence, R.H. and Otto Hufeland

- 1981 Valentine's Manuals: A Serial Index. Reprinted from the 1906 and 1900 editions. Harbor Hill Books, Harrison, New York.

Levy, Samuel

- 1931 Annual Report. President of the Borough of Manhattan, City of New York.

Lewis, Harold M.

- 1928 Regional Survey of New York and Its Environs. 8 volumes. Committee On Regional Plan of New York and Its Environs, New York.

Lightfoot, Kent, Robert Kalin, Owen Lindauer and Linda Wicks

- 1985 "Coastal New York Settlement Patterns: A Perspective From Shelter Island." Man in the Northeast 30:59-82.

Little, Elizabeth A.

- 1985 "Prevailing Winds and Site Aspects: Testable Hypothesis About the Seasonality of Prehistoric Shell Middens at Nantucket, Massachusetts." Man in the Northeast 29:15-27.

Lockwood, Charles

- 1976 Manhattan Moves Uptown. Houghton Mifflin Co., Boston.

Lossing, Benson J.

- 1866 The Hudson From the Wilderness to the Sea. Virtue and Yorston, New York.

Lubschez, Ben Judah

- 1927 Manhattan, the Magical Island. Press of the American Institute of Architects, New York.

Ludwig, John W.

- 1953 Street Names of Manhattan and the Stories They Tell. Ms. on file Local History Room, New York Public Library.

Luke, Myron H.

- 1953 The Port of New York 1800-1810. New York University Press, New York.

Route 9A Reconstruction Project

Lyman, S.E.

- 1975 The Story of New York. Revised ed. Crown Publishers Inc., New York.

MacElwee, Roy Samuel

- 1918 Ports and Terminal Facilities. McGraw-Hill Book Company, New York.

- 1925 Port Development. McGraw-Hill Book Company, New York.

Mackay, Donald A.

- 1987 The Building of Manhattan. Harper and Row, New York.

Matsumura, Takao

- 1983 The Labour Aristocracy Revisited: The Victorian Flint Glass Makers 1850-1880. Manchester University Press, Manchester, England.

McBride, Kevin A.

- 1984 Prehistory of the Lower Connecticut River Valley. Unpublished Ph.D. dissertation, University of Connecticut, Storrs, Connecticut.

McCabe, James D.

- 1882 New York By Sunlight and Gaslight. Douglass Brothers Publishers, Philadelphia.

McKearin, George S. and Helen

- 1941 American Glass. Crown Publishers, Inc., New York.

Miller, James

- 1866 Miller's New Guide to the Hudson River. James Miller, New York.

Morris, James

- 1969 The Great Port. Harcourt, Brace and World, Inc., New York.

Moscow, Henry

- 1978 The Street Book. An Encyclopedia of Manhattan's Street Names and Their Origins. Hagstrom Company, New York.

Chapter X:

Mott, Hopper Striker

- 1908 The New York of Yesterday. A Descriptive Narrative of Old Bloomingdale. G.P. Putnam's Sons, New York.

Mueser Rutledge Consulting Engineers

- 1988 Evaluation of the Bulkhead Battery Park City to West 46th Street Hudson River, N.Y. Prepared for Ebasco Constructors, Inc., New York.

- 1989 Draft Report of the Bulkhead Condition Review Battery Park City to West 59th Street Hudson River, New York For Route 9A Reconstruction Report. Prepared by Mueser Rutledge Consulting Engineers for Vollmer Associates, Inc.

Mulholland, Mitchell T.

- 1988 "Territoriality and Horticulture: A Perspective for Prehistoric Southern New England." In Holocene Human Ecology in Northeastern North America, George P. Nichols ed. Plenum Press, New York. pp. 137-166.

Museum of the City of New York

- c. 1900 Clippings File.

Nelson and Sons

- 1860 Nelson's Illustrated Guide to the Hudson and Its Tributaries. Nelson and Sons, New York.

New York Board of Trade, Inc.

- 1929 Piers for 1000 Foot Trans-Atlantic Passenger Ships. New York Board of Trade, Inc., New York.

New York City Board of Aldermen

- 1836 Report of the Committee on Wharves Relative to the Erection of a Great Pier in the North River. Committee on Wharves, Slips and Piers. William Townsend, New York.

New York City Board of the Assistant Aldermen

- 1849a Report of the Special Committee for the Enlargement of the Battery. McSpedon and Baker, New York.

- 1849b Report of the Special Committee Upon the Widening of West Street. McSpedon and Baker, New York.

Route 9A Reconstruction Project

- 1853 Report of the Committee on Streets in Favor of Widening Battery Place, from Broadway to West Street. McSpedon and Baker, New York.

New York City Construction Coordinator

- 1946 Construction Schedule for Arterial Highways and Parkways. New York City Construction Coordinator, New York.

New York City Department of City Planning

- 1931 In the Matter of: The Application of the North River Bridge Company to the United States War Department on the Construction of a Bridge over the Hudson at West 57th Street. American Society of Civil Engineers, New York.

New York City Department of Docks

- 1881 Action of the Commissioners on the Construction of the River Wall Designed by George S. Greene, Jr. New York City Department of Docks, New York.

New York City Department of Docks and Ferries

- 1908 38th Annual Report of the Department of Docks and Ferries. New York City Department of Docks and Ferries, New York.

1912- Reports on West Manhattan Waterfront. Report 24.

1913 New York City Department of Docks and Ferries, New York.

New York City Department of Finance

- 1918 Plan for Improvement of Freight Terminal and Water Front Conditions on The West Side of Manhattan. New York City Department of Finance, New York.

New York City Office of Lower Manhattan Development

- 1975 Lower Manhattan Waterfront: Battery Park City District, Manhattan Landing Development District, Especially South Street Seaport. New York City Office of Lower Manhattan Development, New York.

New York City Parks Department

- 1937 Opening of the West Side Improvement. New York City Parks Department, New York.

Chapter X:

New York City Police Department

- 1851 A Hand Book of Streets and Distances Showing the Length and Intermediate Distance from Street to Street in The City of New York. Browne and Co., New York.

New York Pier and Warehouse Company

- 1869 Piers and Wharves of New York. Evening Post Steam Press, New York.

New York State Bridge and Tunnel Commission

New Jersey Interstate Bridge and Tunnel Commission

- 1923 "Hudson River Vehicular Tunnel, Contract No. 5: Tunnels between the Canal Street Shaft on the East Side of Hudson Street Between the Spring Street SHaft and the North Side of Dominick Street."
1920 "Hudson River Vehicular Tunnel, COnttract No. 1: Canal Street Shaft, Spring Street Shaft Manhattan."

Norcross, Frank W.

- 1901 A History of the New York Swamp. The Chiswick Press, New York.

Norman, J. Gary

- 1986 "Eighteenth Century Wharf Construction in Baltimore." MA thesis, The College of William and Mary.

Ogden, Charles Burr

- 1898 Quaker Ogdens in America. J.B. Lippincott Co., Philadelphia.

Parker, Arthur C.

- 1922 The Archeological History of New York. New York State Museum Bulletin Numbers 235-238. Albany, New York.

Pelletreau, William S.

- 1900 Early New York Houses. Francis P. Harper, New York.

Pellett, Mirl E.

- 1927 Genesis, Activities, and Problems of the Port of New York Authority. The Port of New York Authority, New York.

Route 9A Reconstruction Project

Pierson, H.R.

- 1867 Report of the Special Committee on Piers, Wharves, Slips, and Bulkheads in the City of New York. Van Benthuysen and Sons, Albany, New York.

Port Authority of New York and New Jersey

- 1983 "Path Gazette." Diamond Jubilee Souvenir Edition. February, 1983.

Post, John J.

- 1882 Old Streets, Roads, Lanes, Piers and Wharves of New York. R.D. Cooke, New York.

Raber, Michael S.

- 1984 Cultural Resources Reconnaissance Edgewater, New Jersey Reach New York Harbor Drift Removal Project. Prepared by Raber Associates for U.S. Army Corps of Engineers, New York District.

- 1985 Cultural Resources Investigations in Brooklyn Reach 2: New York Harbor Collect and Removal of Drift Project. Prepared by Raber Associates for U.S. Army Corps of Engineers, New York District.

- 1986 Cultural Resources Reconnaissance of the Manhattan Upper West Side Reach: New York Harbor Collection and Removal of Drift Project. Prepared for U.S. Army Corps of Engineers, New York District.

Rand McNally and Co.

- 1896 Complete Railway and Street Number Guide of New York City. Rand McNally and Co., New York

- 1916 Hudson River Guide to Places of Interest to the Tourist and Excursionist. Rand McNally and Co., New York.

Real Estate Record Association

- 1967 A History of Real Estate, Building and Architecture in New York City. Originally published in 1898 by Record and Guide, New York. Arno Press, New York.

Regional Plan

- 1929 The Graphic Regional Plan: Atlas and Description. Regional Plan, New York.

Chapter X:

Ritchie, William A.

- 1980 The Archaeology of New York State. Revised edition. Harbor Hill Books, New York.

Rockman, Diana, Wendy Harris, and Jed Levin

- 1985 The Archaeological Investigation of the Telco Block, South Street Seaport Historic District, New York, New York. Advisory Council on Historic Preservation, Washington, D.C.

Rutsch, Edward, Nan Rothschild, et al.

- 1983 Westside Highway Cultural Resource Survey, Archaeological Work Program: Cultural Resources Research. Prepared for New York State Department of Transportation.

Salwen, Bert

- 1975 "Post-Glacial Environments and Cultural Change in the Hudson River Basin." Man in the Northeast 10:43-70.
- 1978 "Indians of Southern New England and Long Island: Early Period." In Northeast, edited by Bruce G. Trigger, pp. 160-176. Handbook of North American Indians, Vol.15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- 1982 Foreward. In Archaeology of Urban America: The Search for Pattern and Process, edited by R.S. Dickens, Jr., pp. XII-XVII. Academic Press, New York.

Sanitary Engineer and Construction Record

- 1886- Engineering Record. Volumes XV, XIV and XVI. The
1887 Sanitary Engineer and Construction Record, New York.

Sapin, Wendy Harris

- 1985 "Landfilling at the Telco Block." American Archeology 5(3):170-174.

Saxon, Walter

- 1973 "The Paleo-Indian on Long Island." New York State Archaeological Association Bulletin, 57. March, 1973. (As reprinted in The Coastal Archaeology Reader, Vol. II, of Readings in Long Island Archaeology and Ethnohistory. Suffolk County Archaeological Association, 1978.) pp. 251-261.

Route 9A Reconstruction Project

Schuberth, Christopher J.

- 1968 The Geology of New York City and Its Environs. The Natural History Press, New York.

Secretary of the State of New York

- 1864 Calendar of New York Colonial Manuscripts, Indorsed Land Papers 1634-1803. Weed, Parsons and Co., Albany, New York.

Simpson, Jeffrey

- 1981 The Hudson: A Guidebook to the River. State University of New York Press, Albany, New York.

Skinner, Alanson

- 1926 "The Indians of Manhattan Island and Vicinity." The American Museum of Natural History, Guide Leaflet Series. No. 41. New York.
- 1951 The Indians of Manhattan Island and Vicinity. Ira J. Friedman, Inc., Port Washington, Long Island, New York.

Smith, Alexander

- 1907 Comments and Suggestions Respecting A Preliminary Report on Improvement of the Terminal Facilities of the Port of New York. The Committee on Foreign Commerce and The Revenue Laws of the Chamber of Commerce of the State of New York, New York.

Smith, Carlyle Shreeve

- 1950 "The Archaeology of Coastal New York." Anthropological Papers of the American Museum of Natural History. 43:2. Museum of Natural History, New York.

Smith, James Reuel

- 1938 Springs and Wells of Manhattan and the Bronx, New York City. New York Historical Society, New York.

Snow, Dean

- 1978 "Late Prehistory of the East Coast." In Northeast, edited by Bruce G. Trigger, pp. 58-69. Handbook of North American Indians, Vol. 15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D. C.
- 1980 The Archaeology of New England. Academic Press, New York.

Chapter X:

Solecki, Ralph S.

- 1974 "The 'Tiger,' An Early Dutch Seventeenth Century Ship, And An Abortive Salvage Attempt." Journal of Field Archaeology. Vol. 1:109-116.

Spann, Edward K.

- 1981 The New Metropolis. Columbia University Press, New York.

Staniford, Charles W.

- 1913 Report on Pier Extensions. New York City Department of Docks and Ferries, New York.

Stern, Robert, G. Gilmartin and J. Massengale

- 1983 New York 1900: Metropolitan Architecture and Urbanism 1890-1915. Rizzoli International Publishers, New York.

Stern, Robert, G. Gilmartin and T. Mellins

- 1987 New York 1930: Architecture and Urbanism Between the Two World Wars. Rizzoli International Publications, Inc., New York.

Stokes, Isaac Newton Phelps

- 1915- The Iconography of Manhattan Island. Volumes I-VI.
1926 Robert H. Dodd, New York.

Suggs, Robert C.

- 1966 The Archaeology of New York State. Thomas Y. Crowell Company, New York.

Taintor, Robert

- 1874 Taintor's Route and City Guides. New York Central and Hudson River Rail Roads. Taintor Brothers, New York.

The Henry Hudson Parkway Authority

- 1936 Opening of the Henry Hudson Parkway and Progress on the West Side Improvement. The Henry Hudson Parkway Authority, New York.

The Marine News

- 1919 "North River Pier Leases." The Marine News, December, 1919.

Route 9A Reconstruction Project

The Triborough Bridge Authority

1941 Fifth Anniversary Report. The Triborough Bridge Authority, New York.

Trager, James

1987 West of Fifth: The Rise and Fall and Rise of Manhattan's West Side. Atheneum, New York.

United States Department of the Interior

1976 National Register of Historic Places. National Park Service, United States Government Printing Office, Washington, D.C.

United States Works Progress Administration

1940a Monthly Report of Progress. 2 vols. Federal Works Agency, Works Progress Administration for the City of New York, New York.

1940b Shore Survey: Sewer Outlets and Water Front Property Use. Interstate Sanitation Commission, New York Harbor, New York.

Valentine, D. Thomas

1847-
1866 Manuals of the Corporation of the City of New York.

Viele, Egbert L.

1859 Report on the Topography and Hydrology of New York to the Sanitary Association of the City of New York. Edmund Jones and Company, New York.

Vollmer Associates

1987 "West Side Highway Replacement Study. Technical Appendix 3, Archaeology/Landmarks/Historic Sites." Prepared for NYS Department of Transportation, NYC Department of Transportation, and NYC Department of City Planning, New York.

1989 Route 9A Reconstruction, Preliminary Review of Existing Data and Proposed Subsurface Investigation. Prepared for NYS Department of Transportation, Albany, New York.

Chapter X:

Washburn, Wilcomb E.

- 1978 "Seventeenth-Century Indian Wars." In Northeast, edited by Bruce G. Trigger, pp. 89-100. Handbook of North American Indians, Vol. 15, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Weber, Carmen A.

- 1988 "Interim Report: An Exploration of Philadelphia's Early Waterfront Through the Hertz Lot Excavation." Ms. on file Philadelphia Historical Commission, Philadelphia, Pennsylvania.

West End Association

- 1881 Riverside Park and Hudson River Waterfront. West End Association, New York.

West Side Improvement Architects Committee

- 1929 Reports of the New York City West Side Improvement Architects Committee. West Side Improvement Architects Committee, New York.

White, Norval

- 1987 New York: A Physical History. Atheneum, New York.

Willensky, Elliot and Norval White

- 1988 AIA Guide to New York City. Third Edition. Harcourt, Brace Jovanovich, New York.

Wilson, Rufus Rockwell

- 1902 New York: Old and New. 2 vols. J.B. Lippincott Co., Philadelphia.

Wilstach, Paul

- 1933 Hudson River Landings. Indianapolis Press, Indianapolis.

Worden, Helen

- 1934 Round Manhattans Rim. Bobbs-Merrill Co., Indianapolis.

Route 9A Reconstruction Project

Works Progress Administration

1939 The WPA Guide to New York City. Revised edition. Random House, New York.

1940 New York City Monthly Report. Vol. 1, January through June, 1940. Works Progress Administration, New York.

World Trade Corporation

1947 Report of World Trade Corporation to the City of New York, on Surveys of Plans and Program for the Improvement of Waterfront and World Trade Facilities. World Trade Corporation, New York.

Wund, Jacob C.

1901 Asphalt and Asphalt Block Pavements Laid in the Borough of Manhattan Up to January 1, 1901. Superintendent of Street Openings, Paving and Repair, New York.

MAPS AND ATLASES

Bacon, J.

- 1856 Barnitz Pier Map of the City of New York. Surveyed and drawn for the New York Corn Exchange, New York.

Board of Public Improvements

- 1900 General Map of the City of New York. Board of Improvements, Topographic Bureau, New York.

Bradford, William

- 1731 A Plan of the City of New York from an Actual Survey. G. Hayward for Valentine's Manual, New York.

Bromley, George Washington

- 1879 Atlas of the City of New York. G.W. Bromley and Co., New York.
- 1891 Atlas of the City of New York. G.W. Bromley and Co., Philadelphia.
- 1897 Atlas of the City of New York. G.W. Bromley and Co., New York.
- 1902 Atlas of the City of New York. Volume 2, Update of 1899. G.W. Bromley and Co., Philadelphia.
- 1920 Atlas of the City of New York. Volume 2. Update of 1906. G.W. Bromley and Co., Philadelphia.
- 1921 Atlas of the City of New York. Volume 2. Update of 1906. G.W. Bromley and Co., Philadelphia.
- 1931 Atlas of the City of New York. Volume 2. Update of 1928. G.W. Bromley and Co., Philadelphia.
- 1932 Atlas of the City of New York. Volume 2. Update of 1920. G.W. Bromley and Co., Philadelphia.

Burr, David H.

- 1829 Map of the City and County of New York With the Adjacent Country. Simeon DeWitt, Surveyor General, Ithaca, New York.
- 1834 Map of the City of New York. David H. Burr, New York.

Route 9A Reconstruction Project

1837 City of New York. David H. Burr, New York.

1839 Map of the City and County of New York With the Adjacent Country. Simeon DeWitt, Surveyor General, New York.

1846 Map of the City of New York. David H. Burr, New York.

City of New York, Environmental Protection Administration

1968 P.W. - 164 North River Water Pollution Control Project, South Branch Intercepting Sewer Record Drawings. Department of Water Resources, New York.

City Surveyor

1872 Map of the Hermitage Farm and the Norton Estate. Farm Map 20. The City Surveyor, New York.

1880 Map Showing the Perimeters of Farms in Bloomingdale. Farm Map 21. The City Surveyor, New York.

Colton, J.H.

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

Commissioners of New York State

1807- Map of the City of New York and Island of Manhattan.

1811 William Bridges, New York.

Commissioner of the Sinking Fund

1868 The Wharves, Piers, and Slips, Belonging to the Corporation of the City of New York, North River. Volume 2. The New York Printing Company, New York.

Cozzins, Issachas

1842 Geological History of Manhattan Island. A Geological Map of the Island of New York. I. Cozzins, New York.

Department of Borough Works

1937 Rock Data Map of Manhattan Showing Locations of Borings, Excavations, Etc. Department of Borough Works, Borough of Manhattan.

Chapter X:

Department of Docks

- 1880 Map of the City of New York Showing Existing and Proposed Piers and Bulkheads. Department of Docks, New York.
- 1902 Pierhead and Bulkhead Lines. Department of Docks, New York.

Department of Docks and Ferries

- 1902 Charts of the Waterfront of the City of New York. M.B. Brown Co., New York.

Department of Public Works

- 1873 Map of the City of New York; Showing the Different Stages of Improvement of Streets, Roads and Avenues. Department of Public Works. Joseph Laing Litho, New York.

Dripps, Matthew

- 1851 Map of the City of New York, North of 50th Street. Surveyed and Drawn by John F. Harrison, New York.
- 1852 Map of the City of New York Extending Northward to 50th Street. Surveyed and Drawn by John F. Harrison, New York.
- 1854 Topographical Map of the City of New York. Matthew Dripps, New York.
- 1868 Plan of New York City. M. Dripps, New York.
- 1875 Map of the City and County of New York. M. Dripps, New York.

Duyckink, G.

- 1755 Plan of the City of New York. G. Hayward for Valentine's Manual, New York.

Ensign, T. and E. H.

- 1845 City of New York. By T. and E.H. Ensign, New York.

Ewen, Daniel

- 1827- Maps and Surveys of the City of New York. Volume 6.
1830 Daniel Ewen, New York.

Route 9A Reconstruction Project

Fanning, T.C.

1853 Fannings Map of New York City. Ensign and Bridgeman, New York.

Galt and Hoy

1879 The City of New York. Galt and Hoy, New York.

Gillen, Peter W.

1900 Map of the Borough of Manhattan, New York City. Peter W. Gillen, New York.

Goodrich, A. T.

1828 Plan of the City of New York an the Island as Laid Out by the Commissioners, Altered and Arranged to the Present Time. A. T. Goodrich, New York.

Hills, John

1782 Map of New York. G. Hayward, New York.

Hooker, W.

1824 Plan of the City of New York. Engraved for the Strangers Guide, New York. W. Hooker, New York.

1828 Plan of the City of New York. William Hooker, New York.

1838- Pocket Plan of the City of New York. William Hooker,
1839 New York.

Hyde, E. Belcher

1913 Atlas of the Borough of Manhattan. Volume 2. Update of 1906.
E. Belcher Hyde, Brooklyn, New York.

1930 Atlas of the City of New York. Volume 2. Update of 1906.
E. Belcher Hyde, Brooklyn, New York.

1950 Atlas of the City of New York. Volume 2. Update of 1906.
E. Belcher Hyde, Brooklyn, New York.

Chapter X:

Karpinski

- 1781 Reconnaissance Geometrique des Ouviages du Nord de L'Isle de New York: Soutenee par un corps de 5000 hommes aux Ordres des Generaux Washington et Rochambeaux, detache de l'Armee. (avec) "Carte de l'Isle de New York et des Environs." Ministry of War, Service Technique due Genie, Paris. Repository: New York Public Library.

Kitchin

- 1778 London Magazine-National Society of Colonial Dames in the State of New York. Repository: New York Historical Society.

Longworth, David H.

- 1808 Plan of the City of New York. David Longworth, New York.
- 1817 Actual Map and Comparative Plan of New York. David Longworth, New York.

Lyne, James

- 1729 Plan of New York in 1729. James Lyne, New York.

MacCoun, Townsend

- 1909a The Hudson River (Cahohatatea) at the Time of Its Discovery by Henry Hudson, 1609. Townsend MacCoun, New York.
- 1909b 1653-1664, Amsterdam in New Netherland. Townsend MacCoun, New York.
- 1909c New York, The English Colonial City, 1730. Townsend MacCoun, New York.
- 1909d The Island of Manhattan at the Time of Its Discovery, 1609. Townsend MacCoun, New York.

Marks, S.

- 1827 A New Map of the City of New York. S. Marks, New York.

Miller, Rutger

- 1855 Map of the City of New York Showing the Original High Water Line and the Location of the Different Farms and Estates. Rutger Miller, New York.

Route 9A Reconstruction Project

Montresor, John

- 1775 A Plan of the City of New York and Its Environs. Published by A. Dury, England.

Newlin, M.

- 1898 Map of the City of New York. Board of Estimate and Apportionment, New York.

New York Bay Pollution Commission

- 1905 Outline Map of New York Harbor and Vicinity, Showing Main Tidal Flow, Sewer Outlets, Shellfish Beds and Analysis Points. New York Bay Pollution Commission, New York.

New York Central and Hudson River Railroads

- 1890 A Geographically Correct Map of the City of New York Courtesy of the Passenger Department of the New York Central and Hudson River Railroad Companies. Matthews, Northrup and Co., New York.

New York City Department of Docks

- 1872 Map of the City of New York, South of 60th Street. New York City Department of Docks, New York.

- 1873 Map Showing the High and Low Water Marks and the Original City Grants of Land Under Water Made to Various Parties From 1686-1873. Battery to 51st Street. New York City Department of Docks, New York.

New York City Department of Docks and Ferries

- 1902 Waterfront and Harbor of the City of New York. New York City Department of Docks and Ferries, New York.

New York Harbor Line Board

- 1890 Pierhead and Bulkhead Lines for the East Shore of the Hudson River and the North and West Shores of the East River. New York Harbor Line Board, New York.

New York State Department of the State Engineer and Surveyor

- 1910 Catalog of Maps and Papers in the Land Bureau of the Department of the State Engineer and Surveyor. J. Bryon Co., Albany, New York.

Chapter X:

New York City Mayor's Committee on Property Improvement

- 1940 Chelsea Neighborhood Study. New York City Mayor's Committee on Property Improvement, New York.

Office of the President of the Borough of Manhattan

- 1940 Rock Data Map of Manhattan: Details of Borings and Excavations. Second edition. Office of the President of the Borough of Manhattan of the City of New York, New York.

Perris, William

- 1859 Maps of the City of New York. Volume 6, Plates 99, 102. New York.
1862 Maps of the City of New York. Volume 7, Plate 103. New York.

Perris, William and Browne

- 1880 Insurance Maps of the City of New York. Perris and Browne, New York.

Poppleton, T.

- 1817 North River Shore, Battery and 75th Street: A Map of Property on the North Side of Marketfield Street Between Broadway and Fifty-Third to Fifty-Ninth. R. Graves Co., New York.

Prior and Dunning

- 1826 Plan of the City of New York. Prior and Dunning, New York.

Randel, John

- 1819- Map of Farms. Vol.4, Plates 20, 24 and 28.
1820 Commissioners of the City of New York, New York.

Ratzer, Bernard

- 1767 The Ratzer Map of New York City. Struthers and Co., New York.

Redfield, J.S.

- 1871 Map to Accompany the Travellers Guide to the City of New York. G.W. and C.B. Colton and Co., New York.

Risse, Louis A.

- 1800 New York in 1800. R.A. Welcke, New York.

Route 9A Reconstruction Project

Roberts, J. and B. Taylor

1797 A New and Accurate Plan of the City of New York in the State of New York in North America. S. Haywood, New York.

Robinson, Edward

1889 Real Estate Atlas of the City of New York. Volume 5. E. Robinson, New York.

Robinson, Edward and R. H. Pidgeon

1883 Atlas of the City of New York. Volume 1. E. Robinson, New York.

1885 Robinson's Atlas of the City of New York. E. Robinson and R. Pidgeon, New York.

Sackersdorff, Otto

1815 Map of Farms Commonly Called the Blue Book, 1815. Otto Sackersdorff, City Surveyor, New York.

Sanborn Map Company

1922 Pier Map of New York Harbor. Sanborn Map Co., New York.

1928 Pier Map of New York Harbor. Sanborn Map Co., New York.

Slum Clearance Committee of New York

1933- Maps and Charts. The Slum Clearance Committee of New
1934 York, New York.

Stevens, B.F.

1900 Facsimile of the Unpublished British Head Quarters: Coloured Manuscript Maps of New York and Environs, 1782. (Reproduced from Original in War Office, London.) B.F. Stevens, London.

Street Commissioners Office

1860 Maps of the Wharves and Piers of the City of New York.
F. Heppenheimer, New York.

Stuyvesant, Governor Peter

1699 Nieuw Amsterdam. Update of 1660. Manning Exton, South Port, Connecticut.

Chapter X:

Taylor, B. and J. Roberts

- 1797 A New and Accurate Plan of the City of New York in the State of New York in North America. J. Roberts, New York.

United States Geological Survey

- 1897 New York-New Jersey: Harlem Quadrangle. United States Geological Survey, Washington, D.C.

Viele, Egbert L.

- 1859 Map of the City of New York from the Battery to 80th Street, Showing the Original Topography of Manhattan Island. Egbert Viele, New York.

- 1874 Topographical Atlas of the City of New York. Egbert Viele, New York.

Virckenboons, Johannes

- 1639 Map of Manhattan. Drawn by Johannes Virckenboons: A Facsimile from the Library of Congress, Washington, D. C.

West Side Association of Commerce, Inc.

- 1931 The West Side-"A Self Sustaining District." West Side Association of Commerce, Inc., New York.

- 1933 West Side Survey and Residential Occupancy Map. West Side Association of Commerce, Inc., New York.