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EAST RIVER COMBINED
SEWER OVERFLOW FACILITY
HUTCHINSON RIVER SITE
BRONX, NEW YORK

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PHASE 1A
ARCHAEOLOGICAL ASSESSMENT

Prepared For:

Lawler, Matusky & Skelly Engineers
One Blue Hill Plaza
Pearl River, New York 10965
Under Subcontract to:
URS Consultants, Inc.
Mack Centre Drive
Paramus, New Jersey 07652-3905

Prepared By:

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

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P.O. Box 3037 • Westport, Connecticut 06880-9998 • 203-226-7654 • Fax 203-226-8376

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PHASE 1A ARCHAEOLOGICAL ASSESSMENT

Authors:

Betsy Kearns
Cece Saunders
Sara Mascia

P.O. Box 3037 • Westport, Connecticut 06880-9998 • 203-226-7654 • Fax 203-226-8376

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I. INTRODUCTION AND METHODOLOGY

The New York City Department of Environmental Protection (NYCDEP) proposes to construct a new East River CSO Facility on Block 5256, Lots 190, 195, 200, and an unnumbered lot known as the "Public Place" in the northeastern section of the Bronx (Fig. 1). The Project plans call for the installation of a new storage facility (up to seven million gallons) with associated piping under Block 5256 (Fig. 2). Block 5256 has been divided into two Department of Transportation yards and was identified as Sites 1 and 1a in the 1993 Planning Report and referred to as the Hutchinson River Site in the present volume (Lawler, Matusky & Skelly Engineers 1993). Plans call for the large underground storage tank to be place within the bounds of Site 1a. A proposed easement for an influent line will run from the new facility north under the location of the former Pinkney Street (within Site 1), turning east at Tillotson Avenue (beneath the New York City Bus Service lot). The proposed influent line will then curve northward adjacent to the Hutchinson River. After passing under the New England Thruway it will turn northwest to travel below Hutchinson Avenue to it's terminus at Boston Road (Fig. 3).

Because of the mandated environmental review process, a cultural resources study has been conducted. The purpose of this study is to identify the significant archaeological and historic resources in or around the immediate vicinity of the proposed water storage facility and to address any potential impacts caused by the proposed installation and associated infrastructure connections. If significant adverse impacts are identified, the study is to also delineate appropriate mitigation measures.

To address these concerns, various sources of documentary data were researched. In order to determine the study lots' original topography and to compile a disturbance record, which includes information on the site's possible land-use over time, building history, and filling episodes, primary source material on the project site was collected. Historical maps and descriptions of the study area were examined at the New York Public Library's Municipal Reference Library, Map Division and Local History Room. Additional maps and historical data were studied at the Bronx Municipal Building and the Westchester County Historical Society. Unfortunately, few files for the project lots were available at the Bronx Department of Buildings. Additional information concerning subsurface disturbance, and the pre-fill topography of the project area was gathered from soil boring logs provided by the New York City Topographic Office and the offices of Lawler, Matusky, and Skelly Engineers (1995).

Many local and regional histories were examined for relevant data to help place the site within a historical context. These include well-known works such as Stephen Jenkins' The Story of the Bronx, Robert Bolton's The History of the Several Towns, Manors, and Patents of the County of Westchester, J. Thomas Scharf's History of Westchester County, New York, Including Morrisania, Kings Bridge, and West Farms, and Shonnard and Spooner's History of Westchester County, as well as some more recent works such as John McNamara's History in Asphalt, and articles published in the Bronx Historical Society Journal. For the prehistoric period, William Ritchie's The Archaeology of New York State provided an overview of the lifeways of the Native inhabitants of New York up to the contact period. In addition, Robert Steven Grumet's Native American Place Names in New York City, and Reginald Bolton's Indian Life of Long Ago in the City of New York furnished valuable information on Native American settlements. City Directories were also examined for information regarding the individuals who owned structures within the project site. Furthermore, available site reports and journal publications relating to archaeological sites were researched for data specific to the northern and eastern Bronx.

Historic resources (building, object, or structure) within the Hutchinson River study area that are either listed or eligible for listing on the National Register of Historic Places were researched through various inventories, e.g., the Guide to New York City Landmarks and the AIA Guide to New York City. According to New York City CEQR guidelines, existing historic resources were evaluated based on criteria standardized by the National Register of Historic Places. Two site visits were made in 1995 and a third was conducted September 27, 1996. Archaeologists examined the site carefully, recorded via notes and photographs the remains of the bedrock

As mentioned above, the purpose of this Phase 1A Archaeological Assessment Report is to determine the possible presence and type of any prehistoric and/or historical cultural resources which may be found within the project area.

II. ENVIRONMENTAL SETTING

Over the last one million years, three known glacial periods were responsible for the creation of the present topography of the New York City area. The buildup of glacial debris, forming hills or moraines running north-south through the Bronx, and the irregular erosion of valleys and hills are a direct result of these retreating continental glaciers. Geologically, the borough of the Bronx lies within the Hudson Valley Region and is considered to be part of the New England Upland Physiographic Province, which is a northern extension of the Great Appalachian Valley (Schuberth 1968: 10, 74). The substratum is made up of "gneiss and mica schist with heavy, intercalated beds of coarse-grained, dolomitic marble and thinner layers of serpentine" identical to what underlies Manhattan Island (Scharf 1886:6-7).

Many rivers and creeks in the New York area were created from the melted ice floes and the subsequent water courses were directed along the moraines (e.g., the Hutchinson River, which flows to the east of the project area). These watercourses have further eroded limestone belts still exposed between the glacial deposits, creating a varied landscape of hills and valleys. In low-lying areas lakes and ponds were formed and in the locations with poor drainage, swamps and marshy areas dotted the landscape. The present topography of the project area consists of low hills sloping toward tidal marshland adjacent to the Hutchinson River.

Nineteenth- and early twentieth-century topographic maps depict the project area, adjacent to the Hutchinson River, as the location of tidal marshland. The eastern shore of the Hutchinson River was also a tidal marsh marked by several low lying hills overlooking Pelham Bay to the east, the Long Island Sound to the south, and the Hutchinson River to the west. Small offshoots of the Hutchinson River meandered through the former wetland draining the tidal marsh into the river. The acreage further inland is identified on mid-nineteenth-century maps of Eastchester as farmland and many property boundaries are delineated.

A late nineteenth-century map reviewed shows that by that date the U. S. Pier and Bulkhead line established along the western edge of the Hutchinson River and a landing was constructed at the "Public Place," one of the present DOT lots (1A). A 1905 map indicates that there was an area of "high ground" in the center of the DOT lots. The contour lines on the map indicate that the elevation of this area was from 20 to just under 40 feet above sea level. The 1938 Rock Line Maps indicate that the elevation of the high ground was 39 feet above sea level. The maps reviewed also indicate that portions of the land areas surrounding the highground were still tidal marshland until the mid-twentieth century. This sort of formation is not unusual in the eastern Bronx.

In fact, Bronx historian James Wells once wrote that the salt marshes of the nearby Clasons Point were "dotted with rocky hummocks which rise from ten to twenty feet above the surrounding meadows," and further mentions that one of these hummocks was called "Indian Rock" (Wells 1927:337).

The soil boring data examined show layers of fill between 13 and 28 feet thick, with the water table extending well into the fill strata. The fill is "composed primarily of sands and gravel, hydraulic sand, asphalt, and limited amounts of construction and demolition debris" (Lawler, Matusky & Skelly 1995: 1-2). This affirms the nineteenth century map depictions of the area as tidal marshland that was subsequently filled. The most recent USGS topographic map shows the site completely filled in and at an elevations of between approximately 10-20 feet above sea level. At present almost all of the proposed underground easement will pass through previously disturbed locations beneath Boston Road, Pinkney Street, Hollers Avenue, Tillotson Avenue and a small section of Hutchinson Avenue. The proposed path of the pipe has been disturbed in the past by utility pipes under the roadbeds (water and sewer), the construction of the New York Thruway, and the placement of public utilities within the New York Bus Service lot. One portion of the influent line easement, under an existing section of Hutchinson Avenue, was determined to be in a location that may contain below ground cultural resources as no evidence of utility and/or other forms of disturbance were identified (see Fig. 3). The historical development of this segment of the project site will be discussed briefly below. The most likely site for the possible recovery of below ground cultural resources, however, is the location of the two DOT lots.

Although the entire project area was examined, the proposed placement of the below ground storage facilities, which is in the location of the former "high ground," will be the focus of the present archaeological analysis. Presently, the DOT lots are enclosed by a metal fence along the western, northern, and southern boundaries (see Photos 1-8, A-I). A large concrete bulkhead and the Hutchinson River form the eastern boundary of the project area (see Fig. 2; Photographs 6, 7, and 8). There are three small buildings on Site 1, a garage, a trailer, and a small concrete pump station (NYCDEP Conner Street Station; see Photograph 5). The site is paved around these existing structures. The Dot uses this lot for truck and equipment maintenance, hot tar production, and storage. Site 1a, the southern portion of the project area where the proposed underground tank will be placed, is used primarily as a storage area for refuse and equipment. During the site visits the archaeologists noted that large-scale earth moving had already occurred. Large refuse deposits were present along the edges of the Site 1a as well as around the east and west remnants of a once large bedrock outcrop

(see Photographs 4, A, B, and C). Much of this lot is paved or has a gravel cover, and the western portion of the lot is used for employee parking (see Photograph F). There are several piles of refuse that was collected from nearby highways deposited temporarily at this site. Some small weeds and trees are scattered both within the lot and along it's borders. To the south and west of Site 1A are vacant parcels of land now overgrown with weeds.

Historic Resources

The project site is dominated by mid-twentieth century utilitarian structures and yards for city service agency functions. The New England Thruway (I-95) eclipses the northern viewscape and Co-op City's massive towers are to the southwest. There are no historic resources either on the National Register or eligible for listing on the National Register that fall within the project study area as defined by the CEQR guidelines.

The Hutchinson River Parkway, built in 1939 and considered to be a significant transportation-related resource, parallels the Hutchinson River and lies approximately 1400 feet to the east of the project site. The proposed CSO facility site is separated from the scenic corridor by an extensive phragmites wetland. Although a portion of the facility will be above grade (chemical storage, boiler and odor treatment rooms), the proposed CSO retention tanks and pipe connections will be buried and the existing grade restored after construction. Therefore, there will be little effect on the existing visual context from the Hutchinson River Parkway.

III. PREHISTORIC OVERVIEW

Following the final retreat of glacial ice, the area now known as the Bronx flourished with plants suited to arctic and tundra conditions. Eventually, the locale became a forest composed of deciduous trees and conifers. The fluctuating floral and faunal communities eventually stabilized over the last 12,000 years, resulting in an environment often characterized as a climax forest, comprised of oak, hemlock, beech and chestnut trees. The shrinking ice caps were accompanied by a rise in sea levels, which led to the flooding of water courses and their outlets, and the creation of salt marshes in adjacent low-lying areas. One such water course was the Hutchinson River which was surrounded by tidal marshes, such as those found in the project area, until filling episodes during the twentieth century.

Prehistoric sites are often characterized by their close proximity to a water source, fresh game, and exploitable natural resources (i.e., plants, raw materials for tools, etc.). These sites are often placed into three categories, primary (campsites or villages) secondary (tool manufacturing, food processing), and isolated finds (a single or vary few artifacts lost or disposed). Primary sites are often situated in locales that are easily defended against both nature (weather) and enemies.

Scholars generally agree that the prehistoric era in North America can be divided into three main periods, the Paleo-Indian, Archaic, and Woodland. Table 1 shows the periods, subperiods (if applicable), and the date range generally agreed upon by archaeologists. In order to complete the prehistoric overview for the present project and to fully evaluate the potential of recovering prehistoric cultural remains, each period will be examined separately

TABLE 1

Period	SubPeriod	Approximate Date Range
Paleo-Indian		10,000-7,000 (BC)
Archaic	Early	7,000-5,000 (BC)
	Middle	5,000-3,000 (BC)
	Late	3,000-2,000 (BC)
	Terminal	2,000-1,000 (BC)
Woodland	Early	1,000-300 (BC)
	Middle	300 (BC)-1,000 (AD)
	Late	1,000-1,600 (AD)

with regard to; 1) the characteristics illustrative of the phase, 2) the environment during the time period, and 3) any recovered archaeological sites within the region. This examination was completed in order to assess the potential that indigenous groups would have had for exploiting the project area in general and the actual project site.

Paleo-Indian Period

The Paleo-Indian Period is described as the era when small bands of large-game hunters ventured across a narrow land bridge linking the New World to the Old. These bands were scattered over large areas of territory and were probably moving seasonally, following the big-game animals that made up the major portion of their diet (e.g., mastodon, bison, caribou). Although the population was small, these hunters soon spread over the wide expanse of virgin territory now known as North America. The diagnostic artifact of these nomadic hunters was the fluted point. One of the reasons the stone tools of the prehistoric periods are used by archaeologists for examination is that the preservation of this type of artifact is extremely good. In many cases, the stone tools recovered at archaeological sites are the only evidence of the existence of past peoples.

During the early Paleo-Indian Period, the northeastern portion of North America was not a hospitable environment. The area had not yet developed into the more favorable deciduous forest of the later prehistoric periods. According to William Ritchie, pollen profiles show that the climate was cold and bleak until the late Paleo-Indian Period (1980). Paleo-Indian sites, like most other prehistoric sites, have been recovered in well-elevated fertile areas situated close to a water source. Although some of the Paleo-Indian camp or "type sites" are located in the Northeast, most are found far to the north of the New York City area. However, the remains of big-game animals, have been recorded in New York, including a Mastodon bone found at Hunters Point (Seyfried 1984: 92). While this verifies that the New York City area provided a food source for the Paleo-Indian hunters, no "kill sites" have been recovered. Perhaps this is due to the inhospitable environment during the early Paleo-Indian period, or it may be the result of the flooding of coastal sites as the glaciers continued their retreat and a corresponding rise in sea level occurred. A small Paleo-Indian campsite, however, was found in Staten Island. This site, Port Mobil, is the closest recorded Paleo-Indian site to the present project area (Ritchie 1980: 1, 3, 7).

By the late Paleo-Indian Period, small leaf shaped or bifacial knives, scrapers, and borers had become part of the hunter's tool kit. At this time the environment in the Northeast had become more advantageous to prehistoric peoples as the climate became warmer and game more abundant. The

megafauna, so prevalent throughout most of the Paleo-Indian Period, were becoming extinct and being replaced by smaller game more suited to the temperate environment of the Archaic and Woodland Periods. Very few Paleo-Indian sites have been recovered archaeologically. Perhaps the transitory nature of these nomadic hunters left little impact upon the landscape. In addition, the small Paleo-Indian population, mentioned above, and the changing prehistoric environment with the accompanying rise in sea level, may also be a factor in the scarcity of sites from this time period.

Archaic Period

This period is characterized by an overall shift in the environment, an expansion of the tool kit, and the exploitation of defined territorial boundaries. The environmental transformation to a deciduous woodland forest was complete by the Early Archaic. Throughout the period the climate continued to warm and the sea levels to rise. Subsistence was based upon the hunting of smaller game animals (deer, rabbit, beaver, and wild turkey), the gathering of wild plants, and the exploitation of the marine environment (fishing and shellfish gathering). At this time, the narrow bladed projectile point, grooved axe, and beveled adz were added to the tool kit of the Archaic hunter. Fishing implements, grinders, and the mortar and pestle have been found at archaeological sites dating to this period. The recovery of these objects attest to the expanded subsistence economy. Although still mobile, the Archaic hunters were now exploiting a well-defined territory, often reoccupying favorable sites.

The size and quantity of recorded archaeological sites from the Archaic period is much larger then the modest number dating to the Paleo-Indian Period. This change suggests that there was a significant increase in the population of native peoples and that these groups had a greater impact upon the landscape. River valleys and coastal locations were the preferred locale for primary camp sites. This setting supported the game, plants, and marine resources desired by Archaic peoples. The repeated occupation of sites and the seasonal rounds made within specific territories have enabled archaeologists to recognize several identifiable cultural phases in New York State (e.g., Lamoka, Brewerton) (Ritchie 1980).

While no large Archaic settlement has been recovered in the New York City area, several small multicomponent sites have been identified. To the north, in Westchester County, a series of rockshelters, camp sites, and shell middens have been investigated by local archaeologists during the twentieth century. In the Bronx, however, only a few isolated finds dating to the Archaic Period have been recorded. At Clason's Point, two Archaic projectile points

were recovered, and an archaic workshop was excavated in the 1970s along Pugsley's Creek (Cohn, personal communication, 10/20/94).

Woodland Period

The Woodland Period is often identified with the introduction of pottery. While this is one of the most distinguishing characteristics of the period, there were other equally important changes taking place. These changes include the introduction of horticulture, the appearance of large semi-permanent or permanent villages, and the establishment of clearly defined trade networks. As in the previous periods, archaeological evidence suggests a marked preference for large-scale habitation sites within close proximity to a fresh water source (e.g., rivers, lakes, streams, and ponds). In most cases, areas where specific activities occurred (e.g., shellfish collecting and/or processing, butchering locations, and stone tool-making), were usually situated near the site of the resource.

Besides the debut of pottery, which can be traced to the Early Woodland in New York State (ca.1000 B.C.), pipe-smoking, mortuary ceremonialism, and the bow and arrow were introduced during the Woodland Period. In many cases these new innovations reflected different cultural styles that archaeologists have been able to identify with specific groups. The introduction of horticulture in the New York City area is linked with the commencement of larger and more permanent settlements. These villages, many of which were fortified, were usually situated on "high ground." By the Late Woodland Period, Native pathways were established connecting the many permanent villages to each other and allowing for the distribution of trade goods.

Much of what is known about the Late Woodland Period has been acquired from both documentary and archaeological sources. Historians and archaeologists have carefully examined the documentary record in order to understand the native cultures that were living in the New York City area when Europeans first arrived. Legal documents and ethnohistorical accounts have provided valuable evidence about the past lifeways of these people. Often, information about the settlements, appearance, and behavior of ancient peoples cannot be reconstructed from the recovery of a few artifacts. Documentary sources have enabled historical archaeologists to assemble more complete information about the cultures under examination.

By the seventeenth century, the Native American groups living in the New York City area had developed complex group dynamics. Many of the early ethnohistorical accounts describe the diverse groups contacted. In 1625, Johannes de Laet wrote that the natives he encountered were "divided into

many nations and languages" (Bolton 1972: 16). Unfortunately, many of these groups were decimated by local hostilities and European-introduced diseases by the mid- to late seventeenth century. Many of the surviving Native peoples sold their land or moved further north into Westchester County (Grumet 1981: 60-62).

Grumet's map of Indian Trails indicates that a Native American pathway was located to the north of the project area (Fig. 4). A large trail, entering the Bronx from Westchester County, passed just to the north of the location where the proposed overflow pipe will originate at Boston Road. This trail turned roughly southwest following along present-day Boston Road. It turned directly south just before the location of Gun Hill road and continued southward to where it joined a second pathway at Tremont Street. An area called "Conoral" is also identified on Grumet's map just south of the project location (see Fig. 4). Although the same designation was depicted in this location on a map by Robert Bolton, Grumet suggests that Conoral was not a village but was probably another name for Eastchester Bay or the land on the western shore of the river (Grumet 1981: 9).

Along the southern shoreline of the Bronx, several large native villages have been identified, including Castle Hill, where historical records indicate a large Native American settlement was located. The village, or "stockade," on Castle Hill was documented in historical records but has not been recovered archaeologically. Grumet attributes this to the rapid urbanization of this area of the Bronx during the nineteenth and twentieth centuries. In contrast, the native village of Snakapins was found and investigated by Alanson Skinner in 1918. The information gathered at this site, approximately 1/2 mile north of Clasons Point, and just over 6 miles south of the project area, provided much that is now known about the coastal inhabitants during the Late Woodland and Contact periods (Skinner 1919).

Examination of the site files at the State Historic Preservation Office and the New York State Museum indicates that there are over 20 recorded prehistoric sites within one mile of the project area. All, but a part of one possible site, are located on the east side of the Hutchinson River within the confines of Pelham Bay Park. This locale provided access to the Hutchinson River, Eastchester Bay, a large lagoon, and the Long Island Sound (see Fig. 1). The landscape is covered with rich grassy meadows, forests of oak and pine, acres of fresh-water wetlands, and several small hills. One of these hills is a small oval knoll, approximately 50 feet above sea level, overlooking Eastchester Bay. The presence of this knoll and the other attributes listed above provided an environment capable of supporting the game animals and plants needed to sustain a

small village. In fact, the Siwonoy Village Site (OPRHP# A005-01-0032) was identified to the south of the knoll.

To the north, two small prehistoric sites were recorded on the western shore of the river, opposite the present project area (NYSM #s 2829 and 2832). These sites are listed as the remains of a camp and village respectively. No further information, including the possible date of occupation, was given. The overwhelming majority of the recorded sites are located in the southern and eastern portions of Pelham Bay Park. Records show that most of these sites are shell middens. Like the sites to the north, no date range for these middens was provided. The review of historical documents, local histories, and research completed on prehistoric New York, suggests that most, if not all, of these sites date to the Woodland Period. In fact, Bolton states that during the early Contact Period

> "At Pelham Neck there was another settlement, and scattered stations along the shore, such as on Hunter's Island." These sites "were favorite fishing places, visited in the summer by the Weckquaesgeek" (Bolton 1975: 31).

Of the recorded sites examined for this study, only one may be partially on the western shore of the Hutchinson River. This site, which may span both sides of the river, is a possible "village" locale situated approximately 1/2 mile to the north of the present study area. Much like other sites originally identified by Parker, this possible site has indistinct boundaries, and although likely present along the eastern side of the river, it may not extend to the west side. As no additional information regarding this site is in the state files, the exact location of the "village" is not known.

Prehistoric Potential

The extensive amount of construction and demolition occurring within the boundaries of New York City have provided opportunities for the recovery of prehistoric cultural material. In some cases, however, prehistoric sites have been lost to the rapid urbanization during the nineteenth and early twentieth centuries. Any potential prehistoric site must be examined carefully in order to assist in the elucidation of New York's prehistoric past. The research conducted here clearly indicates that there is a strong prehistoric presence in the East Bronx. Although all of the inventoried prehistoric sites, with the possible exception of one possible partial site, are on the east side of the Hutchinson River, the present project area was examined for potential cultural resources.

Boesch's *Archaeological Evaluation and Sensitivity Assessment of the Bronx, New York* was examined with regard to the present site location (1995). While the east side of the Hutchinson River had a high sensitivity rating, the west side of the river was given a moderate sensitivity rating. Figure 3a of Boesch's report indicates that the entire DEP site area was marshland during the prehistoric period.

The present project area, however, once possessed many of the attributes that may have appealed to prehistoric peoples. As mentioned above, the preferred location for prehistoric sites was on high ground close to a water source. While the present project locale was almost entirely composed of swampland during the late prehistoric era, there was a very small area of "high ground" in the center of what is now the DOT lots. This, together with the site's close proximity to the Hutchinson River, the Native pathway to the north, and the prehistoric sites on the opposite shore of the river, may have provided a locale for a lookout, or processing area.

Loose shell fragments were noted by HPI archaeologists on all site visits near the larger eastern bedrock outcrop (see Photographs G, H, I). The Landmarks Preservation Commission staff also visited the site 7/11/96, and noted "what appears to be an intact shell midden eroding from a large bedrock outcrop (elevation 39' above sea level) within Location Site A" (LPC 1996). During the final site visit in September 1996, HPI archaeologists examined the two remaining sections of bedrock carefully for any evidence of intact buried features (see Photographs A-I).

The remains of a large bedrock outcrop shown on historical maps is still present. The central portion of the outcrop however, was blasted and removed in the past for the installation of a large (24") outflow pipe creating two above ground sections (see Photographs C, E, F and Appendix, Current Map of Proposed Project Site at 1"=20'). These two sections, identified as the eastern and western outcrops for this report, are now separated by approximately 20 feet (see Appendix).

On the surface of the larger (eastern) section of the outcrop still present above ground is approximately 6" or less of soil containing small weeds, shrubs, and a few trees (see Photograph B). The shallow soils on the surface of the outcrop do not indicate the presence of any significant buried middens. This section of the outcrop, now only approximately 15 x 20 feet in total size, has a large concentration of modern highway refuse deposited up against its southern end (see Photograph A). The DOT has been using this lot for a number of years as a repository for roadway waste (including asphalt, concrete, soils, and trash) collected along the highways. According to the crew members on site, heavy machinery (e.g., trucks, bulldozers, plows

etc..), has been used to deposit, move, and remove these waste materials in the lot for years.

Loose shell fragments were exposed by the archaeologists along the northern section of the eastern outcrop in the location where the Landmarks Preservation Commission representatives reported this material (see Photograph G). An examination of this area indicates what appears to be mixed deposits of soils and cultural materials. Attempts to delineate the A and B soil horizons across the face were unsuccessful, however.

Upon closer examination the shell fragments were found to be mixed with modern waste materials (e.g., Styrofoam cup fragments, green beer bottle glass, a large piece of a modern broom, and whiteware). A second area along the northern end of the outcrop was cleared and fragments of shell, also mixed with twentieth century materials, were found. The archaeologists also probed, cleared, and examined several areas along the surface of the outcrop. Out of the eight locations examined (ca. 1' x 1' in size), only two areas, both close to the northern end of the outcrop produced shell fragments. Once again these shells were found to be in a mixed historic (twentieth century) context.

Interviews with on-site DOT crew members were conducted and it was discovered that the north side of the eastern outcrop, where the shell fragment mixture was more prominent, was also the location where soils, rocks, and other materials were periodically deposited by heavy machinery. While some of the materials were re-deposited in this location from other portions of Site 1a, including the western section of the once large outcrop located to the north, these materials had been mixed with soils from other off-site locations and bulldozed up against the north side of the eastern outcrop. Photograph D shows the build-up of debris on the northern end of the east outcrop. A close-up shows shell fragments mixed in with loose soil and modern refuse (see Photograph I). The large rock shown on the left of this photograph is surrounded by loose soil, and as is typical with fill, has gaps behind it that were caused by its being pushed up against the northern end of the outcrop with heavy machinery.

The smaller western outcrop was also re-examined during the final site visit. This outcrop has been significantly impacted by the DOT heavy machinery. Much of the upper portion and sides have been removed over the course of the last several years in order to provide more space for DOT vehicles. There is only approximately 1-2 inches of soil left on the top of the outcrop (less than a 5 x 4 feet in total size). Only three shell fragments were observed in this location.

IV. HISTORICAL OVERVIEW

The historical development of the Bronx began with the seventeenth-century European settlers. The current project area is in a section of the Bronx that was colonized following the 1640 purchase of a large tract of land by the Dutch West India Company from the local native inhabitants. This land, located to the south of the project area was called "vredelandt," or "land of peace" by the Dutch (Fig. 5; Jenkins 1912: 26, 30). Many adjacent tracts of land were granted as manors or patents to wealthy and influential Dutch and English men (e.g., Fordham Manor, Morrisania, and Pelham Manor). In a few cases land was purchased directly from the native inhabitants. The present study area in the East Bronx was once a portion of the land purchased by Thomas Pell in 1654 from Chief Wampage (see Fig. 5; Beyer, Blinder & Belle 1985: 5). In addition to the large parcel he purchased, Pell claimed a large portion of the land originally purchased by the Dutch. Pell, an Englishman, was able to maintain his control over his land by swearing allegiance to the Dutch until his native country established control over the colony. Thus, in 1666 he was granted the Manor of Pelham by the first English Governor of New York Richard Nichols. The "manor" was comprised of all of the land east of the Hutchinson River up to present day Mamaroneck (including the coastal islands) and a large tract of land on the west of the River including, Eastchester, portions of Mount Vernon, and the northeast section of the Bronx.

Many of the early immigrants moved to this area after attempting to settle in Puritan New England. These people, well-documented in historical accounts, decided to venture down to New Amsterdam in the area called "vredelandt" (in some cases referred to as the free land), for it was here that the Dutch West India Company encouraged settlement by many of the displaced settlers driven out of New England by religious intolerance. In 1643, Thomas Cornell, one of the New England "refugees," was granted property on what is now called Clason's Point. After being driven off this land during an Indian raid and later by the British, Cornell continued to attempt to reclaim his land. Finally, his grandson was officially awarded the land by patent in 1667 (Jenkins 1912: 402).

One of the more recognizable early settlers of the East Bronx was Mrs. Anne Hutchinson. Hutchinson, an outcast from the strict New England Puritan society, fled Massachusetts and later Rhode Island in her bid for religious freedom. She, along with her children and grandchildren, settled in the East Bronx in 1643. Hutchinson's dwelling was located on the eastern side of the Hutchinson River in what is now known as Pelham Bay Park. Unfortunately, not long after their arrival, most of the family was killed in an Indian raid (Beyer, Blinder & Belle 1985: 5; Bolton 1975: 31-32). Bolton

suggests that because the Hutchinson's were squatters the natives living in the area resented their presence (1975: 31-32). After attempting to peacefully evict the Hutchinson's, Chief Wampage is said to have led the attack against the settlement (Bolton 1975: 32). The Hutchinson River was named after her for being the "earliest" settler in this region. Ten years after Pell's purchase of the land on both sides of the river, he granted tracts on the east side of the river "to the number of ten families, to settle down at Hutchinsons" (Jenkins 1912: 50-51). This settlement became known as "Ten Farms," later named Eastchester (1665), for its location to the east of the village of Westchester. The two settlements of Westchester and Eastchester were closely affiliated until their official separation in 1667 (Jenkins 1912: 424).

Thomas Pell constructed a large manor house on the tip of Pelham Point. It's exact location and date of demolition is unknown. Following Pell's death in 1669, his nephew, Sir John Pell, inherited his vast estate. Sir John came to New York in 1670, immediately following his uncle's death and built a larger manor house. He married Rachel Pinkney, the daughter of one of the men granted land by Thomas Pell at "Ten Farms" (Beyer Blinder Belle 1985: 5). Sir John and his wife had five children. The oldest, named Thomas in honor of the first Lord of Pelham Manor, inherited the Manor when his father drowned off City Island around 1720. The second Thomas to be named Lord of the Manor left a will dated 1739 that divided his estate equally among his ten children and the title of Lord was passed on to his grandson Joseph. Once the estate was divided, the Pell family ceased to dominate their neighbors, both financially and politically. The division of the estate broke up the "Manor" and a great deal of the land was sold outside of the family.

During the mid-seventeenth century a village in the center of "vredelandt" was founded. Originally, the village was settled illegally by a group of men from New Haven under the leadership of Thomas Pell. The village soon became known as a location where English speaking subjects could settle in the Dutch-held territory. The Director-General of the Dutch West India Company, Peter Stuyvesant, repeatedly warned these colonists to leave Dutch lands. In March 1656, 23 men were captured by the Dutch and brought before the Council in New Amsterdam. After hearing testimony by the prisoner's wives, Stuyvesant and the Council allowed the men to return to their village upon swearing allegiance to Dutch authority. It was at this time that the village was formerly named Oostdorp by the Council.

During the third quarter of the seventeenth century, the English and Dutch were in conflict over the territory called New Amsterdam by the Dutch and later New York by the English. The English conquest of 1664 was only challenged once.

During the 1673-4 reoccupation by the Dutch, the residents of both Westchester and Eastchester swore allegiance to the Dutch (Jenkins 1912: 425). Under English hegemony the town of Oostdorp was renamed Westchester and became the seat of Westchester County in 1683 (Fig. 6)

As mentioned above, most of the northeastern Bronx was part of the town of Eastchester. At the start of the eighteenth century, Rev. John Bartow purchased large tracts of land along the western shore of the Hutchinson River from Thomas Pell. The present project site was within the boundaries of this land purchase. The land remained under the control of the Bartow family throughout much of the eighteenth century. Perhaps the family was profiting from the salt marshes along the river. In most coastal communities, parcels of salt marsh were highly valued for their steady supply of livestock fodder. In fact, the Westchester Town charter included provisions for the equal use of the "Commons," approximately 400 acres of marshland along the shores of Westchester Creek.

The Bronx remained divided into various estates and settlements throughout the eighteenth century. Most of the East Bronx, including the project area, remained undeveloped swampland that had few roadways. During the American Revolution, Pelham Manor, now reduced to the area presently known as Pelham Bay Park, became a vital location for the defense of the colonies (Figs. 6 and 7). The Pell family were firm Loyalists and moved to New York City for the duration of the War. It was on their land that one of the most important early battles of the War was fought. The Battle of Pell's Point was fought during October of 1776 (see Fig. 6). The force of the resistance put up by a small group of patriots against the combined invasion by British and Hessian troops protected the main body of the army located inland. One mile to the south of the project area was another important Revolutionary War site. The Gun Hill battle site was another testimony in endurance and strength for the colonial army. Gun Hill Road was named for the Hill to which the road led in the late eighteenth century. All along the Road, the colonists were able to hold off the British forces advancing from east to west.

Following the war, in 1788, the Bronx was formerly divided into five townships including Pelham and Eastchester. These two townships were divided along the old manor boundary lines. The Town of Westchester prospered more than its northern neighbor before their annexation by New York City in 1895 (McNamara 1967: 511). During the nineteenth century, the western section of the Bronx, perhaps because of its close proximity to Manhattan, developed at a faster rate than the eastern shore. Although there were scattered farms and villages, most of the northeast section remained undeveloped swampland. In fact, a large undeveloped portion of the

former Pelham Manor was acquired by the State of New York in 1883 for use as public park land.

The examination of historical maps indicates that the section of the Bronx to the south of the project area developed at a brisk rate following the introduction of the railroad (The Harlem River and Port Chester Railroad, now Conrail) in 1872 (see Fig. 9). Railroad lines made the East Bronx accessible to it's neighbors from the north, south, and west. Perhaps because of this new accessibility, a referendum for annexation to the City of New York was put before the inhabitants of Eastchester, Westchester, Pelham, and Mount Vernon in the election of 1894 (Jenkins 1912: 7). A large majority of the people in Eastchester and Pelham voted for annexation, while those in Westchester and the City of Mount Vernon voted against the referendum. Because there was only a one vote margin in the Westchester election, the vote was dismissed and the entire East Bronx was annexed by the City of New York in 1895. Three years later the whole of the Bronx was officially designated a borough (Jenkins 1912: 7).

During the twentieth century most of the pastureland in the Bronx was lost to the rapid urbanization that was taking place all over New York City. As mentioned above, the land, now known as Block 5256, was swampland throughout most of the seventeenth through nineteenth centuries. However, by the start of the twentieth century, many of the surrounding lots, which had remained empty through the nineteenth century were ready for development. The massive growth and development of the East Bronx was emphasized by the construction large roadways including, the Hutchinson River Parkway, the Cross Bronx Expressway, and the New York State Thruway. The 1936-1938 construction of the Hutchinson River Parkway, established the first large roadway through the East Bronx. Designed to connect with the new Bronx-Whitestone Bridge in time for the World's Fair of 1939, the parkway plans incorporated several smaller roadways. The parkway became a major artery connecting the Bronx with Westchester County to the north and the borough of Queens to the south. The Expressway, constructed during the 1950s, became an immensely expensive project as much of the road was depressed requiring the blasting of a great deal of bedrock.

Although attempts were made to utilize the former swampland to the south of the project area in the early twentieth century, it was not until the latter part of the twentieth century that the marshland was completely filled for the construction of Co-Op City (1966-1970). What follows is a brief review of the historical maps for the project area.

Project Area Map Review

The present project area is within the parcel of land granted to Thomas Pell in 1654 (see Fig. 5). At that time this location was tidal marshland. By 1776, not much about the project area had changed except that it was now within the confines of the Town of Eastchester (see Fig. 6). The Bronx remained divided into various estates and settlements throughout the eighteenth century. During the Revolutionary War, the Town of Eastchester was protected by soldiers at Pelham Manor (see Fig. 6). Most of the East Bronx, including the project area, remained undeveloped swampland that had few roadways.

It was during the nineteenth century that the project area was divided into a number of estates or farm lots. The 1851 Map of the Town of Eastchester, showing land ownership in the town and the surrounding area, does not depict any specific landowners for the project locale. Instead, the locale is listed as an area that is "Liable to Flood" (Map on file at the Westchester County Historical Society). An 1861 Farm Map of Eastchester, however, indicates that by that date the project area had been divided into seven lots between Boston Road, Eastchester Avenue and the location of the present DOT lots (Map facsimile on file at the Westchester County Historical Society). The location of present day Hutchinson Avenue was within a parcel of land owned by J. Secor. The location of the two DOT lots was part of a farm owned by G. W. Isaacs, and there was a small wharf built at the southern edge of his property out into the Hutchinson River.

Robinson's Atlas, published in 1897, includes a copy of an 1863 map of the project area. The map states that the farm, "formerly owned by James F. Secor," was now owned by Thomas Galway Esq. This purchase is confirmed by the 1867 Beers Map of the Town of Westchester (Fig. 8). The estate bordering Boston Road in the location of today's Hutchinson Avenue is shown on the map as the property of T. Gedloway (spelled Galway on the 1868 Beers Atlas and other nineteenth century maps). The map indicates that there were three structures standing on the Gedloway property in 1867. (The 1868 Beers Atlas depicts only one dwelling house in this location.) The 1867 Beers Atlas also shows that by that date eight lots had been laid out in the area and the location of the Site 1a was depicted as the "Town Dock" and "Landing." The area bordering the Town Dock and Landing to the north was owned by G. Codling (also spelled Goddling). Two other structures belonging to W.H. Barker and J. Odell stood near the town dock within Site 1a and the Barker coal yard was located in a small area adjacent to the river. Both of these structures first appear on the 1867 map but are not shown on earlier maps.

The estate of Thomas Galway does not appear on the 1872 Beers Map of the Town of Eastchester (Fig. 9) It does appear, however, on the 1881 Bromley Atlas of Westchester County (Fig. 10). Instead, the 1872 map depicts a small dirt road or drive in the location of the Galway property and the owner's name may have been omitted. The dirt road shown on this map is in the same location as the drive leading to the three structures mentioned above (see Fig. 8). Many of the maps reviewed depict the project locale as swamp or marshland, the 1881 Bromley map, however, identifies this area as "salt meadow," suggesting that the salt hay in the area was probably being harvested. It appears that portions of both Site 1 and Site 1a were slowly filled in, especially around the location of the Town Dock, during the late nineteenth century. The lands surrounding the house of G. Codling, located to the north of the Town Dock, were also filled in and the house is depicted on maps until 1906.

While the Barker and Odell structures are shown still present within Site 1a in 1872, they are no longer depicted on the 1881 map (Figs. 9 and 10). It appears that by 1881 the coal yard encompassed much of the Town Dock area. The early Barker and Odell structures were likely removed when the area was used for the coal yard as a different structure appears within Site 1a in 1897 but is not identified. This structure may be the building present in 1906 near the northern end of the bedrock outcrop. By 1918, there were no structures present within the boundaries of Sites 1 and 1a.

The 1893 Bien Atlas of Westchester County indicates that the Galway property was now owned by H. Maguire. The Sanborn Atlas of 1897 shows a dwelling house at the end of the drive with two small outbuildings located to the southeast (Fig. 11). The final map showing this house was the Bromley Atlas of 1913 which indicates that the house was still standing but the outbuildings had all been removed (Fig. 13).

Further south, the Sanborn Atlas of 1897 indicates that a new Town Dock was constructed at some point during that year (see Fig. 11). The actual dock was constructed within lot 1a and known as the "Public Place" In addition, a new road, the Eastchester Landing Road, was created to give access to the dock. Small ancillary structures were built to the west of the dock. The map also shows two unidentified structures to the north of the dock outside of the project boundaries.

As mentioned above, by 1918 the small structures surrounding the Town Dock had been removed. A 1927 Bromley map indicates that the area to the west of the Public Place was now owned and/or occupied by "Keating and March." However, the use of the lot is unknown as there are no buildings depicted there. Although streets had been laid out

the 1906 Topographic Map and the Rock Line map, produced in 1938, still show the majority of the project locale as swampland with several tidal streams running through the area (Figs. 12 and 14). In addition, the 1938 map identifies the so called "high ground" within the DOT lot, as large outcrops of bedrock.

Ownership of unidentified areas of Block 5256 passed on to the Federal Government in 1938. However, it was not until almost ten years later that the City began to fill in the marshland in this area. The fill in this area was identified in the Planning Report as incinerator ash (Lawler, Matusky & Skelly Engineers 1993: 3-12).

By 1955 the Sicilian Asphalt and Paving Company had purchased several lots within Block 5256 and the large open parcel now owned by the New York City Bus Service. The Company only remained in this location for a short period as records indicate that they sold most of their land by 1968. To the south of the project area, in the location of Co-op City, the failed amusement park called Freedomland opened it's gates in 1959. Competition with the New York World's Fair in 1964 caused the park to close the following year. The area stood empty until the construction of Co-Op City in late 1960s. In order to stabilize the surface for construction, sand dredged from Orchard Beach was deposited and spread out across the surface.

During the 1970s the City acquired most of Block 5256, including the unnumbered lot that is within the present project area. Current maps indicate that not long after purchasing the lots, the NYCDEP installed the present pump station and overflow pipe on Lot 190, between site 1 and 1a. Presently the site area is being utilized by the Department of Transportation as a storage and maintenance lot.

Historical Potential

The research conducted here indicates that the project site has limited potential for the recovery of significant buried historical cultural material. Throughout most of the historical period the area was open salt marsh. Although utilized during this time, there would be little impact identifiable from the harvest of salt hay. Historical maps indicate that the area was slowly filled in during the second half of the nineteenth and early twentieth centuries and several structures were built near the road leading to the Town Dock within Site 1a, and to the north of Site 1.

The former location of the Barker and Odell structures, along Conner Street, would have been disturbed by the installation of sewer lines and conduits associated with the present pump station. Any remains of the later coal yard structure would have also been impacted by the installation

of a 30" sanitary sewer line in the twentieth century. Therefore, because of the twentieth century earth moving and utility installation within Site 1a, as well as the likely impact by the earlier deposition and removal of coal, it is unlikely that significant evidence of these short term structures (<15 years) remains in the lot.

In the vicinity of the proposed influent line easement, historical maps indicate that a three-story farmhouse was located on the former Galway (Maguire) estate during the late nineteenth through early twentieth centuries. Although there were three structures depicted in this area on the Beers Atlas maps dating from 1867 (see Fig. 8) and 1868, subsequent maps do not show any structures within the area of the proposed easement line until 1897 (see Fig. 11). There is no indication that one of the structures shown on the Beers maps was the three story farmhouse depicted thirty years later on the Sanborn Atlas. Furthermore, the 1913 Bromley map indicates that the majority of the former farmhouse was located to the west of Hutchinson Avenue outside of the proposed easement route. The two small outbuildings depicted on the 1897 Sanborn Atlas most likely lie on the eastern side of Hutchinson Street and are also outside of the route of the proposed easement line. In addition, it is unlikely that there were any additional below ground yard features (wells and privies) associated with the farmhouse as public utilities (water and sewer) were available in this area by the last decade of the nineteenth century.

The structures associated with the Codling estate north of Site 1 will not be impacted by the proposed placement of the tank within Site 1a or the placement of the proposed influent line under the former Hutchinson and Pinkney Avenues (see figure 3). Codling's buildings were located at least 75 to 100 feet away from the proposed site of the influent line which will follow the path of the former roadbeds. The review of the utility maps indicates that a 6' x 5' combined sewer pipe is already located under these former roadbeds. Therefore the introduction of the influent line is unlikely to encounter significant intact buried cultural features.

V. CONCLUSIONS AND RECOMMENDATIONS

Archaeological Resources

The area surrounding the Hutchinson River is clearly one that was exploited by the prehistoric inhabitants of the New York City area. Almost all of the prehistoric sites identified for this report are located along the eastern shore of the river making it conceivable that there may have been cultural activity on the western shore as well. While some prehistoric sites have been recovered in areas adjacent to swampland, it is unlikely that a significant site would be recovered from the project area which was a swamp, or waterlogged locale. While it is true that Native American cultural groups preferred sites that were located in elevated areas near a water source, it is unlikely that lots 1 and 1a provided a favorable locale. What was identified on maps from the historical period as elevated ground was in fact large outcrops of bedrock. This bedrock would have been unable to sustain even a small number of individuals. With the close proximity of the grasslands and forest across the river, it further upholds the belief that this locale would not have been utilized as a primary site by prehistoric peoples.

No notable concentrations of shell were found during the site visits indicating a significant intact prehistoric or possibly early historical midden. The few organic materials identified on site are therefore not likely to yield any meaningful data regarding the cultural development of the area.

Although there is no question that the project area at one time may have had high potential for secondary use, subsequent development during the twentieth century, including the introduction of buildings, large sewer pipes, water mains, and gas lines, precludes this area from being a strong candidate for the recovery of significant cultural material. It is also unlikely that the native trail that passed to the north of the project area had a significant impact on this location. Therefore, the unlikely recovery of prehistoric material within this project area is limited to the single stray artifacts that would not yield significant new information regarding the prehistoric inhabitants of the New York City area.

The first recorded evidence of construction activity on Sites 1 and 1a is the placement of the Town Dock and "public place" in this locale during the late nineteenth century. Two small structures were built to the west of the town dock along the former Eastchester Landing Road (Conner Street). These buildings were only present in this location for less than fifteen years. During the late nineteenth century the area surrounding the dock was also used as a coal yard.

Prior to its use as a DOT storage and maintenance facility, portions of Block 5256 were owned for a short period by the Sicilian Asphalt and Paving Company. Today the Sites 1 and 1a are the location of a NYCDEP's pump station and large outflow pipe. The introduction of this facility with its associated piping in the immediate vicinity of the former Town Dock reduces the possibility of the recovery of significant data relating to the late nineteenth century structures and the use of this lot as a coal yard, Town Dock, and "public place." In addition, the surface of Site 1a has been repeatedly scraped as refuse is moved about the lot. Therefore, it is the conclusion of this report that the study area has very low sensitivity for the recovery of significant underground historical resources.

There is no evidence of construction or utilization of the northern project area beyond a locale for salt hay production during most of the historical period. Much of Hutchinson Avenue that was actually laid out was in the location of former marshes and tidal creeks, including Barrow Creek which flowed south toward the location of today's Co-Op City (McNamara 1991: 279, 379). Although at this point, the exact position of the proposed influent line within the roadbed is not known, plans indicate that the narrow trench will be placed within the confines of Hutchinson Avenue. Therefore, there is no indication that the Galway structure or the buildings associated with the Coddling estate warrant further investigation. Because the former structures lie outside of the project easement boundaries and there is no evidence of other historical structures along the proposed influent line route, this portion of the project site is considered to have very low sensitivity for the recovery of significant historical material.

Historic Resources

There are no historic resources either on the National Register of Historic Places or eligible for listing on the National Register that fall within the project site or the larger study area. The proposed construction will have no visual effect on the Hutchinson River Parkway scenic corridor as it exists today.

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Figures

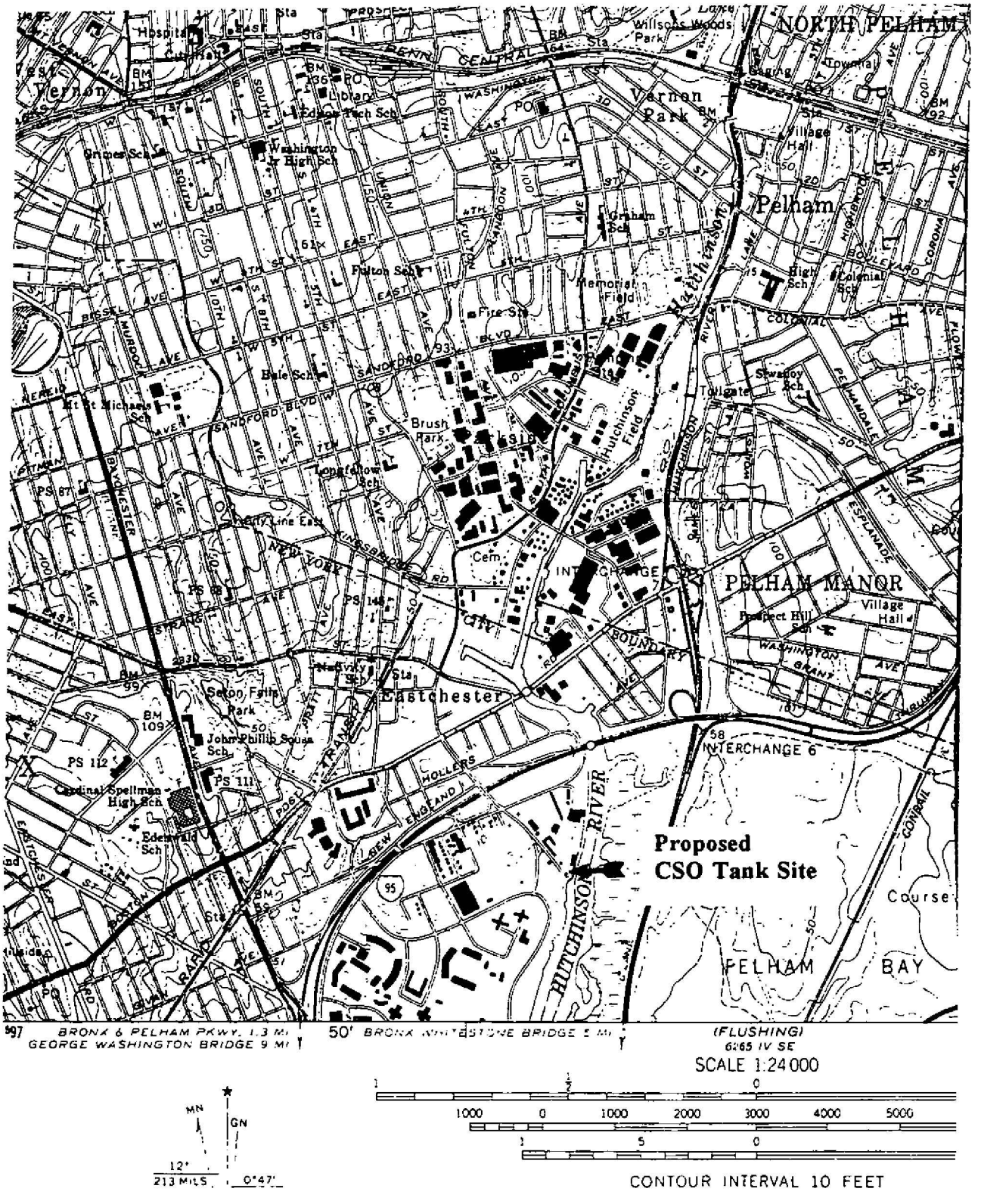


Figure 1 Current U.S.G.S. Topographic Map, Mount Vernon Quadrangle

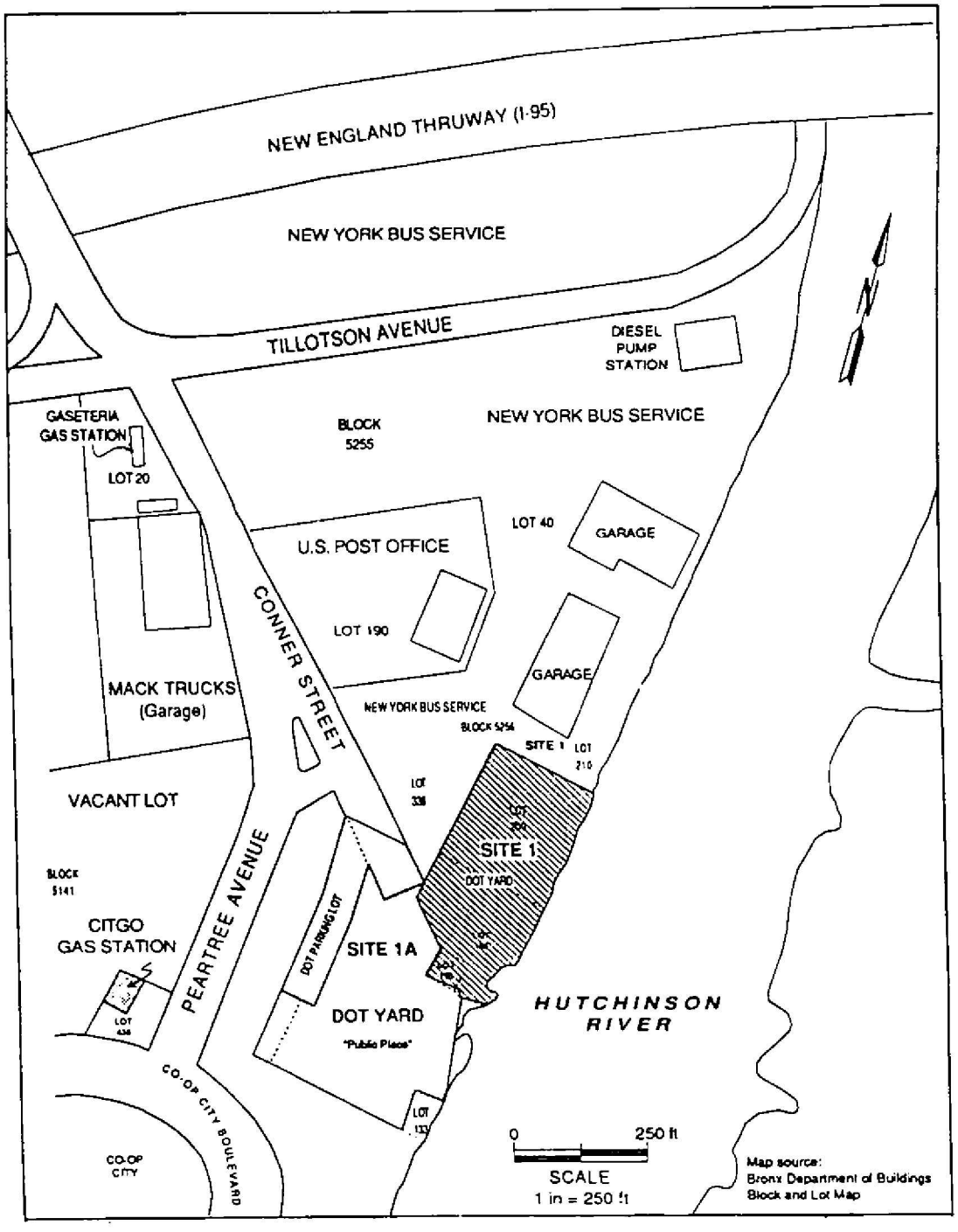


Figure 2 Proposed CSO Site Location Map showing NYCDOT Lots
Source: Lawler, Matusky and Skelly Engineers

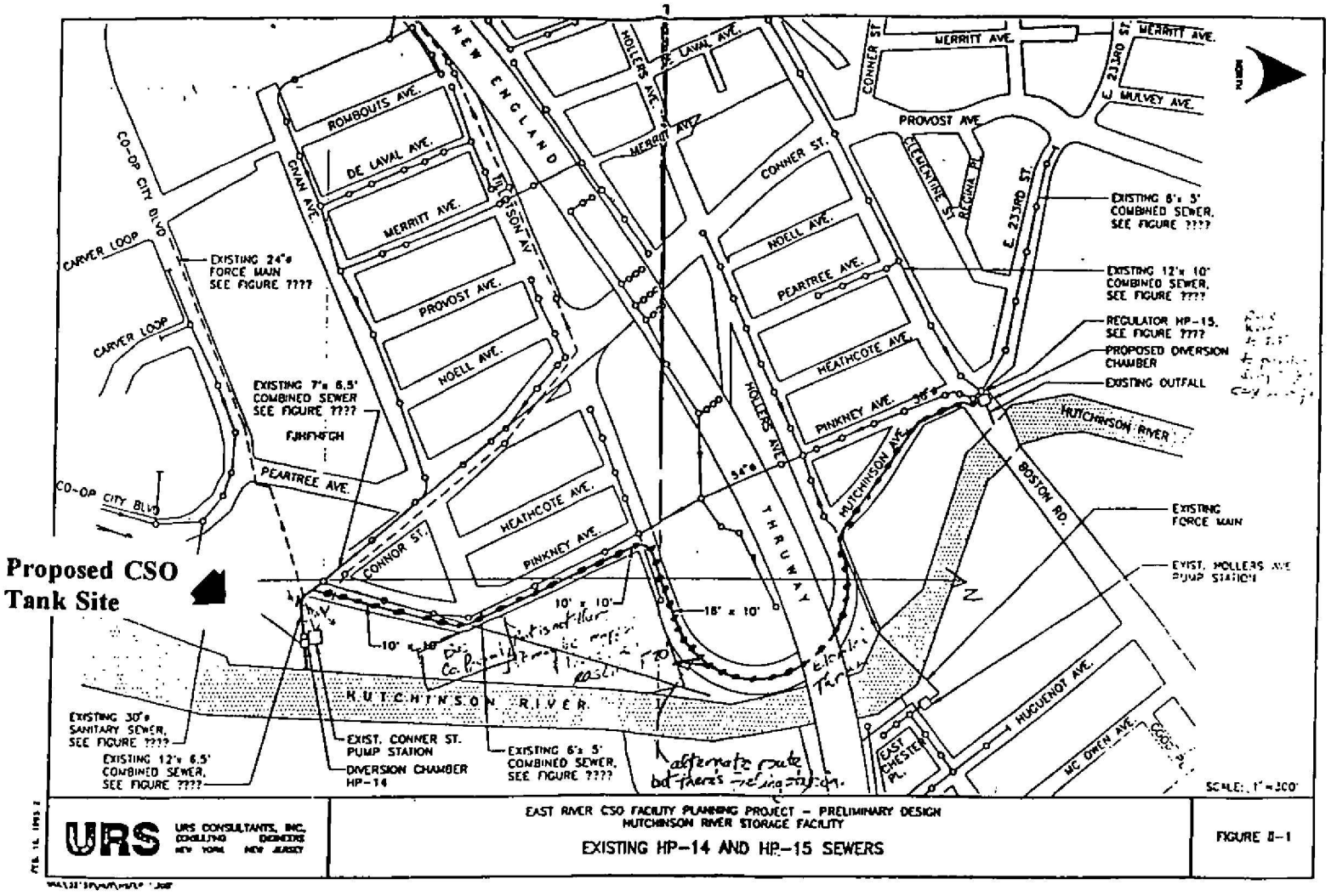


Figure 3 Proposed Location of CSO Influent Line Easement (----)
Source: Lawler, Matusky and Skelly Engineers

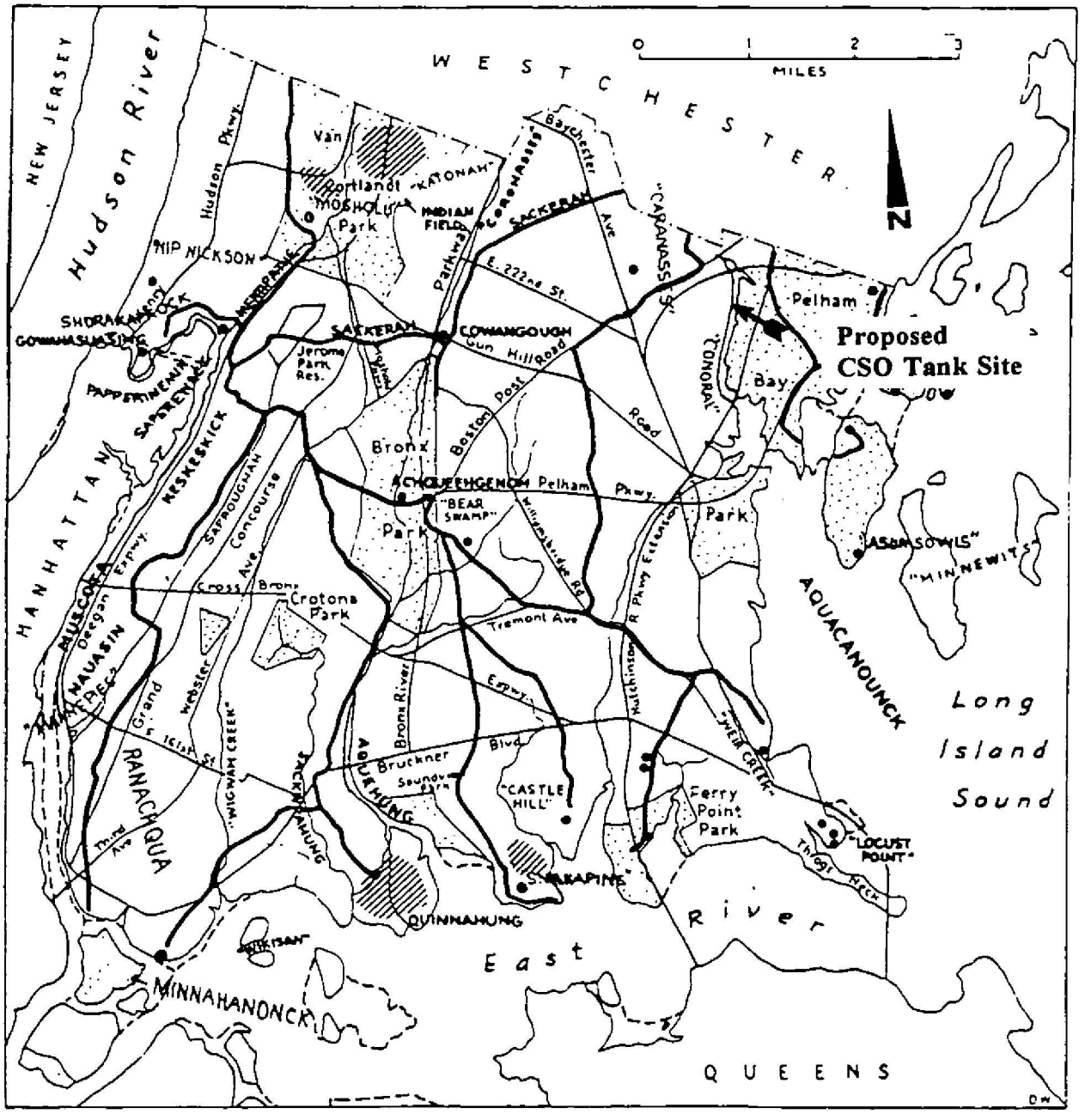


Figure 4 Map of Indian Trails, Planting Fields and Habitation Sites (Grumet 1981: 69)

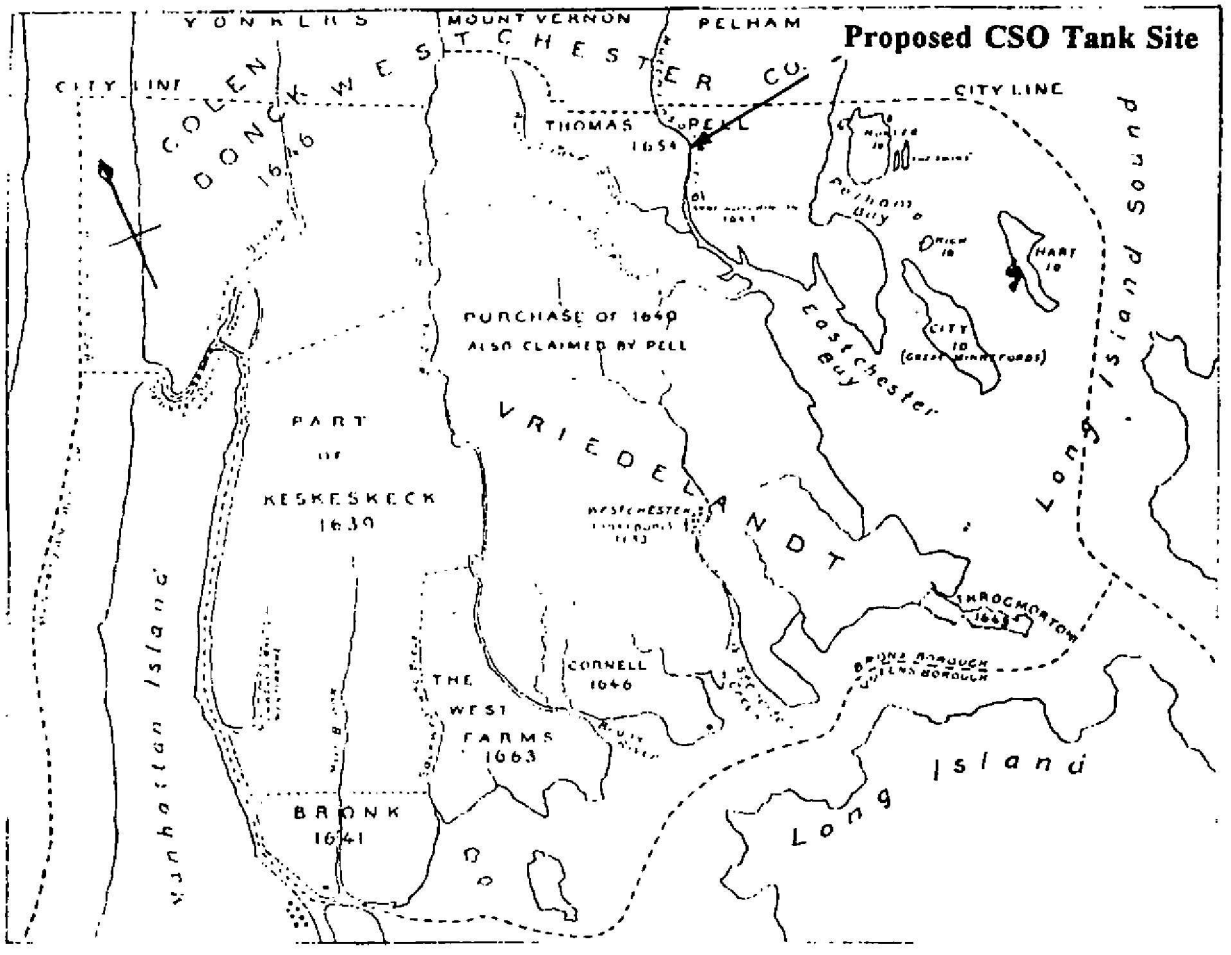
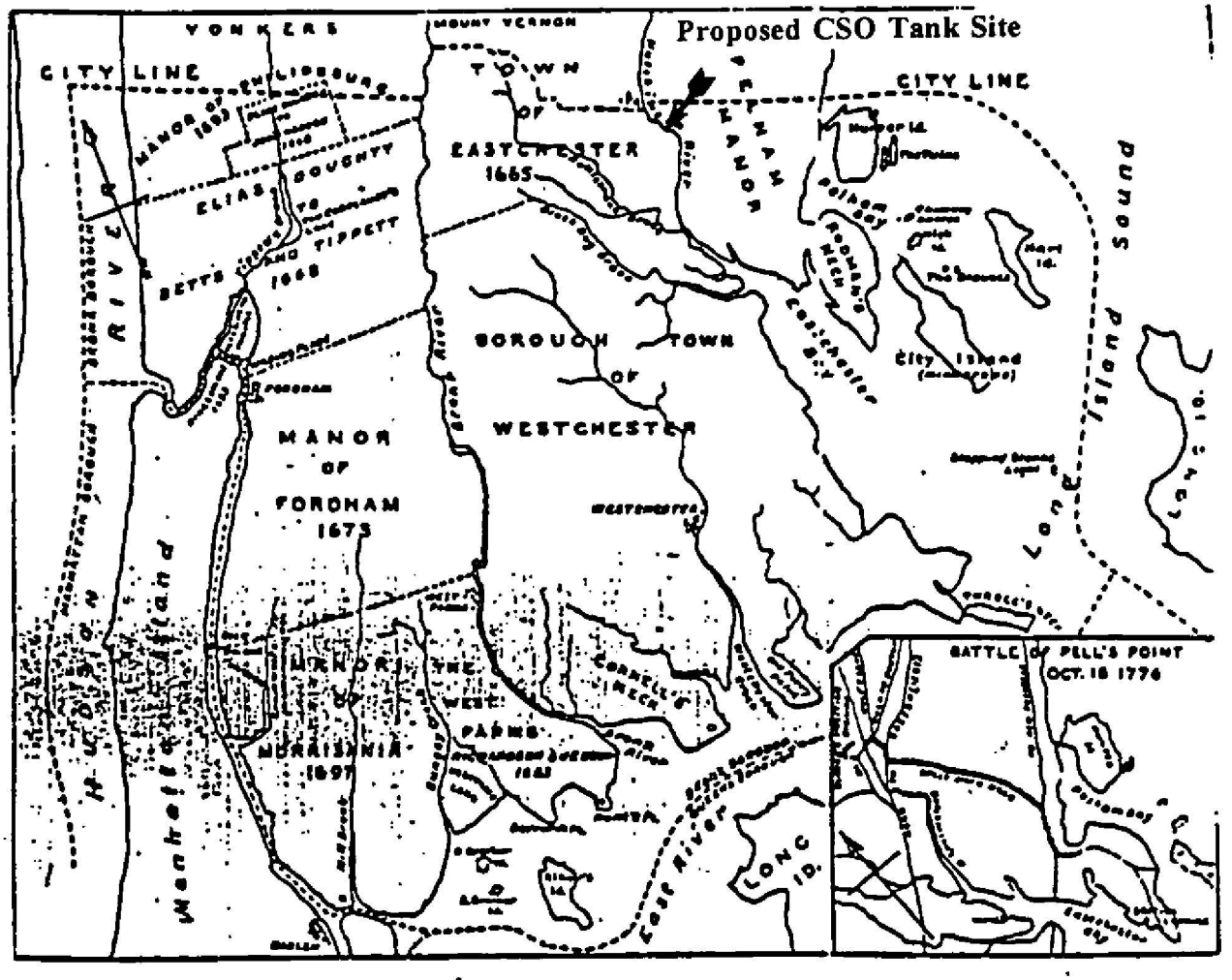


Figure 5 The Bronx at the End of the Dutch Period, c.1664 (Jenkins 1912: opp. 44)



At the End of the English Period. [*Insert:*] Battle-field of Pell's Point, Oct. 18, 1776.

Figure 6 The Bronx at the End of the English Period, 1776 (Jenkins 1912: opp. 44)

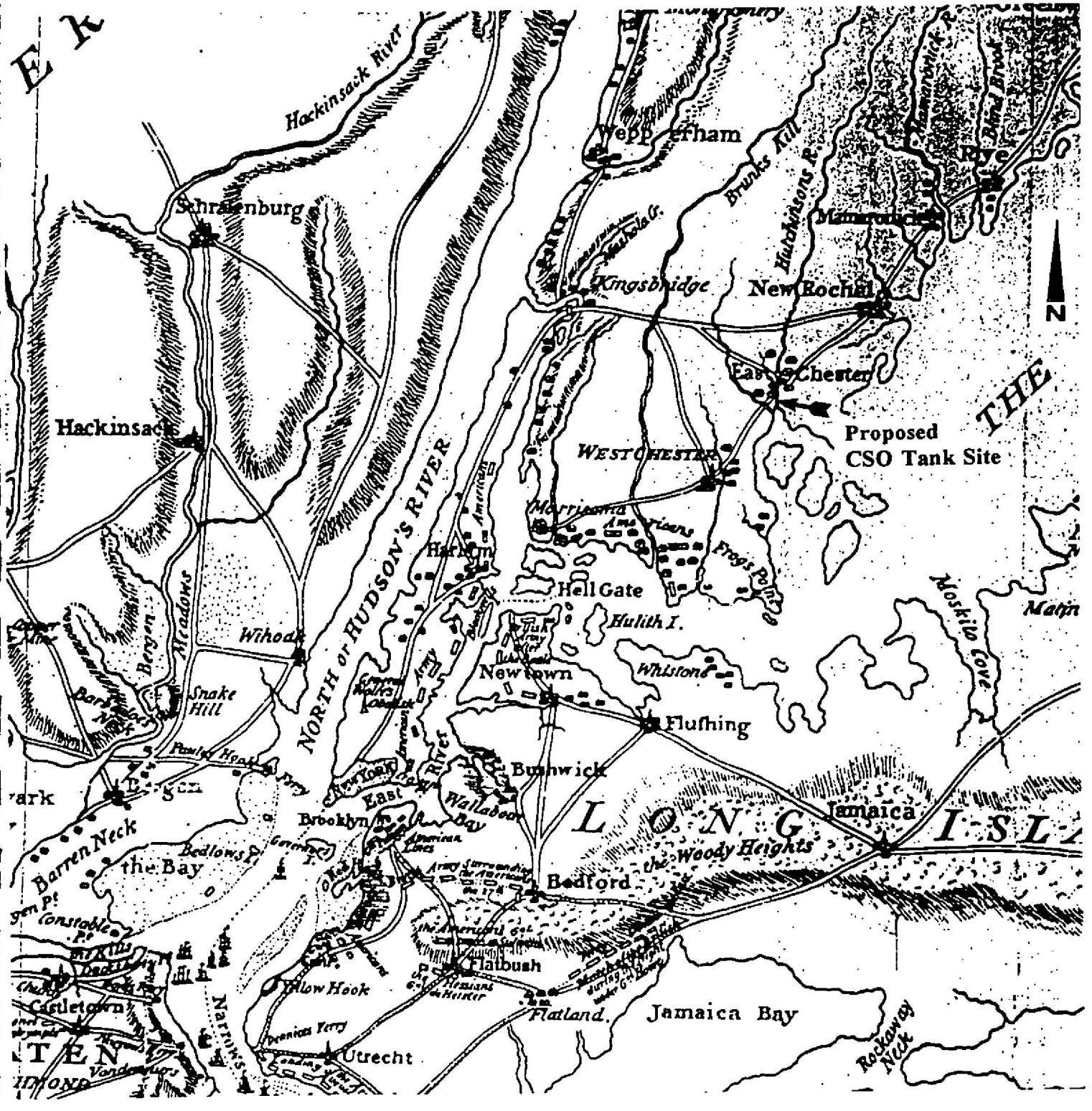


Figure 7 The Seat of Action between the British & American Forces, 1776 (from the surveys of Maj. Holland)

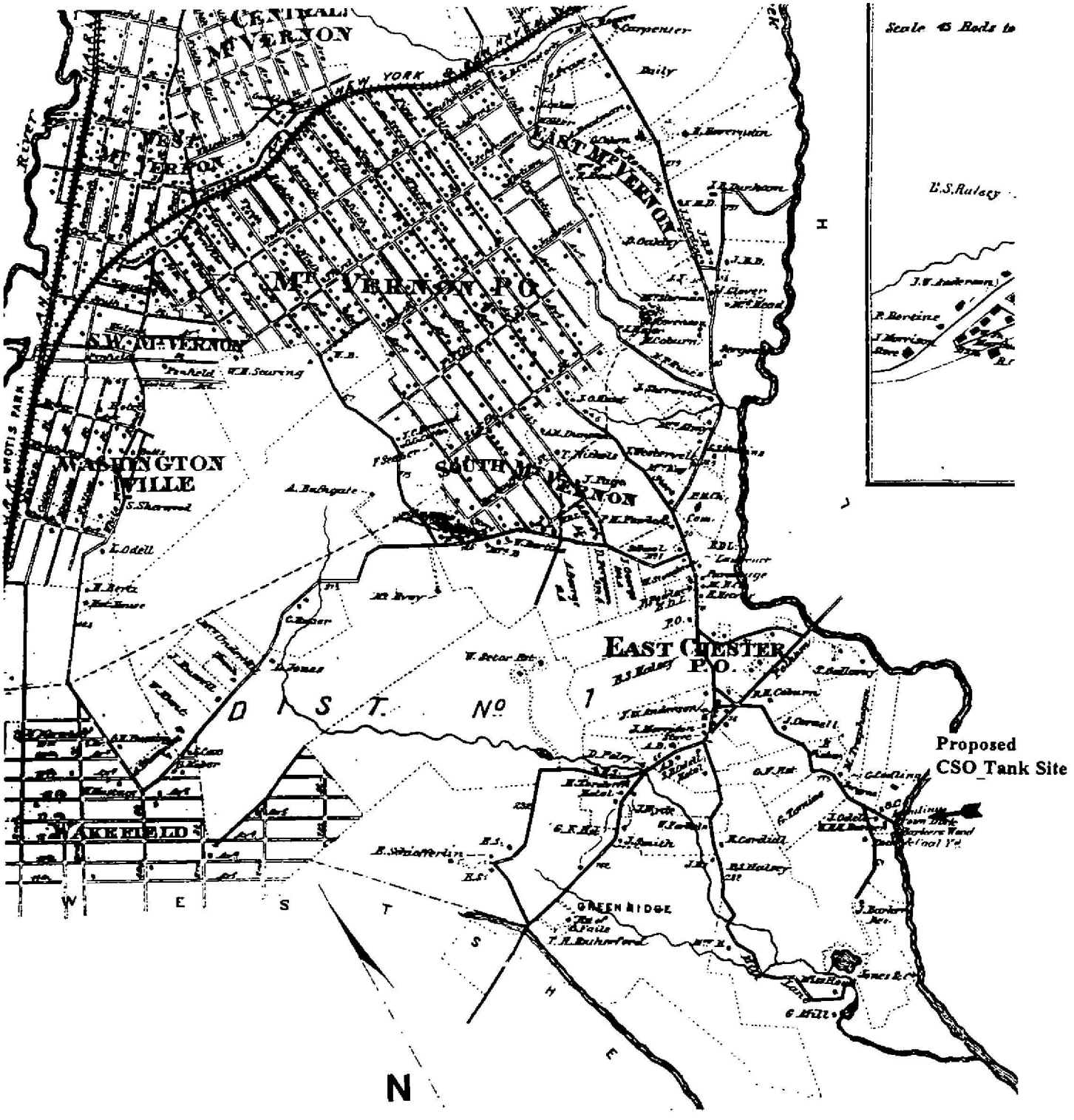


Figure 8 Beers, Atlas of New York and Vicinity, Town of Eastchester, 1867

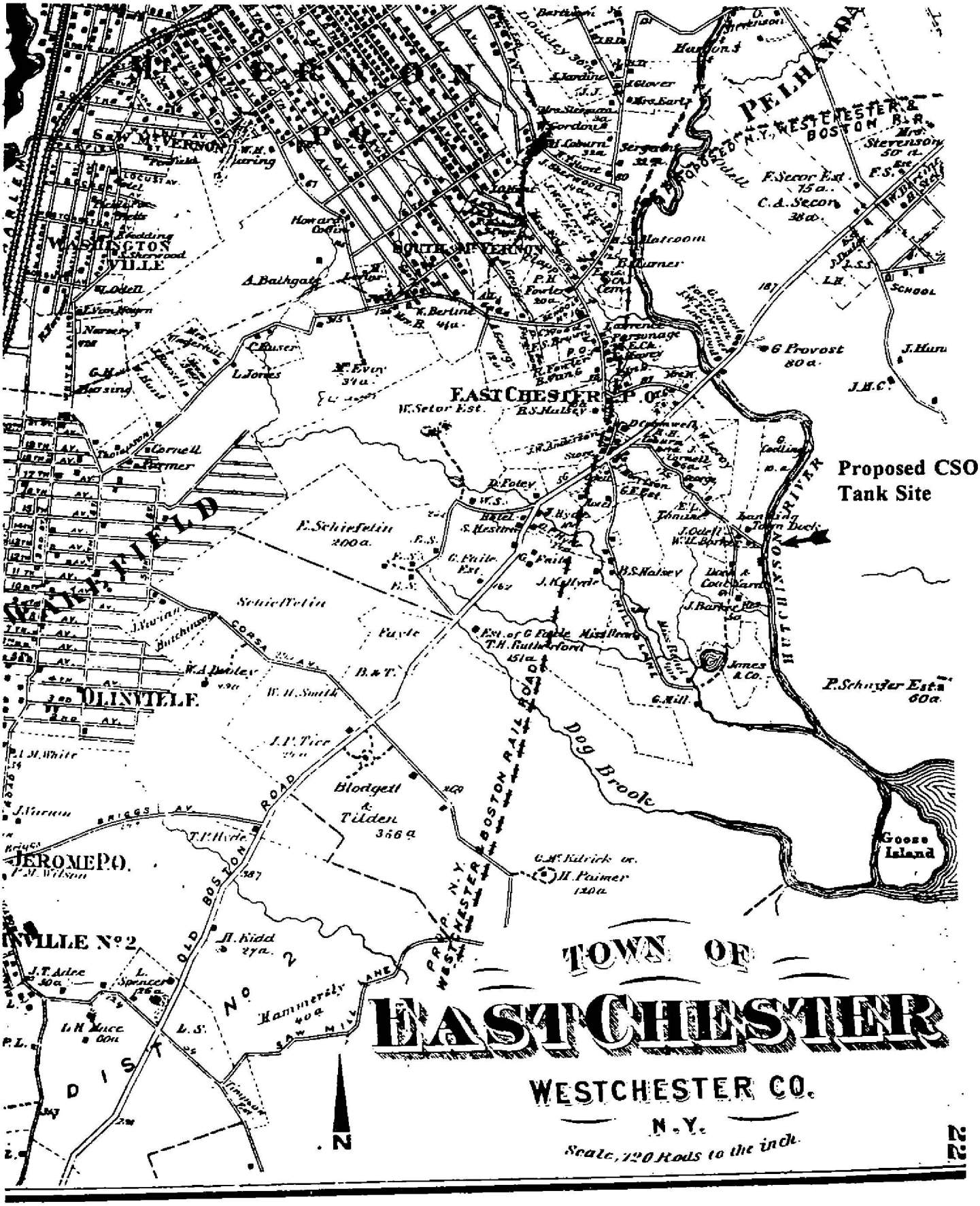


Figure 9 Beers, Atlas of New York City, Town of Eastchester, 1872

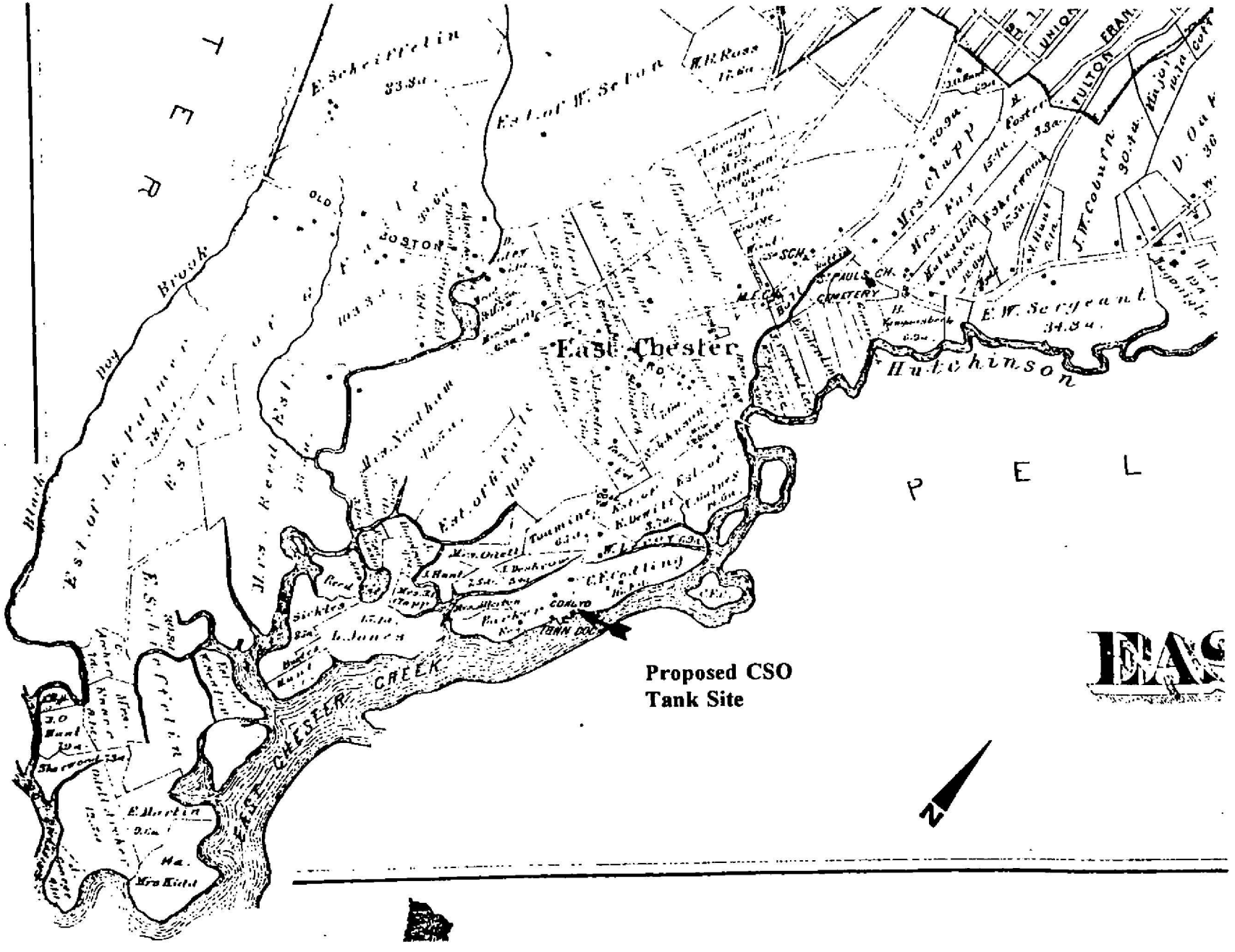


Figure 10 Bromley, Atlas of Westchester County,
Town of Eastchester, 1881

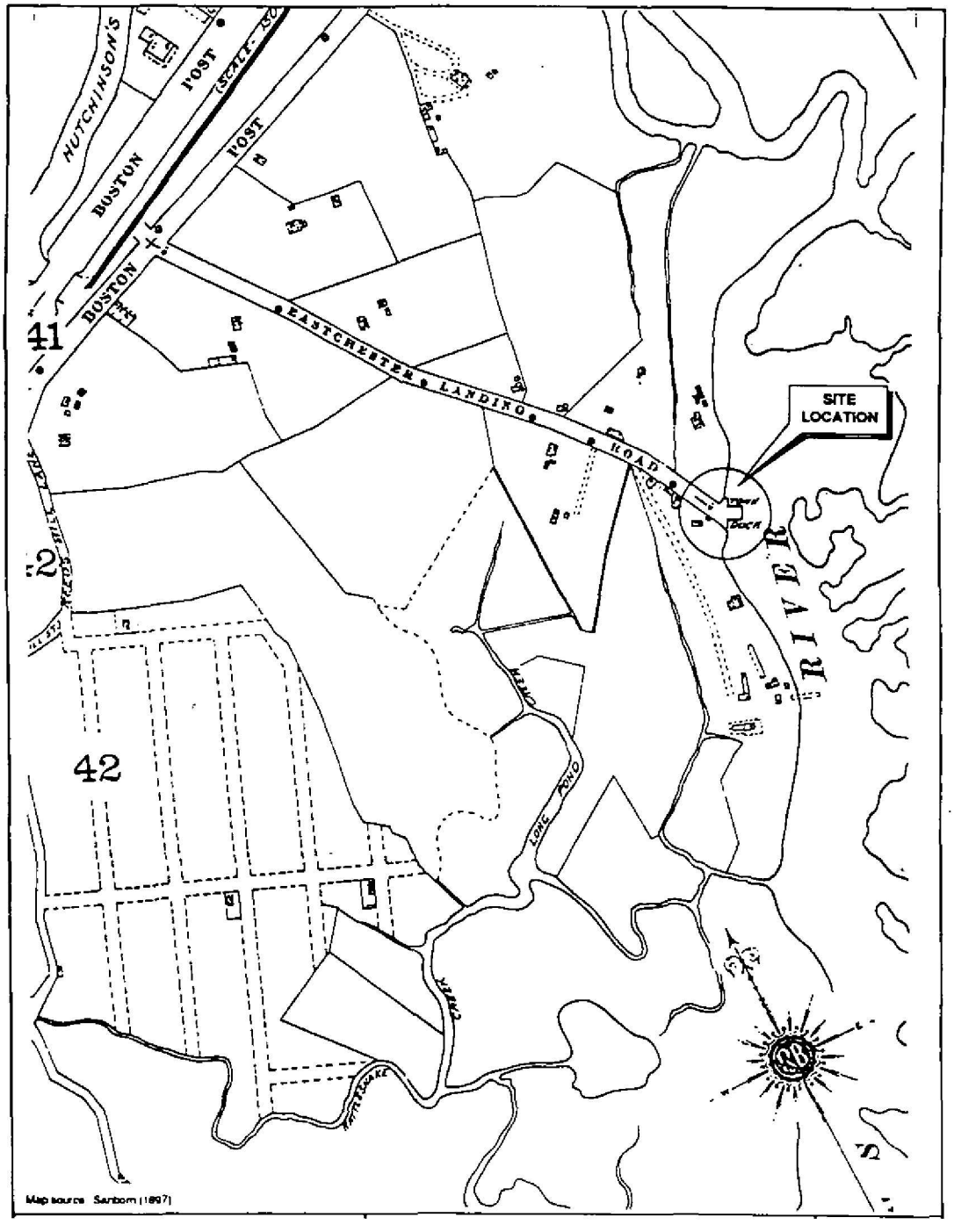


Figure 11 Sanborn, Insurance Map of the City of New York, Borough of the Bronx, 1897. Source: East River Combined Sewer Overflow Facility Planning Report, Lawler, Matusky and Skelly Engineers, 1993

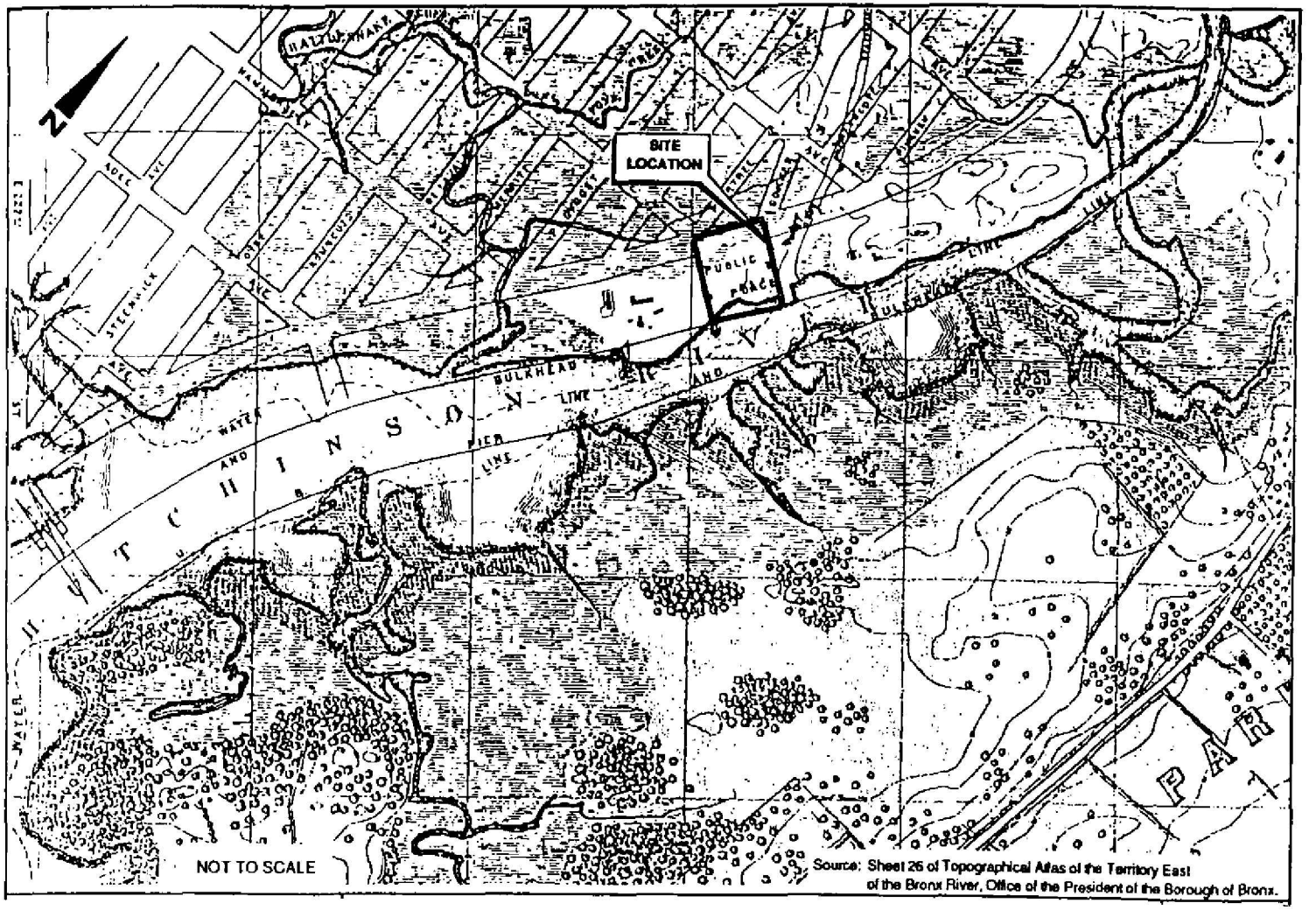


Figure 12 Topographic Survey Map, Borough of the Bronx, 1906. Source: East River Combined Sewer Overflow Facility Planning Report, Lawler, Matusky and Skelly Engineers, 1993

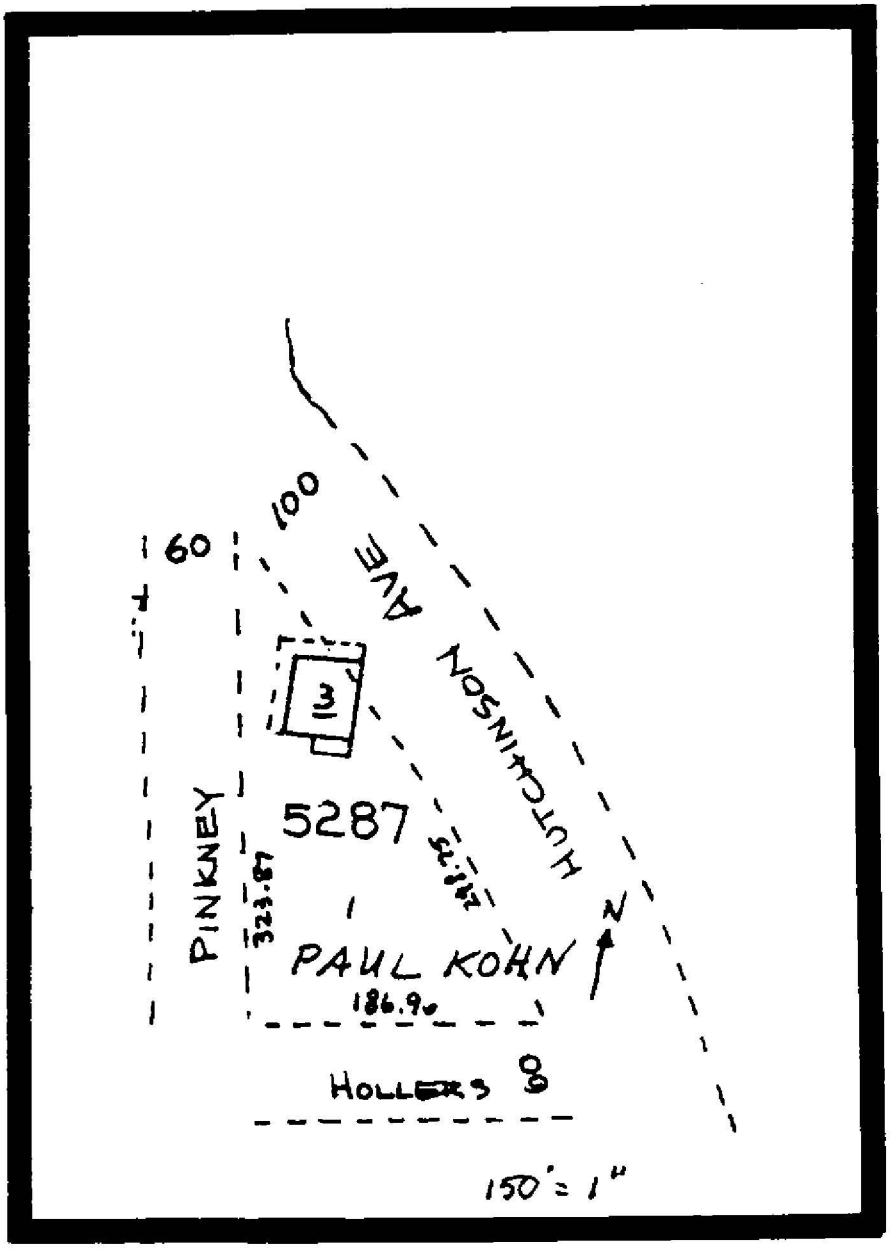


Figure 13 Detail of 1913 Bromley Atlas of the City of New York

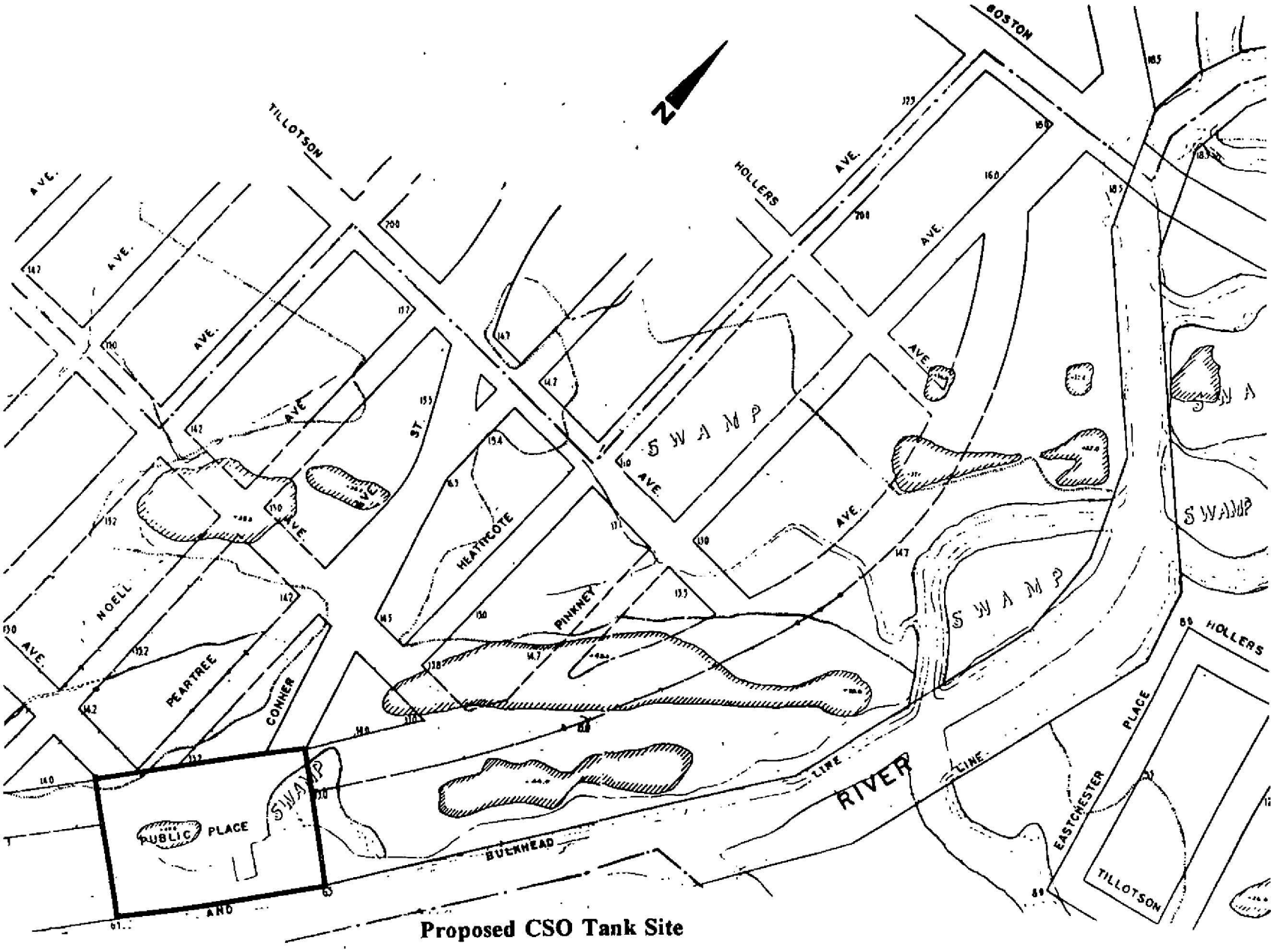
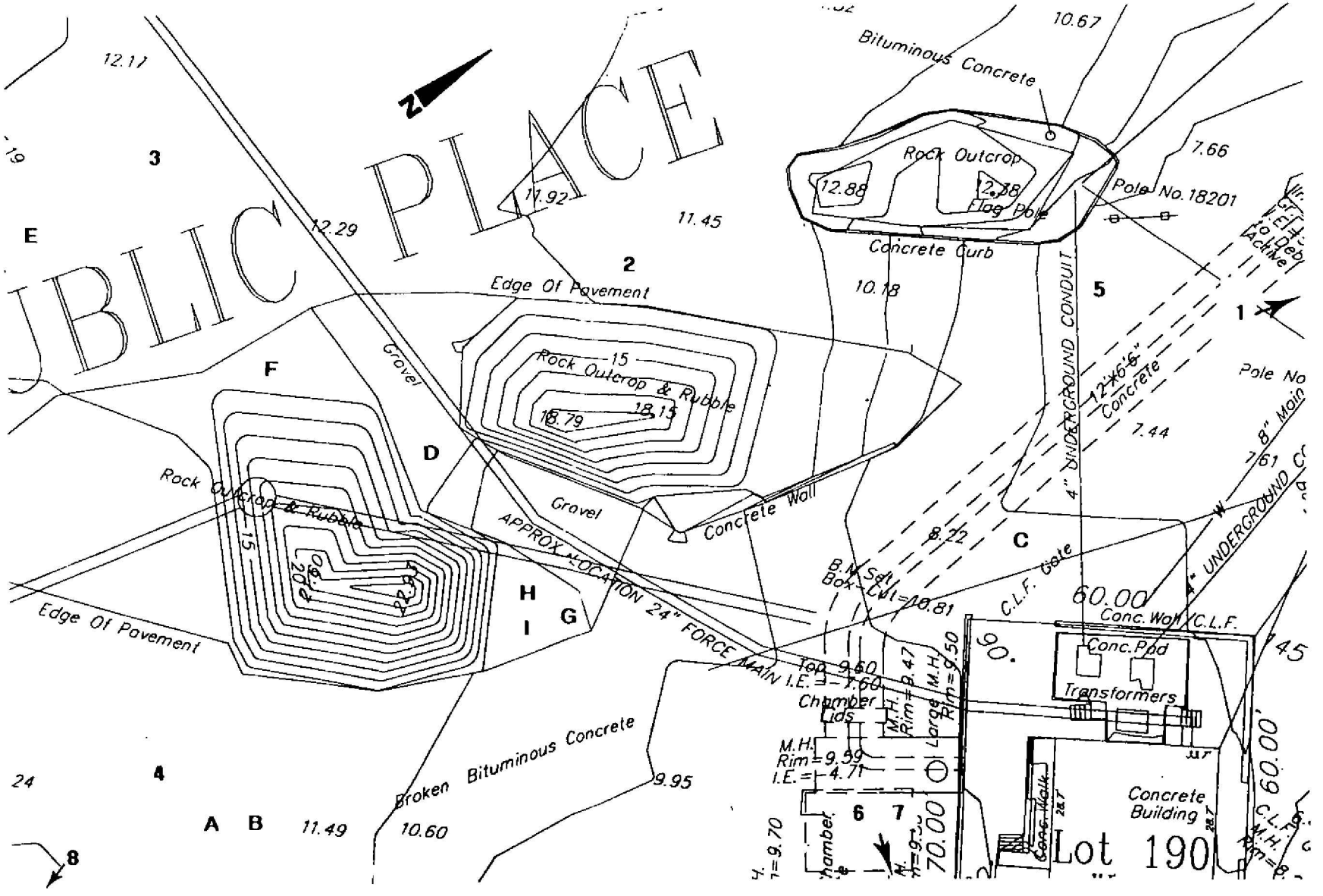


Figure 14 Rock Line Map, Borough of the Bronx, 1938

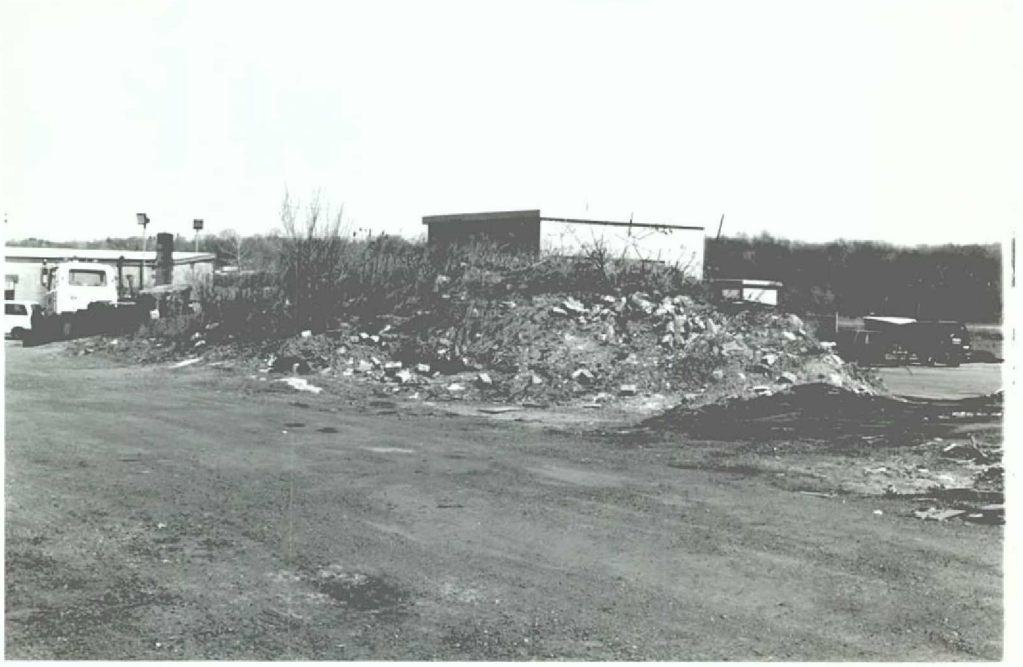
Photographs



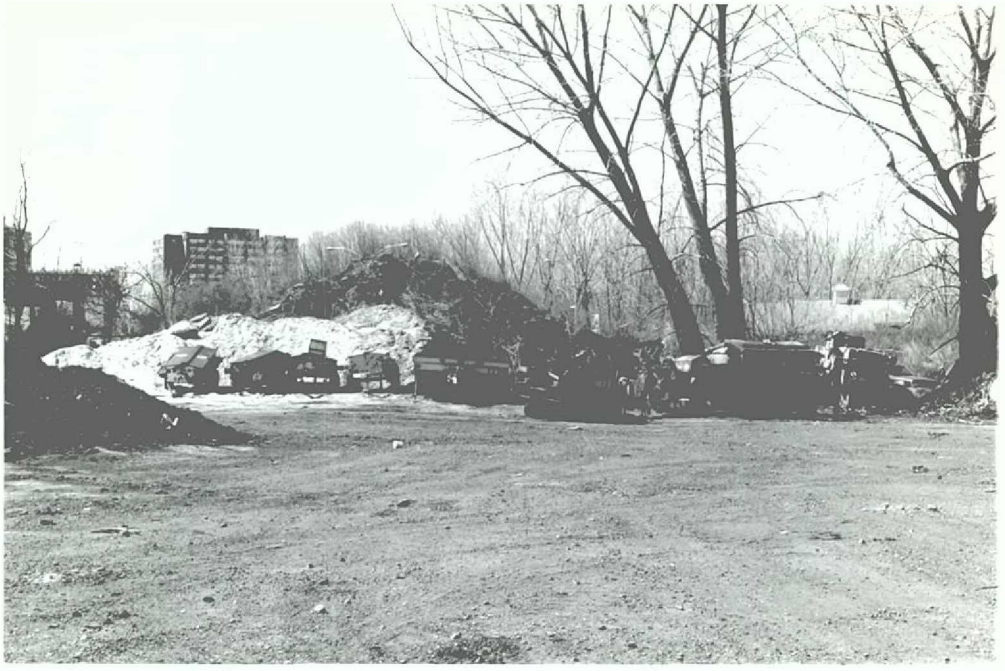
Photograph Location Key

not to scale

Photograph 1 Entrance to the NYCDOT Sites, Facing South

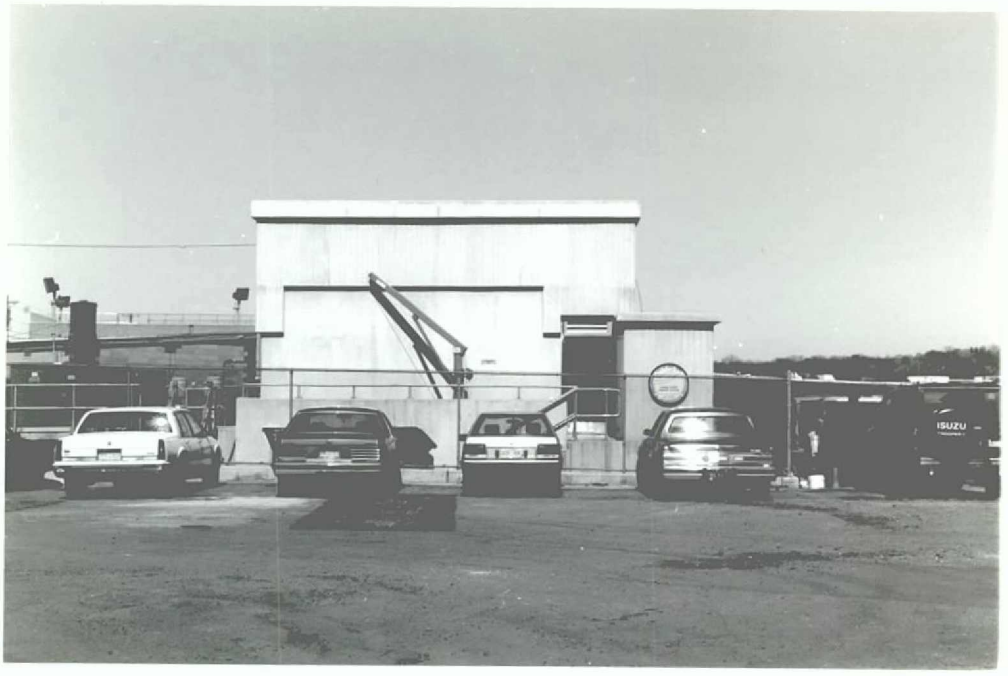


Photograph 2 West Bedrock Outcrop, Site 1A, Facing Northeast

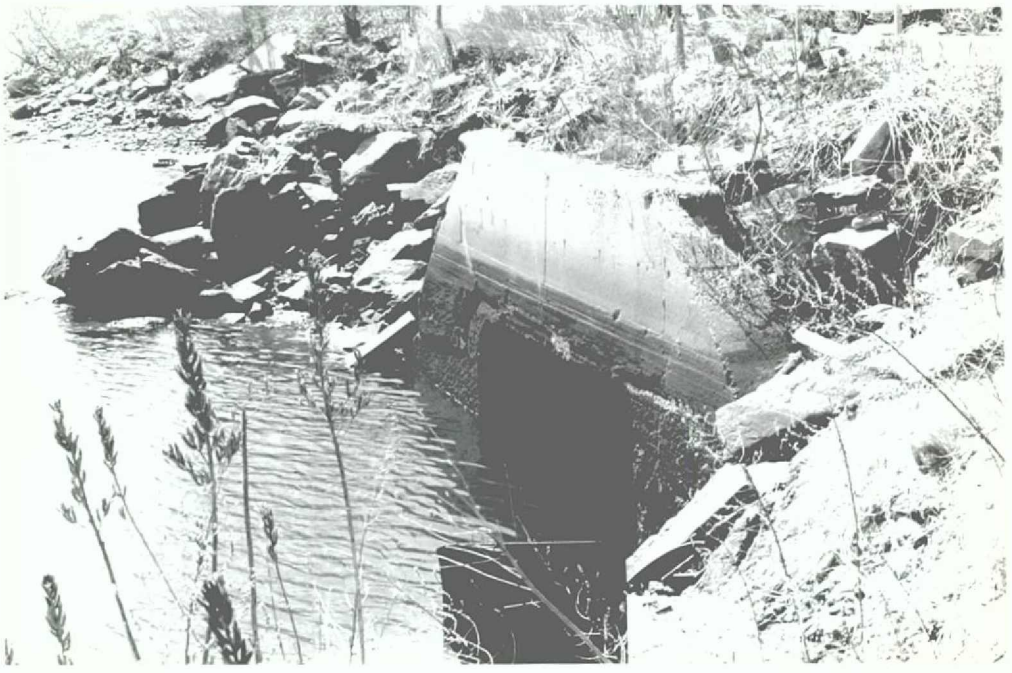


Photograph 3 Refuse and DOT Equipment, Facing South

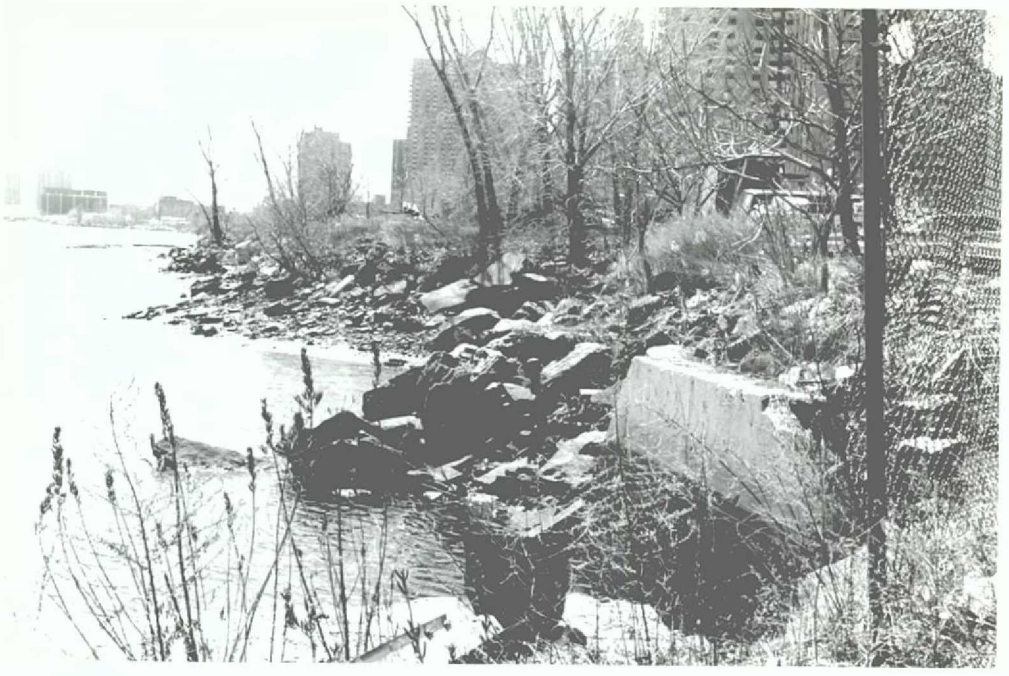
Photograph 4 Bedrock Outcrop, DOT Site 1A, Facing West



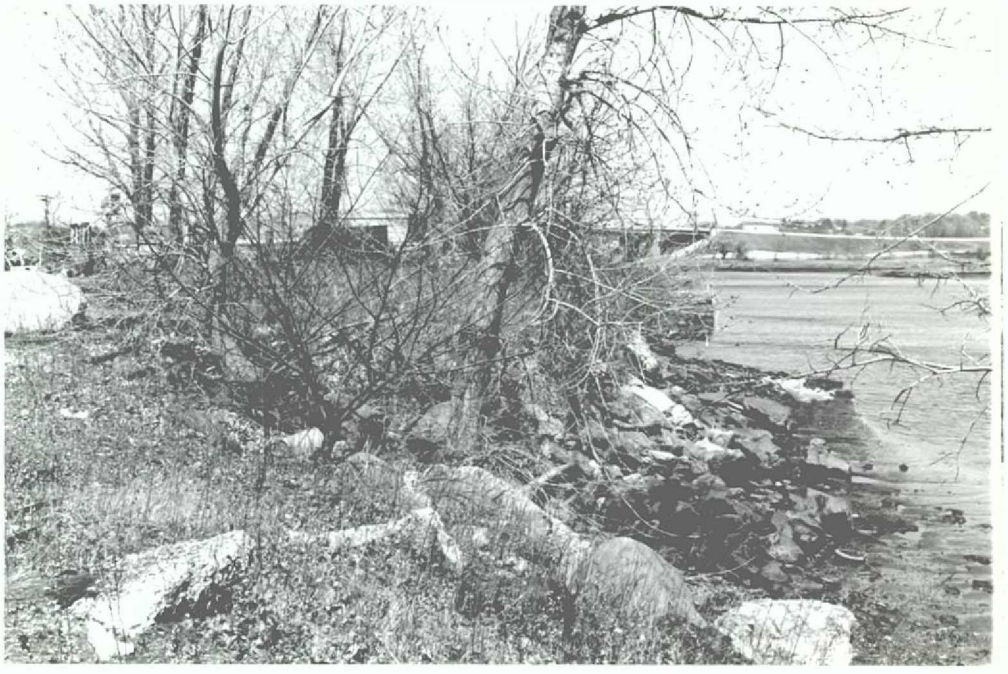
Photograph 5 NYCDEP Conner Street Pump Station, DOT Site 1



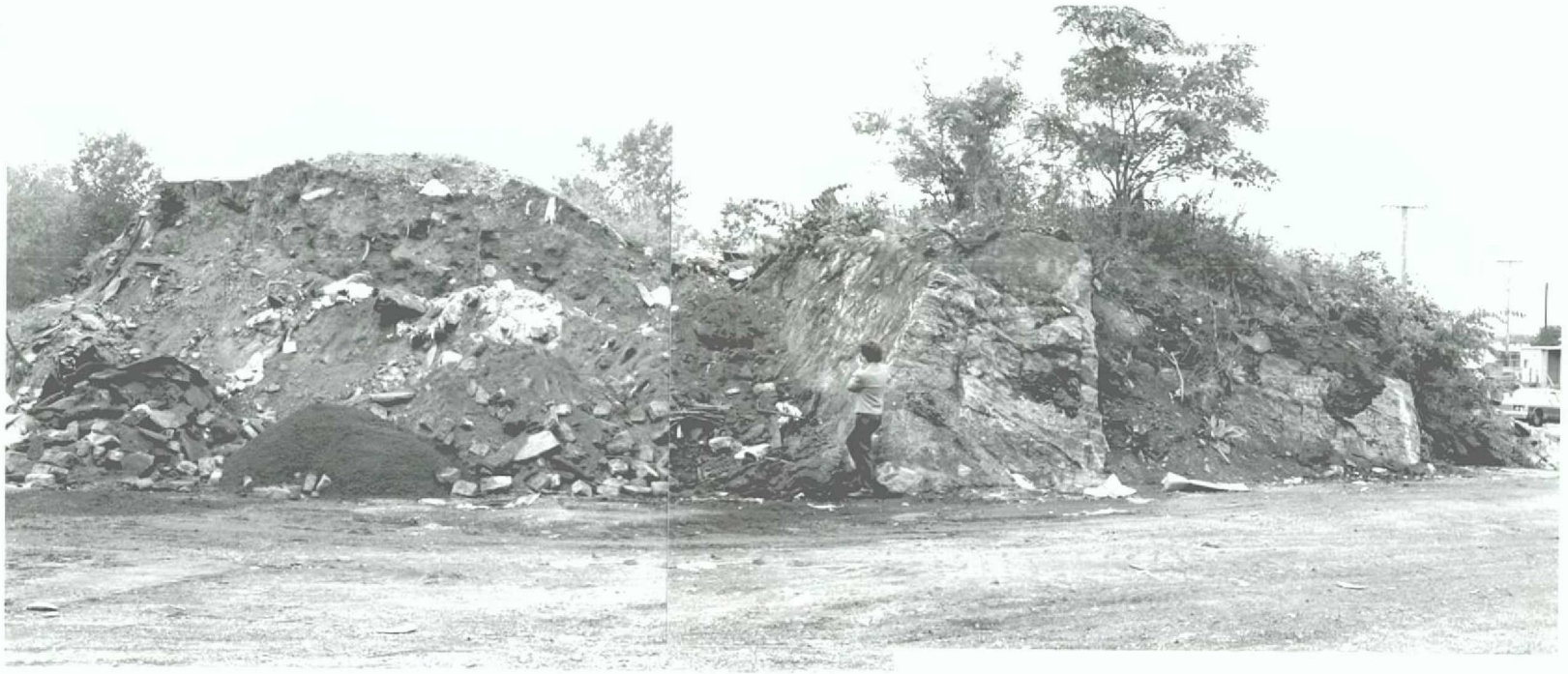
Photograph 6 Current Outflow Pipe into Hutchinson River, DOT Site 1/1A



Photograph 7 Shoreline along the Hutchinson River from DOT Site 1, Facing South

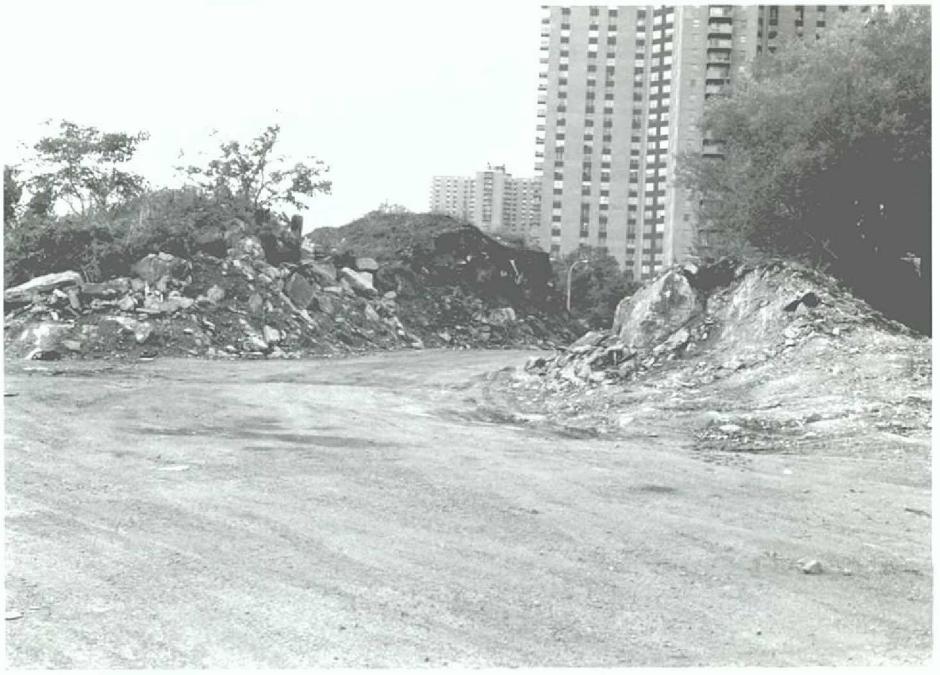


Photograph 8 Shoreline along the Hutchinson River from DOT Site 1A, Facing North



Photograph A Refuse south side of East Outcrop, Facing West

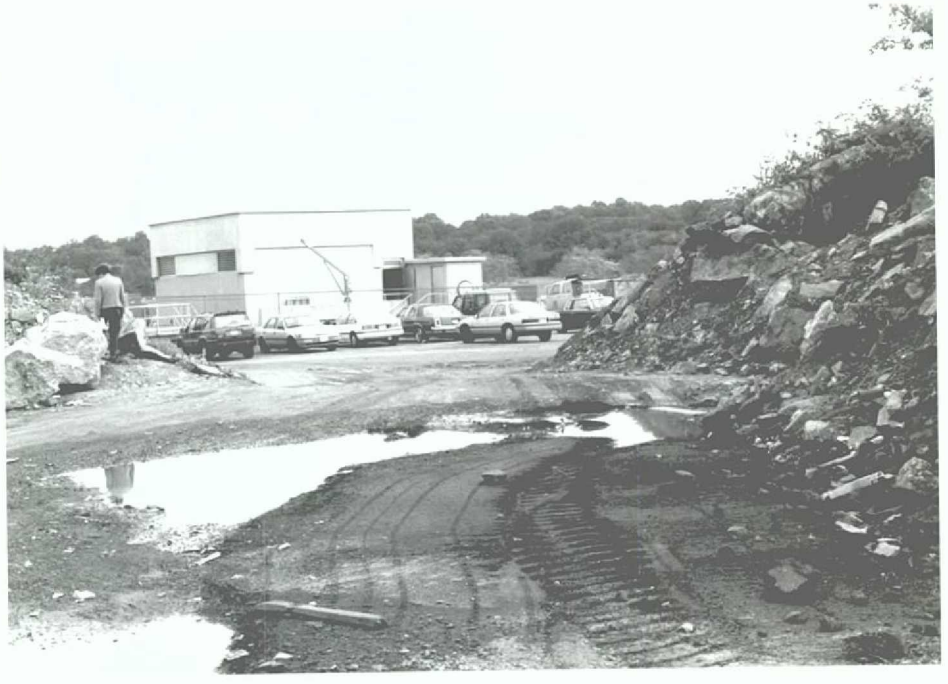
Photograph B East Bedrock Outcrop, Facing West



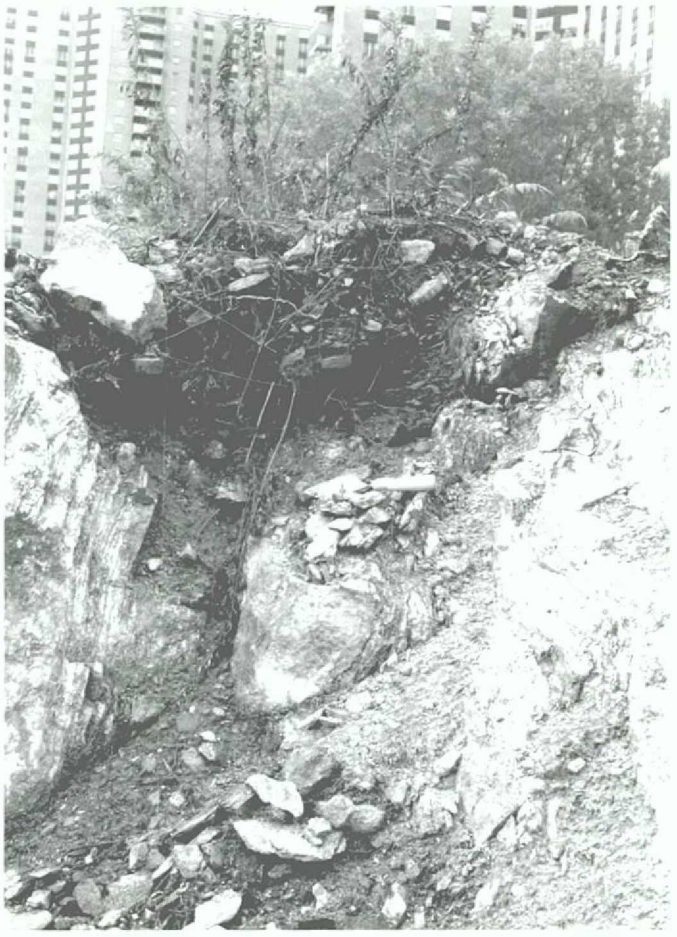
Photograph C East and West Outcrops, Facing South

Photograph D Refuse and soils pushed up against north side of East Outcrop, Facing West

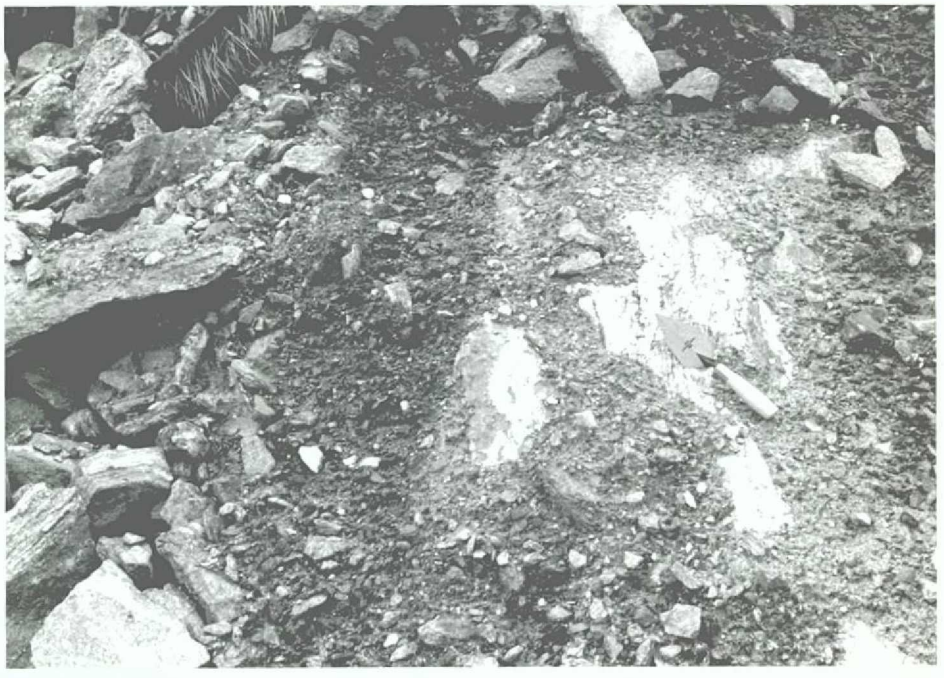
Photograph E East and West Outcrop Sections and Roadway Cut Through, Facing Northeast



Photograph F Close-up of Roadway Between East and West Outcrop, Facing North



Photograph G North Side of East Outcrop, Facing South



Photograph H Close-up of North Side of East Outcrop, Showing Lower Portion of Refuse material (broom fragment) Against Outcrop

Photograph I Close-up of North Side of East Outcrop, Showing Upper Portion With a Few Shell Fragments, Loose Soil, and Gaps Between Rocks and Outcrop