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APPENDIX D.3

HISTORICAL AND ARCHAEOLOGICAL RESOURCES

HARLEM RIVER SITE, BRONX, NY

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INTRODUCTION AND METHODOLOGY

The New York City Department of Environmental Protection (NYCDEP) has proposed to design and construct a Water Treatment Plant (WTP) to provide filtration for the Croton system water supplied to New York City. One of the proposed sites for the water treatment plant is a 17.5-acre parcel known as the Harlem River Site located in the Bronx, New York (Figure 1). The site is bounded by the Harlem River to the west, the railroad tracks of the Metropolitan Transit Authority (MTA) and Metro-North Railroad on the east and north sides, and University Height/West Fordham Road to the south.

Plans call for the construction of a proposed DAF-Filtration (stacked arrangement) plant on the central 10.5 acres of the property with the remaining five acres at the north to be used for potential staging areas (Figure 2). Adjacent to the proposed plant, plans call for the creation of a Raw Water Pumping Station (RWPS). At present, New York City Department of Transportation, Consolidated Rail Corporation (CSX), Consolidated Edison Company of New York, Inc. (Con Edison), the Butler Lumber Co. Inc., and the XCEL Ready Mix concrete batching plant occupy the portion of the site north of the University Heights Bridge.

The proposed project would also include the rehabilitation and stabilization of the New Croton Aqueduct (NCA). In addition, improvements or modifications are proposed at several access locations (off-site facilities) along the route of the NCA (Figure 3). These include the Croton Lake Gate House (Town of Yorktown, NY), NCA Shaft No. 9 (Village of Sleepy Hollow, NY), NCA Shaft No. 14 (Ardsley, NY), NCA Shaft No. 18 (Yonkers, NY), the Jerome Park Reservoir (Bronx, NY), and Gate House No. 1(Bronx, NY). Possible alternative modification sites include NCA Shaft Nos. 11A, 11B, and 11C (Greenburgh), and NCA Shaft No. 16 (Yonkers). Appendices are presents below for these NCA sites.

In compliance with environmental review regulations, which specify a series of studies on development of the proposed project site, Historical Perspectives, Inc. was retained to complete a cultural resources assessment of the Harlem River site.

The purpose of this "Cultural Resources Assessment Report" is to provide a sensitivity rating for the Harlem River site based on the evaluation of historic documentary materials, comparative archaeological literature, site file search results, and a site inspection. As part of the assessment, the following sources of data were consulted in order to determine the site's topography over time and to compile an overall site history.

Primary and Secondary Source Review

Many local and regional histories were examined for relevant data to help place the site within a historical context. Standard archaeological literature, such as *The Archaeology of New York State* by William Ritchie and Robert E. Funk's *Recent Contributions to Hudson Valley Prehistory*, provided an overview of the prehistoric periods discussed in this report and particularly valuable were ethnographic accounts and prehistoric archaeological works by authors such as Reginald Bolton and Robert Grumet. Books by Bronx historians Stephen Jenkins, William Tieck, and John McNamara provided valuable material on the historical development of the project area. In addition, Robert Bolton's *History of Westchester County* and J. Thomas Scharf's *History of*

Westchester County, New York, Including Morrisania, Kings Bridge, and West Farms were also reviewed.

Cartographic Analysis

In order to determine the original topography and compile a disturbance record for the Harlem River Site, cartographic resources were examined. Information collected included data on the site's possible land-use over time and building history. Historical maps were examined at the New York Public Library, Westchester County Historical Society, and the Bronx County Historical Society.

Site Files Review

All inventoried prehistoric and historical sites listed with the New York State Museum (NYSM) and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) were recently reviewed for information regarding recorded sites in and around the project area (Appendix 2). Available site reports and journal publications were also reviewed for information on Native American lifeways in the Bronx during the pre-Contact era.

Site Inspection

A site visit was conducted (11/20/2001) and a photographic record of current conditions was made (See Photographs A-G).

II. ENVIRONMENTAL SETTING

The project area is located in the Bronx, part of the Hudson Valley region, which is described in geological terms as lying in the New England Upland Physiographic Province, a northern extension of the Great Appalachian Valley (Schuberth 1968:74). Situated adjacent to the Harlem River, the project site is part of the Brunswick formation. It is underlaid by volcanic rock including Fordham gneiss which exhibits a dark gray to black banded appearance. Glaciers advanced and receded over the area at least three times during the last million years. During the most recent period of glacial activity, the Wisconsin episode, the Bronx was covered by ice, the terminal moraine of which left discrete marks that can be seen in the nearby Bronx Zoo. Glacial activity is also responsible for the moraine heaps and alluvial coverings which hide or bury the gneissic contours as well as glacial erratics which occur in the Bronx.

Following deglaciation, the water level receded and the project area became colonized by arctic and tundra like plants, which eventually gave way to a forest, composed of conifers and more deciduous trees. During the last 12,000 years, the fluctuating floral and faunal communities eventually became relatively stable leaving the Bronx covered with oak, hemlock, beech, and chestnut trees characterized as the climax forest. In addition, water from the melted ice floes was directed along the moraines in the area forming many rivers and creeks, including the nearby Tibbetts Brook, which flows just north of the project site. Fordham Ridge, one of the remaining elevated portions of the borough, extends from the Yonkers line to Central Bridge. It is the dividing line between the creeks draining into Tippett's Brook and the Harlem River on the west and the Bronx River on the east.

The Harlem River Site is located on the east side of the river for which it is named. The Harlem River connects the Hudson and East Rivers and is the dividing line between the borough of Manhattan and the Bronx. The water treatment plant site is located just south of a bend in the river near Tippett's Brook (see Figure 1). Historically, a wet meadow was present against the eastern shore of the Harlem River (Figure 4).

At present, the shoreline of the Harlem River is not uniform; it is, in part, edged with a combination of rip-rap and concrete bulkhead panels. According to Block and Lot Ownership records, the project area is currently dominated by industrial and commercial businesses and transportation-related features. Most of the open areas are covered with asphalt pads. A recent U.S.G.S. topographical map shows the project area at elevations between approximately 30 and 40 feet above sea level.

III. PREHISTORIC OVERVIEW

For this report, the word prehistory is used to describe the period prior to the use of formal written records. In the western hemisphere, the prehistoric period also refers to the time before European exploration and settlement of the New World. Archaeologists and historians gain their knowledge and understanding of pre-Contact Native Americans in the lower Hudson Valley area from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

Based on data from these sources, a prehistoric cultural chronology has been devised for the Westchester County area. Scholars generally divide the prehistoric era into three main periods, the Paleo-Indian (c. 14,000-9,500 years ago), the Archaic (c. 9,500-3,000 years ago), and the Woodland (c. 3,000-500 years ago). The Archaic and Woodland periods are further divided into Early, Middle, and Late substages. The Woodland was followed by the Contact Period (c. 500-300 years ago). Artifacts, settlement, subsistence, and cultural systems changed through time with each of these stages.

Scholars often characterize prehistoric sites by their close proximity to a water source, fresh game, and exploitable natural resources (i.e., plants, raw materials for stone tools, clay veins, etc.). These sites are often placed into three categories, primary (campsites or villages), secondary (tool manufacturing, food processing), and isolated finds (a single or very few artifacts either lost or discarded). Primary sites are often situated in locales that are easily defended against both nature (weather) and enemies. Secondary sites are often found in the location of exploitable resources (e.g., shell fish, lithic raw materials).

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 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 locale in general as well as the actual water treatment plant site.

A. Prehistoric Cultural Chronology

Paleo-Indian Period (ca. 14,000-9,500 Years Before Present)

For some time there has been an active debate about the origin of the first human occupants of the Western Hemisphere. The most widely held theory to date is that, toward the end of the Wisconsin Glaciation, during the Late Pleistocene Epoch, the first humans wandered across the exposed land bridge, which connected Siberia and Alaska. These small groups of hunters were probably following the roaming herds of megafauna, which were their chief prey. The distinctive weapon in their chipped stone tool kit was the fluted point, which has been found in association with mammoth, mastodon, bison and horse remains at various sites in the southwestern United States.

The lithic marker for the Paleo-Indian period is the Clovis Point, a finely made spear point with a flute removed from the central section. Preferred camp sites were either at the shore near swamps or river mouths, or on high bluffs or ridges where game could be more easily spotted. The rising sea level resulting from the melting glacier has obliterated the seaside sites, giving more importance to higher inland sites. Paleo-Indian sites are sparse in the Northeast, and there is much to be gained from their discovery, particularly since faunal remains from some sites have disputed the theory that these people relied only on large game for their subsistence.

Archaic Period (9,500-3,000 Years Before Present)

The Archaic period, spanning approximately 6,500 years, has been subdivided into the Early, Middle, Late, and Transitional - or Terminal - subperiods. During the Archaic, fluctuations in the environment occurred, eventually giving way to a gradual warming trend allowing newly available resources to establish themselves. Environmental changes promoted resource diversity, which resulted in a hunting, fishing, and gathering economy. Tool kits expanded in response to this diverse resource utilization.

During the early part of the period, the climate continued to warm causing a continued rise in sea level, which eventually stabilized by the Late Archaic. Schuldenrein suggests that the reduction in the rise of sea levels during the latter part of the period provided prehistoric peoples with additional exploitable environments near water courses (1995). He states "the diversity of habitats and microenvironments would have promoted widespread exploitation of both upland and valley/estuarine environments" (1995: 60). Some of these activity areas may have been located along tributaries of the Harlem River, as well as the terraces adjacent to the river itself

The narrow bladed projectile point (Neville and Stark), grooved axe, and beveled adz were some of the additions to the tool kit of the Middle Archaic hunter. To the north along the shores of the Hudson River, Neville-like points have been recovered from both the Sylvan Lake Rockshelter site in Dutchess County and the Muddy Brook Rockshelter site in Putnam County (Funk 1976:168; Tompkins and DiMaria 1979:58). Archaeologist Robert Funk has suggested that the Laurentian, Susquehanna, and small stemmed cultural traditions persisted in the Hudson River Valley during the Terminal Archaic period, ca. 4,000-3,000 years B.P. (Funk 1976: 250). Although Funk defines these three separate traditions as persisting in the Hudson River Valley,

Snow suggests that the Susquehanna tradition dominated the first half of the period, marked by 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). At present, the exact sequence of cultural traditions and representative complexes for the Archaic period is still undefined and a constant source of debate among prehistorians.

Seasonal movements based on the exploitation of specialized resources became well established, which may have encouraged territoriality. Sites from this period include rockshelters, open camps, numerous shell middens and secondary processing sites (Brennan 1974:87; Schaper 1993: 32; Lenik 1994: 24). Data indicates that the quantity and configuration of recorded Archaic Period archaeological sites is much larger than those dating to the Paleo-Indian Period, suggesting a significant increase in the population of Native peoples. This change in the number of sites recovered also indicates that these groups had a greater impact upon the landscape. Typical with all prehistoric sites, river valleys and coastal areas were the preferred locale for primary camp sites. This environment supported the game, plants, and marine resources desired by Archaic peoples.

Woodland Period (3,000-500 Years Before Present)

The Woodland period, which spanned from approximately 3,000 to 500 years ago, is also divided into the Early, Middle and Late subperiods. It is often characterized by the first use of ceramics, the introduction of horticulture, the appearance of large semi-permanent or permanent villages, and the establishment of clearly defined trade networks. Archaeological evidence suggests a marked preference for large-scale habitation sites within the vicinity of a fresh water source (e.g., rivers, lakes, streams, and ponds). In most cases, secondary sites where specific activities occurred (e.g., shellfish collecting and/or processing, butchering locations, and stone tool-making) were situated near the site of the exploited resource.

Scholars identify the earliest undecorated pottery as Vinette 1. Crudely designed pottery of this type has largely been recovered from sites on major waterways and tributaries. As the Woodland period progressed, regional variations in ceramic styles became common. Woodland sites are commonly located on well-drained knolls adjacent to fresh water (Ritchie 1980:201). Fish runs in these rivers provided a stable and reliable resource, and fish weirs were utilized in the Hudson and smaller tributary rivers for the recovery of large quantities of anadramous fish (Brumbach 1986:35). 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 during the prehistoric era has been much debated by archaeologists working in the Northeast (Ceci 1979; Braun 1987; Woods 1987; McBride and Dewar 1987).

Innovations during the Middle Woodland period reflect different cultural styles that archaeologists have attempted to identify with specific groups. These include regional changes in ceramic styles, new lithic tools, and the introduction of horticulture in what is now the New York area precipitating larger and more permanent settlement. Jack's Reef Corner Notched and Pentagonal and Fox Creek projectile points characterize stone tool assemblages of this period. Imported lithic materials were also utilized, indicating increased trade networking.

Subsistence and settlement patterns appear to have included semi-permanent settlements with task-specific locations utilized for the purpose of exploiting target resources. Ritchie and Funk (1973:349) identify several settlement types including recurrently occupied small and semi-permanent large camps, small temporary camps, cemeteries, burial mounds, and workshops. An annual subsistence round of seasonal movements between riverine, coastal, and inland wintering sites may have existed. This semi-permanent settlement pattern may have led to competition and defense of arable land, contributing to regional territoriality (Mulholland 1988:163).

Contact Period (500-300 Years Before Present)

The Contact Period between 500 to 300 years B.P. is characterized by initial interactions between Native Americans and Europeans. Native settlement patterns at the beginning of this period incorporated seasonal hunting and gathering. Semi-permanent villages or hamlets, situated near planting fields, possessed oval and round, bark and mat-covered structures. Large subsurface pits were located nearby for storing dried meat, fish, and corn, and eventually were filled with trash. Fields were commonly burned at the end of the planting season to encourage the repopulation of floral and faunal species. Villages centered on horticultural land were moved every ten or twenty years as soil fertility, firewood, and nearby game resources were depleted (Salwen 1975:57). Although early historic accounts suggest the presence of stockaded villages or forts in southern New York, archaeological data indicate they did not exist before the middle of the seventeenth century (Ritchie and Funk 1973:368).

Early European explorers to North America traded with the Native population, first centering along the Hudson River, and later moving inland. As European materials were introduced, aboriginal settlement and subsistence patterns changed drastically. Shell beads and wampum production was increased and furs were collected by Native Americans as a medium of exchange. Early contact was predominantly peaceful, however large-scale conflicts between Native Americans and Europeans ensued with the arrival of Governor Willem Kieft and his hard-line policy in 1638. Conflicts and disease decimated local populations and forced local Algonquian bands to relinquish independence and fall under Dutch control.

B. Prehistoric Literature Review

Reginald Bolton's "Indian Paths in the Great Metropolis" reported the east-west Indian trail named Sachkerah running to the northeast of the project site in the location of the Jerome Park Reservoir. This trail originated at the Harlem River, just north of the project site, and terminated in Norwood at the intersection of Gun Hill Road and the Bronx River (Grumet 1981:9-10; Figure 5). Grumet also identifies a trail running north-south paralleling the Harlem River in the location of the water treatment plant site.

The earliest cartographic source reviewed depicting aboriginal habitation in the vicinity was the Hendricks Map of 1616, which shows the Wikagyl (Wiechquaesgeek) Indians inhabiting the southern New York mainland just north of the Manhattes Indians on Manhattan Island. The Wiechquaesgeek are identified as the group of Indians living in northern Manhattan, Bronx County, and southern Westchester County in a number of seventeenth century Dutch and English manuscripts, deeds, treaties, and maps (Bolton 1934:128; Grumet 1981:59-60). Documented nearby settlements include:

(1) Shorakapkock: near 230th Street and Broadway, to the north of the Harlem River site (Tieck 1968:58; Bolton 1920:307; Fluhr 1960:10; Jenkins 1912:21; McNamara 1984:497).

(2) Nipinichsen: a palisaded fort variously located in Riverdale near 230th Street, northwest of the project site (Bolton 1934:140; Fluhr 1960:10; Jenkins 1912:21; Skinner 1915:56)

(3) Gowahasuasing: several blocks southwest of the project site on Tibbett's Neck (Grumet 1981:69; Kearns and Kirkorian 1986:np).

(4) Keskeskick: Grumet identifies the lands of Keskeskick village as adjacent to the Harlem River (see Figure 5). Botlon argues that the prehistoric village site was located in Van Cortlandt Park to the north of the project site (1934:141).

(5) Saperewack: located on the Harlem River in the Marble Hill area northwest of the project site (Grumet 1981:49, 68).

Additional published literature supports the ethnohistoric reports of aboriginal occupation. Some of these sites are probably part of the same camps and/or villages reported in the earlier sources.

(1) Kingsbridge Post Office, 5517 Broadway near 230th Street: several blocks north of the project site. The site yielded projectile points, pottery, shell, and a Native American burial. Tieck suggests that this may represent the village of Shorakapkock (Tieck 1968:56).

(2) 231st Street, Kingsbridge: north of the project site. A prehistoric hearth containing a clay pot was found (Bolton 1934:12).

(3) Ewen Park at 231st Street: north of the project site. Shell and ashes were reported, and near the Henry Hudson monument, a food storage pit was uncovered (Bolton 1934:140).

(4) Marble Hill, Broadway and 230th Street: just northwest of the project site. Shell and prehistoric artifacts were found at "the Wading Place" (Bolton 1934:135).

(5) Paparinemin Island: a large site was found on high ground that was originally Paparinemin Island near 231st Street north of the project site. Smaller prehistoric temporary encampments were also reported for the Island area, but their exact location was not given (Bolton 1934:134, 139).

(6) Tibbett's Neck: "Very extensive shell middens" were located below the bluffs just north of the project site (Jenkins 1912:329).

(7) Spuyten Duyvil Hill: about a mile southwest of the project site. Several small shell deposits were found here (Skinner 1915:56).

(8) Van Cortlandt Park: to the north of the project site. Several sites were located including an extensive two to three foot thick shell midden and several burials covering fourteen acres in the southwestern section of the park, and shell pockets

near the mansion. The parade ground had once been used as Indian planting fields. Storage pits, pottery, and stone tools were reported (Bolton 1934:141; Tieck 1968:3; Skinner 1915:55).

(9) Chapel Farm Site: northwest of the project site in Riverdale. A possible prehistoric quartz quarry site was identified on the highest knoll in the Bronx (Historical Perspectives 1990: np).

(10) Harlem Ship Canal: a large shell midden was identified at 200th Street and Kingsbridge Road. This site was destroyed when the ship canal was constructed (Skinner 1926: 54).

In addition to the above described sites, a 1991 inventory of archaeological resources in the nearby Bronx Botanical and Zoological Garden by the New York City Landmarks Preservation Commission (NYCLPC) reported that their literature search revealed that "numerous prehistoric sites, dating from the Early Archaic through Woodland Periods (c.8000 B.C. - 1600 A.D.), were once located to the northwest, east, and south...outside the Botanical Garden property" (NYCLPC 1991:33). Within the Botanical Garden property itself, an Indian cave or rockshelter was reported on the west side of the Bronx River near the Magnolia Road Bridge, excavated many years ago by Theodore Kazimiroff. The site yielded pottery and lithic artifacts (Ibid).

C. Known Sites in the Project Area

A site file search at the NYSM and the OPRHP identified 17 prehistoric sites within a one-mile radius of the project site (Appendix 2). The NYSM, which inventories only prehistoric sites, reported fifteen sites either directly adjacent to or within approximately one mile of the project site. NYSM site numbers 709, 711, 2823, 2838, 2839, 4052, 4053, 4054, 4055, 4056, 4057, 5320, 5321, 5322 and 7727 are all located nearby. Some of these sites are duplicates of the sites described above. The OPRHP site file search reported site numbers A061-01-0114, the Harlem River Shellheaps, and A061-01-0127, another shell midden, to the west of the project site adjacent to the opposite shore of the Harlem River. Site A061-01-0114 included the remains of dog burials. To the southwest, site A061-01-0538, another shell midden of unknown age, was exposed during the grading of Tenth Avenue.

D. Results of the Walkover Survey

An archaeologist conducted a site visit and walkover reconnaissance survey on November 20, 2001. The archaeologist took field notes and photographed the site. No evidence of prehistoric resources was noted during the visit.

E. Prehistoric Sensitivity

There is strong evidence of an extensive Native American presence in the surrounding neighborhood as indicated by the many habitation sites and trails documented historically and through recent archaeological investigations. Although many of the known Indian sites and trails have since been covered by historical development, a wealth of recorded information about these resources strongly supports the prehistoric Native American presence in the immediate area.

Evidence of Native American occupation has been observed in the north and western reaches of the Bronx and across the river in the northern limits of Manhattan. Specifically, Native American sites have been recorded to the north in Kingsbridge, to the west in Spuyten Duyvil and Inwood, and to the east in Fordham.

The extensive documentation of aboriginal occupation throughout the area suggests that the Harlem River project site may have been the location of prehistoric activities. Typically, prehistoric peoples exploited the terraces along streams and rivers for temporary encampments and possibly longer-term occupations. In fact, numerous sites and middens have been identified along the Harlem River.

NYCLPC has identified areas along the Harlem River as sensitive for Native American potential. However, this sensitivity rating is based on the collections and information gathered decades prior to the drastic changes to this landscape in the last 110 years: creation of the Harlem Ship Canal, construction of major bridge crossings, construction of the railroad berm, and the construction of the Major Deegan Expressway.

Although riverside sites are frequent, it is important to recognize that the shape of the land has been considerably altered over time, so the original shoreline and the small islands that once dotted the Harlem River, no longer exist. In the location of the project site, the creation of the Harlem River bulkhead line in the nineteenth century has altered the shoreline considerably. The likelihood that prehistoric resources are extant within much of the site, considering the extreme land manipulation, is minimal. However, the portions of the site that contain fast land, specifically at the north and south ends, might have the potential to host these resources.

IV. HISTORICAL OVERVIEW

A. Historical Cultural Chronology

The Indian sachems, Tequeemmet, Rechgawas, and Pachimiens conveyed the first parcel of land to the Dutch West India Company in 1639. The Company was granted a large tract of land called

> *Keskeskeck, stretching lengthwise along the Kil which runs behind the island of Manhattan, mostly east and west, and beginning at the head of said Kil and running opposite of the high hill by the flat, namely by the Great Kil, with all right, titles, etc., etc.* (Jenkins 1912:25).

The Kil behind Manhattan that is referred to in the deed is the Harlem River. Although the boundaries of the Keskeskeck purchase were not very clear, the project site was included in this initial purchase. Two years later Jonas Bronk became the first white settler of the region when he bought 500 acres between the Harlem and Bronx Rivers. While initial contact between the native inhabitants and the European settlers was primarily peaceful, large-scale conflicts erupted during Governor Willem Kieft's administration of the colony (late 1630s-40s). Kieft was notorious for his harsh policies against the local tribes. Although the colony was under English

control during the late seventeenth century, little changed with regard to policies toward the Native inhabitants.

Under the English, the section of the Keskeskeck patent that was adjacent to the Harlem River became the Manor of Fordham (Figure 6). In 1671Governor Lovelace granted the manor to Jan (John) Archer (Arcer), a Dutchman, who was "so skilled in acquiring land from the Indians that he was nicknamed Koopall (Buy all) by his neighbors" (Bolton 1848: 319-321; WPA1982). Archer's manor, named for the ford at Spuyten Duyvil Creek, extended north and east from what is now 165th Street at the Harlem River. Archer leased 20-acre lots to tenants who cleared and cultivated the land. Each tenant had a house and lot in the village of Fordham, which he established on his property near the Harlem River (just northeast of the project site). Disputes over Archer's land ownership ensued and he was eventually acknowledged as rightful owner and a formal patent was granted.

Archer's patent, the Manor of Fordham, was ruled by the Governor and his Council who dictated how Archer was to proceed as lord of the manor. Land in dispute between Harlem and Fordham at Spuyten Duyvil was eventually granted to Fordham, however, Archer's rule over Fordham was not without its problems. In 1669-1670 residents of his manor complained to the Mayor's Court in New York that he acted forcefully and generated troubles between the residents. The court, to no avail, essentially told Archer to mend his ways. After several more grievances were filed, the court ordered that the magistrates of Harlem hear further complaints. Archer mortgaged the Manor in 1684 to Cornelis Steinwyck, a New York merchant (Bolton 1848: 324). After both Archer's and Steinwyck's deaths that same year, the lands were inherited by Steinwyck's wife. After remarrying, Margaretta Steinwyck Selyns and her husband granted the property to the elders and overseers of the Nether Dutch Church of New York in 1694 (Ibid: 326-327). In 1753 the Lieutenant Governor of New York granted the church elders permission

> *to sell and dispose of their lands, tenements, and hereditaments in the County of Westchester, commonly called and known by the name of the Manor of Fordham* (Ibid 327-328).

To the north of the site, Kingsbridge was laid out in the township of West Farms just north of Papirinemen Hill, an Indian name meaning "a place parceled out." Kingsbridge is not far from Marble Hill - named for old marble quarries. By 1673 the Albany Post Road had been laid out through the Bronx, crossing the Harlem River at Kingsbridge near its intersection with the Boston Post Road. The Albany Post Road connected Manhattan with the vast trading post at Fort Orange, now Albany. The settlement near the Harlem River in this location was named after the first bridge built by Frederick Philipse, linking Manhattan to what is now the Bronx. Local farmers resented paying toll to Philipse, a wealthy landholder, and reacted by erecting the free Farmers' Bridge for their own use. Stagecoach service was established on it in 1785(Jenkins 1912:215). As with the rest of the borough, the project area was rural farmland until the time of intensified residential and commercial development in the mid-to-late nineteenth century.

During the American Revolution both British and American militia recognized the strategic importance of safe passage over the Harlem River at Kingsbridge. As a result, Kingsbridge witnessed extensive Revolutionary War activity with several fortifications built nearby. Under the command of Major-General Charles Lee, a total of seven sites were selected for redoubts,

two on the northern end of Manhattan, and five in the Kingsbridge area of the Bronx. Three of these redoubts were built to the east of the project site overlooking the Harlem River from Fordham Heights. These Revolutionary War sites were located to the east of Sedgwick Avenue. Three forts were built on Spuyten Duyvil Neck and Tippett's Hill, northwest of the project site. These were captured by the English in November of 1776, and were subsequently abandoned by 1779.

Fort Independence (a.k.a. Fort No. 4), and Fort Nos. 5, 6, 7, and 8 were the defenses closest to the project site. The extant Fort Independence Park at the north end of the Jerome Park Reservoir and Old Fort Park (Fort No. 5) at the south end of the reservoir are in the approximate locations of the original forts' footprints.

During the late 1950s an archaeological salvage investigation was conducted in the location of Fort Independence. The archaeologists uncovered evidence of the army occupation, including the foundations of two buildings identified as quarters, a stone platform, campfire hearths, and a refuse dump. The archaeological report presents extensive inventories of the military-related artifacts as well as miscellaneous camp equipment.

Fort No. 5 was a redoubt of about seventy square feet situated due south of Fort Independence at the southwest end of the Jerome Park Reservoir. Established on Dominie Tetard's farm of sixty acres, it was confiscated and occupied by the British in 1777 and abandoned in 1779 (Jenkins 1912:128). Bronx Historian Reginald Bolton and others excavated the site, located approximately 100 feet east of Sedgwick Avenue, during the early twentieth century (Jenkins 1912:129). Excavations detected the remains of brick fireplaces and other military relics including regimental buttons.

Fort Number 8, which stood at the site of Bronx Community College less than one mile southeast of the water treatment plant site, had been in the hands of the English from the time it was built in 1776 until it was demolished in 1782 (McNamara 1989). When the Schwab family eventually built their mansion on the site, they were said to turn up cannonballs, musket balls, coins, and buttons from the fort (Ibid.). The house now stands on the campus of the Bronx Community College (Ultan 1979).

Additional archaeological evidence of Revolutionary activity was encountered when the Jerome Park Reservoir was created. The large excavation revealed "several cannon-balls, bayonets, swords, buttons, and other military relics (Jenkins 1912:338). Jenkins further reports that "from time to time, similar relics have been unearthed, including several skeletons, one of which by means of the regimental buttons and shreds of uniform that remained, was identified as that of a British officer" (Ibid).

Following the Revolution (1788) the water treatment plant site, which was in the area known as West Farms (Fordham), was incorporated into the township of Westchester. West Farms was later established as a separate township in 1846. The Bronx became the Annexed District of New York City in 1874 and was chartered as a Borough in 1898 (Jenkins 1912:7). During the nineteenth and twentieth centuries the creation of the New York City Water System, the building of the Harlem River Canal, the introduction of the railroad, the construction of the University

Heights Bridge, and the construction of the Deegan Expressway have had a profound affect on the project neighborhood.

New York City Water Supply.

As New York City rapidly expanded during the nineteenth century the need for clean water was of paramount importance. Most of the Manhattan springs, ponds, and wells had been polluted by the last quarter of the eighteenth century. The search for significant outside sources of water was a continuing problem that required a large-scale solution. When 3,500 people died during the cholera epidemic of 1832, and millions of dollars were lost in the catastrophic Great Fire of 1835, it became clear that the growing city needed a new and abundant source of water.

In an attempt to address these problems, the City built a series of pumps over underground springs through the eighteenth and early nineteenth centuries. The most famous of these, the Tea Water Pump, opened in the 1740s at what is now Park Row in Manhattan, and operated for 80 years until it too was declared unsanitary (Koeppel 1994:21). However, these measures failed to meet the needs of the city's growing population. A number of other failed attempts to supply the city with water resulted in the creation of the New York Water-Works Company in 1825, and by 1833 plans for the Croton Aqueduct were created.

The Croton Water Supply System is the oldest municipal system in the United States to employ a system of aqueducts for transporting water from afar. The original Croton Aqueduct was constructed in 1842 after years of failed attempts to deal with New York City's impoverished and unsanitary water conditions.

The aqueduct, designed by the engineer John B. Jervis, consisted of iron pipes protected by brick masonry. Built by Irish immigrants over a period of five years it covered a distance of 41 miles, running from the Croton Dam in Westchester County south to a receiving reservoir at what is now the Great Lawn in Central Park. Water was then piped to a distributing reservoir at 42nd Street, where the New York City Public Library now stands (Jackson 1995: 301). The first Croton water system opened in 1842 and supplied over 60 million gallons of water a day to the City via what is now known as the the Old Croton Aqueduct, which is located east of the project site, on the east side of Sedgwick Avenue (Figure 7).

When it was completed in 1842, it was the main source of water for the city until its capacity proved inadequate. By 1861 an enlarged main was constructed, and the need for a greater supply was still recognized. In the 1890s the construction of the New Croton Aqueduct was planned in conjunction with the creation of the Jerome Park Reservoir, and the original aqueduct system was renamed the "Old Croton Aqueduct."

The New Croton Aqueduct is mostly a tunnel laid through rock. It is at least three times larger than the Old Croton Aqueduct and is situated further inland, emptying into the Jerome Park Reservoir. Both the old and new aqueducts ended at the 135th Street Gate House, where cast-iron pipes carried water into the current Central Park reservoir. With the inception of the New Croton Aqueduct, portions of the old aqueduct were closed down while others were drastically altered and demolished. Regardless, it continued to carry a diminished capacity of water to New

York through 1955. While portions of it are still in use in northern Westchester County, it no longer brings water to New York City (Cooper nd.: 5-7).

Harlem River Ship Canal

Almost immediately after European settlement of the Bronx, the Harlem River presented fording and navigation challenges to the local population. Initially, it was thought that a ferry service would provide the best access from Harlem to the lands further north. In 1666 the English Governor, Nicolls, granted a charter to the residents of Harlem to establish a ferry to the mainland to allow the passage of people, goods, and livestock (Scharf 1886). The following year Nicolls granted a patent to Delaval, Turneur, Verveelen and others from Harlem, giving them four lots on the mainland near Spuyten Duyvil (Ibid.). Verveelen established a ferry service at Spuyten Duyvil but soon encountered problems with objectors. To circumvent his ferry fees, nearby residents would walk or swim their livestock across the Harlem River at "the fording place" at Spuyten Duyvil near what is now Kingsbridge. Nearby residents tore down fences erected by Verveelen to block river access, and the Mayor's court of the City of New York supported him by exacting payments from the evaders for missed ferry fees (Scharf 1886). In 1669 Verveelen's ferry service ceased. In time, the need for passage over the Harlem River increased, and the rights to build a bridge were granted. A bridge at Williamsburg was eventually completed in 1693. For a time, the Philipse family, landowners in Westchester, collected fees for this bridge. Following the Revolution, however, passage was free.

As the population grew on both sides of the Harlem River, additional bridges were constructed. Shipping traffic, however, was being restricted because of the tidal action of the Harlem River and the narrow Spuyten Duyvil Creek. For most of the nineteenth century the Harlem River had an available depth of approximately ten feet from the East river to Morris dock, except at Highbridge where the depth was six feet. From Morris dock to Fordham landing there was a crooked channel approximately seven feet deep, and above that point the river could be used only by vessels of small draught. Plans to improve navigation along the river began as early as 1826 when the Harlaem Canal Company was established. Unfortunately, although they started work in the area of the Spuyten Duyvil Creek, the project was abandoned. The Harlaem Canal Survey Company similarly abandoned it the following year. Finally in 1863, the Harlem River Canal Company was chartered.

During the 1860s efforts were made to improve navigation on the Harlem River. A survey of depth soundings was completed, and a navigable channel with a uniform depth of ten feet at mean low water was proposed (County of New York 1860). The proposed 150 foot wide channel was thought to be wide enough and deep enough to allow smaller and mid-sized vessels safe passage. The plan called for dredging the soft mud from portions of the river. The irregularly shaped shoreline along much of the channel's edge was eventually filled and turned into fast land. Thus began the first major steps toward creating the Harlem River Canal. The Harlem River Ship Canal project was modified over the next three decades until work was completed in 1895.

The construction of the Harlem River Ship Canal entailed creating a bulkhead outboard of the existing shoreline and excavating the large canal bypass through Dyckman's meadow to the mouth of the Spuyten Duyvil Creek (Stevens 1892). This would eliminate having to travel

around the narrow bend in the Creek and speed up shipping. Before the Harlem River Ship Canal was dug in 1895 Marble Hill was physically connected to Manhattan. Following the creation of the canal, Marble Hill became an island until 1923 when the remaining section of the creek was filled. The canal project also provided for the creation of a continuous channel at least fifteen feet deep and four hundred feet wide, except at Highbridge where it is only three hundred and seventy-five feet wide, and at Dyckman's meadow where, in a rock section, it is three hundred and fifty feet wide and eighteen feet deep. Amid much fanfare, the canal was opened in June 1895 just north of the project site.

The Railroad

The project area's urbanization began in earnest only after railroads linked the area with New York City. The first and most important was the New York and Harlem Rail Road, which was incorporated in 1831, and began service through the County of Westchester in 1842 (Jenkins 1912; 228-232). This line ran through Melrose, Morrisania, and Fordham on the same route as the present Conrail tracks along Park Avenue, approximately one and a half mile east of the project site (Shonnard and Spooner 1900). By 1851 a branch line was built to the south at Port Morris along the Harlem River. By cutting the time and expense of travel, the railroad made it possible for people to live full-time in the Bronx and work in New York City. As a result, the Bronx was ripe for development, and the larger landowners were motivated to subdivide their parcels.

By 1846, population in the western Bronx had increased so much that the Town of West Farms was created. West Farms was originally a village on the Bronx River, which had become an important manufacturing center, due to its water-powered mills. The new township consisted of all the present Bronx west of the Bronx River, including the project area (Shonnard and Spooner 1900).

The new residents clamored for improved roads and other municipal amenities, and annexation by New York City was discussed as early as 1864. It is significant that the streets laid out near the Harlem River continued the numbers of Manhattan streets (Shonnard and Spooner 1900). When a referendum on annexation was finally held in 1873, Morrisania, West Farms and Kingsbridge voted overwhelmingly to become part of New York City, and officially became the 23rd and 24th Wards in 1874. Under the New York charter the two wards were officially designated the Borough of the Bronx.

During the 1860s, residents continued to request new transportation lines. The eastern side of the Harlem River became the focus for a new railroad corridor. On April 24, 1867, the Spuyten Duyvil and Port Morris Railroad was chartered (Jenkins 1912: 233). In 1872, the New York Central and Hudson Railroad Company built the Spuyten Duyvil and Port Morris Line, linking the Harlem Line in the south Bronx to the Hudson Line proper at Spuyten Duyvil. This line passed along the shore of the Harlem River and looped northwestward around Marble Hill. The Putnam Line was opened in 1881 and ran north from Harlem alongside, and to the east of, the Spuyten Duyvil and Port Morris Line to Putnam County. The two lines separated north of E. 230th St. with the Hudson Line branching westward and the Putnam Line continuing north.

In the 1880's, a rock cut was made through Marble Hill to allow the Railroad Water Level Route access to the Harlem River's north bank. In 1905-1906, the Railroad Line was rebuilt in connection with electrification. The old Spuyten Duyvil and Port Morris Line was relocated to run along the Harlem River Ship Canal in 1906. As a result, the Hudson and Putnam Lines separated south of 192nd Street. The rail alignments have not changed significantly since 1906.

University Heights Bridge

Throughout the historical development of the Bronx, numerous efforts were made to establish access ways across the Harlem River. This section of the Harlem River served as a transportation link between what is now the Bronx and the Inwood section of Manhattan. The northern limit of the project site was the early King's Bridge crossing at West 230th Street and Kingsbridge Avenue. Built by Frederick Philipse in 1693, he charged a toll to everyone crossing his lands and bridge. "During the Revolutionary War, it was the main military artery for both sides, and was under continuous attack. The bridge fulfilled its duties until 1916 when the Spuyten Duyvil Creek was filled in. During excavations in the 1960's, parts of the wooden span were brought to the surface by workmen, and are now in the possession of the Kingsbridge Historical Society" (McNamara 1984).

Benjamin Palmer built a second wooden bridge, referred to as either the Farmer's Bridge or the Free Bridge, in 1758 at West 225th Street and Exterior Street, also on the edge of the project site. This bridge was an attempt to by-pass the toll on the King's Bridge. "When the Ship Canal was dug past West 225th Street, the bridge was stranded and covered over with landfill in 1911" (McNamara 1984).

The Fordham Footbridge (first proposed in 1874 and erected in1881 through private funds) spanned the Harlem River just north of the University Heights Bridge for approximately 15 years. This touchdown area is noted on historical maps as Fordham Landing. The narrow, 32 foot long wooden-trestle bridge was only four feet above the Harlem River but it was not considered an obstacle to shipping because the Harlem River was not navigable north of Sherman Creek at that time. The footbridge was removed ca.1891 in preparation for the construction of the Harlem River Ship Canal to the north of the project site (Stevens 1892). A replacement span was not constructed.

At the turn of the twentieth century, the City was considering the construction of a new vehicular bridge for the Fordham Landing location, but the cost for the latest engineering designs was too high to win city approval. Therefore, when the ca.1895 Broadway Bridge span was being replaced in 1903 with a bridge that could accommodate rail traffic, plans were activated through the War Department to transfer the Broadway span to the Fordham Landing location. The Board of Alderman formally adopted the name "University Heights Bridge" in 1904. The Boller-designed central span of the Broadway Bridge was floated downriver to the Fordham Road – 207th Street location in 1906. In anticipation of the move, a river channel had been dredged, local streets widened, and caisson foundations and pier supports were built. A new wheel-tread and pinion-rack was also installed (Reier 1977).

Still dominating the southern limit of the North Harlem River Site, the University Heights Bridge is a testament to the aesthetics of the 1890s, when ornament was considered both beautiful and

essential. Boller's structural artistry is displayed in the light and playful cut-outs and in the peak silhouette of the span itself. (McNamara 1989; Reier 1977) Technologically, the University Heights Bridge is a rim-bearing swing bridge, comprised of two continuous trusses supported by a drum girder at the center, and toggle end lifts at the end piers (see Photograph F). The King Bridge Co. under the direction of the Department of Public Works, New York, completed the construction (Engineering Record 1906).

Boller designed five spans across the Harlem River and won the acclaim of the American Society of Engineers, particularly for his Macombs Dam Bridge to the south. Four of these bridges, including the University Heights Bridge, are listed in the *Guide to Civil Engineering Projects in and around New York* City (The American Society of Civil Engineers 1997).

Major Deegan Expressway

In the early 1930s, the Regional Plan Association (RPA) proposed the creation of a network of expressways and parkways all around the metropolitan area. One of the recommended routes was from the Triborough Bridge north through the Bronx to upstate New York on the east side of the Hudson River. In 1935 Robert Moses, the New York City arterial coordinator, began the initial work on the Major Deegan Expressway. Named after Major William F. Deegan, an Army Corps of Engineers architect and WWI veteran, the first 1.5 miles connected the Triborough Bridge to the Grand Concourse. The road was six lanes wide and also called NY 1B.

After the construction of the initial section of the road, plans were immediately made to extend it to Van Cortlandt Park. The favored route was along the Bronx shorefront of the Harlem River. The new section would allow the road to connect with the Mosholu, Henry Hudson, and Saw Mill River parkways. When the route along the Harlem River was constructed, the one-mile stretch in the University Heights area was built at different levels to provide motorists with a river view. From 1939 to 1950 work on the Deegan Expressway ceased until Moses pushed through the plan to extend the route through Van Cortlandt Park to the Westchester Border. The 8.5 mile long Expressway was completed in 1956.

The adjacent area along the Harlem River shoreline including the project site has been altered as a result of the creation of a bulkhead line, the shipping canal construction and dredging, and various forms of commercial development.

B. Known Historical Sites in the Project Area

The Old Croton Aqueduct, dating to the 1840s is located east of the project site, on the east side of Sedgwick Avenue (see Figure 6). The New Croton Aqueduct (1887-1893), also runs to the east of the project site (see Figure 1). A small stone gatehouse (ca. 1890) of the New Croton Aqueduct, is located nearby on West Burnside Avenue at the southwest corner of Phelan Place. The Old Croton Aqueduct, north of New York City, is currently listed on the National Register of Historic Places. Both the southern section of this system and the New Croton Aqueduct are potentially eligible for inclusion on the National Register of Historic Places. At this time, the NYCLPC does not intend to pursue granting these structures Landmark status. However, the OPRHP has confirmed their potential significance (Shaver 1994).

C. Cartographic Review

In order to compile a disturbance record for the Harlem River site, cartographic resources were examined. Eighteenth and early nineteenth century maps and atlases provide little detail about the landowners and/or occupants along the Harlem River. The earliest map of the project site to give sufficient detail is the 1867 Beers Atlas (see Figure 7). No docks or wharves are shown along the eastern shoreline. The only landowner identified in the project area is "N. P. Bailey." In 1860 Nathaniel Bailey purchased most of the land along the riverfront from Fordham Road to Kingsbridge Road[1]. His home was to the east of the project site up on the property where the Veterans Hospital is now located. During the late nineteenth century Bailey's name was frequently found in newspaper accounts of horse racing, lawn parties, social events and Church-related activities (Protestant Episcopal Church of St. James).

In 1877, the Beers Atlas indicates that the Harbor Commission had established a Pier and Bulkhead line along the Harlem River. Many of the river lot owners, including Bailey, were given the water rights for these not yet filled areas. The two railroad lines (Spuyten Duyvil and Port Morris Railroad and New York Boston and Montreal Railroad) are also depicted on this atlas. The 1879 Galt and Hoy Bird's Eye View of the project site indicates that most of the development of this portion of the Bronx took places well east of the railroad tracks (Figure 8). West of the tracks, the irregular shoreline is depicted in the location of the water treatment plant site. There was little change observed on the 1885 Robinson Atlas of the project area.

Sanborn maps for the years 1893, 1896, 1900, 1913, 1914, 1915, 1935, 1946, 1948, 1977, and 1989 were reviewed in order to identify any information on land-use activities. Unfortunately, the Sanborn maps depict portions of the project site on a series of map plates instead of the entire parcel on a single plate.

The1896 Sanborn map shows both the Hudson and Putnam Lines running north-south on the eastern side of the project site. Fast land is only present in limited areas to the west of the tracks and the proposed bulkhead line established in conjunction with the construction of the Harlem River Canal is depicted. The only feature identified on the site is the dock at Fordham Road. To the west of the project site the imposing Webb's Academy and Home for Shipbuilders is present.[2]

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[1] In 1860 the State of New York gave Nathaniel P. Bailey the land under the Harlem River and between high and low watermark from the area south of (currently called) Landing Road to the Bronx/Manhattan border. This property was in addition to the property owned by Mr. Bailey that stretched to the east of the River. The agreement with the State of New York and Mr. Bailey was that he was to construct and operate dock(s) for the introduction of waterway commerce in the area. This agreement was established just prior to the planned dredging of the Harlem River to expand the Shipping Canal and gave Mr. Bailey five years to establish the commerce of the agreement or the agreement would become void and the land would be taken by the State.

In 1873, Mr. Bailey sold the strip of land to the east of the River that is currently used by the Metro-North Railroad. This property was purchased by the then New York, Boston and Montreal Railway Company (later to be called the New York Central Railroad Company) for railway use for $18,430. This agreement was made with the intention that current culverts that cross the property would be maintained to remove stormwater and waste to the River. Access was also to be provided based upon agreed locations of depots for loading and unloading of passengers and commerce.

[2] Webb's Academy was dedicated in 1894. Mr. William H. Webb, who continued to support it for many years, donated the property and building. It was Webb's desire that the academy provide "free relief and support to the

Both the Sanborn map Bromley's Atlas of New York City for 1900 show the new Pier and Bulkhead line (Figure 9). The Sanborn also depicts a small-unidentified structure on the north side of the Fordham dock. No other changes from the 1896 conditions are evident. In 1907, New York Central constructed a large building near the intersection of the two railroad lines. The Sanborn maps indicate the building was used to house transformer and battery equipment.

Changes noted on the 1914 Sanborn map are the appearance of the NY Edison company's "Cable House" just north of W 184th Street and the presence of the University Heights Bridge (see Photograph D). Just north of the bridge, several small sheds were also depicted within the water treatment plant site.

The next noticeable changes are on the 1946 Sanborn when a tennis court and associated office and locker room are depicted to the north of the NY Edison Cable House at W 184th Street. Another small-unidentified shed is depicted on the 1948 Sanborn just south of W 191st Street. The 1977 Sanborn map identifies land-use and commercial enterprises within the project site at that time. A boatyard is shown at the northern end of the site near W 192nd Street. To the south of W 191st Street the Butler Lumber Yard with its associated storage buildings is now depicted in the location of the 1940s tennis court (see Photographs D and E). The NY Edison Cable House is still present. To the north of the University Heights Bridge a playground and park are now depicted.

The 1989 Sanborn map identifies additional late twentieth century waterfront businesses within the project site including the Redi-Mix Batch Plant and the Redi-Mix Truck REP (repair facility) at W 189th Street (see Photograph B).

Property Ownership

Deed research has provided details on property ownership for several of the lots within the water treatment plant site. What follows is a summary of the work completed by the Commonwealth Land Title Insurance Company (Figure 10).

Block 3244, Lot 1
In an 1860 deed, the State of New York sold the land (identified as Lot 1) under the Harlem River and between high and low watermark to Nathaniel P. Bailey. Bailey in turn sold the land to The New York Boston and Montreal Railway in 1873. Between 1965 and 1966 a series of easements and land deeds culminate with a deed between the Trustees of the Property of the Penn Central Transportation Company (Grantor) and the Consolidated Rail Corporation (Grantee), the current property owner.

Block 3244, Lot 2
In an 1860 deed, the State of New York sold the land under the Harlem River and between high and low watermark within Lot 2 to Nathaniel P. Bailey. Bailey in turn sold the land to The New

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aged, indigent, or unfortunate men who have been engaged in building hulls of vessels, or marine engines" in the United States (21st Annual Report). These former shipbuilders, together with the wives and widows of such persons were admitted to the home. In addition, the Academy accepted young men "upon examination" into an education program where they could learn the art, science and profession of shipbuilding.

York Boston and Montreal Railway in 1873. In 1965 an easement was granted to the Consolidated Edison Company of New York. The most recent deed on file is a 1978 deed between the Trustees of the Penn Central Transportation Company and the Owasco River Railway, Inc.

Block 3244, Lot 100
In an 1860 deed, the State of New York sold the land under the Harlem River and between high and low watermark within Lot 100 to Nathaniel P. Bailey. Bailey in turn sold the land to The New York Boston and Montreal Railway in 1873. In 1965 an easement was granted to the Consolidated Edison Company of New York, the present owner/occupant of the site.

Block 3244, Lot 120
In an 1860 deed, the State of New York sold the land under the Harlem River and between high and low watermark within Lot 120 to Nathaniel P. Bailey. Bailey in turn sold the land to The New York Boston and Montreal Railway in 1873. In 1965 an easement was granted to the Consolidated Edison Company of New York. The Butler Lumber Company is the present owner/occupant of the site.

Block 3244, Lot 160
In an 1860 deed, the State of New York sold the land under the Harlem River and between high and low watermark within Lot 160 to Nathaniel P. Bailey. Bailey in turn sold the land to The New York Boston and Montreal Railway in 1873. In 1965 an easement was granted to the Consolidated Edison Company of New York. Fordham Road Realty is the present owner/occupant of the site.

Block 3245, Lot 3
In an 1860 deed, the State of New York sold the land (identified as Lot 1) under the Harlem River and between high and low watermark to Nathaniel P. Bailey. Bailey in turn sold the land to The New York Boston and Montreal Railway in 1873. Between 1953 and 1978 a series of easements and land deeds culminate with a deed between the Trustees of the Property of the Penn Central Transportation Company (Grantor) and the Consolidated Rail Corporation (Grantee), the current property owner.

D. Results of Walkover Survey

During the survey of the Harlem River Site a series of photographs were taken documenting the current conditions (see Photographs A-G). Although the transportation corridor on the east side confines the site, the industrial/commercial setting of the neighborhood is apparent. During the site visit, modern drains and utilities were observed. A recent environmental report (Toxics Targeting 2001) confirmed the presence of several underground storage tanks within the project site (removed and extant), as well as numerous underground utility pipes.

E. Historical Sensitivity

Early Historical Settlement

Documentary research found that the Archer homestead was well south of the water treatment plant site (Jenkins 1912). Although the Archer's had tenant farmers living on the manor lands, there is no indication that the riverside area would have been the site of any dwellings or associated agricultural structures during the seventeenth through nineteenth centuries. The limited amount of fast land present and the tidal activity of the Harlem River would have precluded the construction of these structures along the riverbank. Therefore, the Harlem River Site is not considered sensitive for early historical resources.

Revolutionary War

At the time of the Revolutionary War, a line of fortifications was built along the Fordham Heights ridge. Subsequent nineteenth century homeowners (e.g. the Schwab and Bailey families), living east of the water treatment plant site, found Revolutionary War relics in their gardens or during house construction (Jenkins 1912). According to documentary research, all of the Revolutionary War resources were situated east of Sedgwick Avenue and distant from the water treatment plant site. Although Fordham Ridge, that rises above the Harlem River in this section of the Bronx, saw extensive activity during the War, the uneven shoreline and the tidal activity of the river would have precluded the construction of these structures along it's banks. At present, only small portions of the project site are fast land and there is no indication that any significant features or *in situ* cultural deposits dating to the Revolutionary War era would be present.

Transportation/Bridge Features

As discussed above, the project area was used as a landing for bridges to Manhattan since the earliest settlement in the area in the seventeenth century. Almost all of the bridge sites, however, were outside of the project site boundaries. The 1881footbridge at Fordham landing was removed when the Harlem River Ship Canal was constructed and the shoreline was reconfigured for larger ship traffic. The touchdown location of the footbridge was further disturbed by the twentieth century construction of the University Heights Bridge, just south of its location.

The railroad has been a dominant factor in the character of the water treatment plant site area the introduction of the rail corridor in the mid-nineteenth century. Prior to the horizontal expansion of the shoreline, after ca. 1900, the rail line hugged the shore in portions of the water treatment plant site. No significant railroad-related structures were identified within the water treatment plant site during the documentary assessment.

The examination of cartographic resources found that a significant degree of landfilling and bulkheading has occurred along the shoreline of the Harlem River during the late nineteenth through early twentieth centuries. While the Harlem River Canal is clearly a significant resource, it is located far outside of the water treatment plant site boundaries. In addition, the artificial shoreline and fill on the western edge of the site is not considered to be sensitive because of its late date and the unknown origin of the fill material.

V. CONCLUSIONS AND RECOMMENDATIONS

Prehistoric Period

Portions of the site that were once fast land have the potential for the presence of prehistoric cultural material (Figure 11). These upland areas were sensitive because of their proximity to several favorable resources (fresh water, game animals, and other exploitable raw materials). Terraces and knolls adjacent to streams and rivers were the preferred locales for prehistoric activities. Site file research and the archaeological literature review have determined that numerous prehistoric sites have been recorded within the vicinity of the water treatment plant site. Further, archaeological investigations in the area have uncovered a variety of site types (habitation sites, rockshelters, middens, resource extraction sites).

Although the Harlem River Site is in a location that is deemed sensitive, there has been a significant degree of land manipulation along the river's edge. Documentary research indicates that much of the project site is landfill. In fact, the examination of historic maps has identified only a limited amount of fast land within the project site (see Figures 4, 8, and 9). Unfortunately the extent of disturbance in these locations is unknown at present.

In order to determine the stratigraphic sequence and degree of disturbance to areas that might be potentially sensitive, continuous tube soil borings are recommended. If evidence of an undisturbed prehistoric shoreline is identified during the analysis of the soil borings, then a Stage 1B subsurface testing plan may be warranted to investigate these potentially sensitive areas when the locations of project impacts are established. If Stage 1B subsurface testing is indicated, the goal would be to establish the presence or absence of prehistoric cultural resources as well as their horizontal and vertical extent.

Historical Period

Documentary research has determined that no significant historical resources are present within the water treatment plant site. Therefore, no further archaeological consideration is recommended for this resource type.

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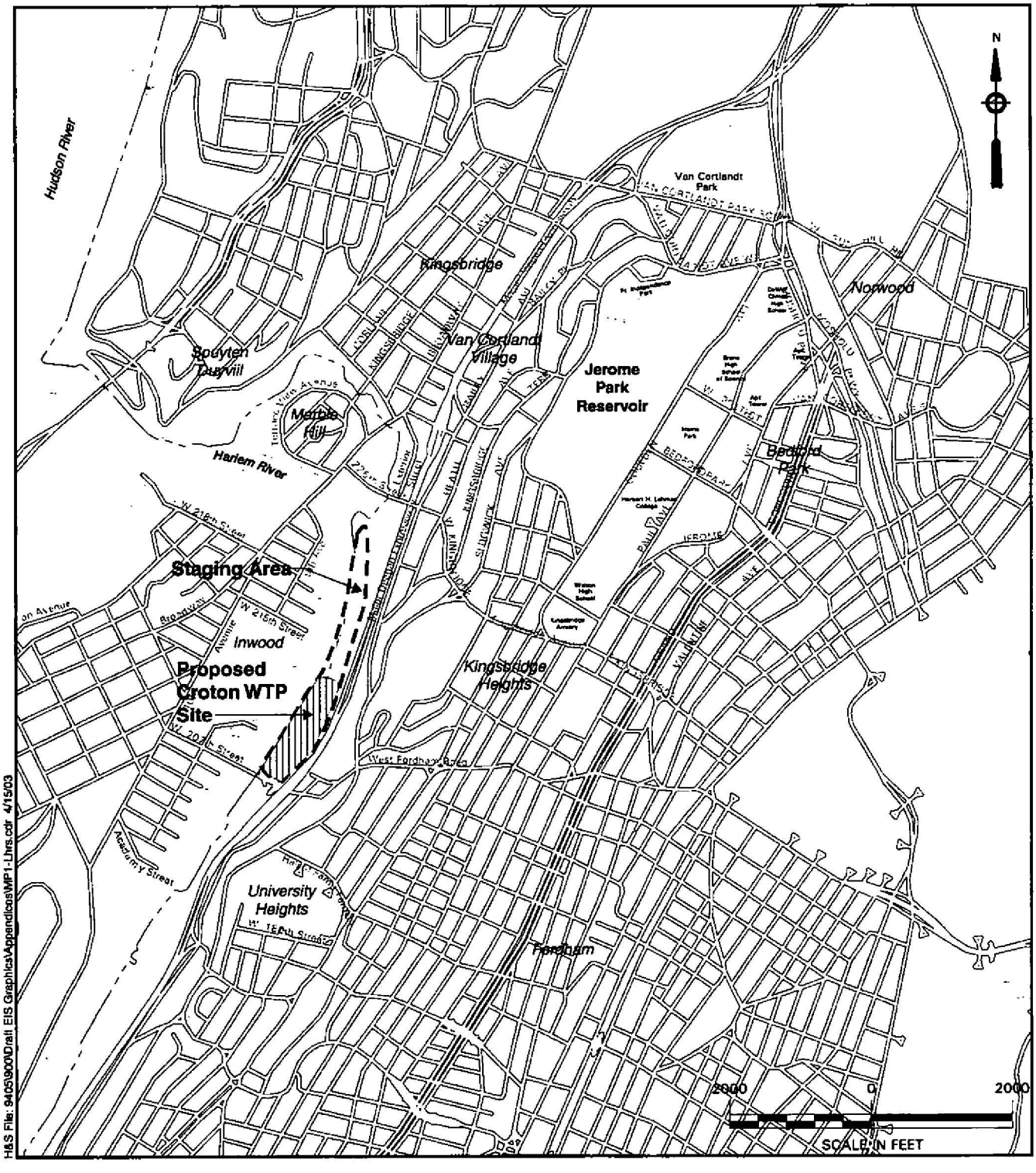
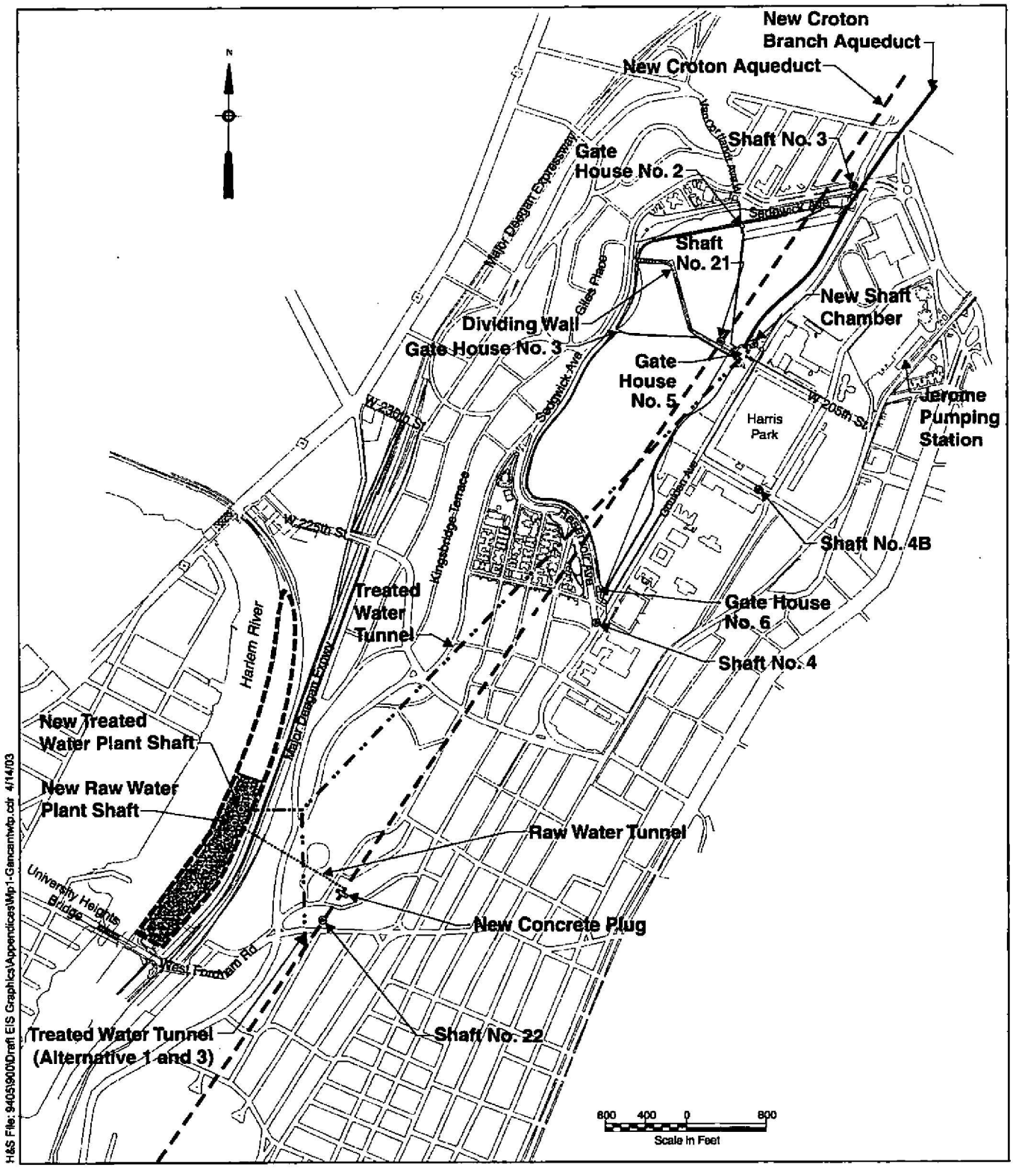


Harlem River Site Location

Croton Water Treatment Plant

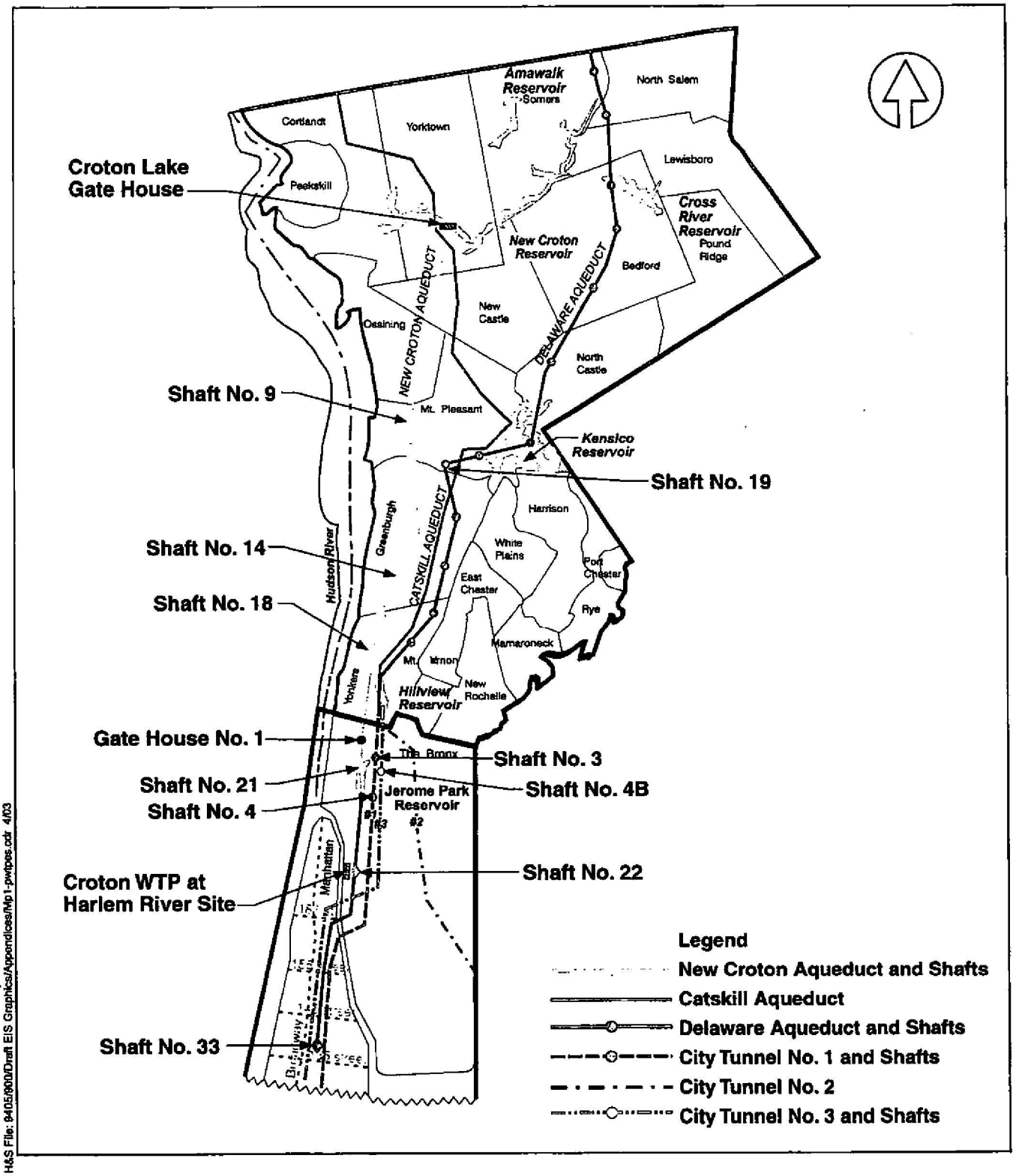
Figure 1



Proposed Site Plan
Harlem River Site

Croton Water Treatment Plant

Figure 2



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Location Plan Showing Shaft Nos. 9, 14,18 and Gate House No. 1

Croton Water Treatment Plant

Figure 3

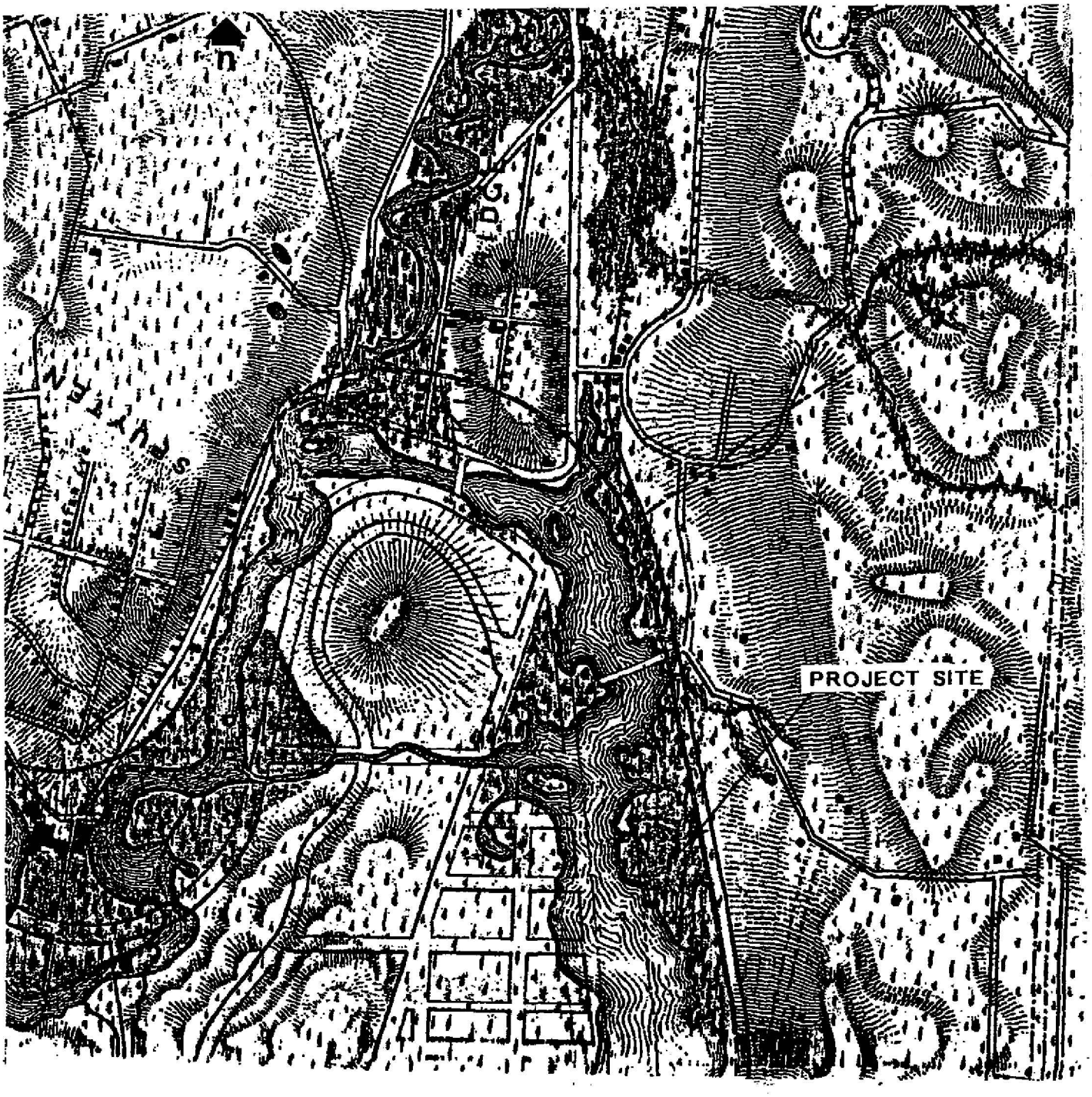


Figure 4. Viele, Topographical Atlas of The City of New York Including Annexed Territory, 1874.

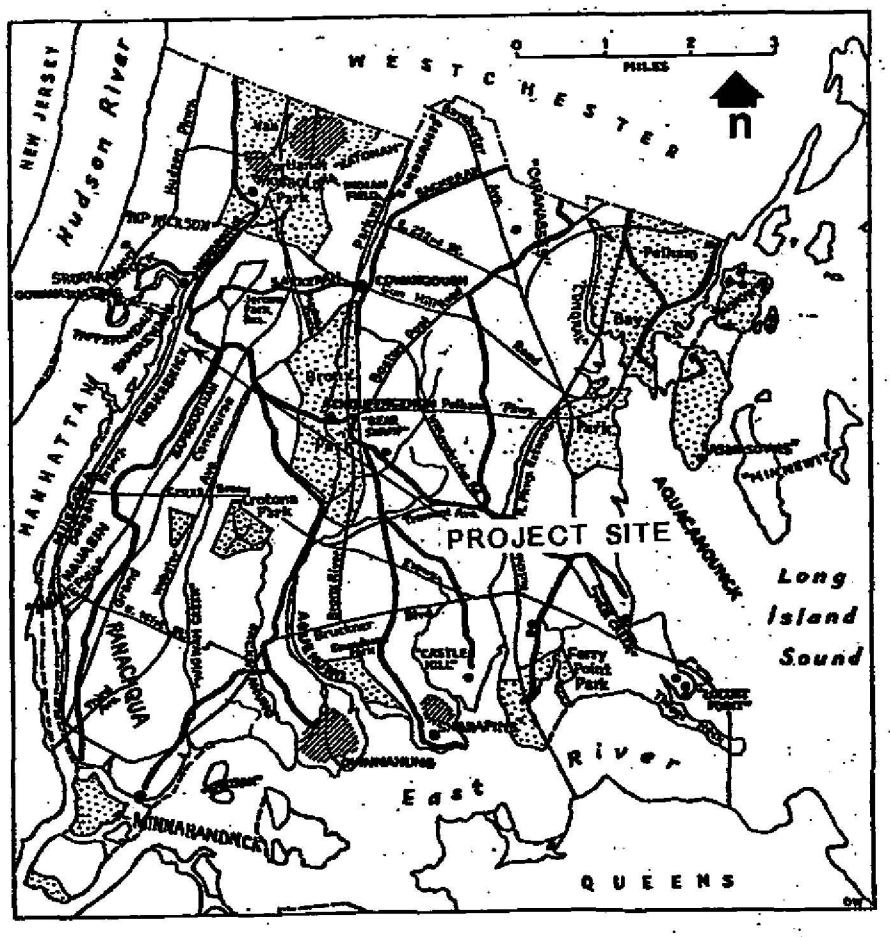


Figure 5. Grumet, Native American Place Names in New York City, 1981.

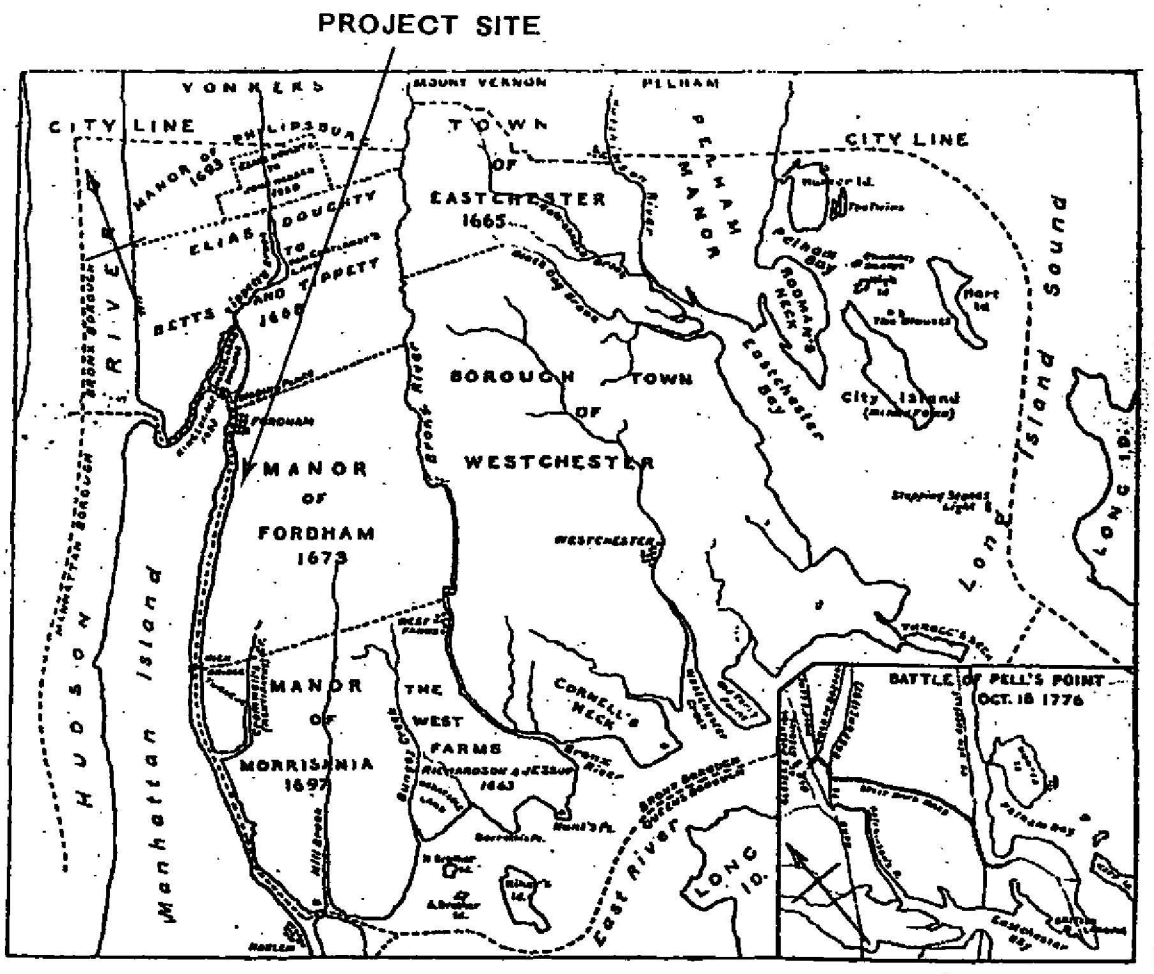


Figure 6. Jenkins, The Bronx at the End of the English Period.

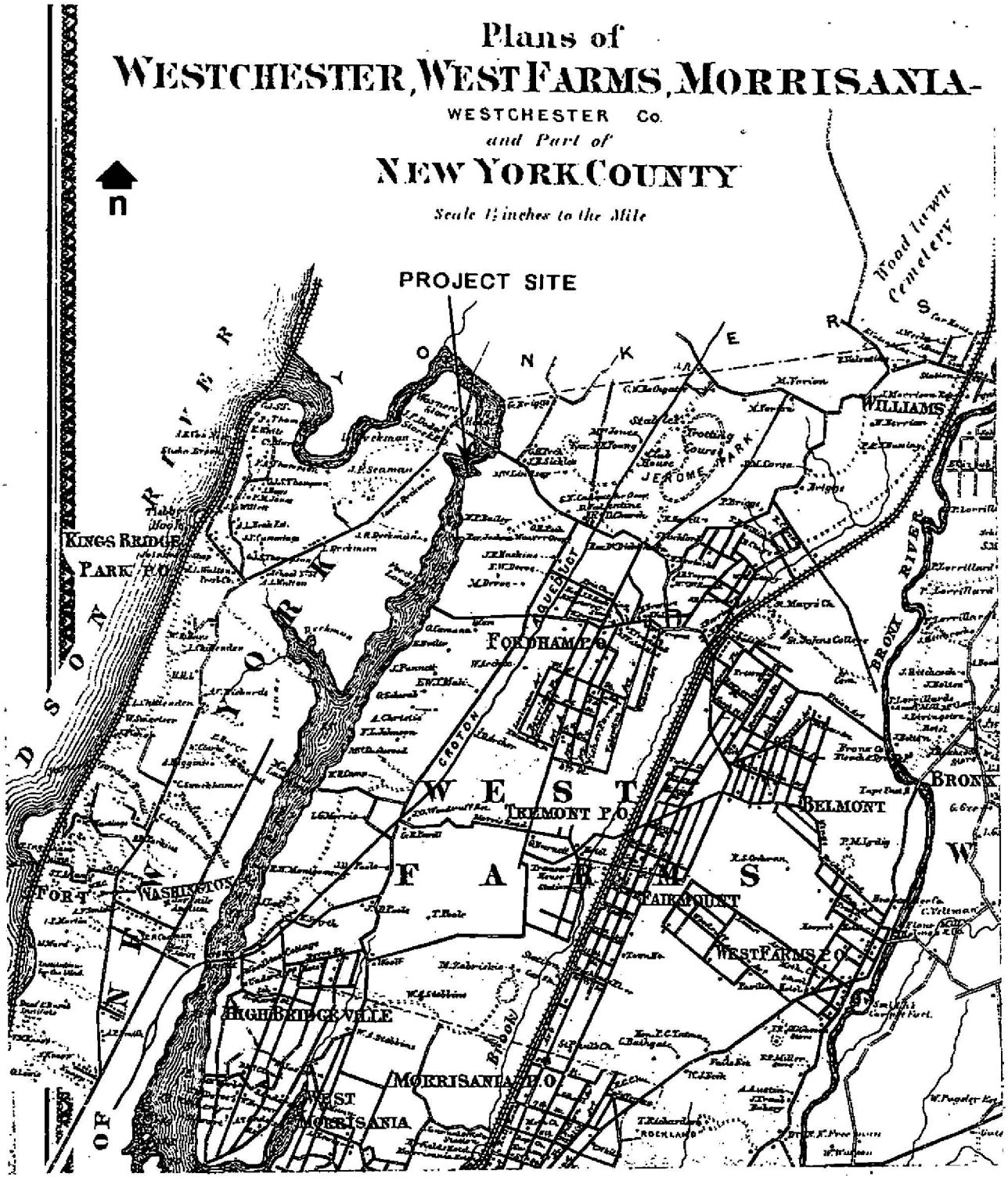
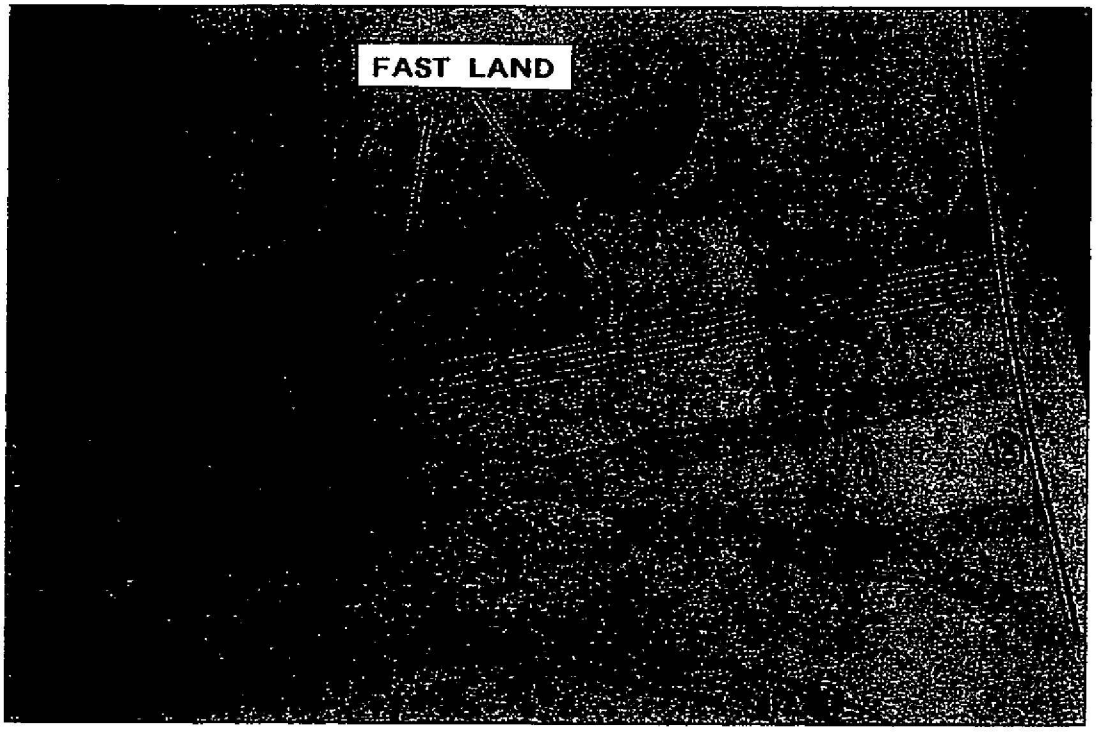


Figure 7. Beers, Atlas of New York and Vicinity, 1867.

Figure 8. Galt and Hoy, Bird's Eye View of New York City, 1879.



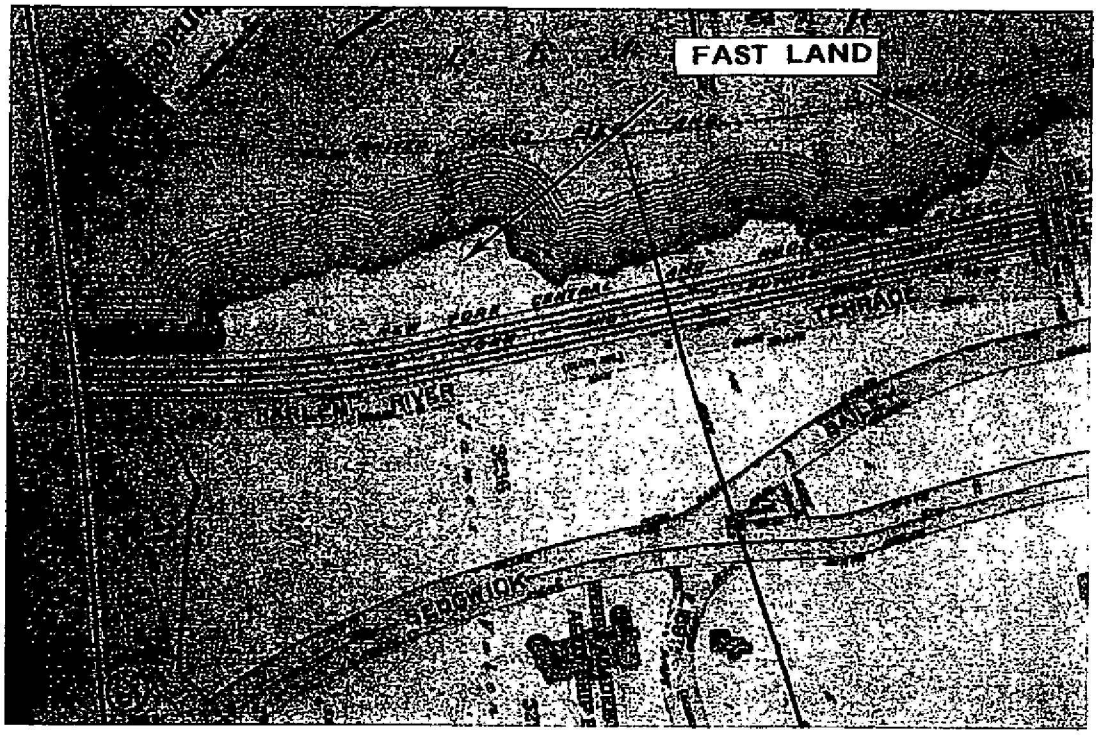


Figure 9. Photographs of Fast Land on Bromley, Atlas of New York City, 1900.

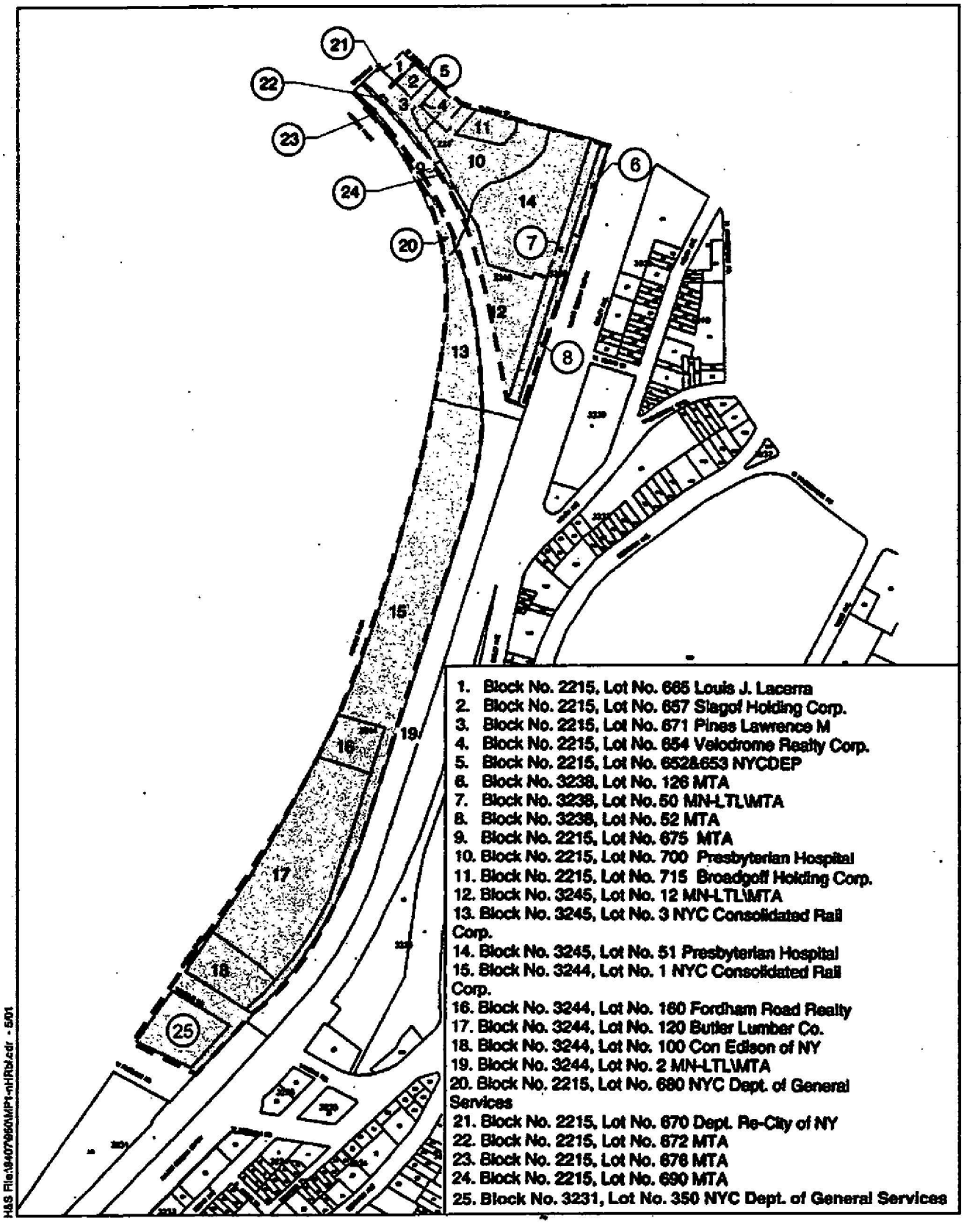
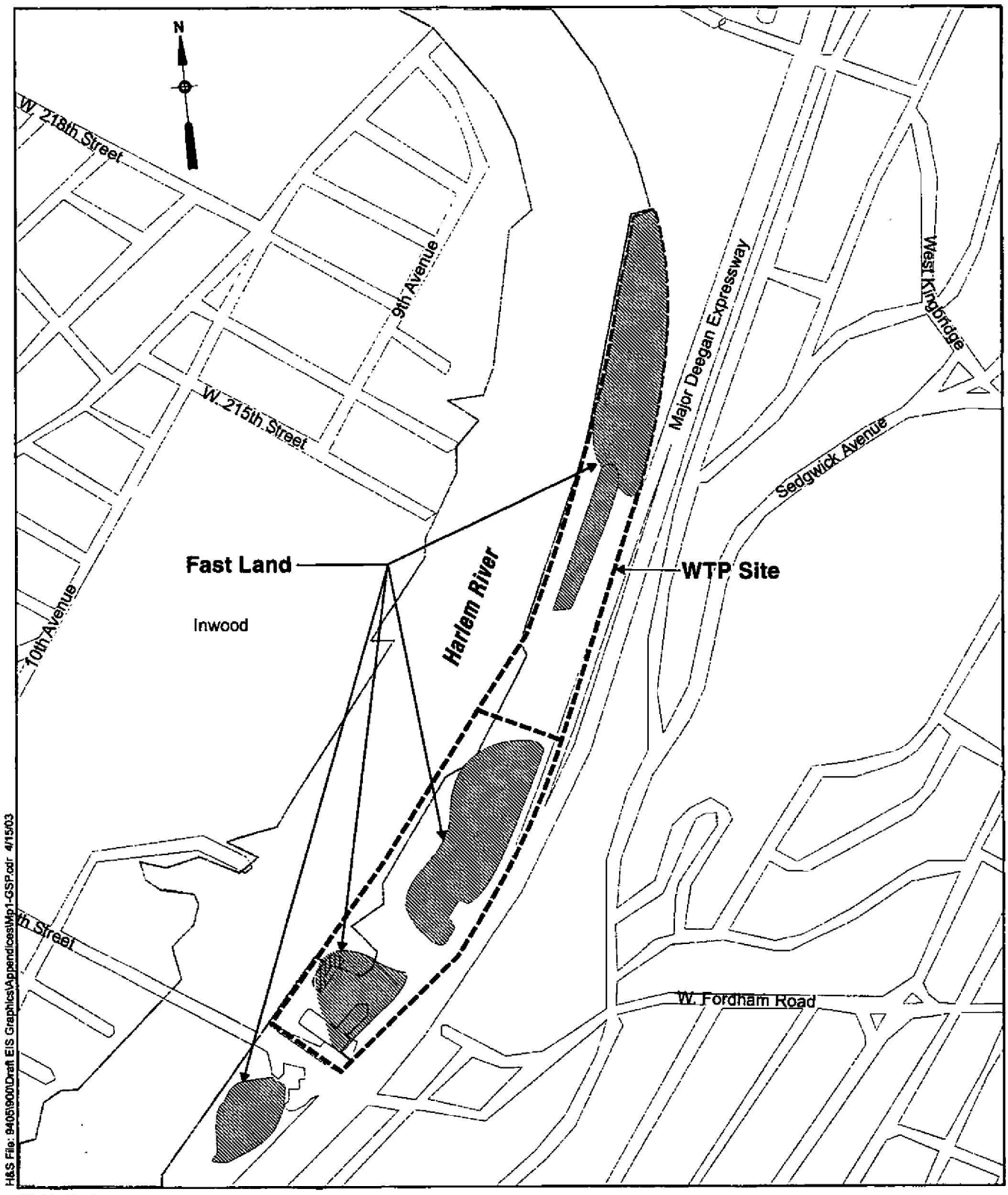


Figure 10. Block and Lot Ownership, Harlem River Site.



Not to Scale

Map of Archaeological Sensitivity
Harlem River Site

Croton Water Treatment Plant

Figure 11

Photograph A: North End of the Harlem River Site, Facing Southeast.

Photograph B: Harlem River Site, Facing South.

Photograph C: Harlem River Site, Facing North.

Photograph D: Harlem River Site, Con Edison Cable House.

Photograph E: Harlem River Site, Adjacent to Butler Lumber Building, Facing North.

Photograph F: University Heights Bridge.

Photograph G: Shoreline Adjacent to University Heights Bridge, Facing South.

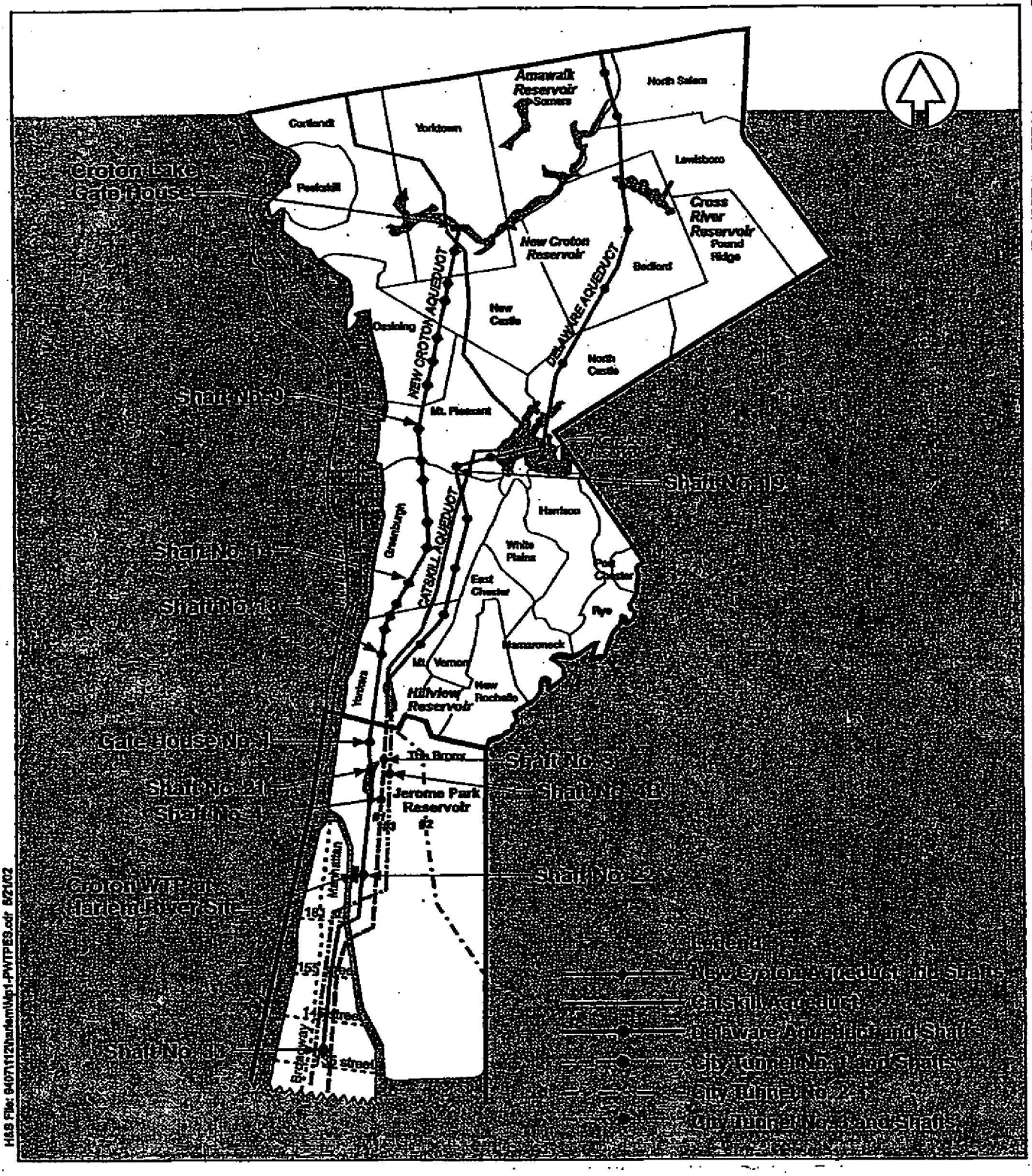


Figure 3. Location Map of Access Sites.
Source: Metcalf & Eddy of New York, Inc., and Hazen and Sawyer.