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STAGE ONE CULTURAL RESOURCE SURVEY
OF THE PROPOSED SLUDGE STORAGE LAGOON AND THE
PROPOSED ACCESS ROADWAY
WARDS ISLAND WATER POLLUTION CONTROL PLANT, NEW YORK CITY

by

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I. INTRODUCTION

This Stage One Cultural Resource Survey of the Proposed Sludge Storage Lagoon and the Proposed Access Roadway for the Wards Island Water Pollution Control Plant was conducted by Historic Conservation and Interpretation, Inc. for Camp Dresser & McKee Inc., Environmental Planners. The project areas are situated on Randalls and Wards islands, New York City. The work was done during the months of September and October of 1980, following the guidelines set by the U.S. Environmental Protection Agency.

Documentary research was conducted at the New York State Office of Parks and Recreation, Division for Historic Preservation; the New York State Museum; the New York Historical Society; the Museum of Natural History; the New York Public Library; and the Museum of the City of New York. Also consulted were the Bronx Historical Society, the New York City Landmarks Society and local archeologists. The latter included Mr. Edward Kaeser of the Bronx, Dr. Lynn Cecie of Queens College, Dr. Nan Rothchild of Hunter College, and Professor John Vetter of Adelphi University. Finally consulted was a site file contained in the Heye Foundation Museum of the American Indian, which had been prepared by Mr. Rutsch during site survey research of the Bronx in the late 1960s.

Primary Investigator Edward S. Rutsch served as project director, with Richard Porter in charge of the historical documentation for the historic period. Architectural Historian Herbert Githens provided the

architectural analysis of the Bakery Building, the only extant structure within the project area.

The authors wish to thank Mr. Walter B. Crowcz, Assistant Superintendent of the Wards Island Water Pollution Control Plant, for his interest in our research and permission to examine and place test excavations in the part of the project area which is situated within the sewage treatment plant grounds.

II. DOCUMENTARY RESEARCH

A. PHYSIOGRAPHIC SETTING

The physical setting of the site of the Wards Island proposed sewage treatment facilities is dominated by its association with the adjacent Hell Gate, one of New York Harbor's most famous places. Named after a similar place in Holland by its discoverer Adriaen Block in 1613, the term Hell Gate accurately describes the single worst tidal maelstrom in any of the extensive navigable marine channels in the New York metropolitan area (Kelley 1909: 136). The Hell Gate Channel was an important intercoastal transport route which opened the way to the relatively quiet waters of Long Island Sound and therefore provided a protected passage to coastal New England. Violent tides in addition to a series of rocks and reefs, now largely removed, took a continual toll on coastal traffic and so the treacherous channel became an infamous landmark throughout a large region. Since this physiographic feature borders our site and since it had a dynamic effect on all people who settled and lived there, both aboriginal and European, it is worth our consideration.

In addition to its dynamic landscape, the project area has a most interesting geological component. A noted geologist who has spent his career studying the metropolitan region notes that understanding the area is difficult in "...a region of such marked geologic complexity that.

even careful study invites several possible explanations of its many-faceted physical development." (Schuberth 1968: 9).

The New England Upland physiographic region, which is a division of the Appalachian Highlands, has two projections or prongs which reach southward. The smaller and more easterly is the Manhattan Prong, which includes the Wards Island study area (see Figures 1, 2, 3, 8). It is a region composed of igneous and predominantly highly metamorphosed bedrock which ends at the southern tip of Manhattan island (Schuberth 1968: 10).

Near the southern tip of the Manhattan Prong is the confluence of several marine passageways which connect the Hudson River and Long Island Sound. The study area lies at the juncture of the Harlem River, the East River, and the western end of Long Island Sound adjacent to the aforementioned Hell Gate. Originally the land area consisted of three islands, Wards, Randalls, and Sunken Meadow. Filling operations during this century have joined them together to form a single land mass.

The environmental assessment study done by Camp Dresser & McKee for the sludge management plan for Wards Island offers some interesting information concerning the bedrock, soil and landscape of the project area, and is included below (see also Figure 2).

Bedrock Formations

The contacts of three bedrock formations are found in the vicinity of Wards Island.... The Fordham Gneiss is the oldest of these formations, the sediments from which it is derived being deposited during the Precambrian Age. Biotite-quartz-feldspar gneiss facies with associated migmatite, granulite, and amphibole were the result of bed-by-bed granite intrusions into schist, which itself was the product of at least three earlier orogenies. When exposed, the biotite gneiss decomposes rapidly to a sandy clay soil, which is usually rust-colored because of the high content of mafic minerals (Mg, Fe).

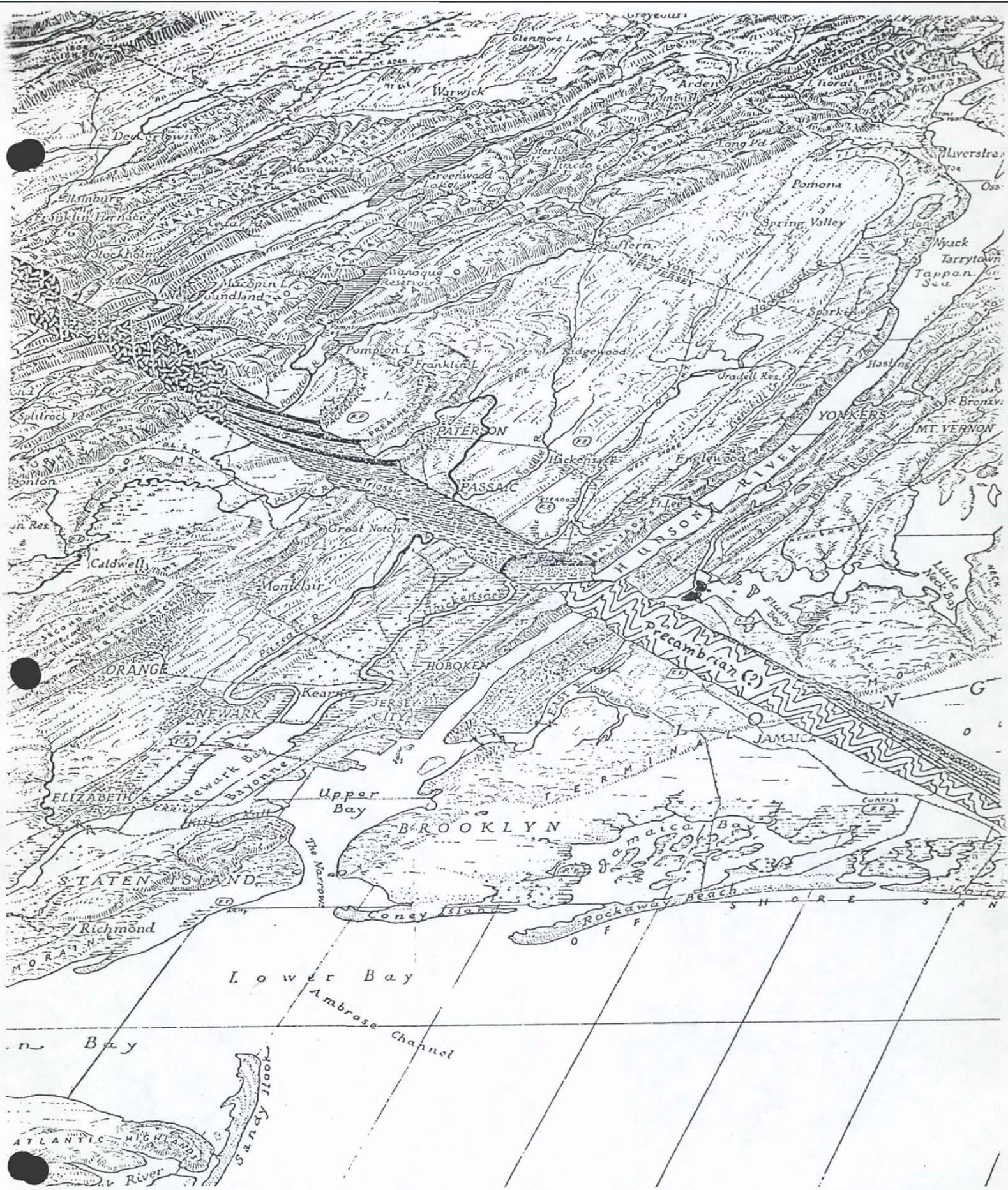
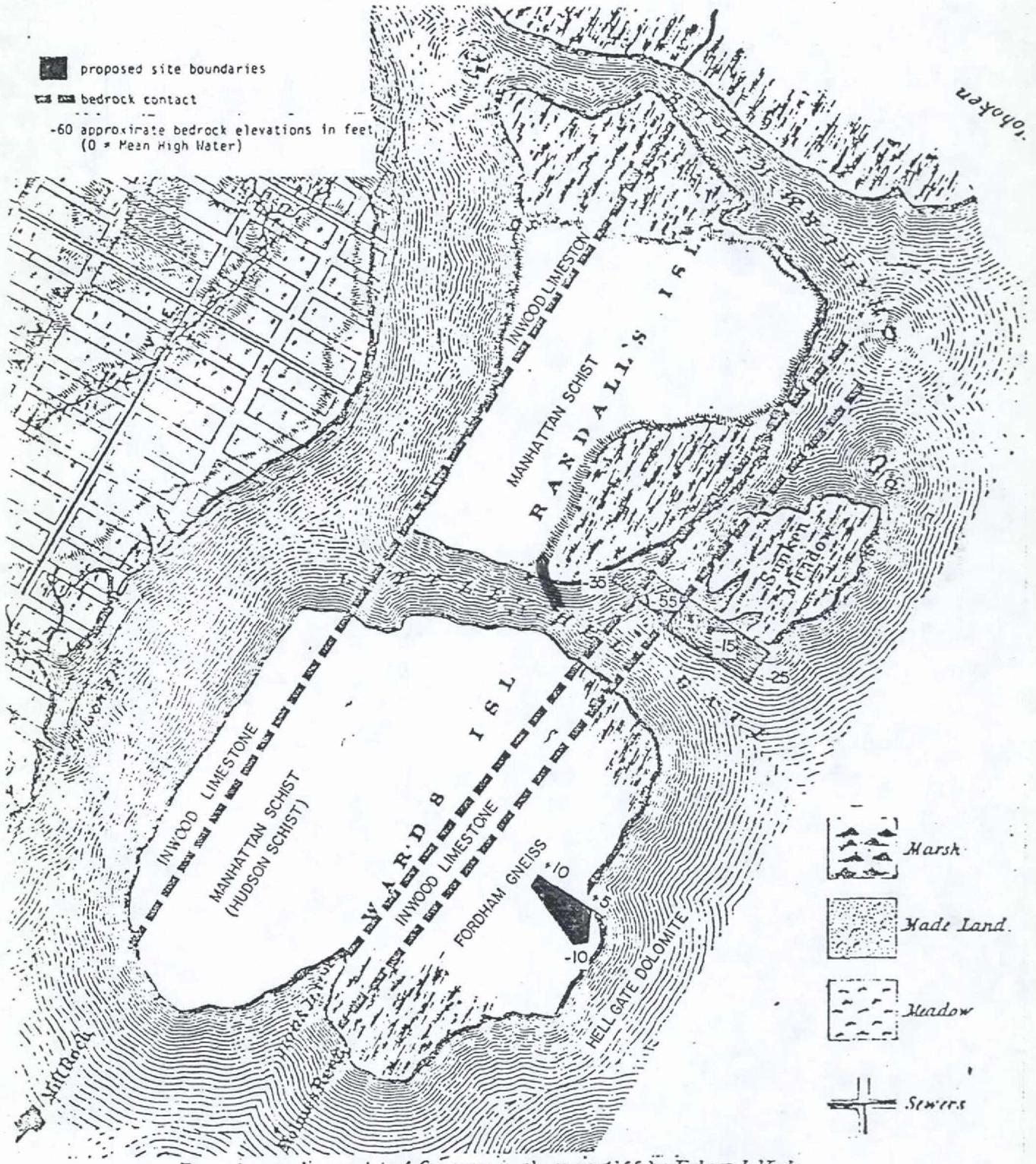


FIGURE 1. Physiographic diagram of the New York region with Wards Island and Randalls Island project area marked in yellow. (Schuberth 1968)



Engr. as according to Act of Congress in the year 1865 by Egbert L. Viel in the Clerk's Office of the District Court of the United States for the Southern District of New York

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FIGURE 2. Bedrock characteristics superimposed on an 1865 survey by Viel, modified for Camp Dresser & McKee's 1980 environmental report. The study areas are marked in yellow.

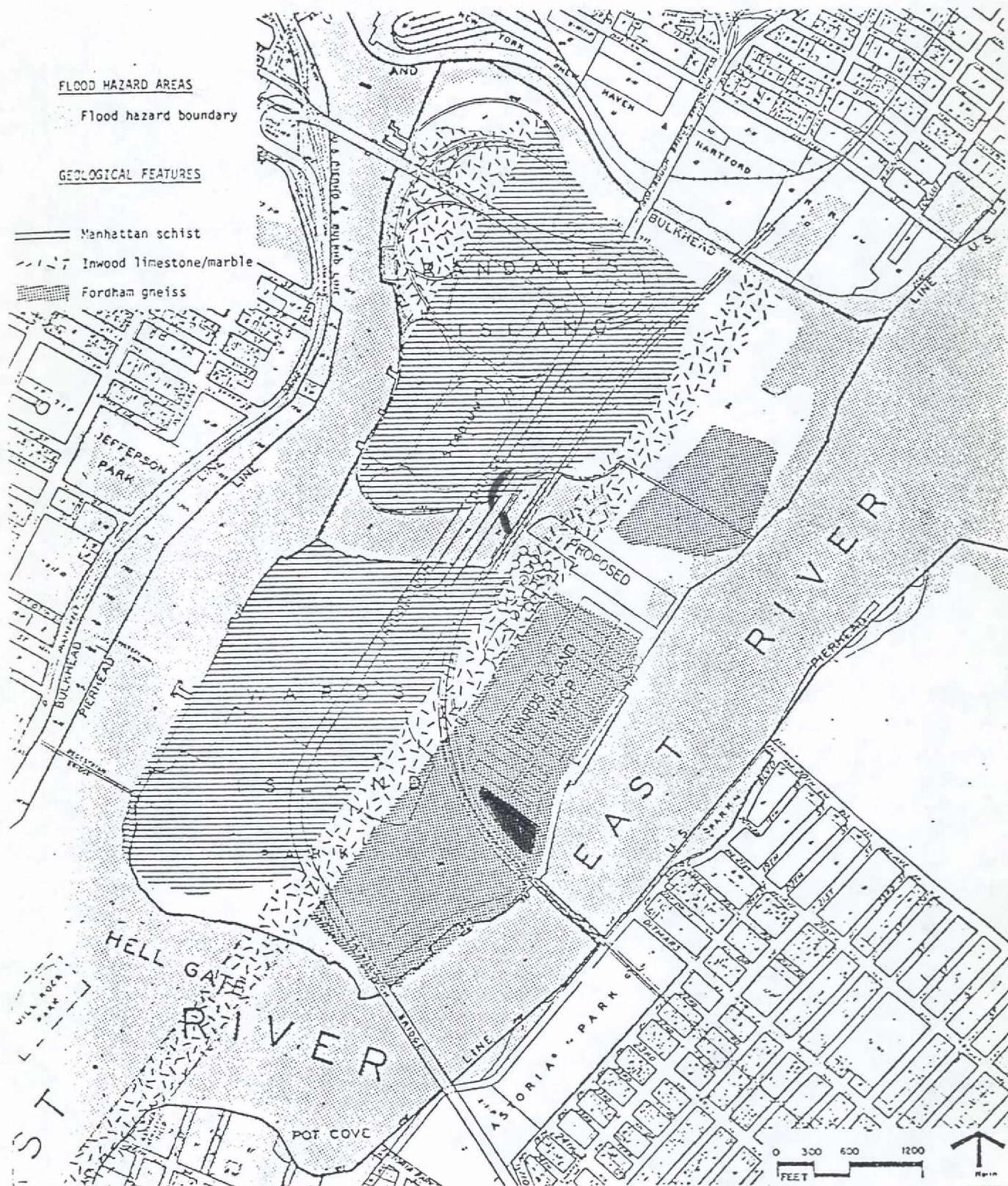


FIGURE 3. Geologic features of present-day Wards and Randall's island showing the study areas in yellow. (taken from Camp Dresser & McKee 1980).

The granitic portion of this gneiss, however, is considerably more resistant to mass wasting processes, and can also withstand greater stress than its biotite facie due to a lack of preferred orientation. On Wards Island, the local structure of the Fordham and other formations has yet to be determined from existing boring data. On a regional basis, the structure is extremely complicated, with trends differing from area-to-area. The foliation is dominant, with dips ranging from steep to moderate and horizontal in some locales. The formation exhibits strong jointing, in sets, widely to closely spaced. Faults may reveal rocks sheared to mica schist or mylonite. Greatest rock decomposition occurs at formation contacts, particularly at the contact between the Inwood Limestone and Manhattan Schist.

The second oldest formation, the Inwood Limestone, is a limestone/dolonite/marble series whose origin is from late Cambrian to mid-Ordovician. This unit is the product of Ca/Mg carbonate deposition under marine conditions (theoretically, a sea of 500 to 600 feet in depth would be required for such deposition to occur), and subsequent to metamorphic processes, yielded Inwood Marble. A continuous sequence of deposition in progressively shallower seas included depositions of shoreline sands and silts. These deposits contained quartz lenses and shale muds and as the result of a later orogeny, became the Manhattan Schist, the most recent of the three formations found on Wards Island. This formation, like the Inwood formation, is of late Cambrian to mid-Ordovician age. Unlike the Fordham Gneiss, which has undergone at least three distinct orogenic episodes of folding, the more recent formations have each been folded during only one orogeny subsequent to their respective shale and limestone lithifications. The contact between the Manhattan Schist and the Inwood Limestone occurs within the greatest zone of rock decomposition. This zone includes numerous fractures containing water bearing sand deposits, and in some areas is hydraulically connected with the surface waters of the region. This is particularly true of the Harlem River which flows upon the Inwood formation and follows its contact with the Manhattan Schist.

Subsurface Conditions

What is today the peninsula of Wards Island, located at the confluence of the Harlem and the East rivers, was originally two separate islands and an area of land which was exposed only at low tide.... Figure [2] presents the landforms, Wards and Randalls islands and Sunken Meadow, as they appeared in 1865. A series of bedrock excavations occurred throughout the remainder of the 1800s and into the 20th century in order to create some shipping and navigation channels. Much of the blast rubble was undoubtedly used to make new land on Randalls Island, resulting in those changes comprising the existing shoreline configuration....

The proposed lagoon site is located in an area where the bedrock dips steeply. At the northeast boundary the bedrock elevation is at 5 to 10 feet above MHW. The elevation dips steeply to at least -60 at the Conrail Bridge abutment location.... The overburden at this site is also modified glacial drift consisting of sand, silt and clay, exhibiting one degree of stratification. Frequently, this modified glacial drift is covered by a layer of unsorted till containing some large boulders. Fill varies greatly in character, with some areas containing large blocks of rip rap, which are highly pervious and generally more costly to excavate. The borings on the sites are scheduled to be taken to determine the exact nature of the subsurface material. Information on subsurface conditions was derived from records of land borings performed for prior to the construction of the Triborough Bridge, and also from borings done by the firm Mueser, Rutledge, Johnstone, and DeSimone on the Wards Island WPCP site.

The proposed lagoon site has a shallow depth to bedrock in the northern portion and a much greater depth to bedrock in the southern corner. This greater depth exists because the Fordham Gneiss begins to dip steeply at this location and the south portion of the site overlies what may be a badly decomposed contact between the Fordham Gneiss and Hell Gate Dolomite (formerly referred to as Inwood Limestone). The overburden does not contain a layer of mud at this site, indicating that the area was probably never under water. (Camp Dresser & McKee 1980: Appendix J: 1-3)

B. PREHISTORIC PERIOD

The site files of the New York State Museum, the New York State Office of Parks and Recreation, Division for Historic Preservation, and the expertise of archeologists of coastal New York show that while the region surrounding Wards Island abounds with sites containing remains of aboriginal culture, particularly along the shorelines, the study area at the side of the Hell Gate has no known prehistoric remains. Generally this is not surprising as the site was not suitable for gathering shellfish or fishing. The study area for the proposed sewer treatment plant access road does however cross an area of shoreline that once bordered a secondary channel between Wards and Randalls islands. Although no site has been reported here, we tried to locate this original shoreline and test it accordingly. The discussion of this testing is found in the Infield Research section of this report.

The Hell Gate tidal Maelstrom, while unsuitable for fishing, did not impose a barrier to Indians in their dugout canoes, who, as the Reverend Chas Wooly reported in 1678, were willing to pass through the channel (Stokes 1915: 315). Also, the early European navigators in 1670 noted that experienced pilots were perfectly capable of passing through the Hell Gate (Stokes 1915: 273-74).

C. HISTORIC PERIOD

European activity in the region of the Wards Island project areas began with Henry Hudson's voyage of discovery in New York Bay and the Hudson River in 1609. In 1613 a group of Amsterdam merchants organized the United Netherland Company and sponsored a number of voyages of exploration, seeking ways to economically exploit the new Dutch colony of New Netherland. One of the sponsored vessels was the *Tiger*, under the command of Adriaen Block. Block was probably the first European to sail through the channel between Wards and Randalls islands on the west and Long Island (Astoria, Queens) on the east. He also seems to have been the first to have referred to the waterway as "Hellgat, " a name that has persisted to the present with only slight variation (Stokes 1915).

In 1614 the *Tiger* was accidentally destroyed by fire, so Block and his crew were forced to build the *Restless*. On this ship, Block probably again passed through the Hell Gate in the opposite direction and continued his explorations to the northeast, investigating the Connecticut River, Narragansett Bay (including Block Island), and other sections of the New England coast (Stokes 1915).

Later that year the United Netherland Company submitted a report to the Dutch States-General on the voyages of exploration. This report has been lost, but the map that accompanied it survives today. Known as the "Figurative Map," it is believed to be the work of Adriaen Block, incorporating his explorations with earlier information from the Hudson

voyage. The map presented a far more accurate rendering of the Manhattan-New York Bay area than any of its predecessors, and the "Hellegat" was identified by name (Stokes 1915).

In 1619 Thomas Dermer sailed between Maine and Virginia searching for the fabled Northwest Passage while under the employ of an English settlement company. Although not mentioned by name, it is apparent from the description in his journal that he passed through the Hell Gate. He described it as "...a most dangerous Catwtract amongst small rockie Ilands, occasioned by two unequall tydes, one ebbing and flowing two houres before the other." He also tells of meeting with the aboriginal inhabitants of the area and their descriptions of the dangerous shoals and currents (Stokes 1915).

The settlement of Wards and Randalls islands began early during the Dutch occupation of New Netherland. In July of 1637 two Indians appeared before Director Wouter Van Twiller and his Council and verified their conveyance of the two islands at the Hell Gate known as Tenkenas (Wards Island) and Minnahanonck (Randalls Island) to Van Twiller. Van Twiller was the nephew of Killiaen Van Rensselaer, one of the directors of the Dutch West India Company. This relationship gained Van Twiller the appointment as Director General of New Netherland in 1632, replacing the first Director General, the noted Peter Minuet of Manhattan Purchase fame. Van Twiller arrived in New Amsterdam to assume his post in 1633. A number of improvements were made during his tenure, including the completion of Fort Amsterdam, but he also rather quickly acquired some very strong opponents. He was replaced in September of 1637 by William Kieft (later notorious for his confrontations with the Indians), leaving

the colony in a somewhat confused state. He returned to Holland and later managed Killiaen Van Rensselaer's estate after his uncle's death in 1644 (Stokes 1915).

Van Twiller maintained large landholdings in New Netherland both during and after his tenure as Director General. Indeed this was one of the factors that caused opposition against him during his term in office. The directors of the Dutch West India Company required that owners of large tracts of land be responsible for promoting settlement on their parcels. Van Twiller did little in this area, apparently preferring to seek the profits available from exploiting the land under his own control (Stokes 1915).

The islands in the Hell Gate were part of Van Twiller's real estate holdings. The "Manatvs" maps, depicting the Manhattan Island area in 1639, show the "Bouwerij of Van Twiller, in the Hellegat." On the larger, southernmost island (Wards Island) a structure is depicted. A return of his property from 1639 listed the two islands as owned by Van Twiller, with Barent Jansen present as a farmer on the larger one. Specifically, the inventory lists "1 Dwelling House, 3 milck cows, 3 bull calves, 1 mare, 1 stalion" (Kelby n.d. B; Stokes 1915).

The directors of the Dutch West India Company were displeased with Van Twiller's failure to promote settlement on his land and finally condemned him for using the land granted to him for personal gain. The issue resulted in the passage of an ordinance in 1652 that voided a number of those grants, including that of his Hell Gate holdings (Stokes 1915).

In 1664 the English under Col. Richard Nichols, acting for James, the Duke of York, took over New Netherland in a bloodless offensive. In 1667, a number of properties were confiscated by the English government, including the "two Barnes Islands heretofore belonging to Wouter Van Twiller." The islands became known as Great Barn and Little Barn during the English tenure, names that were still occasionally used well into the nineteenth century. They were also more correctly known as Great Barent and Little Barent, taking their names from the tenant farmer Barent Jansen who lived there during the Van Twiller ownership. The true name was lost over time and replaced with its bastardized version, variously appearing as Barn, Barns, or Barnes. Nichols granted the islands immediately to Thomas Delavall, one of the new English colony's leading figures. Delavall had been appointed receiver of shipping for the new colony in 1664. The following year the first municipal government for the town of New York was created, and Delavall was appointed one of the original five aldermen and New York's first deputy mayor. In 1666 he became the town's second mayor, and he served additional intermittent terms through the following decade. His interest in the two islands was first shown in 1666 when he bought some meadow land on Little Barent's (Randalls) Island. Following acquisition of both islands the next year, he offered them to the residents of Harlem as meadow lands in exchange for the right to develop his holdings in Harlem. It is unknown whether either island was inhabited during Delavall's tenure (Stokes 1915).

In 1670 the first published English description of the colony of New York was produced by Daniel Denton. Included was an account of the Hell Gate, which was described as "...being a narrow passage, there

runneth a violent stream both upon Flood and ebb, and in the middle lieth some Islands of Rocks, which the Current sets so violently upon, that it threatens present shipwreck; and upon the Flood is a large Whirlpool, which continually sets forth a hideous roaring...." Denton went on to say that the channel was easily passed by experienced pilots and rated it as a fine location for a fort to protect the northern approach to Manhattan. Both of these comments would later appear prophetic as the navigational and strategic importance of the channel grew during the eighteenth century (Stokes 1915).

The history of the two islands at the Hell Gate began to become more diverse in 1674. In that year Randalls Island was conveyed to James Cartaret and his wife Frances, daughter of Thomas Delavall. Cartaret was the son of Sir George Cartaret of the Isle of Jersey, one of the two original proprietors of New Jersey. James had served briefly in 1672 as "President" of New Jersey, placed in the position illegally by a New Jersey legislature waging a battle over quit rents owed to the proprietors. The island passed from the Cartarets to their children George and Elizabeth. George died, and Elizabeth married Philip Cartaret, who then held full title to the island. When Philip Cartaret died, Elizabeth married Philip Pison, also from the Isle of Jersey. She bore him two sons, James and Elias, and they jointly inherited the land. None of these owners ever lived on the island, although their property may have been occupied by tenants (Kelby n.d. A).

In 1633 the municipal divisions for the colony of New York were made, and "the two Barne Islands" were included as part of the City and County of New York. A year earlier Thomas Delavall had died, and he

left "Great Barnes Island" (Wards Island) to his son-in-law, William Darvall. Apparently William had some financial problems, for in 1684 he mortgaged his property to Samuel Swyneck of London, and to his agent in America, Jacob Milbourne. The mortgage was not paid off, resulting in Swyneck's takeover of William's property. Milbourne bought the island in 1687 and immediately conveyed it to Thomas Parcell (sometimes spelled Parsel) of Long Island for 600 pounds. Parcell settled on the island, probably the first full-time resident since Barent Jansen. In 1702 Parcell petitioned for the right to build a dock on his property at "Great Barnes Island." In 1712 Nicholas Parcell, perhaps Thomas' son, petitioned to be appointed an official pilot for the Hell Gate channel. Nicholas is listed as living on "Great Barn Island." During this period the island was also occasionally referred to as Parcell's Island (Kelby n.d. B).

Having the foresight to request appointment as pilot made Nicholas Parcell a man ahead of his time. The need for experienced pilots to navigate the dangerous channel had first been mentioned by Denton as early as 1670. As time passed, there were a number of tragic wrecks in the Hell Gate, many caused by a lack of familiarity with the contradictory tides and the locations of dangerous rocks. The end result was a formal request to the governor by a large group of merchants in 1757 for the appointment of an official pilot for the Hell Gate, just as Nicholas Parcell had suggested some forty-five years earlier. The merchants noted the sad and costly loss of numerous vessels in the channel (Stokes 1915).

The dangerous waters around the islands offered hazards other than potential shipwreck. In 1766 various newspapers reported the drowning death of Thomas Parsels, owner of part of Parsels Island. It was reported that he tried to swim his horse across the channel (certainly the west or Harlem River section) to reach his house on the island, something he had done many times before. However, this time he was caught in the currents, and his lifeless body was later recovered floating in the Hell Gate (Kelby n.d. B).

Just as the Parcell family had taken up residence on Wards Island, so did the Pipon family initiate the occupation of Randalls Island. In 1732 Elias Pipon bought out his brother's share of the island and moved there from England, building his house on the island. He named it Belle Isle, but it was also called Pipon's Island during this period. Testimony given during a court case in 1770 involving a title dispute over the island provided some additional information on Pipon. He had lived on the island with his wife and father-in-law, the latter described as the one who ran the family's affairs. Pipon evidently also had financial problems, causing him to mortgage his property. The end result was the selling off of the island to meet outstanding debts. In 1740 Randalls Island was sold to St. George Talbot (Kelby n.d. A; *Valentine's Manuel* 1900).

Talbot became another in a succession of interesting individuals to live on the islands. He resided there (with the island undergoing its obligatory name change to Talbot's) for over a quarter of a century. He seems to have been something of a religious zealot and lived the life of a wealthy recluse on the island. At age twenty-one he decided to lead a life of celibacy. He made his living as a merchant and lived to be a

very old man. Soon after purchasing the island, Talbot agreed to take in his orphaned nephew, William Harrison. Harrison lived on the island and managed the farm there during Talbot's entire tenure. It was Harrison who initiated the lawsuit of 1770 mentioned above, suing Talbot's estate for debts he claimed were owed him. Witnesses testified that Talbot had told them that he would leave the island to Harrison when he died. Talbot's lawyer testified that this desire had continued despite the fact that Talbot had been offended by Harrison's marriage. One of the executors of Talbot's will claimed that the elderly owner of the island had changed his mind by the time he made out his will, and despite attempts at persuasion, refused to consider leaving Harrison the property. Talbot claimed that Harrison had used him and had also struck him during an incident in the barn. The executor further claimed that Talbot had previously offered to give the island to his adopted ward. In the end, Talbot directed his executors to sell the property, causing Harrison, who was residing on the island with his family, to bring suit in 1770. In the meantime, Talbot's executors went about their business as directed. In 1767 the movable property on Talbot's estate on "Little Barn Island" was offered for sale, including slaves, livestock, farm implements, boats, and household furniture, indicating the extensive farm that Talbot had owned on the island. The following year, the property itself was offered for sale and was soon sold to Nicholas W. Stuyvesant. In May of 1768 Stuyvesant leased the island to James Jackson, with the lease agreement noting the presence of a number of structures, an orchard, garden, and parcels of woodlot, meadow, and farmland, all lately occupied by William Harrison.

However, when Jackson attempted to occupy the property, Harrison had him removed by force, with the lawsuit resulting two years later. It is not readily apparent who won the court case, but in 1772 the island was again being advertised for sale in the New York newspapers (Kelby n.d. A).

Meanwhile, on Wards Island, the Parcell family had sold off half of their land holdings. It is not known when they did this or to whom they sold the property, but some time before 1767 Thomas Bohanna had acquired the northern half of the island. In that year his widow, Mary Bohanna, advertised about 50 acres of cleared land for sale on the north side of "Bohanna's Island" (it was also incorrectly called Buchanan's Island during this period [see Figure 4]). Those interested could apply to Mary Bohanna who was living on the premises. It seems that this offer was Mary's attempt to hold on to the bulk of her land on the island, but she was not successful. In 1768 she offered the entire island property of the late Thomas Bohanna for sale. One of the advertisements described the property in detail. Half of "Big Bearn" or Bohanna's Island with 100 acres of cleared land, 20 acres of woodland, 20 acres of fresh meadow, and a few acres of salt meadow were offered for sale. The property included "...a very neat and genteel dwelling house, fronting the water, with a long piazza..." which offered a fine view of the East River. The house "...has three rooms on a floor, a fireplace in each, a dairy room and a store room, with a negro house adjoining." There was a garden next to the house, a large orchard, and the farm fields yielded fine crops of grain and Indian corn. There were also a couple of fine stone quarries included on the tract. Quarrying had been occurring on the

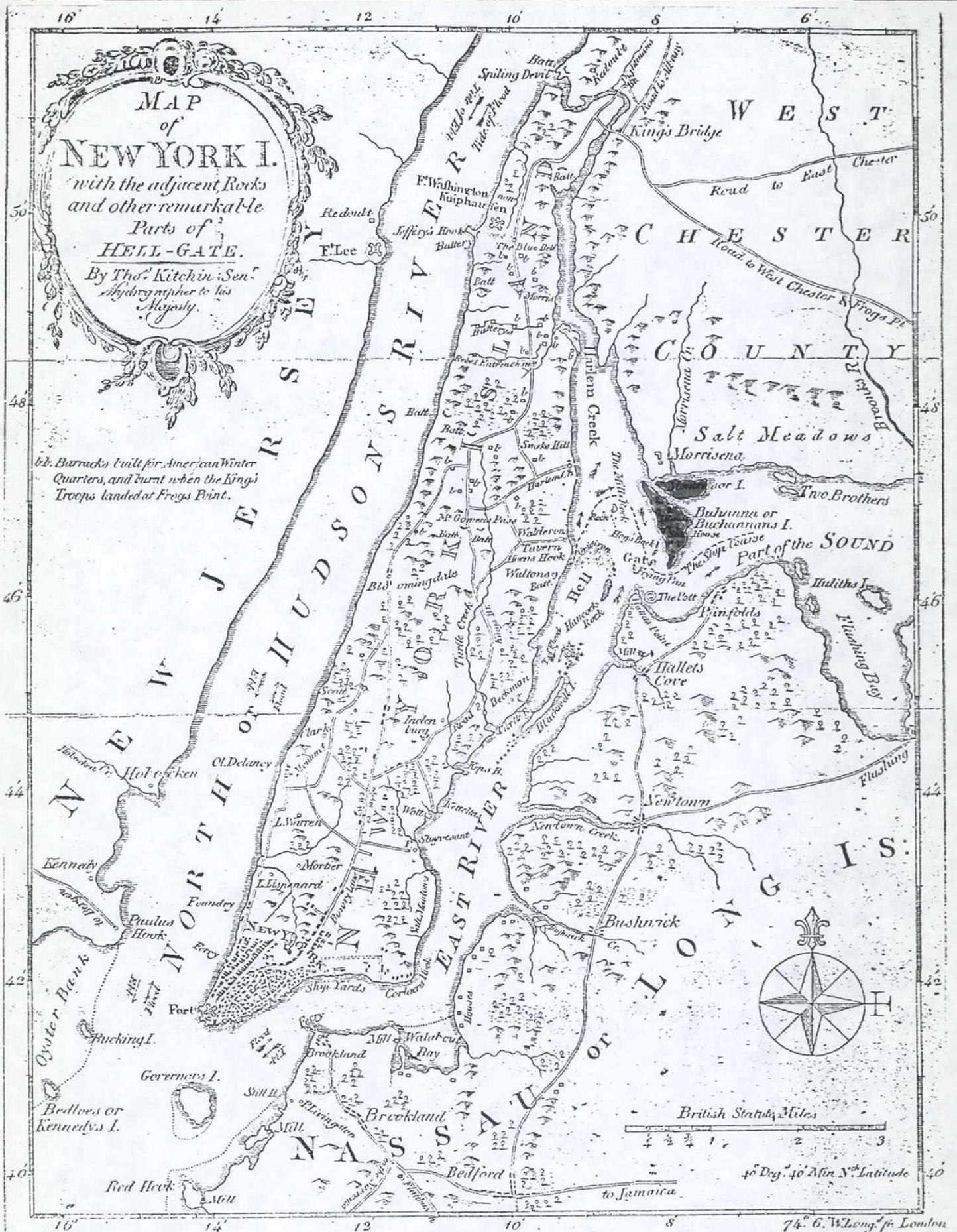


FIGURE 4. Thomas Kitchin map of the New York area of 1778 showing Montresor (Randalls Island) and Buhanna or Buchannans (Wards Island). Note the presence of the house and stillhouse on Wards Island. This map also shows the hazards of the Hell Gate channel.

islands since the seventeenth century. In 1696 some residents of Harlem were hired to quarry rock from "Barnes Island" for the construction of Trinity Church. In addition there was "a very convenient still house" located near the water, with a good landing. The still was new and contained "eight hundred gallons, a worm, trib, cisterns, pumps, and all utensils necessary for a distillery." (Kelby n.d. B; see Figure 4).

Both Wards and Randalls islands had been fully settled for a number of years when the Revolutionary War erupted. Pison and Talbot were in continuous residence for about forty years on Randalls Island and the legal battle for possession of the island indicated the value of the farmstead located there. On adjacent Wards Island, the Parcell family apparently had been in residence since the 1680s, and prior to that Barent Jansen and perhaps others had served as tenant farmers for wealthy owners. Settlement on this larger island had been expanded when the Parcells sold off half of their island. Thus, by the time of the Revolution, both islands were valued properties for domestic activities. The coming war would bring new importance and different kinds of activities to the islands.

The Bohanna property on Wards Island was finally sold to Benjamin Hildreth, while the southern half remained in the Parcell family. Interestingly, both halves of the island were made available for sale in 1772, but apparently neither was sold. Both the Parcell and Hildreth families maintained their ownership during the Revolutionary War. Hildreth was evidently attracted to the Bohanna estate by the new stillhouse, for his business was that of a distiller and he owned at least one other distillery in the area (Kelby n.d. B).

Meanwhile the litigation involving the St. George Talbot estate on Randalls Island had been settled and the estate was offered for sale in 1772. The advertisement provides an interesting account of the property which had caused such a hostile court battle. It included "...a large house with four very convenient rooms on a floor, and a large entry, a very good barn, in good repair, a well, and a very fine spring of water, and a house near the landing fit for an overseer." The land had been productive in grain and included an apple orchard and good meadow lands. Fishing (blackfish, oysters, and lobsters) and fowling (ducks, geese, pigeons, and quail) were excellent. Of particular interest was the availability of hundreds of loads of "...manure from the sedge which lodges on the shore." Later that year the island was purchased by John Montresor, bringing another noted individual and another name change into the history of the islands (Kelby n.d. A; Federal Writer's Project, 1939; see Figure 4).

John Montresor was born into an English military family, with his father a Colonel in the Engineers, in 1737. He joined the army at an early age and served with the Engineers under his father at Gibraltar. In 1754 he was sent to America with the ill-fated Braddock expedition as Chief Engineer, and was wounded in the famous ambush in July, 1755. He was promoted to Lieutenant, remarried in the colonies and served in such noted campaigns as the siege of Louisbourg, the fall of Quebec, and Pontiac's Rebellion. In the decade prior to the American Revolution he served in various places, generally strengthening the fortification systems of the largest colonial ports, including New York. In 1775 he was promoted to Captain and made "Chief Engineer of America" by King George III.

In 1778 he returned to England and retired from the army. Three of his sons continued the military tradition of the family, two of them rising to the rank of general (Kelby n.d. A; Stokes 1915).

With the outbreak of fighting in 1775 and the subsequent shift of the theatre of war to the New York area the following year, the islands and the Hell Gate channel took on a new, strategic importance. This importance had first been noted by Daniel Denton in 1670 as he discussed the advantages of placing a fort there to guard the northern approach to New York Harbor. In January 1776, while the siege of Boston continued, the Continental Congress appointed a committee to consult with General Charles Lee, the military commander of New York, and the New York Committee of Safety on the matter of the defenses of the area. The fortification of the Hell Gate was recommended. In February, Lee delivered to George Washington plans for the defenses of New York, noting that two enclosed batteries were to be erected on either side of the Hell Gate. This sufficiently secured the narrow and treacherous channel, making it impossible for the British to consider launching their offensive from this direction (Stokes 1915).

In April 1776, an epidemic of smallpox broke out among the soldiery and citizenry of New York. The Committee of Safety recommended that the "house and other buildings" located on "Little Barn Island, belonging to Mr. Montresor" be used to quarantine and treat the afflicted. On April 20th, Gouverneur Morris wrote to Washington protesting this order. Morris lived across the Bronx Kills from Randalls Island at Morisania, the great Morris family estate which was located at the south end of what is presently the

Bronx. He was a staunch patriot and a member of the Provincial Congress of New York. He later served in the Continental Congress as a delegate to the Constitutional Convention, as United States Minister to France, and as a United States Senator. Morris asked that Washington order the hospital moved elsewhere. He noted that the island was owned by Capt. John Montresor, who was stationed in Halifax with the British army. At the time, John Tudor, a British official from Bermuda, was staying on the island recovering from illness, and it was on Tudor's behalf that Morris made this request (Kelby n.d. A).

In June 1776, the British offensive began as troops were landed in southern sections of New York Bay. In August the Americans were soundly defeated in the Battle of Long Island, necessitating Washington's brilliant overnight evacuation across the East River to Manhattan. Almost immediately the British began maneuvers designed to take New York. On September 5th, the British erected two batteries to oppose the American fortifications at the Hell Gate. The chaos that often occurs in battle zones soon made its presence felt on Randalls Island. On September 6th, Lewis Morris Jr. wrote to his father informing him of the military activities in the vicinity of the family estate of Morrisania. He told how the American army had plundered the area, notably on "Montraseur's Island," where soldiers had broken hundreds of bottles in the cellar, broken every pane of glass, tore the wallpaper from the walls, and removed Montresor's clothes and furniture and sold them. War had truly come to the islands (Kelby n.d. A; Stokes 1915).

On September 7th the new British battery, with its field of fire recently cleared of brush and trees, engaged in a brief exchange with

the nearby American positions. On September 9, 1776, the British took both Wards and Randalls islands with minimal resistance encountered. Two days later, Morris again wrote to his father to inform him of this development, adding that the British had erected a battery on Montresor's Island and had shelled American positions at Morrisania. The British maintained possession of the islands until they evacuated New York at the end of the war in 1783 (Kelby n.d. A; Stokes 1915).

The Americans did not concede the strategic islands to the British and made a number of attempts to retake them, or at least to harass those occupying them. The only concerted effort to retake the lost ground was on September 22, 1776, just two weeks after the British occupation. This action was reported by various sources, although with great discrepancies between accounts. A reasonably accurate picture of the attack can be ascertained by studying all of the different versions. Tench Tilghman, one of Washington's aides and probably a fairly reliable source, wrote that the purpose of the attack was to surprise the British garrison on Montresor's Island and make off with any supplies stored there. The invasion force included about 250 men and 6 boats and was commanded by a Col. Jackson. The British garrison consisted of about 100 men and the *Brune*, a British frigate which was anchored nearby. The *Brune* apparently detected the assault boats and opened fire, perhaps sinking one of the American craft. The lead boat landed and successfully gained a beachhead under fire; but the other boats refused to land under fire and withdrew instead. Soldiers on the first boat suffered a number of casualties, including the loss of two majors. One was killed, the other was captured.

Col. Jackson, who was on the first boat, was wounded. The British defenders suffered a slightly smaller number of casualties. The officers of the boats that withdrew were apparently put under arrest (Kelby n.d. A; Stokes 1915).

On January 20, 1777, Montresor's Island was again the target of the Americans. The military significance of this raid was very small, but the loss to Capt. Montresor was great. As reported in his journal, his "...House and out-houses, Barns and offices on Montresor's Island, formerly called Belle Isle, and afterwards Talbot's Island..." were all burned to the ground by the Americans. This act of destruction removed all that remained of the improvements begun on the island by Elias Pipon, Talbot, and Montresor (Kelby n.d. A; Stokes 1915).

In 1780 the British frigate *Hussar* joined the long list of victims taken by the Hell Gate. A survivor testified that the ship had struck one of the treacherous rocks located in the southern section of the channel and continued on, sinking four hours later in Brothers Bay in the west end of the Long Island Sound. He estimated that over a hundred crewmen perished in the wreck. For virtually the entire nineteenth century this sunken vessel was the target of various treasure seekers, all pursuing the almost \$2 million in specie which allegedly went down with the ship. The first attempted salvage was in 1811, although this operation apparently was not involved in treasure seeking. Subsequent investigations of the wreck, however, were undertaken in pursuit of the rumored specie. In 1856, another attempt yielded only 19 gold guineas and some possible evidence supporting another rumor which claimed that manacled American prisoners were in the hold of the *Hussar* when she went down. Continued fruitless attempts to locate the gold, and documentary

evidence contradicting the claim that any large sum of money was aboard the wreck, did nothing to put a halt to intermittent attempts at locating the Hell Gate's sunken treasure until the very end of the nineteenth century (Zabriskie 1944; Stokes 1915).

The final Revolutionary War activity in the area took place on Wards Island. In 1781 Benjamin Hildreth was still living on "Bohanna's Island" despite his earlier attempt to sell his property and the tense local military situation. In June of that year the Loyalist press in New York reported that American whale boats had landed on the island, robbed Hildreth's house, and kidnapped both he and his family. The article claimed that two more Loyalist houses on the island were avoided by the Americans. In an interesting exchange one R. Cunningham, who identified himself as the "Inspector" of Baron Island (formerly Bohanna's), wrote a letter to the publisher of the newspaper complaining that the article in question was inaccurate. He stated that two boats did indeed land on the island, but that they were driven off immediately by the seven-man British garrison with the aid of four Loyalist refugees. In addition, the larger garrison stationed nearby on Long Island was on the way to reinforce the small guard on the island. The limited number of soldiers on the island seems to indicate that as the theatre of war moved to the south, the strategic importance of the Hell Gate channel diminished (Kelby n.d. B).

The conclusion of the war brought peace to the islands which had held such strategic importance during the early stages of the conflict. Randalls Island was desolate, having been reduced to a ruin by looting,

plundering, and destruction. Wards Island fared better, but the years of military occupation and other factors must surely have taken their toll on the farmsteads located there. The new peace in the country brought recovery as well as restoration and new development to the islands. As the metropolis of New York expanded, growth also occurred on the farmsteads on Wards and Randalls islands.

As might be expected, the property on the two islands changed hands shortly after the war. In April of 1784, Montresor sold his ravaged island to Samuel Ogden. In November of the same year, the property was conveyed to Jonathan Randall. His name was given to the small body of land at this time, a place name which has survived to the present day. Randall, a carpenter from Connecticut, had moved to Harlem before the war. He apparently financed the purchase of the island by selling the Captain's commission granted him during the war. In 1787 Randall offered the island for sale with the improvements which had been made since the war. The available property included "a new house and barn," replacing those burned during the war. There were also a number of orchards, a hay meadow, a good well, and a number of springs. The reason behind Randall's desire to sell the island at this time must be left to speculation. Regardless of his intentions, the land was not sold and he continued to reside on the island for over 40 years. His long-term residence brought renewed stability to Randalls Island, for it again served as a farmstead much as it had since the 1730s. Jonathan Randall farmed the island with his sons Jonathan and Morris (Randall was a close friend of the Morris family). He built his house, barn, and wagon shed on the northwest section of the island and

also had a ferry that ran to the area of 121st Street in Harlem. He devoted considerable time to his orchards on the island and received handsome profits in return (see Figure 5; Kelby n.d. A; New York Public Library: miscellaneous file; *Valentine's Manuel* 1900).

In the meantime, changes in ownership were occurring on Wards Island. In 1785 Benjamin Hildreth sold his half of the island to William Lownds. The other half was owned by John W. Pinfold and had been purchased from the Parcells. This latter family had retained the property since the seventeenth century. By 1806 the Lownds property had changed hands, for it was being advertised for sale by owner Philip Parisen. The accompanying description of the property was quite detailed and provided a fine picture of life on the northern half of Wards Island. The parcel of land included a new "large convenient Dwelling House, four rooms on a floor, with a piazza and gallery in front" which offered a fine view of the steeples of New York. There was also a "stone Kitchen, milk-house, with a room above, and a large fowl and pigeon house, a smoke, root and store house, two corn cribs, with a good pump and stone well of never failing spring water," all located near the house. The farmstead also included "...a new barn after the English stile, with a barrack and hovel." The barrack mentioned was probably a hay barrack or protective roof which was suspended upright on poles over a haystack. The roof could be raised or lowered. The hovel was an open-sided shed used for the protection of domestic livestock. Quarries mentioned in earlier accounts of the property were still active. They provided "hard blue stone" for building material, and there were two houses on the island for quarry

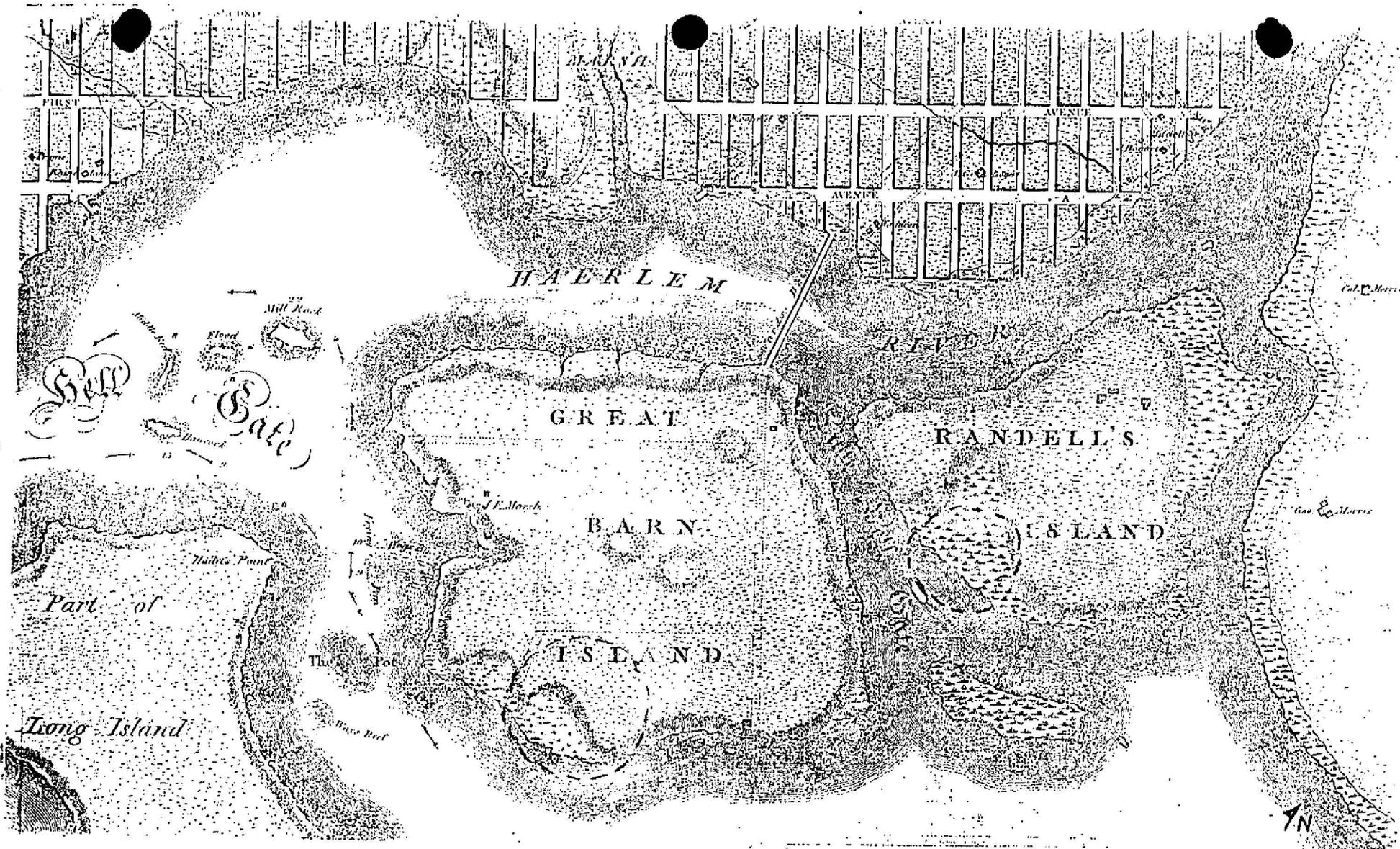


FIGURE 5. William Bridges map of New York City in 1807. Shown are Great Barn (Wards Island), recently purchased by the Ward Brothers, the bridge, multiple structures, and the proposed grid system for the development program. The solitary homestead of Jonathan Randall is shown just across the Bronx Kills from the Morris mansions in Morrisania. (Scale 3" = 2500') Project areas are outlined in yellow.

workers. This attractive advertisement brought a quick sale, for later that same year the entire island was purchased by Jasper and Bartholomew Ward (Kelby n.d. A; Kelby n.d. B; *Valentine's Manuel* 1900).

The Wards had an entirely different purpose in mind for the island that still bears their name than did Jonathan Randall for his island. They wanted to develop it by subdividing the land into lots and attracting residential and industrial concerns. Their first move to achieve their goal was to approach the state legislature for permission to build a bridge from the island to Harlem, thus establishing a vital connection to the rapidly growing island of Manhattan. In February of 1807, this request was granted and construction was immediately begun. Completed later that same year, the wooden bridge was 50 feet wide and was supported by 6 stone piers (see Figure 5). The river crossing was facilitated further when the state granted a license to Abraham R. Lawrence to commence a ferry line between Wards Island and Long Island in 1810. The Lawrence family had purchased land from the Wards and was living on the island. The two connections between the mainland and the island were vital to the Ward brothers' development plans (Kelby n.d. B; Stokes 1915).

During the War of 1812, the Ward's development schemes and military activity kept Wards Island a busy place. In both 1811 and 1812 advertisements listed houses for let on the island. The tax list of 1814 listed seven primary structures with various owners on Wards Island, including a tavern and the Belleisle Factory. The factory manufactured cotton and did a fine business during the war. However, some conflicts arose regarding the commercial development of the island. As early as 1811, the City Council and residents of Harlem were complaining about the bridge that

the Wards had built. They claimed that it impeded navigation at the lower end of the Harlem River and felt that the city government should have been consulted regarding its construction. The mayor was requested to intercede for the city with the state legislature (Kelby n.d. A; Stokes 1915).

With the new war with England, the strategic significance of the Hell Gate again became an important issue. The expansion of the system of coastal fortifications during the war resulted in the 1814 construction of Fort Stephens which was designed to guard the important channel. During September of that same year, 900 Rockland County militiamen encamped temporarily on Wards Island. That figure was increased by an additional 1600 men by the end of the month (Stokes 1915).

Apparently the developmental surge on Wards Island was of a very short duration. The end of the war reopened foreign trading activities and brought about the downfall of the cotton factory, which could not compete with the import market. By 1821 the factory property was offered for sale. In that same year the controversial bridge was destroyed by natural forces, leaving only the piers which were forlornly visible at low tide. In 1831 the Belleisle Factory property was again advertised for sale with a detailed description of the premises. The factory was "...a large stone building, ...140 feet long, by 28 feet 8 inches deep, ..." It had a slate roof, "...127 windows of 30 lights, 9 by 7 each, besides 12 sky lights in the roof; the sashes are all hung with weights, the lintels and window sills of cast iron." There were also several offices and a dock. In addition, "a small farm house, barn, and other outhouses" were included (Kelby n.d. B).

While the Wards attempted to develop their island, Jonathan Randall continued his peaceful existence as a farmer on his island. Following his death on the island in 1830 at age 88, change came quickly to Randalls Island. In 1832 his heirs advertised the property for sale and provided a fine picture of the island that Jonathan Randall had resurrected from its ruined state following the Revolution. It included "a large Mansion House, a large Barn, Cider Mill and Grainery, Hay Houses, Cow Hovels, and other necessary out buildings." The famous Randall orchards included hundreds of different varieties of apple trees and also cherry, pear, and other fruit trees. The farm fields were well laid out with stone walls and the property was convenient to the New York market. The heirs suggested that the property was ideal for a "Hotel and Public resort" and would "afford a most delightful retreat to hundreds of citizens during the Summer season from the heat, noise, and sickly atmosphere of the city." (Kelby n.d. A).

Randalls Island was not destined to become a resort for the city dwellers of New York. In 1835 the Randall heirs sold the entire island to the Corporation of New York for \$60,000. The city had shown an interest in placing the islands in the public domain as early as 1811. In that year a committee was appointed to investigate what land was available for purchase so the city might build an "Alms House [poor house] and Bridewell [jail] and other public buildings." Both Wards and Randalls islands were considered, but later rejected. By 1835 there was a further need for public land, and Randalls Island was purchased. The first large-scale public activity on the island occurred in 1843 when the city council voted to move the potter's field (city graveyard) to the south end of the

island. Two years later an Almshouse was also constructed there. Children's hospitals and orphan's homes soon followed (Kelby n.d. A; Stokes 1915).

In 1850 the Society for the Reformation of Juvenile Delinquents appointed a committee to locate a new, larger home for their House of Refuge (a reformatory for wayward boys and girls). They acquired 10 acres on Wards Island, but then decided that was too small a tract. In 1851 they acquired 36.6 acres from the city on Randalls Island. The deed stipulated that a wall be built to keep the delinquents separate from the children in the homes, hospitals, and schools on the north end of the island. Construction on the huge complex began in 1852 and took two years to complete. Considerable blasting and grading were needed to prepare the southwest corner of the island for the foundations. The massive buildings were built of brick in the "Italian style" and the required huge retaining wall was erected (Society for the Reformation of Juvenile Delinquents 1853; Society for the Reformation of Juvenile Delinquents 1897).

In the meantime, Wards Island was also moving into the public domain. In 1835 a last-ditch attempt was made to develop the island. Hundreds of building lots were laid out and a proposal was made to rebuild the old bridge. Nothing came of these efforts and by the 1840s New York City was buying up the fragmented lots and slowly taking over the island. In 1847 the State Emigration Refuge was built here. By 1847 the city owned about half of the island (see Figure 6; Kelby n.d. B; Federal Writers Project 1939; *Valentine's Manual* 1900).

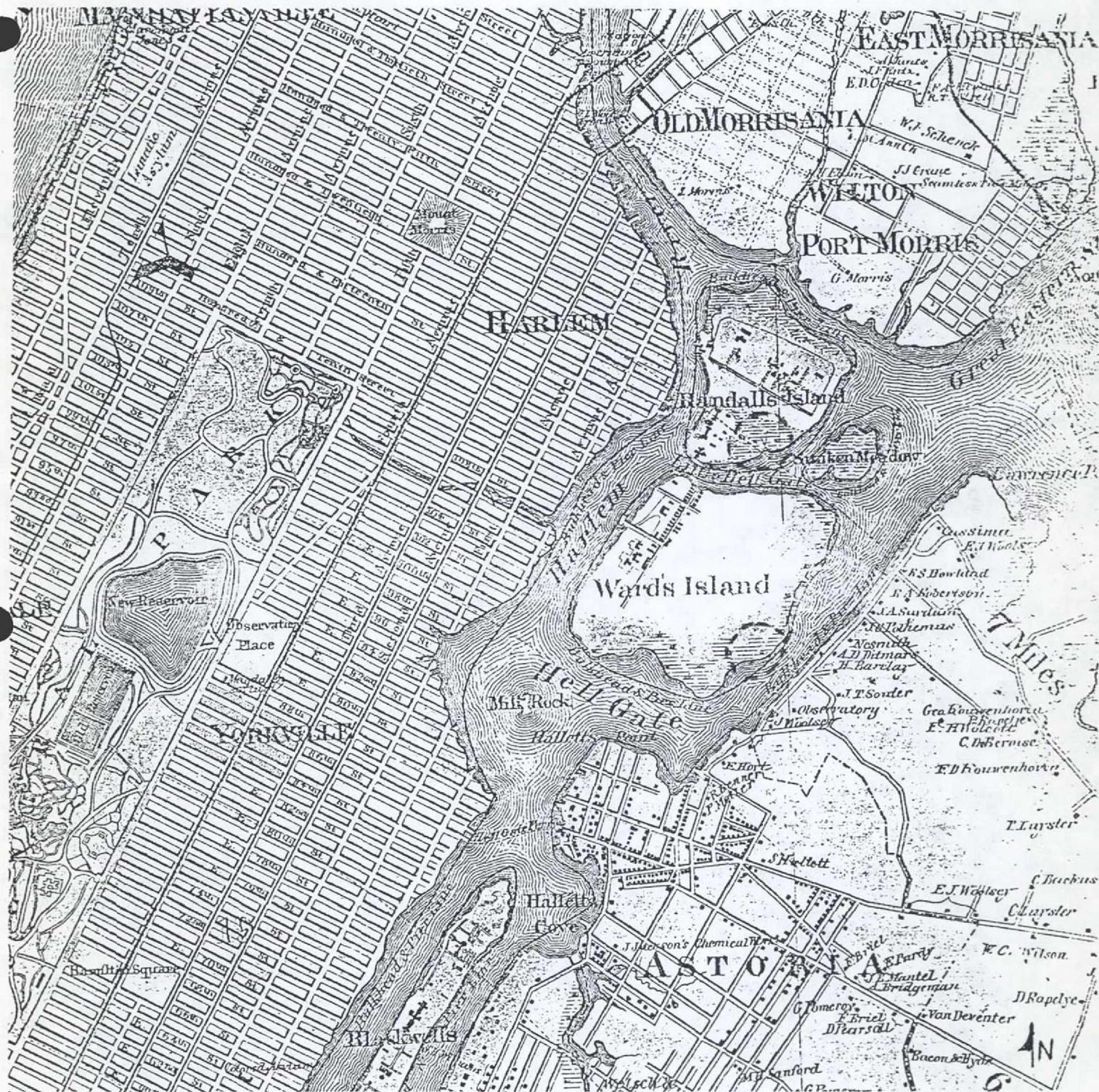


FIGURE 6. H. F. Walling map of the New York City area in 1860. The early stages of the public development of Wards and Randall's islands is shown. The project areas are outlined in yellow. (Scale 1 mile = 2.25')

As the century neared its end, New York continued to adapt the islands to public use. By 1872 the city owned all of Wards Island. The Emigration Refuge on Wards Island served as a secondary immigration station after 1860 until Ellis Island took over in 1892. By 1885 this emigration facility had been joined on the island by two separate institutions for the mentally ill. After 1892 the old Emigrant Refuge was also converted for the treatment of the insane. On Randalls Island, the House of Refuge and the continually expanding public children's facilities had been joined by another insane asylum by 1893 (see Figure 7; *Kings Handbook* 1893; Federal Writers' Project 1939).

Governmental activities were also bringing changes to the Hell Gate channel. The dangers that the channel presented during the sixteenth and seventeenth centuries had not diminished in the nineteenth century. Traffic in the harbor had steadily increased as New York established itself as one of the leading ports in the world. In 1827 a petition was forwarded to the state legislature requesting that a canal be built to bypass the Hell Gate. In 1832 this plan was approved, but it was never implemented. The legislature also provided for the appointment of fourteen official pilots for the channel. In 1848 the U.S. Coast and Geodetic Survey conducted surveys of the dangerous channel. The survey recommended that many of the shallow rocks that made the passage so difficult be removed, including the man-made impediment caused by the remains of the Wards Island bridge. In the 1850s the city hired blasting contractors to lower the rocks visible at low tide and some of the old bridge piers. During the rest of the century large-scale operations were undertaken to complete the job. There were two notably huge explosions in 1876 and in

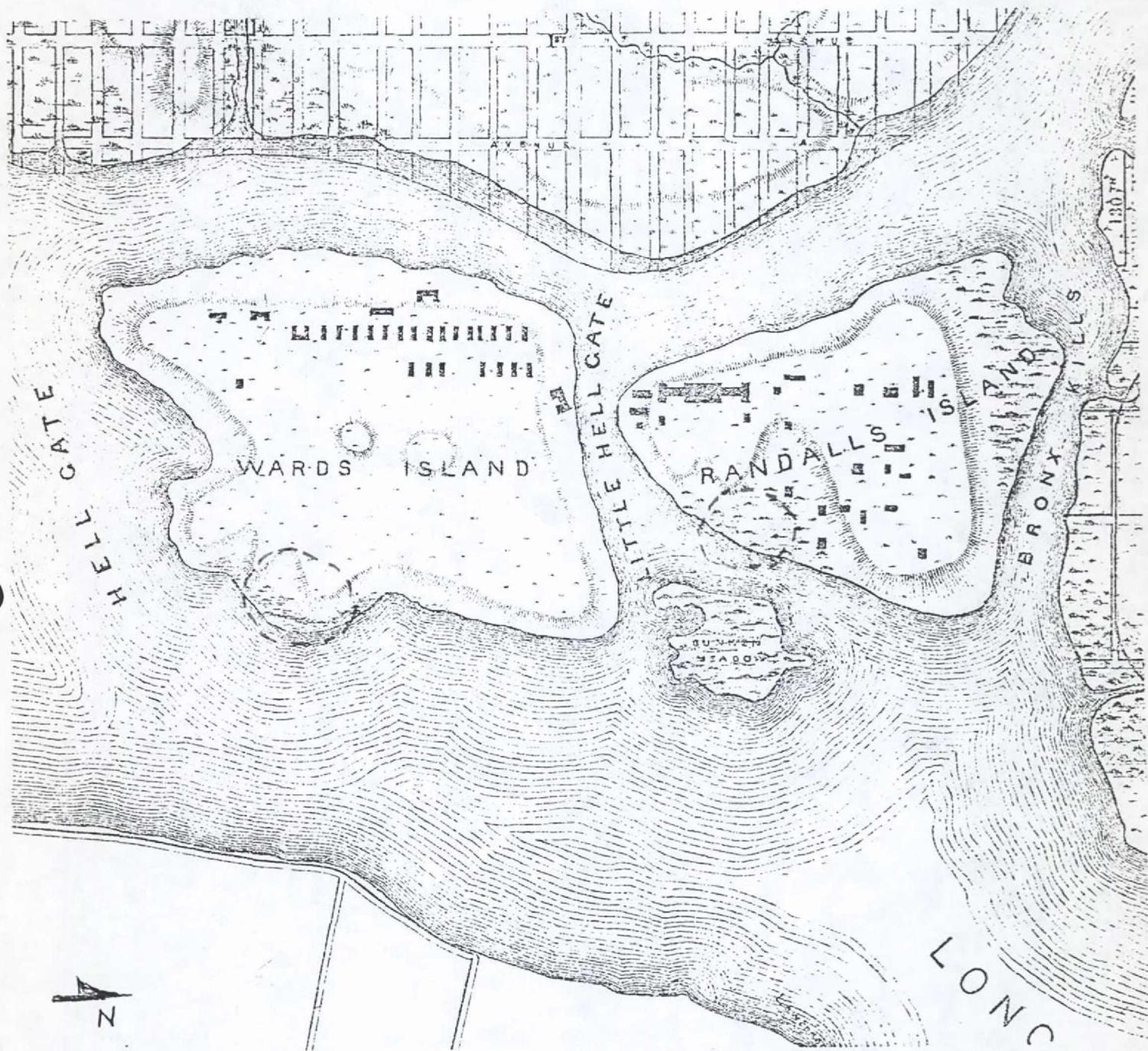


FIGURE 7. Viele's 1874 topographical map of New York City. The continued development of the public facilities on both Wards and Randall's islands is shown. The sites of the project areas are outlined in yellow. (Scale 1000' = 1")

1885. The end result was a far safer channel, with only the confusing currents remaining to remind one of why the area had been named Hell Gate (Kelby n.d. B; Stokes 1915).

By 1905 a home for invalid Civil War veterans had been added to the public facilities on Wards Island. During this early twentieth century period convict labor from Blackwells Island was being continually used to grade and improve Wards Island. In 1908 the entire island was leased by the city to the State Department of Mental Hygiene. By 1939, however, much of the island was being reclaimed as parkland, since many of the buildings of the hospital for the insane were being abandoned. During this period about ten buildings located between the railroad bridge and the Triborough Bridge were razed for parkland. By 1939 all of Randalls Island had already been converted to parkland, and Triborough (Downing) Stadium had been built on the old House of Refuge property (*Appleton's Directory* 1905; Federal Writers' Project 1939).

Early in the twentieth century Wards and Randalls islands were joined for the first time when the New York Connecting Railroad Viaduct was built sometime prior to 1929. In 1933 the easement for the Triborough Bridge was granted, creating a second connection. Then in 1939, the city purchased the rights to the Little Hell Gate between the two islands and commenced filling operations at the eastern end of the channel. This operation joined the two islands and has continued to the present, with only a small section of the western end of the channel remaining unfilled today.

In 1931 ground was broken for the construction of a new activated sludge plant on Wards Island. New York's poor sewage system had fouled the harbor terribly by the time the Metropolitan Sewage Commission was

set up to prepare a plan for a city-wide waste management program early in the twentieth century. The Commission complained that the "...people of New York seem strangely indifferent to the pollution condition of the harbor," and noted the Upper East River as the worst area, "...where the fetid stream is joined by the black and malodorous Harlem." Part of the plan submitted called for the sludge plant on Wards Island to handle the treated sewerage. The Wards Island plant would handle a fifth of all the city's sewage. A giant step toward dealing with New York's pollution problems was taken with the creation of the Department of Sanitation and the construction of this plant. At the time, the plant was called the "largest activated sludge sewage disposal works in the world." It continues to operate today, and the outlawing of ocean dumping of sludge as of December 31, 1981 has hastened planning for the present proposed facilities for which this study is being done (City of New York 1937).

III. INFIELD RESEARCH

A. RESEARCH DESIGN

In order to formulate a research design for the Wards Island field testing program, it was first important to analyze all the documentary data gathered with the two proposed construction sites in mind. As indicated in the documentation for the historic period, seventeenth and eighteenth century activities on Wards and Randalls islands were centered in areas relatively far from either of the study areas. The proposed access road lies partially in the former Little Hell Gate channel and partially in a now-filled marshland east of this channel. The closest historic structures were outbuildings of the aforementioned New York City House of Refuge, but even the sites of these latter buildings were substantially to the west.

In the proposed lagoon site no record of any settlement was found prior to 1850 when the city's homeopathic hospital was built a short distance to the South. The Bakery Building and other former buildings were part of the development of support facilities for this hospital, which was utilized as a veterans' hospital well into the twentieth century. Subsequent development, including the railroad bridge and the modern psychiatric hospital, replaced this older facility which was abandoned and almost entirely razed.

In summary, we can safely say that the documentary record shows that both study areas have low potential for cultural resources although they are situated on islands which are historical landmarks.

The next step in formulating the testing program design was to examine the landscape or terrain features of both study areas. The importance of a combined analysis of the historic documents and an in-field examination cannot be stressed enough in order to understand landscapes such as the study areas. Both the written record and site inspection indicate that powerful human forces have altered the terrain on Wards Island. Our analysis showed that although extensive land modifying activities had occurred in both study units, the terrains were different enough to suggest separate research approaches geared to fit each area.

B. THE ACCESS ROAD STUDY AREA

The proposed sewer access road study unit commences on the original northern shoreline of the Little Hell Gate's channel and curves south and east to the edge of the existing sewer treatment plant site. The current U.S.G.S. map, a portion of which is reproduced in Figure 8, indicates that until recently part of this Little Hell Gate channel was still open water. Presently all of this open water area has been filled to join Randalls and Wards islands into one body of land. The study area for the proposed sewer access road was divided into two study zones. The first was situated on the old shoreline of Randalls Island, the second on the site of the old Little Hell Gate channel. Figure 9 shows both study areas. The "Multi-Span Steel Arch Bridge (Approx Location)," which appears on Figure 9, basically extends over the site of the former Little Hell Gate channel. The original land surface on either side of the old channel is at either end of the bridge.

The detailed map of this area (see Figure 10) has the edge of this channel marked on the map as well as the study zones. The old shoreline zone of the proposed access road site lies between several large overhead transport bridges and sanitation and park maintenance facilities. The surface of the ground is marked by piles of debris ranging from trash to building rubble and soil in truckload-sized piles. Stands of weeds and brush line dirt dump access roads. Some abandoned cars and sanitation equipment litter the site and we were visited by feral dogs during our testing session.

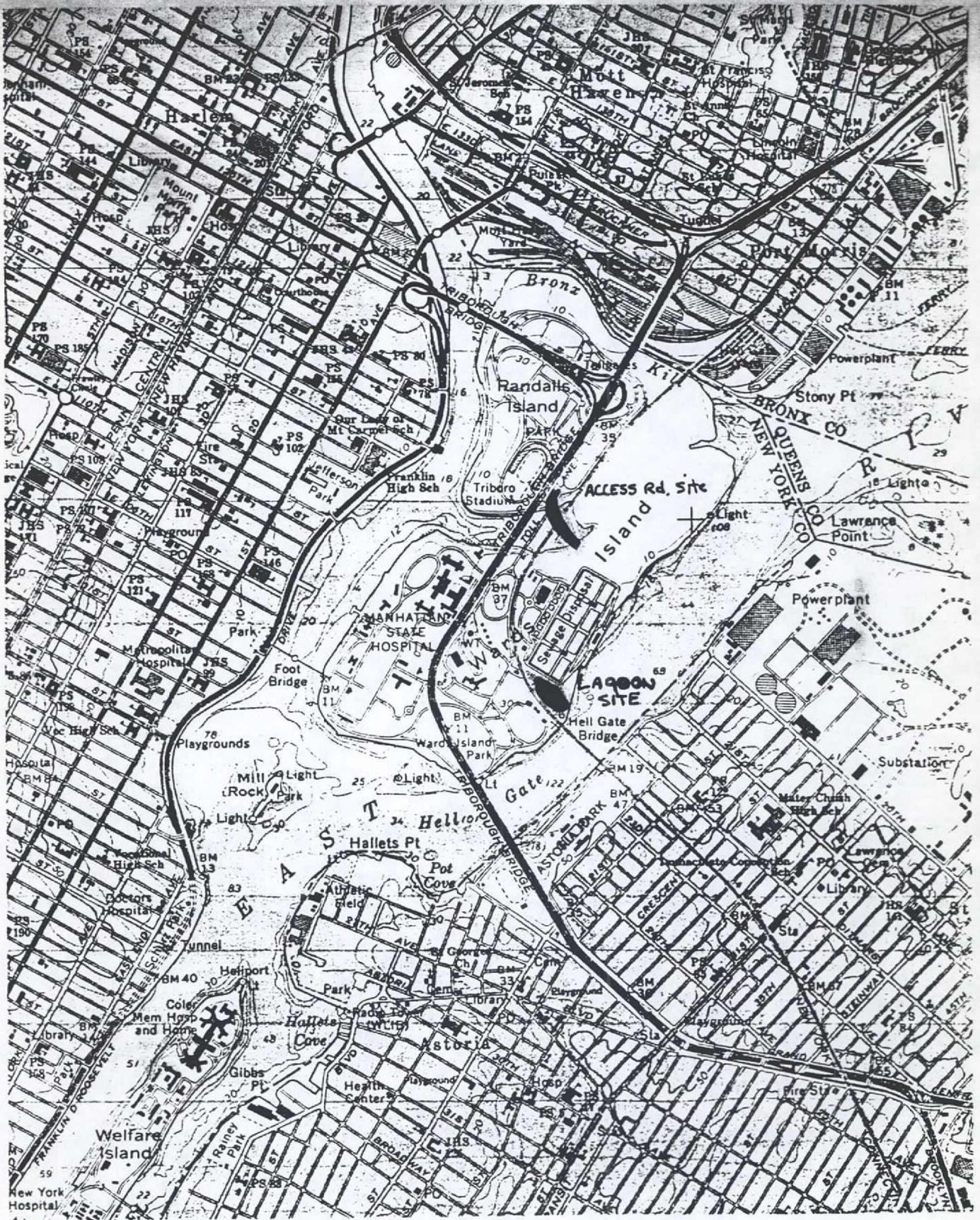
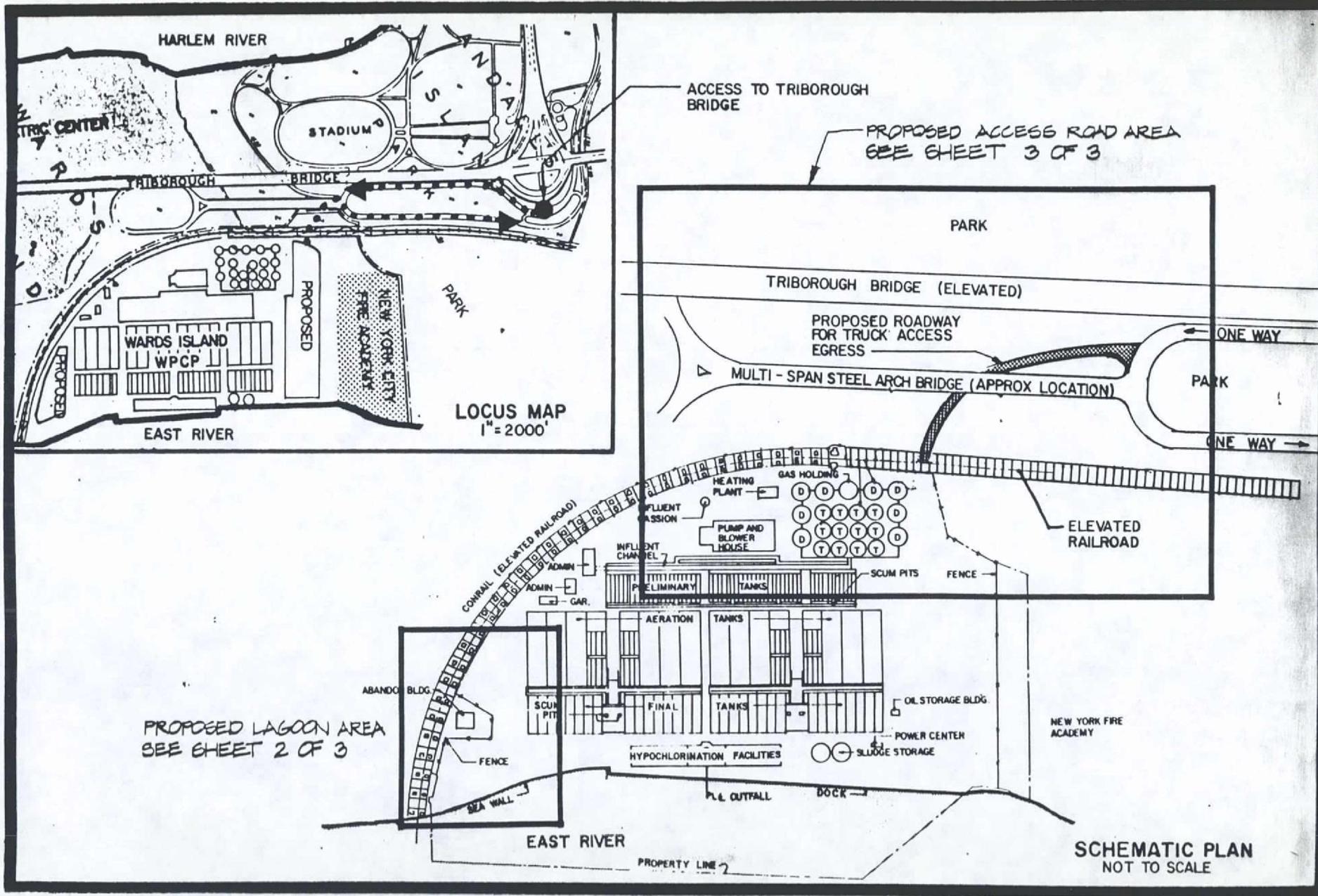
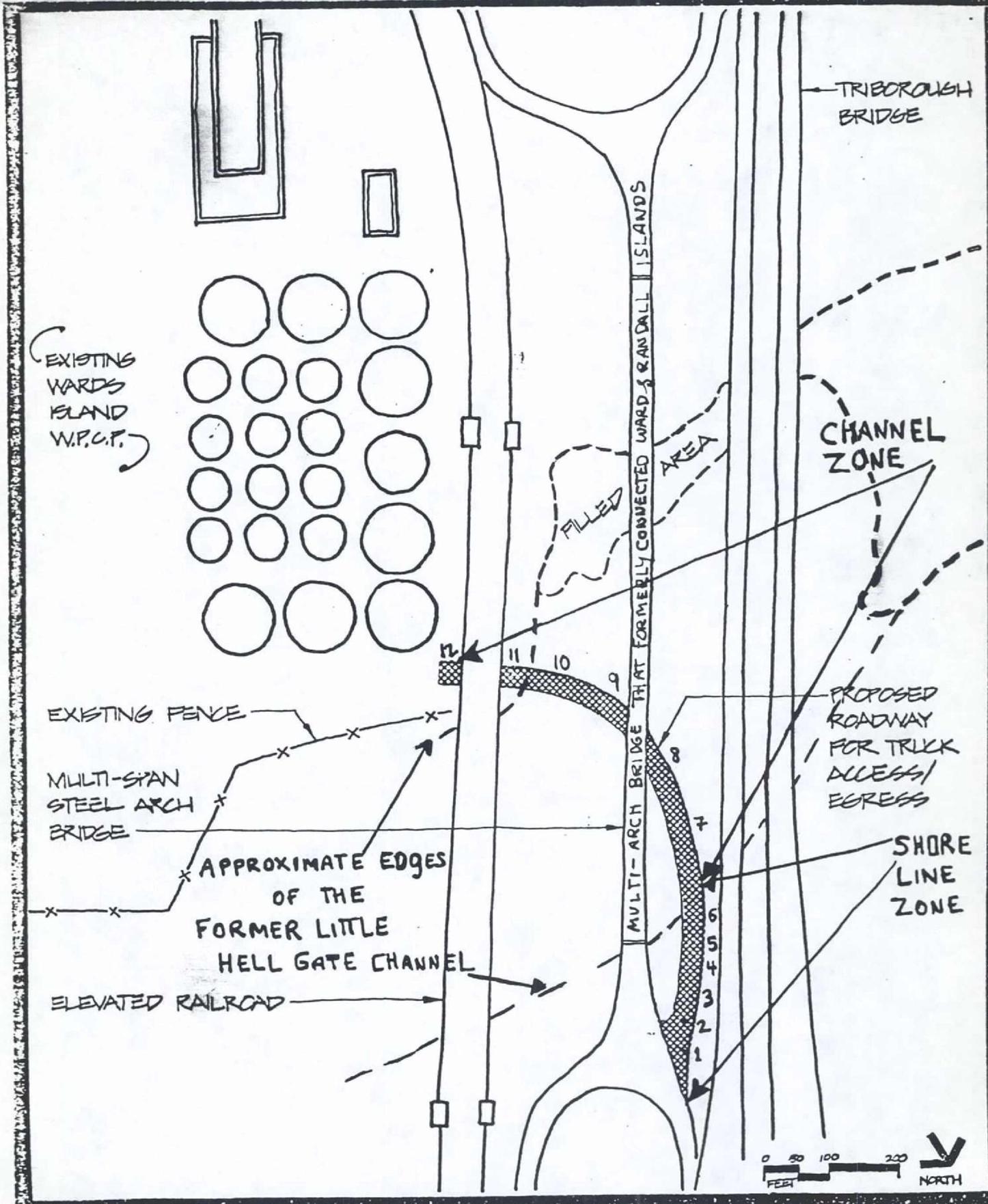


FIGURE 8. U.S.G.S. Central Park Quadrangle Map, 7.5 Minute Series 1956 updated to 1966, scale 1 : 24000. The study areas on Wards and Randall's islands are outlined in yellow. Note that at this time part of the Little Hell Gate remained open.

FIGURE 9. Camp Dresser & McKee 1980





Proposed Access Road Area
 Cultural Resource Survey
 Wards Island W.P.C.P. Site

Sheet 3 of 3

FIGURE 10
 Camp Dresser & McKee
 1980

We proceeded to make a total of 6 test excavations in the shoreline area zone. Tests 1, 3 and 5 were four foot square shovel tests, while tests 2, 4 and 6 were made with a 10-inch diameter gasoline powered auger. In both types of tests, excavated material was passed through a $\frac{1}{2}$ -inch wire screen.

The results of this sample of the upper soil strata of the shoreline zone shows that a .6 foot to 3 foot thick layer of recent fill lies over the surface of the area. Its depth is related to the access roads by which the fill was trucked to the site for dumping. It is significant to note that below this stratum there is no evidence of original topsoil or an older ground surface. In fact, the next stratum down in each test was either a stony, gravelly glacial till or dense clayey soil which ranged from tan to reddish brown. In every case, this soil appeared to be devoid of any cultural material.

Test results were as follows:

Test 1 was located along the perimeter (5 feet west) of the west lane leading to the old Randall-Wards island bridge. Stratum 1 extended from 0 to 1.5 feet and contained mixed brown soil and twentieth century building debris. Stratum 2 was gravel mixed with red clayey soil. The test was made to a depth of 3.5 feet. Nothing of significance was found.

Test 2 was an auger boring made in the east side of the dirt dump road leading south from the paved road to the edge of the former Little Hell Gate channel (some 50 feet south of Test 1). This test was made in high weeds and paper trash. Stratum 1 consisted of .5 feet of recent trash. Stratum 2 was 1.5 feet of fill with modern building debris. The bottom

strata commenced at 2.0 feet deep and consisted of fairly dense sandy brown subsoil with some gravel. The test was made to a depth of 4 feet with no significant cultural material unearthed.

Test 3 was made in a dirt lane some 50 feet south by southeast of Test 2. The land excavation revealed an uppermost mixed fill stratum 3 feet thick resting on top of a dense clayey subsoil which was tested to the depth of 3.8 feet with no significant finds.

Test 4 was an auger boring in which 2.6 feet of mixed fill with recent building material was deposited over a layer of gravel and boulders. The test was made to a depth of 3.6 feet.

Test 5 was a shovel test in which mixed fill was found to be 2.2 feet deep with packed gravel and tan clayey subsoil beneath. The test was made to a depth of 4 feet.

Test 6 was an auger hole near the old shoreline some 45 feet south by southeast of Test 5. The sample recovered showed an upper stratum of 1.5 feet of mixed fill over a 1.2 foot stratum of oil-soaked ground (probably also fill). A third stratum, which was excavated into for 2.0 feet, consisted of clayey subsoil with gravel.

The former Little Hell Gate channel has piles of fill and building debris scattered over its surface (see Figure 11). The ground has several dirt lanes running through it and is otherwise covered with a growth of rank weeds.

Tests 7 through *9* were made in this rough area where ground surface depressions were thought to allow us an opportunity to reach below the fill. Only in Test 8 was this successful. At a depth of .7 feet we hit water and at 2.5 feet we encountered the polluted muck of the former



FIGURE 11. View looking north at Randalls Island and the Bronx from the roadway bridge which used to span the Little Hell Gate channel. The partially filled channel area as well as some of the stone retaining wall along the perimeter of the former channel is evident in the center of the photo. (Michael Spozarsky, photographer, Oct. 1980)

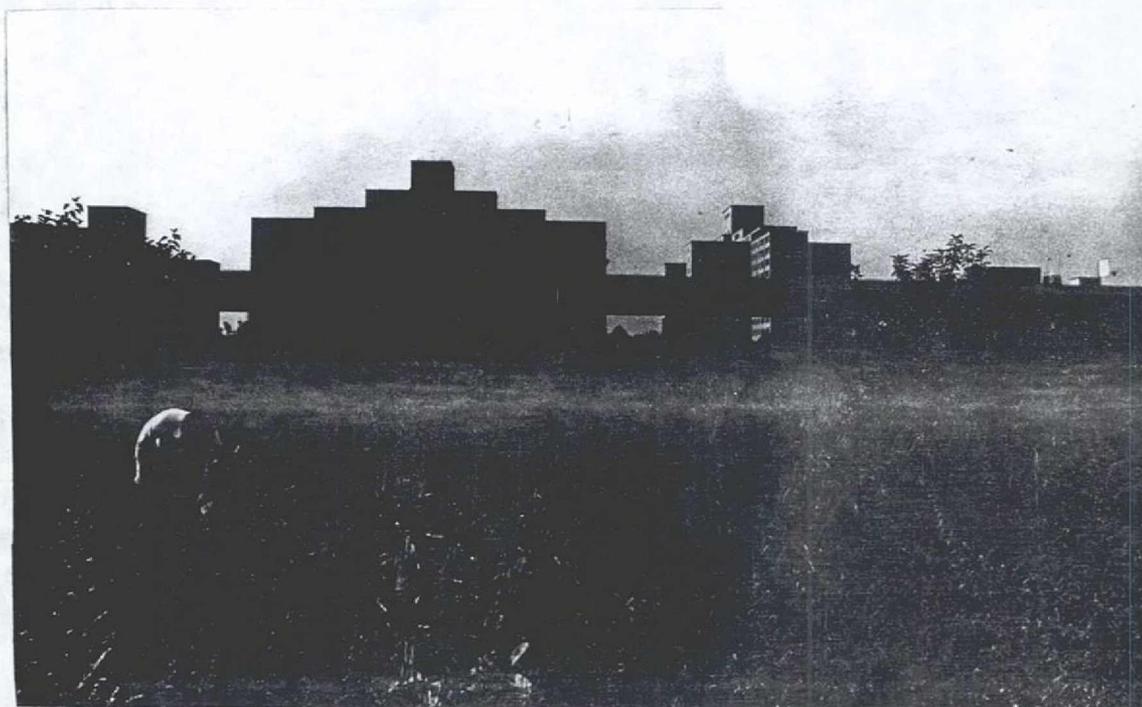


FIGURE 12. View of the eastern end of the proposed sewer access road site on Randalls Island. The almost featureless landscape is typical of the terrain on Wards Island since most of the topsoil has been removed. (Michael Spozarsky, photographer, Oct. 1980)

channel bottom. The muck layer did not have any artifacts and since it was so wet, it was not closely examined in situ.

Tests 10 and 11 were made under the large concrete foundation of the railroad. Figure 12 shows the more level weed-covered and graded fill area that is common in the area. Here, tests excavated by shovels revealed up to 3.0 feet of mixed fill which had been graded level but not sodded or landscaped.

C. THE LAGOON STUDY AREA

The lagoon study area has a rather different setting from the proposed sewer access road. It is located just under and north of the massive Hell Gate railroad bridge abutments on the southeast shore of Wards Island. Here, as seen in Figure 13, the land rises up from the Hell Gate channel to a knoll where the abandoned Bakery Building is located. The knoll is covered with substantial shade trees, some remaining from landscaping done in the 1930s. Other more common variety trees are smaller and have rooted and grown around the long abandoned Bakery Building.

The proposed lagoon study area can be subdivided into two zones, one consisting of the existing sewage treatment plant (S.T.P) yard and a second zone in the smaller area around the Bakery which is fenced off from the S.T.P. yard.

The S.T.P. yard zone has had all of its topsoil graded away. Figures 14 and 15 show the sparse weed and grass cover that has grown on the exposed gravel and sand subsoil. The only cultural material is a scattering of building debris such as fragments of brick, concrete, and macadam which litter the surface of the ground. The area was systematically surface collected, shovel cleared, and finally tested with both hand excavated 3 X 3 foot squares and mechanical augering.

Test results were as follows:

Tests 1 and 2 were made to locate former structures which had been on the site. In Test 1, no building remains or disturbance were found.



FIGURE 13. Looking south at the west end of the Hell Gate Bridge. The surface of Wards Island slopes up to the right to the lagoon study area. (Michael Spozarsky, photographer, Oct. 1980)



FIGURE 14. Looking south at the S.T.P. zone of the lagoon study area. Note the rank grass growing from the subsoil and the trees in the middle which surround the Bakery Building. (Michael Spozarsky, photographer, Oct. 1980)



FIGURE 15. Looking south at the Bakery Building zone of the proposed lagoon study area. The north facade of the Bakery Building can be seen through the trees. Note the sparse growth of grass on the top soilless S.T.P. site and the pile of fill material just behind the Bakery fence. (Michael Spozarsky, photographer, Oct. 1980)

The 3.5 foot deep auger test revealed sand and tan clayey subsoil throughout. Test 2 was made in an area covered by a scattering of brick and concrete fragments. Here, mixed soil with building debris was encountered for a depth of 1.5 feet. A lower stratum of dense, clayey subsoil was tested for an additional 1.5 feet.

Tests 3 and 4 were auger tests made in areas where no former building had stood. Sandy subsoil with gravel and red clayey soil mixed in were found in both excavations.

Tests 5, 6 and 8 were auger excavations made near the north side of the Bakery Building where a mixed sandy fill stratum, no more than 1 foot deep, lay atop sandy, gravelly subsoil.

Test 7 was a shovel test which at a depth of 2 feet in sandy fill revealed a stratum of dense, reddish-brown clayey soil.

Tests 9, 10, 11 and 13 were all made in the scraped off field east of the Bakery Building and were, with the exception of Test 11, mechanically augered. Test 11 was hand excavated with shovels. All of these tests revealed exposed sandy, gravelly subsoils with only some crushed gravel and other foreign surface material.

Tests 14 and 15 were made to try to locate remains of several former structures to no avail. Foundations and cultural strata have been removed and testing revealed similar deposits of sandy, gravelly subsoil.

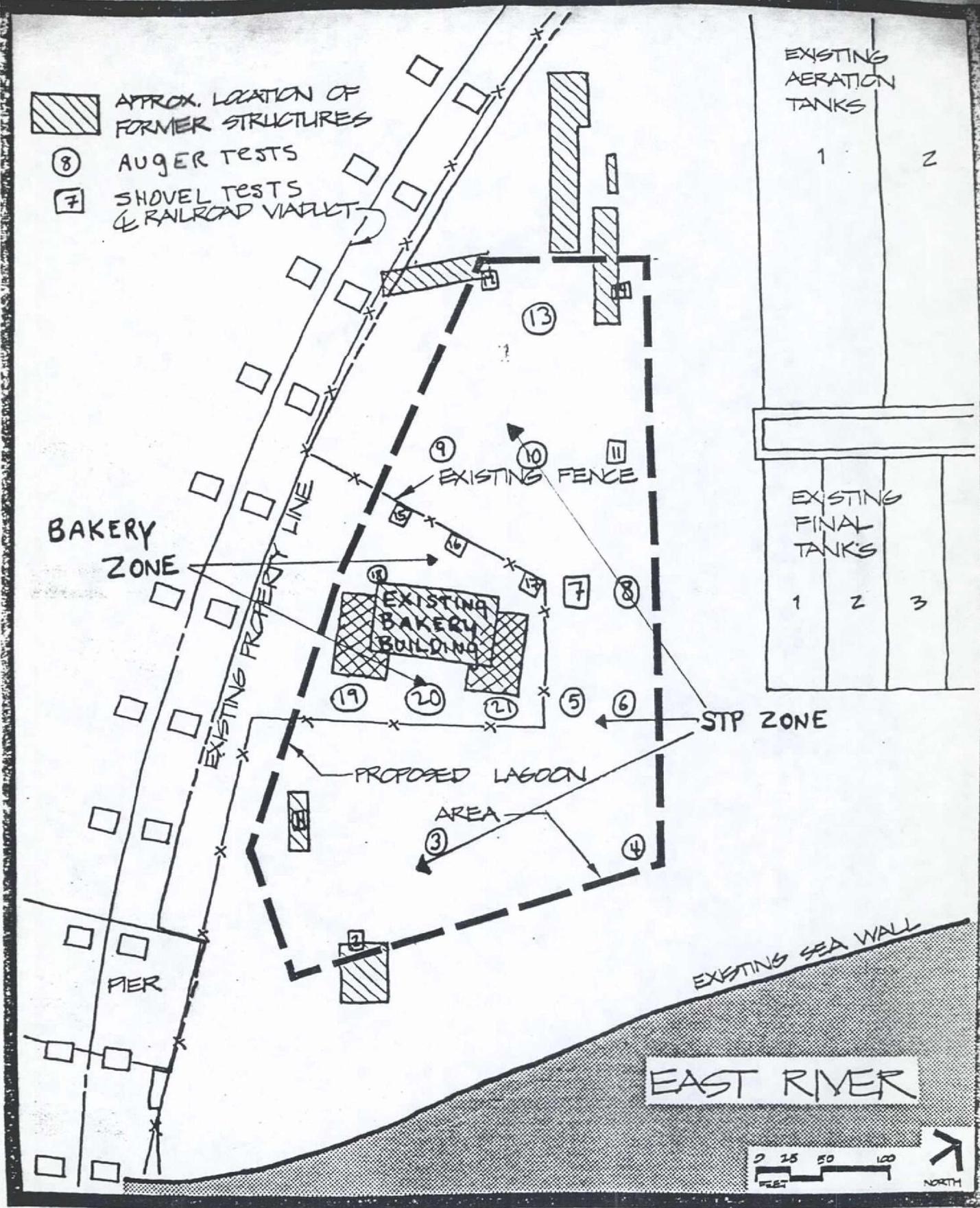
The Bakery Building Zone of the lagoon study area contains a knoll which can be seen in Figure 15 just behind the abandoned car. At first, we were sure that the rest of the area around the knoll had had its topsoil graded away as had been the case in the S.T.P. yard. The grading operation would have left the higher original knoll around the Bakery Building.

Our test excavations and analysis of the Bakery Building showed that this initial hypothesis was not correct. In fact, the entire area surrounding the Bakery and under the railroad bridge support foundations had been covered with up to 6 feet of fill. Some of this material was still in discernable piles. In other areas, no surface piles were apparent because they had been subject to surface erosion and traffic.

Tests 15, 16 and 17 were shovel tests made just beyond the perimeter of the pile of debris which formed the knoll around the Bakery Building (see Figure 16). We hoped to find some portion of the area which might not have been disturbed. Figure 17 is a photo of Test 16 and shows the only strata change found near the edge of the knoll. The ruler marks the 16 inches of eroded soil which covered the subsoil of dense, red-brown sandy clay. This bottom stratum extended to the limits of our excavations, ranging from 3.5 to 4.0 feet deep. No finds of any kind were made.

Test 18 was made in a low spot near the Bakery Building loading dock. The use of an auger revealed that 2.5 feet of recent fill had been deposited above the subsoil. No sign of an old topsoil layer was present and it would seem that we were far enough from the bakery (15 feet west of the structure) to have missed any area disturbed by its construction.

Tests 19, 20 and 21 were auger tests made on the east side of the Bakery Building where fill seemed slightly shallower. We were again mistaken, for excavation revealed that fill had been placed in lower spots to bring all of the land's surface up to a level above the building's cellar windows. In each test our auger was able to reach into subsoil and again revealed that no old humus layer was present.



Proposed Lagoon Area
 Cultural Resource Survey
 Wards Island W.P.C.P. Site

Sheet 2 of 3
 FIGURE 16
 Camp Dresser & McKee
 1980

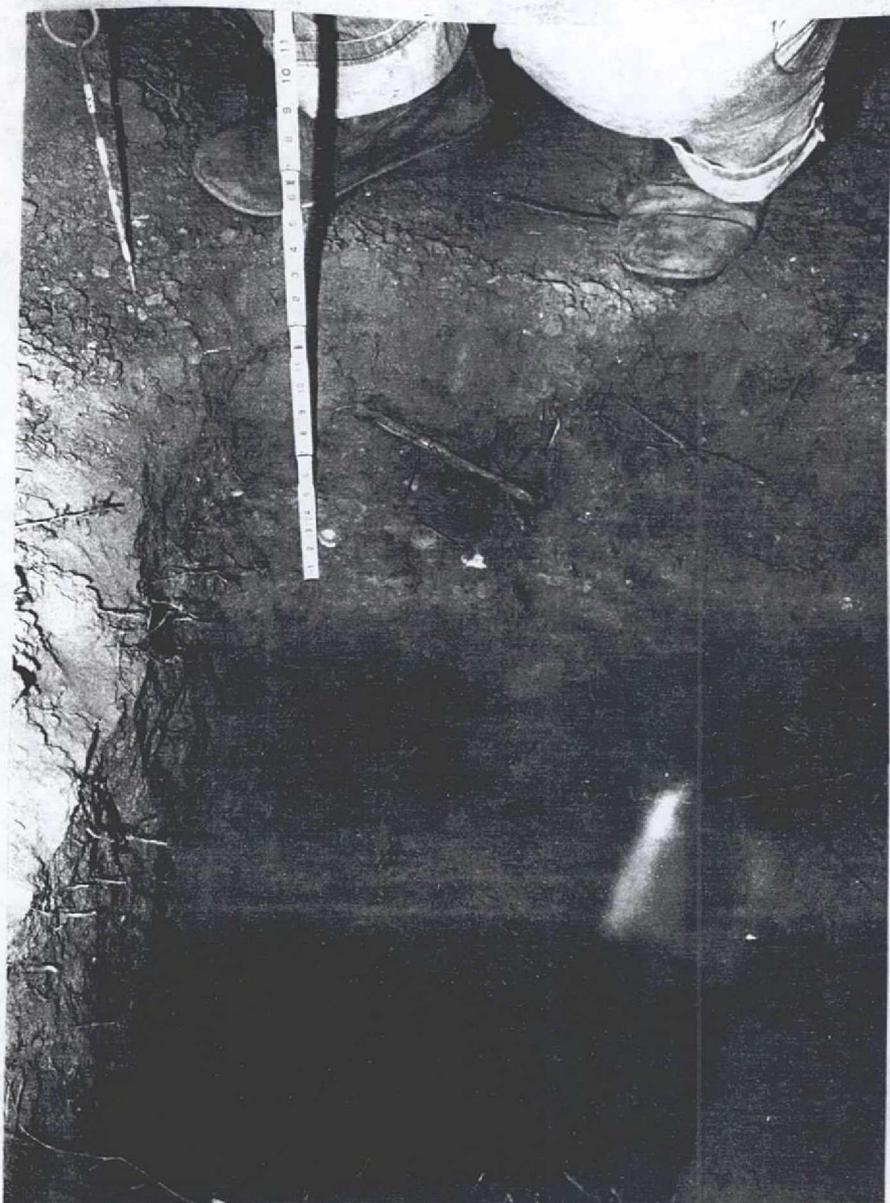


FIGURE 17. Test excavation at the edge of the Bakery Building zone. Dug along the fence and off of the mound, the hole revealed only recent fill and subsoil which were typical of the entire Bakery zone's soil profile. (Michael Spozarsky, photographer; Oct. 1980)

D. ARCHITECTURAL ANALYSIS

To summarize, the Bakery Building on Wards Island in the East River, New York City, is not an exemplary example of any particular architectural style. It does not appear to be the work of any master craftsman or designer. No persons of historical importance have been associated with this property. The processes of this bakery have not been found significant from an Industrial Archeological perspective. The building, therefore, does not meet the criteria for inclusion on the National Register.

The methodology for the architectural analysis included two site visitations and analysis of the building to determine materials and methods of construction, architectural style and integrity, as well as possible dating information. This information was recorded in written and photographic descriptions on which the conclusions of this report were based.

The following criteria, as outlined by the Heritage Conservation and Recreation Service, Department of the Interior, were utilized in forming opinions regarding potential entries for the National Register of Historic Places:

The quality of *significance* in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield information important in prehistory or history.

Ordinarily, cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years *shall not be considered eligible* for the National Register. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

A. a religious property deriving primary significance from architectural or artistic distinction or historical importance; or

B. a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

C. a birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his productive life; or

D. a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

E. a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

F. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance; or

G. a property achieving significance within the past 50 years if it is of exceptional importance.

The following definitions for a district, site, building, structure, and object are from the Department of the Interior, National Park Service National Register of Historic Places 36 CFR 63 (Federal Register, Vol. 42, No. 183, Wed. Sept. 21, 1977, PP. 47,666-67):

1. A "district" is a geographically definable area, urban or rural, possessing a significant concentration, linkage or continuity of sites, buildings, structures, or objects which are united by past events or aesthetically by plan or physical development. A district may also be comprised of individual elements which are separated geographically but are linked by associations or history.
2. A "site" is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure whether standing, ruined, or vanished, where the location itself maintains historical or archeological value regardless of the value of any existing structures.
3. A "building" is a structure created to shelter any form of human activity such as a house, barn, church, hotel, or similar structure. "Buildings" may refer to a historically related complex, such as a courthouse and jail or a house and barn.
4. A "structure" is a work made up of interdependent and inter-related parts in a definite pattern or organization. Constructed by man, it is often an engineering project large in scale.
5. An "object" is a material thing of functional, aesthetic, cultural, historical, or scientific value that may be, by nature or design, movable yet related to a specific setting or environment.

The following definitions for an effect, direct effect, and indirect effect are from the Federal Register, Vol. 44, No. 21, Tues. Jan 30, 1979, p. 6074.

1. An "effect" occurs when an undertaking changes the integrity of location, design, setting, materials, workmanship, feeling, or association of the property that contributes to its significance in accordance with the National Register criteria.

2. Direct effects are caused by the undertaking and occur at the same time and place.
3. Indirect effects include those caused by the undertaking that are later in time or farther removed in distance, but are still reasonably foreseeable. Such effects may include changes in the pattern of land use, population density or growth rate that may affect on properties of historical, architectural, archeological, or cultural significance.

The following criteria of adverse effect was published in the Federal Register, Vol. 44, No. 21, Tues. Jan. 30, 1979, p. 6074.

Criteria of Adverse Effect. Adverse effects on National Register or eligible properties may occur under conditions which include but are not limited to:

- (1) Destruction or alteration of all or part of a property;
- (2) Isolation from or alteration of the property's surrounding environment;
- (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) Neglect of a property resulting in its deterioration or destruction;
- (5) Transfer or sale of a property without adequate conditions or restrictions regarding preservation, maintenance, or use.

The Bakery Building has been identified as being associated with the later period of the homeopathic hospital's use of Wards Island. Although our level of documentary research did not include title searches and exact construction dates for the various structures of this old public facility, it is safe to place the Bakery Building in the modern period.

On architectural evidence alone, a bracketed time period of construction can be placed between 1910-1930. This time frame is based mainly on the building's structural framing system of reinforced concrete

members. Decorative elements, which include an eclectic composition, also are reflective of this time period.

The Bakery Building has a two-story rectangular center core on a north-south axis with two "L"-shaped one-story appendages to the core on the northeast and southeast corners (see Figures 15, 18, 19, 20, and 21). A simple gable roof caps the taller central portion. The one-story sections have flat roofs with parapets.

Structurally, the building is composed of reinforced concrete columns, beams, and girders internally with brick and structural clay tile-bearing walls. All floors are of reinforced concrete slabs. The roofs are wood frame with plank decking or built-up roofing.

Externally, the brick veneer is laid in Flemish bond with red tinted mortar joints. The walling rests on a poured concrete foundation that is capped with a limestone watertable. The walls are crowned by a continuous wooden cornice which carries a brick parapet above. Limestone coping stones topped this parapet.

Openings are created by flat and semicircular brick arches with limestone trimming at keystones, sills, and impost blocks. Window units are generally grouped in twos with dividing mullion posts and of two types, both being wooden: double hung four over four sash and single pivoting (top and bottom about a horizontal axis) sash of six panes each.

Internally, the finish is plaster over concrete on the ceilings, plaster over structural clay tile on the walls and concrete slab floors. The ovens on the main floor have white glazed ceramic tile facings, virtually the only higher quality finish material in the building.



FIGURE 18. South and east facades of the Bakery Building. The loading dock addition is in the foreground. (Michael Spozarsky, photographer, Oct. 1980)



FIGURE 19. Detail of the loading dock section of the Bakery Building showing brick arch openings with limestone keystones. (Michael Spozarsky, photographer, Oct. 1980)



FIGURE 20. East facade of the Bakery Building. Note the deteriorated wooden cornices just below the parapets. (Michael Spozarsky, photographer, Oct. 1980)

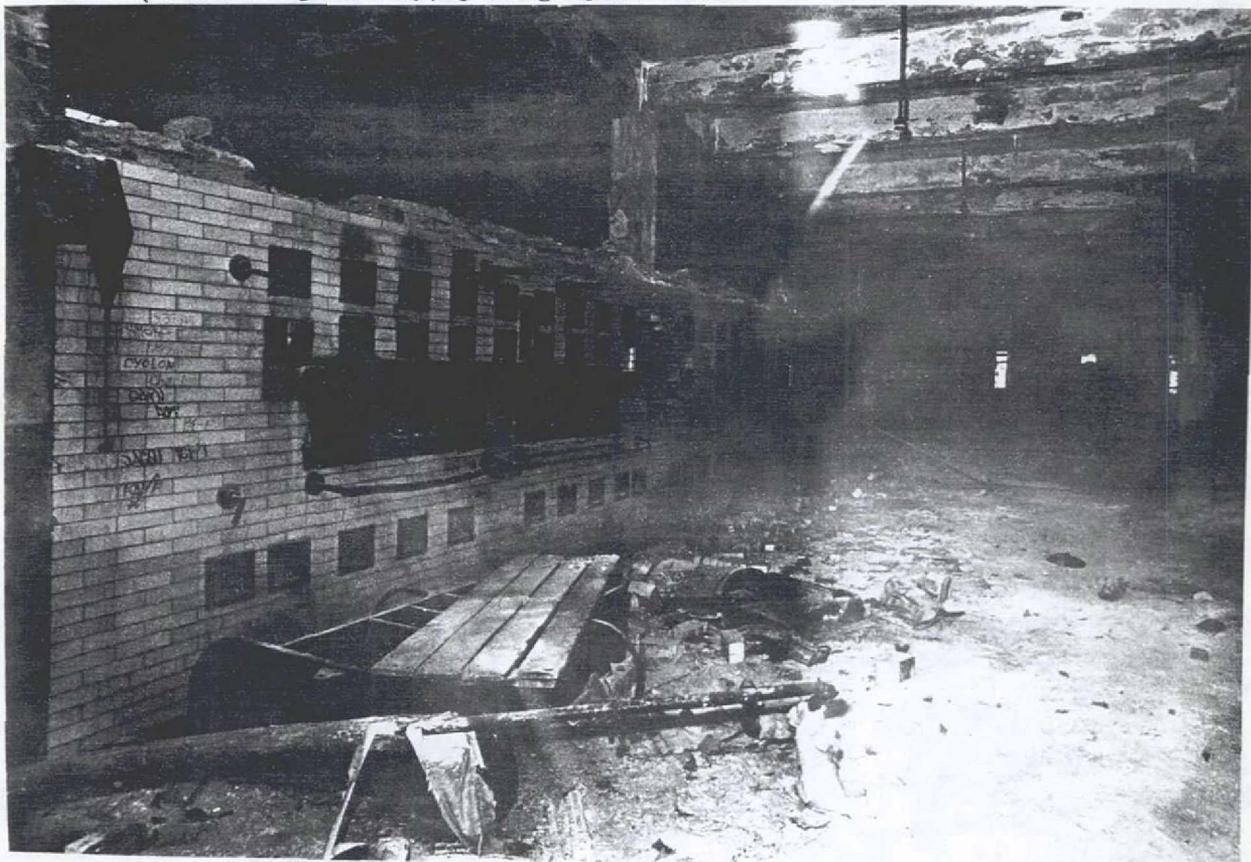


FIGURE 21. Interior of the Bakery Building first floor. Note the reinforced concrete construction and remains of the bake ovens. (Michael Spozarsky, photographer, Oct. 1980)

The main floor's central space, rectangular in shape, contains the baking oven area. Two rows of interior reinforced concrete columns carrying longitudinal concrete girders with concrete floor beams supporting the slab above, frame this space. The ovens occupy the west side of this room, heated from fires in the cellar and vented up two chimney stacks on the outside of the west wall. An arcaded loading dock entrance is on the southwest corner with the elevator shaft (to all three levels) between this covered area in the main baking room. A stairwell (to all three levels) is located in the northwest corner. Other offices and support rooms are located around the main baking room on the first floor. This space is virtually duplicated, with the absence of the ovens, on the second floor.

The building is in very poor condition. Both flat and gable roof sections have collapsed admitting water to the interior. Although the perimeter walling is in stable condition, the interior concrete framing components are deteriorated to the point where reinforcing steel is now exposed in spots, on columns, girders and beams and rusting has begun. The building is surrounded by garbage and trash debris raising the grade by four to six feet at spots. It is unprotected and open to vandals.

In conclusion, because the Wards Island Bakery Building is typical in its twentieth-century construction method of reinforced concrete structure, and not exemplary of any particular architectural style but rather a weak mixture of Romanesque Revival, Georgian detailing, and Colonial nostalgia, the property does not meet the criteria for inclusion to the National Register of Historic Places. It has no historical, architectural, archeological,

or cultural significance. Establishing this fact, the undertaking requiring demolition and removal of this building would not constitute "an effect" on any potentially significant resource.

IV. CONCLUSIONS AND RECOMMENDATIONS

As we have shown, although Wards and Randalls islands and their associated waterways have played an important part in New York City's history, neither of the two study areas was found to contain or to be associated with significant cultural resources.

The access road will be built over an historic channel that has been filled in. In our opinion no further harm will come from building this road.

The lagoon site has not been associated with more than outbuildings of a nineteenth- and early twentieth-century hospital. The last standing building, a bakery, has been found to be architecturally and historically insignificant. Furthermore, the site of the Bakery Building, although covered with recent fill, has been graded clean of all topsoil and is therefore like the already existing S.T.P. yard.

It is our conclusion that no further cultural resource studies or procedures are necessary on these proposed construction sites.

V. BIBLIOGRAPHY

A. WORKS CITED

Appleton's Directory

1905 *Appleton's Directory of Greater New York.* D. Appleton and Co., New York.

Bridges, William

1807 *The Map of the City of New York and Island of Manhattan.* William Bridges, publisher.

Camp Dresser & McKee

1980 *New York City Accelerated Interim Sludge Management Plan: Draft Environmental Assessment Statement.* Vol. 2. Camp Dresser & McKee, Boston and New York.

City of New York

1937 *Wards Island Sewage Treatment Works.*

Federal Register

Vol. 42, No. 183, Wed. Sept. 21, 1977.

Federal Register

Vol. 44, No. 21, Tues, Jan. 30, 1979.

Federal Writers' Project

1939 *New York City Guide.* Random House, New York.

Heritage, Conservation and Recreation Service, Department of the Interior

Informational data on National Register of Historic Places program.

Kelby n.d. A

Notes on Randalls Island compiled by late nineteenth-century secretary of the New York Historical Society, William Kelby, on file in society's library.

Kelby n.d. B

Notes on Wards Island contained in a scrapbook compiled by late nineteenth-century secretary of the New York Historical Society, William Kelby, on file in society's library.

Kelley, Frank B.

1909 *Historical Guide to the City of New York.* Frederick A. Stokes Co., New York.

King's Handbook

1893 *King's Handbook of New York City.* Moses King, Boston.

Kitchin, Thomas

1778 *Map of New York I. with the adjacent Rocks and other remarkable Parts of Hell-Gate.*

New York Public Library

Miscellaneous file of information in the Genealogy and Local History Room.

Schuberth, Christopher J.

1968 *The Geology of New York City and Environs.* The Natural History Press, Garden City, New York.

Society for the Reformation of Juvenile Delinquents

1853 *Twenty-Eighth Report of the Managers.*

Society for the Reformation of Juvenile Delinquents

1897 *Report on the Title to Property on Randall's Island, New York.*

Stokes, I. N. Phelps

1915 *The Iconography of Manhattan Island.* Robert H. Dodd, New York.

U.S.G.S. Central Park quadrangle

7.5 minute series. 1956 updated to 1966.

Valentine's Manuel

1900 *Valentine's Manuel of Old New York.* F. P. Harper, New York.

Viele, Egbert L.

1874 *Topographical Atlas of the City of New York.*

Walling, H. F.

1860 *Map of the City of New York and Its Environs.*

Zabriskie, George A.

1944 "Sunken Treasure and the Hussar." *The New-York Historical Society Quarterly Bulletin.* Volume XXVII, No. 2.

B. WORKS CONSULTED

Berkey, Charles P. and Thomas W. Fluhr

1935 *Review of the Completed Borings for the Proposed Tunnels from Manhattan and the Bronx to the Wards Island Disposal Plant.* Memorandum No. IV.

Block, Adriaen

1614 *Figurative Map.* Reprint of original map in collection of New York Public Library.

Bromley, G. W. and E. Robinson

1879 *Atlas of the Entire City of New York.*

Colton, J. H.

1841 *Topographical Map of the City and County of New York.*

Colton, J. H.

1880 *Colton's New Map of the City and County of New York.*

De Manatus op de Noort Rivier

1639 Reprint of original map in collection of New York Public Library.

Des Barres, Joseph

1778 *Hell Gate.* Reprint of original map in collection of New York Public Library.

New York City Planning Commission

1969 *Plan for New York City: A Proposal.* Volume 4.

Randel, John

1814 *The City of New York.* Map in collection of New York Public Library.

Smith, Edwin

1835 *Randel's Island.* Map in collection of New York Public Library.

Survey of the Coast of the United States

1851 *Hell Gate and Its Approaches.* Map in collection of New York Public Library.

United States Coast and Geodetic Survey

1885 *Hell Gate and East River from South End of Blackwell's Island to Lawrence's Point.* Map in collection of New York Public Library.

United States Coast and Geodetic Survey

1909 *Hell Gate and East River from Blackwell's Island to Lawrence Point.* Map in collection of New York Public Library.

United States Coast and Geodetic Survey

1937 *East River: Tallman Island to Queensboro Bridge.* Map in collection of New York Public Library.