



ARCHAEOLOGICAL DOCUMENTARY STUDY

136-33 37TH AVENUE

BLOCK 4977, LOTS 94 AND 95
136-33 and 136-35 37th Avenue

FLUSHING, QUEENS, NEW YORK

Prepared For:

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I. INTRODUCTION

The 136-33 37th Avenue Realty, LLC (Realty) has proposed construction of a new mixed-use building on two privately owned lots in the Flushing neighborhood of Queens County, New York. The proposed multi-story development will combine 15,000 sq ft of commercial space on the lower floors and professional offices on the upper floors. The location is designated Block 4977, Lots 94 and 95, and falls within the block bounded by Main Street on the west, 37th Avenue on the south, Union Street on the east, and Northern Boulevard on the north (Figure 1). The irregularly shaped property consists of two lots, Lot 95 (136-33 37th Avenue) and Lot 94 (136-35 37th Avenue) which have a combined frontage of 55.4 feet on 37th Avenue, extends 200 feet north from 37th Avenue, and has a 82.88-foot lot line at the back (south side) of the property (Figure 2). At present, the property is occupied by a restaurant building, and the remainder is paved and used as a parking lot.

In accordance with New York City Environmental Quality Review (CEQR) regulations and procedures, the New York City Landmarks Preservation Commission (LPC) has reviewed the proposed action and requested an Archaeological Documentary Study, often referred to as a Phase IA, for this undertaking. This report complies with the guidelines of the LPC for the 136-33 37th Avenue development project (CEQR 2001; LPC 2002).

The project site, or Area of Potential Effect (APE) consists of the entirety of Lots 94 and 95. This Phase IA documentary study describes conditions on the APE (including soil and geological boring data and known disturbances to the property), previous cultural resources investigations undertaken adjacent to the project site, the history of the property, and based upon the preceding sections, the APE's potential sensitivity for the recovery of archaeological resources.

Methodology

Preparation of this archaeological study involved using documentary, cartographic, and archival resources. Repositories utilized (either in person or by using online electronic resources) or contacted included the Queens County City Register; the Queens County Department of Buildings; the New York City Department of Environmental Protection; the Records Division of the Topographical Bureau at the Queens Borough President's Office; the Long Island Division of the Queens Library; the New York Public Library; and the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP). Realty provided current site data, and geotechnical data.

Because the APE is directly adjacent to the property of the 17th-century Flushing Quaker Meeting House and Burying Ground, additional research was conducted to determine the possibility of related archaeological resources on Lots 94 and 95. This research included inquiries and discussions with representatives of the Society of Friends Flushing Monthly Meeting, as well as local historians at the Queens Historical Society. The Flushing Friends website, <<http://www.nyym.org/flushing>>, including the graveyard page <<http://www.nyym.org/flushing/graveyard.html>>, was also useful. Research was conducted at the Friends Historical Library, at Swarthmore College, Swarthmore, Pennsylvania, which houses the extant records of

the Flushing and New York Friends meetings. Eugene J. Boesch kindly provided a copy of his 2008 report on subsurface testing at the meetinghouse (Boesch 2008).

A site walkover was undertaken on August 2009 by Cece Saunders of HPI. Saunders made notes and took photographs of buildings, structures, and existing ground conditions (Photos 1–7).

III. ENVIRONMENTAL SETTING

Long Island is the top of a Coastal Plain ridge formation that is covered with glacial drift, in reality an elevated sea bottom demonstrating low topographic relief and extensive marshy tracts. In the last million years, as glaciers advanced and receded three times, the surficial geology of the island, including the APE was profoundly altered. “The glacier was an effective agent of erosion, altering the landscape wherever it passed. Tons of soil and stone were carried forward, carving and planing the land surface. At the margins of the ice sheet massive accumulations of glacial debris were deposited, forming a series of low hills or terminal moraines” (Eisenberg 1978:19). Circa 18,000 years ago, the last ice sheet reached its southern limit, creating the Harbor Hill moraine that traverses the length of Long Island. The moraine lies approximately three miles south of the APE, along the Grand Central Parkway. North of the moraine, the complex rising and subsidence of the coastal plain, relieved of its glacial burden, and the rising sea level, caused by the volume of melting ice, created the coastline of embayed rivers and estuaries, with extensive marsh tracts, which stabilized approximately 3,000 years ago (Schubert 1968:195,199). The project area was probably inundated and an extension of the Flushing Bay estuarine ecosystem at the end of the Pleistocene. Glacial till and outwash, consisting of clay, sand, gravel, and boulders were deposited by the melting ice sheet. The fertile sandy loam, composed of fragments of decomposed boulders of granite, feldspar, and greenstone traprock from the Flushing area was instrumental in the development of horticulture for which the town became famous (Valles 1938:5).

The extensive Flushing Bay and Flushing River water system is approximately 2,000–2,500 feet to the west and north of the APE, with extensive marshes and what local historian Lawson noted as “numerous” freshwater springs north of Northern Boulevard in the vicinity of Spring Lane (now Leavitt Street at 35th Avenue) (Lawson 1952:62). Historical topographic maps record the former extent of the marshland (Figure 3). In addition to the marshlands, historian Innes’s 1908 “reconstruction” of early Flushing (Figure 5) depicts a pond on the north side of Northern Boulevard, in the line of Main Street, about 600 feet northwest of the APE. A small creek running into the pond is also recorded along the east side of and parallel to Main Street, approximately 300 feet west of the APE. Neither the pond nor the creek is recorded on any of the historical topographic maps that show the area, including the 1837 Coast Survey map (USCS 1837).

According to written accounts, however, the pond and stream did exist. The pond “was a watering place for cattle, it received several springs east of Main Street, and ran off through swampy woodland to the north.” The Munsell history also mentions it, describing “a noisome frog pond” (Munsell 1882). Local historians report that it became a public nuisance, and was filled in before 1843, when the first town hall, called the “Trustees Hall” was built there, at the west end of the park in the center of Broadway (now Northern Boulevard) (Smith 1892:22; HCBQ 1938:8.56) (Figures 6, 7). Historian Benjamin Thompson, writing in 1839, refers to the location where the “town pond was lately” (Thompson 1918). Since the earliest known topographic survey of the vicinity dates to 1837, it is likely that the pond had already been filled by that year.

Despite the filling of the pond, topographical surveys of the 19th century record the Main Street location as a narrow valley or trough between hills to the east, west, and north, creating ideal conditions for a small creek draining the highlands into a pond at Northern Boulevard. The surveys

also show the APE sloping downward toward the north and west (Figure 3). The most detailed early-20th-century survey, the Queens “Final Map” of 1911, employs a 5-foot contour interval and shows the APE between the 30- and 25-foot contour lines, declining in elevation from the southeast to the northwest. The contours record elevations above mean high water (Figure 4). The current U.S.G.S. topographic map shows the same slope, with the APE between the 30- and 20-foot contour lines (Figure 1).

The New York City Soil Reconnaissance survey characterizes the soils on and around the APE as “Pavement and buildings, outwash substratum, 0 to 5 percent slopes,” further described by the U.S.D.A as “Nearly level to gently sloping, highly urbanized areas with more than 80 percent of the surface covered by impervious pavement and buildings, over glacial outwash; generally located in urban centers” (USDA 2005).

In 2007, a series of four geotechnical and soil borings was excavated within the parking lot portion of the project site by D. K. Drilling of NY (Appendix B). The soil profiles these borings revealed were similar. The upper stratum, which ranged from the top of the parking lot to 4 to 11 feet below grade, depending on the location, consisted of historic fill, presumably associated with construction and demolition of the structures on the property. There may also have been localized depressed locations within the APE that required filling to create a more level surface for the current parking lot. Beneath the fill layer was an undisturbed, very deep layer of glacially deposited silty sand and sand. Boring log B-1, the deepest of the four, encountered gravel mixed in with the sand from 70 to 102 feet below grade, where the boring ends. At the time that the soil borings were performed (September 2007), the water table was encountered at 21 feet below grade.

III. PRECONTACT ERA

Precontact Summary

For this report, the word precontact is used to describe the period prior to the creation and use of formal written records. In the Western Hemisphere, the Precontact Era also refers to the time prior to European exploration and settlement. Archaeologists and historians gain their knowledge and understanding of precontact Native Americans in the Nassau County area from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

Based on data from these sources, a precontact cultural chronology has been devised for western Long Island. Scholars generally divide the Precontact Era into three main periods, the Paleo-Indian (ca. 14,000–9,500 years ago), the Archaic (ca. 9,500–3,000 years ago), and the Woodland (ca. 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 (ca. 500–300 years ago). Artifacts, settlement, subsistence, and cultural systems changed through time with each of these stages. Characteristics of these temporal periods have been well documented elsewhere, and in keeping with a request to professional archaeologists conducting work in New York State by the NYSOPRHP (2004), will not be fully iterated here.

Scholars often characterize precontact sites by their close proximity to water, 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). Locations preferred for primary sites tend to be elevated sites near estuarine marsh systems, sources of fresh water, and a major waterway. They are often situated in locales that are easily defended against both nature (weather) and enemies. Secondary sites are often found near exploitable resources.

Flushing in the Precontact Era

The first recorded visit to the Flushing area by a European was probably that of the trader/explorer Adriaen Block, in the ship *Onrust*, who sailed up Long Island Sound and explored the bays on either side in 1614 (Waller 1899:5). Contact with Europeans had far-reaching effects on Native American cultures. European goods such as metal and glass began to replace traditional materials. Trade for these and other goods probably encouraged a more sedentary lifestyle, and larger villages developed into permanent settlements. The population of these villages would expand and contract with the seasonal availability of natural food resources, and maize agriculture contributed surplus food which could be stored to bolster their already rich diet. Tragically, these cultural developments were cut short, as natives were exposed to European diseases against which their bodies had no resistance. The Native American population was decimated (Kearns, Kirkorian and Schaefer 1989:10).

Due to these tremendous stresses, the sociopolitical situation of Long Island's Native Americans was extremely fluid, with groups splitting and combining in complex ways, which are only beginning to be understood. Most 19th-century histories of Flushing and Queens County identify

the 17th-century inhabitants of the Flushing area as Matinecock Indians (Waller 1899:17). The Matinecock claimed jurisdiction over northern Long Island east of Newtown and as far west as Smithtown in Suffolk. They are described as being once numerous in northeastern Queens, with their settlements in Little Neck and Bayside and a large one in Flushing, where they made wampum, and dried oysters and clams for winter use (Munsell 1882:19,76).

Others record the original sellers of the land as the Massapequa, despite recording the presence of the Matinecock's Flushing settlement (Thompson 1918:1.126, 3.3), or Canarsee or even Rockaway (Kearns and Kirkorian 1985:6). At present, it is generally believed that western Long Island was inhabited by Munsee-speaking members of the Leni Lenape culture group. According to the research of Robert Grumet and Reginald Bolton, the divisions or subdivisions known as the Matinecock and the Massapequa had fairly close ties. They were allies during the late 17th century, eventually combined in 1676, and went to live in the Rockaways. The Massapequa sachem signed treaties with the Dutch in the name of other groups such as the Rockaway on more than one occasion, and when he was killed, the Matinecock sachem signed an agreement representing his own and some of the Massapequa's towns. Thus, there existed a complex relationship between the Indian groups on Long Island which is yet to be explained sufficiently (Grumet 1981:5-6, 30-33).

Precontact Archaeological Sites

Several Phase IA archaeological assessments have been completed in the APE vicinity, although none involved archaeological testing, and therefore no additional archaeological sites were documented as a result of these studies. The Phase IA investigations include the Queens Crossing project, two blocks south of the APE (Horn 2004), the Flushing Center project (Kearns et al. 1988), on the block bounded by 37th Avenue, 39th Avenue, 138th Street, and Union Street; and the Downtown Flushing Rezoning Project, located west of College Point Boulevard and several blocks west of the APE (Geismar 1996).

The recorded precontact remains closest to the APE are also the most recently uncovered. In 2008, testing for the reconstruction of the porch on the southern side of the Flushing Friends Meeting House consisted of seven shovel test pits, and seven test units. At the westernmost section of the testing area, in test units A and B (about 200 feet north of the APE), Boesch encountered two Jack's Reef Pentagonal type points, and "a rose quartz decortication blocky fragment with one edge retouched into a graver and the opposite end showing grinding damage through use as a reamer." He concluded that the "artifacts are temporally diagnostic to the Point Peninsula culture of the late Middle Woodland to early Late Woodland period (A.D. 500 – 1,000) in the Northeastern United States. The presence of the Native American artifacts suggest the presence within the vicinity of the tested area of an aboriginal camp site" (Boesch 2008).

Records available at the LPC and the New York State OPRHP reveal that the project site is in close proximity to a number of previously recorded precontact and contact era sites as well. Among both historians and archaeologists, there is widespread consensus that northeast Queens, that is, the area which comprised the Town of Flushing, once supported a substantial precontact population. Most of the documented precontact sites in Queens were located along extensive water systems, such as Jamaica Bay, Little Neck Bay, and Newtown Creek. In the Flushing

village or downtown Flushing vicinity, numerous precontact sites have been recorded along Flushing Bay and Flushing Creek, most notably in the College Point area, north of the APE. The line of Northern Boulevard, once called Broadway, is thought to follow portions of a former Native American trail (Grumet 1981).

Although many have written about precontact sites in Queens, a recent study commissioned by the LPC attempts to summarize much of this data into one source. In this comprehensive work, Eugene Boesch evaluates the archaeological sensitivity for all of Queens, based on previous research by earlier scholars, and identifies documented precontact sites, some more precisely than others (Boesch 1997). Boesch rates all of downtown Flushing and its vicinity (an area spanning several miles in any direction) as highly sensitive for the recovery of precontact sites, based on the identification of various precontact sites in the area. Boesch does not pinpoint exact locations of precontact sites in his study, but rather uses his own numbering system to map general areas where precontact sites have been recorded.

Boesch's study identifies one precontact site as immediately adjacent to the APE, designated Site 2. He writes:

Two alternative locations for this mortuary site (former Linnaean Gardens); 15 burials recovered from a circular area 30 feet in diameter; heads oriented to the east; musket balls and nails associated with some burials suggesting Contact Period component. Description vague as to whether musket balls are grave goods or indicative of gunshot wounds.

Boesch identifies this site as NYSM #4524; and cites the following primary sources as his references: Beauchamp 1900:1; Bolton 1922; Bolton 1934: Site 127; Furman 1874: 97-98; Parker 1922; Mandeville 1860.

In order to confirm whether the APE is in fact adjacent to this precontact site, the primary sources he cites were reviewed. Interestingly, all but the 1922 Parker study refer directly to the 1874 Furman publication, and present no new data (the 1860 Mandeville book did not appear to contain any specific reference to this site). For comparison, the 1874 Furman is presented here. Of note, the number of burials differs between the two descriptions:

In the month of July, 1841, eleven human skeletons were unearthed in excavating the ground to run a road through the Linnaean Garden, at Flushing, in Queens County. The place where they were found has been for fifty years used as a horticultural nursery. They were within a circle of thirty feet, their heads all lay to the east, and some nails and musket-balls were found with them. Conjecture has been foiled in speculating upon the circumstances under which they were inhumed (Furman 1874:97-98).

The former Linnean Gardens were located on the north side of Northern Boulevard, between Farrington and Prince Streets, approximately 500 feet northwest of the APE. Boesch's site location map does not show Site 2 as north of Northern Boulevard, but instead situated along

Main Street and along Lawrence Street (now College Point Boulevard), which is approximately two blocks west of Main Street.

The one source that differs from the Furman account in locating this precontact site is the Parker 1922 publication, which identifies a “burial site” between Avery Avenue and Fowler Avenue, west of the Queens Botanical Gardens. Most of the NYSM site numbers were assigned based upon the Parker study, including NYSM #4524, which Boesch attributes to this site. The confusion in associating this location with the burial site may be that the Prince family, who owned the Linnean Gardens north of Northern Boulevard, also owned land here, which may have also been referred to as the Linnean Gardens. Comparison of historic maps made in the 1840s and 1850s, contemporary to the time that the burials were found, suggests that it is the gardens north of Northern Boulevard that the site was on, as the Prince holdings west of Lawrence Avenue are shown to be largely undeveloped through 1852, while roads have clearly been laid through the property north of Northern Boulevard, which matches the description of discovering the burials in the Furman publication (Smith 1841; Conner 1852).

Compounding the confusion concerning NYSM#4524 is the fact that archaeologist Ralph Solecki documented a precontact site at the approximate location of Parker’s “burial site,” between Fowler Avenue and Sanford Avenue, west of College Point Boulevard. Here Solecki photographed the remains of an “Indian Spring,” and several other loci designated “archaeological sites” although it appears he did not attempt to have this area given a unique site identification number. It is possible that Solecki was in fact redocumenting Parker’s NYSM#4524. The 1852 Conner map appears to show a small spring or body of water in this location, confirming Solecki’s claim.

In addition to Boesch’s Site 2, the following precontact sites also fall within a mile of the APE. The majority of them were located along College Point Boulevard, in direct proximity to the former shorelines of Flushing Bay and Flushing Creek. They are listed according to their distance from the APE, with those nearest listed first.

Boesch Site 60 (NYSM 4545). A campsite and traces of occupation, reported by Parker (1922) and Solecki (1941), and also given three locations on the map, all surrounding College Point Boulevard.

Boesch Site 75 (NYSM 4524). An unspecified site discovered by Solecki in 1941 that was destroyed by construction of the Van Wyck Expressway. It appears to be in the same approximate location as Boesch Site 2.

Boesch Site 3 (NYSM 4526). Mortuary site on former Thomas Duryea Farm; Contact Period village also located there, possibly associated with the Matinecock. Description provides only general location information for the site. In approximate location of Northern Boulevard and Murray Street (Parker 1922).

Boesch Site 4. Contact Period (Matinecock) habitation site. Near Parsons Boulevard and Roosevelt Avenue. May be the same as Boesch Site 3 (Bolton 1975).

Boesch Site 61 (NYSM 4544). A campsite reported by Parker in 1922. Two locations are given for this number, in the vicinity of Shea Stadium.

Boesch Site 30 (NYSHPO A081-01-0133). The Grantville Site (also called “the woods”), an Archaic and Woodland habitation site located on a narrow promontory at the southwestern corner of College Point (Smith 1950).

Boesch Site 17. Traces of occupation. At the approximate intersection of College Point Boulevard and the Whitestone Expressway (Parker 1922).

Boesch Site 59 (NYSM 4542). Campsite along College Point Boulevard north of the Whitestone Expressway. May be the same as Boesch Site 17 (Parker 1922).

Analysis of the Native American site locations described above reveals that all of the Precontact era sites were located in very close proximity to natural water sources, namely Flushing Bay and Flushing Creek. The few Contact period Native American sites that were located a bit farther inland (Boesch’s Sites 3 and 4), appear to be near the known Indian trail along Northern Boulevard.

Although the APE is about 0.25 miles east of Flushing Creek, it is also about 250 feet south of the former Indian trail along Northern Boulevard. In addition, the dry, elevated APE was adjacent to the former pond north of the Main Street and Northern Boulevard intersection (600 feet to the northwest), and the small stream along the east side of Main Street (300 feet west) which drained into the pond, indicates a nearby fresh water source. The Middle to Late Woodland period artifacts encountered during Boesch’s 2008 testing 250 feet to the north, on the Quaker Meeting House lot, indicates that the APE was an attractive place known to precontact humans. Therefore the APE should be considered to have a **HIGH SENSITIVITY** for having hosted a Native American occupation during the Precontact and early Contact periods.

IV. HISTORIC PERIOD

Many English colonists found the orthodox religious atmosphere of Puritan New England too stifling, and for some “heretics” it was dangerous. As a result many colonists fled to Rhode Island, and others settled in New Netherland, which was desperately in need of settlers since the disastrous Indian wars of 1640s. Thus, Flushing was one of several English towns founded in New Netherland, along with Newtown, Jamaica, and Hempstead. Governor General Kieft granted a patent for approximately 16,000 acres east of Flushing Creek to a group of English emigrants, including Thomas Farrington, John Lawrence, and Thomas Stiles in October 1645. The Dutch called the settlement Vlissingen, after an important town in the Dutch province of Zeeland, and eventually the English corrupted the name to Flushing (Brodhead 1853:410).

As was the practice of the Dutch West India Company (GWIC), rather than appropriate native property, title was secured by purchase. This had been accomplished in 1639 when the area which was later the Towns of Flushing and Jamaica (now the eastern half of Queens County) was purchased from an Indian delegation headed by Mechowod, sachem of the “Massapeague,” accompanied by his cousin Piscamoe, Worttewoockhow, Kackpohor, and Ketachquawars. The liberal terms allowed Mechowod’s people to “remain to dwell, to plant Indian corn, to fish and to hunt in the said lands” (Thompson 1918:3.3–4).

Before the English conquest of New Netherland in 1664, Flushing was quite definitely a thorn in the side of the Dutch Director General. The Kieft charter declared that the patentees would “enjoy the liberty of conscience according to the custom and manner of Holland, without molestation or disturbance from any magistrate, or magistrates, or any ecclesiastical minister.” In religious matters, the 17th-century Netherlands was the most tolerant country in Europe, but although freedom of conscience was guaranteed, the public exercise of non-Reformed “sects” was not. In some places, such as Amsterdam, however, various groups of Jews and Christians were able to erect houses of worship, and even secret Roman Catholic churches were winked at by the authorities. In other towns, and in colonial situations such as in New Netherland, things were different. Freedom of conscience was still guaranteed, yet fear of the anarchy which would develop in a pluralistic community meant that dissenting groups had to confine their observances to prayers and devotions in their homes. The organization of public worship services, or conventicles, by other than the ministers of the established Reformed church was illegal. Attempts by New Amsterdam Lutherans to call their own minister from the Netherlands were continually blocked by the colonial government and the influence of the Reformed consistory (Jacobs 2005).

The Quakers represented a special case beyond the Lutherans, since their rejection of all human authority beyond that of God played right into the worst visions of anarchy that the Company directors feared. Trouble began immediately with the first Quakers to arrive in New Amsterdam in 1657. The “Quaker” ship did not fire the usual salute, and when the captain met Stuyvesant, he showed “no respect at all, but stood there with his hat firm on his head, like a goat.” The ship left the next day, but two Quaker women, Dorothy Waugh and Mary Witherhead, remained behind, and began to preach in the streets that the end was near, causing an uproar. They were imprisoned, and then banished from the colony. In the same year, Quaker Robert Hodgson traveled to Flushing, where he was “well received.” When he went to nearby Hempstead, however, which had an

English Presbyterian minister, he was arrested for holding illegal conventicles, and when he would not cease preaching, he was sent to New Amsterdam, tried, and sentenced to two years forced labor or a fine of 600 guilders. On refusing to work, he was beaten, beaten more, locked up, and beaten yet again. New Amsterdammers felt sorry for him, and interceded for Hodgson, who was then banished from New Netherland (Jacobs 2005: 305–306).

As historian Jaap Jacobs points out, at no time was there an attempt made to force him to renounce his religious convictions. Although the punishment may have been overly harsh even for the time period, Hodgson's and subsequent Quaker offences were against the laws regarding organizing conventicles, and refusing to obey legal authority, both of which the offenders refused to acknowledge. According to one Quaker history, Hodgson protested that he had broken no law (Hinshaw 1940:9–10), which indicates that he did not understand the charges, possibly because he did not speak Dutch. Jacobs notes that most 19th-century historians and their modern successors have followed 18th-century Quaker publications which interpret the incidents as attacks on freedom of conscience and religion, which they were not. The actions of the local GWIC officials were attempts to prevent public activities which threatened the colony's peace and stability, but it was the increasingly severe and even violent sanctions of the same authorities that offended the local populace and the Company directors in the Netherlands (Jacobs 2005:307).

In addition to Hodgson's rough treatment, designed to nip the spread of Quakerism in the bud, Stuyvesant instituted a heavy fine against anyone who sheltered a Quaker for the night. Vessels that brought Quakers were to be confiscated. The towns of Long Island, especially those such as Flushing without resident ministers, proved fertile grounds for Quakerism. In 1657, in response to Stuyvesant's measures, 28 Flushing residents and 2 from Jamaica banded together to sign the Flushing Remonstrance, refusing to obey the ordinances (Brodhead 1853:637). The Flushing Remonstrance, popularly hailed as a landmark in the struggle for freedom of conscience, is perhaps better described as a milestone in the separation of church and state (Driscoll 2005).

Incensed at the Remonstrance, which supported "the abominable sect of the queeckers who vilify both the political regents and teachers of God's word," Stuyvesant arrested the magistrates from the various towns that harbored Quakers and organized illegal conventicles. Some were banished. Tobias Feake, the *schout* (sheriff) who delivered the "impudent" epistle, was demoted, fined 200 Flemish pounds, and threatened with banishment. Despite the severity of Stuyvesant's measures, Quaker meetings were still held in the woods, and John Bowne and his Quaker wife, who had settled in Flushing after 1651, allowed them to meet in his home. Bowne was eventually arrested, fined, imprisoned three months, and sent to Amsterdam in 1663, where he protested to the directors of the West India Company. Although the directors supported Stuyvesant, they allowed Bowne to return to Flushing, and shortly afterwards instructed Stuyvesant to leave the Quakers alone, and turn a blind eye to the illegal conventicles as long as the Quakers caused no trouble—as was done in Amsterdam itself. That position was reached because the colony, then being threatened by bellicose New Englanders, needed all the settlers it could get, Quaker or not (Waller 1899:39–45; Jacobs 2005:308–310). Bowne's house, which is popularly believed to have been erected in 1661, is now a museum on present Bowne Street, about 1,250 feet east of the APE (Figure 5). It served as the place of worship of local Quakers for over 30 years until a meetinghouse was constructed (Lowry 1994: 10–11).

The worst fears of the GWIC directors came true when a force of about 100 Englishmen under the leadership of Anthony Waters of Hempstead and John Coe of Middelburgh (Newtown) “liberated” Flushing in 1663. Until the official conquest of New Netherland by the English in 1664, Flushing, renamed Newarke, and the other English towns were quasi-independent entities (Waller 1899:50). It is possible that Stuyvesant’s unpopularity contributed to the early overthrow of Dutch hegemony over the English towns on Long Island. The English conquerors were forced to accommodate New York’s heterogeneous population by continuing the Dutch practice of freedom of conscience, and Lutherans, Quakers, and other groups were finally allowed to establish public houses of worship. Nevertheless, the refusal of Friends to take oaths, and the bias of the English colonial government in favor of the Church of England, continued to cause problems for the Quakers throughout much of the 18th century.

Nevertheless, the Flushing Friends prospered. Although no minutes were kept until those at the Half Year’s Meeting at Oyster Bay in 1671, it is believed that the Friends in the Flushing vicinity continued to meet in John Bowne’s house (Hinshaw 1940:10). The first property set aside specifically for Quaker use in Flushing was for a burying ground. The land was sold to the Friends for that purpose for £1 5s by John Bowne on 11 September, 1676, and is the forerunner of the cemetery that abuts the north side of the APE. It was described as “a certaine persell of land five rood [rods] long and five rood broade bounded with the highway [present Northern Boulevard] on the [blank] and on the north situate and being in the northwest corner of my[plan]tation” (Naylor 2001:34). A rod is the equivalent of 16.5 feet, which would make the dimensions of the burial ground 82.5 by 82.5 feet. In 1692 John Bowne and John Rodman bought three acres of land from John Ware for the construction of a Quaker meetinghouse. The deed, recorded 17 February, 1692, describes “three acres more or less lying in the town with dwelling house and orchard standing on the said land” (Deed Liber B No.1:274). The Quaker Meeting House was constructed beginning in December 1693 and completed by 1694, with the first recorded meeting held in the new structure on November 24 of that year (Lowry 1994:13). It is reportedly the oldest house of worship in New York City, and one of the oldest in the country (LPC 1970:1).

The original part of the structure is the easternmost third of the current building, which was enlarged westward to its current size (42’ 7” by 62’ 7”) in 1716–1719 (LPC 1970:1). The rear of the hip-roofed, wooden structure faces north toward what is now Northern Boulevard, and the front of the building, with porch, looks southward across the burying ground (Landmarks 1970:1). Edmund Peckover, a Quaker visitor to Flushing in 1742, reported that the “Friends have an Exceeding large Meeting House there, I think about fifty-five feet square” and that it “will hold an abundance of people” (*Friends Historical Society Journal* 1903/1904:1.102)

Despite the religious controversies during the Colonial Period, Flushing developed into a thriving agricultural area, with Flushing village at its center. Before the Revolution, Flushing was already famous for its wheat production, and the farmers produced “corn, beef, pork, butter, tobacco and staves, which they exchange for liquors and merchandise,” with the assistance of black slaves (Munsell 1882:82,91). At the end of the 17th century, the population of the entire town was 660, of which 130 were slaves. Although some Quakers did own slaves, by 1716 the first agitation against slavery was recorded at the yearly meeting (Waller 1899:85,92,96). Due to the continued strong

Quaker influence in the area during the early 19th century, Flushing later became a haven for free blacks.

The market for Flushing produce was New York City, since it was easier to transport goods to Manhattan by canoe than west by overland routes through the marshes around Flushing Creek. Aside from being a barrier to communication, the marshes, which included part of the project area, were a valuable resource for the inhabitants. Oysters, clams, and other shellfish were gathered (Munsell 1882:77), and the salt hay that grew in the marsh was a valuable source of horse and cattle feed, and was later used as packing material and bedding for animals (Thompson 1918:1.13; Sheel 1963:8). The occupation of Flushing by British and Hessian troops during the Revolution, although a difficult period for most residents, was a time of economic prosperity, because the farmers had a ready market for their grain and livestock, so production increased. The Quaker Meeting House was seized by the British and during the occupation was used as a prison, hospital, and hay magazine. According to Flushing historian Waller, south of the Meeting House the British had a parade ground (Waller 1899:132–133), presumably for drilling troops, although it is not clear whether the parade ground was on the APE location, which is also south of the Meeting House.

Despite the occupation, the population of Flushing grew to 1,601 in 1790 (Mandeville 1860:26). With all the grain produced, a tidal grist mill was erected in 1797 along Ireland Creek. It was acquired by Stephen Cornell Bowne, direct descendent of John Bowne, in 1800, and was apparently passed down through the Bowne family until it was demolished in 1925 (Lawson 1952:180).

During the 1680s Huguenot refugees from the persecutions of Louis XIV settled in Flushing and introduced an industry for which Flushing was to be famous into the 20th century: horticulture. The earliest commercial nursery in the United States, the Old American Nursery, was founded in Flushing by Samuel Prince ca.1725, where he sold fruit and nut trees, and later expanded into shade trees, berries, and grapes. The gardens were so famous that when General Howe's redcoats occupied Flushing in 1776, they were specifically ordered not to damage Prince's nursery. In October 1789 President Washington came to visit them along with the vice president and governor, among others. Unfortunately, he was not impressed, writing that "[t]hese gardens, except in the number of young fruit trees, did not answer my expectations. The shrubs were trifling and the flowers not numerous." In 1793 Samuel's grandson William Prince bought additional property, and formed the "Linnean Nursery," leaving the Old American to his brother Samuel. Eventually the two were combined. During the 19th century, other nurseries were established in Flushing, including Samuel Parson's Nursery in 1838, and G. R. Garretson's seed farm in 1836, John Henderson's Floral Gardens in 1867, and the Exotic Gardens, devoted to cut flowers (Sheel 1964:19; Munsell 1882).

The early owners of the APE could not be determined prior to 1799. In March of that year, Effingham Lawrence, head of a wealthy and ubiquitous Flushing family, proposed a property exchange with the Quakers for seven eighths of an acre of their land on the east end of "the orchard" for the same quantity of his land "at the South Side of the Burying Ground" (Friends Historical Society Library (FHSL), microfilm, Preparative Meeting of Flushing, Men's Meeting 1795–1804:102). This was ultimately turned down (FHSL, microfilm, New York Monthly Meeting Minutes, 5/1/1799), and Lawrence's heirs sold the property to Robert Bloodgood (1764–1820/30) a

carpenter, in 1804, and he in turn sold it to physician Joseph Bloodgood (1783–1851) who owned the APE from 1814 to 1820 (Deed Liber O:219–222). At the time, the APE was part of a larger, rectangular property with the general dimensions 120 feet by 200 feet, with the 120-foot frontage along 37th Avenue. This included part of what is now Lot 90 to the east, and Lot 96 to the west.

Like the Lawrences, the Bloodgood family was also a prominent Flushing clan, founded by Frans Bloedgoed, (or perhaps Goedbloed, Dutch for “good blood”), a Dutchman who had come to Flushing in the second half of the 1600s, although archival sources differ as to the exact year (Munsell 1882:90; Anonymous n.d.:16; Chapman Publishing 1896:1192). Bloodgood purchased a large piece of property to the south of 37th Avenue, probably adjacent to the APE, and his house, later known as the Garretson House, was constructed on the southeastern corner of the intersection of the future Main Street and 38th Avenue, 600 feet south of the APE, (Figures 5, 8). It managed to survive for over 200 years until its demolition in 1911.

Flushing’s prosperity led to the village’s incorporation in 1837, and the raising of \$25,000 for grading and opening the streets. Although it is unclear when 37th Avenue was first opened, perhaps because of its proximity to what was then the center of the village (the intersection of Northern Boulevard and Main Street) its creation actually preceded the incorporation of the village. The earlier name of 37th Avenue was Washington Street, which clearly dates to after the Revolutionary War, that is, post-1783. Deed research specifically mentions Washington Street as the southern boundary of the APE by 1820 (Deed Liber R:32).

The names of the early 19th-century owners, along with their dates of ownership, backgrounds, etc., can be found in Appendix A. Property tax records, differentiating between an empty and occupied lot have not survived for Flushing, which makes it difficult to give a precise date that the first dwelling was erected on the APE. Nevertheless, deed records show that when Isaac and Agnes Peck purchased the APE in 1827, it was described as a parcel of vacant land, and when he sold it to Charles Miller in 1838, he sold a parcel and a dwelling (Deed Liber X:142–144, 75:453). Peck (1791–1860) was born in Flushing, and married Agnes Polhemus in 1812. By the time of the purchase of the APE, the couple had seven children, three daughters and four sons (Ancestors of David Kipp Conover <<http://www.conovergenealogy.com>>). The 1830 census records a household of 13, presumably residing on the APE. Peck was a successful merchant, who with his brother Elijah was granted permission by the State Legislature to build his own commercial dock on Flushing Creek in 1835 (Laws of the State of New-York 1835:156), and after he left the APE began the Flushing Lumber and Building Company) with his son James M. Peck, and served on the Board of Directors of the Flushing Railroad (Munsell 1882).

The earliest detailed map of Flushing Village dates to 1841 (Figure 6), after Peck had sold the APE to Charles Miller. The APE was part of a larger 80 by 200 foot property, which then combined APE Lots 94 and 95, with part of Lot 96. The large dwelling there appears to occupy almost the entire frontage of what is now Lot 94 of the current APE. The 1840 U.S. census records 5 adult males and 3 adult females (including one free “colored” adult female), and 12 minors, for a total of 20 residents. The large number of adults, the information that three of the adults were employed in agriculture and three in manufactures and trades, and data from the subsequent census, suggest that rather than a large extended family, Miller was renting sections of his dwelling. Miller also sold off

the empty 40 by 100 foot area at the southwest corner of his property in 1843 (Deed Liber 58:320), which later became part of present Lot 96, outside the APE. The subdividing of the lot and house should come as no surprise, since 37th Avenue/Washington Street was near the commercial hub of the village, where living space would gradually become scarcer and more valuable. By 1843, the present APE was a single lot with its present boundaries.

Sometime between 1843 and 1850, Miller left the APE, and his house was occupied by Henry S. Barto, a mason, whose father, Elkanah Barto, ran the stage from Jamaica to Flushing. The Barto family lived on the property through the beginning of the 20th century.¹ Barto, 28, appears there in the 1850 census, along with his wife Elizabeth, 22; son Theodore, 6; daughter Eliza, 4; son George, 1; and a 21-year-old Irish woman, who was likely a maid (Figure 7). In addition to the Bartos, two other separate households also occupied the building, the families of William Gurney, tailor, and Wilson Mitchell, shoemaker, for a total of 15 residents.

By 1855 the village had a population of 3,488, which was about half the population of the entire town. This growth was spurred by the improvement of transportation links with New York City and other towns on Long Island. William Prince was responsible for many improvements, including the first bridge over Flushing Creek in 1800 (at present Northern Boulevard), and the construction of the Flushing-Newtown Turnpike. The first stage service was started in 1801 by William Mott, which took passengers to Brooklyn via Newtown for 5 cents. Ferries also served the town, and the first steam ferry was introduced in 1823. Flushing Creek remained an important waterway, as evidenced by the fact that between 1833 and 1881 it was dredged and deepened five times. In 1854 the Flushing & North Shore (or Side) Railroad was opened, running along the same route the Long Island Railroad takes today, 1,500 feet north of present Fowler Street (Munsell 1882:103).

The Barto family appears to have prospered on the APE. In 1860, the census records assets valued at \$2,000 in real estate and \$3,000 in personal estate. Henry S. at 39, and Elizabeth at 33, had expanded the family to five sons and one daughter, between the ages of 3 and 15. Four additional households were also present in the building, for a total of 19 residents. An 1859 map shows an addition to the northwest side of the Barto house, as well as two smaller freestanding outbuildings, at least one of which was likely a stable, at the northwest corner of Lot 95, and the second near the northeast corner of modern Lot 94 (Figure 7). By 1870, two additional sons had been born since the last census, and Barto's real estate holdings had increased to \$5,000. Still, the house included two additional households, for a total of 16 residents.

Better transportation connections and the beautiful countryside, which was enhanced by the varied nursery plantings, spurred the erection of country houses by those trying to escape hectic city life. Flushing took on an aristocratic tone, which it retained into the 20th century. "There are many charming sites for genteel residences, and they are rapidly being taken up and occupied by gentlemen of leisure, or of business from the city" (Mandeville 1860:74–75). After the Civil War

¹Barto probably rented at first. According to the 1850 census, Barto owned no real estate. In 1860 his holdings were valued at \$2,000. In addition, the 1859 map, which provides out-of-date ownership information, indicates the property owner to be "P. Fairweather" (Walling 1859).

(to which Flushing sent a company) development spread eastward and southward. By the 1880s the town was known for its large number of stately homes.

It is likely that Barto, noted in later directories and censuses as a mason and “builder,” did well in the these years of residential expansion. By 1880, although there were still three households present, the numbers in the Barto house were much reduced, down to eight. The four remaining Bartos included two adult sons, who worked as store clerks, and one female servant. An 1884 article in the *Brooklyn Daily Eagle* (*BDE*), refers to Henry Barto as “a wealthy contractor, of Flushing” (*BDE* 4/20/1884:1). Interestingly, the article reported a number of ghost sightings which were tied to the Quaker Meeting House, Barto’s neighbor to the north. The second sighting was the most elaborate, “three big men dressed in white, and with swords hanging at their side. . . . first they were very close together, and one of them seemed to be explaining something to the other two. Then they commenced to dance.” The article continued with interviews of the Meeting House neighbors, including Henry Barto:

Mr. James EWBANK lives in the rear of the meeting house [abutting the APE on the west]. He is 88 years of age and is one of the leading members of the Society of Friends, who worship in the meeting house. His faculties are not very bright, but his youngest son, about 60 years of age, who was with him, gave his version of the ghost story.

He said: “I think its all nonsense. When I was a boy, about fifty years ago, I remember very well that there was a real ghost in the meeting house. You see where the meeting house now stands was a burial ground during the Revolutionary War and there were over 400 Hessians buried there. Fifty years ago they might be making some trouble, but I should think it’s so long ago that there would not be enough of them left to make any trouble now.”

Mr. H. S. BARTOW, a wealthy contractor, of Flushing, also resides on Washington street, directly in the rear of the church [on the APE]. He hasn’t heard or seen anything of the ghost or spook, but about forty years ago it was generally understood that the old meeting house was haunted (*BDE* 4/20/1884:1).

Ghost-free descriptions of Washington Street during the 1880s and 1890s note the number of commercial establishments on the street, the Schenk bakery to the north; Sarah Owen, who ran a saloon next to the APE on the west, and James Ewbank and son William, who sold sperm oil in their shop on the lot immediately south of the APE. Still the area maintained a certain rural character. The marsh grasses along Flushing Creek provided valuable grazing for dairy cows, and the Carraher brothers drove their cows down Washington Street each morning, joining up with other herds at the corner of Main Street (Lawson 1952:84–85,95). Barto died in 1900, and in that year the census records only renters on the APE property, although ownership by Barto descendants is recorded as late as 14 July 1924 (Deed Liber 2652:68820).

When Flushing entered New York City as part of the Borough of Queens, commercial development expanded beyond the village center. The trolley came in 1898 with a five-cent fare to Long Island City. The whole character of the village began to change with the opening of the subway in 1928. The low fare brought hordes of home buyers and heavy commercialization to Main Street. The 1939 World’s Fair built on the Flushing Meadows further spurred this process. During the 20th century, the importance of the village and the growth of nearby Brooklyn, Williamsburg, and Manhattan brought light industry to Flushing Creek, where building materials, coal, and grain were stockpiled and loaded for shipment. After World War II, “downtown” Flushing rapidly lost any

remaining single-family residential character. The large private homes disappeared to be replaced by apartments and commercial buildings. As if to illustrate this change, real estate atlases record the subdivision of the APE into its current Lots 94 and 95 between 1917 and 1943 (Sanborn 1917, 1943). The 2- and 1-story Barto house occupied the full 37th Avenue frontage of Lot 95, while the current irregular shape of Lot 94 provided street access to the auto repair shop which was established there as a right-of-way by 1924 (Deed Liber 2652:68820). By 1951, the Barto house had been demolished, replaced by a welding supply establishment (Sanborn 1951).

Building History of the Project Site—Disturbance Record

The earliest evidence of a building on the APE comes from the 1837 deed of the sale of the property by Isaac Peck to Charles Miller. The previous deeds for the same parcel only refer to “pieces or parcels of ground” (Deed Liber O:219–222, R:32, X:142–144), while the 1837 sale describes “all that certain Messuage or dwelling house and lot piece or parcel of ground” (Deed Liber 75:453). Since Peck had owned the APE property since 1828, the date of the first dwelling construction on the APE would be between 1828 and 1837. The 1841 map (Figure 6), which records the large dwelling along the 37th Avenue (Washington Street) frontage, with an ell at the rear (north). The occupant was recorded as Charles Miller, who had purchased the property from Isaac Peck in 1837 (Deed Liber 75:453). Although the plot size was larger, the map shows the house completely within the boundaries of the current APE.

By 1859, the property had passed to Henry S. Barto, and the map of that year shows further additions to the main dwelling, as well as the construction of two outbuildings, one at the northwest corner of the lot, and the other at the center of the lot (Figure 7). The structure at the center of the lot is shown again in 1873, but was removed before 1886 (Figures 8, 9–1886). The small square building in the northwest corner of the APE was not drawn on the 1873 map (Figure 8), but appears in the atlases from 1886 through 1913, where it is depicted as a 1½-story, woodframe shed, and may have been the same building as the 1859 shed, or a post-1873 replacement. Between 1886 and 1917, an open-sided, 1-story, wood frame structure was built to the east of the existing shed, extending along the entire rear (north) lot line of the APE. This building is labeled [chicken] “COOPS” in 1903 (Sanborn 1903), and “Wagon Shed” in 1892 (Figures 9, 10).

Between 1913 and 1917 the sheds were removed, and replaced by an irregularly shaped, 1-story, wood frame automobile garage and chicken coop (Figure 9–1917).

The same late 19th- and early-20th century maps vary the main house’s footprint with the placement of small 1-story additions and descriptions of the number of floors of the different sections (Figure 9). The more detailed 1886 Sanborn atlas shows the details of the house for the first time—a wood frame dwelling, having a 2-story main section with a basement beneath it, and a series of 2-, 1½-, and 1-story additions at the rear (north) (Figure 9–1886). Various small changes to the main house appear on subsequent maps (Figures 9, 10).

By 1934, the lot had been divided into the current two APE lots, with the dwelling on Lot 95, and a narrow alley to the east of the house, granting street access to the rear of the APE, Lot 94, which was being used as an auto repair shop. Three, 1-story buildings were erected there (between 1917

and 1934). Along the western lot line was a brick auto repair building with a wing of unidentified material in the northwest corner of the APE. A small auxiliary shed was built to the south of the brick building, and a larger shed occupied the remaining open area of the northern lot line (Sanborn 1934, 1943) (Figure 11). Only the three buildings along the western lot line were still present when the group was altered in 1988 (Alteration 520-1988), and the remaining auto repair structures were demolished between 1997 and 2004 (Oasis 1997, 2004 see Photo location map), although one shed still appears on the current Sanborn map (Figure 2). At present the entire auto repair shop location is paved and used as a parking lot (Photos 4–7).

In 1949/1950 the dwelling was torn down, and replaced with a 1-story welding supplies store and office in the same location, according to the 1950 certificate of occupancy (CO 61901-1950) (Figure 11). The welding building was replaced by a restaurant building in 1975 (Photo 1), which was expanded to the north in 1988 (Photos 3, 4). According to the alteration permit, the 1-story, cinderblock restaurant building (Figure 1), has a full basement that is partially above ground on the north side of the building (Alteration 486-1988) (See Photo 4). The restaurant occupies the entire area of the former Barto dwelling.

Disturbance

Subsurface disturbance on the APE has been uneven and scattered. The deepest recorded disturbances have been along the 37th Avenue frontage, on the former location of the Barto dwelling and the present restaurant building (Lot 95), both of which had basements, which would have had standard foundation depths of 8 to 10 feet below present grade.

A number of sheds and outbuildings have been recorded along the northern boundary of the APE (Lot 94). The 19th- and early 20th-century structures were wooden frame buildings, which would most likely have had post or slab foundations, with minimal ground disturbance. The 1-story storage structure from the auto repair business, along the northern lot line, would most likely have had either a slab foundation, or at most the 4-foot foundation standard for 1-story buildings. Soil boring B-2 is in the eastern corner of these structures, and shows 8.5 feet of fill. Given the known historic structures in this area, it is unlikely that this total depth of fill is the result of building disturbance, and more likely that it was the result of several regrading episodes during the 19th and 20th centuries, considering that historically the section of the now-level parking lot here sloped downward toward the north and east.

The more substantial structure was the 1-story masonry building of the auto repair business erected along the western lot line (Lot 94). No basement is recorded for this structure, and it is likely to have had standard 4-foot foundations. Soil boring B-3, performed at the eastern edge of this building, supports this conclusion by recording only 4 feet of introduced fill in that location (Appendix B).

The remaining two soil borings (B-1 and B-4) were performed in the center of the APE (Lot 94), where the only recorded subsurface disturbance in the approximate vicinity was the unidentified outbuilding depicted on the 1859 and 1873 maps (Figures 7, 8). Oddly, they record 11 feet (B-1) and 7 feet (B-4) of fill, unlikely to be related to the outbuilding foundations. It is likely that part of

the fill is from regrading episodes, perhaps to a deep, small area of depression that was filled in historically.

Another possible explanation for the areas of deep fill is that they represent excavations for 19th-century wells, cisterns, or privies, or some other unrecorded outbuilding on the APE.

Friends Meeting House Burying Ground

Given the location of the APE abutting the present Burying Ground, one of the concerns of the LPC regarding the APE was that there is “potential for the recovery of remains from ... portions of the Friends Cemetery on the project site” (LPC 5/11/2009).

The Quaker Burying Ground was established through the purchase of a parcel of land specifically for that purpose in 1676, and the last recorded interment was in 1893 (Inskeep 1998:71). From the 217 years in which the Burying Ground was in use, a list from the Flushing Meeting’s website lists 141 known individuals buried there, and assumes that John Bowne was also interred on the plot. As the website notes, “The early Quakers did not use headstones and so it is difficult to say who was buried in the Meeting House graveyard before 1820” (The Graveyard at Flushing Meeting House <<http://www.nnym.org/flushing/graveyard.html>>).

In addition to the unrecorded Friends burials during the 124 years prior to 1820, the Quakers also did not prevent non-Quakers from interring their deceased in the cemetery. These burials could include African Americans, Native Americans, and from 1884 there is even a probably apocryphal claim that “over 400 Hessians” were buried there during the American Revolution (BDE 4/20/1884:1).

Size and Location of the Original Burying Ground

As already noted in the Historical Period section of this report, according to the description in the records of the New York monthly meeting, the original parcel was “five rood long and five rood broad with the highway on the [blank] and on the north situate” (Naylor 2001:34). In feet, the dimensions were 82.5 feet by 82.5 feet, for a total of 6,806.52 square feet, or 0.15625 acres. Subsequently, the burying ground was combined with the Friends’ second land acquisition, the 1692 purchase for the erection of a meetinghouse. This consisted of an additional “three acres more or less” (Naylor 2004:74; Deed Liber B No.1:274).

Assuming that the two properties were contiguous, early map representations of the Friends property (Figures 6–8) show a rectangular plot with the burying ground immediately south of the meetinghouse. The rough area of the property was 151,500 square feet, or 3.4779 acres. This area would accommodate the 0.15625 acre burying ground plus the “three acres more or less” of the meetinghouse property.

Map outlines of the burying ground, however, are larger than the original 0.15625 acreage, indicating that the burying ground has been enlarged and perhaps shifted in location. The 1841

map shows a “Cemetery” area of ca. 32,000 square feet, or 0.734618 acres (Figure 6). The 20th-century Sanborn atlases delineate an area of 7,600 square feet, or 0.1745 acres (Figure 11).

Also, map depictions of the burying ground do not have Northern Boulevard as their northern boundary, as expressed in the original deed, because the Meeting House stands along the Boulevard frontage. The burying ground property should be in the northwest corner of the Friends combined property, as the deed of sale refers to it as being in the “northwest corner of my [John Bowne’s] [plan]tation” (Naylor 2004:34). This seeming paradox can be explained because the original 1694 section of the Meeting House is only the eastern 25 feet of the existing structure, delineated on the 1951 Sanborn map by a dashed line (Figure 11). If the 1716–1719 expansion is eliminated, there is an area the size of the original cemetery between the original building and the western lot line, extending southward to the northern edge of the current cemetery. Interestingly, an 1884 interview with a longtime resident states that “*where the meeting house now stands* was a burial ground during the Revolutionary War” [italics added] (BDE 4/20/1884:1).

If this line of reasoning is correct, then the burying ground was shifted southward at the time of the expansion (1716–1719) and expanded as needed in the subsequent decades. Whether or not an attempt was made to move the hypothesized burials prior to the expansion, and if so, how thorough and successful the operation was, is not clear. Two archaeological investigations have been conducted beneath the existing Meeting House, however, and neither reported finding human remains (Mayer 1977, 1986; Boesch 2008).

References to the Burying Ground in Quaker Records

Subsequent to the original 1676 establishment of the burying ground, Quaker records reference the upkeep of the cemetery, particularly with respect to fencing. This is understandable, considering that there were no markers, and without some sort of boundary markings there would be, at least for outsiders, no way of knowing that the seemingly empty green space was not a simple garden.

The minutes of the Monthly Meeting of 7 January 1696 report that “[i]t is agreed at this meeting that the money to pay for fenceing the burying place be gathered by subscription and be ped to Samuell Bowne” (Naylor 2001:83). Although not specifically referring to the burying ground, in 1702, the Monthly Meeting in Flushing appointed Samuel Hart “to take ceare to See thee fence about Friends Land repaired as he shall see need” (Naylor 2004:100).

The Preparative Meeting of Flushing² (Men’s Minutes) of 28 March 1793, appointed three men “to Repair the fence round the Burying Ground and to plant out Some trees near the meeting house and report when done” (Friend Historical Library (FHL), microfilm, Men’s Minutes 1787–1795:135). There did not seem to be a lack of money for such repairs, since on 30 November

²The Flushing Preparative Meeting generally dealt with matters specific to the Flushing Meeting House, its members, and its property. As the name implies, it was preparation for the New York Monthly Meeting. Important issues would be brought before the New York Monthly Meeting, which at the time was the overarching meeting to which the Flushing, Manhattan, and Newtown Friends sent delegates.

1797, a different committee appointed to make repairs had “more money in their hands than they will be likely to want,” and returned £20 to the treasurer (FHL, microfilm, Men’s Minutes 1795–1804:68–69).

There was also a man appointed to take care of the Friends property in general. The Preparative Meeting on 22 April 1803, acceded to the request of Charles Dougerty to be released from “having the care of th Ground belonging to this Meeting,” appointing Samuel Pearsall to take Dougerty’s place (FHL, microfilm, Men’s Minutes 1795–1804:135). There were also concerns for the burying ground maintained by the Friends at Newtown, and the Flushing people appointed a committee to “have care of Burials” and to enclose the cemetery. This issue was raised at the 26 September 1799 meeting, reported on at the 31 October 1799 meeting, and the ground was reported fenced at the 26 December 1799 meeting (FHL, microfilm, Men’s Minutes 1795–1804:117, 118, 122).

Establishment of the Lot Boundary between the Burying Ground and the APE

As argued in the previous paragraphs, the original ground was most probably along modern Northern Boulevard, which would place it approximately 100 feet north of the APE. Enlargements and shifting of the cemetery during the 18th and 19th centuries eventually resulted in the present boundaries which abut the northern side of the APE. There appears to be a great deal of attention given to the fencing/boundaries of the cemetery by the Friends. Unfortunately, there are no available records from the landowners of the APE regarding the protection of their property rights.

The earliest deed found for the project site dates to 1814, and refers to the “Friends Burying ground” as the rear (north) boundary of the property, and also references an 1804 deed for the same parcel then owned by the heirs of Effingham Lawrence (Deed Liber O:219–222). Lawrence owned the property in 1799 (23 March) when he proposed to exchange “Seven Eights of an acre” of his land at “the South Side of the Burying Ground” for an equal-sized area of the Friends Property. Although the exchange was ultimately turned down, it does point out that by 1799 the Burying Ground bordered on the APE, and that the owner was aware of the specific boundary.

Friends Burying Ground—Summation

From the available records, the Flushing Friends appear to have been careful regarding the maintenance of their property, and of the fencing surrounding the Burying Ground. This is understandable, considering the restrictions the Quakers generally enforced against grave markers of any kind, and the accompanying potential for Friends and strangers to not recognize the cemetery’s boundaries. (See Photograph 7 for the extant fence that separates the APE from the Friends’ property.) The evidence gathered for this report also suggests that the burials from the earliest period of the cemetery, 1676 to 1717, took place within 90 feet of present Northern Boulevard, over 100 feet north of the APE. In addition, by at least 1799, there was a local owner of the APE (Effingham Lawrence) who could have monitored trespasses on his property.

Nevertheless, because there was no one actually resident on the APE until Isaac Peck and his family built a dwelling there in ca. 1828 to 1837, there remains the distinct possibility that burials could have occurred at the edges of the APE during the 18th and early 19th centuries.

V. CONCLUSIONS AND RECOMMENDATIONS

Precontact Period Resources

As the preceding sections have described, there is a high potential for the presence of Precontact and Contact period archaeological resources within the APE vicinity. Recent archaeological testing on the adjacent Friends property encountered Native American artifacts from the Middle to Late Woodland Period, confirming the attractiveness of the pre-development APE to the establishment of camp- and processing sites.

Precontact/Contact period cultural remains are generally shallowly buried, and under normal conditions usually encountered in the first 3 feet below natural grade. A previous archaeological study in the downtown Flushing area, however, indicated that the original ground surface (or upper horizon) where Precontact deposits would most likely be found, extended only 8 to 14 inches below the present ground surface (Ceci 1985:20). This was confirmed by Boesch's 2008 testing on the Friend's Meeting House, where precontact artifacts and ground surfaces were encountered within 13.4 and 14.2 inches below grade. Such shallow cultural remains would have been destroyed in all locations of historic structures on the APE.

Although the available soil borings record a substantial fill stratum on the APE—ranging from 4 to 11 feet thick—it is probable that this fill overmantle was laid down in the late 19th and early 20th centuries, as the APE moved from domestic to commercial use. Therefore, although the fill may have served as a protective stratum, absorbing the later commercial impacts, given the very shallow depth of resources, they would have been severely impacted by everyday historic use during the period the APE functioned as a homelot. Although archaeological excavation might recover a number of stray, Precontact/Contact period artifacts on the APE, these cultural remains would be disturbed and out of context, providing no data to increase our understanding of these cultural periods. As a result, the APE should be considered NOT SENSITIVE for archaeological remains from the Precontact/Contact periods.

Potential Historic Period Resources – Barto Homelot

Dwellings, along with their associated outbuildings and yards, have the potential to contain resources which may furnish information about past lifeways, urban residential settlement patterns, socio-economic status, class distinctions, ethnicity, and consumer choice issues. Such resources could be preserved in privies, cisterns, or wells, which in the days before the construction of municipal services—namely sewers and a public water supply—would normally be located in the yard behind the dwelling. Once the abovementioned services were provided by the city, these shafts, no longer in use for their original purposes, would be quickly filled with refuse, providing a valuable time capsule of stratified deposits for the modern archaeologist. They frequently provide the best domestic remains recovered on urban sites. Portions of these shaft features are often encountered on residential lots because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in fact, construction often preserves the lower sections of the features by sealing them beneath structures and fill layers. Wells would have been excavated as far as the water table, and cisterns and privies often were dug up to 10 to 15 feet below grade.

Other commonly occurring but more fragile backyard remains include fence lines, paths, traces of landscaping and sheet midden scatter.

Exact dates when public water and sewer became available to the Barto property are not available. It is known that Flushing established a public water system in 1874, but this was manifested by a number of street pumps, one of which stood directly in front of the APE. The majority of houses did not receive indoor service until the late 1880s (Lawson 1952:28–29). Sewers generally were installed later than piped water, requiring an ample supply of water to force the waste through the system; again the exact dates are unknown, but it is presumed to have occurred during the first decades of the twentieth century. Knowing that the initial occupation of the project site occurred at some point between 1827 and 1838, it is clear that the residents of the APE had to rely on wells and cisterns until 1874, approximately 40 years, and on privies for approximately 50 years (For a chart of APE property ownership and table of the recorded residents and their known dates of occupation, see Appendix A).

Generally, water sources (such as wells and cisterns) were located close to the dwelling, to ease collection for domestic use. In general, during the 19th century privies were located in the rear of city lots, away from the living areas and in places that were accessible to those who periodically cleaned them out. Finally, although wells and cisterns could have been used for many years, privies eventually filled up, and if they were not emptied at regular intervals, would outlive their utility. Over a long period of time, multiple privies may have been dug on a property such as the APE.

The level of disturbance to the project site would not preclude the recovery of shaft features within the former rearyard areas of the property, which encompasses most of APE Lot 94. The soil borings indicated that historic fill ranges from 4 to 11 feet below grade, but since foundations greater in depth than 4 feet have not been indicated, subsurface disturbance from building episodes would have impacted fill, or the effects of the impact would have been lessened by the protective fill overmantle, allowing the survival of shaft features, whole or truncated.

Potential shaft features predating the introduction of public water and sewer may survive at discrete locations within the project site. There is a lesser chance of the survival of other historic period archaeological resources—fence lines, paths, traces of landscaping, and sheet midden scatter—due to their fragility, but if disturbance is minimal (such as in former open yard areas that were never built over), these resources could still be present.

Based upon these conclusions, it is recommended that a program of archaeological testing be undertaken within the project site, at locations to be determined based upon the sensitivity map (Figure 12) prepared for this report. A testing protocol, designed in consultation with LPC, would define the dimensions and precise locations of trenches to be excavated with the assistance of heavy machinery. It is anticipated that the testing protocol for truncated shaft features would include a backhoe trench opened across the entire rear or northern lot line of the APE.

All archaeological testing should be conducted according to applicable archaeological standards (LPC 2002), and in consultation with the LPC. RPA-certified professional archaeologists, with

an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

Potential Burials – Friends Burying Ground

Based on the discussion of the Quaker Burying Ground in the previous section, it is the conclusion of this report that the potential for burials on the APE is LOW. Due to the sensitivity of potential human remains and the proximity of the Burial Ground however, the testing protocol for homelot remains described above should be developed to incorporate concern for human remains. The archaeological testing along the APE's rear property line would not only provide an opportunity to test for residential resources, but at the same time establish the absence of resources from the neighboring Meeting House Burying Ground.

Due to the possibility, albeit low, of burials, it is recommended that Realty's construction management team work with the professional archaeological team to establish an Unanticipated Discovery Plan (UDP) for the duration of subsurface development activities.

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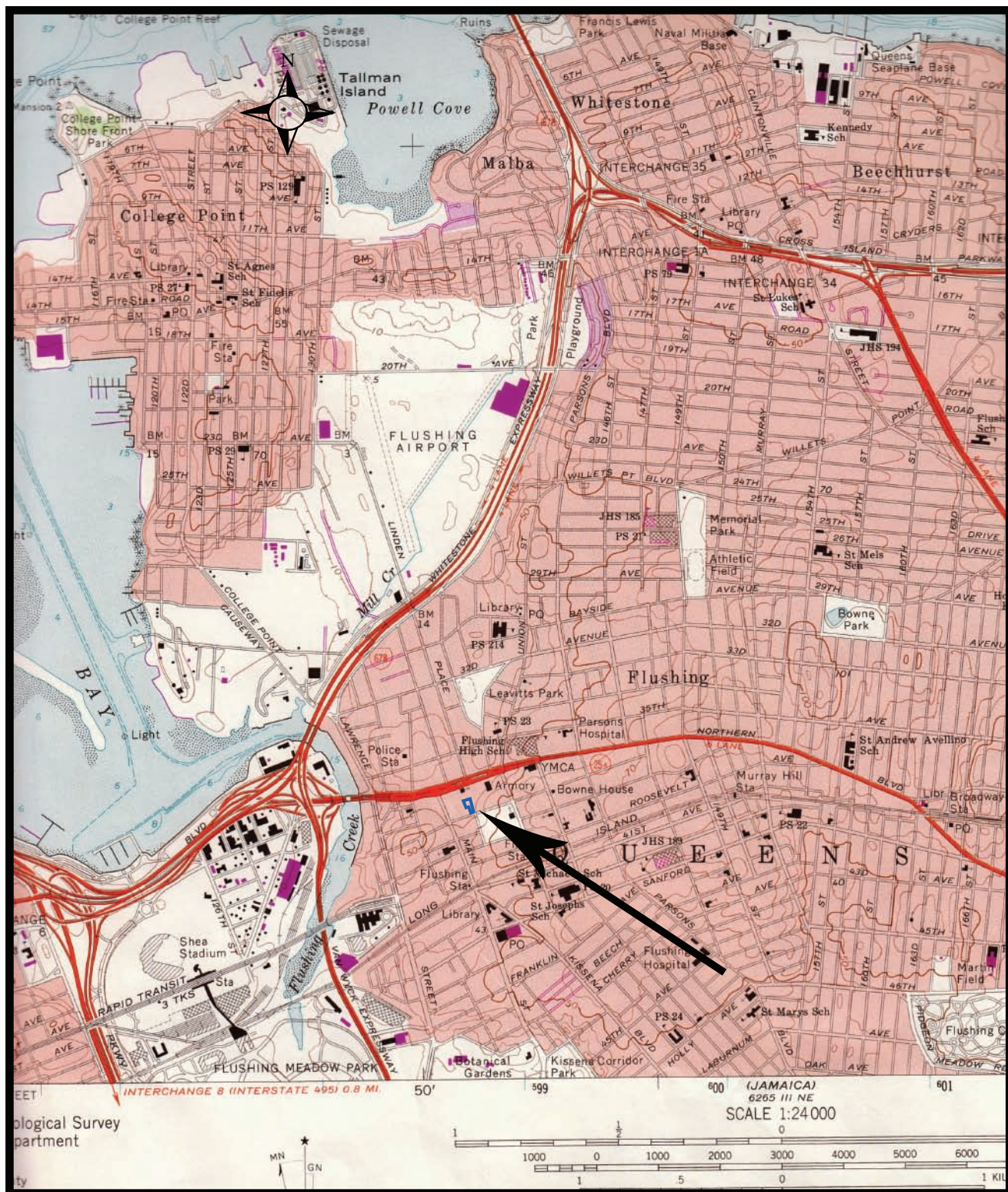
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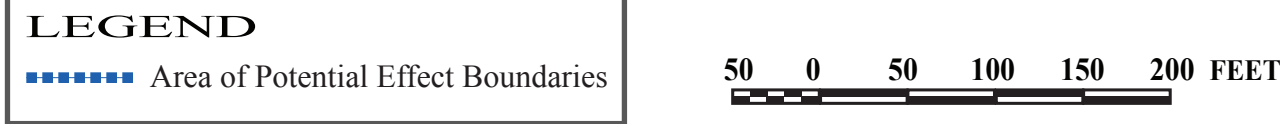
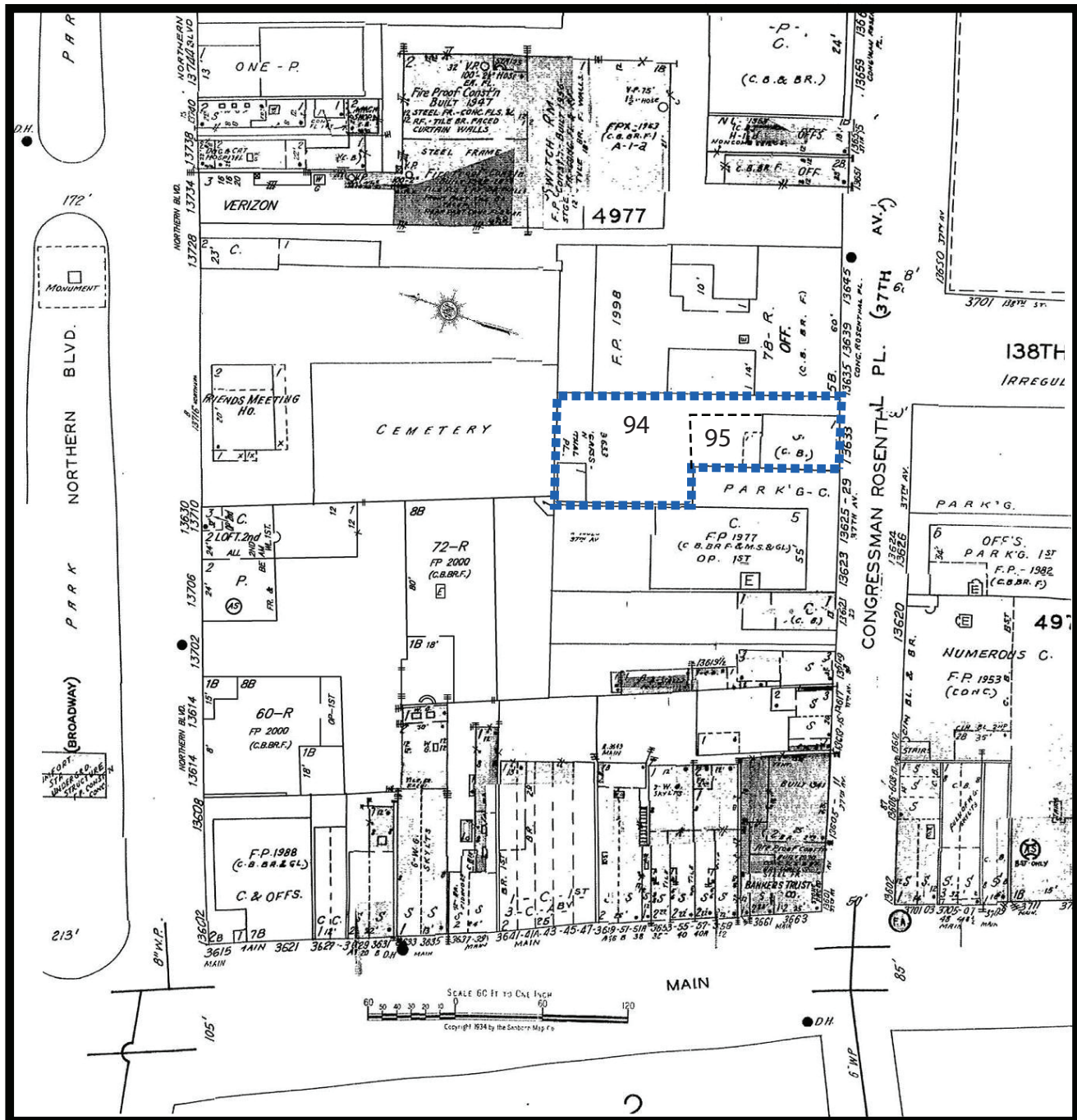
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137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 2. Sanborn, Insurance Maps of the Borough of Queens, 2006





LEGEND

Arrow indicates the Area of Potential Effect

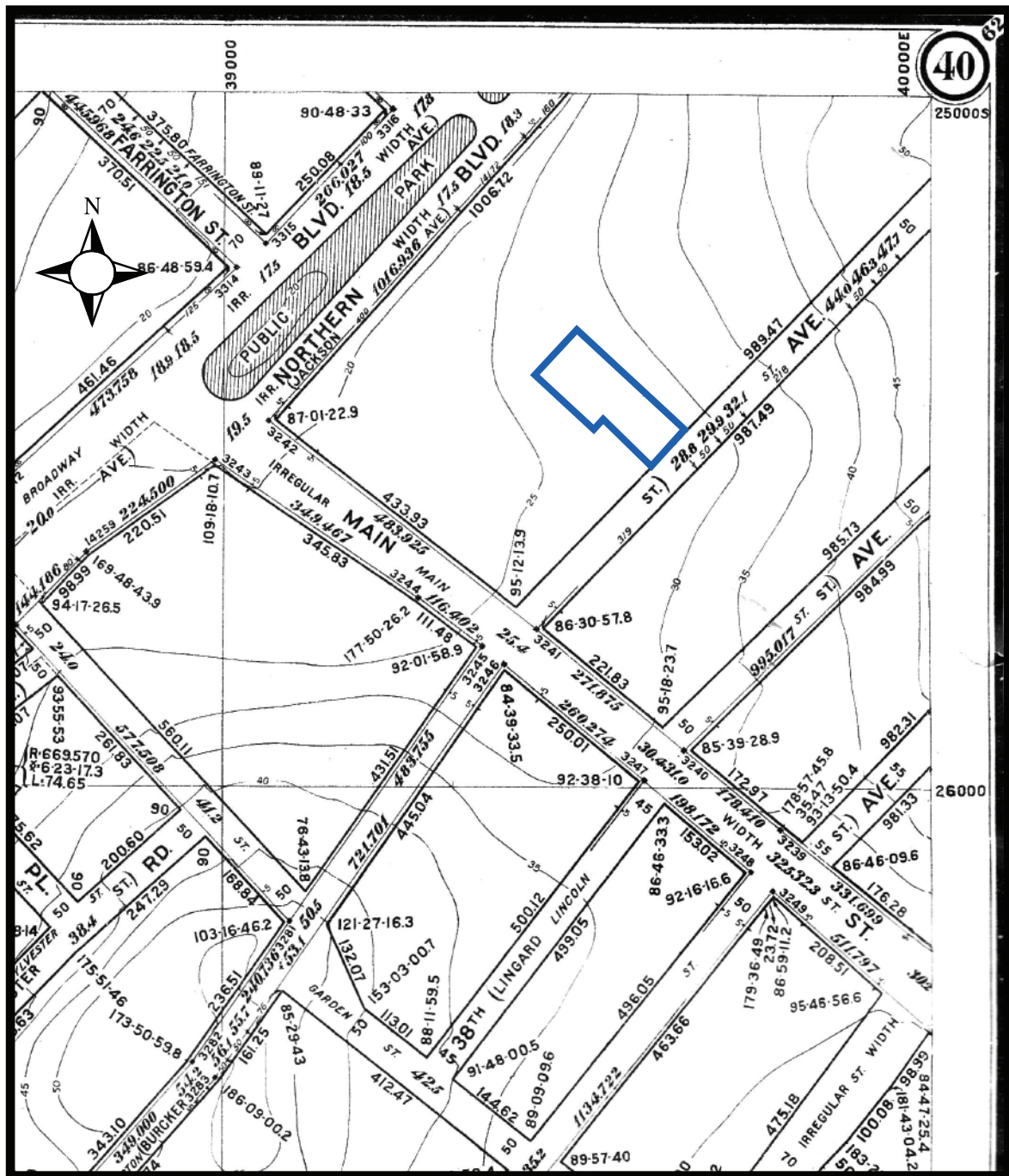
250 0 250 500 750 1000 FEET

SOURCE: Coastal Topographic Sheets of the North Side of Long Island (alabamamaps.ua.edu/historicalmaps)

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 3. Rockwell, U.S. Coast Survey, Little Neck Bay to Flushing Bay, 1858





LEGEND

— Area of Potential Effect Boundaries

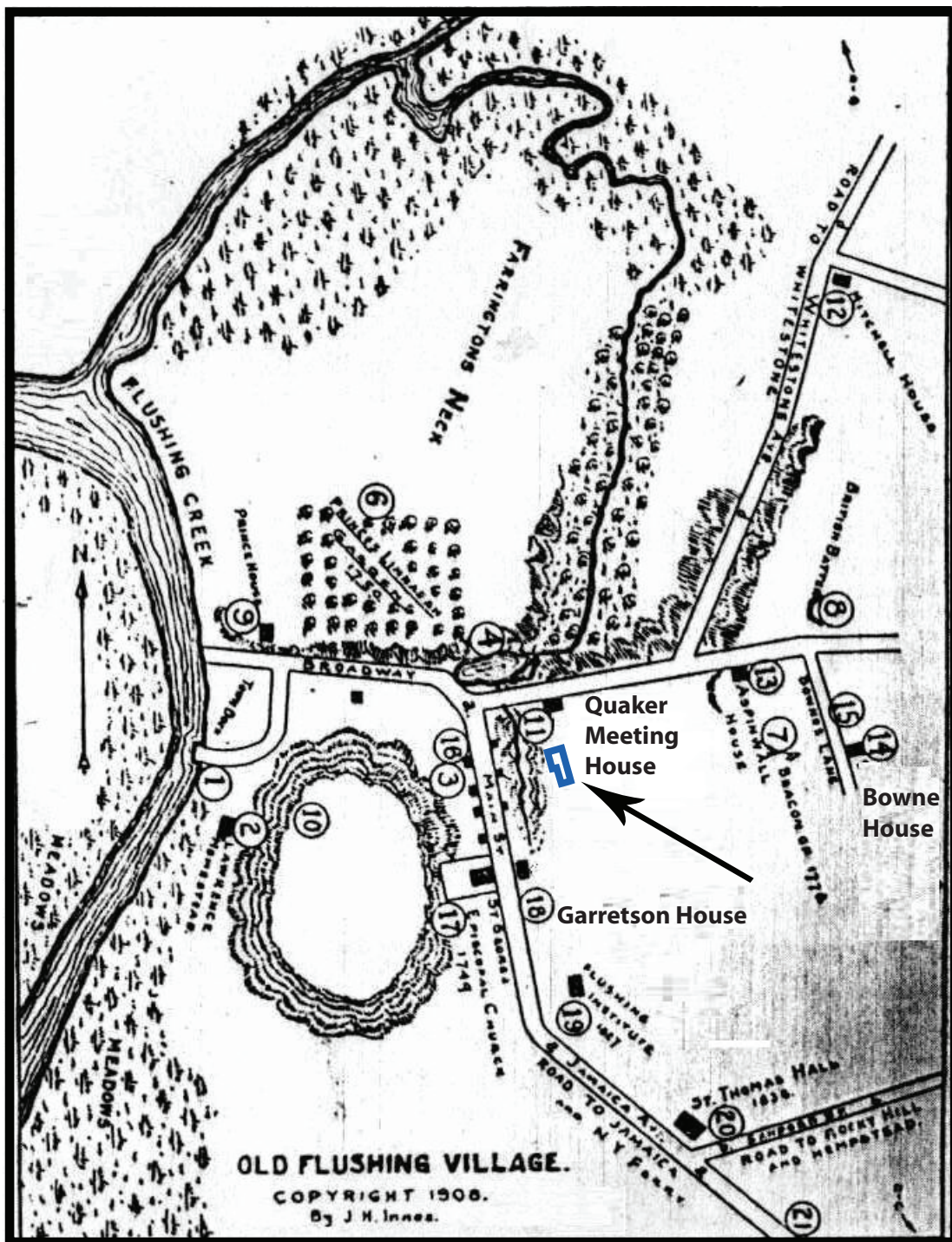
100 0 100 200 300 400 FEET

SOURCE: Queens Library, Long Island Division

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 4. Final Maps of the Borough of Queens, 1911





LEGEND

— Area of Potential Effect Boundaries

500 0 500 1000 1500 2000 FEET

SOURCE: <<http://www.oasisnyc.net/oasismap.htm>>

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 5. Innes, Old Flushing Village, 1908





LEGEND

----- Area of Potential Effect Boundaries

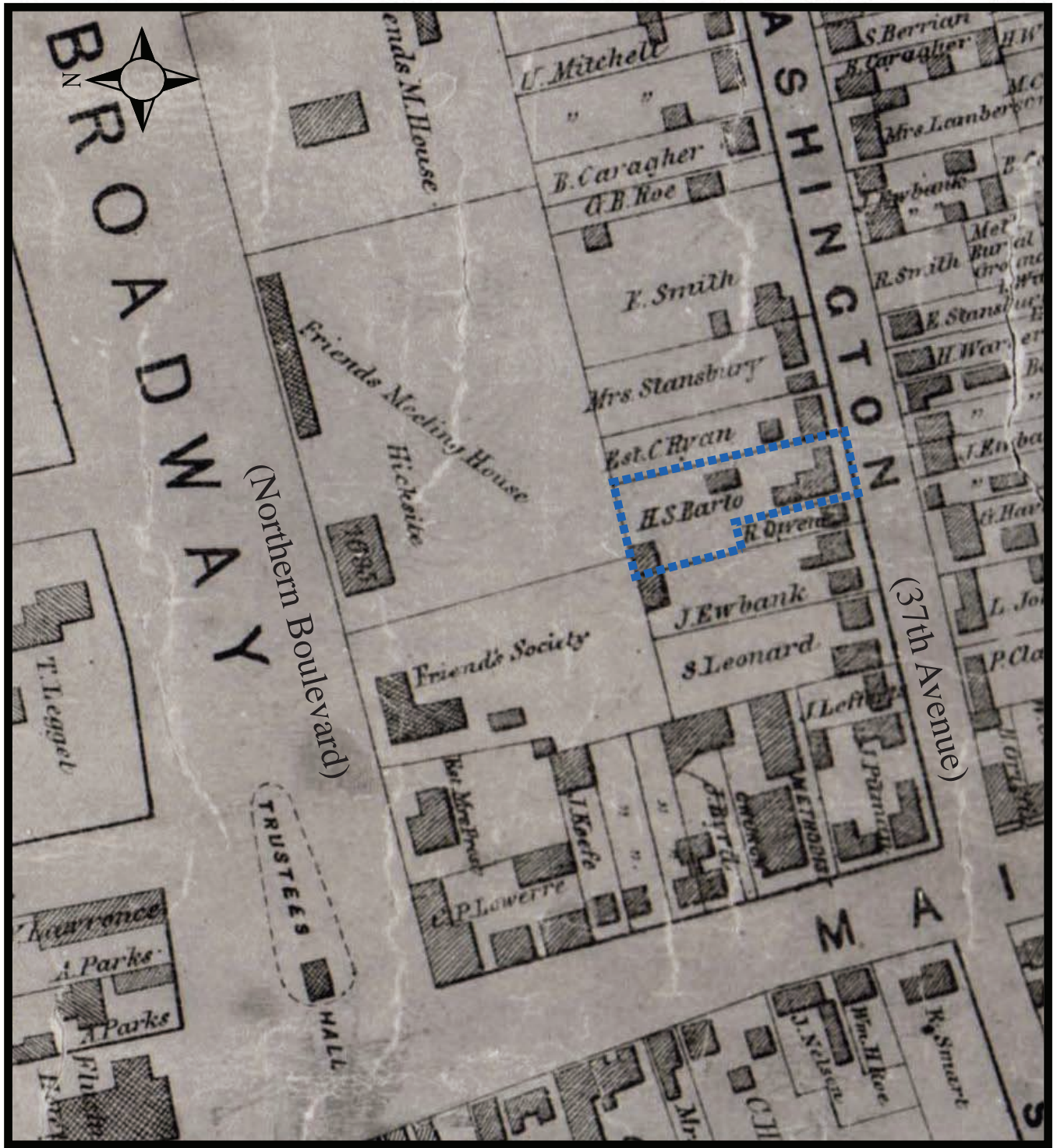
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SOURCE: New York Public Library, Map Division

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 6. Smith, Map of the Village of Flushing, 1841





LEGEND

■■■■■ Area of Potential Effect Boundaries

50 0 50 100 150 200 FEET

SOURCE: Queens Library, Long Island Division

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 7. Carll, Village of Flushing, Queens Co., L.I., New York, 1859





LEGEND

----- Area of Potential Effect Boundaries

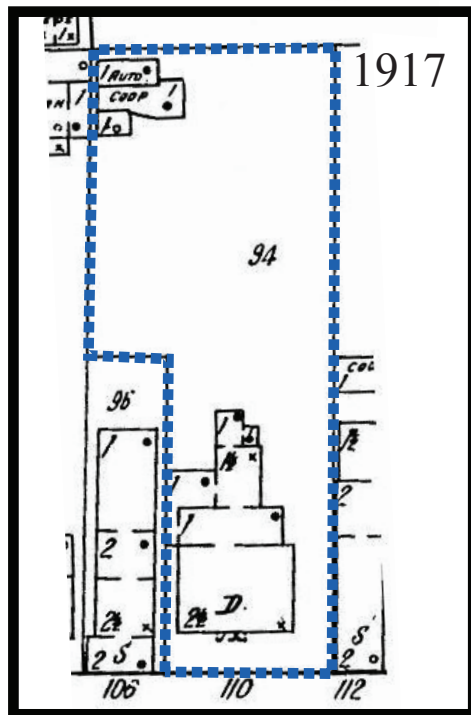
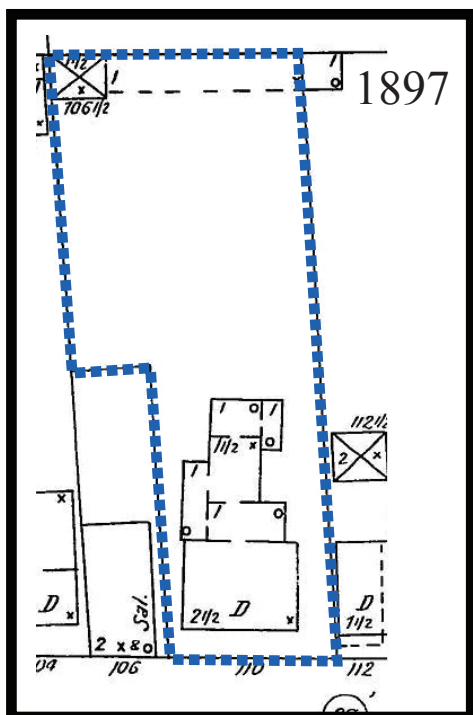
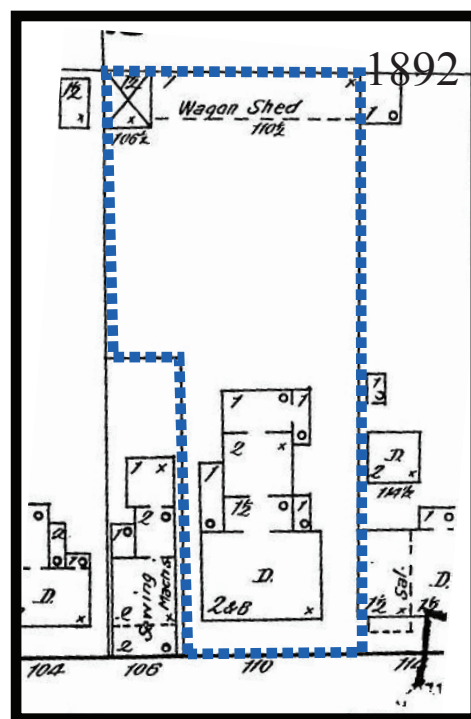
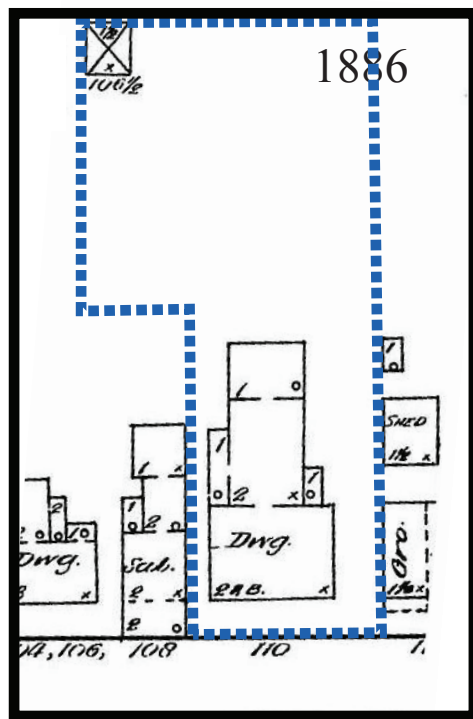
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SOURCE: New York Public Library, Map Division

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 8. Beers, Atlas of Long Island, 1873





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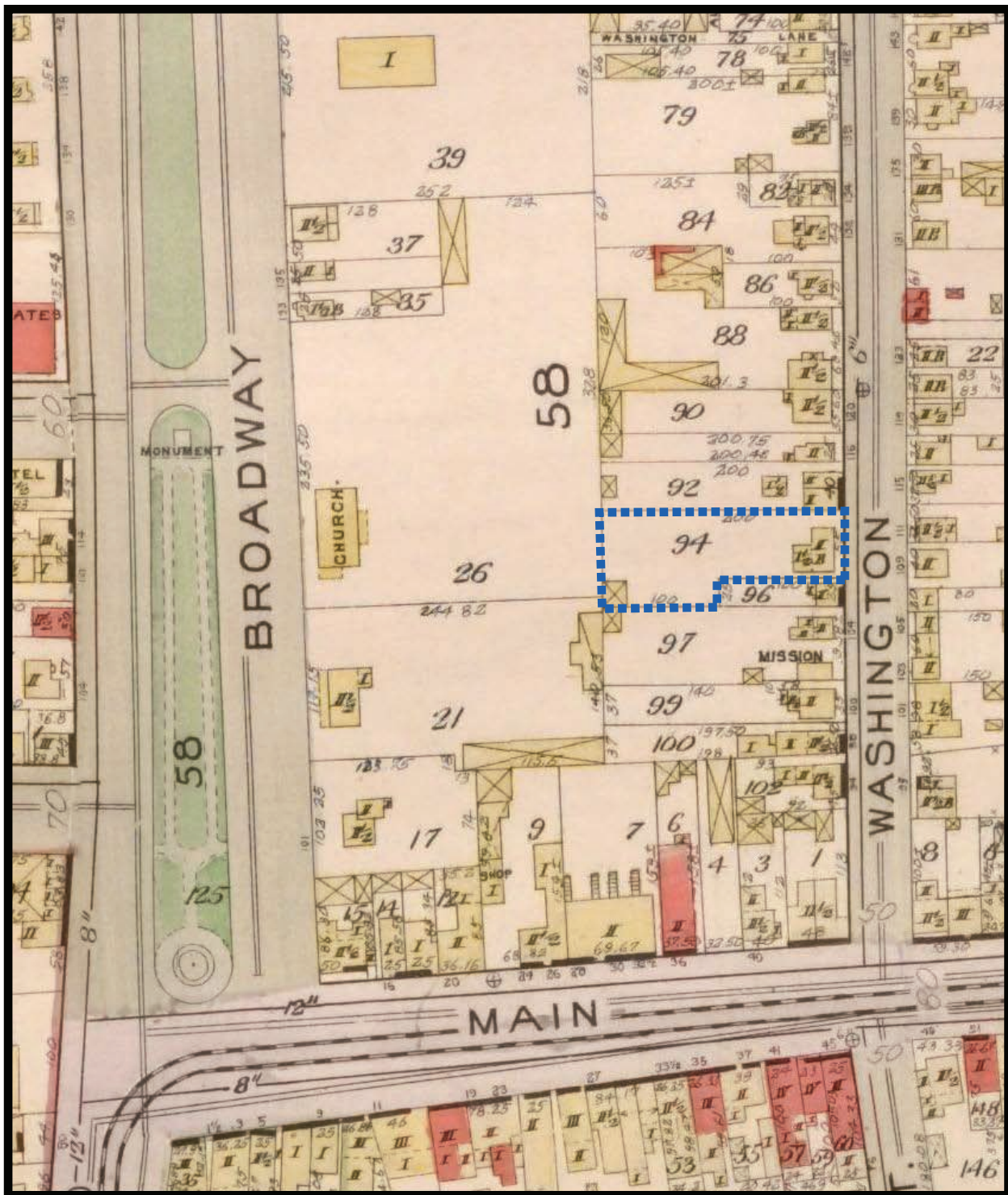
■ ■ ■ ■ ■ Area of Potential Effect Boundaries



137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 9. Sanborn, *Insurance Maps of Queens*, 1886, 1892, 1897, 1917





LEGEND

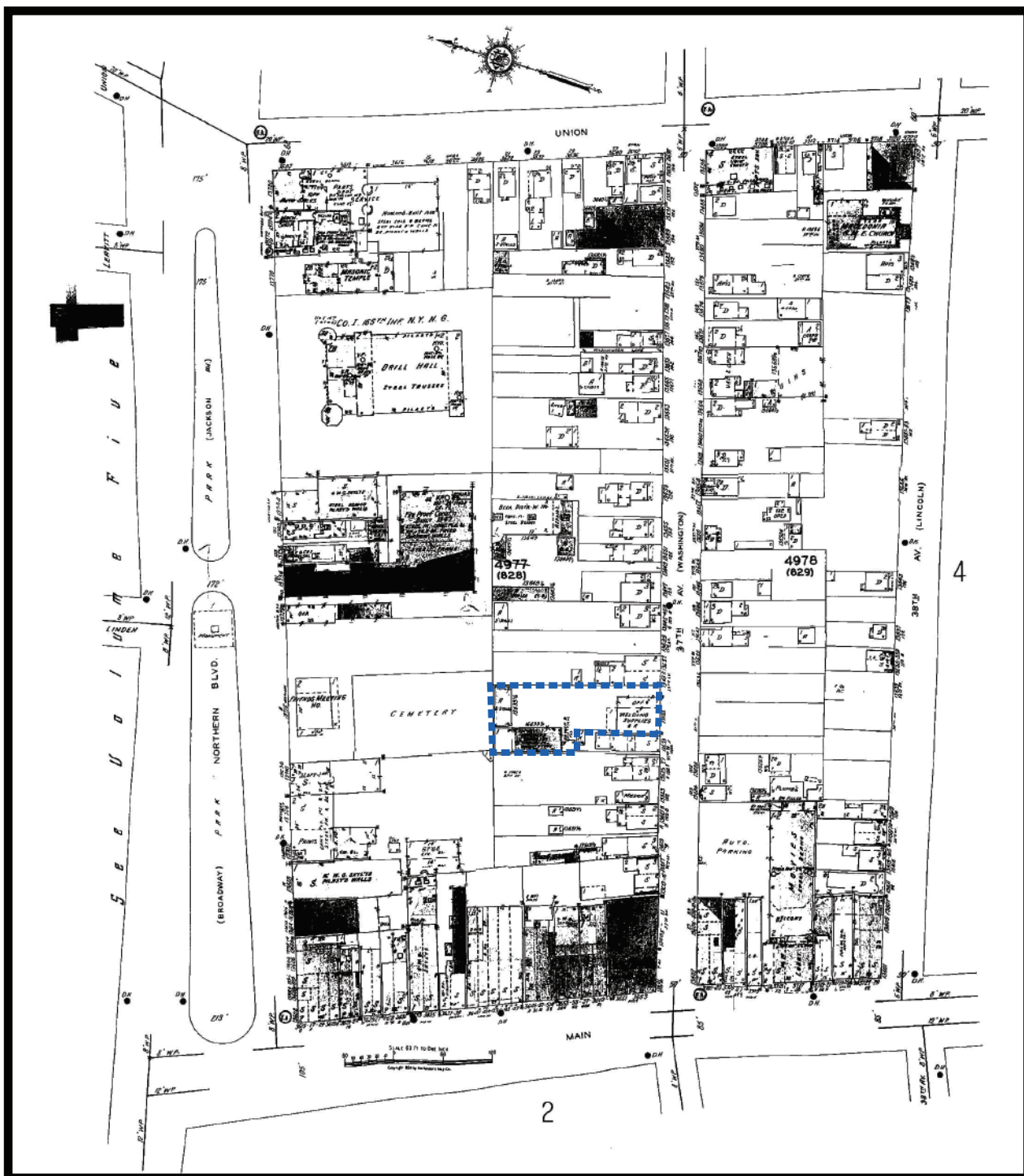
----- Area of Potential Effect Boundaries

50 0 50 100 150 200 FEET

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 10. Bromley, *Atlas of the City of New York, Borough of Queens*, 1913





LEGEND

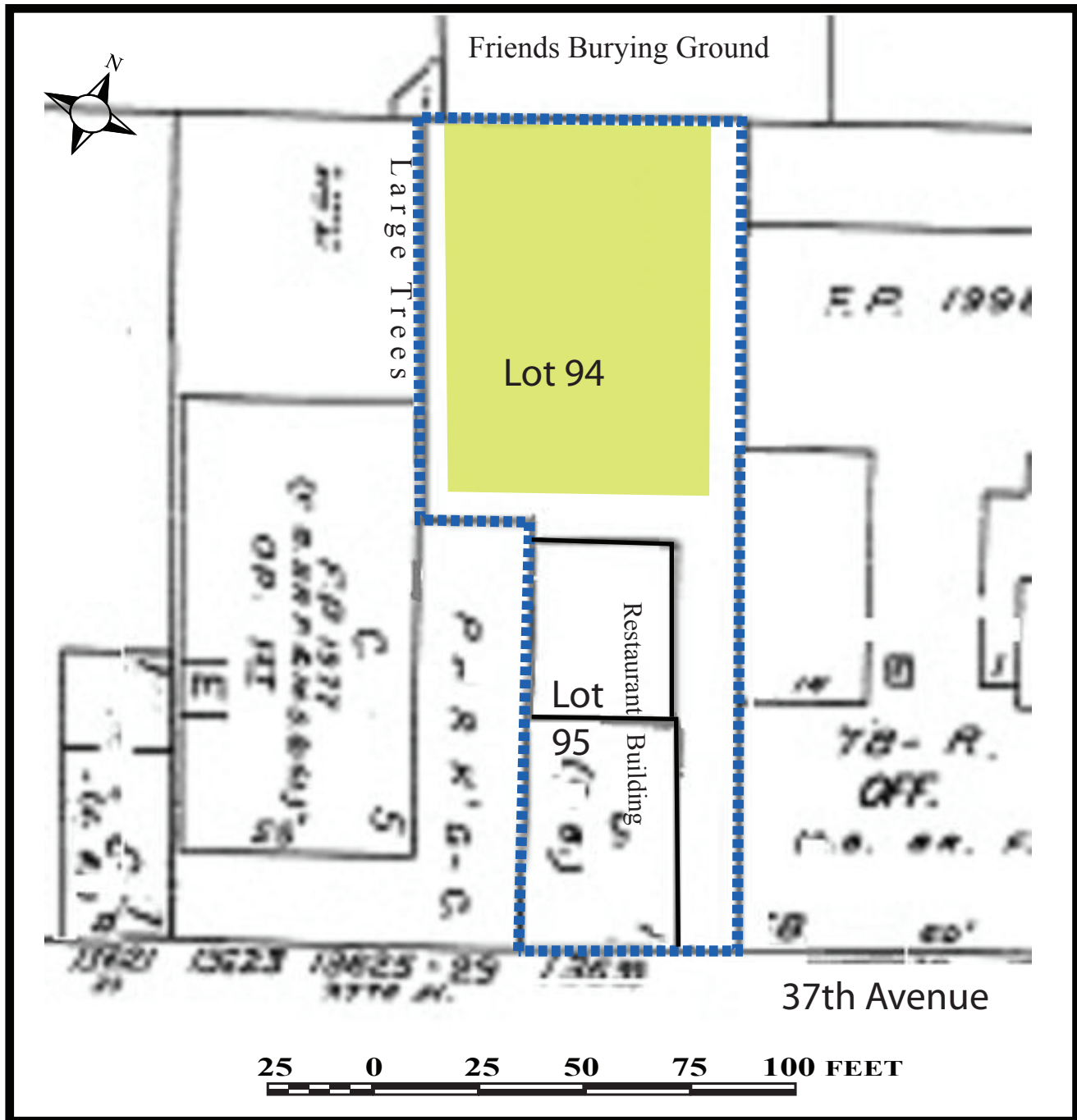
----- Area of Potential Effect Boundaries

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137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 11. Sanborn, *Insurance Maps of the Borough of Queens, City of New York*, 1951





LEGEND

Area of Potential Effect Boundaries



Area of Historical Archaeological Sensitivity

137-33 37TH AVENUE, BLOCK 4977, LOTS 94 AND 95, FLUSHING, QUEENS, NY

FIGURE 12. Area of Historical Archaeological Sensitivity

(Base map: Sanborn, *Insurance Maps of the Borough of Queens*, 2006, updated)





**136-33 37th Avenue
Photo Location Map**

■ ■ ■ ■ ■ APE Boundaries

Scale: 1 cm = 29.5 feet

Base map: 2004 Aerial Photo (Oasis 2004)



Photo 1. View northwest toward the APE from the south side of 37th Avenue. Restaurant building occupies the street frontage of APE Lot 95. Alley to the right (east) of the restaurant is part of APE Lot 95.

Photo 2. Looking north from the north side of 37th Avenue from the southern edge of APE Lot 95. Wall to the left (west) is the restaurant on APE Lot 94, wall to the right (east) is outside the APE. Note the manhole within the APE.



136-33 37th Avenue, Flushing

Photo Log 2



Photo 3. View north northwest from approximately 50 feet north of 37th Avenue on APE Lot 94. Paved area is part of Lot 94, building is the restaurant on Lot 95.

Photo 4. Looking south from the center of APE Lot 94 toward the rear of the restaurant building on APE Lot 95. Note the partially below-ground basement windows. Paved area is part of APE Lot 94.





Photo 5. Looking north northwest from the center of APE Lot 94 toward the northwest corner of the APE, the former location of the auto repair buildings.

Photo 6. View south from the northwest corner of APE Lot 94. Note the large trees growing along the western lot line.



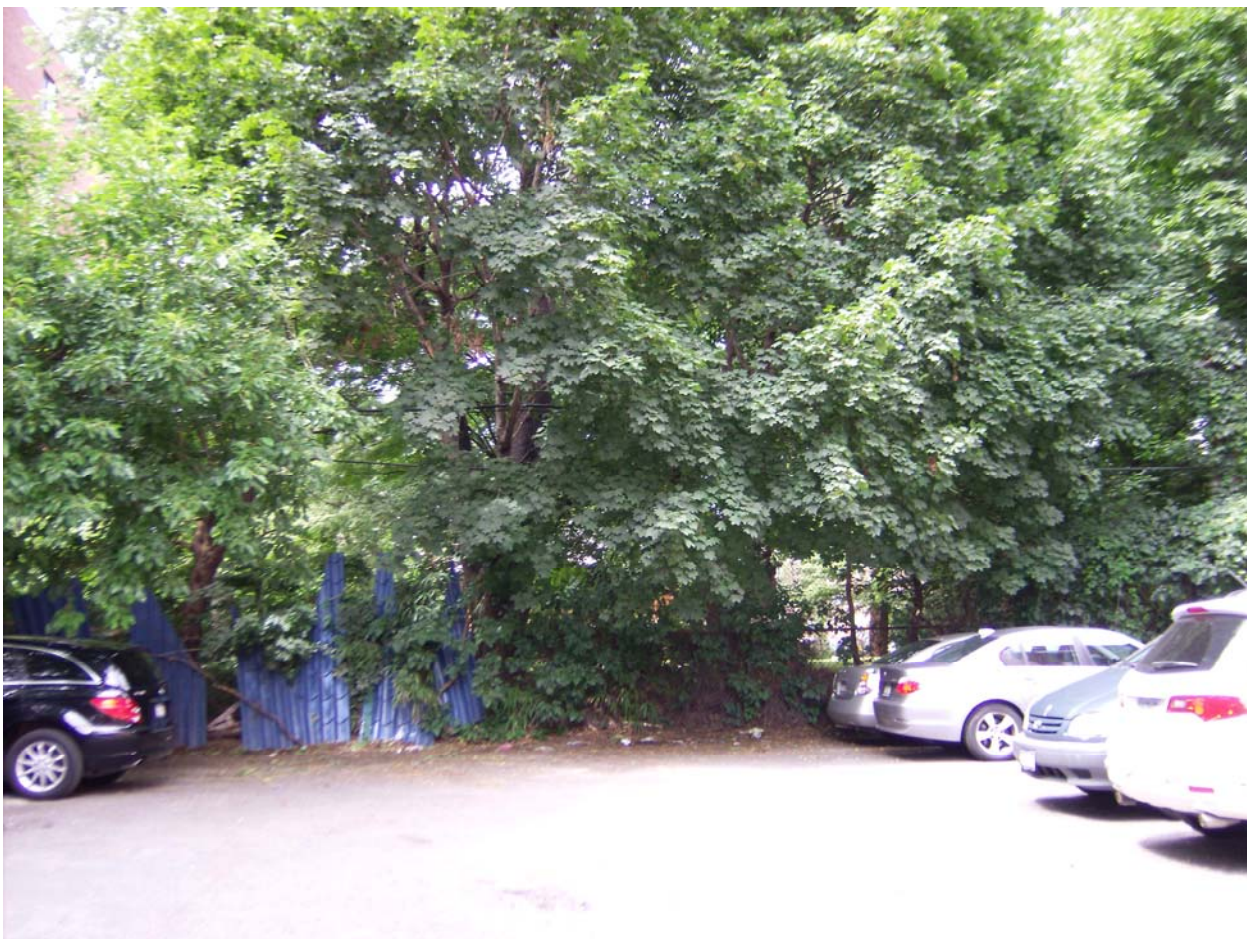


Photo 7. View north from the center of the APE Lot 94 parking lot. Fence marks the boundary with the Friends Meeting House and Burying Ground Property. The trees are outside the APE.



APPENDIX A

Homelot and Ownership Data

Ownership History

Grantor	Grantee	Date	Liber & page	neighbors	comments
Elizabeth Lawrence (widow) & heirs of Effingham Lawrence	Robert Bloodgood	29 December, 1804	Recorded in Liber O deed		
Robert Bloodgood (carpenter) & Susanna	Joseph Bloodgood	17 March, 1814	L O, p219–222	Josiah Smith (W) Isaac Stansbury (E)	125' x 200'; \$1,825
Joseph Bloodgood (physician) & Kitty	Rufus Weed (grocer)	16 November, 1820	L R, p32	Benjamin Austin (W) Isaac Stansbury (E)	120' x 200'; \$2,200
Rufus Weeds & Abigail	Gold Lilliman	1 May, 1822	Recorded in L X, p142–144		
Gold Lilliman & Elizabeth	Charles Carpenter	27 January, 1826	Recorded in L X, p142–144		
Chas Carpenter & Bethiah (of Sag Harbor)	Isaac Peck	10 April, 1828	L X, p142–144	Benjamin Austin (W) Isaac Stansbury (E)	125' x 200'; \$2,400
Isaac Peck (merchant) & Agnes	Charles Miller	1 May, 1837	L 75, p453	Benjamin Austin (W) Isaac Stansbury (E)	40' x 100'; \$700
Charles Miller	Henry S. Barto?	Ca. 1843?	?	James Ewbank (W)	Miller sells Owen property to G.Bouse, 24 Jan 1843 L 58 p320
Fannie Barto	Howard S. Barto	7/14/1924	L 2652, p68820		Ca. 80' x 100' 12-foot alley right of way

APE HOMELOT RESIDENTS

Abbreviations: b. = born; h= home; kh = keeps house; pe = personal estate; re = real estate

A blank line within the census indicates a separate household within the same building.

Birthplace of census entries is New York unless otherwise noted.

1828 Isaac & Agnes Peck purchase APE, 10 April

1830 Census – Isaac Peck, 13 residents

White males: 0 to <5, 1; 5 to <10: 2; 10 to <15: 1; 15 to <20: 3; 20 to <30: 2; 40 to <50: 1

White females: 0 to <5, 1; 10 to <15: 1; 30 to <40: 1

Isaac Peck (1791–1860), married Agnes Polhemus (b. 1789) 1812

Children: Hannah, b.1813; Hamilton, b.1815; Adaline, b. 1816; Jane H., b. 1818;

Isaac, b. 1820; George, b. 1822; James, b. 1824

Source: Ancestors of David Kipp Conover <<http://www.conovergenealogy.com>>

1837 Isaac & Agnes Peck sell APE with dwelling to Charles Miller, 1 May

1840 Census – Charles Miller, 20 residents

White males: 0 to <5, 1; 5 to <10: 1; 10 to <15: 1; 15 to <20: 3; 20 to <30: 3; 40 to <50: 2

White females: 5 to <10: 2; 10 to <15: 1; 15 to <20: 3; 30 to <40: 2

Free Colored Females: 35 to <55: 1

3 members engaged in agriculture, 3 in manufactures and trades

1850 Census

Barto, Henry, 28, mason

Elizabeth, 22

Theodore, 6; Eliza, 4; George, 1

Cashin, Catharine, 21, b. Ireland

Gurney, William, 55, tailor, b. MA

Ruth, 78, b. MA

Eliza, 48

Ruth, 13; Adelia, 5; Willis, 6

Mitchell, Wilson, 26, shoemaker

Ellen, 22

William, 10 mos.

pre-1859 P. Fairweather – owner, not resident? (Walling Map 1859)

1859 H. S. Barto (Carll Map 1859)

1860 Census

Barto, Henry S., 39, mason, r.e. \$2,000, p.e. \$3,000

Elizabeth, 33

Theodore, 15; Eliza, 13; George, 10; William, 8; Frederic, 6; Henry S., 3

Gurney, Eliza, 60
Delia, 14

Gurney, James, 20, clerk
Henrietta, 18

Chapman, Ida, 55
John, 24, blacksmith
Johanna, 22, tailoress

Burtsell, Alitta, 33
William, 12; Minnie, 10;
Lucretia, 70

1870 Census

Barto, Henry S., 49, stone mason, r.e. \$5,000
Elizabeth, 44, kh
Elizabeth, 23
George, 21, mason
William, 19; Frederick, 16; Henry, 13; Edward, 8; Frank, 3
Gurney, Liza A., 71

Roff, Edward G., 34, "Carage Timer"?, b. NJ
C. M., 24, kh., b. England
Mary E., 5 mos.

Bearer, Jane, 60, washerwoman
Sarah, 19
Marx, Edwin, 30, painter

1880 Census

Barto, Henry S., 58, mason & builder
Elizabeth, 54, kh
William C., 28, clerk in store
Edward, 18, clerk in store
O'Neil, Charlotte, 50, servant, b. Ireland

Marshall, Mary, 65, kh, b. MA

O'Brien, Michael, 48, laborer, b. Ireland
Margaret, 47, kh, b. Ireland

1884 H. S. Barto, resident (*Brooklyn Daily Eagle* 4/20/1884:1)

1899 Barto, Henry S., mason & builder, 110 Washington St. (*Trows Directory of Brooklyn and Queens*)

1900 Henry S. Barto, will probate (*Brooklyn Daily Eagle* 3/6/1900:7)

1900 Census – 110 Washington Street

Nillson, Lambert, 45, baker, b. Germany, immigrated 1886, renter

Addie, 36, b Ireland, immigrated 1888

Stephen, 7, at school; Josephine, 6

Rearden, John, 49, carpenter, b. Ireland, immigrated 1870, nat. cit., renter

Annie, 47, b. RI, parents b. Ireland

John, 24, b. , provision clerk,

Mary, 22, coffee mill hand;

Josephine, 15, coffee mill hand; William, 12, at school

Brooks, Caroline, 65, black, laundress, b. MD, father b. NC, renter, cannot write

Kelly, Jane, 52, laundress, parents b. Ireland, renter

Kate, 13, at school



APPENDIX B

Soil Boring Logs

D.K. DRILLING OF NY

214-41 42nd Avenue, NY 11361
TEL: 718-352-0100 FAX: 718-352-0200

CLIENT:	PINNACLE ENGINEERING
LOCATION:	136-33 37TH AVENUE
COUNTY:	QUEENS
BLOCK:	4977
LOT:	94,95

DATE: SEPTEMBER 17-24, 2007

N

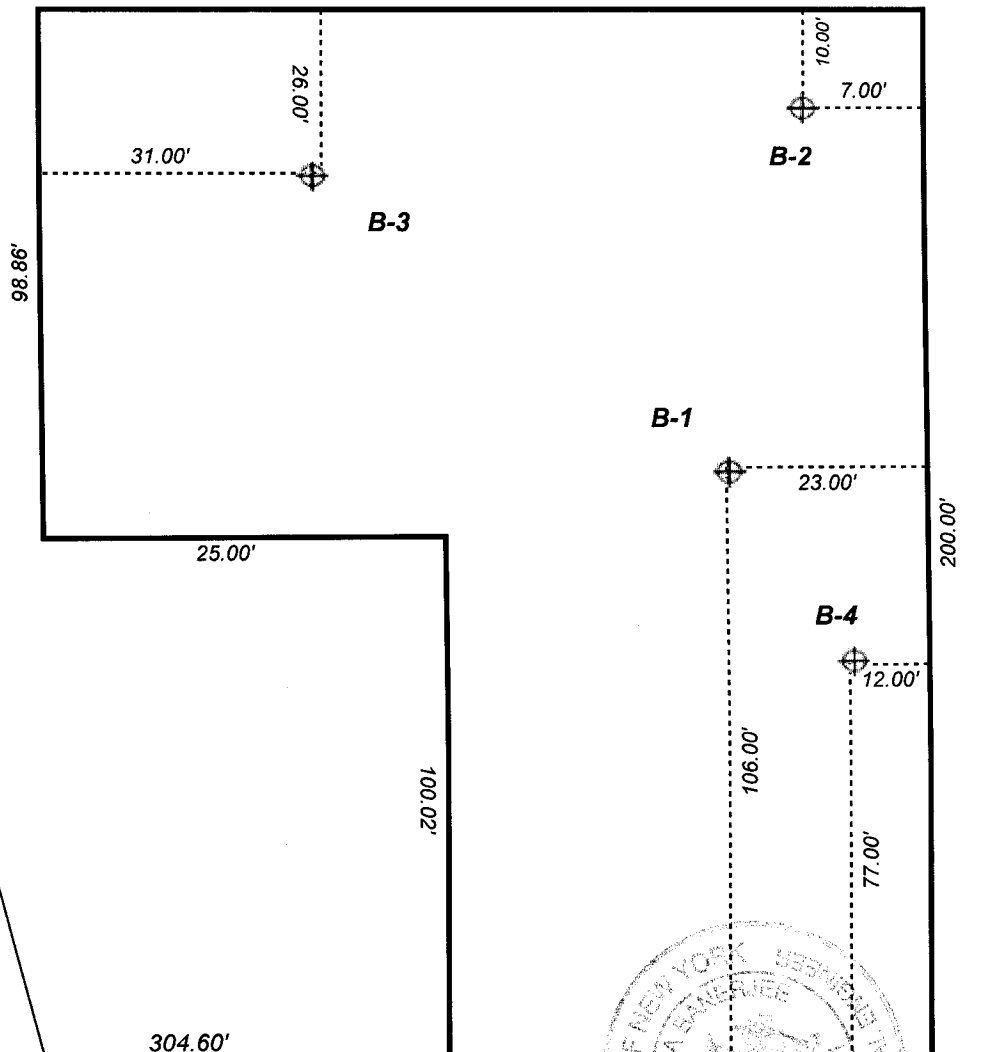
NOT TO SCALE

NOT TO SCALE



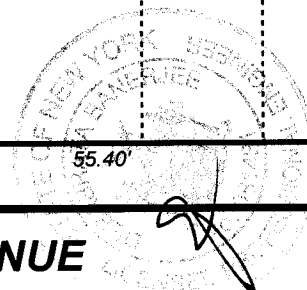
S

82.88'



MAIN STREET

37TH AVENUE



D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering			PROJECT LOCATION: 136-33 37 th Avenue		
BORING # B-1		COUNTY: Queens	BLOCK: 4977	LOT: 94,95	DATES START: 9/17/07 FINISH: 9/24/07
RIG INFORMATION CLASSIFICATION:		YR: 2004	MAKE: CME 45C	MODEL: F-550	MOUNTING: TRUCK

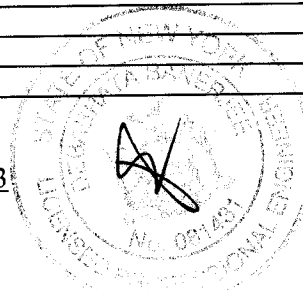
BORING LOG		SPOON SAMPLE AND CORING DATA				
DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
0.0' / 2.0'	3" asphalt Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-1	0.0' / 2.0'	16"	7-2 6-5	
5.0' / 7.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-2	5.0' / 7.0'	16"	3-5 5-6	
10.0' / 12.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-3	10.0' / 12.0'	19"	11-7 6-14	Fill ends at 11.0'
15.0' / 17.0'	Brown silty SAND, SAND and silt mixture, fine (SM) (8-65)	S-4	15.0' / 17.0'	20"	16-15 14-14	
20.0' / 22.0'	Brown silty SAND, SAND and silt mixture, fine, wet (SM) (8-65)	S-5	20.0' / 22.0'	20"	12-14 15-13	Wet at 21.0'
25.0' / 27.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-6	25.0' / 27.0'	16"	11-3 15-14	
30.0' / 32.0'	Brown SAND, fine SAND with small cobbles, wet (SP) (8-65)	S-7	30.0' / 32.0'	15"	9-12 13-7	

GROUND WATER DATA			EQUIPMENT LEFT IN BORING			
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON
21.0'		9/17-24/07			NONE	

HAMMER DROP	30	INCH
ROLLER BIT SIZE		INCH
SPOON HAMMER	140	LBS.
SPOON SIZE	2	INCH
AUGER SIZE		INCH
CORE BIT SIZE		INCH

DRILLER: Feroz Khan

HELPER: Havier



D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering			PROJECT LOCATION: 136-33 37 th Avenue			
BORING # B-1		COUNTY: Queens	BLOCK: 4977	LOT: 94,95	DATES START: 9/17/07 FINISH: 9/24/07	
RIG INFORMATION		YR: 2004	MAKE: CME 45C	MODEL: F-550	MOUNTING: TRUCK	
CLASSIFICATION:						

BORING LOG		SPOON SAMPLE AND CORING DATA				
DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
35.0' / 37.0'	Brown SAND, fine SAND with small cobbles, wet (SP) (8-65)	S-8	35.0' / 37.0'	15"	12-14 11-11	
40.0' / 42.0'	Brown SAND, fine SAND with small cobbles, wet (SP) (8-65)	S-9	40.0' / 42.0'	16"	19-23 17-15	
45.0' / 47.0'	Brown SAND, fine SAND, wet (SP) (8-65)	S-10	45.0' / 47.0'	16"	12-11 16-23	
50.0' / 52.0'	Brown SAND, fine SAND, wet (SP) (8-65)	S-11	50.0' / 52.0'	17"	17-19 21-20	
55.0' / 57.0'	Brown SAND, fine SAND, wet (SP) (8-65)	S-12	55.0' / 57.0'	19"	9-13 15-16	
60.0' / 62.0'	Brown SAND, fine SAND, wet (SP) (8-65)	S-13	60.0' / 62.0'	19"	15-16 19-18	
65.0' / 67.0'	Brown SAND, fine SAND, wet (SP) (8-65)	S-14	65.0' / 67.0'	14"	19-21 29-28	

GROUND WATER DATA			EQUIPMENT LEFT IN BORING			
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON
21.0'		9/17-24/07			NONE	

HAMMER DROP	30	INCH
ROLLER BIT SIZE		INCH
SPOON HAMMER	140	LBS.
SPOON SIZE	2	INCH
AUGER SIZE		INCH
CORE BIT SIZE		INCH

DRILLER: Feroz Khan
HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering PROJECT LOCATION: 136-33 37th Avenue
BORING # B- 1 COUNTY: Queens BLOCK: 4977 LOT: 94,95 DATES START: 9/17/07 FINISH: 9/24/07

RIG INFORMATION CLASSIFICATION: YR: 2004 MAKE: CME 45C MODEL: F-550 MOUNTING: TRUCK

BORING LOG			SPOON SAMPLE AND CORING DATA			
DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
70.0' / 72.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-15	70.0' / 72.0'	20"	21-23 29-27	
75.0' / 77.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-16	75.0' / 77.0'	19"	19-18 17-19	
80.0' / 82.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-17	80.0' / 82.0'	20"	21-20 17-19	
85.0' / 87.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-18	85.0' / 87.0'	21"	19-19 21-23	
90.0' / 92.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-19	90.0' / 92.0'	22"	20-20 23-25	
95.0' / 97.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-20	95.0' / 97.0'	21"	21-21 23-25	
100.0' / 102.0'	Brown SAND, fine to medium with gravel , wet (SP) (8-65)	S-21	100.0' / 102.0'	22"	23-21 29-25	
						End of Boring at 102.0'

GROUND WATER DATA			EQUIPMENT LEFT IN BORING				HAMMER DROP <u>30</u> INCH ROLLER BIT SIZE <u> </u> INCH SPOON HAMMER <u>140</u> LBS. SPOON SIZE <u>2</u> INCH AUGER SIZE <u> </u> INCH CORE BIT SIZE <u> </u> INCH
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON	
21.0'		9/17-24/07			NONE		

DRILLER: Feroz Khan
HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering			PROJECT LOCATION: 136-33 37 th Avenue		
BORING # B-2	COUNTY: Queens		BLOCK: 4977	LOT: 94,95	DATES START: 9/17/07 FINISH: 9/24/07
RIG INFORMATION		YR: 2004	MAKE: CME 45C	MODEL: F-550	MOUNTING: TRUCK
CLASSIFICATION:					

BORING LOG

SPOON SAMPLE AND CORING DATA

DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
0.1' / 2.0'	3" asphalt Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-1	0.0' / 2.0'	16"	4-3 7-5	
5.0' / 7.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-2	5.0' / 7.0'	14"	9-7 6-6	
10.0' / 12.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (SM) (8-65)	S-3	10.0' / 12.0'	15"	7-7 9-7	Fill ends 8 1/2'
15.0' / 17.0'	Brown silty SAND, SAND and silt mixture, fine (SM) (8-65)	S-4	15.0' / 17.0'	16"	9-9 7-10	
20.0' / 22.0'	Brown silty SAND, SAND and silt mixture, fine, wet (SM) (8-65)	S-5	20.0' / 22.0'	16"	10-10 11-10	Wet at 21.0'
25.0' / 27.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-6	25.0' / 27.0'	20"	4-6 7-6	
30.0' / 32.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-7	30.0' / 32.0'	21"	16-8 8-8	

GROUND WATER DATA			EQUIPMENT LEFT IN BORING				HAMMER DROP <u>30</u> INCH ROLLER BIT SIZE <u> </u> INCH SPOON HAMMER <u>140</u> LBS. SPOON SIZE <u>2</u> INCH AUGER SIZE <u> </u> INCH CORE BIT SIZE <u> </u> INCH
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON	
21.0'		9/17-24/07			NONE		

DRILLER: Feroz Khan

HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering			PROJECT LOCATION: 136-33 37 th Avenue		
BORING # B-2	COUNTY: Queens	BLOCK: 4977	LOT: 94,95	DATES START: 9/17/07 FINISH: 9/24/07	

RIG INFORMATION CLASSIFICATION:	YR: 2004	MAKE: CME 45C	MODEL: F-550	MOUNTING: TRUCK
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BORING LOG

SPOON SAMPLE AND CORING DATA

DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
35.0' 37.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-8	35.0' 37.0'	16"	13-15 15-16	
40.0' 42.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-9	40.0' 42.0'	17"	16-15 11-13	
45.0' 47.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-10	45.0' 47.0'	19"	11-14 13-13	
50.0' 52.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-11	50.0' 52.0'	19"	15-15 14-15	
55.0' 57.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-12	55.0' 57.0'	17"	16-18 15-16	
60.0' 62.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-13	60.0' 62.0'	19"	18-18 16-18	
						End of Boring at 62.0'

GROUND WATER DATA			EQUIPMENT LEFT IN BORING				HAMMER DROP <u>30</u> INCH ROLLER BIT SIZE <u> </u> INCH SPOON HAMMER <u>140</u> LBS. SPOON SIZE <u>2</u> INCH AUGER SIZE <u> </u> INCH CORE BIT SIZE <u> </u> INCH
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON	
21.0'		9/17-24/07			NONE		

DRILLER: Feroz Khan

HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering			PROJECT LOCATION: 136-33 37 th Avenue			
BORING # B-3		COUNTY: Queens	BLOCK: 4977	LOT: 94,95	DATES START: 9/17/07 FINISH: 9/24/07	
RIG INFORMATION		YR: 2004	MAKE: CME 45C	MODEL: F-550	MOUNTING: TRUCK	
CLASSIFICATION:						
BORING LOG			SPOON SAMPLE AND CORING DATA			
DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
0.0' / 2.0'	3" asphalt Brown silty SAND, SAND and silt mixture, fine to medium with gravel (FILL) (11-65)	S-1	0.0' / 2.0'	15"	5-5 3-7	
5.0' / 7.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (SM) (8-65)	S-2	5.0' / 7.0'	15"	9-8 8-10	FILL ENDS AT 4.0'
10.0' / 12.0'	Brown silty SAND, SAND and silt mixture, fine to medium with gravel (SM)(8-65)	S-3	10.0' / 12.0'	16"	12-8 8-9	
15.0' / 17.0'	Brown silty SAND, SAND and silt mixture, fine (SM) (8-65)	S-4	15.0' / 17.0'	17"	9-8 7-8	
20.0' / 22.0'	Brown silty SAND, SAND and silt mixture, fine, wet (SM) (8-65)	S-5	20.0' / 22.0'	17"	8-7 9-11	Wet at 21.0'
25.0' / 27.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-6	25.0' / 27.0'	18"	11-9 13-15	
30.0' / 32.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-7	30.0' / 32.0'	17"	11-9 7-7	
GROUND WATER DATA			EQUIPMENT LEFT IN BORING			
DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON
21.0'		9/17-24/07			NONE	
HAMMER DROP <u>30</u> INCH ROLLER BIT SIZE <u> </u> INCH SPOON HAMMER <u>140</u> LBS. SPOON SIZE <u>2</u> INCH AUGER SIZE <u> </u> INCH CORE BIT SIZE <u> </u> INCH						

DRILLER: Feroz Khan

HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering PROJECT LOCATION: 136-33 37th Avenue

BORING # B-3 COUNTY: Queens BLOCK: 4977 LOT: 94,95 DATES START: 9/17/07 FINISH: 9/24/07

RIG INFORMATION CLASSIFICATION: YR: 2004 MAKE: CME 45C MODEL: F-550 MOUNTING: TRUCK

BORING LOG			SPOON SAMPLE AND CORING DATA			
DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
35.0' / 37.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-8	35.0' / 37.0'	17"	9-12 / 11-15	
40.0' / 42.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-9	40.0' / 42.0'	17"	16-9 / 7-7	
45.0' / 47.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-10	45.0' / 47.0'	19"	13-15 / 11-12	
50.0' / 52.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-11	50.0' / 52.0'	18"	16-11 / 13-12	
55.0' / 57.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-12	55.0' / 57.0'	18"	12-15 / 19-18	
60.0' / 62.0'	Brown SAND, fine SAND (loose), wet (SP) (8-65)	S-13	60.0' / 62.0'	19"	13-18 / 19-20	
						End of Boring at 62.0'

GROUND WATER DATA			EQUIPMENT LEFT IN BORING				HAMMER DROP <u>30</u> INCH ROLLER BIT SIZE <u> </u> INCH SPOON HAMMER <u>140</u> LBS. SPOON SIZE <u>2</u> INCH AUGER SIZE <u> </u> INCH CORE BIT SIZE <u> </u> INCH
DEPTH	HOURL	DATE	SIZE	TYPE	AMOUNT	REASON	
21.0'		9/17-24/07			NONE		

DRILLER: Feroz Khan
HELPER: Havier

D.K. DRILLING OF N.Y.

214-41 42ND AVENUE, BAYSIDE, NY 11361

TEL: (718) 352-0100 FAX: (718) 352-0200

ROCK CORING AND SOIL SAMPLING RECORD

CLIENT: Pinnacle Engineering PROJECT LOCATION: 136-33 37th Avenue

BORING # B-4 COUNTY: Queens BLOCK: 4977 LOT: 94,95 DATES START: 9/17/07 FINISH: 9/24/07

RIG INFORMATION CLASSIFICATION: YR: 2004 MAKE: CME 45C MODEL: F-550 MOUNTING: TRUCK

BORING LOG

SPOON SAMPLE AND CORING DATA

DEPTH FROM / TO	DESCRIPTION OF MATERIAL BASED ON SAMPLES RECOVERED AND OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	SAMPLE	DEPTH FROM / TO	REC. IN SOIL OR ROCK	BLOWS / 0.5' IN SOIL % R.Q.D. IN ROCK	REMARKS
0.0' / 2.0'	3" asphalt Brown silty SAND, SAND and silt mixture, fine to medium with traces of gravel (FILL) (11-65)	S-1	0.0' / 2.0'	19"	4-5 5-5	
5.0' / 7.0'	Brown silty SAND, SAND and silt mixture, fine to medium with traces of gravel (FILL) (11-65)	S-2	5.0' / 7.0'	22"	3-2 3-3	
10.0' / 12.0'	Brown silty SAND, SAND and silt mixture, fine with some CLAYED silts (soft) (SM) (SC) (9-65)	S-3	10.0' / 12.0'	21"	5-6 7-7	
15.0' / 17.0'	Brown silty SAND, SAND and silt mixture, fine with some CLAYED silts (soft) (SM) (SC) (9-65)	S-4	15.0' / 17.0'	22"	3-2 4-4	
20.0' / 22.0'	Brown SAND, fine to medium with gravel, wet (SP) (8-65)	S-5	20.0' / 22.0'	12"	8-11 9-8	<i>Wet at 21.0'</i>
25.0' / 27.0'	Brown SAND, fine to medium with gravel, wet (SP) (8-65)	S-6	25.0' / 27.0'	19"	5-6 5-6	
30.0' / 32.0'	Brown SAND, fine to medium with gravel, wet (SP) (8-65)	S-7	30.0' / 32.0'	13"	7-11 13-13	

GROUND WATER DATA

EQUIPMENT LEFT IN BORING

DEPTH	HOUR	DATE	SIZE	TYPE	AMOUNT	REASON
21.0'		9/17-24/07			NONE	

HAMMER DROP 30 INCH
 ROLLER BIT SIZE INCH
 SPOON HAMMER 140 LBS.
 SPOON SIZE 2 INCH
 AUGER SIZE INCH
 CORE BIT SIZE INCH

DRILLER: Kostas
 HELPER: Dorbal

TEL: (718) 352-0100 FAX: (718) 352-0200

PAGE 2 OF 2