APPENDIX D

HISTORIC AND CULTURAL RESOURCES

Phase IA Archaeological Assessment
Astoria Cove
Block 906, lot 1, Block 908, lot 12, and Block 909, lot 35
Borough of Queens, New York



Prepared by Celia J. Bergoffen, Ph.D., R.P.A.

Prepared for: Philip Habib & Associates

Date: July 9, 2013

TABLE OF CONTENTS

LIST OF FIGURES

I. DESCRIPTION OF THE PROJECT SITE AND PLANNED DEVELOPMENT…… 4

II. ENVIRONMENTAL SETTING…….. 6

III. PREHISTORIC PERIODS……. 10

IV. HISTORIC PERIODS…… 13

V. CONCLUSIONS AND RECOMMENDATIONS…….. 19

VI. BIBLIOGRAPHY…….. 21

FIGURES

LIST OF FIGURES

Cover – View of pot cove looking west

Fig. 1a. Hagstrom map showing the location of the project site

Fig. 1b. Tax map of the project site: area shaded in yellow is the Astoria Cove Project site, lots outlined in red are the project site assessed in this report

Fig. 2. Looking north from the southeast side of block 908, lot 12 across 26th Avenue and the south side of block 906, lot 1

Fig. 3. Looking west from 9th Street down 26th Avenue; block 908, lot 12 on the left, block 906, lots 1 and 5 on the right

Fig. 4. View of the northern end of block 906, lot 1 looking west

Fig. 5. View of the northern end of block 906, lot 1 looking southwest

Fig. 6. View of the easement for Stevens Street on block 908, lot 12, looking north from 27th Avenue

Fig. 7. View of part of block 909, lot 35 looking southwest from 26th Avenue

Fig. 8. Plan created by Tri-state Drilling Tech, Inc. showing the location of their soil borings

Fig. 9. 1836 Colton map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 10. 1851 USCS map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 11. 1852 Quilitch map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 12. 1859 Slator map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 13. 1898 Sanborn map showing the location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 14. 1915 Sanborn map showing the location of the areas of potential archaeological sensitivity on the Astoria Cove project site

Fig. 15. 1979 Hyde map showing the location of the areas of potential archaeological sensitivity and the approximate location of the former Whittemore house (in green)

I. DESCRIPTION OF THE PROJECT SITE AND PLANNED DEVELOPMENT

The Astoria Cove project site in western Astoria, Queens comprises approximately 379,023 sf of lot area on: block 906, lots 1 and 5; block 907, lot 1; block 908, lot 12, and block 909, lot 35. These blocks are located north and south of 26th Avenue (Orchard Blvd.), between 4th Street (Perrot Place) on the west, 9th Street (Wardell Street) on the east, and the 1926 U.S. pier head and bulkhead line on the East River (Pot Cove, Figs. 1a and 1b; Montrose 2012).1 The area north of 26th Avenue is zoned M1-1, and that south of 26th Avenue, R6. The unimproved segment of 26th Avenue west of 9th Street would be built and improved under future No-Build and/or Build conditions. In addition, there is a 50 foot wide, asphalted easement for 8th Avenue (Stevens Street), between blocks 907 and 906, north of 26th Avenue, and between blocks 909 and 908, south of 26th Avenue.

The Landmarks Preservation Commission's review of archaeological sensitivity models and historic maps indicated that there is potential for the recovery of remains from Native American and 19th Century occupation on a portion of the Astoria Cove Site, including block 906, lot 1; block 908, lot 12, and block 909, lot 35. These blocks and lots, including the section of 26th Avenue lying between them and the portion of the 8th Street easement included in block 908, lot 12, are the subject of the following archaeological assessment report.

Currently, most of lot 1 on block 907 and part of lots 1 and 5 on block 906, north of 26th Avenue, are occupied by one-story warehousing and industrial buildings and a parking lot (Figs. 3 to 7). The waterfront has been mostly developed with shoreline protection measures in the form of riprap (Cover). Block 906, lot 1, 8-51 26th Avenue, is partly occupied by a one-story warehouse in the middle of the lot, the north and south portions being vacant. The current occupant is Superior Steel Studs, Inc., a hardware manufacturer. The building has no basement, and potential archaeological remains may therefore be preserved below it, except for two areas of disturbance caused by a drain and a pool (GCE 2006, Fig. 2). There is a fairly large vacant area at the north end of block 906, fronting the river (Figs. 4 and 5). Block 908, lot 12, and block 909, lot 35, south of 26th Street, are partly wooded. The level portions are occupied by containers and trailers but are otherwise not built upon (Fig. 7). Block 908, lot 12 is occupied by stacked

1 The property includes a narrow strip between the 1921 and 1926 U.S. pier head and bulkhead lines that has not yet been filled, according to Montrose 2012.

containers. The easement was not accessible either from 27th or 26th Avenues. The eastern half of its narrow, southern extension is part of block 908, lot 12, and is vacant (Fig. 6). Further north, the easement is blocked by a trailer.

2030 Astoria Developers, LLC is proposing a new mixed-use, predominantly residential development that would include retail space, an elementary school and approximately 914 accessory parking spaces. Mapped portions of 8th Street between 26th Avenue and the river on block 906, lot 5, currently occupied by a warehouse, and south of 26th Avenue, overlapping the eastern and western boundaries of the vacant blocks 909 and 908, respectively, would be built out to provide pedestrian public access to the waterfront. The unimproved, eastern portion of 26th Avenue would also be built out to provide access to 9th Street and improve traffic circulation. It is also proposed to map an extension of 4th Street from 26th Avenue to the waterfront esplanade to provide public access to the proposed development and the waterfront.

II. ENVIRONMENTAL SETTING

The Astoria Cove project site is located in the Atlantic coastal lowland physiographic province, north of the line of boulders and glacial till deposited during the last ice age and known as the Harbor Hill moraine. This terminal moraine marks the edge of the Wisconsin ice sheet, which reached its maximum extent during the Pleistocene era some 20,000 years ago. It ran roughly along the line of the Interboro and Grand Central Parkways, reaching approximately from south of Little Neck Bay southwestward through Ridgewood to Prospect Park in Brooklyn (Boesch 1997, 4-5). With the return of warmer temperatures and the melting of the ice sheets some 18,000 years ago, Glacial Lake Flushing was formed, as well as many melt water streams and rivers. Lake Flushing extended as far south as the western portion of Long Island Sound engulfing Manhattan, the Bronx and roughly the northwestern quarter of Queens. The lake drained ca. 12,500 years ago, leaving salt, brackish and fresh water marshes and ponds. The glacially-formed promontory on which the Astoria Cove project site is located is composed of fertile Galveston clay and sand over a bedrock of schist, gneiss and granite (Ibid.; Kross 1983, 6). In historic periods, the clay in this section of Astoria, Queens was used for brick-making: William Hallett, who owned the spit of land including the Astoria Cove project site area, as well as a large tract of land to the east, “burned out bricks by the thousands” here (Kross 1983, 7).

The Astoria promontory bulges out into the East River opposite Manhattan’s Upper East Side at the point where the River is interrupted by Ward’s Island (Fig. 1a). The western branch continues around Manhattan, joining up with the Hudson River, while the eastern bends around Ward’s Island and then widens between the Bronx and Queens, forming a number of deep bays including Bowery and Flushing bays, west and east of LaGuardia Airport, respectively, and Little Neck Bay, at the eastern end of Queens where the waterway joins up with Long Island Sound. The base of the Astoria promontory is indented, forming Hallett's Cove on the south and Pot Cove on the north, where the Astoria Cove project site is located (Report Cover). Before the area was built up, there were brooks on either side of the promontory. Sunswick Creek ran south of Astoria Boulevard and west of 12th Street, emptying into Hallets Cove opposite the northern tip of Roosevelt Island (Seyfried 1984, 7). Linden Brook ran south of 25th Avenue into Pot Cove immediately northeast of the Astoria Cove project site. This stream is shown on the 1873 Beers

map.

The bend in the East River around the north side of the promontory, facing the Astoria Cove project site, is called Hell Gate, an anglicized form of the common Dutch toponym, *Hellegat* (Nichols n.d.). It is however not known whether Adriaen Bloch, who initially gave this name to the entire East River, meant "bright or beautiful [water] gap", or rather "hell hole" – a hell for mariners. Both meanings are possible. Before 1876, Hell Gate was certainly perilous for navigation due to powerful tidal currents and the many rocks and shoals that blocked the narrow straight:

> "Being at the best of times a very violent and impetuous current, it takes these impediments in mighty dudgeon; boiling in whirlpools; brawling and fretting in ripples; raging and roaring in rapids and breakers; and, in short, indulging in all kinds of wrong-headed paroxysms. At such times, woe to any unlucky vessel that ventures within its clutches. This termagant humor, however, prevails only at certain times of tide. At low water, for instance, it is as pacific a stream as you would wish to see. But as the tide rises it begins to fret; at half-tide it roars with might and main, like a bull bellowing for more drink; but when the tide is full, it relapses into quiet, and for a time sleeps as soundly as an alderman after dinner.
>
> *Tales of a Traveller*, Washington Irving, 1824

Local Indians related that their ancestors were able to cross Hell Gate by leaping from rocks to reefs (Henke 1974). The locations of these many colorfully named hazards such as "Hog's Back", the "Frying Pan", Shellbrake Rock, Way's Reef, Pot Rock, etc. were plotted on the detailed maps of the U.S. Coast and Geodetic Survey (USGS 1851). On the 1836 Colton map, Pot Rock is simply labeled "The Pot". This notorious rock was responsible for the most famous shipwreck in Hell Gate -- the sinking of the frigate Hussar with all its payroll aboard. Pot Rock extended 130 feet across Hell Gate at an average depth of ten feet below surface, with its tip up to eight feet at low tide (Richardson 1871, 37). Although it is nowhere explicitly stated, it is possible that "Pot Cove" was named after Pot Rock, which rose in the middle of Hell Gate, opposite the cove.[2] The rocks and reefs were blasted out of the channel in 1876 by General John Newton of the army engineers. His method required sinking a shaft 30 feet below low water and then cutting a network of tunnels and galleries off it to place the charges. The preparations took six years to complete, but resulted in the clearing of the channel to a depth of 26 feet (Richardson

2 Gordon's "Pott Cove", is the only instance of a variant spelling for this locality found in the course of research for the present report (Gordon 1836).

1871, infra). There is no record of negative impacts on local residents or the Astoria Cove project site as a result of the explosion.

Most of western Astoria lies between 10 to 20 feet above sea level. Salt marshes extended west of 4th Street and north of the line of 26th Avenue to the East River. However, portions of the Astoria Cove project site containing the areas of potential archaeological sensitivity are on a hill. Seyfried (1984, 23) records that the highest point of this rise, 57 feet above msl was at 26th Avenue and 12th Street, east of the Astoria Cove project site. A topographical survey map created by Montrose Surveying company that includes all of the Astoria Cove site shows that the southeast corner of block 909, lot 35 and the southwest corner of block 908, lot 12, including the easement for 8th Street extending southward to 27th Avenue, are on the summit of a 45 to 47 foot high hill (Montrose 2012). The unimproved section of 26th Avenue south of block 906, lot 1 rises from approximately 22 feet on the north side of the 60 foot wide street to 30 feet on the south. West of this slope, 26th Avenue and the northern part of block 909, lot 35 and block 908, lot 12 lie at about 23 feet above msl. The sides of the hill then rise in a steep slope approximately 90 feet south of 26th Avenue. The sides of this rise, which are wooded, are in a fenced area and were not accessible for our initial area survey.

Several episodes of filling in the areas of potential archaeological sensitivity may be documented and approximately dated. Although the accuracy of the earliest topographical record of the Astoria Cove project site, the 1836 Colton map, is impossible to assess, it depicts the hill on the project site rising almost directly behind an irregular, presumably natural coastline (Fig. 9). The earliest episode of filling then probably occurred during the 1840s, following Astoria's incorporation as a village in 1839, since the 1848 topographic survey made for the 1851 USCS map records a rectangular projection into Pot Cove (Fig. 10). This includes the north end of block 906, lot 1, one of the areas of potential archaeological sensitivity. A contract to build a sea wall at the foot of Wardell Street "on a line with Messers Stevens and Whittemore's walls" was awarded December 11, 1855, indicating that Wardell Street had been extended to the river by that date (Astoria Trustees). The 1859 Slator map shows the street reaching the coast, and that further filling had taken place at the end of block 907, west of the Astoria Cove project site

(Fig. 12). The next alteration of the coastline that may be documented occurred between 1898 and 1915: the coastline of one of the areas of potential archaeological sensitivity on the

Astoria Cove project site, block 906, lot 1, was straightened approximately along the high water line (Figs. 13 and 14). It then remained substantially unchanged until the 1980s, when it was built out to its present extent. This is approximately100 feet north of the original high water line and up to the 1921 U.S. Pier head and Bulkhead line, which corresponds roughly to the mean low water line (Fig. 15; 1990 Hyde map; Montrose 2012).

The original topographic map of Queens, prepared in 1871 by the Queens Topographic Bureau, recorded 16.90 feet above msl at the intersection of 8th Street and 26th Avenue, 20.00 feet at 9th Street and 26th Avenue, and 8.00 feet above msl at the end of both 8th and 9th Streets, at the water line. A rise in elevation at the intersection of 8th Street and 26th Avenue, to 20.00 feet above msl. was recorded on July 8, 1907. This is the only change in elevation noted on the Topographic Bureau's map in the areas of potential archaeological sensitivity, but a new map of this part of Astoria is currently in preparation. Montrose's plan also records 20.00 feet above msl at 8th Street and 26th Avenue, but 22.79 in the middle of the intersection between 9th Street and 26th Avenue, and 11.83 feet above msl at the river end of 9th Street, near the northeast corner of block 906, lot 1, that is, approximately 3.83 feet higher than the Topographic Bureau's map or the 1950 Sanborn map, both of which record an elevation of 8 feet above msl at the north end of 9th Street.

In sum: there were at least three episodes of filling at the north end of block 906, lot 1. These occurred in the 1840s, between 1900 and 1915, and during the 1980s. In 1907, an increase in elevation of 3.10' was recorded on 26th Avenue at the intersection of 8th Street. Between 1950 and 2012, there was an increase in elevation of 3.83 feet at the northern end of block 906, lot 1.

The north end of block 906, lot 1 was built over a wood dock (Sanborn 1950). This accounts for the 17 feet of fills, including fragments of wood, encountered in soil boring B4, performed immediately west of the north end of block 906, lot 1 (Tri-State Drilling Tech, Inc. 2007, Fig. 8). Three feet of fill were observed in boring B-3, performed in 26th Avenue just southwest of block 906, lot 1, and in Boring B-2, on block 909, lot 35. This may correspond to the above-mentioned 3-foot change in level noted on the 1907 Queens Topographic Bureau map. Two feet of fill were recorded from boring B-7, located east of the Steven's Street easement and immediately southwest of block 908, lot 12.

A phase I environmental site assessment conducted by G.C. Environmental, Inc. found no

hazardous environmental conditions. The report however noted that use of the site for coal storage from ca. 1898 until at least 1936 may have environmentally impacted the site. From an archaeological perspective, the presence of large amounts of coal could contaminate potential samples for C14 dating.

III. PREHISTORIC PERIODS

The earliest evidence of occupation in Queens dates to the Paleoindian period, ca. 12,000-10,000 B.C.E., but it is scant: one Clovis spear point found in the Bayswater section (Boesch 1997, 10). At this time, small bands of nomadic people depended for their subsistence on hunting. Elsewhere their presence is signaled by small encampments, food processing and tool-making stations of a temporary nature.

The beginning of the Archaic period (ca. 8,000 to 1,000 B.C.E.) is marked by a shift from a forest-based economy to one that exploited the food gathering potential of rivers, coasts and lakes (Boesch 1997, 12). The Indians often settled at the head of coastal estuaries or by the seashores, places which offered plentiful supplies of shellfish. The glacial melt waters had subsided and the large herbivores of the Late Pleistocene became extinct, but swamps and mudflats attracted wildfowl and beaver. The material culture of the Archaic Indians is characterized by a wider range of equipment including plant processing tools such as grinding stones, mortars and pestles. In the Transitional or Terminal Archaic phase (ca. 1,500-1,000 B.C.E.), carved stone vessels were introduced.

The growth in population during the Late Archaic period (ca. 2,500-1,000 B.C.E.) resulted in larger and functionally more diversified settlements, although these were still concentrated in coastal areas and in the interior near streams. Site types included “Spring fishing camps along major streams, fall open air hunting camps, rock shelter habitations, shellfish collecting and processing stations, mortuary sites, and quarry and workshop sites” (Boesch 1997, 11). Semi-permanent villages also appeared.

The end of the Woodland Period is marked by the arrival of the Europeans (ca. 1,000 B.C.E. to 1,600 C.E.). A rise in shell gathering during this period may signal the beginning of the trend towards increasing sedenterization. Piles of discarded shells called middens attest to the lengthy periods spent in the harvesting localities. The Indians may have begun domesticating

some plants already during the first millennium C.E. Agriculture superceded hunting and gathering as the main source of subsistence during the Late Woodland period, between ca. 900 and 1,600 C.E., although groups also still travelled seasonally to their hunting or fishing camps. Smoking pipes and bows and arrows, which replaced the earlier spears and throwing stick, are characteristic of this period as is pottery, which replaced the earlier stone vessels.

The Astoria Cove project site area was inhabited by the Maspeth Indians, who were part of the larger, Munsee-speaking Algonquin tribe and probably also related to the Canarsie of Brooklyn (Wisniewski and Solecki 2010, 28). Before the arrival of the Europeans, Long Island City and surrounding area as far as Corona and Flushing Bay was a “great tract of forest land” (Bolton 1922, 175). The Indians called this land *Wandownock* meaning “the fine land between the long streams”, the “streams” being the East River and Flushing Bay (Ibid.). Other Indian names of localities in the Astoria Cove project site area are “Sunswick”, on the south side of Hallett's Cove, meaning “stone house” and “Sint Sinck”, meaning “a stony place” (Ibid.) This last was associated with a gravelly tract of land on the north side of the Sunswick Creek probably including the area of the Astoria Cove project site. This land was in the territory of the Rockaway chieftaincy, whose domain extended from the East River to Jamaica (Bolton 1922, 171).

The Indian site closest to the Astoria Cove project site is the shell midden recorded by Parker at Sanford's point (Parker 1922, 672-673, Pl. 208, site #12). The location of this site is not precisely known. The New York State Historic Preservation Office (SHPO) mapped it as a five by seven block area in north Ravenswood, east of Hallett's Cove (A081-01-0099), while the State Museum places it more specifically west of the Main Avenue and Vernon Boulevard intersection, i.e. near the innermost part of Hallett's Cove (NYSM 4535). Parker merely noted that this "shell heap" was "opposite the north end of Blackwell's island" (Parker 1922, 672). A second site has also been recorded at Hallett's Cove, NYSM #8217: Bolton noted the presence of “various Indian objects” here (cited in Boesch 1997, 12).

Parker also recorded a burial site further inland, on Crescent Street in Long Island City (Parker 1922, 672-673, Pl. 208, site #14). The location is mapped east of the Hallett's Cove inlet.

Further south but still within one mile of the Astoria Cove project site is Bolton's Sunswick Shell Midden Site (Bolton 1922, 174-176, Site 111, Map VIII, B). This is thought to

have been located in the area of present day Rainey Park (SHPO #A081-01-0100).

The location of the only historically attested village at the time of the European conquest is somewhat vague. It must have been quite large, since the Dutch killed one hundred and twenty natives here in their 1644 attack. Wiesniewski and Solecki (2010, 7) thought the village should be identified with their "Maspeth site", located on the north side of Maspeth Avenue southwest of 55th Street. Here they excavated a shell pit and recovered material culture remains representing six phases of Indian occupation from the pre-ceramic Early, Middle and Late Archaic through the Early, Middle and Late Woodland periods. The site lay at the foot of a low hill, between 15 and 20 feet above sea level, near the shore and just south of a creek that ran roughly along the line of 57th "Creek" Street (Wiesniewski and Solecki 2010, 6-7, Fig. 4). The topographical features of this location are very similar to those of the blocks and lots in the project site that have been flagged for potential archaeological sensitivity. Bolton had identified the village with a site lying closer to the headland of Maspeth, but Wiesniewski and Solecki noted that neither the variety nor quantity of finds there was comparable to the Maspeth site (Ibid.).

The setting of the project site, partly on a hill rising at the head of a cove on the East River Shore with a brook nearby, and the existence of other, inventoried prehistoric archaeological sites located less than a mile away, indicate a high degree of likelihood for prehistoric uses.

IV. HISTORIC PERIODS

The Astoria Cove project site was part of a grant of 160 acres of land that Governor Van Twiller made to Jacques Bentyn in ca. 1633-38. Bentyn abandoned the farm possibly ca. 1643 following the Indian uprising in that year. As noted above, the Indians in the Astoria Cove project site area were overpowered by the 1644 massacre. In 1652, Governor Stuyvesant made a second grant, of 160 acres extending north to the brook just south of 25th Avenue, which included the Astoria Cove project site, to William Hallett (b. 1616). The deed records certain features of the property's topography:

> ...a plat of ground at Hellegat upon Long Island, called Jacques's farm, and, beginning at a great rock that lies in the meadow, goes upward southeast to the end of a very small swamp, two hundred and two rods. From thence northeast two hundred and thirty rods; on the north it goes up to a running water, two hundred and ten rods. (Munsell 1882, 266)

The "running water" at the northern boundary of the property was Linden Brook, which ran into Pot Cove, northeast of the Astoria Cove project site, while the southern limit was Sunswick Creek (Beers 1873; Seyfried, 1984, 7). Hallett's farm, located at the head of Hallett's Cove, near the shore, was destroyed in the Indian uprising of 1655. But after spending some nine years in Flushing, Hallett returned to the area in 1664 and bought a very large tract of some 2,200 acres from the Indians Shawestcont and Erramorhar, upon the authority of Chief Mattano, the sachem of the Staten Island and Fort Hamilton (Noyack) Indians. It may be noted that the sellers did not reside in this area but rather at Shawcopshee on Staten Island.

William Hallett's descendants married the children and grandchildren of Robert Blackwell, who had become a freeholder in Newton by 1656. Through his marriage to Mary Manning in 1672, Blackwell acquired the Island in the East River that bore his name until 1921, when it was renamed Roosevelt Island. Between them, the Halletts and the Blackwells owned

most of Astoria throughout the 18th century. Hallett's lime works and brick manufacture was the only industry in the area until, in 1753, he and Captain Jacob Blackwell built a grist mill at Sunswick Creek and established a ferry service to Manhattan (Henke 1974).

After the Americans lost the Battle of Long Island, 10,000 British troops under General Robertson encamped on the north side of Hallett's Cove facing the East River, whence they blasted the Americans in Manhattan with cannon balls. In early September 1776, the British advanced to Blackwells Island but after a particularly intense bombardment from the Americans, were forced to retreat to Hallett's Cove. Shortly afterwards, they decamped. A 1776 map shows the location of the British batteries on the southwest corner of the promontory. The location of the four forts corresponds to the south side of 27th Avenue near 1st Street (Henke 1973).

The most intriguing event connected with the Revolutionary War was the sinking of the frigate Hussar after hitting Pot Rock. The ship was carrying the troops' payroll, which sank in the mud and was never recovered.

In 1814, Governor De Witt Clinton laid the cornerstone of Fort Stevens on the spit of land at the northwest corner of the Astoria promontory (Stokes 1926, 1572). The fort was named after Major-General Erasmus Stevens of the State Militia, who was placed in charge of the artillery division during the war of 1812. A block house or fort named Castle Bogardus was erected just southwest of the Astoria Cove project site, on the south side of 27th Avenue west of 8th Street (Kelsey 1896, 21; Henke 1973).[3]

The early1830s, when Astoria re-emerged after two decades of obscurity, found the Blackwells still the principal landowner in the area, including the plot containing the areas of potential archaeological sensitivity on the Astoria Cove project site, which were as yet undeveloped (Seyfried 1984, 16; Colton 1836). In 1835, however, Stephen Alling Halsey moved to Hallett's Cove and bought the Perrot and Blackwell farms, including almost all the land up to Pot Cove (Leslie's 1898, 532). Known as the "Father of Astoria", Halsey not only laid out the streets and built wharves, houses, stores, and factories, but also promoted settlement in the village. He bought the ferry to New York, saw to it that an omnibus service ran via the ferry to City Hall in Manhattan, and was "instrumental" in opening Fulton Street (Ibid). Among many

[3] The other block houses were located at Fort Hamilton, New Utrecht (two forts), at Rockaway, and at the old Mill Road, Hell Gate.

other ventures that developed the village's infrastructure and promoted its growth, Halsey built and organized the Astoria Gas Company, a major employer in the area.

The 1836 Colton map depicts a small village with four docks on the east side of Hallett's Cove (Fig. 9). A short section of the road that would later become Fulton Street led down to the dock of Hell Gate Ferry. There was only one property with a large house on it north of Fulton Street, and no buildings on the areas of potential archaeological sensitivity within the project site. The only building on the promontory, at its northwest point, was Fort Stevens. In his 1836 Gazeteer of the State of New York, Gordon notes that there were twenty or thirty "good dwellings" in Hallett's Cove Village, a New Episcopal Church, a carpet manufacture and a wool card manufacture. There was also a Presbyterian congregation. Its church was erected in 1846-47 south of 27th Avenue, opposite the Astoria Cove project site.

Stephen Halsey made his fortune in the fur trade, having learned the business from John Jacob Astor. It was at Halsey's instigation that upon its incorporation in 1839, Hallett's Cove, as the village was then known, should be named Astoria in honor of his mentor (Leslie's 1898, 532). Astor was however not much involved in local affairs – although he did own a home at Hallett's Cove where Washington Irving came to visit him. Several sources relate that Halsey approached Astor with the idea of renaming the village in exchange for a contribution to a "ladies seminary" then under construction, but Astor declined (Munsell 1882, 272; Historical Collections 1938, 18, 26).

During the later 19th century, the names of the streets bounding the Astoria Cove project site blocks were as follows:

4th Street – formerly Perrot Avenue (1852), then Boulevard (1885);

9th Street – formerly Wardell Street;

27th Avenue – formerly Franklin Street (called Owen Street east of Wardell Street);

26th Avenue – formerly Orchard (mapped 1885).

In 1852, the northern boundary of the village was at 25th Avenue, just north of the Astoria Cove project site. The streets had not been paved, and there were no sewers, but there were water pumps for use in case of fire (Seyfried 1984, 22, 24). By this date, two houses had been built on the areas of potential archaeological sensitivity within the Astoria Cove project site. The 1852 Quilitch map shows the home of A.O. Whittemore near the southern end of what is now block

906, lot 1 (Fig. 11). Whittemore's property included part of 26th Avenue, which was not yet opened. The remainder of the unimproved segment of 26th Avenue was located on the property of Josiah Blackwell, a dry goods merchant in New York (Seyfried 1984, 41). Blackwell's home was south of 26th Avenue, opposite the Astoria Cove project site, but a second building stood on his property at the southern end of block 908, lot 12, at the foot of the easement for Stevens Street (8th Street), in one of the areas of potential archaeological sensitivity. This building is also shown on the 1850 *Map of Valuable Building Lots…* (the map stops a short distance north of 27th Avenue and includes, of the areas of potential archaeological sensitivity within the project site, only the southern end of the Stevens Street easement on block 908, lot 12). The 1851 USCS map records a small building on the Astoria Cove project site beside the Stevens Street easement, in the middle of block 908, lot 12, but the 1852 Quilitch map does not include this structure (Figs. 10 and 11).

Between 1852 and 1859 most of the salt meadow west of Perrot Avenue was filled to make way for Orchard Street (26th Avenue), which was then opened west of the line of later blocks 906 and 908, and the blocks and a few lots north of Orchard Street were laid out (Fig. 12). In 1857, the Harbor Commissioners established a bulkhead and pier line. Under the mayoralty of Henry S. De Bevoise, who succeeded Abram Ditmars, a deep well was dug and iron water mains laid in the streets to supply the populace with fresh water (Munsell 1882, 283). This followed after the village's charter was revised in 1855. By 1898 at the latest, water pipes had been laid in the streets adjacent to the Astoria Cove project site (Fig. 13).

The 1859 Slator map shows the newly laid out lot of John J. Halsey – son of the famous Stephen Halsey and Manager of the Astoria Gas Works (Fig. 12). A portion of block 909, lot 35 overlapped his lot, but the only house on one of the areas of potential archaeological sensitivity on the project site shown on the 1859 Slator map is Whittemore's, on block 906, lot 1.

By 1866, Whittemore's property had been sold to the Graham family.[4] In that year, Cornelia F. Graham was listed as the owner, when the property was assessed for expenses connected with the curbing, guttering, and grading of Wardell Street (Astoria Trustees). The former Whittemore lot is labeled "R.M.C. Graham" on the 1873 Beers and 1874 Dripps maps.

4 Boyd's 1864-65 *Directory of Astoria, Queens, Long Island, New York* does not list either Whittemore or Graham at this address.

Colonel Robert M.C. Graham Esq., a marine underwriter, was secretary of the New York and Long Island Bridge Company, and one of the village's Board of Trustees (Astoria Trustees). M.C. Graham, listed in the 1869-70 City Directory as "ins (NY)" at "ft Wardell" [foot of Wardell Street] no longer appears in the 1870-71 Directory. The 1880 Federal Census lists the then 50-year old Graham, his 37-year old wife Cornelia F., a sister, two sons and two daughters, at 321 23rd Street in New York.

In 1870, Astoria became a ward within Long Island City. The 1873 Beers map depicts a house on the south side of Orchard Street (26th Avenue) at the northeast corner of block 909, lot 35, in one of the archaeologically potentially sensitive areas of the project site. No property owner is listed for this lot, which adjoined Stephen Halsey's. A new, larger house on the north side of Franklin Street overlapped another of the archaeologically potentially sensitive areas of the project site, at the south end of the easement for Steven's Street (block 908, lot 12), on Josiah Blackwell's property. Note that Stevens Street was planned to run west of Blackwell's property, and therefore also west of its line south of Franklin Street, creating a jog in the road (Dripps 1874).

The 1891 Wolverton map is labeled with old block and lot numbers: block 906, lot 1 is old block 189, old lot 2; block 909, lot 35 is old block 191, lots 5 and part of 4, and block 908, lot 12, is old block 188, lots 1 and part of 2. The Whittemore house still stood on block 906, lot 1 facing the "Boulevard", as Orchard Street east of Perrot Street was then called. North of Boulevard, the latter was named "Perrot Place", while south of the intersection, Boulevard continued south around the curved northwest corner of block 909. South of Boulevard (Orchard Street), there is a frame house on the northeast side of block 908, lot 12, south of the Whittemore / Graham house. Although Stevens Street was planned running up to Pot Cove, a frame stable building sat across its western half, on the Boulevard (block 909, lot 35) – in the same location as the building shown on the 1873 Beers map. Several frame buildings stood at the southern end of the Stevens Street easement, on Franklin Street (block 908, lot 12). There was also a frame stable building straddling Stevens Street at the northeast corner of block 909, lot 35, and another small frame building immediately west of it on this lot. The 1891 Wolverton map shows all the blocks west of Boulevard / Perrot Place divided up into multiple lots, indicating that the intention was to develop the area for residential use. The only manufactures were the Clark & Flagg Kid Leather

Works located on Pot Cove, east of Wardell Street, and the buildings of the United States Government Works spread across the site of the old fort, by then demolished. In the ensuing decades, the blocks north of Orchard Street were built up with industrial buildings rather than residences.

Between 1898 and 1903 the frame houses at: the foot of the Stevens Street easement; on block 908, lot 12, and on the Whittemore / Graham property all disappeared (Figs. 13 and 15; Hyde 1903). The 1898 Sanborn map records that the lot immediately west of block 906, lot 1 was the "Tisdale Lumber & Coal Yard". By 1915, Tisdale occupied all the areas of potential archaeological sensitivity within the Astoria Cove project site (Fig. 14). Aside from a few small sheds and a stable in the Stevens Street easement between block 909, lot 35 and block 908, lot 12, the areas of potential archaeological sensitivity of the project site were devoid of buildings (Hyde 1908).

On the 1913 Hyde Map, the old block numbers are the same as on the 1891 Wolverton, except block 908, lot 12, which is now lot 28. In the areas of potential archaeological sensitivity there were: a frame stable building partly overlapping the section of Orchard Street on the project site; a small, one-story frame building on block 908, lot 12 in the middle of the lot, just off Orchard Street (26th Avenue), and a two-story frame building set well back from Orchard Street mostly in the Stevens Street easement. Block 909, lot 35 was occupied only by a small one and a half story frame building on Orchard Street.

The one-story building currently occupying a portion of block 906, lot 1 was erected in the 1930s when the property was still owned by Tisdale (it does not appear on the 1934 Hyde map, updated from 1928, but does on the 1936 Sanborn map). Between 1936 and 1948, Morey Machine Co. Inc. acquired the commercial properties on blocks 906 and 907. This company's name then appears on the insurance maps up to 1990. Fig. 15 shows that the Whittemore / Graham house was not impacted by the construction of the one-story structure on block 906, lot 1. This portion of the Astoria Cove project site is therefore considered archaeologically sensitive for 19th century remains, in particular, for the cistern that must have provided water for the residents prior to the introduction of city water, and the family's privy.

A second historic building on one of the areas of potential archaeological sensitivity that was not impacted by subsequent building episodes was the one located at the foot of the Stevens

Street easement. This structure, erected by 1850 on Josiah Blackwell's property, is depicted on the 1903 Hyde map as a two-story, brick-faced frame structure. A second, smaller building of the same description stood next to it, on the west side of the Stevens Street easement. These buildings were torn down between 1903 and 1908 (Hyde 1903, Hyde 1908).

A third historic frame building stood on block 908, lot 12, one of the areas of archaeological concern. It was erected after ca. 1860 on the Whittemore / Graham property, and torn down ca. 1900. Except for a small shed (Hyde 1908, 1913, 1919, and 1927), there has not been any subsequent building on this lot since ca. 1900.

V. CONCLUSIONS AND RECOMMENDATIONS

The location of the Astoria Cove project site at the head of a cove near salt marshes on one side and a stream on the other, as well as its gentle elevation, which offered a convenient vantage point, would have made it a prime spot for an Indian encampment or, closer to the water's edge, for a food-processing or tool-working station. Sites ranging in date from Early Archaic through the Woodland period have been identified in the Astoria Cove project site's immediate vicinity. The Native Americans were attracted to the area because of the abundant food supplies provided by the ecologically mixed environment. Testing for prehistoric remains is therefore recommended. Two areas of potential prehistoric sensitivity exist on the blocks and lots flagged by the LPC: near the shore, on block 906, lot 1, and on the hill in the southern parts of block 908, lot 12 and block 909, lot 35. For the former, soil borings are recommended; for the latter, test pits.

Soil borings may determine if prehistoric shell deposits can be correlated with original shoreline surfaces and if pristine deposits of archaeological age are likely to occur within the project footprint. Cultural and faunal material collected from soil cores would be dated and assessed in order to reconstruct discrete episodes of filling that make up the site's stratigraphy and establish whether deposits pre-date historic periods of occupation. The results of such testing would offer a basis for evaluating whether further excavation might be required in order to mitigate future site impacts.

On top of the hill, on block 909, lot 35 and block 908, lot 12, the excavation of test pits is an appropriate method by which to determine the presence or absence of prehistoric archaeological remains. Simple random sampling would be employed for the siting of test pits in the first phase of testing.

It is likely that 19th century remains are preserved in three separate areas on the Astoria Cove project site, on the blocks and lots flagged by the LPC. Mechanical testing using a backhoe is the preferred method of archaeological testing for determining the presence or absence of architectural remains of cisterns, as well as for privy pits. These installations were used for disposing household refuse either after they ceased to perform their original intended function or, in case of privy pits, also possibly while they were still in use. The contents of these repositories

provide insights into the everyday life of households in the past and are particularly relevant when they can be related, through documentary evidence, to specific inhabitants. If cisterns or privies are located and are found to possess archaeological integrity, they would be excavated by hand and any artifacts, including faunal remains would be collected, catalogued and analyzed.

The most significant historic remains in the areas of potential archaeological sensitivity would be those connected with the owners of the Whittemore / Graham residence on block 906, lot 1, erected between 1836 and 1852 and demolished between 1898 and 1903. Initial investigation of the building's footprint and potential cistern, built either on to the back of the building or free-standing in its backyard, could be conducted prior to the removal of the existing, one-story building on the site. However, if either the cistern or the privy that no doubt also existed on the site were not discovered in the area currently occupied by a parking lot, testing of the area presently covered by the one-story building would be required after the building was removed and prior to further development on the site. The second area that is archaeologically sensitive for historic remains is the foot of the Stevens Street easement, where a building stood between 1836 /1850 and 1898 /1903. If this was also a residence, it would have been equipped with a cistern and privy. The third area to be investigated is the footprint and backyard installations of the former building on block 908, lot 12, dated ca. 1860 to ca.1900.

Testing for both prehistoric and historic archaeological remains could be conducted concurrently. A proposal detailing the methodology that would be applied and the research questions it would address would be prepared in consultation with the Landmarks Preservation Commission and presented for approval prior to the commencement of archaeological field testing.

VI. BIBLIOGRAPHY

Astoria

1835 *Map of Property at Hallett's Cove Sunswick Point...*

1840 *Map of the Villages of Astoria Late Hallett's Cove and Ravenswood Long Island.*

Astoria Trustees

1839-1870 Old Town Records. Village of Astoria. Trustee Minutes. Municipal Archives microfilm, roll 86.

Astoria Village (n.a.)

n.d. Vertical Files. The Queensborough Public Library

Beers, J.B.

1873 *Atlas of Long Island, New York*, pl. 49. New York.

Boesch, E.

1997 *Archaeological Evaluation and Sensitivity Assessment of the Prehistoric and Contact Period Aboriginal History of Queens, New York.* Unpub. MS. Landmarks Preservation Commission, New York.

Bolton, R.P.

1922 "Indian Paths in the Great Metropolis". *Indian Notes and Monographs.* Misc. No. 23. New York: Heye Foundation.

Dripps, M.

1874 *Map of Long Island City Co. N.Y. Showing Farm Lines &c. &c.*, M. Dripps: New York.

G.C. Environmental, Inc.

2006 *Phase I Environmental Site Assessment of Super Stud Building Products 8-01 26th Avenue, Astoria, New York 11102 JP Morgan Chase ERM File No. CH06-00914.* Ardsley, NY.

Gordon, Thomas F.

1836 *Gazeteer* (sic) *of the State of New York.* Philadelphia.

Historical Collections

1988 *Historical Collections of the Borough of Queens, New York City, copied from the Original Reports in the Topographical Bureau of the Borough.* Vol. 4 *Astoria*. WPA.

Historical Perspectives
1988 *Phase IA Archaeological Assessment Report for the Department of City Planning, Site 4: West Astoria, Queens, CEQR 87-201Q.*

Hyde, E. Belcher
1903 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 8.

1908 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 8.

1913 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 8.

1919 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 8.

1927 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 8.

1928 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 27.

1934 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 27.

1949 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 27.

1979 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 27.

1990 *Atlas of the Borough of Queens, City of New York.* New York: E. Belcher Hyde. Vol. 2, pl. 27.

Kelsey, J.S.
1896 *History of Long Island City, New York...* New York.

Kross, J.
1983 *The Evolution of an American Town: Newtown, New York, 1642-1775.* Philadelphia: Temple University Press.

Leslie's
1898 *History of the Greater New York.* Vol. III. New York: Arkell Publishing Co.

Montrose
2012 Survey No. 33888-4 [Survey map of the Astoria Cove Project Site]. Montrose Surveying Co., LLP. Richmond Hill, NY. May 30, 2012.

Munsell, W.W.
1882 *History of Queens County*. New York: W.W. Munsell & Co.

Nichols, Michael
n.d. "Hell Gate" Names of Fear, Fear of Names". Gotham History Blotter. Gotham Center for New York City History, http://www.gothamcenter.org/blotter/?p=804

Parker, Arthur C.
1922 "New York, New York County", in: The Archaeological History of New York. *New York State Museum Bulletin*, Nos. 237-238.

Quilitch, E.T.
1852 *Map of the Village of Astoria Queens Co. Long Island.*

Richardson, J.
1871 "The Unbarring of Hell Gate". *Scribner's Monthly* vol. 3, Issue 1, 33-53.

Sanborn
1898 Insurance Maps of the Borough of Queens, city of New York. Volume Two.

1915 Insurance Maps of the Borough of Queens, city of New York. Volume Two.

1936 Insurance Maps of the Borough of Queens, city of New York. Volume Two.

1948 Insurance Maps of the Borough of Queens, city of New York. Volume Two.

1950 Insurance Maps of the Borough of Queens, city of New York. Volume Two.

Seyfried, V.
1984 *300 Years of Long Island City, 1630-1930*. Garden City, NY: V.F. Seyfried.

Slator, T. and J.
1859 *Map of the Village of Astoria and Part of Ravenswood Queens Co. L.I.* T. and J. Slator: New York.

Smith, E.A.
1850 *Map of Valuable Building Lots in the Village of Astoria and the town of Newton, Queens*.

Stokes, I.N. Phelps
1926 *The Iconography of Manhattan Island, 1498-1909*. Vol. 5. New York: Robert H. Dodd.

Tri-State Drilling Tech, Inc.
2007 *Subsurface Soil Test Boring Report Property Located at: 9th Street and 26th Avenue Astoria, New York. Block 906 Lots 1 & 5; Block 907 Lot 1; Block 908 Lot 12; Block 909 Lot 35. Garden City NY and New Hyde Park, NY.*

USCS
1851 *Hell Gate and its Approaches Survey of the Coast of the United States*. F.R. Hassler & A.D. Bache Superintendents.

Wolverton, Chester.
1891 *Atlas of Queens Co., Long Island, New York*, pl. 7.

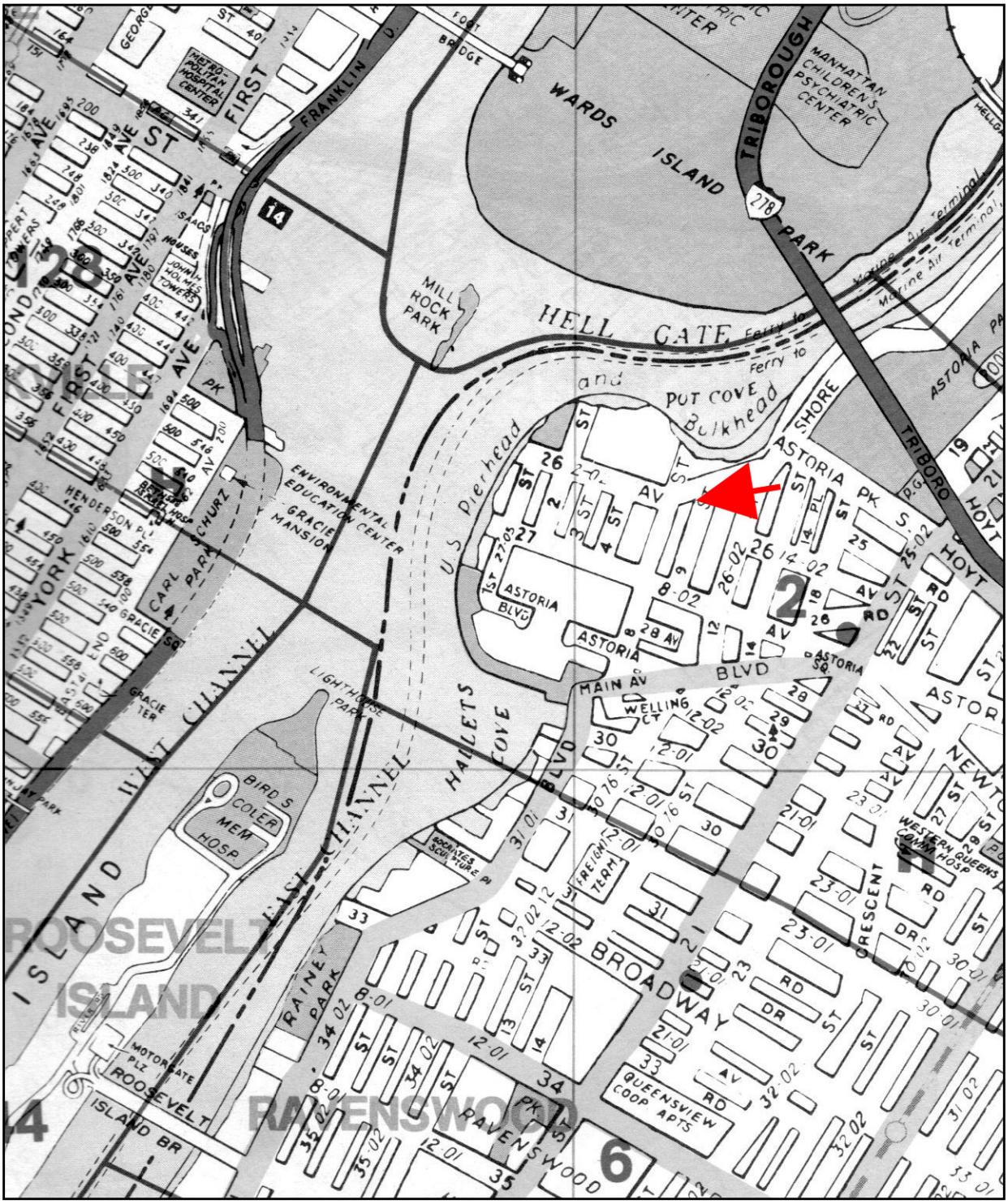


Fig. 1a. Hagstrom map showing the approximate location of the project site

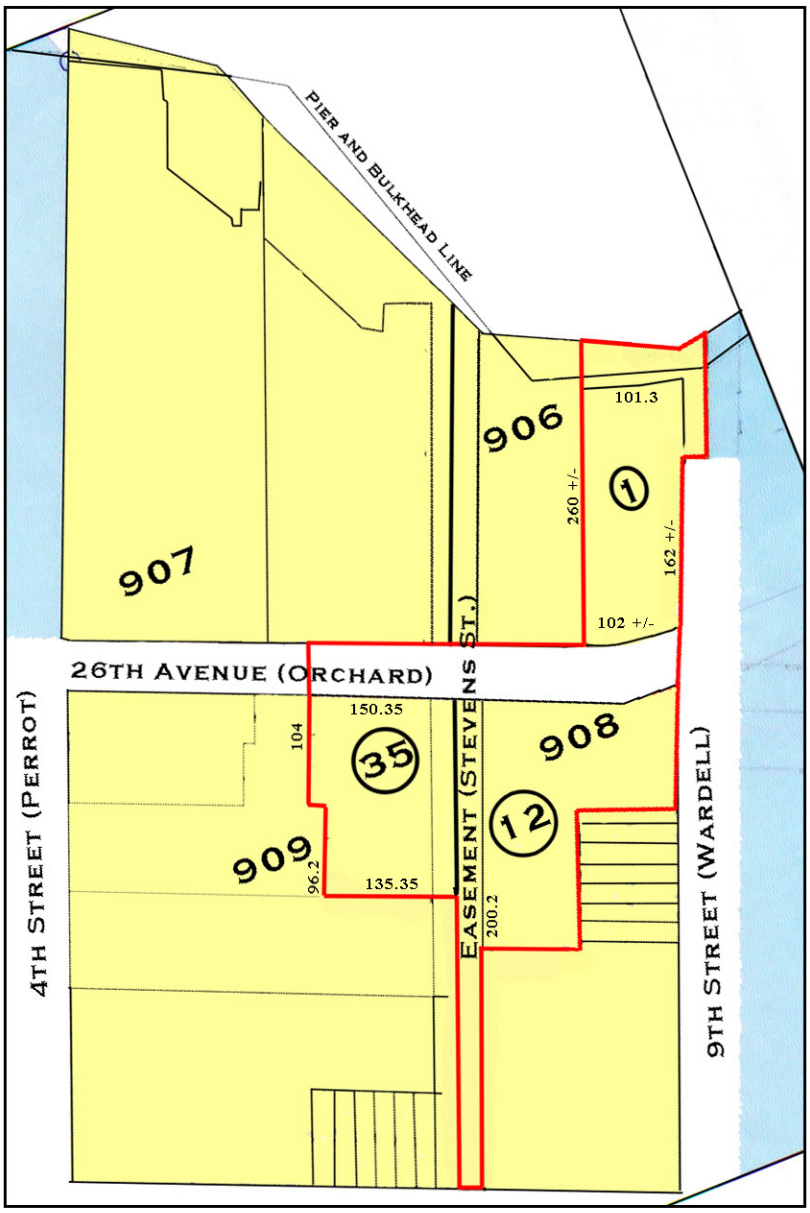


Fig. 1b. Tax map of the project site: area shaded in yellow is the Astoria Cove Project site, lots outlined in red are the project site assessed in this report



Fig. 2. Looking north from the southeast side of block 908, lot 12 across 26th Avenue and the south side of block 906, lot 1



Fig. 3. Looking west from 9th Street down 26th Avenue; block 908 lot 12 on the left, block 906, lots 1 and 5 on the right



Fig. 4. View of the northern end of block 906, lot 1 looking west



Fig. 5. View of the northern end of block 906 lot 1 looking southwest



Fig. 6. View of the easement for Stevens Street on block 908, lot 12, looking north from 27th Avenue



Fig. 7. View of part of block 909, lot 35 looking southwest from 26th Avenue

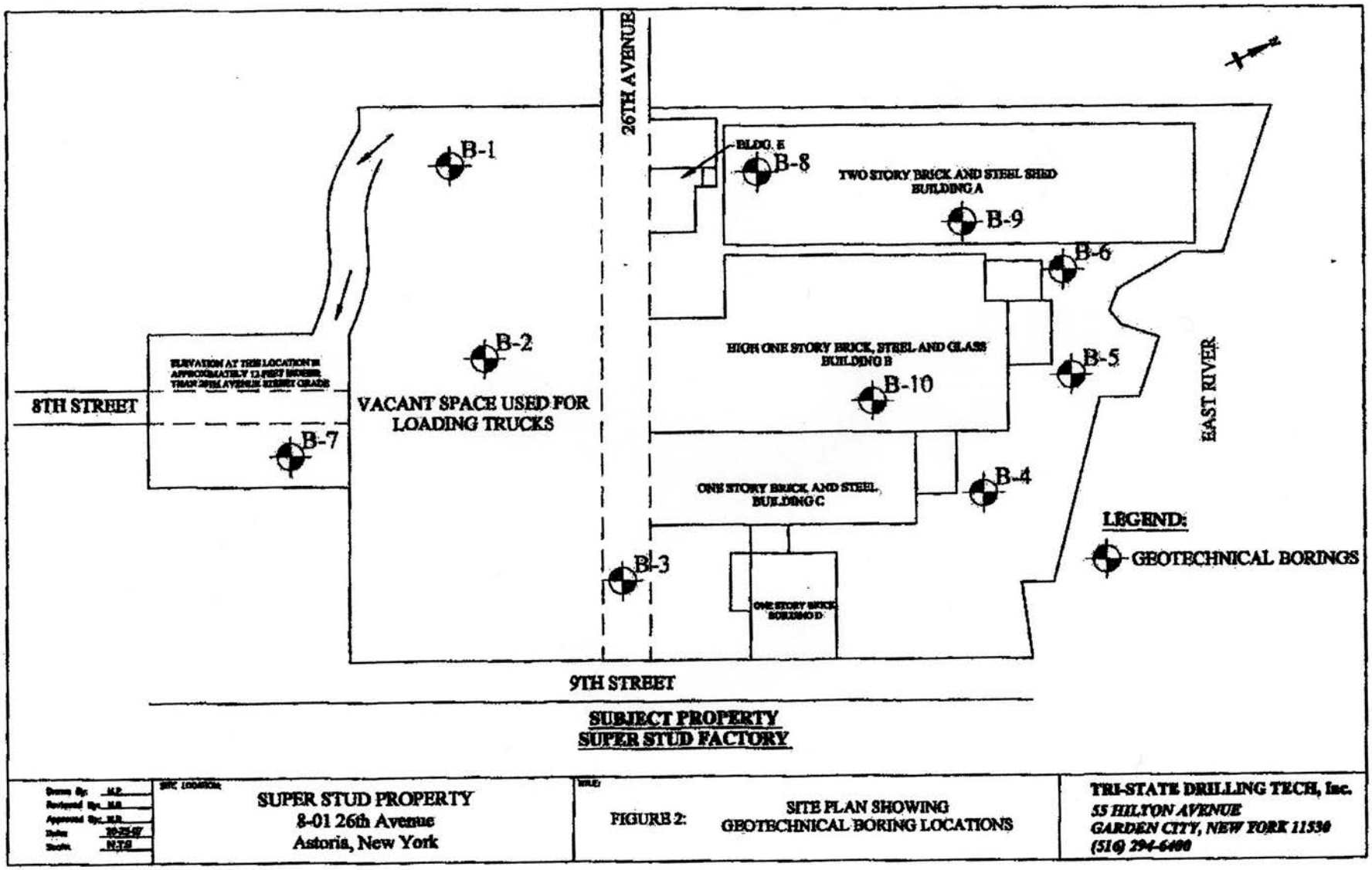


Fig. 8. Plan created by Tri-state Drilling Tech, Inc. showing the location of their soil borings

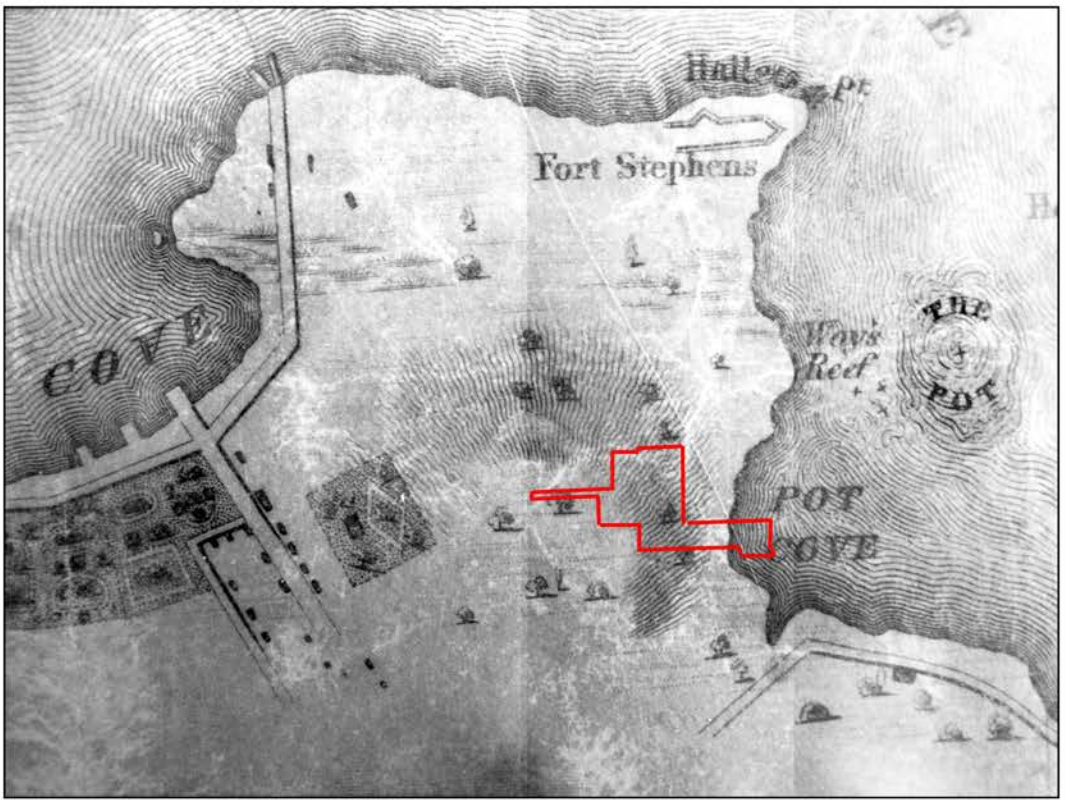


Fig. 9. 1836 Colton map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

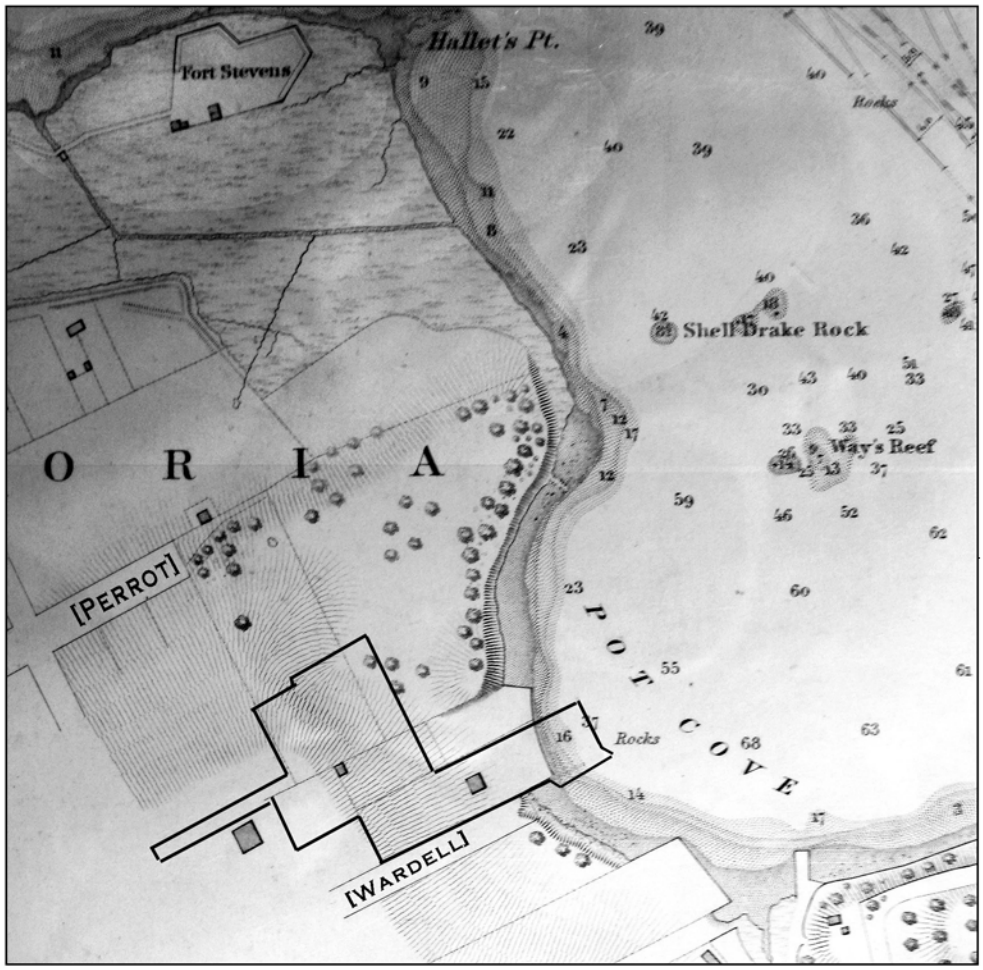


Fig. 10. 1851 USCS map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

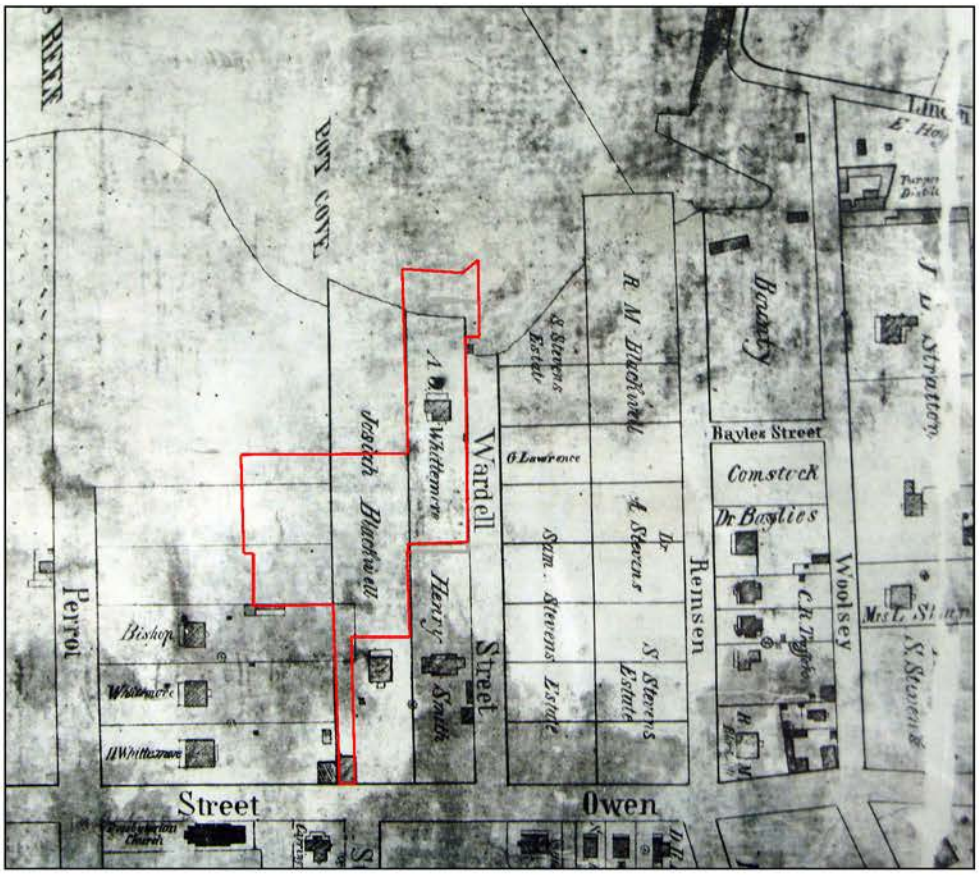


Fig. 11. 1852 Quilitch map showing the approximate location of the areas of potential archaeological sensitivity on the Astoria Cove project site

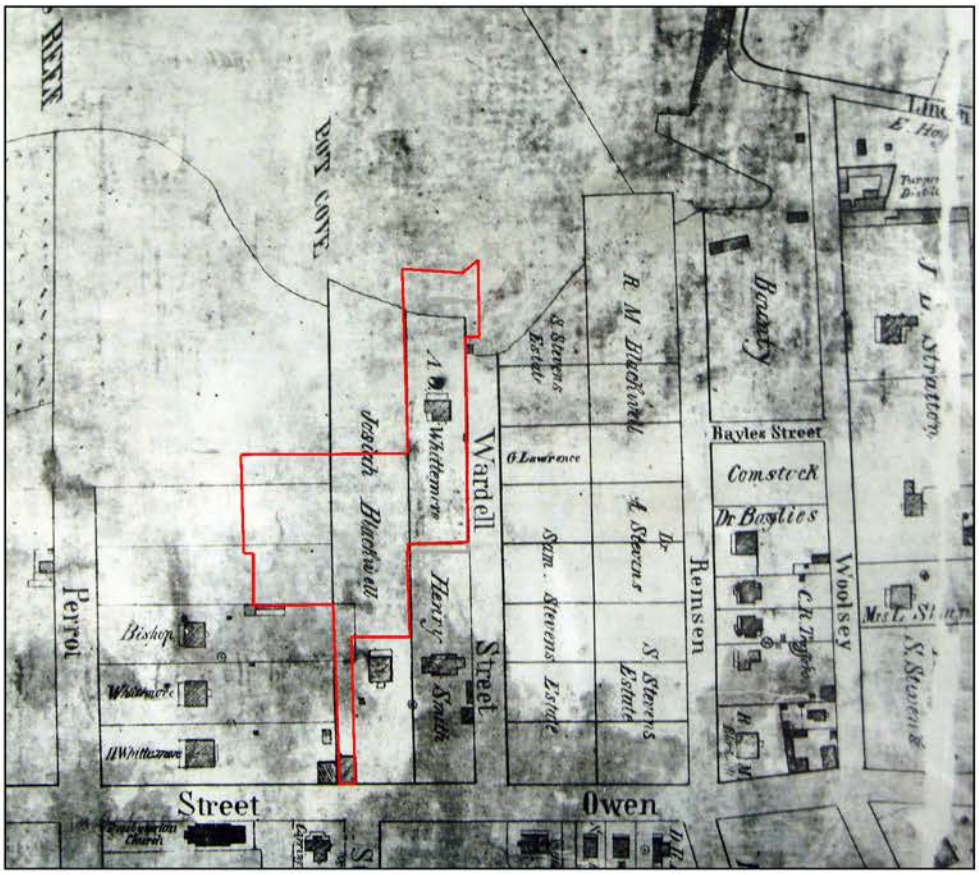


Fig. 12. 1859 Slator map showing the location of the areas of potential archaeological sensitivity on the Astoria Cove project site

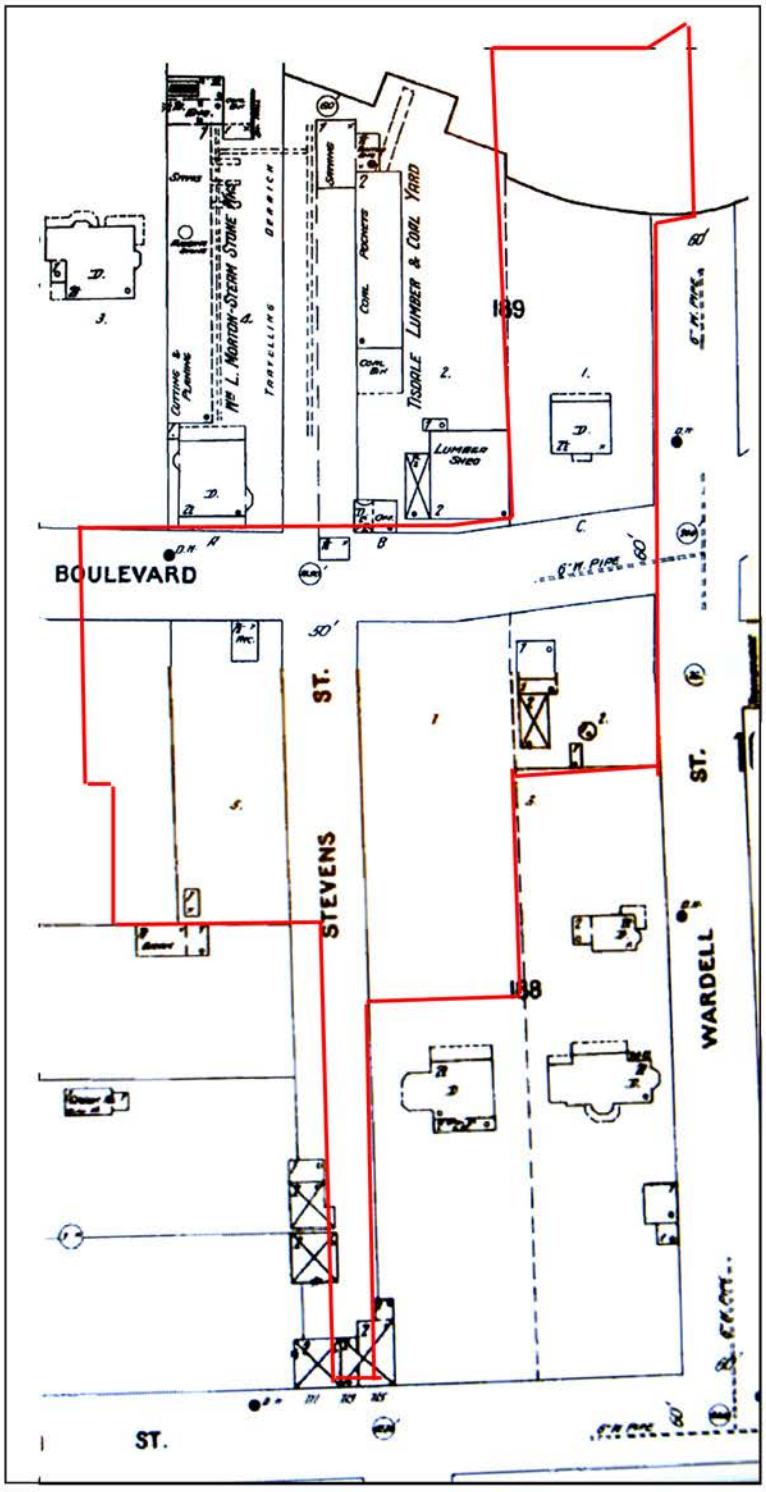


Fig. 13. 1898 Sanborn map showing the approximate location of the project site

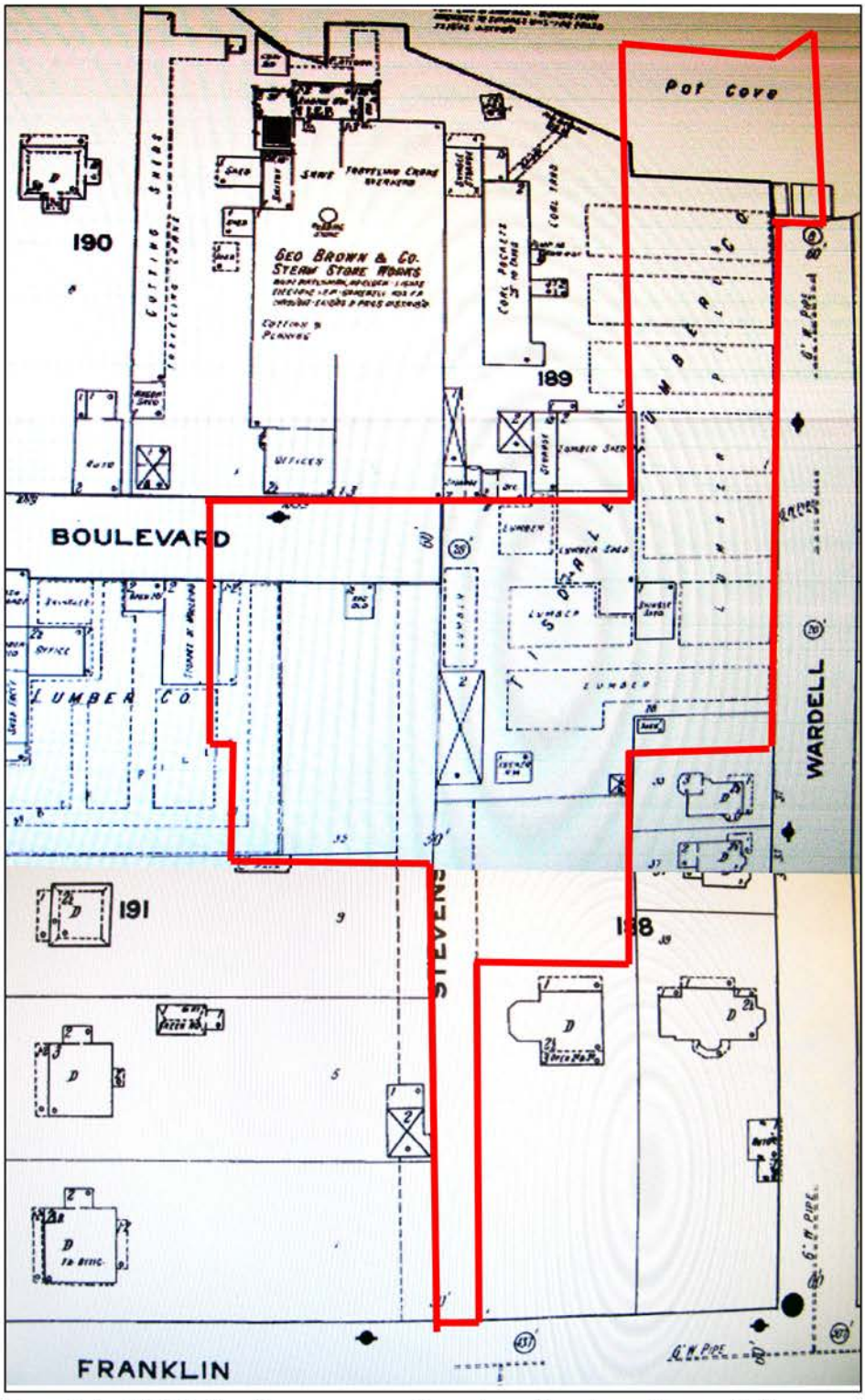


Fig. 14. 1915 Sanborn map showing the location of the areas of potential archaeological sensitivity on the Astoria Cove project site

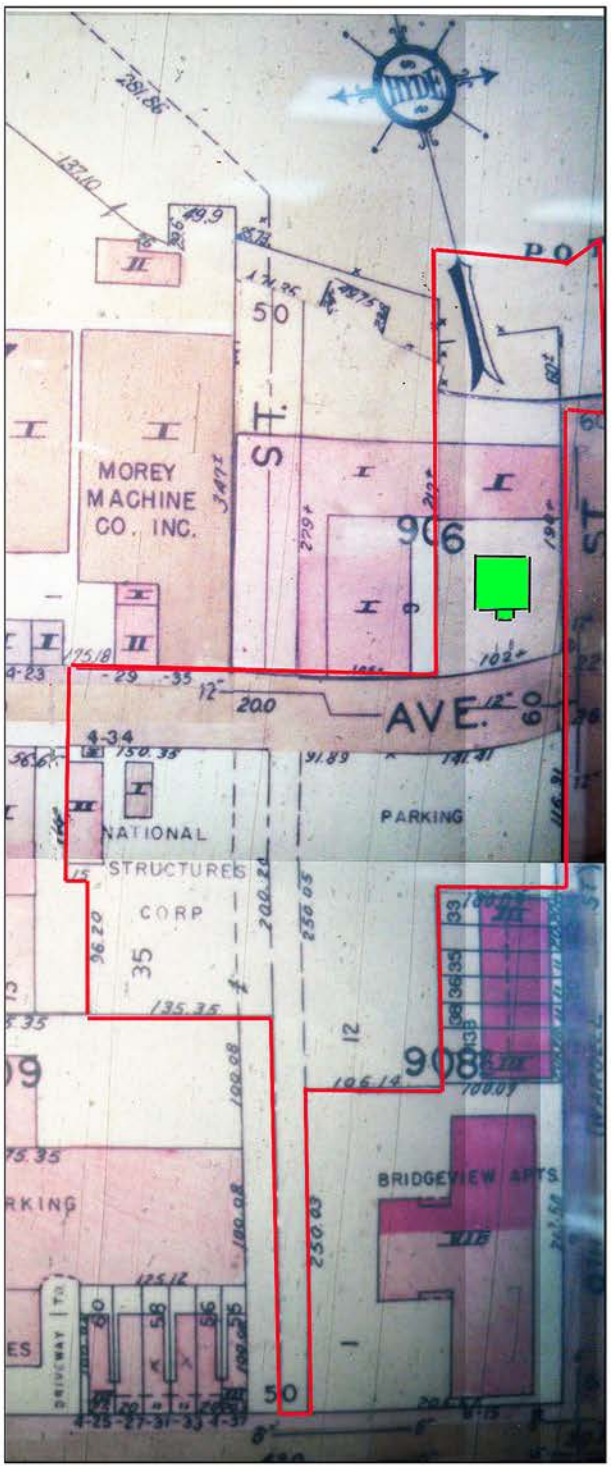


Fig. 15. 1979 Hyde map showing the location of the areas of potential archaeological sensitivity and the approximate location of the former Whittemore house (in green)

Celia J. Bergoffen, Ph.D., R.P.A.
329 West 76th Street, #3B, NY, NY 10023 t./f: 212 721-9855 / 917-797-0594 -celia_bergoffen@fitnyc.edu

July 31, 2013

Project name: Astoria Cove Development

Proposal for Phase 1B Archaeological Field Testing and Mitigation
Block 906, lot 1, Block 908, lot 12, and Block 909, lot 35

I. Introduction

The Landmarks Preservation Commission's review of archaeological sensitivity models and historic maps indicated that there is potential for the recovery of remains from Native American and 19th Century occupations on a portion of the Astoria Cove Development site, on block 906, lot 1; block 908, lot 12, and block 909, lot 35. Lots 12 and 35 also include most of the Stevens Street easement. Located near the middle of "Pot Cove", these lots comprise both shoreline and immediately adjacent upland tracts. The southern part of block 908, lot 12, and block 909, lot 35 are partly wooded, and there is a one-story building on block 906, lot. The open areas of these lots are used for storage and parking.

Celia J. Bergoffen Ph.D., RPA prepared a phase IA archaeological assessment that incorporated data from primary and secondary documentary sources such as historic maps and local histories, as well as soil boring data obtained by Tri-State Drilling Tech Inc. (2007) and a detailed survey created by Montrose Surveying Co., LLP (2012). The archaeological assessment concluded that all three lots were sensitive for the recovery of potential archaeological remains and that none of these will have been negatively impacted by subsequent construction.

II. Prehistoric Potential and Initial Research Questions

Typically, traces of prehistoric occupation along shorelines are found either on elevated areas near the mouths of estuaries or in coves where fish and shell fish were more easily obtainable. More commonly, along shorelines, shell middens may be found. These shell piles, which may reach tens of feet in height, represent locations where shell fish were harvested (rather than

occupied sites). Plotting the location of such sites and the density of the remains provides data from which land use patterns and the movements of prehistoric populations may be reconstructed. Additionally, tools, weapons, or other objects may be recovered that could provide information about chronology, trade in raw materials or diet.

The location of the Astoria Cove Development site at the head of a cove near salt marshes on one side and a stream on the other, as well as its gentle elevation, which offered a convenient vantage point, would have made it a prime spot for an Indian encampment or, closer to the water's edge, for a food-processing or tool-working station.

Native Americans were attracted to this part of present-day western Queens because of the abundant food supplies provided by the ecologically mixed environment. But while sites ranging in date from Early Archaic through the Woodland period have been identified in the Astoria Cove project site's vicinity, this writer found no record of investigations around the cove itself -- in spite of Jackson and Melnick's assertion that Pot Cove was the site of a Native American settlement.[1] Although traces of prehistoric presence in this area are to be expected, it remains to be determined how or whether the shore and elevated areas in this particular locality were used.

The assessment report concluded that there were two areas of potential prehistoric sensitivity and recommended archaeological testing:

a. Near the shore, on block 906, lot 1, and

b. On the hill in the southern parts of block 908, lot 12 and block 909, lot 35.

III. Historic potential and initial research questions

There is little likelihood of finding remains pre-dating the 1830s, when Astoria Village was established. It may be noted, however, that during the Revolutionary War the British were encamped near the Astoria Cove Development site in the area corresponding today to the south side of 27th Avenue near 1st Street. Moreover, a block house "Castle Bogardus", built during the

[1] Jackson, Thomas and Melnick, Richard. *Long Island City (Images of America).* Greater Astoria Historical Society, 2004.

war of 1812, stood next to the site on the south side of 27th Avenue west of 8th Street.

The earliest recorded development on the blocks and lots flagged as archaeologically sensitive was residential, and occurred between ca. 1836 and 1850. Prior to the introduction of city water and sewage, dwellings such as these would have been equipped with cisterns and privies. Cisterns were either built against the rear wall of the dwelling or were excavated in the backyards. In either case, most of the structure was below ground. Both cisterns and privies were used for disposing household refuse either after they ceased to perform their original intended function or, in case of privy pits, also probably while they were still in use. The contents of these repositories provide insights into the everyday life of households in the past and are particularly relevant when they can be related, through documentary evidence, to specific inhabitants.

The two earliest developments north of 26th Avenue in Astoria were located on the project site, and both owners are known. A dwelling, on block 906, lot 1, belonged to A.O. Whittemore, and a second building stood on the property of Josiah Blackwell, across the road from his residence on the south side of 26th Avenue. The former was built between 1836 and 1852 and demolished between 1898 and 1903; the latter was erected between 1836 and 1850 and demolished between 1898 and 1903. By 1866, the Whittemore property was sold to R.M.C. Graham. The Grahams (and possibly already the Whittemores) also owned a building located on block 908, lot 12. The Blackwell family, and Colonel Robert M.C. Graham Esq. are well-known as prominent members of the early Astoria community.

Three areas connected with these dwellings were flagged as potentially archaeologically sensitive for remains of cisterns and or privies dated to the second half of the 19th century:

a. The back and yard of the building on the Blackwell property, at the foot of the Stevens Street easement on block 908, lot 12;
b. The back and yard of the building belonging to the Whittemore / Graham families on block 908, lot 12, and
c. The back and yard of the Whittemore / Graham dwelling on block 906, lot 1.

IV. Procedures for archaeological testing

Description of testing methods

The archaeological testing proposed would consist of a combination of soil borings, mechanical testing using a backhoe, the excavation of shovel test pits, and excavation by hand of any archaeological features that might be discovered.

Soil borings are an appropriate testing method in areas where successive episodes of filling are known to have occurred, and where the depth of fill over potential cultural deposits is too great to permit shovel testing. Borings in shore locations, as in the present case, may determine if prehistoric shell deposits can be correlated with original shoreline surfaces. Cultural and faunal material collected from soil cores would be assessed in order to obtain a more detailed picture of the site's stratigraphy in the archaeologically sensitive areas; to determine the date and depth of the discrete episodes of historic filling, and to test for the presence or absence of prehistoric deposits underlying these fills. The results of such testing would offer a basis for evaluating whether further excavation might be required in order to mitigate future site impacts.

In general, a backhoe may used either to prepare portions of a site for hand excavation or as method for testing for archaeological remains. In the first case, the backhoe removes surface debris, asphalt, road-bedding material and any modern fills or refuse. In the second case, mechanical testing consists of equipping a backhoe with a flat-edged shovel and, following the removal of any asphalt and road-bedding, of scraping away soil layers in shallow increments until architectural remains or other occupational features such as pits are encountered. These are then further investigated by hand excavation in order to determine their possible significance and archaeological integrity (state of preservation).

As described in the LPC's "Guidelines for Archaeological Work in New York City" (2002), "Shovel testing consists of hand excavating a series of small test pits throughout thepotentially sensitive portions of the site. These test pits can indicate whether there are artifacts present from specific time periods, and the extent to which the resources have been preserved." Soils removed

from test pits are sifted through a 0.65 cm (quarter-inch) screen, and any artifacts recovered collected and processed (see below).

Areas of potential prehistoric sensitivity: Proposed methods and locations of testing areas

a. The area near the shore, on block 906, lot 1

We propose performing six soil borings near the northern end of the lot in order to gain additional information about the depth of modern fills, recorded as 11.83 feet at the river end of 9th Street (Montrose Surveying Co. plan 2012). The borings will also provide data from which to reconstruct the location and depth of the original shoreline surface. Any cultural or faunal material recovered in the corings would be collected and if possible, dated (including by carbon 14 testing, where feasible). The area where we propose to perform the borings is shown on Fig. 1**.** As work progresses, some locations may prove unfeasible and additional testing locations may be proposed. Depending on the results of the borings, further testing using a combination of backhoe for the removal of fills, and hand excavation, for the recovery of cultural deposits, may be indicated. In that case, a proposal for Phase II testing in this area would be created in consultation with the LPC.

b. The hill extending across the southern part of block 908, lot 12 and block 909, lot 35

This area, which is partly wooded, will be investigated by excavating test pits, as described above. Simple random sampling would be employed for the siting of test pits in the first phase of testing. We propose excavating a minimum of 50 test pits at 20 foot intervals in the areas shown on Fig. 1. Depending on the results of the test pits, further testing using a combination of backhoe, for the removal of fills, and hand excavation, for the recovery of cultural deposits, may be indicated. In that case, a proposal for Phase II testing in this area would be created in consultation with the LPC.

Areas of potential historic sensitivity: description of proposed testing site locations

a. The back and yard of the former dwelling at the foot of the Stevens Street easement, block 908, lot 12, and

b. The back and yard of the former building on block 908, lot 12

These areas would be investigated by mechanical testing to determine the location of the former buildings' footprints and any cistern potentially built on the back of the structures. A series of test trenches approximately 6.0 feet wide would be opened as indicated on the plan, Fig. 1, and excavated down to virgin soil.

c. The back and yard of the former dwelling on block 906, lot 1

Part of yard of this dwelling, which may require archaeological testing, is covered by a one-story building. Initial testing, however, may be conducted on the currently accessible portion of the lot in order to trace the historic building's footprint and to determine whether a cistern was built on its back wall. The currently accessible part of the former yard would also be tested to locate a possible free standing cistern or privy. If one or neither of these features is located, the client will remove the one-story building in order that further testing be conducted below it to complete this portion of the archaeological testing and before further construction on this lot takes place. The testing method would consist of opening a series of test trenches approximately 6.0 feet wide, as indicated on the plan, Fig. 1, down to virgin soil.

V. Processing, analysis and curation of archaeological finds

Following the completion of the archaeological field testing, artifacts and faunal remains collected during the excavation will be cleaned, identified, catalogued and, where appropriate, reconstructed, individually labeled, photographed, drawn, or conserved.

Osteological remains will be studied by a physical anthropologist, while all other artifacts will be studied by the Principal Investigator. Reports on cultural and faunal remains will be incorporated in the final field testing report.

The client agrees to make any artifacts of historic significance that may be found available for exhibition and scholarly study.

VI. Preparation of the final report

A report on the results of the archaeological testing will be created that will include a description of the project's goals, the methodology employed, and the work performed. The report will be illustrated by site photographs, and plans and sections showing the location and profiles (where applicable) of soil borings, test pits, backhoe trenches and any features these might contain. The report will also include catalogues and analyses of any cultural or faunal remains collected, together with photographs of a representative sample.

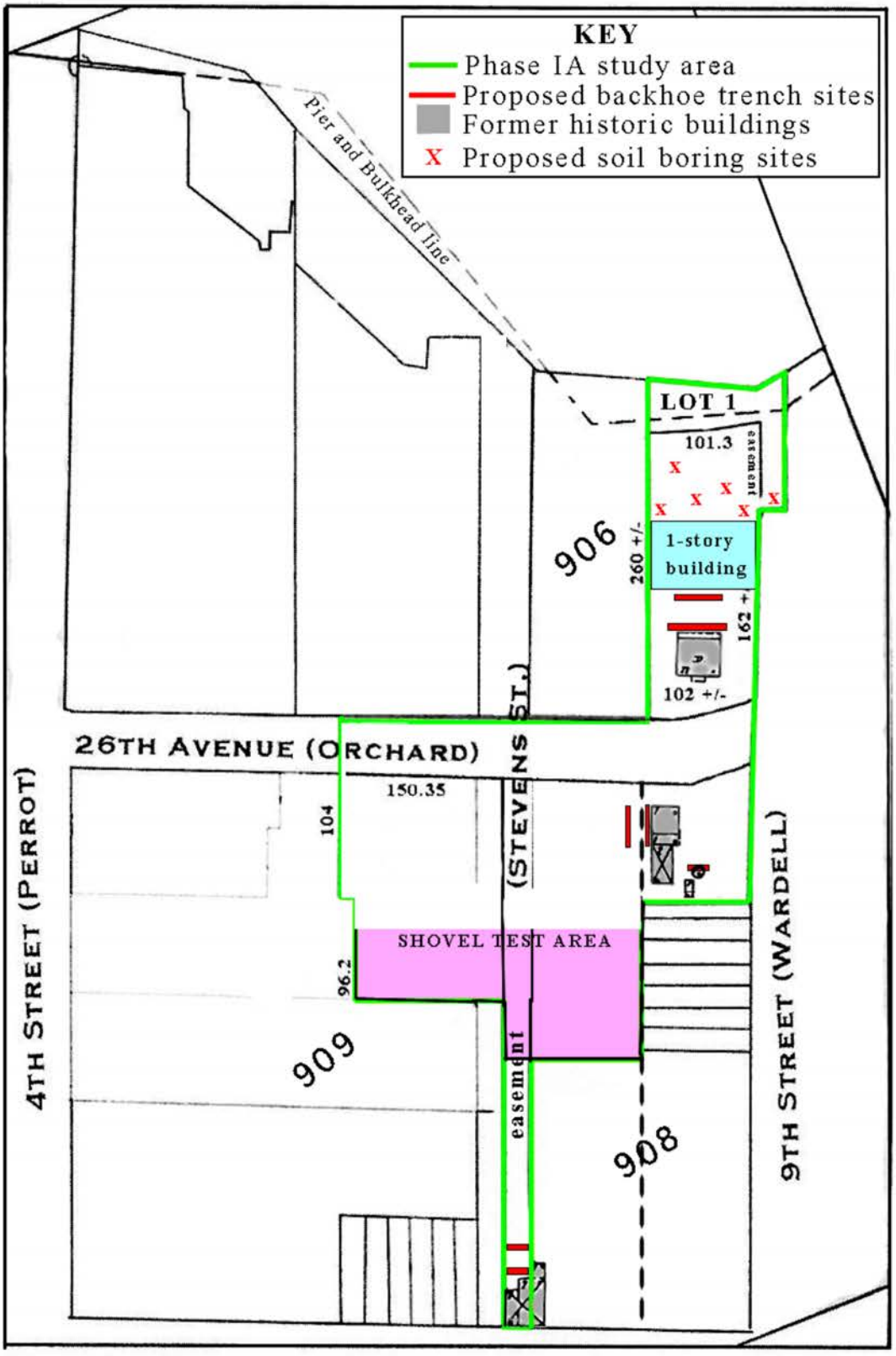


Fig. 1. Plan showing the phase IA archaeological assessment study area and the proposed phase IB testing sites