



*Revised January 2, 2008
December 17, 2007*

Mr. Vivek Nattanmai
New York State Department of Environmental Conservation
Remedial Bureau D
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7013

**Re: Construction Fill in Greenpoint
 Empire State Varnish Company, Inc.
 38 Varick Street, Brooklyn, NY 11222
 NYSDEC Site ID # 224123
 RCRA Case # C02-20030729-161**

Dear Mr. Nattanmai:

As per your request, CA Rich Consultants, Inc. (CA RICH) is pleased to submit this document on behalf of the Empire State Varnish Company, Inc. (EMPIRE) to support ongoing Site Closure activities at the above-referenced property ("the Site"). This letter report documents evidentiary information that low-lying lands surrounding the Site along and in relative close proximity to Newtown Creek were progressively filled-in during the late 1800's. It has specifically been prepared to document the timing of the fill placement and that benzo(a)pyrene is commonly found in soil samples collected from the fill in the Greenpoint area.

The construction-fill utilized at that early time of New York City industrial and commercial development, and particularly within the area of Greenpoint Brooklyn, as well as, other urbanizing areas elsewhere within the City have been known to contain residual chemical compounds and constituents that gradually accumulated from decades of historical industrial land usage in which accidental and/or incidental chemical discharges to land, sewer or surface water was relatively routine and recurring. The Site location is depicted on Figure 1.

During the late 1800's and through most of the early 1900's, the portion of Greenpoint situated along Newtown Creek was chiefly utilized for industrial purposes relating to petroleum refining and storage. The presence of the Newtown Creek itself supported the industrial area by means of a shipping path for barges and as a means for waste discharges prior to the advent and distribution of sewage treatment plants.

This long-term historic industrial use resulted in numerous petroleum-based industries and storage terminals centralized in the Greenpoint area along Newtown Creek. A well-documented underground oil spill (“the Greenpoint Spill”) occurred here in this part of Greenpoint, NY and is attributable to these historical petroleum storage terminals that thrived in this neighborhood. The Greenpoint Oil Spill lies beneath approximately 55-acres of contiguous industrial lands in this part of Greenpoint. It occurs at water table depths beneath the entire Empire Site property and its environs. During the past decade, the ExxonMobil Refining & Supply Company along with ChevronTexaco and others have performed extensive environmental testing and historical research in efforts to delineate the nature and extents of the spill, most of which has been subject to review, approvals and ongoing regulatory oversight by the New York State Department of Environmental Conservation (DEC). CA RICH utilized public documentation associated with the Greenpoint Spill and chemical data provided by ChevronTexaco’s consultant SAIC to research and help characterize area-wide surficial fill.

During the recent exhumation and removal of numerous underground storage tanks (USTs) at the Empire Site, CA RICH observed earth fill and sediments along the edge of the UST excavation that contained sediment and debris similar to construction fill commonly found in low-lying lands in Brooklyn and Queens (oftentimes referred to as ‘made land’ on USGS topographic quadrangle maps). To document approximately when these fill materials were placed upon the land, CA RICH reviewed publicly available and accessible sequential historical maps of both Greenpoint and the Newtown Creek shoreline. Our review included maps and illustrations obtained of the Eastern District of Brooklyn as compiled by Eugene L. Armbruster in 1912 (Ref. 1), as well as, a map from a U.S. Coast Survey in 1844 (Ref 2.).

Review of these maps confirms that the southern shoreline of Newtown Creek extended very near the northern Empire Varnish Site boundary running along and parallel to the current Bridgewater Street until at least 1844. A much older illustration from 1638 that we reviewed depicts the entire area along the south side of Newtown Creek between Whale Creek and Wyckoff’s Creek as a low-lying marshland or meadow. A comparison of a more recent topographic map from 1900 along with a Sanborn Fire Insurance Map from 1888 documents that the Newtown Creek Shoreline immediately north of the Site was artificially filled-in to augment buildable land to facilitate growing industrial development along the south side of Newtown Creek. The historic maps are included in Appendix A & B.

Benzo(a)pyrene is a chemical compound produced as a byproduct of combustion and is a component of fuel. This compound was recently detected above applicable NYSDEC Part 375 Commercial Cleanup level of 1,000 parts per billion (ppb) (Ref. 4) in various endpoint earth fill samples collected from the perimeter of an underground storage tank (UST) excavation at the Site. The elevated sample results are illustrated on Figure 2. However, a review of chemical tests obtained by SAIC along the north side of Bridgewater Street indicates that elevated levels of benzo(a)pyrene have been detected at varying depths in subsurface soil/fill samples extending all the way along the roadway from Meeker Avenue to Apollo Street (Ref. 5). The elevated results, as provided by SAIC, ranged from 14,000 ppb beneath the parking lot on the corner of Meeker Avenue and Bridgewater Street to 1,100 ppb beneath the loading dock area of 50 Bridgewater Street. The sample locations, depths, test results and the approximate location of the Newtown Creek shoreline in 1844, are depicted on Figure 3.


Historical maps of Greenpoint document that the Empire Site and its environs to the north toward Newtown Creek were filled-in during the late 1800's to promote development pertaining to the petroleum industry. A review of sample results collected off-site by SAIC in construction fill document detected levels of benzo(a)pyrene similar to, and consistent with, those levels detected in the surficial earth fill materials found at the Empire Site and are not considered attributable to former varnish production operations. Furthermore, benzo(a)pyrene is rather immobile when present in the environment because it tends to adsorb to earth fill and soil particles, as opposed to desorption and potential percolation of chemical downward possibly into underlying groundwater.

The main environmental concern with the residual presence of benzo(a)pyrene remaining in the subsurface is the potential or existing human health exposure pathway that would be caused by direct contact. The geographic locations of the elevated subsurface detections on-site are all currently partially covered with a concrete slab. The concrete slab effectively prevents the potential for any direct human exposure. In addition, it is our understanding that the planned future use of this property by the new Owner (ExxonMobil) will be to facilitate installation of an additional product recovery well system(s) designed for the express purpose of further augmenting the ongoing area-wide environmental remediation efforts of the Greenpoint Oil Spill.

We hope this data and map review is informative. Please confirm that the information presented in this document provides DEC with the basis to conclude that no further action is required regarding the detections of benzo(a)pyrene in fill materials at the Empire Site. If you have questions, please do not hesitate to call us at your earliest convenience.

Respectfully submitted,

CA RICH CONSULTANTS, INC.


Stephen Malinowski
Project Manager

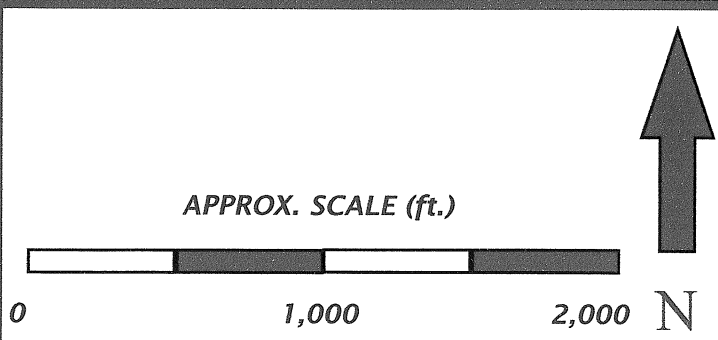
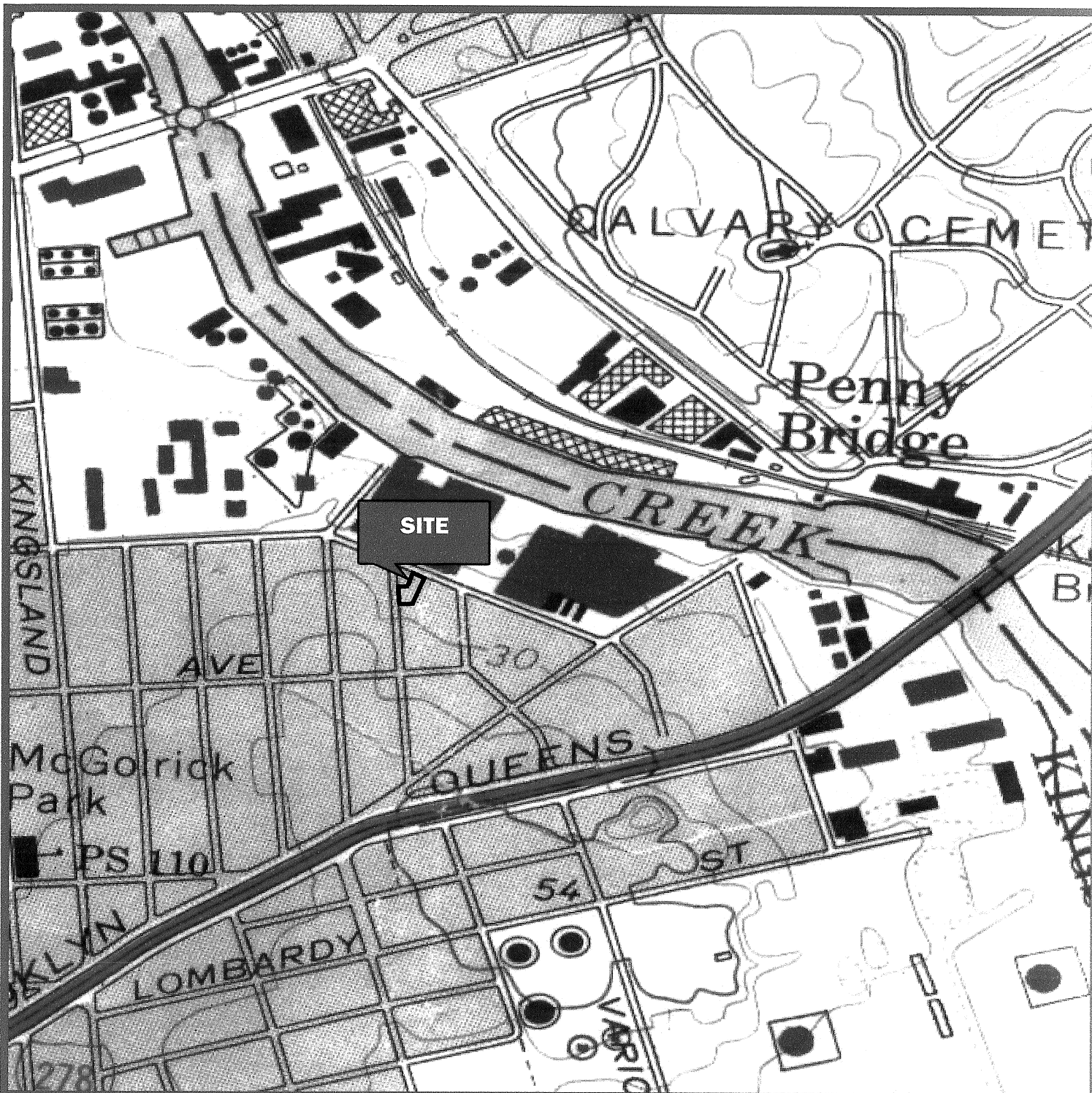
STM/vw/car
Attachments

cc: Christopher Proce, Roux Associates
Michael T. Millar, McCusker, Anselmi, Rosen, Carvelli & Walsh
Richard Stark, Empire State Varnish
Stephen B. Latham, Esq., Twomey, Latham, Shea & Kelly, LLP
Steve P. Trifiletti, ExxonMobil

REFERENCES

1. Armbruster, Eugene L., 1912, Maps and Illustrations of the Eastern District of Brooklyn.
2. EDR Sanborn Fire Insurance Map, 1888, Greenpoint, Brooklyn.
3. Roux Associates, January 4, 2005, Draft Peerless Importers Remedial Investigation.
4. NYSDEC, December 2006, 6NYCRR Part 375 Environmental Remediation Programs Subparts 375-1 to 375-4 & 375-6.
5. SAIC, July 2005 through August 2007, Benzo(a)pyrene soil results at the Former Paragon Oil Terminal.

Figures



Adapted from Topographic quad for Brooklyn 1979.

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
17 Dupont Street, Plainview, NY 11803

TITLE:

PROPERTY LOCATION MAP

DATE:

9/1/05

SCALE:

AS SHOWN

FIGURE:

1

**Empire State Varnish
38 Varick Street
Brooklyn, New York**

DRAWING:

DRAWN BY:

STM

APPR. BY:

C.A.R.

| Bottom 2 | 11 Feet | 15.5 Feet | Commercial Value |
|------------------------|-------------|-----------|------------------|
| Benzo(a)pyrene | 3,200 ug/kg | 780 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 610 J ug/kg | 560 ug/kg | 560 ug/kg |

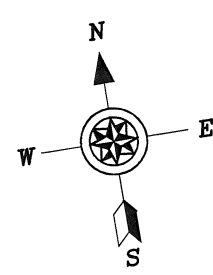
| *Bottom X (Dup) | 11 Feet | Commercial Value |
|-----------------|-------------|------------------|
| Benzo(a)pyrene | 2,000 ug/kg | 1,000 ug/kg |

| WS Wall | 5 Feet | Commercial Value |
|----------------|-------------|------------------|
| Benzo(a)pyrene | 1,800 ug/kg | 1,000 ug/kg |

| SW Wall | 3-5 Feet | Commercial Value |
|----------------|-------------|------------------|
| Benzo(a)pyrene | 1,500 ug/lg | 1,000 ug/kg |

| SE Wall | 3-5 Feet | Commercial Value |
|------------------------|-------------|------------------|
| Benzo(a)pyrene | 1,300 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 720 ug/kg | 560 ug/kg |

| North Wall W | 3-5 Feet | 6.5 Feet | Commercial Value |
|----------------|-------------|-------------|------------------|
| Benzo(a)pyrene | 3,000 ug/kg | 2,300 ug/kg | 1,000 ug/kg |



LEGEND

B5

●

= Soil Endpoint Sample and Designation

B3

◐

= Soil Sample Location With Multiple Depths

= Extent of Initial Excavation 10/4/2007

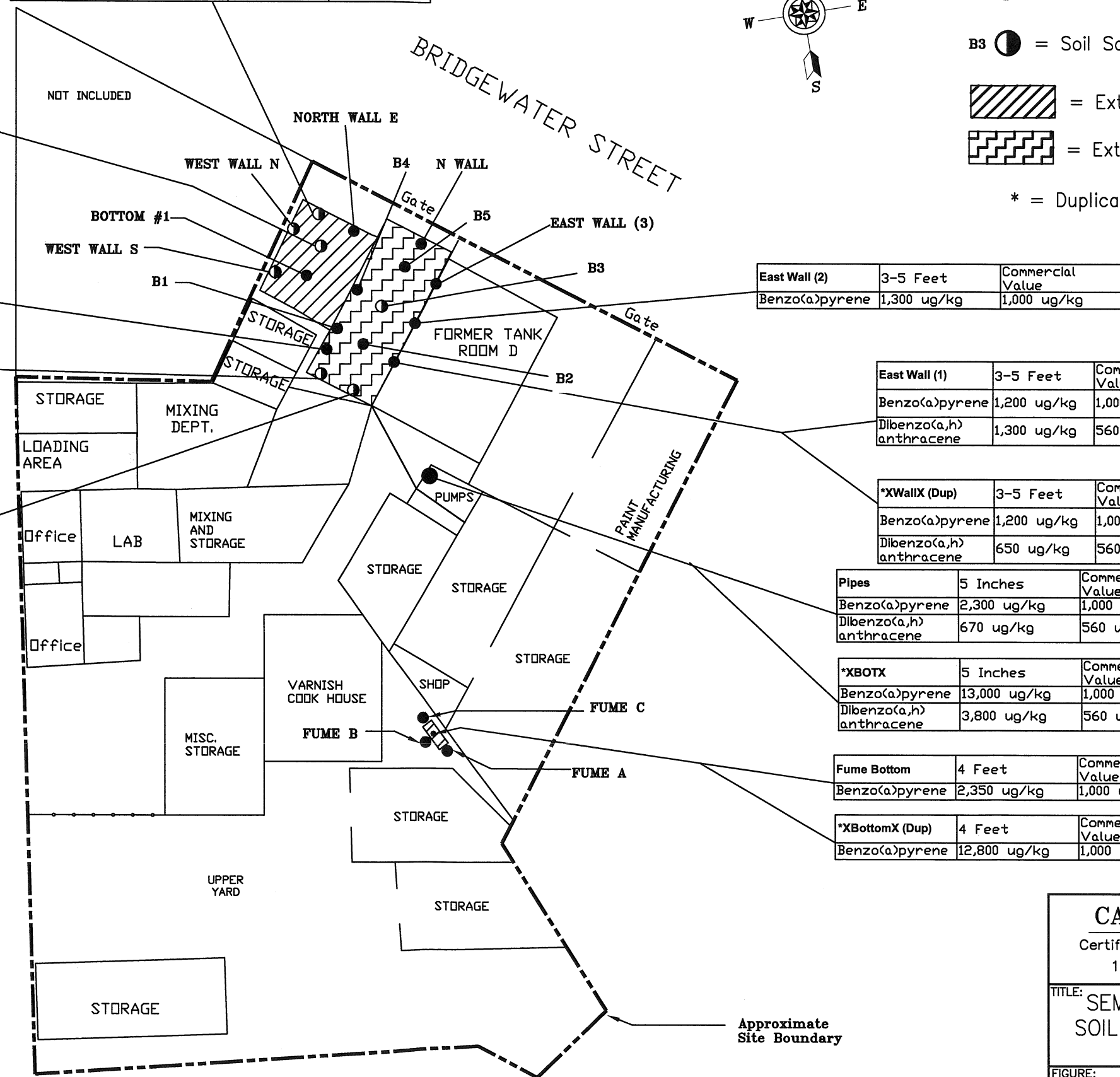
= Extent of Expanded Excavation 10/24/2007

*

= Duplicate Soil Sample for QA/QC Purposes

VARICK STREET

Notes:
 J=Detection under laboratory limits
 ug/kg=microgram per kilogram or parts per billion



| East Wall (2) | 3-5 Feet | Commercial Value |
|----------------|-------------|------------------|
| Benzo(a)pyrene | 1,300 ug/kg | 1,000 ug/kg |

| East Wall (1) | 3-5 Feet | Commercial Value |
|------------------------|-------------|------------------|
| Benzo(a)pyrene | 1,200 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 1,300 ug/kg | 560 ug/kg |

| *XWallX (Dup) | 3-5 Feet | Commercial Value |
|------------------------|-------------|------------------|
| Benzo(a)pyrene | 1,200 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 650 ug/kg | 560 ug/kg |

| Pipes | 5 Inches | Commercial Value |
|------------------------|-------------|------------------|
| Benzo(a)pyrene | 2,300 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 670 ug/kg | 560 ug/kg |

| *XBOTX | 5 Inches | Commercial Value |
|------------------------|--------------|------------------|
| Benzo(a)pyrene | 13,000 ug/kg | 1,000 ug/kg |
| Dibenzo(a,h)anthracene | 3,800 ug/kg | 560 ug/kg |

| Fume Bottom | 4 Feet | Commercial Value |
|----------------|-------------|------------------|
| Benzo(a)pyrene | 2,350 ug/kg | 1,000 ug/kg |

| *XBottomX (Dup) | 4 Feet | Commercial Value |
|-----------------|--------------|------------------|
| Benzo(a)pyrene | 12,800 ug/kg | 1,000 ug/kg |

CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists

17 Dupont Street, Plainview, New York 11803

TITLE: SEMIVOLATILE COMPOUNDS IN SOIL ABOVE NYSDEC PART 375 COMMERCIAL VALUES

DATE: 12/10/2007

FIGURE: 2

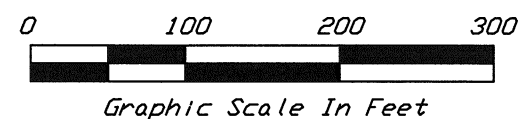
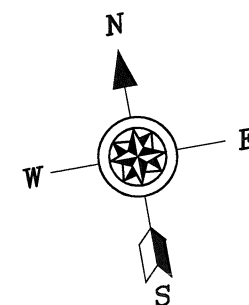
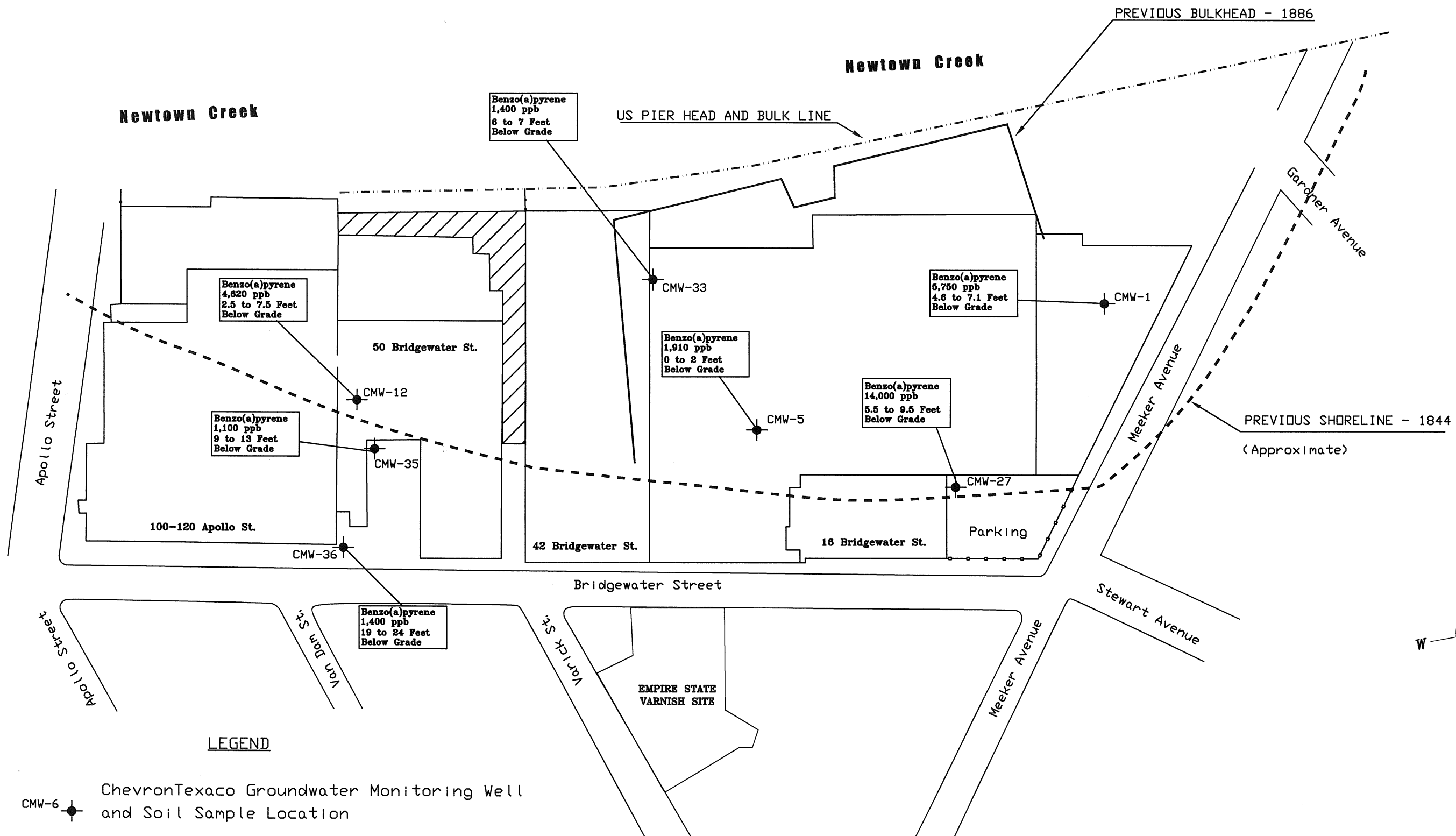
SCALE: 1" = 30'

DRAWING NO: 2007-4

EMPIRE STATE VARNISH 38 VARICK STREET BROOKLYN, NY

DRAWN BY: J.T.C.

APPR. BY: S.T.M.



Notes:

1 - Map Adapted From Drawings Included in Public Documents Prepared By Roux Associates and SAIC on Behalf of ExxonMobil and ChevronTexaco, Respectively.

2 - Benzo(a)Pyrene Concentrations Obtained By SAIC During Installation of Monitoring Wells

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

| | | |
|---|--|---------------------|
| TITLE: BENZO(A)PYRENE CONCENTRATIONS IN EARTH FILL SOIL SAMPLES COLLECTED IN SURROUNDING AREA | | DATE: 1/2/08 |
| FIGURE: 3 | | SCALE: 1" = 125' |
| DRAWING NO: 2007-98A | EMPIRE STATE VARNISH 38 VARICK STREET BROOKLYN, NEW YORK | DRAWN BY: S.T.M. |
| | | APPR. BY: C.A.R. |

Appendix A

**Maps and Illustrations of
The Eastern District of Brooklyn
Eugene L. Armbruster 1912**

1912

THE
EASTERN DISTRICT
OF
BROOKLYN

WITH
Illustrations and Maps

BY
EUGENE L. ARMBRUSTER

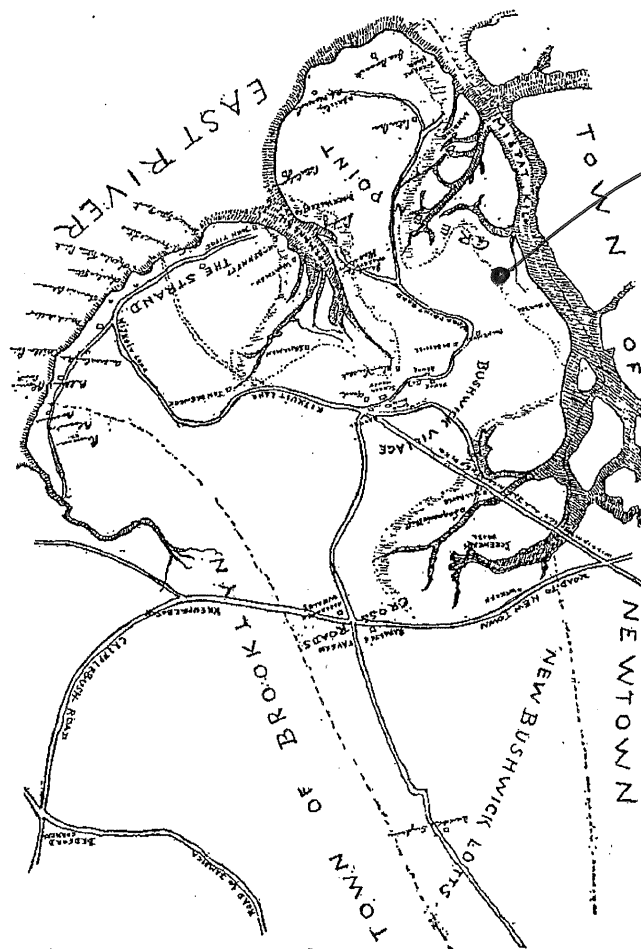
"Remove not the ancient landmark, which thy fathers
have set."—Prov. XXII., 28.



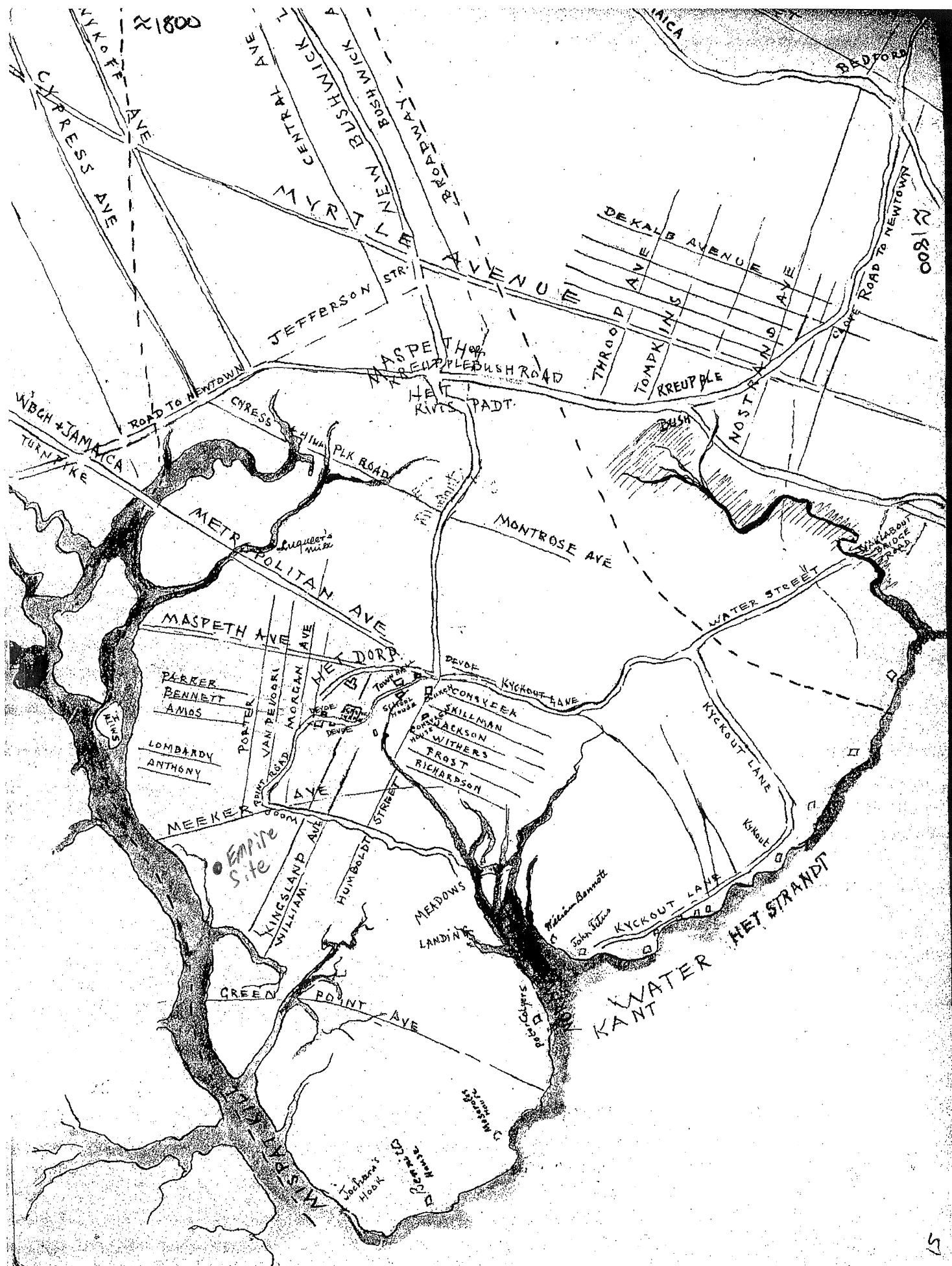
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1912

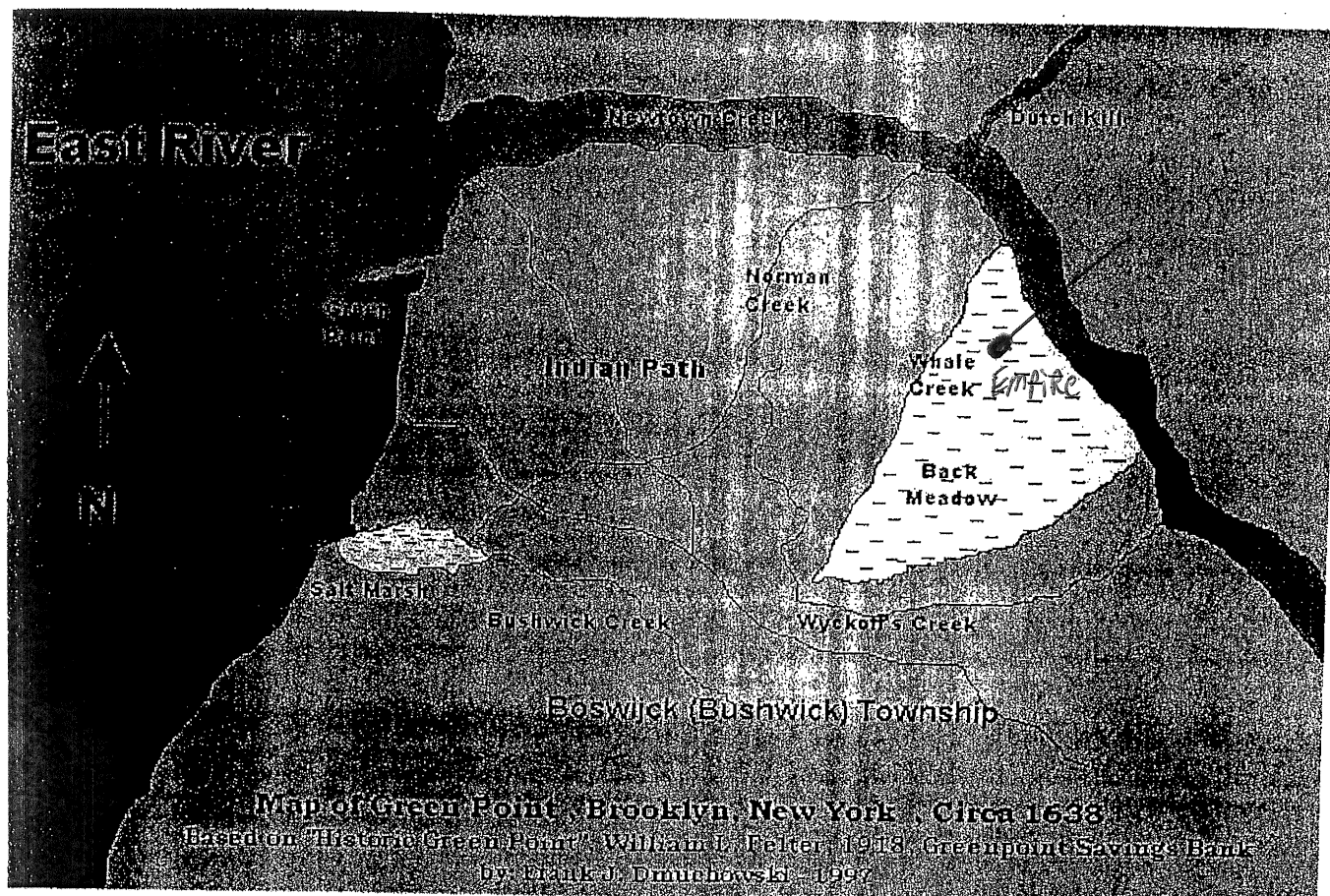
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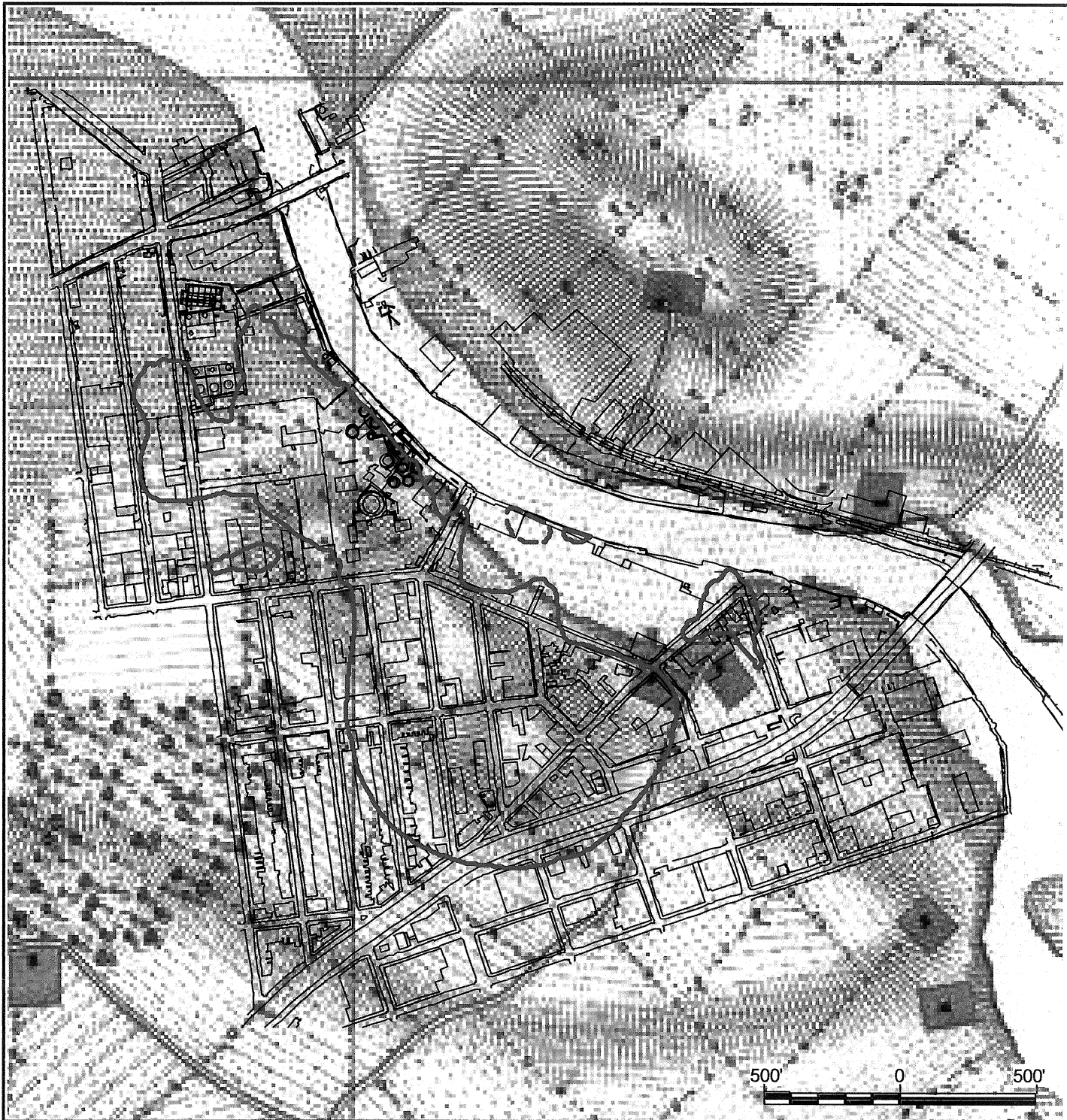
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Appendix B

**Historical Topographic Maps and
Sanborn Fire Insurance Maps**



EXPLANATION

- SITE MAP (CURRENT CONDITIONS)
- CURRENT HORIZONTAL EXTENT OF FREE-PRODUCT

SOURCE:
U.S. COAST SURVEY, 1844



Title:

HISTORIC MAP OF GREENPOINT BROOKLYN, NEW YORK CIRCA - 1844

PEERLESS IMPORTERS REMEDIAL INVESTIGATION
GREENPOINT, BROOKLYN, NEW YORK

Prepared For: EXXONMIBIL REFINING AND SUPPLY CO.
INWOOD, NEW YORK

ROUX

ROUX ASSOCIATES INC
Environmental Consulting
& Management

Compiled by: C.P.

Prepared by: C.P.

Project Mgr: J.P.K.

File No: MC3060410.WOR

Date: 12/4/04

Scale: AS SHOWN

Office: N.Y.


Project: 17230E16

FIGURE

4

Historical Topographic Map



| | | | |
|---|---|---|---|
|  | TARGET QUAD NAME: BROOKLYN MAP YEAR: 1900 | SITE NAME: The Texas Company ADDRESS: 28-20 Borden Avenue Long Island City, NY 11101 LAT/LONG: 40.7387 / 73.9413 | CLIENT: SAIC CONTACT: Timothy Runkle INQUIRY#: 2039811.4 RESEARCH DATE: 09/27/2007 |
| | SERIES: 15 SCALE: 1:62500 | | |

MAP OF NEWTOWN CREEK AND VICINITY.



List of Offensive Trade Establishments located on Newtown Creek, Borough of Queens, requiring permits from the Board of Health.

1. Berman, Birch Works. (Coal oil business)
2. Acme Fertilizer Co.
3. Champion Fertilizer Co. (Molasses)
4. F. J. Fertilizer Co.
5. F. J. Fertilizer Co. (Molasses)
6. F. J. Fertilizer Co. (Molasses)
7. F. J. Fertilizer Co. (Molasses)
8. F. J. Fertilizer Co. (Molasses)
9. F. J. Fertilizer Co. (Molasses)
10. F. J. Fertilizer Co. (Molasses)
11. F. J. Fertilizer Co. (Molasses)
12. F. J. Fertilizer Co. (Molasses)

Sewers in the Borough of Brooklyn emptying into Newtown Creek.

- A. 30 in. Metropolitan Ave.
- B. 18 in. Norman Ave.
- C. 18 in. Humboldt St.
- D. 30 in. Oakland St.

List of Offensive Trade Establishments located on New town Creek, Borough of Brooklyn, requiring permits from the Board of Health.

1. Sullivan Bros.
2. Sullivan Bros.
3. Sullivan Bros.
4. Sullivan Bros.
5. Sullivan Bros.
6. Sullivan Bros.
7. Sullivan Bros.
8. Sullivan Bros.
9. Sullivan Bros.
10. Sullivan Bros.
11. Sullivan Bros.
12. Sullivan Bros.

and industrial waste. The Creek's meandering flow, shallow depth, and slow tidal action—once an asset—became an environmental liability. It is a tortuous stream and for a portion of its extent is bulk headed on either side. The flow of water through the same is at all times sluggish. For years the effluent and debris from the many factories situated next to it and the sewage from

the streets of the boroughs of Brooklyn and Queens flow into the stream and this, with the natural deposit of which takes place, and which is not carried out by the tidal flow, is deposited in the bed of the creek and on the meadows adjacent thereto. This condition renders Newtown Creek a nuisance of itself.

Citizens began to complain. In 1890, a group of Brooklynites created a "Smelling Committee" to monitor the Creek's degraded condition. Responding to citizen outcry, the New York State Board of Health investigated the conditions of the Creek and determined the principal source of nuisances to be the "distilling and boiling of bones, rendering of dead animals, fat, offal, and blood, mixing of fertilizing material, escape of sewage, garbage

—1899 New York State Board of Health report.

