Site Characterization Work Plan

134 Metropolitan Avenue
Brooklyn, New York 11249
Block 2364, Lot 16
NYSDEC Site ID No. 224277

Prepared for:
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CERTIFICATION

I, Jason T. Cooper, certify that I am currently a New York State registered Professional Geologist licensed in the State of New York, and am a Qualified Environmental Professional (QEP) as defined in 6 NYCRR Part 375 and that this Site Characterization Work Plan (SCWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

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Date: 12/2/2020

EXECUTIVE SUMMARY

This Site Characterization Work Plan (SCWP) has been prepared for Metro Nort LLC by CA Rich Consultants, Inc. (CA RICH) for a site located at 134 Metropolitan Avenue, AKA 101 North 1st Street, Borough of Brooklyn, City of New York, New York. The Site is listed as a "P" site with the NYSDEC - Site No. 224277.

In July 2017, a soil vapor and ambient air sampling investigation was conducted in conformance with the New York State Department of Health (NYS DOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

Results from the prior investigation activities at the Site provide the following information:

Based on the results of the laboratory analytical data, the NYSDOH matrices recommend the following actions:

- Trichloroethylene — Front Building Sub-Basement - Mitigate
- Tetrachloroethylene — Front Building Sub-Basement - Mitigate
Front Building Basement - Mitigate

The source(s) of the elevated levels of VOCs is not known. This SCWP details investigation activities for the Site that were not addressed by the previous investigations, specifically the subsurface soil and groundwater.

The investigation presented in this SCWP will focus on the delineation of the elevated subsurface vapors, as well as to investigate the subsurface soils and groundwater, and will have the following objectives:

- To collect additional data to more completely determine the surface and subsurface characteristics of the Site.

- To determine the nature and extent of the elevated VOCs present in the subsurface vapors at the site.

- To determine if the subsurface soils and/or groundwater have been impacted by VOC contamination.

- To identify the potential routes of offsite migration from any onsite sources of elevated VOCs.

- To perform a human health exposure assessment to evaluate the pathways by which human receptors (either onsite or offsite) may be exposed to elevated VOCs in the soil vapor or other environmental media.

- To further develop the dataset necessary to allow preparation of an IRM work plan to eliminate the potential threat to public health or the environment posed by the Site.

The program will provide for the collection/analysis of the following samples:

1. Installation of approximately 10 soil borings with the collection of 20 soil samples.
2. Installation of approximately 5 groundwater monitoring wells and the collection of 5 groundwater samples.
3. Installation of approximately 3 sub-slab soil vapor points and the collection of three sub-slab soil vapor points, 3 corresponding indoor air samples, and one outdoor air sample.

Sufficient flexibility will be incorporated into the project scope to allow additions to, or modifications of proposed investigation locations in real time (with approval of NYSDEC) to better delineate the nature and extent of VOCs in the various media (soil, soil vapor/indoor air, and groundwater).

The results from the program will be compiled into a comprehensive report to provide a delineation of VOC impacts and an evaluation of potential risk. The information will be appropriate for the evaluation of potential remedies for the Site.

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LIST OF ACRONYMS AND ABBREVIATIONS

APS	Advanced Profiling System
ASP	Analytical Services Protocol
C	Degrees Celsius
CAMP	Community Air Monitoring Plan
COPC	Compound of Potential Concern
DER	Division of Environmental Remediation
DO	Dissolved Oxygen
DQO	Data Quality Objective
DUSR	Data Usability Summary Report
EDS	Electronic Data Summary
FSAP	Field Sampling and Analysis Plan
GPS	Global Positioning Equipment
HAS	Health and Safety Plan
HDPE	High Density Polyethylene
IDW	Investigation-Derived Waste
IHWDS	Inactive Hazardous Waste Disposal Site
Ik	Inferred hydraulic conductivity
mg/kg	Milligrams per kilograms (parts per million)
mg/l	Milligrams per liter (parts per million)
ng/g	Nanograms per gram (parts per billion)
ng/L	Nanograms per liter (parts per trillion)
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSGS	New York State Geological Survey
ORP	Oxidation-Reduction Potential
OSHA	Occupational Safety and Health Administration
PARCC	Precision, Accuracy, Reproducibility, Completeness, and Comparability
PCBs	Polychlorinated biphenyls
PFAs	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonic Acid
PPE	Personal Protective Equipment
PTFE	Polytetrafluoroethylene
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
SC	Site Characterization
SVOCs	Semi-volatile Organic Compounds
SCO	Soil Cleanup Objectives
AL	Target Analyte List
TCL	Target Compound List
TOGS	Technical Operations Guidance Series
ug/kg	Micrograms per kilogram (parts per billion)
ug/L	Micrograms per liter (parts per billion)

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

US EPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

1.1 Overview

This Site Characterization Work Plan (SCWP) has been prepared by CA RICH Consultants, Inc. (CA RICH) for the Property located at 134 Metropolitan Avenue, AKA 101 North 1st Street, Borough of Brooklyn, City of New York, New York, identified as Block 2364, Lot 16 (Also known as the "Site" or "Property").

This investigation is predicated upon the findings of the Phase I Environmental Site Assessment (ESA), dated April 25, 2017 (See Appendix E), a Soil Vapor Survey, dated July 27, 2017 (See Appendix F), as well as communications with the New York State Department of Environmental Conservation (NYSDEC).

The SCWP has been designed to identify past property usage, to sample and test soils, and identify contaminant sources present on the subject Property. If necessary, the cleanup plan will be designed to address all contaminant sources that have been identified during the study of the subject site.

The SCWP summarizes the scope of work to acquire additional information for design and implementation of an IRM to address volatile organic compounds (VOCs) in the subsurface vapors at the subject Property.

An initial Site investigation detected the presence of elevated VOCs in the subsurface vapors at the subject Property. This Work Plan provides for the collection of additional data in support of design and implementation of a source-control IRM to address onsite VOC concentrations in subsurface, if required.

The subject site is depicted on Figure 1.0 - Subject Site Location Map. The objectives of the SCWP are as follows: (1) to outline the methodology which will be employed at the subject site in order to investigate possible sources of subsurface soil and/or groundwater contamination, (2) if present, to delineate any existing contamination, and (3) if present, to identify the best remedial options for the contamination at the subject site.

The SCWP is being prepared at the direction of the NYSDEC. The SCWP will be conducted utilizing a site-specific Quality Assurance / Quality Control (QA/QC) (See Section 3.6) and a Health and Safety Plan (HASP) (See Appendix D).

1.2 Purpose

Metro Nort LLC (hereinafter referred to as the Remedial Party) entered into an Order on Consent and Administrative Settlement with the New York State Department of Environmental Conservation (NYSDEC) dated xxxxxxxx (the Order; Index Number xxxxxx) for the 134 Metropolitan Avenue property, NYSDEC Site No. 224277.

The purpose of the SCWP is to address onsite VOC concentrations in subsurface vapors at the Site and which may be migrating off-Site. This goal will be achieved via means to promote enhanced degradation and/or removal of VOCs in environmental media to reduce VOC concentrations in soil vapor.

The data may then be used for the selection and design of an appropriate IRM strategy for the Site. Development of an IRM necessitates an understanding of the distribution, concentration and mechanism(s) of potential migration of residual contaminants in the shallow fine-grained soils and groundwater beneath the Site, if required.

Additional Site characterization activities / predesign studies will be performed to delineate the extent of VOCs in on-Site shallow soils and groundwater (estimated depth of 31 to 50 feet below ground surface (bgs), but anticipated to be 32 feet bgs), as well as gather additional information about the physical and chemical characteristics of the shallow subsurface environment at the Site.

1.3 Applicable Guidance

The following standards, criteria and guidance may apply to this project:

- 6 NYCRR Part 371 – Identification and Listing of Hazardous Waste (September 2006)
- 6 NYCRR Part 375 - Environmental Remediation Programs (December 2006)
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Parts 700-706 - Water Quality Standards
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- NYSDEC DER-10 – Technical Guidance for Site Investigation and Remediation (May 2010)
- NYSDEC Guidelines for Sampling and Analysis of PFAS (January 2020)

- NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006, Revised May 2017.

The following guidance may apply to this project:

- US EPA Drinking Water Health Advisory for perfluorooctanoic acid (PFOA) dated May 2016 (70 nanograms per liter (ng/l)

- USEPA Drinking Water Health Advisory for perfluorooctane sulfonic acid (PFOS) dated May 2016 (70 ng/l)

- US EPA statement dated January 28, 2016 on “Private Wells in the Town of Hoosick and the Village of Hoosick Falls, NY”

- NYSDEC Division of Spills Management - Sampling Guidelines and Protocols: Technologies Background and Quality Control/Quality Assurance for the NYSDEC Spill Response Program

- Possible future NYSDEC Soil Cleanup Objectives (SCOs) for PFCs, if developed.

- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations

2.0 SITE BACKGROUND

2.1 Site History and Operations

A Phase I Environmental Site Assessment (ESA), dated April 25, 2017, of the subject Property was completed (See Appendix E).

The subject site is currently improved by a two (2) story commercial building, with a partial basement and a partial sub-basement. The building was most recently occupied by “Rust”, a.k.a. “The Living Room”, a bar / nightclub. The subject building is presently vacant.

According to the New York City Department of Buildings, several alteration permits are on file for the site. In addition, Permit No. 310206577, dated September 22, 2009 was issued to convert an existing public parking garage into an eating and drinking establishment. Permit No. 3P0004861, dated February 4, 1994 was issued to construct a one (1) story enlargement (See Appendix G).

According to the New York City Department of Buildings "PROPERTY PROFILE OVERVIEW", Certificate of Occupancy No. 86404, dated March 8, 1938 was issued for a three (3) story commercial building. The first floor was used as a junk shop and the second and third floors were vacant. C/O No. 310206577F, dated February 3, 2011 was issued for a two (2) story eating or drinking establishment (See Appendix G).

The subject site is listed as a Little “E” Restricted site under E No. E-138, dated May 11, 2005 (See Appendix H). Upon comparison of the site’s tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the “E” designation for the subject Property pertains to “Underground Gasoline Storage Tanks Testing Protocol”.

According to Sanborn Fire Insurance maps (See Appendix I), the south side of the building located along North 1st Street was constructed sometime prior to 1887 as a wireworks building. A three (3) story machine shop building was constructed at 134 Metropolitan Avenue sometime between 1887 and 1905. 101 North 1st Street was used as a wagon house, with a barn located at the south side of the site. The 1916 map depicts 134 Metropolitan Avenue as vacant. The barn at 101 North 1st Street had been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building.

The 1942 map indicates that 134 Metropolitan Avenue was used as “ovens” and 101 North 1st Street was used for “waste paper”. The 1951 map indicates that 134 Metropolitan Avenue was used for manufacturing purposes and 101 North 1st Street was vacant. The 1965 map indicates that the buildings have been combined and were used as “feather storage”. A one (1) story addition was made to the rear of the building. This use continued until the most recent 1989 map.

Sanborn Historical Map Search

Fire Insurance Maps are produced by private fire insurance map companies and indicate the uses of properties and immediately surrounding properties at specific dates. These fire insurance maps are typically updated, so as to provide the fire insurance company with the historical view of development for a given area.

A Fire Insurance Map Search was conducted for the subject site, and the private agency contacted was Sanborn Mapping and Geographic Information Service. A full search for any existing fire insurance maps was conducted. The Sanborn Fire Insurance Map Search revealed the following historical use of the property:

SANBORN MAP SEARCH

YEAR	HISTORICAL USE
1887	The subject site is improved by three (3) story "wireworks" building, with a barn located at the south side of the site (101 North 1st Street). The surrounding properties are improved by barns, commercial buildings and residential buildings.
1905	A three (3) story machine shop building has been constructed at 134 Metropolitan Avenue. 101 North 1st Street is now used as a wagon house, with a barn located at the south side of the site. The surrounding properties all appear to now be used for commercial use.
1916	134 Metropolitan Avenue is now vacant. The barn at 101 North 1st Street has been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building. The property to the east is used by a trucking company and the property to the west is used as a boarding and wagon house / barn.
1942	134 Metropolitan Avenue is used as ovens. 101 North 1st Street is used for "waste paper." The property to the east is used as a garage, with a gasoline tank and the property to the west is used as a boarding and wagon house / barn.
1951	134 Metropolitan Avenue is used for manufacturing purposes and 101 North 1st Street is vacant.

	The properties to the east and west exist as vacant land.
1965	The buildings appear to have been combined and are now used as "feather storage." A one (1) story addition has been made to the rear of the building. The property to the east is used for commercial and manufacturing operations and the property to the west is used for storage.
1979	There do not appear to be any significant changes noted in the subject site or the surrounding properties.
1989	There do not appear to be any significant changes noted in the subject site or the surrounding properties.

Sanborn Fire Insurance Maps are included as Appendix I.

Site Utilities

- Water is supplied by the municipal City of New York Bureau of Water.
- Sanitary discharges are directed to the municipal New York City sewer system.
- Electric service is provided by Consolidated Edison.
- Natural gas service is provided by Consolidated Edison.

2.2 Proposed Site Use

Upon completion of the investigation and remediation activities, the proposed use of the subject site will be a four (4) story building. This will include the addition of two (2) stories on the existing building structure. The first floor will remain commercial. The second, third and fourth floors will have residential apartments. The total building height will be 88.11 feet, plus the mechanical room and bulkhead located on the roof level. The proposed building architecture drawings are included as Appendix J.

2.3 Previous Environmental Assessments

This SCWP is predicated upon the findings of the following reports prepared by others:

- Phase I Environmental Site Assessment (ESA), dated April 25, 2017 (Appendix E)
- Soil Vapor Survey, dated July 27, 2017 (Appendix F)

The above listed reports are summarized as follows:

Phase I Environmental Site Assessment (ESA) - April 25, 2017

The report concluded that there were two (2) Recognized Environmental Conditions (RECs) associated with the subject site:

> **REC No. 1 - Historical Site Operations**
>
> Based on the historical operations at the site entailing manufacturing, a machine shop and a junk shop, there is a concern that any accidental spills and/or illegal discharges may have caused subsurface soil and/or groundwater contamination. The Phase I ESA recommended that a Phase II Subsurface Investigation should be conducted at the subject site.
>
> **REC No. 2 - NYC E Designation**
>
> The NYC Office of Environmental Remediation (OER) should be contacted as to the requirements for satisfaction of the "E" designation for the subject site.

Soil Vapor Survey - July 27, 2017

The report concluded that as per the New York State Department of Health, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, and based on the results of the laboratory analytical data, the below actions were recommended. A Spider Diagram summarizing the vapor results are included as Figure 8.

Matrix A (May 2017)

- Carbon Tetrachloride - No Further Action
- 1,1 - Dichloroethene - No Further Action
- cis-1,2 - Dichloroethene - No Further Action
- Trichloroethylene
  - SS1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate
  - SS2 Sub-Slab Sample - Front Building Basement - No Further Action
  - SS3 Sub-Slab Sample - Rear Building First Floor (no basement) - No Further Action

Matrix B (May 2017)

- Methylene Chloride - No Further Action
- Tetrachloroethylene
  - SS1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate
  - SS2 Sub-Slab Sample - Front Building Basement - Mitigate
  - SS3 Rear Building First Floor (no basement) - No Further Action
- 1,1,1 - Trichloroethane (1,1,1 - TCA) - No Further Action

Matrix C (May 2017)

- Vinyl Chloride - No Further Action

2.4 Geology and Hydrogeologic Setting

Surface Water Characteristics

The subject site is improved by the subject building and the pedestrian sidewalks. The surface topography at the subject site is nearly level throughout. Storm water runoff is directed to the curb side municipal storm water collection system. The up-gradient drainage area within 1,000 feet of the subject site is improved with mixed use residential, retail and commercial buildings.

Groundwater Characteristics

The elevation of the subject site is approximately 32 feet above mean sea level. The depth to bedrock is greater than 100 feet below grade. According to groundwater contour maps provided by the United States Geologic Survey (USGS), the depth to groundwater at the subject site is estimated to be approximately thirty-two (32) feet below ground surface. A well located south of the subject site was measured at 38.60 feet below ground surface in 2010. Groundwater generally flows west, northwest. Please note that actual groundwater flow can be affected by many variables including underground utilities and other subsurface openings or obstructions such as basements, underground parking garages and subway lines, bedrock geology, etc.

Groundwater is not used as a drinking water supply in the Borough of Brooklyn. Potable (drinking) water is supplied to the subject Property by the New York City Department of Environmental Protection (NYCDEP). The NYCDEP obtains potable water from the Croton Reservoir located in Westchester County and other fresh-water reservoirs in upstate New York.

Geological Characteristics

According to the United States Department of Agriculture, Soil Conservation Service - Soil Survey, New York is located in the Atlantic Coastal Plain physiographic province which is characterized by low hills of unconsolidated sands, gravel and silt.

The subsurface deposits consist of the Upper Glacial deposits that are characterized by southward sloping deposits of sand, gravel and silt. The Upper Glacial deposits have a maximum thickness of 600 feet. They are underlain by the Magothy, Raritan and Lloyd Formations. The Gardiners clay and the Jameco gravel separate the Upper Glacial deposits and the Magothy Formation along the south west portion of Long Island. The Borough of Brooklyn is underlain by bedrock, although the majority of it is located at several hundred feet below land surface.

3.0 SITE CHARACTERIZATION ACTIVITIES

The objectives of the Site Characterization activities will be to delineate the suspected soil contamination at the subject Property, specifically where the elevated soil vapor levels were confirmed, as well as to assess the areas of the subject site where soil sampling and groundwater was not yet conducted.

3.1 Subsurface Soil Sampling

The areas of the subject Property will be assessed via the installation of a series of soil borings. The areas of the subject Property will be classified into three (3) major sections, specifically (1) the first floor, (2) the basement area, and (3) the sub-basement area. It is estimated that a total of ten (10) soil borings will be installed throughout the subject Property. A Site Diagram with Proposed Sample Location Map for the soil and groundwater samples is included as Figure 7.

The subsurface soil borings will be advanced in order to obtain additional information regarding the thickness and composition of fill beneath the Site; to determine the depth to the water table; to observe and screen subsurface soil in order to identify conditions that may be indicative of impacts by VOCs or other residuals; and to install the temporary monitoring wells proposed.

The locations of the proposed soil borings and wells are shown on Site Diagram - Figure 7.0. A total of ten (10) soil borings are proposed, with five (5) locations proposed for conversion to groundwater monitoring wells. Previous conversations with NYSDEC and other consultants associated with this project agreed during the April 3, 2019 planning meeting that sufficient flexibility would be incorporated into the investigation scope to allow additions to, or modifications of proposed boring and well locations. For example, the low ceiling height in the basement and sub-basement may inhibit the ability to drill to specific deeper depths. Such changes may be required in real time to better delineate the nature and extent of VOC residuals in subsurface soils and groundwater.

Based on previous investigation methods, the subsurface borings will be advanced by either rotosonic drilling methods equipped with 4-inch diameter sampling cores or hollowstem augers (HSAs) equipped with 2-inch or 3-inch diameter split-spoon samplers. In some instances, a direct-push (Geoprobe®) drilling rig equipped with MacroCore™ samplers may be used if there are access limitations.

The Geoprobe® hydraulic powered probing unit is a mechanized vehicle mounted probing system which applies both static force and hydraulic powered percussion hammers for tool placement (static down forces up to 3,000 pounds combined with percussion hammers of eight (8) horsepower continuous output). Recovery of sample volumes will be facilitated by a probe-driven sampler. The Geoprobe® utilizes a 2.25 inch outer diameter macro core sampling sheath. As the drive point is advanced to the desired depth the soil enters a disposable acetate liner.

Discrete soil samples will be secured in continuous five (5) foot intervals from ground surface to a depth of approximately forty (40) feet below grade. This is based on the depth to groundwater estimated at approximately thirty-two (32) feet below grade.

Each of the methods will allow for continuous soil samples to be taken from the ground surface to the bottom of the borehole for both field characterization (photoionization detector screening and observations) and for the collection of samples for the chemical analyses.

The soil samples obtained by either method will be logged by a geologist recording such data as the presence of fill material or subsurface structures, the nature of each geologic unit encountered, observations regarding moisture content, the results of PID readings, and visual and olfactory observations regarding the presence of hydrocarbon-like residuals.

Two (2) soil samples are proposed for laboratory analysis from each soil boring. The first sample for laboratory analysis will be collected at the depth of greatest apparent contamination, based on PID screening and field observations. If impacts are not encountered, the sample will be collected from the two (2) foot interval immediately above the water table, or the deepest sample interval if the water table is not reached. The second sample shall be collected from the shallow soils from 0-2 feet below grade.

The sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous soil vapor sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the sampling indicate that other locations and depths may be more heavily contaminated. In all cases, samples should be biased toward locations and depths of the highest expected contamination. All sampling will also be performed to satisfy the requirements of the NYSDEC and DER-10.

The soil borings will be located as follows:

- Metropolitan Avenue Sidewalk SB-1 and SB-2
- Sub-Basement SB-3 and SB-4
- Basement SB-5 and SB-6
- First Floor SB-7 and SB-8
- North 1st Street Sidewalk SB-9 and SB-10

The soil samples will be field screened for the presence of VOCs utilizing a RAE Systems MiniRAE Model 2000 or 3000 Photo-Ionization Detector (PID). The samples will also be physically inspected for any evidence of contamination such as odors or staining.

3.2 Groundwater Sampling

Temporary Well Installation

Actual well design will depend on Site conditions encountered, such as thickness of the saturated zone, observed stratigraphy, and the presence, location, and thickness of NAPL, if any.

The five temporary wells will be constructed using a 1-inch diameter Schedule 40 PVC pre-pack well with a 0.01 or 0.02-inch slotted screen (if NAPL present), and a 2-foot long sump for monitoring the presence of any denser than water nonaqueous phase liquid (DNAPL). The wells will be screened with ten (10) linear feet of screen at the bottom of the well. The screen will extend a minimum of five (5) feet below the water table and five (5) feet above the water table.

Well Development

Each of the new monitoring wells will be developed not sooner than 24 hours after their installation to evacuate fine-grained sediments that may have accumulated within the well during installation. The wells shall be developed via the inertia method, which will utilize a stainless-steel check valve and High Density Polyethylene (HDPE) tubing to evacuate water from the well. Water quality measurements shall be collected during development activities. When the turbidity measurements reach 50 NTU or less, then the well shall be considered developed. The development water shall be stored within sealed and labelled 5-gallon buckets or within sealed and labelled 55-gallon drums. The development water shall be properly disposed of at a later time.

Groundwater Sampling

Following completion of the well development, the wells will be allowed to stabilize for at least two weeks, and then sampled. All sampling of the groundwater will follow EPA low-flow procedures. Emerging contaminant sampling will be conducted at all well locations.

All new and selected existing wells, including perimeter locations, will be checked for the presence of light nonaqueous phase liquids (LNAPL) or dense nonaqueous phase liquid (DNAPL). Water levels will be measured in all the new and select existing wells, and a groundwater flow direction map will be prepared and included in the RI Report.

Groundwater samples will be collected from all newly installed wells using low-flow purging methods using either a peristaltic pump or submersible pump with the downhole tubing or the pump placed at the approximate midpoint of the screened interval.

At the ground surface, the water will pass through a sealed chamber containing probes which will measure the water temperature, pH, specific conductivity, oxidation-reduction potential, and dissolved oxygen.

Samples of water discharging from the chamber will be collected at regular intervals and analyzed for turbidity using a handheld field meter. After passing through this chamber, the water will be discharged to a calibrated five-gallon bucket where the pumping rate will be calculated. When this bucket is full, the water will be transferred into a 55-gallon drum where it will be stored for future disposal. Pumping rates will be set below the maximum sustainable flow rate so as not to significantly lower the water level in the well. Groundwater analytical samples will be collected when water quality parameters have stabilized.

3.3 Emerging Contaminant Sampling

The NYSDEC is requiring sampling of all environmental media and subsequent analysis for the emerging contaminants 1,4-Dioxane and PFAS as part of all remedial programs implemented under 6 NYCRR Part 375.

In February 2019, the NYSDEC issued a memorandum outlining their initiative to evaluate environmental remediation sites for certain emerging contaminants. As part of this effort the NYSDEC is requiring owners to investigate the presence of Per- and polyfluoroalkyl substances (PFAS) and 1,4-Dioxane in all environmental media including; soil, groundwater, surface water, sediment and in certain instances animals and biota. In addition, soil imported to a site for use in a soil cap, soil cover, or as backfill must be sampled for 1,4-dioxane and PFAS contamination in general conformance with DER-10.

PFAS are a group of chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. Fluoropolymer coatings are blends of resins and lubricants used in products such as water-repellent clothing, furniture, adhesives, paint and varnish, food packaging, heat-resistant non-stick cooking surfaces and insulation of electrical wires. Chemicals in this group include perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS).

Sample Planning

For the subject Property, the number of samples required for emerging contaminant analyses is to be the same number of samples where full "TAL/TCL sampling" is being conducted for the investigation.

PFAS and 1,4-dioxane will be incorporated into the investigation of potentially affected media, including soil and groundwater as an addition to the standard "full TAL/TCL sampling".

Upon an emerging contaminant being identified as a contaminant of concern (COC) for a site, those compounds will be assessed as part of the remedy selection process in accordance with Part 375 and DER-10 and included as part of the monitoring program upon entering the site management phase. Soil imported to a site for use in a soil cap, soil cover, or as backfill must be sampled for 1,4-dioxane and PFAS contamination in general conformance with DER-10, section 5.4(e). Assessment of the soil data will be made on a site-specific basis to determine appropriateness for use.

Analysis and Reporting

The laboratory to be utilized will provide a full category B deliverable, and a DUSR will be prepared by an independent 3rd party data validator. QA/QC samples will be collected as required in DER-10, Section 2.3(c). The electronic data submission will meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

The reported results for PFAS analysis will include all of the compounds listed by the NYSDEC in the PFAS Analyte List.

3.4 Air Sampling

Temporary Soil Vapor Point Installation

The three temporary sub-slab soil vapor points shall be constructed of a 1/4-inch diameter nylon tubing. One point shall be installed in the sub-basement, one in the basement and one at ground-level. A hammer drill shall be used to drill a hole through the concrete floor and the point shall be installed to approximately 2-inches below the bottom of the concrete slab. The vapor point shall be backfilled with glass beads (or other porous inert materials) and finished with bentonite and/or bees wax to form a seal around the drill hole and the nylon tubing.

Helium Tracer Check

A helium tracer check shall be conducted on each of the new temporary sub-slab soil vapor points prior to sampling to determine if the surface seal is competent. Each of the soil vapor points shall be covered with a bucket and the atmosphere within the bucket shall be saturated with helium gas. The nylon tubing shall be screened with a helium detector to check for helium infiltration. After each point passes the helium check, each sub-slab soil vapor point shall be purged of approximately 1-3 implant volumes. The helium check and implant purge shall be conducted in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Air Sampling

Following the completion of the helium tracer check and implant purge, the sub-slab soil vapor points shall be turned on to collect the sub-slab soil vapors over a period of approximately 2-hours. In addition, a companion indoor air sample shall be collected concurrently with each of the three sub-slab soil vapor points. To determine background VOC levels, one outdoor air sample shall be collected during the sampling event. All air samples shall be collected utilizing 6-liter Summa canisters and analyzed for USEPA TO-15. The collection of three sub-slab soil vapor, three indoor air, and one outdoor air sample are proposed for this work plan.

3.5 Field Instrument Calibration / Maintenance

Routine maintenance and calibration schedules will be established according to manufacturer recommendations for all field instruments. The maintenance and calibration program is described below.

Routine daily maintenance will be performed to ensure that the RAE Systems MiniRAE Model 2000 or 3000 Photo-Ionization Detector (PID). Field maintenance procedures include:

Removal of dirt and debris;
Replacement of disposable parts (i.e. filters, probe membranes, etc.) as required;
Storage of equipment in a secure, dry area; and,
Recharging of battery packs when not in use.

The RAE Systems MiniRAE Model 2000 or 3000 PID will be calibrated to an isobutylene standard before and after use to insure reliability. Calibration data will be recorded in the project field book.

3.6 Sampling Equipment Decontamination Procedures

All non-disposable sampling equipment (i.e., augers, hand augers, bailers, sampling devices, etc.) will be decontaminated between use to prevent cross contamination. The decontamination procedures are as follows:

- Equipment will be scrubbed in a bath of potable water and low-phosphate detergent.
- Potable water rinse.
- Scrub with low-phosphate detergent.
- Potable water rinse.
- Air dry.

3.7 Quality Assurance (QA) / Quality Control (QC) Procedures

Appropriate Quality Assurance/Quality Control (QA/QC) procedures will be utilized during implementation of all field activities, including but not limited to the following:

- Use of disposable vinyl gloves during all sampling.

- All sampling will be conducted with disposable, hermetically sealed, sampling equipment.

- Routine maintenance and calibration schedules will be established according to manufacturer recommendations for all field instruments.

- All non-disposable sampling equipment (i.e., augers, hand augers, Geoprobe sampling devices, etc.) will be decontaminated between use to prevent cross contamination.

- Laboratory sample containers will be shipped to the site in a sealed cooler.

- A chain of custody form will accompany the containers during transportation, sample collection and analysis.

- Upon receipt of the sample cooler, field staff will inspect the custody seal to determine if it is intact. The seal number and condition of the cooler upon arriving at the Site will be recorded in a field book.

- The chain of custody form will be completed at the time of sample collection and included with samples during shipment to the laboratory for signature upon receipt.

- The QA/QC samples collected and/or analyzed during the course of the Site Characterization will be documented.

- A copy of the QAPP is provided in Appendix A.

PFAS Considerations

The following guidelines and procedures will be followed to avoid contamination of environmental samples or site media with PFASs:

- No clothing or clothing treated with stain or water-resistant coatings will be allowed. Clothing must be washed three to six times before use.

- No Tyvek clothing will be allowed.

- No Post-It Notes will be used during sampling.
- Personnel must not handle prewrapped food or snacks before sampling or while working at the property.

- No materials or equipment will be used that contains Teflon (e.g. Teflon tubing, sample container cap liners, tape, etc.).

- No materials or equipment will be used that contains polytetrafluoroethylene (PTFE) (e.g. PTFE-coated aluminum foil, GoreSorbers) or any other material known or suspected to contain a fluoropolymer.

- For samples that may be analyzed for PFASs, only sampling containers and caps/tops that have been supplied by the laboratory will be used.

- Sample containers and caps/tops will not be stored for more than 30 days before use.

- Field personnel must wash their hands with soap and potable water prior to sampling activities, especially after contact with any materials potentially containing PFASs.

- Chemical ice packs (blue ice) will not be used.

Potable water used for sampling and/or IRM implementation will be obtained from a tested source that is shown to contain less than 2 nanograms per liter (ng/L {parts per trillion}) of both PFOA and PFOS based on sampling and laboratory analysis completed prior to field work.

Dedicated water containers will be used in the field throughout the duration of the project. Aqueous field rinse blank samples will be collected from the containers prior to mobilization and during use in the field. Rinse blank samples will be sent for laboratory analysis of PFASs to ensure the water containers are PFAS free.

The following NYSDEC special precautions for trace contaminant sampling will also be utilized based on review of Section 5.2.9 of the NYSDECs Sampling Guidelines and Protocols (NYSDEC, 1992):

- A clean pair of new, disposable nitrile gloves will be worn each time a different point or location is sampled; and

- Sample containers shall be placed into separate resealable polyethylene plastic bags immediately after collection and labeling.

3.8 Laboratory Analysis Protocol

All samples will be stored in appropriate laboratory containers and placed on ice immediately. The samples will be delivered to a National Environmental Laboratory Approval Program (NELAP) certified laboratory for analysis. The samples will be delivered to the laboratory within twenty-four (24) hours of being collected.

New York State ELAP certified labs will be used for all sample analyses. Labs for sample analyses will be reported in the Site Characterization (SC) Report. The SC Report will provide a tabular and map summary of all endpoint sample results and will include all data including non-detects and applicable standards and/or guidance values.

The laboratory analysis methods will include:

- TCL Volatile Organic Compounds (VOCs) by EPA Method 8260
- TCL Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270
- TAL Metals by EPA Methods 6010 and 7000series
- Pesticides / PCBs by EPA Method 8081/8082
- PFASs by EPA Method 537 modified with isotope dilution analysis
- 1,4 – Dioxane (Aqueous) by EPA Method 8270 SIM
- 1,4 – Dioxane (Solids) by EPA Method 8270
- VOCs via EPA Method TO-15

3.9 Chain of Custody Procedures

A chain of custody form will accompany the containers during transportation, sample collection and analysis. Upon receipt of the sample cooler, field staff will inspect the custody seal to determine if it is intact. The seal number and condition of the cooler upon arriving at the subject site will be recorded in a field book. The chain of custody form will be completed at the time of sample collection and included with samples during shipment to the laboratory for signature upon receipt:

Chain of custody forms will include the following information:

- Sample identification/number;
- Date and time of collection;
- Sample matrix;
- Sample location;
- Number of containers;
- Analytical parameters;
- Dates of possession; and,
- Signatures of all individuals involved in possession.

The custody seal number will be recorded in the project field book prior to shipment of samples from the field to the laboratory. Copies of all Chain of Custody forms will be included.

3.10 Data Evaluation

CA RICH will review the results of the analysis and compare these to the Unrestricted Soil Cleanup Objectives and the Commercial Use SCOs listed in the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation 6 NYCRR Part 375". CA RICH will make a recommendation as to the need for further work.

4.0 SITE CHARACTERIZATION (SC) REPORT

Upon completion of the field activities, an SC Report will be prepared to document the findings of the investigations performed at the site. The report will be consistent with the specifications presented in the NYSDEC DER-10 guidance and will include:

- An executive summary.
- A site description and history.
- Summary information regarding previous investigations and remedial work performed at the site
- Descriptions of all field activities performed
- A summary of all field observations, field measurements, and laboratory analytical data summarized in tabular format. Data will be managed in a database. Soil and groundwater analytical results will be compared to appropriate NYSDEC guidance and standards. The results of the indoor air and ambient air results will be evaluated by first comparing the VOC concentrations to typical background values published by NYSDOH.
- A qualitative human health risk assessment which assesses the sources of impact, on and offsite human and ecological receptors, and exposure pathways.
- An integration of field observations and measurements with laboratory analytical data to evaluate the nature and extent of impacts and to develop a site conceptual model of potential contaminant migration, if any.
- A set of conclusions for the investigation.
- Recommendations.

Deliverables

- Two (2) original reports and one (1) electronic report will be forwarded to the client.
- One (1) electronic report will be forwarded to the NYSDEC and NYSDOH.

5.0 ASSOCIATED DOCUMENTS

5.1 Quality Assurance Project Plan (QAPP)

The Quality Assurance Project Plan (QAPP) for this project is presented in Appendix A. The QAPP is consistent with the requirements of DER-10 Section 2.4 (NYSDEC, 2010). The QAPP describes sampling and analysis procedures to be used during implementation of the SC along with QA/QC criteria. The QAPP will facilitate generation of data of acceptable precision, accuracy, representativeness, completeness, and comparability (PARCC).

5.2 Community Air Monitoring Plan (CAMP)

The Community Air Monitoring Plan for this project is presented in Appendix C. The CAMP provides a measure of protection for the downwind community from potential airborne contaminant releases that may occur as a result of work activities. The CAMP is consistent with the requirements of DER-10 Appendix 1A (NYSDEC, 2010). The CAMP describes monitoring requirements and response action levels associated with monitoring of VOCs and particulates (i.e., dust) downwind of SC activities. The action levels specified in the CAMP require additional monitoring, corrective actions to abate emissions, and/or work stoppage if necessary.

5.3 Health and Safety Plan (HASP)

The project-specific HASP is presented in Appendix D. The procedures set forth in the HASP are designed to minimize the risk of exposure to chemical and physical hazards that may be present at the properties. These procedures generally conform to applicable federal, state and local regulations, including Occupational Safety and Health Administration (OSHA) requirements governing activities at hazardous waste sites and the requirements in 29 CFR 1910.120 (Hazardous Waste Operations). Specific practices and procedures, including the level of personal protective equipment (PPE), are based on a review of currently-available information for the properties.

Every potential safety hazard associated with this SC may not be predicted. The HASP does not attempt to establish rules to cover every contingency that may arise, but it does provide a basic framework for the safe completion of field activities and plans for reasonable contingencies.

5.4 Investigation Personnel and Qualifications

The experience and qualifications of key CA RICH project personnel that will be involved in implementing the SCWP are presented in Appendix L. The list of personnel is consistent with the requirements of DER-10 Section 3.3 (NYSDEC, 2010).

CA RICH Project Director:	Richard Izzo	Phone: 516-576-8844 (Office)
CA RICH Project Manager:	Jason Cooper	Phone: 516-833-2535 (Cell)
Site Safety Officer (SSO):	Jessica Proscia	Phone: 516-576-8844 (Office)
Laboratory Project Manager:	Tom Tanico	Phone: 201-812-2632 (Office)
Data Validator	Lori Beyer	Phone: 516-523-7891 (Home)

The Laboratory Project Manager is Tom Tanico of Alpha Analytical. The Third-Party Data Validator, Lori Beyer, works for the company L.A.B. Validation Corporation.

6.0 PROJECT SCHEDULE

The below presents a schedule for the proposed subsurface investigation field work, the laboratory analysis, and reporting. If the schedule changes, it will be updated and submitted to the NYSDEC. Currently, a four month period is anticipated; however, efforts shall be made to complete ahead of this schedule. A Gantt chart outlining the project schedule is included as Figure 9.

Task / Milestone	Weeks From Site Investigation Start	Duration
Approval of SCWP	0	20 days
Obtainment of Applicable Permits	4 weeks	20 days
Subsurface Utility Clearances	4 weeks	5 days
Mobilization	5 weeks	2 days
Installation of Soil Borings: Subsurface Soil Sampling	6 weeks	5 days
Installation of Groundwater Monitoring Wells: Groundwater Sampling & Survey	7 weeks	5 days
Laboratory Analysis	8 weeks	15 days
Preparations of Data Usability Study: DUSR	11 weeks	10 days
Preparation of Site Characterization Report	13 weeks	15 days
Submittal of Site Characterization Report	16 weeks	1 day

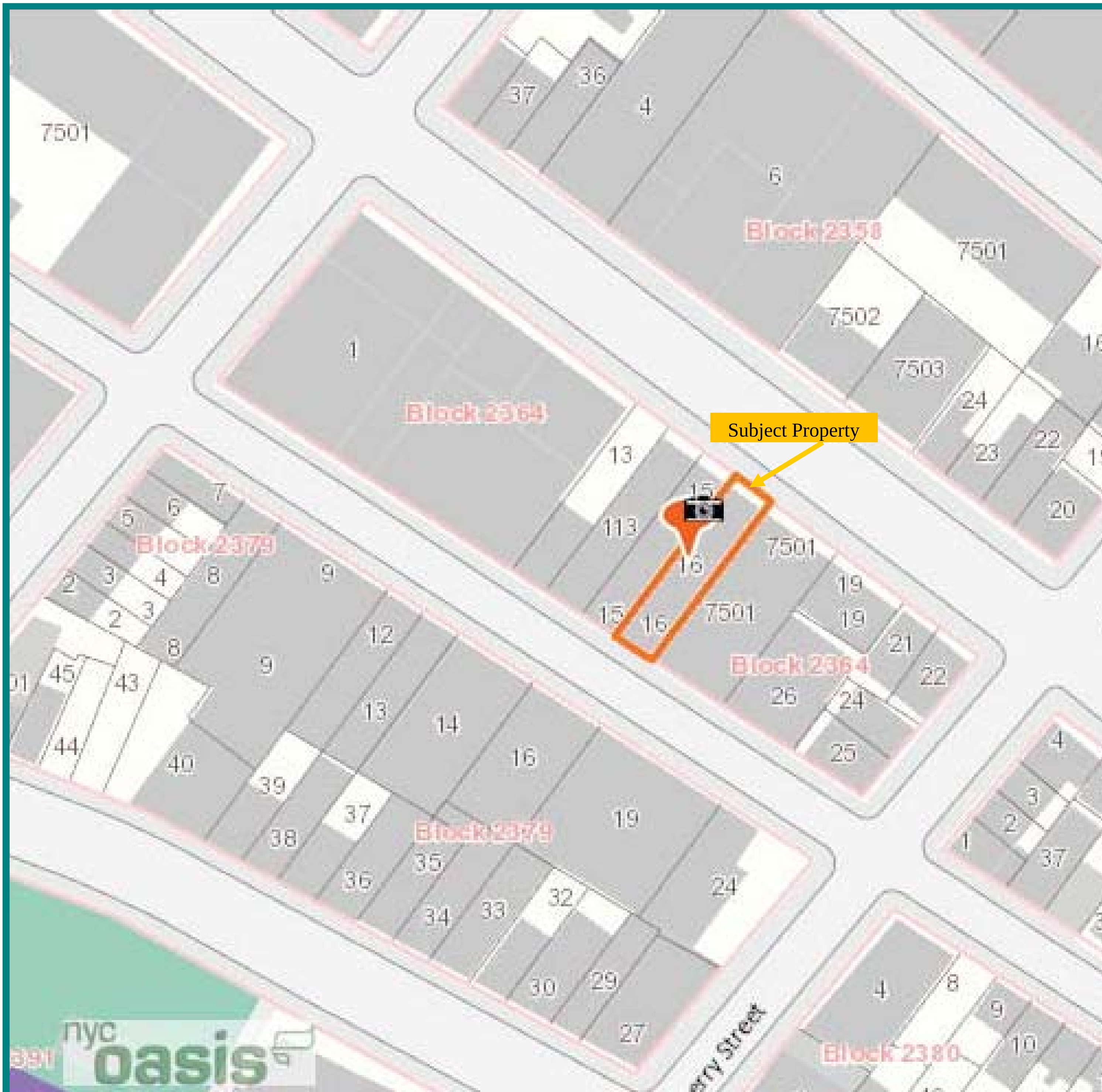
FIGURES

N

Adapted from NYC OASIS

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **Site Location Map**		*DATE:* **8/12/20**
		SCALE: **As SHOWN**
FIGURE: **1**	**134 Metropolitan Avenue Brooklyn, NY 11249**	*DRAWN BY:* **SG**
DRAWING:		*APPR. BY:* **JTC**

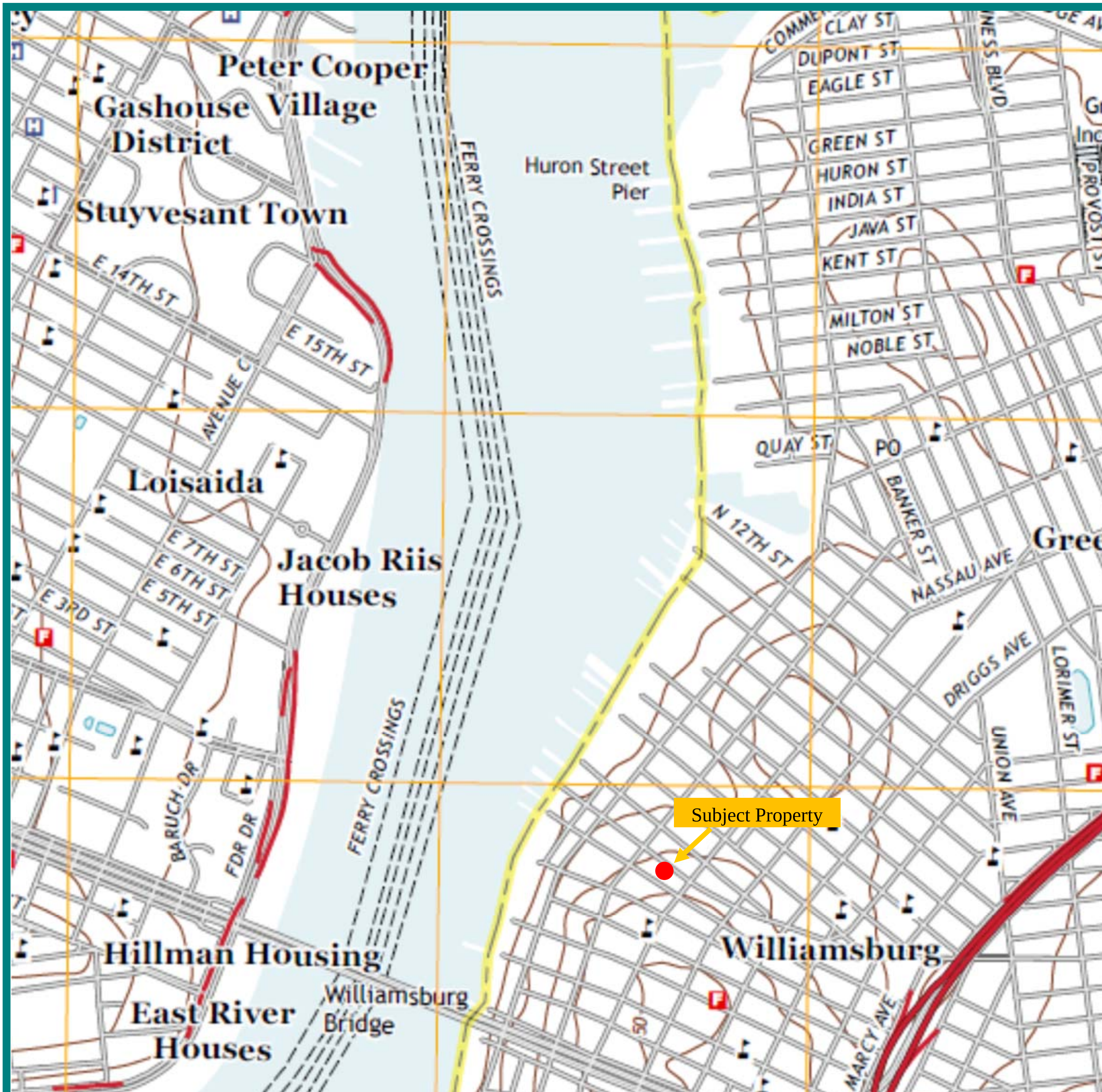


Adapted from New York City OASIS

CA RICH ENVIRONMENTAL SPECIALISTS

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

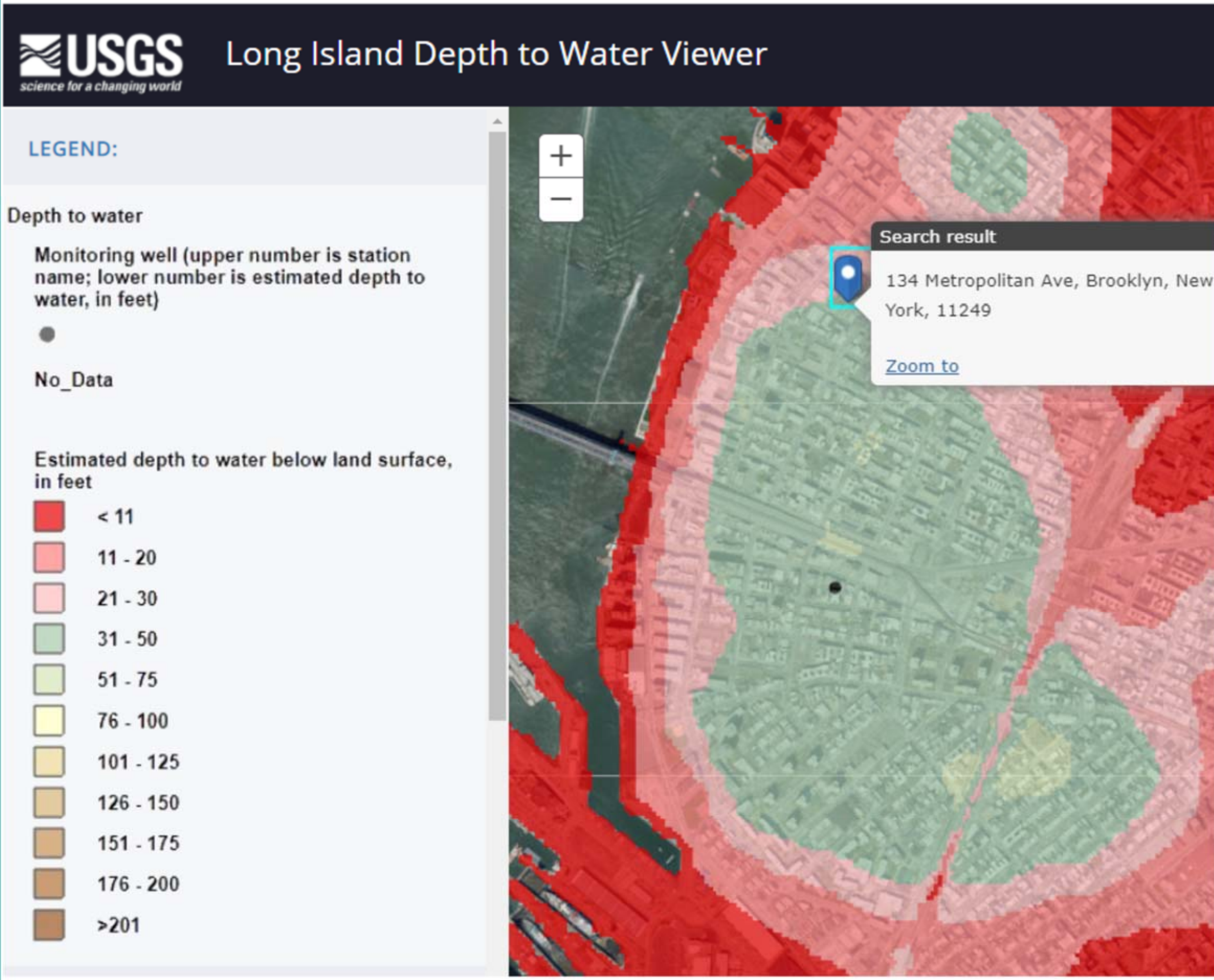
TITLE: **Subject Site Tax Map**		*DATE:* **8/12/20** *SCALE:* **As SHOWN**
FIGURE: **2** *DRAWING:*	**134 Metropolitan Avenue Brooklyn, NY 11249**	*DRAWN BY:* **SG** *APPR. BY:* **JTC**



Adapted from U.S.G.S. Map

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **U.S.G.S. 7.5 Minute Topographic Map**		DATE: **8/12/20**
		SCALE: **As SHOWN**
FIGURE: **3**	**134 Metropolitan Avenue Brooklyn, NY 11249**	DRAWN BY: **SG**
DRAWING:		APPR. BY: **JTC**



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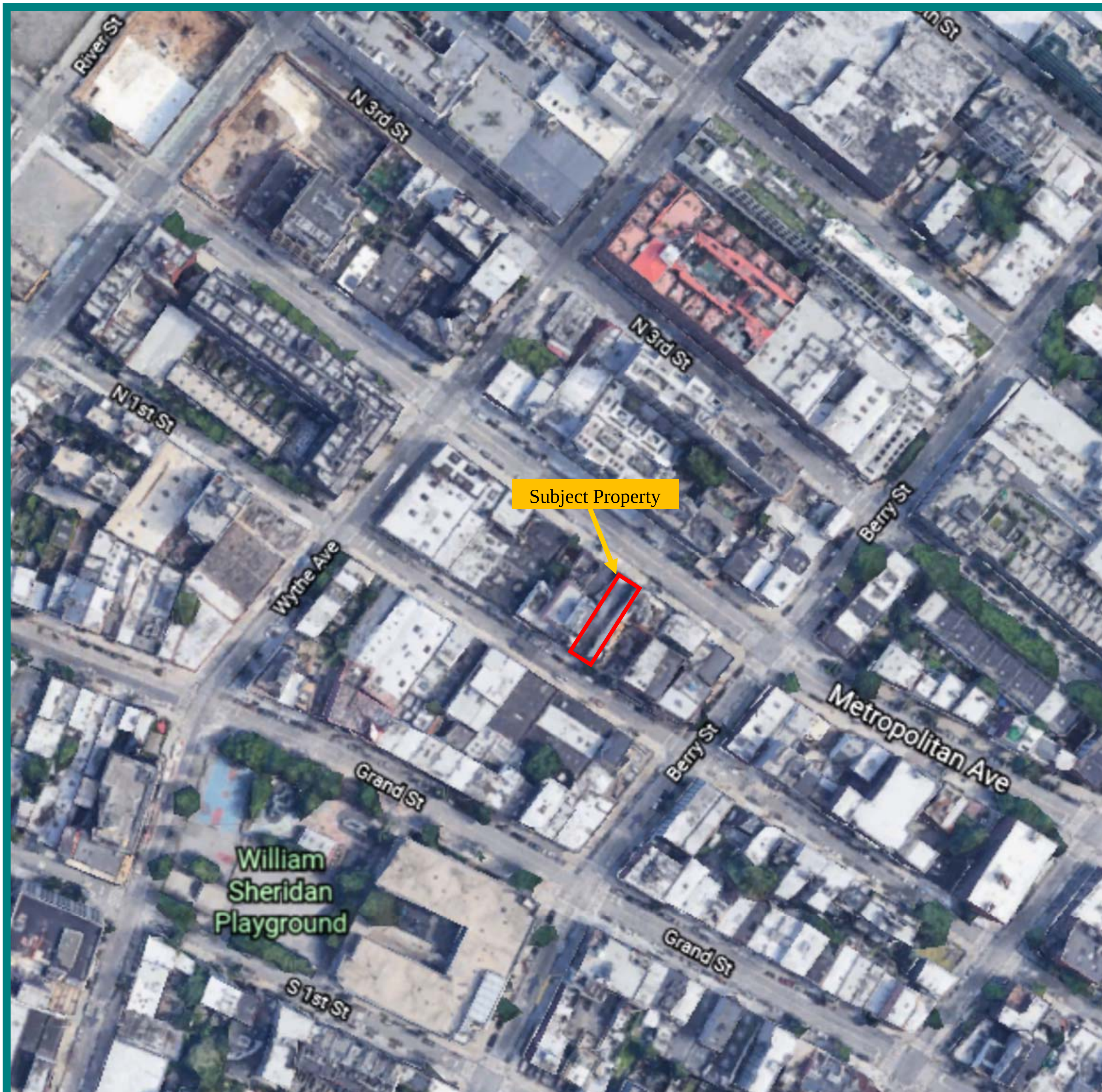
Adapted from New York State, USDA FSA

CA RICH
ENVIRONMENTAL SPECIALISTS

CA RICH CONSULTANTS, INC.
17 Dupont Street,

TITLE: **U.S.G.S. Depth to Groundwater Map**	DATE: **8/12/20**
	SCALE: **As SHOWN**
FIGURE: **4** — **134 Metropolitan Avenue Brooklyn, NY 11249**	DRAWN BY: **SG**
DRAWING:	APPR. BY: **JTC**



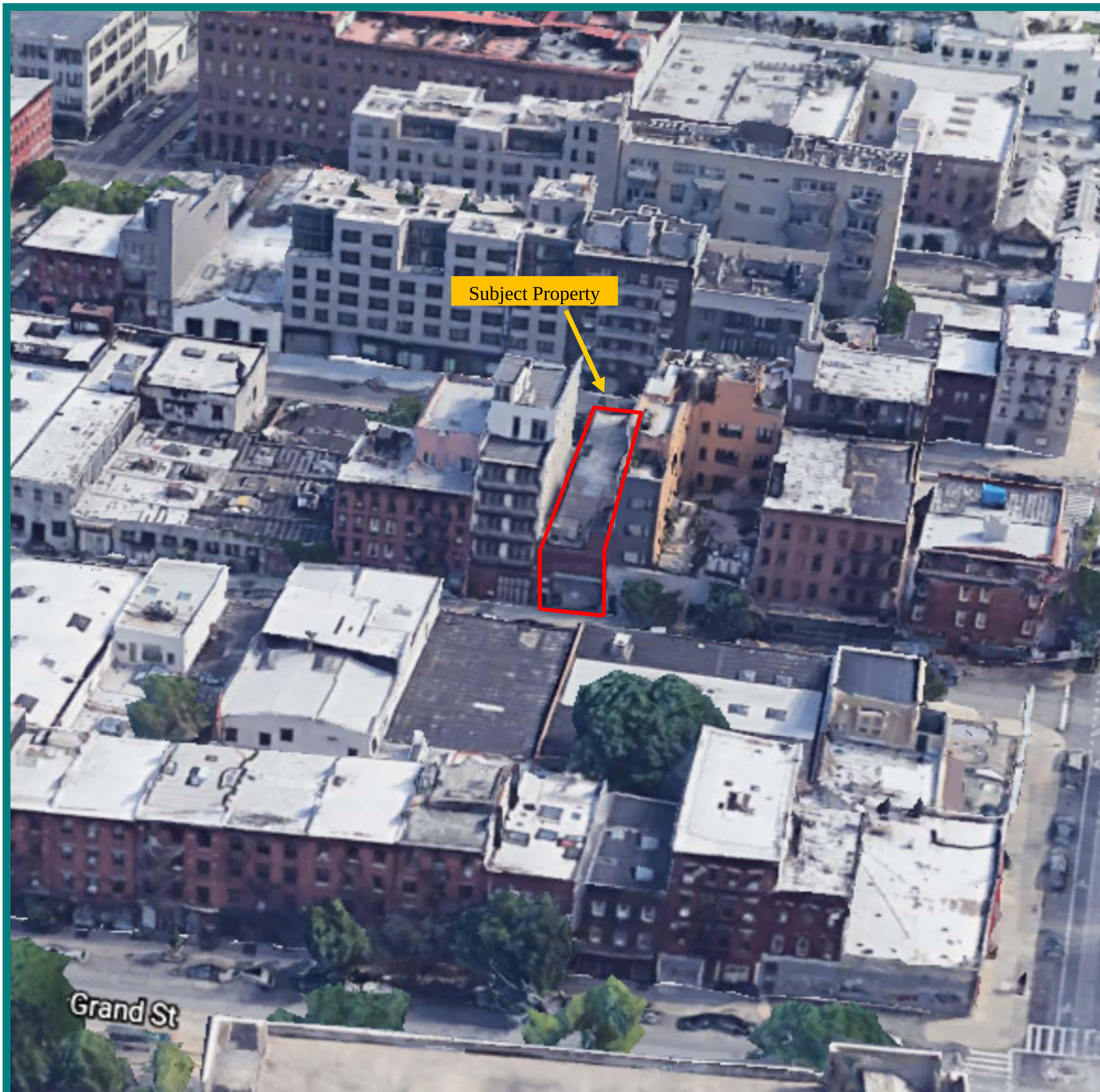
Adapted from Google Earth

CA RICH ENVIRONMENTAL SPECIALISTS

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **Subject Site Aerial Photograph**	DATE: **8/12/20**
	SCALE: **As SHOWN**
FIGURE: **5**	DRAWN BY: **SG**
DRAWING:	APPR. BY: **JTC**

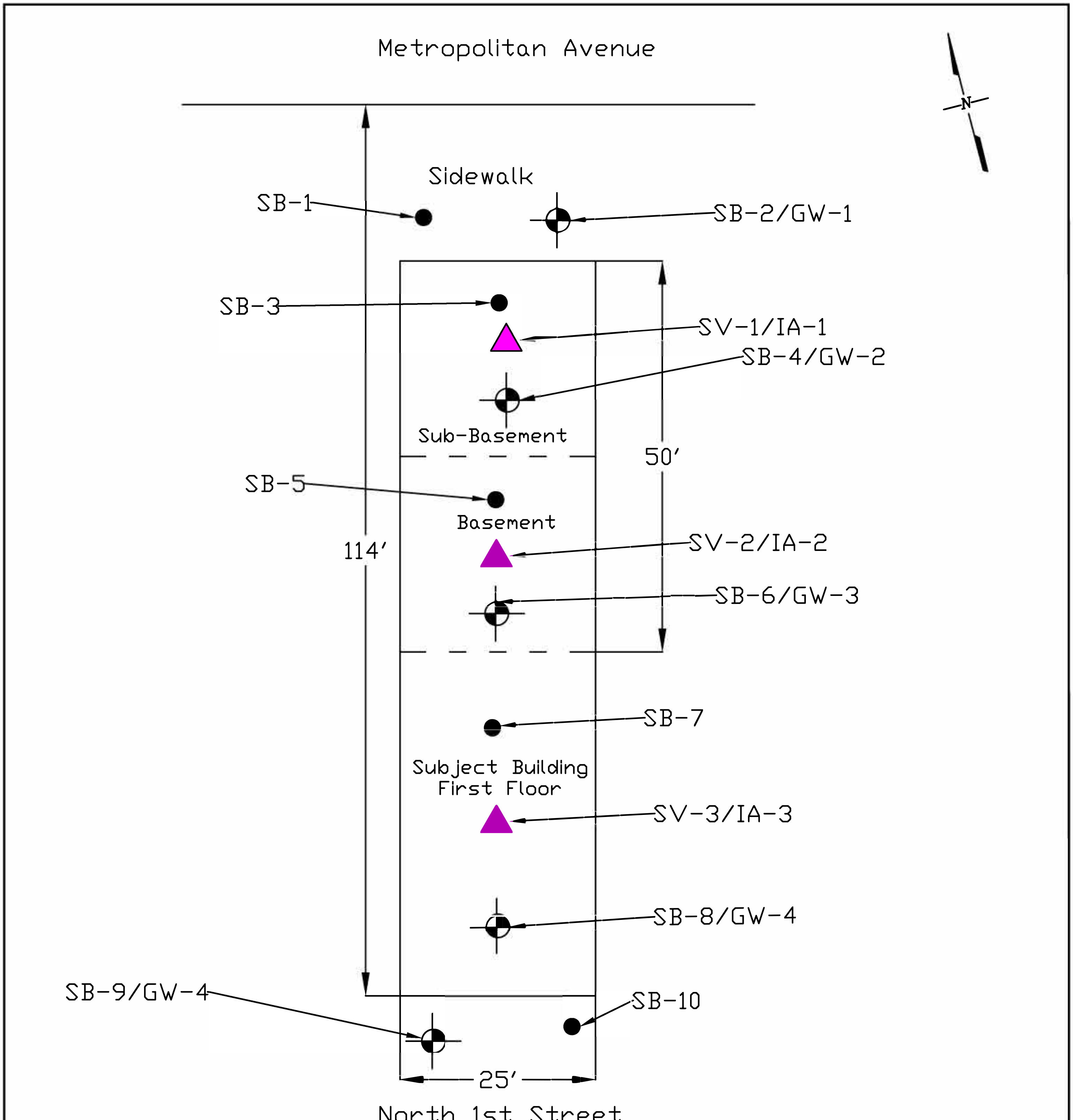
134 Metropolitan Avenue
Brooklyn, NY 11249



Adapted from Google Earth

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **Subject Site Aerial Overview**		DATE: **8/12/20**
		SCALE: **As SHOWN**
FIGURE: **6**	**134 Metropolitan Avenue Brooklyn, NY 11249**	DRAWN BY: **SG**
DRAWING:		APPR. BY: **JTC**



Legend

- Proposed Soil Boring Location
- Proposed Combined Soil Boring and Groundwater Well Location
- Proposed Sub-slab Soil Vapor and Indoor Air Sample Locations

Approx. Scale (ft)

0 10 25 50

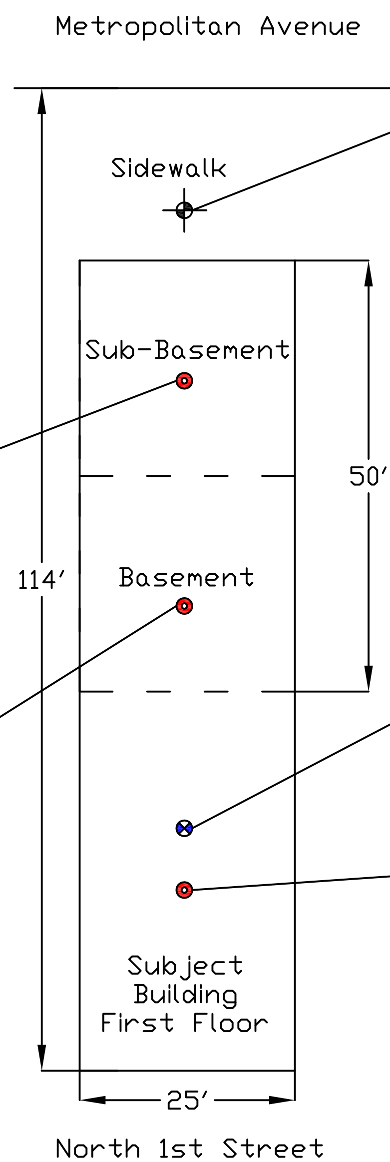
CA RICH CONSULTANTS, INC.

Environmental Specialists Since 1982

17 Dupont Street, Plainview, New York 11803

TITLE: Site Diagram with Proposed Sample Locations		DATE: 10/26/2020
		SCALE: As Shown
FIGURE: 7	134 Metropolitan Avenue Brooklyn, NY	DRAWN BY: T.R.B.
DRAWING NO: 2020-3		APPR. BY: J.T.C.

H: \Drawings\FF-Marek-134 Metro\2020-3



OA-1	
VOCs	ug/m^3
Acetone	17.7
Ethanol	124

SS-3	
VOCs	ug/m^3
4-methyl 1-2-Pentanone	50.6
Acetone	184
Benzene	10.6
Ethanol	3,130
Isopropanol	24.8
m,p-Xylene	57.6
Methyl Ethyl Ketone	15.6
Methylene Chloride	25.2
Propylene	8.16
Tetrachloroethylene	234
Toluene	14.6

SS-2	
VOCs	ug/m^3
Acetone	230
Acrolein	5.92
Carbon disulfide	9.97
Chloroform	45.8
cis-1,2-Dichloroethene	13.2
Ethanol	1,690
Ethyl Acetate	8.07
Isopropanol	16.4
m,p-Xylene	23.3
Methyl Ethyl Ketone	9.50
Methylene Chloride	87.4
Propylene	9.71
Tetrachloroethylene	25,500
Trichloroethylene	46.9

IA-1	
VOCs	ug/m^3
Acetone	21.2
Ethanol	134
Isopropanol	5.01
m,p-Xylene	19.2
Methylene Chloride	7.92

SS-1	
VOCs	ug/m^3
Acetone	27.8
Chloroform	107
cis-1,2-Dichloroethene	114
Ethanol	184
Ethyl Acetate	8.58
Isopropanol	5.06
m,p-Xylene	19.2
Methyl Ethyl Ketone	6.37
Methylene Chloride	117
Tetrachloroethylene	223,000
Toluene	16.3
Trichloroethylene	203

Legend:

- Sub-Slab Sample
- Indoor Air Sample
- Outdoor Air Sample

Approx. Scale (ft)

0 10 25 50

Note: This figure depicts approximate sample locations based upon the GCI 2017 Soil Vapor Report

CA RICH CONSULTANTS, INC.

Environmental Specialists Since 1982

17 Dupont Street, Plainview, New York 11803

TITLE: Spider Diagram of Soil Vapor Sample Results July 2017

DATE: 8/17/2020

SCALE: As Shown

FIGURE: 8

DRAWING NO: 2020-2

134 Metropolitan Avenue
Brooklyn, NY

DRAWN BY: T.R.B.

APPR. BY: J.T.C.

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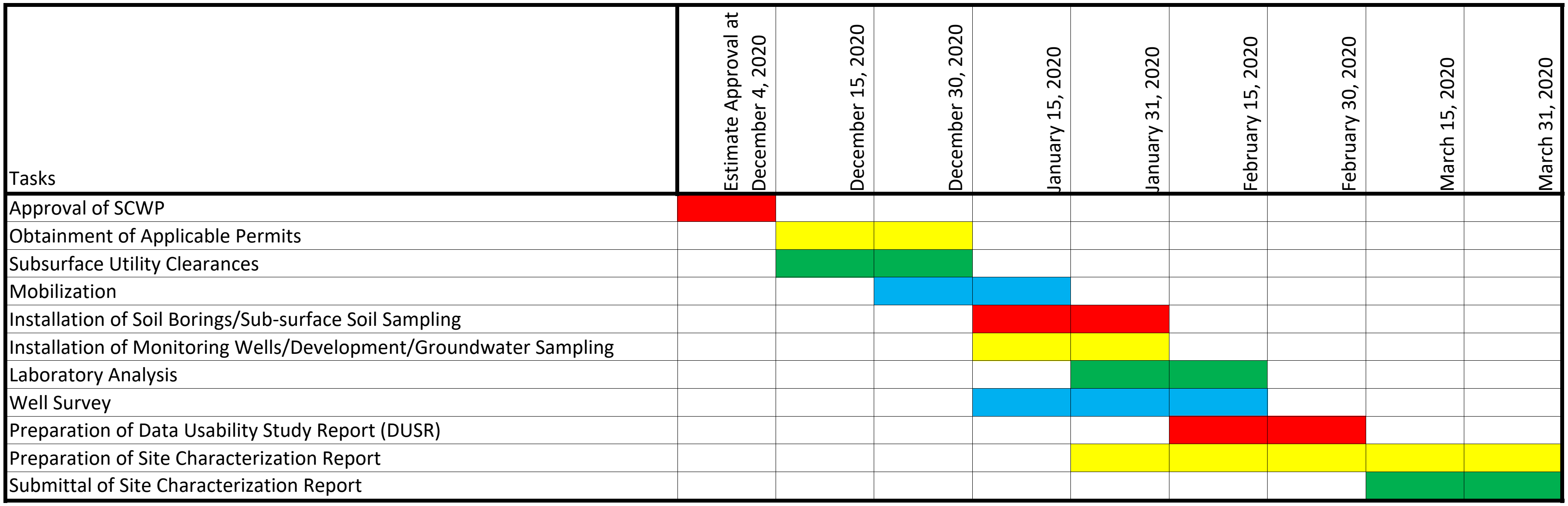
Figure 9 Project Schedule



APPENDIX A

Quality Assurance Project Plan (QAPP)

Quality Assurance Project Plan

134 Metropolitan Avenue
Brooklyn, New York 11249
Block 2364, Lot 16
NYSDEC Site ID No. 224277

Prepared for:
Metro Nort LLC
P.O. Box 416
Oakland, New Jersey 07436
E-Mail: 718rust@gmail.com

August 2020
Revised October 2020

Prepared by:
CA RICH Consultants, Inc.
17 Dupont Street
Plainview, NY 11803

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APPENDICES

1.0 INTRODUCTION

CA RICH has prepared this Quality Assurance Project Plan (QAPP) as part of the Site Characterization (SC) Field Sampling and Analysis Plan (FSAP) for the Metro Nort LLC site located at 134 Metropolitan Avenue, AKA 101 North 1st Street, Borough of Brooklyn, City of New York, New York. The Site is listed as an "E" Restricted site under E No. E-138, dated May 11, 2005. The Site is listed as a "P" site with the NYSDEC - Site No. 224277.

1.1 PURPOSE AND OBJECTIVES

The objective of this project is to evaluate whether or not additional investigation is required at the site, and if so, to help select appropriate locations and depths for the installation of sampling points and fixed monitoring wells. A summary of project sampling tasks are included in Table 1 and proposed sample locations are included in Figure 1. This QAPP identifies the necessary procedures for an orderly, accurate, and efficient data collection and analysis program for the project, and ensures that data meet quality objectives. The objectives for monitoring and ensuring data quality include the following:

- identify key responsibilities and qualifications of staff responsible for data quality monitoring;
- ensure that samples are properly managed both in the field and the laboratory;
- ensure realistic data quality goals that will produce data of known and acceptable quality are established; and
- ensure that data are accurate, complete, and verifiable.

2.0 QUALITY ASSURANCE OBJECTIVES

Quality objectives ensure that collected data are sufficient to meet the intended project goals. Quality objectives are pre-established goals that are used to monitor and assess the progress and quality of the work performed. It is essential to define quality objectives prior to initiation of any project work to ensure that activities yield data sufficient to meet project objectives.

Quality objectives are divided into two categories: data quality objectives (DQOs) and quality assurance objectives (QAOs). The DQOs are associated with the overall project objective as it relates to data collection. The QAOs define acceptance limits for project generated data as they relate to data quality.

2.1 DATA QUALITY OBJECTIVES

DQOs are qualitative and quantitative criteria required to support the decision-making process. DQOs define the uncertainty in a data set and are expressed in terms of PARCC. The DQOs apply to both characterization and confirmation samples at the site. These parameters are defined as follows:

- Precision: a measure of mutual agreement among measurements of the same property usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending upon the “prescribed similar conditions”.

- Accuracy: the degree of agreement of a measurement (or an average of measurements) with an accepted reference of “true value”. Accuracy is one estimate of the bias in a system.

- Representativeness: expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

- Completeness: a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions.

- Comparability: expresses the confidence with which one data set can be compared with another. Comparability is a qualitative, not quantitative measurement, as in the case of accuracy and precision. Comparability is assessed by reviewing results or procedures for data that do not agree with expected results. It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the field-screening chemist at the laboratory to analyze these samples using accepted protocols resulting in data that meet PARCC standards.

2.2 FIELD SAMPLING QUALITY OBJECTIVES

The overall quality of sample results depends on proper sample management. Management of samples begins prior to sample collection and continues throughout the analytical and data validation process. To ensure samples are collected and managed properly and consistently, field procedures for sample collection activities have been developed for the project. The laboratory also has procedures that ensure a proper and consistent analytical process. Field procedures include descriptions of equipment and procedures required to perform a specific task. The purpose is to increase reproducibility and to document each of the steps required to perform the task. Approved and correctly implemented field procedures should produce data of acceptable quality that meet project DQOs.

2.3 PERFLUOROACTANOIC ACIDS (PFAS) GROUNDWATER SAMPLING

Groundwater samples will be collected from the newly installed groundwater monitoring wells no sooner than two weeks after development. Sampling shall begin with the collection of groundwater samples for PFAS analysis using a Wattera Hydrolift II Pump (Wattera).

Sampling for PFAS requires additional precautions, which are outlined below:

1. Sampling materials will consist of high density polyethylene (HDPE) tubing, stainless check valve, and a Wattera pump;
2. The sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE) tubing, glass, or polytetrafluoroethylene (PTFE, Teflon) materials, which includes sample bottle cap liners with Teflon;
3. Decontamination (when necessary) will be conducted using a two-step process that begins with using a detergent (such as Alconox) and finishes with a clean water rinse;
4. Field clothing that contains PTFE (including GORE-TEX) or that have been waterproofed with PFC material must be avoided. All clothing worn by sampling personnel must have be laundered multiple times;
5. Nitrile gloves must be worn during the filling and sealing of the samples bottles;

The inertia method shall be used to purge approximately three to five well-volumes of groundwater from the well prior to sampling. During purging activities, groundwater parameters (e.g, turbidity, pH, temperature, conductivity, D.O., etc.) will be obtained during and recorded.

Upon completion of the three to five well-volumes of groundwater, samples will be collected directly from the new HDPE tubing into two laboratory-issued 250 ml unpreserved HDPE bottles for PFAS analysis via USEPA Method 537 MOD. Samples will be packaged and stored on ice (blue ice or freezer packs will NOT be used to keep the samples cool) pending same day or overnight shipment to the laboratory subcontracted by CA RICH. All samples will be uniquely identified, and all information associated with the samples will be recorded utilizing standard chain-of-custody sampling protocols. The samples shall be submitted to ELAP approved Alpha Analytical Laboratories of Mansfield, Massachusetts. This laboratory holds an ELAP certification for PFOA and PFOS in drinking water via EPA Method 537.

The full list of 21 PFAS (PFAS Analyte List) will be analyzed and includes the following compounds along with their respective Central Authentication Service (CAS) number and laboratory Method Detection Limit (MDL). The laboratory Reporting Limit (RL) for all 21 PFAS is 2 ng/l, which meets the minimum RL required by NYSDEC of 2 ng/L.

1. Perfluorobutanesulfonic acid (CAS No. 375-73-5); MDL = 0.238 ng/l
2. Perfluorohexanesulfonic acid (CAS No. 355-46-4); MDL = 0.376 ng/l
3. Perfluoroheptanesulfonic acid (CAS No. 375-92-8); MDL = 0.688 ng/l
4. Perfluorooctanesulfonic acid; (CAS No. 1763-23-1); MDL = 0.504 ng/l
5. Perfluorodecanesulfonic acid (CAS No. 335-77-3); MDL = 0.98 ng/l
6. Perfluorobutanoic acid (CAS No. 375-22-4); MDL = 0.408 ng/l
7. Perfluoropentanoic acid (CAS No. 2706-90-3); MDL = 0.963 ng/l
8. Perfluorohexanoic acid (CAS No. 307-24-4); MDL = 0.328 ng/l
9. Perfluoroheptanoic acid (CAS No. 375-85-9); MDL = 0.2252 ng/l
10. Perfluorooctanoic acid (CAS No. 335-67-1); MDL = 0.236 ng/l
11. Perfluorononanoic acid (CAS No. 375-95-1); MDL = 0.312 ng/l
12. Perfluorodecanoic acid (CAS No. 335-76-2); MDL = 0.304 ng/l
13. Perfluoroundecanoic acid (CAS No. 2058-94-8); MDL = 0.26 ng/l
14. Perfluorododecanoic acid (CAS No. 307-55-1); MDL = 0.372 ng/l
15. Perfluorotridecanoic acid (CAS No. 72629-94-8); MDL = 0.3272 ng/l
16. Perfluorotetradecanoic acid (CAS No. 376-06-7); MDL = 0.248 ng/l
17. 6:2 Fluorotelomer sulfonate (CAS No. 27619-97-2); MDL = 1.332 ng/l
18. 8:2 Fluoroteomer sulfonate (CAS No. 39108-34-4); MDL = 1.212 ng/l
19. Perfluroroctanesulfonamide (CAS No. 754-91-6); MDL = 0.58 ng/l
20. N-methyl perfluorooctanesulfonamidoacetic acid (CAS No. 2355-31-9); MDL = 0.648 ng/l
21. N-ethyl perfluorooctanesulfonamidoacetic acid (CAS No. 2991-50-6); MDL = 0.804 ng/l

All analysis will be reported using NYSDEC ASP Category B deliverables. Samples will be collected for QA/QC purposes in accordance with the attached Quality Assurance Project Plan (QAPP) (Appendix A): 1 trip blank, 1 field blank (however, 1 field blank per day for PFAS), 1 duplicate sample, 1 matrix spike and 1 matrix spike duplicate. The groundwater QA/QC parameters and sampling frequencies are summarized on Table 1. The groundwater laboratory data will be reviewed by a qualified Data Validator and a Data Usability Summary Report (DUSR) will be prepared. The laboratory analytical results of the samples will be compared to the most recent guidelines for emerging contaminants.

2.4 LOW-FLOW GROUNDWATER SAMPLING

After the completion of groundwater sampling with the Wattera pump, a second round of groundwater samples shall be collected in accordance with EPA’s Low-Flow (minimal drawdown) Groundwater Sampling Procedures, Revised 9/19/2017 (Sampling procedures included as Appendix B) using a submersible pump. The low-flow sampling and PFAS sampling will NOT be conducted on the same day.

For each well, groundwater parameters (e.g, turbidity, pH, temperature, conductivity, D.O., etc.) will be obtained during and recorded on a low-flow sampling field form (Appendix F). Dedicated, new polyethylene tubing will be used to obtain groundwater samples. Groundwater samples will be collected directly from the new tubing into laboratory-issued bottleware. The vials will be filled completely and checked to ensure no air bubbles are present. Samples will be packaged and stored on ice pending same day or overnight shipment to laboratory subcontracted to CA RICH. All samples will be uniquely identified, and all information associated with the samples will be recorded utilizing standard chain-of-custody sampling protocols.

Groundwater samples from each well will be analyzed for TCL VOCs using USEPA Method 8260, TCL SVOCs using USEPA Method 8270, Pesticides via EPA Method 8081, PCBs via EPA Method 8082, 1,4-Dioxane via EPA Method 8270 SIM, and TAL metals using EPA Method 6010/7000 series.

In addition, Alpha Analytical Laboratories is capable of providing a reporting limit of 150 ng/l (0.15 ug/L) and a method detection limit of 33.9 ng/L (0.0339 ug/L) for 1,4-dioxane. The minimum reporting limit required by NYSDEC for 1,4-dioxane is 0.35 ug/L, which is meet by the laboratory.

All analysis will be reported using NYSDEC ASP Category B deliverables. Samples will be collected for QA/QC purposes in accordance with the attached Quality Assurance Project Plan (QAPP) (Appendix A): 1 trip blank, 1 field blank, 1 duplicate sample, 1 matrix spike and 1 matrix spike duplicate. The groundwater QA/QC parameters and sampling frequencies are summarized on Table 1. The groundwater laboratory data will be reviewed by a qualified Third-Party Data Validator and a DUSR will be prepared. The laboratory analytical results of the samples will be compared to NYSDEC TOGS groundwater standards and guidance values and NYSDEC Part 375. For consistency purposes, the QA/QC samples collected during the PFAS/1,4-dioxane sampling will be the same as the low-flow sampling.

All purge water will be containerized in a bucket and/or drummed and sampled for proper off-site disposal. Figure 1 depicts the proposed soil and groundwater sampling locations.

2.5 SOIL SAMPLING

Ten soil borings will be advanced to further characterize the soil utilizing a Geoprobe® drill rig. Continuous soil samples will be screened from each boring at four-foot intervals. A CA RICH Environmental Professional will oversee all soil boring activities; log (characterize) the shallow fill lithology, and screen the earth materials (fill) samples with a Photoionization Detector (PID).

To properly delineate the extent of the contamination, two samples will be collected from each of the 10 boreholes for laboratory analysis. The first sample for laboratory analysis will be collected at the depth of greatest apparent contamination, based on PID screening and field observations. If impacts are not encountered, the sample will be collected from the two (2) foot interval immediately above the shallow groundwater table, or the deepest sample interval if the water table is not reached. The second sample shall be collected from the shallow soils from 0-2 feet below grade.

The soil samples will be submitted to laboratory, subcontracted to CA RICH, for analysis of TAL VOCs using USEPA Method 8260, TAL SVOCs using USEPA Method 8270, Pesticides via EPA Method 8081, PCBs via EPA Method 8082, and TCL metals. All analysis will be reported using NYSDEC ASP Category B deliverables. During this round of sampling, the following samples will be collected for QA/AC purposes in accordance with the attached QAPP (Appendix A): 1 trip blank, 1 field blank, 1 duplicate sample, 1 matrix spike and 1 matrix spike duplicate. The soil QA/QC parameters and sampling frequencies are summarized on Table 1. The soil analytical data will be reviewed by a qualified Data Validator and a DUSR will be prepared. The validated data will be compared to the NYSDEC Unrestricted Use Soil Cleanup Objectives (Ref. 9).

Sampling for PFAS requires additional precautions, which are outlined below:

1. Sampling materials will consist of the Geoprobe™ acrylic macro tubing, stainless split spoons and stainless steel hand augers;
2. The sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE) tubing, glass, or polytetrafluoroethylene (PTFE, Teflon) materials, which includes sample bottle cap liners with Teflon;
3. Decontamination (when necessary) will be conducted using a two-step process that begins with using a detergent (such as Alconox) and finishes with a clean water rinse;
4. Field clothing that contains PTFE (including GORE-TEX) or that have been waterproofed with PFC material must be avoided. All clothing worn by sampling personnel must have be laundered multiple times;
5. Nitrile gloves must be worn during the filling and sealing of the sample bottles

The full list of 21 PFAS (PFAS Analyte List) will be analyzed and includes the following along with their respective Central Authentication Service (CAS) number and laboratory Method Detection Limit (MDL). The laboratory Reporting Limits for the 21 PFAS is 1 ng/g (ppb) for each, which meets the NYSDEC minimum reporting limit of 1 ug/kg (ppb)

1. Perfluorobutanesulfonic acid (CAS No. 375-73-5); MDL = 0.039 ng/g
2. Perfluorohexanesulfonic acid (CAS No. 355-46-4); MDL = 0.0605 ng/g
3. Perfluoroheptanesulfonic acid (CAS No. 375-92-8); MDL = 0.1365 ng/g
4. Perfluorooctanesulfonic acid; (CAS No. 1763-23-1); MDL = 0.13 ng/g
5. Perfluorodecanesulfonic acid (CAS No. 335-77-3); MDL = 0.153 ng/g

6. Perfluorobutanoic acid (CAS No. 375-22-4); MDL = 0.0227 ng/g
7. Perfluoropentanoic acid (CAS No. 2706-90-3); MDL = 0.046 ng/g
8. Perfluorohexanoic acid (CAS No. 307-24-4); MDL = 0.0525 ng/g
9. Perfluoroheptanoic acid (CAS No. 375-85-9); MDL = 0.0451 ng/g
10. Perfluorooctanoic acid (CAS No. 335-67-1); MDL = 0.0419 ng/g
11. Perfluorononanoic acid (CAS No. 375-95-1); MDL = 0.075 ng/g
12. Perfluorodecanoic acid (CAS No. 335-76-2); MDL = 0.067 ng/g
13. Perfluoroundecanoic acid (CAS No. 2058-94-8); MDL = 0.0468 ng/g
14. Perfluorododecanoic acid (CAS No. 307-55-1); MDL = 0.07 ng/g
15. Perfluorotridecanoic acid (CAS No. 72629-94-8); MDL = 0.2045 ng/g
16. Perfluorotetradecanoic acid (CAS No. 376-06-7); MDL = 0.054 ng/g
17. 6:2 Fluorotelomer sulfonate (CAS No. 27619-97-2); MDL = 0.1795 ng/g
18. 8:2 Fluoroteomer sulfonate (CAS No. 39108-34-4); MDL = 0.287 ng/g
19. Perfluroroctanesulfonamide (CAS No. 754-91-6); MDL = 0.098 ng/g
20. N-methyl perfluorooctanesulfonamidoacetic acid (CAS No. 2355-31-9); MDL = 0.2015 ng/g
21. N-ethyl perfluorooctanesulfonamidoacetic acid (CAS No. 2991-50-6); MDL = 0.0845 ng/g

In addition, Alpha Analytical Laboratories is capable of providing a Reporting Limit (RL) of 8 ug/kg (0.008 mg/kg) and a Method Detection Limit (MDL) of 2.04 ug/kg (0.00204 mg/kg) for 1,4-dioxane. The minimum RL required by NYSDEC for 1,4-dioxane is 0.1 mg/kg (ppm), which is meet by the laboratory.

2.6 AIR SAMPLING

Three sub-slab soil vapor borings will be advanced to further characterize the sub-slab soil vapor conditions. The sub-slab points shall be installed utilizing a hammer drill to bore through the concrete slab.

To properly delineate the extent of the contamination, one sample shall be collected from the sub-basement, one from the basement and one from the first-floor. In addition, in order to determine if soil vapor intrusion conditions exist, each sub-slab soil vapor point shall be installed to approximately 2-inches below the bottom of the concrete slab. A companion indoor air sample shall be collected with each of the three sub-slab soil vapor points and one outdoor air sample shall be collected.

The air samples will be submitted to a laboratory, subcontracted to CA RICH, for analysis of VOCs using USEPA Method TO-15. All analysis will be reported using NYSDEC ASP Category B deliverables. During this round of sampling, the following samples will be collected for QA/AC purposes in accordance with the attached QAPP (Appendix A): 1 duplicate sample. The air analytical data will be reviewed by a qualified Data Validator and a DUSR will be prepared. The validated data will be compared to the NYSDOH Decision Matrices. The laboratory reporting limits are included in Table 5

2.7 EQUIPMENT DECONTAMINATION

An equipment decontamination area will be set up in a location close to, but segregated from the work area. This area will be set up on top of a minimum 6-mil polyethylene liner (or equivalent quality plastic sheeting), and will include the following equipment: decontaminating cleaners and solutions, deionized water, sprayers, washing tubs/buckets, brushes and clean disposable latex and neoprene gloves. Gloves worn for sample handling will be discarded between sample collections

All down-hole drilling equipment will be decontaminated upon arrival at the Site and between each use, e.g., augers, samplers, rods and plugs, etc. All re-usable sampling equipment, including bowls, trowels, and split-spoon samplers, etc. will be decontaminated with a three-step washing process that consists of a tap water rinse, an Alconox® and tap water wash, followed by a distilled water rinse. After each rinsing process the equipment will be allowed to air dry.

The submersible pump used for groundwater sample collection will be decontaminated between sample collection by passing the detergent and water mixture through the pump, followed by two fresh water rinses.

The sampling for PFAS will use dedicated new HDPE tubing and stainless check valve for sampling. The stainless steel check valve shall be cleaned with Alconox and fresh water rinse prior to usage. In addition, precautions are necessary for the collection of PFAS samples, which is discussed in the Site Characterization Work Plan

Note, Liquinox shall not be used during the decontamination process.

2.8 LABORATORY DATA QUALITY OBJECTIVES

Alpha Analytical Laboratory is the selected project laboratory. This laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies.

The performance of the laboratory will be evaluated by the Project Manager and Project Quality Assurance Officer during data reduction. The evaluation will include a review of all deliverables for completeness and accuracy when applicable. This evaluation is outlined in Tables 2 & 3.

3.0 QUALITY CONTROL PROCEDURES

This section presents a general overview of the quality assurance and quality control procedures that will be implemented during the SC FSAP. These quality control procedures are to be implemented as follows:

- in the field; and

- in the laboratory utilized for selected sample analyses.

Further detail regarding QA/QC samples and procedures can be found in Table 4.

3.1 FIELD QC ACTIVITIES

Several types of field QC samples will be collected and submitted for analysis during the project. Each type of QC sample monitors a different aspect of the field effort. Analytical results for QC samples provide information regarding the adequacy of the sample collection and transportation of samples.

The frequency of field QC samples collected will depend on the total number of samples being collected. Specifics of the sampling activities, regarding collection frequency are described in Table 1. Sampling procedures are described Section 2 of the SC FSAP. The six types of field QC samples that will be generated during the project are defined below:

- Trip blanks: Trip blank samples monitor for contamination due to handling, transport, cross contamination from other samples during storage, or laboratory contamination.

- Temperature blanks: Temperature blanks are used to monitor temperature within a sample cooler. Temperature blank results that are outside of acceptable limits (1° to 10°C) indicate possible sample preservation issues and may require qualification of data or the recollection of samples.

- Field duplicates: Field duplicates are used to monitor field and laboratory precision, as well as matrix heterogeneity.

- Field Blanks: Field blanks are prepared using laboratory-provided water and poured into sample containers at the sampling location. Used to provide information that samples have not been contaminated during field sampling and during transport of containers from and to the laboratory.

- Equipment Blanks: Equipment blanks are prepared using laboratory-provided water, which is poured over the sampling equipment in the field and collected in laboratory issues containers. This is conducted to determine if field procedures are introducing contaminants into the samples.

- Matrix Spikes: Matrix Spikes (MS) are used to monitor precision and accuracy of the analytical method on various matrices.

- Matrix Spike Duplicates: Matrix Spike Duplicate (MSD) are used to monitor precision and accuracy of the analytical method on various matrices.

3.2 LABORATORY QC ACTIVITIES

Laboratory QC samples will include the use of method blanks, MS, laboratory control samples, laboratory duplicates, and surrogate spikes. The five types of laboratory QC samples are defined below.

- Method blanks - Method blanks are used to monitor and ensure that the analytical system is free of contamination due either to carryover from previous samples or from laboratory procedures.

- Laboratory Fortified Blank (LFB): A volume of reagent water or other blank matrix to which known quantities of the method analytes and all the preservation compounds are added in the laboratory. The LFB is analyzed exactly like a sample, and its purpose is to determine whether the methodology is in control, and whether the laboratory is capable of making accurate and precise measurements.

- Laboratory Fortified Sample Matrix (LFSM): A preserved field sample to which known quantities of the method analytes are added in the laboratory. The LFSM is processed and analyzed exactly like a sample, and its purpose is to determine whether the sample matrix contributes bias to the analytical results. The background concentrations of the analytes in the sample matrix must be determined in a separate sample extraction and the measured values in the LFSM corrected for background concentrations.

- Laboratory Fortified Sample Matrix Duplicate (LFSMD): A duplicate of the Field Sample used to prepare the LFSM. The LFSMD is fortified, extracted, and analyzed identically to the LFSM. The LFSMD is used instead of the Field Duplicate to assess method precision when the occurrence of method analytes is low.

- Surrogate Spikes: Surrogate Spikes are utilized to monitor potential interferences from the sample matrix. Surrogate spikes are required for organic analyses only.

Further detail regarding measurement performance criteria can be found in Table 5.

4.0 ANALYTICAL PROCEDURES AND DATA EVALUATION

Both groundwater and soil samples will be collected and submitted to the selected project laboratory for analysis of Contaminants of Potential Concern (COPC) to facilitate the NYSDEC's SC process. The COPCs are:

- TCL Volatile Organic Compounds (VOCs) by EPA Method 8260
- TCL Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270
- TAL Metals by EPA Methods 6010 and 7000-series
- Pesticides / PCBs by EPA Method 8081/8082
- PFASs by EPA Method 537 modified with isotope dilution analysis

- 1,4 – Dioxane (Aqueous) by EPA Method 8270 SIM
- 1,4 – Dioxane (Solids) by EPA Method 8270
- VOCs for air samples via EPA Method TO-15.

Laboratory analytical procedures will adhere to the methodology and/or the selected project laboratory Standard Operating Procedures (SOPs) outlined in Table 4.

Upon receipt of analytical reports from the laboratory, CA RICH will evaluate data packages and confirm that samples were analyzed within required holding time and at proper detection limits. The laboratory will provide deliverables in NYSDEC Analytical Services Protocol (ASP) Category B format.

The Project Quality Assurance Officer will review the data packages and prepare a Data Usability Summary Report (DUSR) in accordance with NYSDEC guidance in DER-10 (NYSDEC, 2010). At a minimum, the following information will be evaluated:

- chain-of-custody forms (see Table 8 for requirements);
- date sampled/date analyzed;
- sample temperature at check-in;
- raw data;
- initial and continuing instrument calibrations;
- matrix spikes;
- laboratory duplicate analyses;
- surrogate recoveries (organics); and
- laboratory control samples (inorganics).

Data reduction will consist of presenting analytical results on summary tables. Data resulting from characterization analyses will then be used to evaluate potential remedial options.

5.0 PROJECT PERSONNEL

CA RICH will staff this project with persons having expertise in the tasks to be performed and experience working on NYSDEC regulated sites. The Project Personnel Sign-Off Sheet is located in Table 9 and key project personnel that will be involved with this project are summarized below:

CA RICH Project Director:	Richard Izzo	Phone: 516-576-8844 (Office)
CA RICH Project Manager:	Jason Cooper	Phone: 516-833-2535 (Cell)
CA RICH Site Safety Officer	Jessica Proscia	Phone: 516-576-8844 (Office)
CA RICH Q/A Officer	Michael Yager	Phone: 516-576-8844 (Office)
CA RICH Field Staff	Thomas Brown	Phone: 516-576-8844 (Office)
Laboratory Project Manager:	Tom Tanico	Phone: 201-812-2632 (Office)
Third- Party Data Validator	Lori Beyer	Phone: 516-523-7891 (Home)

The Laboratory Project Manager is Tom Tanico of Alpha Analytical. The Third-Party Data Validator, Lori Beyer, works for the company L.A.B. Validation Corporation and her resume is included in Appendix A

TABLES

Table 1
Summary of Project Tasks

Sampling Tasks: ▪ Collection of groundwater samples ▪ Collection of soil samples ▪ Collection of sub-slab soil vapor, indoor, and outdoor air samples. ▪ Recording groundwater field parameters with field instruments during sampling (i.e. pH, conductivity, temperature, ORP, etc.) ▪ Site survey
Analysis Tasks: Alpha Analytical will perform all laboratory analyses. The specific criteria for project sampling are detailed in Table 4 and in the SCWP.
Quality Control Tasks: QA/QC sampling requirements are outlined in the QAPP. All project personnel are expected to review and comply with the QA/QC protocol and guidance presented within the QAPP.
Secondary Data: Not applicable.
Data Management Tasks: After appropriate QA/QC review data will be compiled in an electronic database.
Documentation and Records: All documents will be managed and retained by CA Rich Consultants.
Assessment/Audit Tasks: QA/QC audits will be performed by CA Rich Consultants.
Data Review Tasks: QA/QC review and validation of data will be managed by CA Rich Consultants. A DUSR shall be completed by a third-party provider

Table 2
Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (Name, Title, Organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Field Sampling Protocol	Electronic mail that documents the results of the audit will be submitted to the project manager.	Jason Cooper, Project Manager, CA Rich Consultants	24 hours after audit	Electronic mail	All CA Rich project personnel listed in Section 5 "Project Personel" of the QAPP	24 hours after notification
Handling and Custody of Samples	Electronic mail that documents the results of the audit will be submitted to the project manager.	Jason Cooper, Project Manager, CA Rich Consultants	24 hours after audit	Electronic mail	All CA Rich project personnel listed in Section 5 "Project Personel" of the QAPP	24 hours after notification
Analytical Laboratory Performance	Electronic mail that documents the results of the audit will be submitted to the project manager.	Jason Cooper, Project Manager, CA Rich Consultants	24 hours after audit	Electronic mail	All CA Rich project personnel listed in Section 5 "Project Personel" of the QAPP	24 hours after notification

Table 3
Verification Process

Verification Input	Description	Internal/ External	Responsible for Verification (Name, Organization)
Chain of Custody Forms	Chain of Custody (COC) Forms will be reviewed after the forms have been completed by the CA Rich sampler but prior to shipping any laboratory samples off-Site. All elements of the COC (requested analysis, bottle qty., project information, etc.) will be compared to the analytical criteria specified in the QAPP and to confirm that the labels and qty. of bottles in the cooler match the information specified on the COC. Samples will be picked up by Alpha Analytical Laboratory personell the same day as sampling so the samples arrive at the lab according to holding time and temperature preservation requirements specified in the QAPP.	Internal	Jason Cooper, CA Rich Consultants
Audit Reports	The results of the audit reports and project assessments presented in Table 2 will be retained in the project file. As specified, the results and findings will be reviewed with the appropriate members of the project team and confirmation that all corrective measures have been completed will be the responsibility of the project manager. Reference Table 2 for further details.	Internal	Jason Cooper, CA Rich Consultants
Field Notes	It is imperative that detailed field notes are recorded real-time in the field to document project field activities.	Internal	Jason Cooper, CA Rich Consultants
Laboratory Data	All laboratory data will be reviewed internally by the analytical laboratory prior to reporting analytical results to CA Rich. All analytical laboratory data packages will comply with the 2005 NYSDEC ASP Category B reporting and deliverable requirements. ata generated from the Groundwater Monitoring samples and soil samples will be validated. A Data Usability Assessment will be prepared by a third-party provider at the end of the project.	External Internal/ External	Alpha Laboratories Jason Cooper, CA Rich Consultants Lori Beyer, L.A.B Validation

Table 4
Analytical Methods/Quality Assurance Summary Table

Analytical Parameter	**Analytical Method**	**Soil Samples**						**Bottleware**	**Holding Time**
		Number of Samples	Field Duplicate (1 per 20 Samples)	MS/MSD (1 per 20 samples)	Trip Blank (1 per cooler)	Field Blank (1 per 20 samples)	Equipment Blank (1 per day)		
TCL VOCs	8260	20	1	1 MS & 1 MSD	*	1	**	40 ml Vials, preserved with MeOH	14 days
TCL SVOCs	8270	20	1	1 MS & 1 MSD	--	1	**	4 oz glass jar unpreserved	14 days extract/40 days following extraction
Total PCBs	8082	20	1	1 MS & 1 MSD	--	1	**		14 days
Pesticides	8081	20	1	1 MS & 1 MSD	--	1	**		14 days extract/40 days following extraction
TAL Metals	6010 & 7000	20	1	1 MS & 1 MSD	--	1	**	2 oz glass jar unpreserved	Hx Cr 24 hours/Hg 28 days/all others 6 months
Perfluorinated Compounds	537 Modified with Isotope dilution analysis	20	1	1 MS & 1 MSD	--	1	**	8 oz widemouth Polypropylene container unpreserved	14 days extract/28 days following extraction
1,4-Dioxane	8270	20	1	1 MS & 1 MSD	--	1	**	8 oz glass jar unpreserved	14 days
Analytical Parameter	**Analytical Method**	**Groundwater Samples**						**Bottleware**	**Holding Time**
		Number of Samples	Field Duplicate (1 per 20 Samples)	MS/MSD (1 per 20 samples)	Trip Blank (1 per cooler)	Field Blank (1 per 20 samples)	Equipment Blank (1 per day)		
TCL VOCs	8260	5	1	1 MS & 1 MSD	*	1	**	3 - 40ml VOA vial with HCL	14 days extract/40 days following extraction
TCL SVOCs	8270	5	1	1 MS & 1 MSD	--	1	**	2-250 ml unpreserved amber	7 days extract/ 40 days following extraction
Total PCBs	8081	5	1	1 MS & 1 MSD	--	1	**	1 - 1 liter amber unpreserved	7 days
Pesticides	8082	5	1	1 MS & 1 MSD	--	1	**	2-120 ml amber unpreserved	7 days extract/ 40 days following extraction
TAL Metals (Total)	6010 & 7000	5	1	1 MS & 1 MSD	--	1	**	1 - 500 ml plastic HNO3	180 days for all, except Mercury which is 28 days
TAL Metals (Dissolved)--lab filtered	6010 & 7000	5	1	1 MS & 1 MSD	--	1	**	1 - 500 ml plastic unpreserved	180 days for all, except Mercury which is 28 days
Perfluorinated Compounds	537 Modified with Isotope dilution analysis	5	1	1 MS & 1 MSD	--	1	**	2 - 500 ml HDPE (Trizma optional)	14 days to extraction/28 days following extraction
1,4-Dioxane	8270 SIM	5	1	1 MS & 1 MSD	--	1	**	2-250ml amber unpreserved	7 days extract/ 40 days following extraction
Analytical Parameter	**Analytical Method**	**Air Samples**						**Bottleware**	**Holding Time**
		Number of Samples	Field Duplicate (1 per 20 Samples)	MS/MSD (1 per 20 samples)	Trip Blank (1 per cooler)	Field Blank (1 per 20 samples)	Equipment Blank (1 per day)		
VOCs	TO-15	7	1	--	--	--	**	6-Liter Summa Canister	up to 30 days

Notes:
* - The number of trip blanks will be determined based upon the amount of coolers required. One trip blank per cooler shall be usec
** - The number of equipment blanks will be determined based upon the amount of field days required to complete the investigation. One equipment blank shall be collected per day per matri

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TCL Volatiles - EPA 8260C/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	0.005	0.00229	mg/kg	70-130	30	70-130	30	30			
1,1-Dichloroethane	75-34-3	0.001	0.000145	mg/kg	70-130	30	70-130	30	30			
Chloroform	67-66-3	0.0015	0.00014	mg/kg	70-130	30	70-130	30	30			
Carbon tetrachloride	56-23-5	0.001	0.00023	mg/kg	70-130	30	70-130	30	30			
1,2-Dichloropropane	78-87-5	0.001	0.000125	mg/kg	70-130	30	70-130	30	30			
Dibromochloromethane	124-48-1	0.001	0.00014	mg/kg	70-130	30	70-130	30	30			
1,1,2-Trichloroethane	79-00-5	0.001	0.000267	mg/kg	70-130	30	70-130	30	30			
Tetrachloroethene	127-18-4	0.0005	0.000196	mg/kg	70-130	30	70-130	30	30			
Chlorobenzene	108-90-7	0.0005	0.000127	mg/kg	70-130	30	70-130	30	30			
Trichlorofluoromethane	75-69-4	0.004	0.000695	mg/kg	70-139	30	70-139	30	30			
1,2-Dichloroethane	107-06-2	0.001	0.000257	mg/kg	70-130	30	70-130	30	30			
1,1,1-Trichloroethane	71-55-6	0.0005	0.000167	mg/kg	70-130	30	70-130	30	30			
Bromodichloromethane	75-27-4	0.0005	0.000109	mg/kg	70-130	30	70-130	30	30			
trans-1,3-Dichloropropene	10061-02-6	0.001	0.000273	mg/kg	70-130	30	70-130	30	30			
cis-1,3-Dichloropropene	10061-01-5	0.0005	0.000158	mg/kg	70-130	30	70-130	30	30			
1,3-Dichloropropene, Total	542-75-6	0.0005	0.000158	mg/kg				30	30			
1,1-Dichloropropene	563-58-6	0.0005	0.000159	mg/kg	70-130	30	70-130	30	30			
Bromoform	75-25-2	0.004	0.000246	mg/kg	70-130	30	70-130	30	30			
1,1,2,2-Tetrachloroethane	79-34-5	0.0005	0.000166	mg/kg	70-130	30	70-130	30	30			
Benzene	71-43-2	0.0005	0.000166	mg/kg	70-130	30	70-130	30	30			
Toluene	108-88-3	0.001	0.000543	mg/kg	70-130	30	70-130	30	30			
Ethylbenzene	100-41-4	0.001	0.000141	mg/kg	70-130	30	70-130	30	30			
Chloromethane	74-87-3	0.004	0.000932	mg/kg	52-130	30	52-130	30	30			
Bromomethane	74-83-9	0.002	0.000581	mg/kg	57-147	30	57-147	30	30			
Vinyl chloride	75-01-4	0.001	0.000335	mg/kg	67-130	30	67-130	30	30			
Chloroethane	75-00-3	0.002	0.000452	mg/kg	50-151	30	50-151	30	30			
1,1-Dichloroethene	75-35-4	0.001	0.000238	mg/kg	65-135	30	65-135	30	30			
trans-1,2-Dichloroethene	156-60-5	0.0015	0.000137	mg/kg	70-130	30	70-130	30	30			
Trichloroethene	79-01-6	0.0005	0.000137	mg/kg	70-130	30	70-130	30	30			
1,2-Dichlorobenzene	95-50-1	0.002	0.000144	mg/kg	70-130	30	70-130	30	30			
1,3-Dichlorobenzene	541-73-1	0.002	0.000148	mg/kg	70-130	30	70-130	30	30			
1,4-Dichlorobenzene	106-46-7	0.002	0.000171	mg/kg	70-130	30	70-130	30	30			
Methyl tert butyl ether	1634-04-4	0.002	0.000201	mg/kg	66-130	30	66-130	30	30			
p/m-Xylene	179601-23-1	0.002	0.00056	mg/kg	70-130	30	70-130	30	30			
o-Xylene	95-47-6	0.001	0.000291	mg/kg	70-130	30	70-130	30	30			
Xylene (Total)	1330-20-7	0.001	0.000291	mg/kg				30	30			
cis-1,2-Dichloroethene	156-59-2	0.001	0.000175	mg/kg	70-130	30	70-130	30	30			
1,2-Dichloroethene (total)	540-59-0	0.001	0.000137	mg/kg				30	30			
Dibromomethane	74-95-3	0.002	0.000238	mg/kg	70-130	30	70-130	30	30			
Styrene	100-42-5	0.001	0.000196	mg/kg	70-130	30	70-130	30	30			
Dichlorodifluoromethane	75-71-8	0.01	0.000915	mg/kg	30-146	30	30-146	30	30			
Acetone	67-64-1	0.01	0.004811	mg/kg	54-140	30	54-140	30	30			

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TCL Volatiles - EPA 8260C/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Carbon disulfide	75-15-0	0.01	0.00455	mg/kg	59-130	30	59-130	30	30			
2-Butanone	78-93-3	0.01	0.00222	mg/kg	70-130	30	70-130	30	30			
Vinyl acetate	108-05-4	0.01	0.00215	mg/kg	70-130	30	70-130	30	30			
4-Methyl-2-pentanone	108-10-1	0.01	0.00128	mg/kg	70-130	30	70-130	30	30			
1,2,3-Trichloropropane	96-18-4	0.002	0.000127	mg/kg	68-130	30	68-130	30	30			
2-Hexanone	591-78-6	0.01	0.00118	mg/kg	70-130	30	70-130	30	30			
Bromochloromethane	74-97-5	0.002	0.000205	mg/kg	70-130	30	70-130	30	30			
2,2-Dichloropropane	594-20-7	0.002	0.000202	mg/kg	70-130	30	70-130	30	30			
1,2-Dibromoethane	106-93-4	0.001	0.000279	mg/kg	70-130	30	70-130	30	30			
1,3-Dichloropropane	142-28-9	0.002	0.000167	mg/kg	69-130	30	69-130	30	30			
1,1,1,2-Tetrachloroethane	630-20-6	0.0005	0.000132	mg/kg	70-130	30	70-130	30	30			
Bromobenzene	108-86-1	0.002	0.000145	mg/kg	70-130	30	70-130	30	30			
n-Butylbenzene	104-51-8	0.001	0.000167	mg/kg	70-130	30	70-130	30	30			
sec-Butylbenzene	135-98-8	0.001	0.000146	mg/kg	70-130	30	70-130	30	30			
tert-Butylbenzene	98-06-6	0.002	0.000118	mg/kg	70-130	30	70-130	30	30			
o-Chlorotoluene	95-49-8	0.002	0.000191	mg/kg	70-130	30	70-130	30	30			
p-Chlorotoluene	106-43-4	0.002	0.000108	mg/kg	70-130	30	70-130	30	30			
1,2-Dibromo-3-chloropropane	96-12-8	0.003	0.000998	mg/kg	68-130	30	68-130	30	30			
Hexachlorobutadiene	87-68-3	0.004	0.000169	mg/kg	67-130	30	67-130	30	30			
Isopropylbenzene	98-82-8	0.001	0.000109	mg/kg	70-130	30	70-130	30	30			
p-Isopropyltoluene	99-87-6	0.001	0.000109	mg/kg	70-130	30	70-130	30	30			
Naphthalene	91-20-3	0.004	0.00065	mg/kg	70-130	30	70-130	30	30			
Acrylonitrile	107-13-1	0.004	0.00115	mg/kg	70-130	30	70-130	30	30			
n-Propylbenzene	103-65-1	0.001	0.000171	mg/kg	70-130	30	70-130	30	30			
1,2,3-Trichlorobenzene	87-61-6	0.002	0.000322	mg/kg	70-130	30	70-130	30	30			
1,2,4-Trichlorobenzene	120-82-1	0.002	0.000272	mg/kg	70-130	30	70-130	30	30			
1,3,5-Trimethylbenzene	108-67-8	0.002	0.000193	mg/kg	70-130	30	70-130	30	30			
1,2,4-Trimethylbenzene	95-63-6	0.002	0.000334	mg/kg	70-130	30	70-130	30	30			
1,4-Dioxane	123-91-1	0.08	0.0351	mg/kg	65-136	30	65-136	30	30			
1,4-Diethylbenzene	105-05-5	0.002	0.000177	mg/kg	70-130	30	70-130	30	30			
4-Ethyltoluene	622-96-8	0.002	0.000384	mg/kg	70-130	30	70-130	30	30			
1,2,4,5-Tetramethylbenzene	95-93-2	0.002	0.000191	mg/kg	70-130	30	70-130	30	30			
Ethyl ether	60-29-7	0.002	0.000341	mg/kg	67-130	30	67-130	30	30			
trans-1,4-Dichloro-2-butene	110-57-6	0.005	0.00142	mg/kg	70-130	30	70-130	30	30			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
2-Chloroethoxyethane												
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
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Table 5 Measurement Performance Criteria

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NYTCL Semivolatiles - EPA 8270D (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	133.6	17.3012	ug/kg	31-137	50	31-137	50	50			
1,2,4-Trichlorobenzene	120-82-1	167	19.1048	ug/kg	38-107	50	38-107	50	50			
Hexachlorobenzene	118-74-1	100.2	18.704	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethyl)ether	111-44-4	150.3	22.6452	ug/kg	40-140	50	40-140	50	50			
2-Chloronaphthalene	91-58-7	167	16.5664	ug/kg	40-140	50	40-140	50	50			
1,2-Dichlorobenzene	95-50-1	167	29.9932	ug/kg	40-140	50	40-140	50	50			
1,3-Dichlorobenzene	541-73-1	167	28.724	ug/kg	40-140	50	40-140	50	50			
1,4-Dichlorobenzene	106-46-7	167	29.1582	ug/kg	28-104	50	28-104	50	50			
3,3'-Dichlorobenzidine	91-94-1	167	44.422	ug/kg	40-140	50	40-140	50	50			
2,4-Dinitrotoluene	121-14-2	167	33.4	ug/kg	40-132	50	40-132	50	50			
2,6-Dinitrotoluene	606-20-2	167	28.6572	ug/kg	40-140	50	40-140	50	50			
Fluoranthene	206-44-0	100.2	19.1716	ug/kg	40-140	50	40-140	50	50			
4-Chlorophenyl phenyl ether	7005-72-3	167	17.869	ug/kg	40-140	50	40-140	50	50			
4-Bromophenyl phenyl ether	101-55-3	167	25.4842	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroisopropyl)ether	108-60-1	200.4	28.5236	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethoxy)methane	111-91-1	180.36	16.7334	ug/kg	40-117	50	40-117	50	50			
Hexachlorobutadiene	87-68-3	167	24.4488	ug/kg	40-140	50	40-140	50	50			
Hexachlorocyclopentadiene	77-47-4	477.62	151.302	ug/kg	40-140	50	40-140	50	50			
Hexachloroethane	67-72-1	133.6	27.0206	ug/kg	40-140	50	40-140	50	50			
Isophorone	78-59-1	150.3	21.6766	ug/kg	40-140	50	40-140	50	50			
Naphthalene	91-20-3	167	20.3406	ug/kg	40-140	50	40-140	50	50			
Nitrobenzene	98-95-3	150.3	24.716	ug/kg	40-140	50	40-140	50	50			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	133.6	19.0046	ug/kg	36-157	50	36-157	50	50			
n-Nitrosodi-n-propylamine	621-64-7	167	25.7848	ug/kg	32-121	50	32-121	50	50			
Bis(2-Ethylhexyl)phthalate	117-81-7	167	57.782	ug/kg	40-140	50	40-140	50	50			
Butyl benzyl phthalate	85-68-7	167	42.084	ug/kg	40-140	50	40-140	50	50			
Di-n-butylphthalate	84-74-2	167	31.6632	ug/kg	40-140	50	40-140	50	50			
Di-n-octylphthalate	117-84-0	167	56.78	ug/kg	40-140	50	40-140	50	50			
Diethyl phthalate	84-66-2	167	15.4642	ug/kg	40-140	50	40-140	50	50			
Dimethyl phthalate	131-11-3	167	35.07	ug/kg	40-140	50	40-140	50	50			
Benzo(a)anthracene	56-55-3	100.2	18.8042	ug/kg	40-140	50	40-140	50	50			
Benzo(a)pyrene	50-32-8	133.6	40.748	ug/kg	40-140	50	40-140	50	50			
Benzo(b)fluoranthene	205-99-2	100.2	28.1228	ug/kg	40-140	50	40-140	50	50			
Benzo(k)fluoranthene	207-08-9	100.2	26.72	ug/kg	40-140	50	40-140	50	50			
Chrysene	218-01-9	100.2	17.368	ug/kg	40-140	50	40-140	50	50			
Acenaphthylene	208-96-8	133.6	25.7848	ug/kg	40-140	50	40-140	50	50			
Anthracene	120-12-7	100.2	32.565	ug/kg	40-140	50	40-140	50	50			
Benzo(ghi)perylene	191-24-2	133.6	19.6392	ug/kg	40-140	50	40-140	50	50			
Fluorene	86-73-7	167	16.2324	ug/kg	40-140	50	40-140	50	50			
Phenanthrene	85-01-8	100.2	20.3072	ug/kg	40-140	50	40-140	50	50			
Dibenzo(a,h)anthracene	53-70-3	100.2	19.3052	ug/kg	40-140	50	40-140	50	50			
Indeno(1,2,3-cd)Pyrene	193-39-5	133.6	23.2798	ug/kg	40-140	50	40-140	50	50			

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NYTCL Semivolatiles - EPA 8270D (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	100.2	16.5998	ug/kg	35-142	50	35-142	50	50			
Biphenyl	92-52-4	380.76	38.744	ug/kg	37-127	50	37-127	50	50			
4-Chloroaniline	106-47-8	167	30.394	ug/kg	40-140	50	40-140	50	50			
2-Nitroaniline	88-74-4	167	32.1976	ug/kg	47-134	50	47-134	50	50			
3-Nitroaniline	99-09-2	167	31.4962	ug/kg	26-129	50	26-129	50	50			
4-Nitroaniline	100-01-6	167	69.138	ug/kg	41-125	50	41-125	50	50			
Dibenzofuran	132-64-9	167	15.7982	ug/kg	40-140	50	40-140	50	50			
2-Methylnaphthalene	91-57-6	200.4	20.1736	ug/kg	40-140	50	40-140	50	50			
Acetophenone	98-86-2	167	20.6746	ug/kg	14-144	50	14-144	50	50			
2,4,6-Trichlorophenol	88-06-2	100.2	31.6632	ug/kg	30-130	50	30-130	50	50			
P-Chloro-M-Cresol	59-50-7	167	24.883	ug/kg	26-103	50	26-103	50	50			
2-Chlorophenol	95-57-8	167	19.7394	ug/kg	25-102	50	25-102	50	50			
2,4-Dichlorophenol	120-83-2	150.3	26.8536	ug/kg	30-130	50	30-130	50	50			
2,4-Dimethylphenol	105-67-9	167	55.11	ug/kg	30-130	50	30-130	50	50			
2-Nitrophenol	88-75-5	360.72	62.792	ug/kg	30-130	50	30-130	50	50			
4-Nitrophenol	100-02-7	233.8	68.136	ug/kg	11-114	50	11-114	50	50			
2,4-Dinitrophenol	51-28-5	801.6	77.822	ug/kg	4-130	50	4-130	50	50			
4,6-Dinitro-o-cresol	534-52-1	434.2	80.16	ug/kg	10-130	50	10-130	50	50			
Pentachlorophenol	87-86-5	133.6	36.74	ug/kg	17-109	50	17-109	50	50			
Phenol	108-95-2	167	25.217	ug/kg	26-90	50	26-90	50	50			
2-Methylphenol	95-48-7	167	25.885	ug/kg	30-130.	50	30-130.	50	50			
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	240.48	26.1522	ug/kg	30-130	50	30-130	50	50			
2,4,5-Trichlorophenol	95-95-4	167	31.9972	ug/kg	30-130	50	30-130	50	50			
Benzoic Acid	65-85-0	541.08	169.004	ug/kg	10-110	50	10-110	50	50			
Benzyl Alcohol	100-51-6	167	51.102	ug/kg	40-140	50	40-140	50	50			
Carbazole	86-74-8	167	16.2324	ug/kg	54-128	50	54-128	50	50			
1,4-Dioxane	123-91-1	25.05	7.682	ug/kg	40-140	50	40-140	50	50			
2-Fluorophenol	*367-12-4*									*25-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*30-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-136*		
4-Terphenyl-d14	*1718-51-0*									*18-120*		

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Table 5 Measurement Performance Criteria

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TCL PCBs - EPA 8082A (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	33.5	2.9748	ug/kg	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	33.5	3.3567	ug/kg	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	33.5	7.102	ug/kg	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	33.5	4.5158	ug/kg	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	33.5	5.025	ug/kg	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	33.5	3.6649	ug/kg	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	33.5	6.1908	ug/kg	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	33.5	4.2545	ug/kg	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	33.5	3.4706	ug/kg	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	33.5	2.9748	ug/kg				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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METALS by 6010D (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Aluminum, Total	7429-90-5	4	1.08	mg/kg	48-151		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Antimony, Total	7440-36-0	2	0.152	mg/kg	1-208		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Arsenic, Total	7440-38-2	0.4	0.0832	mg/kg	79-121		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Barium, Total	7440-39-3	0.4	0.0696	mg/kg	83-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Beryllium, Total	7440-41-7	0.2	0.0132	mg/kg	83-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Cadmium, Total	7440-43-9	0.4	0.0392	mg/kg	83-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Calcium, Total	7440-70-2	4	1.4	mg/kg	81-119		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Chromium, Total	7440-47-3	0.4	0.0384	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Cobalt, Total	7440-48-4	0.8	0.0664	mg/kg	84-115		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Copper, Total	7440-50-8	0.4	0.1032	mg/kg	81-118		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Iron, Total	7439-89-6	2	0.3612	mg/kg	45-155		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Lead, Total	7439-92-1	2	0.1072	mg/kg	81-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Magnesium, Total	7439-95-4	4	0.616	mg/kg	76-124		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Manganese, Total	7439-96-5	0.4	0.0636	mg/kg	81-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Nickel, Total	7440-02-0	1	0.0968	mg/kg	83-117		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Potassium, Total	7440-09-7	100	5.76	mg/kg	71-129		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Selenium, Total	7782-49-2	0.8	0.1032	mg/kg	78-122		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Silver, Total	7440-22-4	0.4	0.1132	mg/kg	75-124		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Sodium, Total	7440-23-5	80	1.26	mg/kg	72-127		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Thallium, Total	7440-28-0	0.8	0.126	mg/kg	80-120		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Vanadium, Total	7440-62-2	0.4	0.0812	mg/kg	78-122		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved
Zinc, Total	7440-66-6	2	0.1172	mg/kg	82-118		75-125	20	20		180 days	Metals Only-Glass 60mL/2oz unpreserved

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METALS by 7471B (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Mercury, Total	7439-97-6	0.08	0.05216	mg/kg	72-128		80-120	20	20		28 days	Metals Only-Glass 60mL/2oz unpreserved

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Table 5 Measurement Performance Criteria

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WETCHEM (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container/Sample Preservation
Chromium, Hexavalent	18540-29-9	0.8	0.16	mg/kg	80-120	20	75-125	20	20	7196A	30 days	1 - Glass 120ml/4oz unpreserved

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TCL Pesticides - EPA 8081B (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	1.6008	0.31349	ug/kg	30-150	30	30-150	50	50			
Lindane	58-89-9	0.667	0.298149	ug/kg	30-150	30	30-150	50	50			
Alpha-BHC	319-84-6	0.667	0.189428	ug/kg	30-150	30	30-150	50	50			
Beta-BHC	319-85-7	1.6008	0.60697	ug/kg	30-150	30	30-150	50	50			
Heptachlor	76-44-8	0.8004	0.358846	ug/kg	30-150	30	30-150	50	50			
Aldrin	309-00-2	1.6008	0.563615	ug/kg	30-150	30	30-150	50	50			
Heptachlor epoxide	1024-57-3	3.0015	0.90045	ug/kg	30-150	30	30-150	50	50			
Endrin	72-20-8	0.667	0.27347	ug/kg	30-150	30	30-150	50	50			
Endrin aldehyde	7421-93-4	2.001	0.70035	ug/kg	30-150	30	30-150	50	50			
Endrin ketone	53494-70-5	1.6008	0.412206	ug/kg	30-150	30	30-150	50	50			
Dieldrin	60-57-1	1.0005	0.50025	ug/kg	30-150	30	30-150	50	50			
4,4'-DDE	72-55-9	1.6008	0.370185	ug/kg	30-150	30	30-150	50	50			
4,4'-DDD	72-54-8	1.6008	0.570952	ug/kg	30-150	30	30-150	50	50			
4,4'-DDT	50-29-3	3.0015	1.28731	ug/kg	30-150	30	30-150	50	50			
Endosulfan I	959-98-8	1.6008	0.378189	ug/kg	30-150	30	30-150	50	50			
Endosulfan II	33213-65-9	1.6008	0.534934	ug/kg	30-150	30	30-150	50	50			
Endosulfan sulfate	1031-07-8	0.667	0.317492	ug/kg	30-150	30	30-150	50	50			
Methoxychlor	72-43-5	3.0015	0.9338	ug/kg	30-150	30	30-150	50	50			
Toxaphene	8001-35-2	30.015	8.4042	ug/kg	30-150	30	30-150	50	50			
cis-Chlordane	5103-71-9	2.001	0.557612	ug/kg	30-150	30	30-150	50	50			
trans-Chlordane	5103-74-2	2.001	0.528264	ug/kg	30-150	30	30-150	50	50			
Chlordane	57-74-9	13.34	5.30265	ug/kg	30-150	30	30-150	50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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1,4 Dioxane via EPA 8270D-SIM (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,4-Dioxane	123-91-1	8	2.04	ug/kg	40-140	30	40-140	30	30			
1,4-Dioxane-d8	*17647-74-4*									*15-110*		
1,4-Dioxane-d8 (IS)	17647-74-4			ug/kg								

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PFAAs via LCMSMS-Isotope Dilution (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	1	0.0227	ng/g	71-135	30	71-135	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	1	0.046	ng/g	69-132	30	69-132	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	1	0.039	ng/g	72-128	30	72-128	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	1	0.0645	ng/g	62-145	30	62-145	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	1	0.0525	ng/g	70-132	30	70-132	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	1	0.0835	ng/g	73-123	30	73-123	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	1	0.0451	ng/g	71-131	30	71-131	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	1	0.0605	ng/g	67-130	30	67-130	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	1	0.0419	ng/g	69-133	30	69-133	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	1	0.1795	ng/g	64-140	30	64-140	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1	0.1365	ng/g	70-132	30	70-132	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	1	0.075	ng/g	72-129	30	72-129	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	1	0.13	ng/g	68-136	30	68-136	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	1	0.067	ng/g	69-133	30	69-133	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	1	0.287	ng/g	65-137	30	65-137	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	1	0.299	ng/g	69-125	30	69-125	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	1	0.2015	ng/g	63-144	30	63-144	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.0468	ng/g	64-136	30	64-136	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	1	0.153	ng/g	59-134	30	59-134	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	1	0.098	ng/g	67-137	30	67-137	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	1	0.0845	ng/g	61-139	30	61-139	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	1	0.07	ng/g	69-135	30	69-135	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	1	0.2045	ng/g	66-139	30	66-139	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	1	0.054	ng/g	69-133	30	69-133	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*60-153*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*65-182*		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*70-151*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*56-138*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*61-147*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*62-149*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*63-166*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*62-152*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*32-182*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*61-154*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*65-151*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*65-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*25-186*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*45-137*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*64-158*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*1-125*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*42-136*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*56-148*		

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Table 5 Measurement Performance Criteria

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PFAAs via LCMSMS-Isotope Dilution (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*26-160*		

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TCL Volatiles - EPA 8260C (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1-Dichloroethane	75-34-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloroform	67-66-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Carbon tetrachloride	56-23-5	0.5	0.134	ug/l	63-132	20	63-132	20	20			
1,2-Dichloropropane	78-87-5	1	0.137	ug/l	70-130	20	70-130	20	20			
Dibromochloromethane	124-48-1	0.5	0.149	ug/l	63-130	20	63-130	20	20			
1,1,2-Trichloroethane	79-00-5	1.5	0.5	ug/l	70-130	20	70-130	20	20			
Tetrachloroethene	127-18-4	0.5	0.181	ug/l	70-130	20	70-130	20	20			
Chlorobenzene	108-90-7	2.5	0.7	ug/l	75-130	20	75-130	20	20			
Trichlorofluoromethane	75-69-4	2.5	0.7	ug/l	62-150	20	62-150	20	20			
1,2-Dichloroethane	107-06-2	0.5	0.132	ug/l	70-130	20	70-130	20	20			
1,1,1-Trichloroethane	71-55-6	2.5	0.7	ug/l	67-130	20	67-130	20	20			
Bromodichloromethane	75-27-4	0.5	0.192	ug/l	67-130	20	67-130	20	20			
trans-1,3-Dichloropropene	10061-02-6	0.5	0.164	ug/l	70-130	20	70-130	20	20			
cis-1,3-Dichloropropene	10061-01-5	0.5	0.144	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropene, Total	542-75-6	0.5	0.144	ug/l				20	20			
1,1-Dichloropropene	563-58-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Bromoform	75-25-2	2	0.65	ug/l	54-136	20	54-136	20	20			
1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.167	ug/l	67-130	20	67-130	20	20			
Benzene	71-43-2	0.5	0.159	ug/l	70-130	20	70-130	20	20			
Toluene	108-88-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Ethylbenzene	100-41-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloromethane	74-87-3	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromomethane	74-83-9	2.5	0.7	ug/l	39-139	20	39-139	20	20			
Vinyl chloride	75-01-4	1	0.0714	ug/l	55-140	20	55-140	20	20			
Chloroethane	75-00-3	2.5	0.7	ug/l	55-138	20	55-138	20	20			
1,1-Dichloroethene	75-35-4	0.5	0.169	ug/l	61-145	20	61-145	20	20			
trans-1,2-Dichloroethene	156-60-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Trichloroethene	79-01-6	0.5	0.175	ug/l	70-130	20	70-130	20	20			
1,2-Dichlorobenzene	95-50-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3-Dichlorobenzene	541-73-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dichlorobenzene	106-46-7	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Methyl tert butyl ether	1634-04-4	2.5	0.7	ug/l	63-130	20	63-130	20	20			
p/m-Xylene	179601-23-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Xylene	95-47-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Xylene (Total)	1330-20-7	2.5	0.7	ug/l				20	20			
cis-1,2-Dichloroethene	156-59-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethene (total)	540-59-0	2.5	0.7	ug/l				20	20			
Dibromomethane	74-95-3	5	1	ug/l	70-130	20	70-130	20	20			
1,2,3-Trichloropropane	96-18-4	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Acrylonitrile	107-13-1	5	1.5	ug/l	70-130	20	70-130	20	20			
Styrene	100-42-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			

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TCL Volatiles - EPA 8260C (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Dichlorodifluoromethane	75-71-8	5	1	ug/l	36-147	20	36-147	20	20			
Acetone	67-64-1	5	1.46	ug/l	58-148	20	58-148	20	20			
Carbon disulfide	75-15-0	5	1	ug/l	51-130	20	51-130	20	20			
2-Butanone	78-93-3	5	1.94	ug/l	63-138	20	63-138	20	20			
Vinyl acetate	108-05-4	5	1	ug/l	70-130	20	70-130	20	20			
4-Methyl-2-pentanone	108-10-1	5	1	ug/l	59-130	20	59-130	20	20			
2-Hexanone	591-78-6	5	1	ug/l	57-130	20	57-130	20	20			
Bromochloromethane	74-97-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
2,2-Dichloropropane	594-20-7	2.5	0.7	ug/l	63-133	20	63-133	20	20			
1,2-Dibromoethane	106-93-4	2	0.65	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropane	142-28-9	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1,1,2-Tetrachloroethane	630-20-6	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromobenzene	108-86-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Butylbenzene	104-51-8	2.5	0.7	ug/l	53-136	20	53-136	20	20			
sec-Butylbenzene	135-98-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
tert-Butylbenzene	98-06-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Chlorotoluene	95-49-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Chlorotoluene	106-43-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dibromo-3-chloropropane	96-12-8	2.5	0.7	ug/l	41-144	20	41-144	20	20			
Hexachlorobutadiene	87-68-3	2.5	0.7	ug/l	63-130	20	63-130	20	20			
Isopropylbenzene	98-82-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Isopropyltoluene	99-87-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Naphthalene	91-20-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Propylbenzene	103-65-1	2.5	0.7	ug/l	69-130	20	69-130	20	20			
1,2,3-Trichlorobenzene	87-61-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4-Trichlorobenzene	120-82-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3,5-Trimethylbenzene	108-67-8	2.5	0.7	ug/l	64-130	20	64-130	20	20			
1,2,4-Trimethylbenzene	95-63-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dioxane	123-91-1	250	60.8	ug/l	56-162	20	56-162	20	20			
1,4-Diethylbenzene	105-05-5	2	0.7	ug/l	70-130	20	70-130	20	20			
4-Ethyltoluene	622-96-8	2	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4,5-Tetramethylbenzene	95-93-2	2	0.542	ug/l	70-130	20	70-130	20	20			
Ethyl ether	60-29-7	2.5	0.7	ug/l	59-134	20	59-134	20	20			
trans-1,4-Dichloro-2-butene	110-57-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

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NYTCL Semivolatiles - EPA 8270D (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	2.002	0.44408	ug/l	37-111	30	37-111	30	30			
1,2,4-Trichlorobenzene	120-82-1	5.0232	0.49868	ug/l	39-98	30	39-98	30	30			
Hexachlorobenzene	118-74-1	2.002	0.46592	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethyl)ether	111-44-4	2.002	0.50596	ug/l	40-140	30	40-140	30	30			
2-Chloronaphthalene	91-58-7	2.002	0.4368	ug/l	40-140	30	40-140	30	30			
1,2-Dichlorobenzene	95-50-1	2.002	0.455	ug/l	40-140	30	40-140	30	30			
1,3-Dichlorobenzene	541-73-1	2.002	0.40404	ug/l	40-140	30	40-140	30	30			
1,4-Dichlorobenzene	106-46-7	2.002	0.43316	ug/l	36-97	30	36-97	30	30			
3,3'-Dichlorobenzidine	91-94-1	5.0232	1.62344	ug/l	40-140	30	40-140	30	30			
2,4-Dinitrotoluene	121-14-2	5.0232	1.1648	ug/l	48-143	30	48-143	30	30			
2,6-Dinitrotoluene	606-20-2	5.0232	0.93184	ug/l	40-140	30	40-140	30	30			
Fluoranthene	206-44-0	2.002	0.257348	ug/l	40-140	30	40-140	30	30			
4-Chlorophenyl phenyl ether	7005-72-3	2.002	0.48776	ug/l	40-140	30	40-140	30	30			
4-Bromophenyl phenyl ether	101-55-3	2.002	0.37856	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroisopropyl)ether	108-60-1	2.002	0.5278	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethoxy)methane	111-91-1	5.0232	0.50232	ug/l	40-140	30	40-140	30	30			
Hexachlorobutadiene	87-68-3	2.002	0.65884	ug/l	40-140	30	40-140	30	30			
Hexachlorocyclopentadiene	77-47-4	20.02	0.68796	ug/l	40-140	30	40-140	30	30			
Hexachloroethane	67-72-1	2.002	0.58604	ug/l	40-140	30	40-140	30	30			
Isophorone	78-59-1	5.0232	1.20484	ug/l	40-140	30	40-140	30	30			
Naphthalene	91-20-3	2.002	0.46592	ug/l	40-140	30	40-140	30	30			
Nitrobenzene	98-95-3	2.002	0.77168	ug/l	40-140	30	40-140	30	30			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	2.002	0.4186	ug/l	40-140	30	40-140	30	30			
n-Nitrosodi-n-propylamine	621-64-7	5.0232	0.64428	ug/l	29-132	30	29-132	30	30			
Bis(2-Ethylhexyl)phthalate	117-81-7	3.003	1.53608	ug/l	40-140	30	40-140	30	30			
Butyl benzyl phthalate	85-68-7	5.0232	1.17208	ug/l	40-140	30	40-140	30	30			
Di-n-butylphthalate	84-74-2	5.0232	0.38948	ug/l	40-140	30	40-140	30	30			
Di-n-octylphthalate	117-84-0	5.0232	1.274	ug/l	40-140	30	40-140	30	30			
Diethyl phthalate	84-66-2	5.0232	0.3822	ug/l	40-140	30	40-140	30	30			
Dimethyl phthalate	131-11-3	5.0232	1.82	ug/l	40-140	30	40-140	30	30			
Benzo(a)anthracene	56-55-3	2.002	0.32578	ug/l	40-140	30	40-140	30	30			
Benzo(a)pyrene	50-32-8	2.002	0.40768	ug/l	40-140	30	40-140	30	30			
Benzo(b)fluoranthene	205-99-2	2.002	0.355264	ug/l	40-140	30	40-140	30	30			
Benzo(k)fluoranthene	207-08-9	2.002	0.37492	ug/l	40-140	30	40-140	30	30			
Chrysene	218-01-9	2.002	0.341068	ug/l	40-140	30	40-140	30	30			
Acenaphthylene	208-96-8	2.002	0.46592	ug/l	45-123	30	45-123	30	30			
Anthracene	120-12-7	2.002	0.32942	ug/l	40-140	30	40-140	30	30			
Benzo(ghi)perylene	191-24-2	2.002	0.296296	ug/l	40-140	30	40-140	30	30			
Fluorene	86-73-7	2.002	0.41496	ug/l	40-140	30	40-140	30	30			
Phenanthrene	85-01-8	2.002	0.33124	ug/l	40-140	30	40-140	30	30			
Dibenzo(a,h)anthracene	53-70-3	2.002	0.323232	ug/l	40-140	30	40-140	30	30			
Indeno(1,2,3-cd)Pyrene	193-39-5	2.002	0.39676	ug/l	40-140	30	40-140	30	30			

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Table 5 Measurement Performance Criteria

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NYTCL Semivolatiles - EPA 8270D (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	2.002	0.279552	ug/l	26-127	30	26-127	30	30			
Biphenyl	92-52-4	2.002	0.45864	ug/l	40-140	30	40-140	30	30			
4-Chloroaniline	106-47-8	5.0232	1.07016	ug/l	40-140	30	40-140	30	30			
2-Nitroaniline	88-74-4	5.0232	0.49868	ug/l	52-143	30	52-143	30	30			
3-Nitroaniline	99-09-2	5.0232	0.81536	ug/l	25-145	30	25-145	30	30			
4-Nitroaniline	100-01-6	5.0232	0.8008	ug/l	51-143	30	51-143	30	30			
Dibenzofuran	132-64-9	2.002	0.49868	ug/l	40-140	30	40-140	30	30			
2-Methylnaphthalene	91-57-6	2.002	0.455	ug/l	40-140	30	40-140	30	30			
Acetophenone	98-86-2	5.0232	0.5278	ug/l	39-129	30	39-129	30	30			
2,4,6-Trichlorophenol	88-06-2	5.0232	0.61152	ug/l	30-130	30	30-130	30	30			
P-Chloro-M-Cresol	59-50-7	2.002	0.35126	ug/l	23-97	30	23-97	30	30			
2-Chlorophenol	95-57-8	2.002	0.48048	ug/l	27-123	30	27-123	30	30			
2,4-Dichlorophenol	120-83-2	5.0232	0.41132	ug/l	30-130	30	30-130	30	30			
2,4-Dimethylphenol	105-67-9	5.0232	1.77996	ug/l	30-130	30	30-130	30	30			
2-Nitrophenol	88-75-5	10.01	0.84812	ug/l	30-130	30	30-130	30	30			
4-Nitrophenol	100-02-7	10.01	0.6734	ug/l	10-80	30	10-80	30	30			
2,4-Dinitrophenol	51-28-5	20.02	6.6612	ug/l	20-130	30	20-130	30	30			
4,6-Dinitro-o-cresol	534-52-1	10.01	1.81636	ug/l	20-164	30	20-164	30	30			
Pentachlorophenol	87-86-5	10.01	1.79452	ug/l	9-103	30	9-103	30	30			
Phenol	108-95-2	5.0232	0.56784	ug/l	12-110	30	12-110	30	30			
2-Methylphenol	95-48-7	5.0232	0.4914	ug/l	30-130	30	30-130	30	30			
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	5.0232	0.48048	ug/l	30-130	30	30-130	30	30			
2,4,5-Trichlorophenol	95-95-4	5.0232	0.77532	ug/l	30-130	30	30-130	30	30			
Benzoic Acid	65-85-0	50.232	2.66084	ug/l	10-164	30	10-164	30	30			
Benzyl Alcohol	100-51-6	2.002	0.58968	ug/l	26-116	30	26-116	30	30			
Carbazole	86-74-8	2.002	0.4914	ug/l	55-144	30	55-144	30	30			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

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NYTCL Semivolatiles -EPA 8270D-SIM (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	0.1001	0.01442168	ug/l	40-140	40	40-140	40	40			
2-Chloronaphthalene	91-58-7	0.2002	0.01804712	ug/l	40-140	40	40-140	40	40			
Fluoranthene	206-44-0	0.1001	0.02054052	ug/l	40-140	40	40-140	40	40			
Hexachlorobutadiene	87-68-3	0.5005	0.04674852	ug/l	40-140	40	40-140	40	40			
Naphthalene	91-20-3	0.1001	0.04882696	ug/l	40-140	40	40-140	40	40			
Benzo(a)anthracene	56-55-3	0.1001	0.0198198	ug/l	40-140	40	40-140	40	40			
Benzo(a)pyrene	50-32-8	0.1001	0.01493856	ug/l	40-140	40	40-140	40	40			
Benzo(b)fluoranthene	205-99-2	0.1001	0.01156792	ug/l	40-140	40	40-140	40	40			
Benzo(k)fluoranthene	207-08-9	0.1001	0.00889616	ug/l	40-140	40	40-140	40	40			
Chrysene	218-01-9	0.1001	0.01198288	ug/l	40-140	40	40-140	40	40			
Acenaphthylene	208-96-8	0.1001	0.01222676	ug/l	40-140	40	40-140	40	40			
Anthracene	120-12-7	0.1001	0.01450176	ug/l	40-140	40	40-140	40	40			
Benzo(ghi)perylene	191-24-2	0.1001	0.01365	ug/l	40-140	40	40-140	40	40			
Fluorene	86-73-7	0.1001	0.01456364	ug/l	40-140	40	40-140	40	40			
Phenanthrene	85-01-8	0.1001	0.02333604	ug/l	40-140	40	40-140	40	40			
Dibenzo(a,h)anthracene	53-70-3	0.1001	0.0127218	ug/l	40-140	40	40-140	40	40			
Indeno(1,2,3-cd)Pyrene	193-39-5	0.1001	0.01217216	ug/l	40-140	40	40-140	40	40			
Pyrene	129-00-0	0.1001	0.01902264	ug/l	40-140	40	40-140	40	40			
2-Methylnaphthalene	91-57-6	0.1001	0.02192372	ug/l	40-140	40	40-140	40	40			
Pentachlorophenol	87-86-5	0.8008	0.0143416	ug/l	40-140	40	40-140	40	40			
Hexachlorobenzene	118-74-1	0.8008	0.00938028	ug/l	40-140	40	40-140	40	40			
Hexachloroethane	67-72-1	0.8008	0.06320132	ug/l	40-140	40	40-140	40	40			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

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TCL PCBs - EPA 8082A (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 120ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	0.082824	0.0344148	ug/l	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	0.082824	0.0664734	ug/l	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	0.082824	0.0455532	ug/l	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	0.082824	0.0387702	ug/l	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	0.082824	0.048909	ug/l	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	0.082824	0.0390558	ug/l	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	0.082824	0.0320586	ug/l	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	0.082824	0.0347718	ug/l	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	0.082824	0.0334866	ug/l	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	0.082824	0.0320586	ug/l				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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METALS by 6020B (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Aluminum, Total	7429-90-5	0.01	0.00327	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Antimony, Total	7440-36-0	0.004	0.000429	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Arsenic, Total	7440-38-2	0.0005	0.000165	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Barium, Total	7440-39-3	0.0005	0.000173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Beryllium, Total	7440-41-7	0.0005	0.000107	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cadmium, Total	7440-43-9	0.0002	0.0000599	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Calcium, Total	7440-70-2	0.1	0.0394	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Chromium, Total	7440-47-3	0.001	0.000178	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cobalt, Total	7440-48-4	0.0005	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Copper, Total	7440-50-8	0.001	0.000384	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Iron, Total	7439-89-6	0.05	0.0191	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Lead, Total	7439-92-1	0.001	0.000343	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Magnesium, Total	7439-95-4	0.07	0.0242	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Manganese, Total	7439-96-5	0.001	0.00044	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Nickel, Total	7440-02-0	0.002	0.000556	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Potassium, Total	7440-09-7	0.1	0.0309	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Selenium, Total	7782-49-2	0.005	0.00173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Silver, Total	7440-22-4	0.0004	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Sodium, Total	7440-23-5	0.1	0.0293	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Thallium, Total	7440-28-0	0.0005	0.000143	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Vanadium, Total	7440-62-2	0.005	0.00157	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Zinc, Total	7440-66-6	0.01	0.00341	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved

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METALS by 7470A (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Mercury, Total	7439-97-6	0.0002	0.0000915	mg/l	80-120		75-125	20	20		28 days	1 - Plastic 500ml HNO3 preserved

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WETCHEM (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container/Sample Preservation
Chromium, Hexavalent	18540-29-9	0.01	0.003	mg/l	85-115	20	85-115	20	20	7196A	24 hours	1 - Plastic 500ml unpreserved

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Table 5 Measurement Performance Criteria

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TCL Pesticides - EPA 8081B (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 120ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	0.02	0.00467	ug/l	30-150	20	30-150	30	30			
Lindane	58-89-9	0.02	0.00434	ug/l	30-150	20	30-150	30	30			
Alpha-BHC	319-84-6	0.02	0.00439	ug/l	30-150	20	30-150	30	30			
Beta-BHC	319-85-7	0.02	0.0056	ug/l	30-150	20	30-150	30	30			
Heptachlor	76-44-8	0.02	0.0031	ug/l	30-150	20	30-150	30	30			
Aldrin	309-00-2	0.02	0.00216	ug/l	30-150	20	30-150	30	30			
Heptachlor epoxide	1024-57-3	0.02	0.00415	ug/l	30-150	20	30-150	30	30			
Endrin	72-20-8	0.04	0.00429	ug/l	30-150	20	30-150	30	30			
Endrin aldehyde	7421-93-4	0.04	0.0081	ug/l	30-150	20	30-150	30	30			
Endrin ketone	53494-70-5	0.04	0.00477	ug/l	30-150	20	30-150	30	30			
Dieldrin	60-57-1	0.04	0.00429	ug/l	30-150	20	30-150	30	30			
4,4'-DDE	72-55-9	0.04	0.00381	ug/l	30-150	20	30-150	30	30			
4,4'-DDD	72-54-8	0.04	0.00464	ug/l	30-150	20	30-150	30	30			
4,4'-DDT	50-29-3	0.04	0.00432	ug/l	30-150	20	30-150	30	30			
Endosulfan I	959-98-8	0.02	0.00345	ug/l	30-150	20	30-150	30	30			
Endosulfan II	33213-65-9	0.04	0.00519	ug/l	30-150	20	30-150	30	30			
Endosulfan sulfate	1031-07-8	0.04	0.00481	ug/l	30-150	20	30-150	30	30			
Methoxychlor	72-43-5	0.2	0.00684	ug/l	30-150	20	30-150	30	30			
Toxaphene	8001-35-2	0.2	0.0627	ug/l	30-150	20	30-150	30	30			
cis-Chlordane	5103-71-9	0.02	0.00666	ug/l	30-150	20	30-150	30	30			
trans-Chlordane	5103-74-2	0.02	0.00627	ug/l	30-150	20	30-150	30	30			
Chlordane	57-74-9	0.2	0.0463	ug/l	30-150	20	30-150	30	30			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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Table 5 Measurement Performance Criteria

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World Class Chemistry

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1,4 Dioxane via EPA 8270D-SIM (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,4-Dioxane	123-91-1	150	33.9	ng/l	40-140	30	40-140	30	30			
1,4-Dioxane-d8	*17647-74-4*									*15-110*		
1,4-Dioxane-d8 (IS)	17647-74-4			ng/l								

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Table 5 Measurement Performance Criteria

ALPHA ANALYTICAL
World Class Chemistry

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PFAAs via LCMSMS-Isotope Dilution (WATER)

Holding Time: 14 days
Container/Sample Preservation: 1 - 2 Plastic/1 Plastic/1 H20 Plastic

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	2	0.408	ng/l	67-148	30	67-148	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	2	0.396	ng/l	63-161	30	63-161	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	2	0.238	ng/l	65-157	30	65-157	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	2	0.452	ng/l	37-219	30	37-219	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	2	0.328	ng/l	69-168	30	69-168	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	2	0.2452	ng/l	52-156	30	52-156	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	2	0.2252	ng/l	58-159	30	58-159	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	2	0.376	ng/l	69-177	30	69-177	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	2	0.236	ng/l	63-159	30	63-159	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	2	1.332	ng/l	49-187	30	49-187	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	2	0.688	ng/l	61-179	30	61-179	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	2	0.312	ng/l	68-171	30	68-171	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	2	0.504	ng/l	52-151	30	52-151	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	2	0.304	ng/l	63-171	30	63-171	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	2	1.212	ng/l	56-173	30	56-173	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	2	1.12	ng/l	48-150	30	48-150	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	2	0.648	ng/l	60-166	30	60-166	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	2	0.26	ng/l	60-153	30	60-153	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	2	0.98	ng/l	38-156	30	38-156	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	2	0.58	ng/l	46-170	30	46-170	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	2	0.804	ng/l	45-170	30	45-170	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	2	0.372	ng/l	67-153	30	67-153	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	2	0.3272	ng/l	48-158	30	48-158	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	2	0.248	ng/l	59-182	30	59-182	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-P	13252-13-6	50	22.7	ng/l	50-150	30	50-150	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	2	0.336	ng/l	50-150	30	50-150	30	30			
Perfluorohexadecanoic Acid (PFHxDA)	67905-19-5	4	1.24	ng/l	50-150	30	50-150	30	30			
Perfluorooctadecanoic Acid (PFODA)	16517-11-6	4	1.148	ng/l	50-150	30	50-150	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	2	0.616	ng/l	50-150	30	50-150	30	30			
1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS)	120226-60-0	5	2.02	ng/l	50-150	30	50-150	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	2	0.2768	ng/l	50-150	30	50-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11C	763051-92-9	2	0.2932	ng/l	50-150	30	50-150	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	20	7.36	ng/l	50-150	30	50-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	20	6.64	ng/l	50-150	30	50-150	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	50	22.2	ng/l	50-150	30	50-150	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	50	22.52	ng/l	50-150	30	50-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*2-156*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*16-173*		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*31-159*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*1-313*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*21-145*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*30-139*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, In

Table 5 Measurement Performance Criteria

Date Created: 09/18/20
Created By: Tom Tanico
File: PM9068-1
Page: 2

PFAAs via LCMSMS-Isotope Dilution (WATER)

Holding Time: 14 days
Container/Sample Preservation: 1 - 2 Plastic/1 Plastic/1 H20 Plastic

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*47-153*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*36-149*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*1-244*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*34-146*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*42-146*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*38-144*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*7-170*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*1-181*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*40-144*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*1-87*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*23-146*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*24-161*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*33-143*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-1	*NONE*									*50-150*		
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	*NONE*									*50-150*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA	*NONE*									*50-150*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*50-150*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-o	*1265205-95-5*									*50-150*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*NONE*									*50-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, In

Table 5 Measurement Performance Criteria for Soil Vapor

Method	Analyte	Units	Reporting Limit		Method	Analyte	Units	Reporting Limit
TO15	1,1,1-Trichloroethane	1.09	ug/m3		TO15	1,1,1-Trichloroethane	0.2	ppbV
TO15	1,1,2,2-Tetrachloroethane	1.37	ug/m3		TO15	1,1,2,2-Tetrachloroethane	0.2	ppbV
TO15	1,1,2-Trichloroethane	1.09	ug/m3		TO15	1,1,2-Trichloroethane	0.2	ppbV
TO15	1,1-Dichloroethane	0.809	ug/m3		TO15	1,1-Dichloroethane	0.2	ppbV
TO15	1,1-Dichloroethene	0.793	ug/m3		TO15	1,1-Dichloroethene	0.2	ppbV
TO15	1,2,4-Trichlorobenzene	1.48	ug/m3		TO15	1,2,4-Trichlorobenzene	0.2	ppbV
TO15	1,2,4-Trimethylbenzene	0.983	ug/m3		TO15	1,2,4-Trimethylbenzene	0.2	ppbV
TO15	1,2-Dibromoethane	1.54	ug/m3		TO15	1,2-Dibromoethane	0.2	ppbV
TO15	1,2-Dichlorobenzene	1.2	ug/m3		TO15	1,2-Dichlorobenzene	0.2	ppbV
TO15	1,2-Dichloroethane	0.809	ug/m3		TO15	1,2-Dichloroethane	0.2	ppbV
TO15	1,2-Dichloropropane	0.924	ug/m3		TO15	1,2-Dichloropropane	0.2	ppbV
TO15	1,3,5-Trimethylbenzene	0.983	ug/m3		TO15	1,3,5-Trimethylbenzene	0.2	ppbV
TO15	1,3-Butadiene	0.442	ug/m3		TO15	1,3-Butadiene	0.2	ppbV
TO15	1,3-Dichlorobenzene	1.2	ug/m3		TO15	1,3-Dichlorobenzene	0.2	ppbV
TO15	1,4-Dichlorobenzene	1.2	ug/m3		TO15	1,4-Dichlorobenzene	0.2	ppbV
TO15	1,4-Dioxane	0.721	ug/m3		TO15	1,4-Dioxane	0.2	ppbV
TO15	2,2,4-Trimethylpentane	0.934	ug/m3		TO15	2,2,4-Trimethylpentane	0.2	ppbV
TO15	2-Butanone	1.47	ug/m3		TO15	2-Butanone	0.5	ppbV
TO15	2-Hexanone	0.82	ug/m3		TO15	2-Hexanone	0.2	ppbV
TO15	3-Chloropropene	0.626	ug/m3		TO15	3-Chloropropene	0.2	ppbV
TO15	4-Ethyltoluene	0.983	ug/m3		TO15	4-Ethyltoluene	0.2	ppbV
TO15	4-Methyl-2-pentanone	2.05	ug/m3		TO15	4-Methyl-2-pentanone	0.5	ppbV
TO15	Acetone	2.38	ug/m3		TO15	Acetone	1	ppbV
TO15	Benzene	0.639	ug/m3		TO15	Benzene	0.2	ppbV
TO15	Benzyl chloride	1.04	ug/m3		TO15	Benzyl chloride	0.2	ppbV
TO15	Bromodichloromethane	1.34	ug/m3		TO15	Bromodichloromethane	0.2	ppbV
TO15	Bromoform	2.07	ug/m3		TO15	Bromoform	0.2	ppbV
TO15	Bromomethane	0.777	ug/m3		TO15	Bromomethane	0.2	ppbV
TO15	Carbon disulfide	0.623	ug/m3		TO15	Carbon disulfide	0.2	ppbV
TO15	Carbon tetrachloride	1.26	ug/m3		TO15	Carbon tetrachloride	0.2	ppbV
TO15	Chlorobenzene	0.921	ug/m3		TO15	Chlorobenzene	0.2	ppbV
TO15	Chloroethane	0.528	ug/m3		TO15	Chloroethane	0.2	ppbV
TO15	Chloroform	0.977	ug/m3		TO15	Chloroform	0.2	ppbV
TO15	Chloromethane	0.413	ug/m3		TO15	Chloromethane	0.2	ppbV
TO15	cis-1,2-Dichloroethene	0.793	ug/m3		TO15	cis-1,2-Dichloroethene	0.2	ppbV
TO15	cis-1,3-Dichloropropene	0.908	ug/m3		TO15	cis-1,3-Dichloropropene	0.2	ppbV
TO15	Cyclohexane	0.688	ug/m3		TO15	Cyclohexane	0.2	ppbV
TO15	Dibromochloromethane	1.7	ug/m3		TO15	Dibromochloromethane	0.2	ppbV
TO15	Dichlorodifluoromethane	0.989	ug/m3		TO15	Dichlorodifluoromethane	0.2	ppbV
TO15	Ethanol	9.42	ug/m3		TO15	Ethanol	5	ppbV
TO15	Ethyl Acetate	1.8	ug/m3		TO15	Ethyl Acetate	0.5	ppbV
TO15	Ethylbenzene	0.869	ug/m3		TO15	Ethylbenzene	0.2	ppbV
TO15	Freon-113	1.53	ug/m3		TO15	Freon-113	0.2	ppbV
TO15	Freon-114	1.4	ug/m3		TO15	Freon-114	0.2	ppbV
TO15	Heptane	0.82	ug/m3		TO15	Heptane	0.2	ppbV
TO15	Hexachlorobutadiene	2.13	ug/m3		TO15	Hexachlorobutadiene	0.2	ppbV
TO15	Isopropanol	1.23	ug/m3		TO15	Isopropanol	0.5	ppbV
TO15	Methyl tert butyl ether	0.721	ug/m3		TO15	Methyl tert butyl ether	0.2	ppbV
TO15	Methylene chloride	1.74	ug/m3		TO15	Methylene chloride	0.5	ppbV
TO15	n-Hexane	0.705	ug/m3		TO15	n-Hexane	0.2	ppbV
TO15	o-Xylene	0.869	ug/m3		TO15	o-Xylene	0.2	ppbV
TO15	p/m-Xylene	1.74	ug/m3		TO15	p/m-Xylene	0.4	ppbV
TO15	Styrene	0.852	ug/m3		TO15	Styrene	0.2	ppbV
TO15	Tertiary butyl Alcohol	1.52	ug/m3		TO15	Tertiary butyl Alcohol	0.5	ppbV
TO15	Tetrachloroethene	1.36	ug/m3		TO15	Tetrachloroethene	0.2	ppbV
TO15	Tetrahydrofuran	1.47	ug/m3		TO15	Tetrahydrofuran	0.5	ppbV
TO15	Toluene	0.754	ug/m3		TO15	Toluene	0.2	ppbV
TO15	trans-1,2-Dichloroethene	0.793	ug/m3		TO15	trans-1,2-Dichloroethene	0.2	ppbV
TO15	trans-1,3-Dichloropropene	0.908	ug/m3		TO15	trans-1,3-Dichloropropene	0.2	ppbV
TO15	Trichloroethene	1.07	ug/m3		TO15	Trichloroethene	0.2	ppbV
TO15	Trichlorofluoromethane	1.12	ug/m3		TO15	Trichlorofluoromethane	0.2	ppbV
TO15	Vinyl bromide	0.874	ug/m3		TO15	Vinyl bromide	0.2	ppbV
TO15	Vinyl chloride	0.511	ug/m3		TO15	Vinyl chloride	0.2	ppbV

Table 5 Measurement Performance Criteria for Indoor Air

Method	Analyte	Units	Reporting Limit	Method	Analyte	Units	Reporting Limit
TO15	1,1,2,2-Tetrachloroethane	ug/m3	1.37	TO15	1,1,2,2-Tetrachloroethane	ppbV	0.2
TO15	1,1,2-Trichloroethane	ug/m3	1.09	TO15	1,1,2-Trichloroethane	ppbV	0.2
TO15	1,1-Dichloroethane	ug/m3	0.809	TO15	1,1-Dichloroethane	ppbV	0.2
TO15	1,2,4-Trichlorobenzene	ug/m3	1.48	TO15	1,2,4-Trichlorobenzene	ppbV	0.2
TO15	1,2,4-Trimethylbenzene	ug/m3	0.983	TO15	1,2,4-Trimethylbenzene	ppbV	0.2
TO15	1,2-Dibromoethane	ug/m3	1.54	TO15	1,2-Dibromoethane	ppbV	0.2
TO15	1,2-Dichlorobenzene	ug/m3	1.2	TO15	1,2-Dichlorobenzene	ppbV	0.2
TO15	1,2-Dichloroethane	ug/m3	0.809	TO15	1,2-Dichloroethane	ppbV	0.2
TO15	1,2-Dichloropropane	ug/m3	0.924	TO15	1,2-Dichloropropane	ppbV	0.2
TO15	1,3,5-Trimethylbenzene	ug/m3	0.983	TO15	1,3,5-Trimethylbenzene	ppbV	0.2
TO15	1,3-Butadiene	ug/m3	0.442	TO15	1,3-Butadiene	ppbV	0.2
TO15	1,3-Dichlorobenzene	ug/m3	1.2	TO15	1,3-Dichlorobenzene	ppbV	0.2
TO15	1,4-Dichlorobenzene	ug/m3	1.2	TO15	1,4-Dichlorobenzene	ppbV	0.2
TO15	1,4-Dioxane	ug/m3	0.721	TO15	1,4-Dioxane	ppbV	0.2
TO15	2,2,4-Trimethylpentane	ug/m3	0.934	TO15	2,2,4-Trimethylpentane	ppbV	0.2
TO15	2-Butanone	ug/m3	1.47	TO15	2-Butanone	ppbV	0.5
TO15	2-Hexanone	ug/m3	0.82	TO15	2-Hexanone	ppbV	0.2
TO15	3-Chloropropene	ug/m3	0.626	TO15	3-Chloropropene	ppbV	0.2
TO15	4-Ethyltoluene	ug/m3	0.983	TO15	4-Ethyltoluene	ppbV	0.2
TO15	4-Methyl-2-pentanone	ug/m3	2.05	TO15	4-Methyl-2-pentanone	ppbV	0.5
TO15	Acetone	ug/m3	2.38	TO15	Acetone	ppbV	1
TO15	Benzene	ug/m3	0.639	TO15	Benzene	ppbV	0.2
TO15	Benzyl chloride	ug/m3	1.04	TO15	Benzyl chloride	ppbV	0.2
TO15	Bromodichloromethane	ug/m3	1.34	TO15	Bromodichloromethane	ppbV	0.2
TO15	Bromoform	ug/m3	2.07	TO15	Bromoform	ppbV	0.2
TO15	Bromomethane	ug/m3	0.777	TO15	Bromomethane	ppbV	0.2
TO15	Carbon disulfide	ug/m3	0.623	TO15	Carbon disulfide	ppbV	0.2
TO15	Chlorobenzene	ug/m3	0.921	TO15	Chlorobenzene	ppbV	0.2
TO15	Chloroethane	ug/m3	0.528	TO15	Chloroethane	ppbV	0.2
TO15	Chloroform	ug/m3	0.977	TO15	Chloroform	ppbV	0.2
TO15	Chloromethane	ug/m3	0.413	TO15	Chloromethane	ppbV	0.2
TO15	cis-1,3-Dichloropropene	ug/m3	0.908	TO15	cis-1,3-Dichloropropene	ppbV	0.2
TO15	Cyclohexane	ug/m3	0.688	TO15	Cyclohexane	ppbV	0.2
TO15	Dibromochloromethane	ug/m3	1.7	TO15	Dibromochloromethane	ppbV	0.2
TO15	Dichlorodifluoromethane	ug/m3	0.989	TO15	Dichlorodifluoromethane	ppbV	0.2
TO15	Ethanol	ug/m3	9.42	TO15	Ethanol	ppbV	5
TO15	Ethyl Acetate	ug/m3	1.8	TO15	Ethyl Acetate	ppbV	0.5
TO15	Ethylbenzene	ug/m3	0.869	TO15	Ethylbenzene	ppbV	0.2
TO15	Freon-113	ug/m3	1.53	TO15	Freon-113	ppbV	0.2
TO15	Freon-114	ug/m3	1.4	TO15	Freon-114	ppbV	0.2
TO15	Heptane	ug/m3	0.82	TO15	Heptane	ppbV	0.2
TO15	Hexachlorobutadiene	ug/m3	2.13	TO15	Hexachlorobutadiene	ppbV	0.2
TO15	Isopropanol	ug/m3	1.23	TO15	Isopropanol	ppbV	0.5
TO15	Methyl tert butyl ether	ug/m3	0.721	TO15	Methyl tert butyl ether	ppbV	0.2
TO15	Methylene chloride	ug/m3	1.74	TO15	Methylene chloride	ppbV	0.5
TO15	n-Hexane	ug/m3	0.705	TO15	n-Hexane	ppbV	0.2
TO15	o-Xylene	ug/m3	0.869	TO15	o-Xylene	ppbV	0.2
TO15	p/m-Xylene	ug/m3	1.74	TO15	p/m-Xylene	ppbV	0.4
TO15	Styrene	ug/m3	0.852	TO15	Styrene	ppbV	0.2
TO15	Tertiary butyl Alcohol	ug/m3	1.52	TO15	Tertiary butyl Alcohol	ppbV	0.5
TO15	Tetrahydrofuran	ug/m3	1.47	TO15	Tetrahydrofuran	ppbV	0.5
TO15	Toluene	ug/m3	0.754	TO15	Toluene	ppbV	0.2
TO15	trans-1,2-Dichloroethene	ug/m3	0.793	TO15	trans-1,2-Dichloroethene	ppbV	0.2
TO15	trans-1,3-Dichloropropene	ug/m3	0.908	TO15	trans-1,3-Dichloropropene	ppbV	0.2
TO15	Trichlorofluoromethane	ug/m3	1.12	TO15	Trichlorofluoromethane	ppbV	0.2
TO15	Vinyl bromide	ug/m3	0.874	TO15	Vinyl bromide	ppbV	0.2
TO15-SIM	1,1,1-Trichloroethane	ug/m3	0.109	TO15-SIM	1,1,1-Trichloroethane	ppbV	0.02
TO15-SIM	1,1-Dichloroethene	ug/m3	0.079	TO15-SIM	1,1-Dichloroethene	ppbV	0.02
TO15-SIM	Carbon tetrachloride	ug/m3	0.126	TO15-SIM	Carbon tetrachloride	ppbV	0.02
TO15-SIM	cis-1,2-Dichloroethene	ug/m3	0.079	TO15-SIM	cis-1,2-Dichloroethene	ppbV	0.02
TO15-SIM	Tetrachloroethene	ug/m3	0.136	TO15-SIM	Tetrachloroethene	ppbV	0.02
TO15-SIM	Trichloroethene	ug/m3	0.107	TO15-SIM	Trichloroethene	ppbV	0.02
TO15-SIM	Vinyl chloride	ug/m3	0.051	TO15-SIM	Vinyl chloride	ppbV	0.02

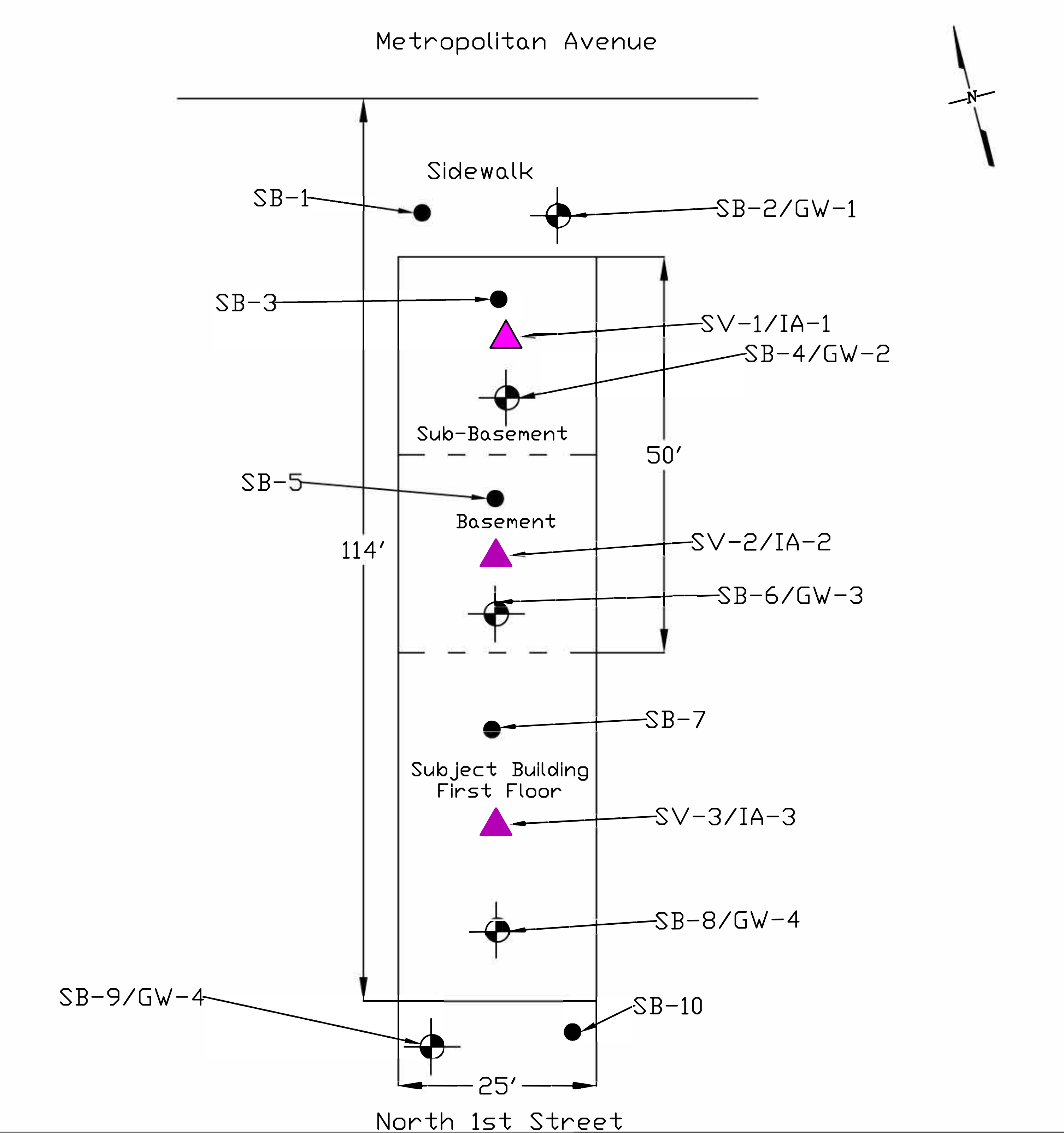
Table 6
Sample Custody Requirements

Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory): The following documentation procedures will be used during sampling and analysis to provide custody control during transfer of samples from collection through storage. A sample is defined as being under a person's custody if any of the following conditions exist: 1) it is in their possession, 2) it is in their view, after being in their possession, 3) it was in their possession and they locked it up, or 4) it is in a designated secure area. Recordkeeping documentation will include the use of the following: • a field logbook (bound, with dated pages) to document sampling activities in the field, • labels to identify individual samples, • and- chain-of-custody forms to document the analyses to be performed In the field the sampler will record in the field logbook the following information for each sample collected: • sample identification, • sample matrix, • name of the sampler, • sample location, • sample time and date, • additional pertinent data, • analysis to be conducted, • sampling method, • sample appearance (e.g., color, turbidity), • preservative (if required), • number of sample bottles an types, and- weather conditions Samples will be packaged in a manner to prevent breakage of sample containers in a pre-chilled cooler. Custody of the samples and cooler will be the responsibility of the sampling personnel. Samples will be picked up by an Alpha Analytical Labratory courier or shipped via Federal Express Priority Overnight service to the analytical laboratory the same day samples are collected or the following morning.
Laboratory Sample Custody Procedures (receipt of samples, archiving, and disposal): Each sample or group of samples shipped to the laboratory for analysis will be given a unique identification number. The laboratory sample custodian will record the client name, number of samples and date of receipt. The remaining sample aliquots not used by the laboratory for analysis will be archived for a period of 30 days. After the archive period has passed the sample will be disposed of by the laboratory unless a request to hold the sample is made by CA Rich

Table 6
Sample Custody Requirements (Continued)

Sample Identification Procedures: Each sample collected will be designated by an alpha-numeric code that will identify the sampling location and depth. Sample designations will be assigned as indicated in the following example: LOC-01 (25)= Location ID (Collection Depth) Additionally, eight digits will follow all sample designations to represent the date; therefore, LOC-01 (25)(04012016) would represent a groundwater sample collected at Location 01 at a depth of 25 feet on 01 April 2016. In the case of QC samples such as field blanks, trip blanks and blind field duplicate samples, FB, TB and DUP respectively will be followed by the eight-digit date. For matrix spike/matrix spike duplicate samples, MS/MSD will be added following the applicable sample identification.
Chain-of-custody Procedures: The sampling crew shall maintain chain-of-custody records for all field and field QC samples. The following information concerning the sample shall be documented on the chain of custody form: • Unique sample identification for each container, • Date and time of sample collection, • Source of sample (including name, location, and sample type), • Designation of MS/MSD; • Preservative used; • Analyses required; • Name of collector(s); • Serial numbers of custody seals and transportation cases (if used); • Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory or laboratories; and • Bill of lading or transporter tracking number (if applicable).

FIGURE



Legend

- ● Proposed Soil Boring Location
- Proposed Combined Soil Boring and Groundwater Well Location
- ▲ Proposed Sub-slab Soil Vapor and Indoor Air Sample Locations

Approx. Scale (ft)

0 10 25 50

CA RICH CONSULTANTS, INC.

Environmental Specialists Since 1982

17 Dupont Street, Plainview, New York 11803

TITLE:	DATE: 10/26/2020
Site Diagram with Proposed Sample Locations	SCALE: As Shown

FIGURE: 1	134 Metropolitan Avenue Brooklyn, NY	DRAWN BY: T.R.B.
DRAWING NO: 2020-3		APPR. BY: J.T.C.

H: \Drawings\FF-Marek-134 Metro\2020-3

APPENDIX A

RESUMES OF KEY PERSONNEL

RICHARD J. IZZO, CPG

- **TITLE**

  Vice President

- **EDUCATION**

  Bachelor of Science, Geology, State University of New York at Oneonta, 1983

- **CERTIFICATIONS AND REGISTRATIONS**

  AIPG Certified Professional Geologist No. 9644
  Hazardous Waste Operations & Emergency Response Supervisor (29 CFR 1910.120)
  Health & Safety Operations at Hazardous Materials Sites (29 CFR 1910.120)

- **PROFESSIONAL AFFILIATIONS**

  American Institute of Professional Geologists
  Association of Groundwater Scientists and Engineers
  New York State Council of Professional Geologists
  American Society for Testing and Materials (ASTM)

- **PROFESSIONAL EXPERIENCE**

  Vice President, CA Rich Consultants, Inc., 1985 - Present

  Mr. Izzo possesses over thirty years experience in the design, implementation, and management of environmental testing and remediation programs throughout the Tri-State Area. Examples of these programs include several NY State Brownfield Cleanup Program Investigations and Cleanups in the Bronx, NY a NYSDEC Brownfields Investigation in Bushwick, NY, a Remedial Investigation for a Superfund Site in Maybrook, NY and a NYSDEC Phase II investigation in Croton-on-Hudson, NY. His responsibilities included design of monitoring well networks, including well location and depth selection; supervision of drilling and well installation; design of sampling and analysis programs including sampling methodology, protocol, and analytical parameters; sampling of soil, groundwater, surface water, ambient air, soil vapor, building materials, and interior radon testing; data reduction (including interpretation of laboratory results, determination of ground water flow direction and rate), and preparation of written reports; interface between responsible parties and regulatory agencies.

  Mr. Izzo has designed, implemented, and managed several remediation programs in the Tri-State Area including a NYSDEC Voluntary Cleanup of a former decal manufacturing facility in Mount Vernon, NY to restore the site to “unrestricted usage” conditions for redevelopment and occupation by the foods service industry.

  Mr. Izzo has managed remedial investigative testing and analysis as well as conceptual design of active soil vapor extraction and groundwater treatmant systems. In addition, Mr. Izzo has participated in the design and implementation of passive and active floating product removal systems utilizing pump and treatment methods, oil-sorbent materials and oxygen-releasing products to remove light non-aqueous phase liquids (LNAPLS) and enhance natural bioremediation of dissolved hydrocarbons. Additional remedial action programs managed by Mr. Izzo include removal, testing and proper disposal of abandoned underground storage tanks, as well as contaminated soils and water at a US Postal Service construction site in Manhattan; and identification, testing, excavation and proper disposal of over 7,000 tons of hydrocarbon-impacted soils under a NYSDEC consent Order at a Suffolk County, NY former industrial property as part of site re-development into a residential community.

Mr. Izzo implemented quarterly water quality monitoring program at a New Jersey Site contaminated with chlorinated hydrocarbons. As part of this project, he directed testing and remedial activities including excavation and disposal of contaminated soil based on soil vapor screening with real-time vapor monitoring equipment; removal and disposal of buried 1000 gallon storage tank; removal of contaminated groundwater through installation of small scale recovery well system. In addition, Mr. Izzo assisted in the design of a pilot-scale pump and treatment operation involving the installation of an air stripper to mitigate volatile organic contamination in shallow groundwater. Mr. Izzo designed, authored, and assisted in the implementation of a Site Health and Safety Plan for the construction and eventual occupation of a United States Postal Service General Mail Facility/Vehicle Maintenance Facility on a former landfill in Brooklyn, NY.

Mr. Izzo assisted in development of the Firm's real property transfer assessment capabilities, and currently provides senior-level review on all written reports. In addition, Richard has helped clients satisfy or close out Orders on Consent, Petroleum and Chemical Spill Cases, and Stipulation Agreements. Mr. Izzo has been called upon as an expert witness in several matters involving the transfer of environmentally impacted real property, and remediation of chemical and petroleum releases.

Mr. Izzo managed and participated in several ground water resource investigations for potential developers in Westchester, Putnam, and Dutchess Counties in New York. His experience includes seismic profiling, fracture trace analysis, selection of test well locations, supervision of test well installation, design and implementation of 24, 48 and 72-hour pumping tests, as well as reduction and analysis of pumping test data.

Mr. Izzo managed a hydrogeologic investigation in support of a ground water allocation permit application for a golf course in Monmouth County, New Jersey. His responsibilities included a drainage basin recharge estimate, analysis of pumping test data and a computer model assessing pumpage impacts to surrounding wells. Additional related responsibilities included preparation of written report and expert testimony at a NJDEP hearing.

Mr. Izzo designed and implemented a town-wide ground water resource management study for the Town of North Castle, New York. This study included mapping of stratified drift and fracture bedrock aquifers, analysis of hydrogeologic information from existing well inventory, development of water budget and estimate of current and potential future ground water resource demand.

Mr. Izzo managed a water resource feasibility study for a golf course DEIS application in northern Westchester County. Activities included determination of irrigation requirements and ground water resource exploration. In addition, Mr. Izzo designed and managed a hydrogeologic assessment for a community water supply system in Westchester County. Activities include determination of normal well system operation impacts on nearby surface water bodies, and prediction of well interference effects through utilization of computer modeling.

Mr. Izzo serves as the Firm's Human Resources Director and is the Senior Editor of the Firm's newsletter, "Environmental Bulletin"

- **SELCTED PUBLICATIONS & RECOGNITION**

Izzo, Richard J. "From Fort Apache to The Green Way" Brownfield Renewal Magazine; May 2012

Izzo, Richard J. *"Buyer Beware: User Responsibilities under All Appropriate Inquiry Standards"* New York Real Estate Journal; December 2007

Izzo, Richard J. & Rich, Charles A. "*Monitored Natural Attenuation is not NO ACTION"* Long Island Business News; April 1999

Izzo, Richard J*. "Lead Based Paint Risk and Risk Management"*
Long Island Business News, New England Real Estate Journal; May 1993

Who's Who in Environmental Consulting, Engineering & Building Services
Long Island Business News, 2011

JASON T. COOPER, CPG # 11626, PG 152

- **TITLE**

  Senior Project Manager

- **EDUCATION**

  Bachelor of Science, Geology, State University of New York at Buffalo, 1999

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training
  10-hour OSHA Occupational Construction Safety and health Course
  Standard First Aid Training - American Red Cross
  CPR Training – American Red Cross

- **PROFESSIONAL AFFILIATIONS**

  Long Island Association of Professional Geologists (LIAPG)
  American Institute of Professional Geologist (AIPG)
  New York State Professional Geologist (PG)

- **PROFESSIONAL EXPERIENCE**

  Project Environmental Scientist/Project Manager,
  CA RICH Consultants, Inc., 2005 - Present

  As a Project Environmental Scientist with CA RICH, Mr. Cooper's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments (ESAs). Jason's Phase I and Phase II ESA experience includes coordinating historical and regulatory database searches, conducting Property inspections, collecting soil, groundwater, and sediment samples and authoring Phase I and Phase II reports for sites in New York City, Long Island, and Westchester County. Additionally, he is well-versed in AutoCAD 2010 and provides drafting services for the company.

  Mr. Cooper has managed numerous projects involved in the New York City Office of Environmental Remediation (NYC OER) E-designation program, the New York City Brownfield Cleanup Program (BCP), and New York State Spills program. He has received approval from the State for numerous BCP applications and has closed out numerous New York State Spills sites.

  Mr. Cooper has also assisted with the construction, pilot tests, and start-up tests associated with air sparge/soil vapor extraction (AS/SVE) and sub-slab depressurization (SSD) systems for the remediation/mitigation of contamination. In addition, he has conducted monitoring and troubleshooting for the AS/SVE and SSD systems.

  Mr. Cooper also conducts annual property inspections for the highly successful Tenant Environmental Compliance Program, which helps to ensure that the tenants are not contaminating a landlord's properties. This Program now covers almost two million square feet of multi-tenanted buildings on Long Island, NY.

Geologist, Geologic Services Corporation (AKA Kleinfelder), 2001 - 2005

As a Geologist with Geologic Services Corporation, Mr. Cooper's responsibilities included the authoring of quarterly monitoring reports, sub-surface investigation reports, and sensitive receptor survey reports. In addition he has conducted monitoring well installation oversight with logging and sampling, remediation system maintenance, well surveying, groundwater sampling, 24-hour pump tests, equipment maintenance and peer mentoring.

Mr. Cooper developed and implemented a program for the management and oversight for the collection of over 1,000 groundwater samples for a retail gasoline station in Smithtown, New York. His duties included the training of personnel, management and QA/QC of samples, and meeting monthly deadlines. In addition, he conducted monthly mass flux calculations, MTBE vertical cross-section contour maps, vertical cross-section groundwater flow maps (flow nets), and aerial groundwater flow maps.

Jason has also assisted with the construction of a groundwater pump and treat remediation system and determined the most affective locations for the submersible pumps for maximum contamination recovery.

Jason has completed the ExxonMobil Loss Prevention Safety (LPS) program and participated in monthly Health and Safety meetings. Jason conducted health and safety oversight of drilling activities, tank cleanings and removals and soil removal. The LPS and health and safety programs were implemented in the field by Jason as a health and safety officer with zero incidences.

Field Technician, Environmental Assessment and Remediation (EAR) 2000 - 2001

As a field technician with EAR, Mr. Cooper's responsibilities included the construction of remediation systems, operations and maintenance along with troubleshooting of remediation systems, groundwater sampling, air sampling and well abandonment.

- **PUBLICATIONS**

Cooper, Jason T., *"Changing Times; From SVE to SSD,"* CA RICH Newsletter, Holiday 2015.

Cooper, Jason T., *"The Lingering Effects of Superstorm Sandy,"* CA RICH Newsletter, Spring 2013.

Jason Cooper, "*Who's Who in Environmental Consulting & Engineering, Long Island Business News",* April 2013.

Cooper, Jason T., *"Greening E-Waste"*, CA RICH Newsletter, Holiday 2010.

JESSICA E. PROSCIA

- **TITLE**

  Project Environmental Scientist

- **EDUCATION**

  Bachelor of Science, Health Science, Environmental Health and Safety, State University of New York at Stony Brook, 2007

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training
  10-hour OSHA Occupational Construction Safety and Health Course
  Standard First Aid Training - American Red Cross
  CPR Training – American Red Cross

- **PROFESSIONAL EXPERIENCE**

  <u>Project Environmental Scientist, C A Rich Consultants, Inc., Oct. 2008 – Present</u>

  As a Project Environmental Scientist with CA RICH, Ms. Proscia's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments. Ms. Proscia is currently managing the testing and remediation of redevelopment sites under the New York State Department of Environmental Conservation's Brownfield Cleanup Program; New York City Brownfield Cleanup Program and State Superfund Program. She has also conducted all aspects of environmental investigations including UST removals, supervision of drilling and well installation, sanitary system or dry well clean-outs, groundwater, and soil sampling, soil delineation, excavation, petroleum and hazardous waste disposal, analytical interpretation, groundwater contouring, soil vapor intrusion testing and report preparation. She has received approval from the State for BCP applications and has closed out numerous New York State Spills sites.

  Ms. Proscia conducts annual property inspections for the highly successful Tenant Environmental Compliance Program, which helps to ensure that the tenants are not contaminating a landlord's properties. This Program now covers almost two million square feet of multi-tenanted buildings on Long Island, NY.

  <u>Environmental Scientist/Health and Safety Officer, Hydro Tech Environmental, Corp., 2007 - 2008</u>

  As an Environmental Scientist with Hydro Tech Environmental, Ms. Proscia's responsibilities included Phase I ESA's through Subsurface Investigations. Ms. Proscia was also involved in site supervision on several properties in New York State.

  Ms. Proscia performed on site safety inspections for the company's field crew as well as trained staff for the OSHA 40-hour and 8-hour refresher course.

- **PUBLICATIONS**

Proscia, Jessica and Weinstock, Eric A., 2015, "*Legacy from an Industrial Past: Volatile Vapor Intrusion*," The Corridor, April 2015.

Jessica Proscia, *Who's Who in Environmental Consulting & Engineering*, Long Island Business News, April 2014.

Thomas R. Brown

- **TITLE**

  Geologist

- **EDUCATION**

  Bachelor of Science, Geology, Environmental Geoscience, State University of New York at New Paltz, 2012

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training

- **PROFESSIONAL EXPERIENCE**

  Project Environmental Scientist, C A Rich Consultants, Inc., May 2012 – Present

  As a Project Environmental Scientist with CA RICH, Mr. Brown's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments (ESAs). Mr. Brown has also conducted all aspects of environmental investigations including supervision of drilling and well installation, sanitary system or dry well clean-outs, groundwater, indoor air, soil gas, subslab vapor, and soil sampling, soil delineation, excavation, UST removals, petroleum and hazardous waste disposal, analytical interpretation, groundwater contouring, mapping, and report preparation.

  Mr. Brown assisted with the start-up tests for soil vapor extraction (SVE) systems for the remediation of PCE contamination on Federal Superfund sites.

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. JOHN TRIMBLE
ALPHA ANALYTICAL
320 FORBES BOULEVARD
MANSFIELD, MA 02048

NY Lab Id No: 11627

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER All approved analytes are listed below:

Metals I

Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4

Metals II

Nickel, Total	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Metals III

Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

Miscellaneous

1,4-Dioxane	EPA 522
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 1613B

Non-Metals

Calcium Hardness	EPA 200.7 Rev. 4.4

Perfluorinated Alkyl Acids

Perfluorooctanesulfonic acid (PFOS)	EPA 537
	EPA 537.1
Perfluorooctanoic acid (PFOA)	EPA 537
	EPA 537.1

Serial No.: 61461

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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MANSFIELD, MA 02048

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All approved analytes are listed below:

Amines

1,2-Diphenylhydrazine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D
Pyridine	EPA 8270D

Benzidines

3,3'-Dichlorobenzidine	EPA 8270D
Benzidine	EPA 8270D

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
delta-BHC	EPA 8081B
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B

Chlorinated Hydrocarbon Pesticides

Endrin	EPA 8081B
Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
PCNB	EPA 8270D
Toxaphene	EPA 8081B

Chlorinated Hydrocarbons

1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8081B
	EPA 8270D
Hexachlorobutadiene	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D

Dioxins and Furans

1,2,3,4,6,7,8,9-Octachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-diox	EPA 8290A
	EPA 1613B

Serial No.: 61462

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Dioxins and Furans

1,2,3,4,6,7,8-Heptachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxi	EPA 8290A
	EPA 1613B
1,2,3,4,7,8,9-Heptachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,4,7,8-Hexachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
	EPA 1613B
1,2,3,6,7,8-Hexachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
	EPA 1613B
1,2,3,7,8,9-Hexachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	EPA 8290A
	EPA 1613B
1,2,3,7,8-Pentachlorodibenzofuran	EPA 8290A
	EPA 1613B
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	EPA 8290A
	EPA 1613B
2,3,4,6,7,8-Hexachlorodibenzofuran	EPA 8290A
	EPA 1613B
2,3,4,7,8-Pentachlorodibenzofuran	EPA 8290A
	EPA 1613B

Dioxins and Furans

2,3,7,8-Tetrachlorodibenzofuran	EPA 8290A
	EPA 1613B
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 8290A
	EPA 1613B

Dissolved Gases

Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175

Fuel Oxygenates

Ethanol	EPA 8015D
tert-amyl alcohol	EPA 8015D
tert-butyl alcohol	EPA 8015D

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 8270D
4-Bromophenylphenyl ether	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270D

Low Level Polynuclear Aromatics

Acenaphthene Low Level	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270D SIM
Anthracene Low Level	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM

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Low Level Polynuclear Aromatics

Benzo(a)pyrene Low Level	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM
Benzo(k)fluoranthene Low Level	EPA 8270D SIM
Chrysene Low Level	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270D SIM
Fluorene Low Level	EPA 8270D SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
Naphthalene Low Level	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270D SIM
Pyrene Low Level	EPA 8270D SIM

Metals I

Barium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Cadmium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Calcium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
Chromium, Total	EPA 200.7, Rev. 4.4 (1994)

Metals I

Chromium, Total	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Copper, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Iron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Lead, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Magnesium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
Manganese, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Nickel, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. JOHN TRIMBLE
ALPHA ANALYTICAL
320 FORBES BOULEVARD
MANSFIELD, MA 02048

NY Lab Id No: 11627

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Metals I

Potassium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Silver, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Sodium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Strontium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B

Metals II

Aluminum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Antimony, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Arsenic, Total	EPA 200.7, Rev. 4.4 (1994)

Metals II

Arsenic, Total	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Beryllium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Mercury, Low Level	EPA 1631E
Mercury, Total	EPA 245.1, Rev. 3.0 (1994)
	EPA 7470A
Selenium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Vanadium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Zinc, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

Metals III

Cobalt, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D

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Metals III

Cobalt, Total	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Molybdenum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Thallium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Tin, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
Titanium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B

Mineral

Hardness, Total	EPA 200.7, Rev. 4.4 (1994)
	SM 2340B-2011

Miscellaneous

Boron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010D
	EPA 6020B
Silica, Dissolved	EPA 200.7, Rev. 4.4 (1994)

Nitroaromatics and Isophorone

2,4-Dinitrotoluene	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D
Isophorone	EPA 8270D
Nitrobenzene	EPA 8270D

Nitrosoamines

N-Nitrosodimethylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D

Organophosphate Pesticides

Atrazine	EPA 8270D

Petroleum Hydrocarbons

Diesel Range Organics	EPA 8015D

Phthalate Esters

Benzyl butyl phthalate	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 8270D
Di-n-butyl phthalate	EPA 8270D
Di-n-octyl phthalate	EPA 8270D

Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A

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Polychlorinated Biphenyls

Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
PCB 118	EPA 8082A
PCB 128	EPA 8082A
PCB 138	EPA 8082A
PCB 170	EPA 8082A
PCB 18	EPA 8082A
PCB 206	EPA 8082A
PCB 44	EPA 8082A
PCB 52	EPA 8082A
PCB 66	EPA 8082A

Polynuclear Aromatics

Acenaphthene	EPA 8270D
Acenaphthylene	EPA 8270D
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8270D
Benzo(a)pyrene	EPA 8270D
Benzo(b)fluoranthene	EPA 8270D
Benzo(g,h,i)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 8270D
Chrysene	EPA 8270D

Polynuclear Aromatics

Dibenzo(a,h)anthracene	EPA 8270D
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D
Naphthalene	EPA 8270D
Phenanthrene	EPA 8270D
Pyrene	EPA 8270D

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2-Chlorophenol	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenol	EPA 8270D

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All approved analytes are listed below:

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
Acetophenone	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D

Volatiles Organics

1,4-Dioxane	EPA 8270D SIM
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8015D
Methanol	EPA 8015D
Propylene Glycol	EPA 8015D

Sample Preparation Methods

	EPA 3015A
	EPA 3005A
	EPA 3510C

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Amines

1,2-Diphenylhydrazine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D

Benzidines

3,3'-Dichlorobenzidine	EPA 8270D
Benzidine	EPA 8270D

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
delta-BHC	EPA 8081B
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B

Chlorinated Hydrocarbon Pesticides

Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
Pentachloronitrobenzene	EPA 8270D
Toxaphene	EPA 8081B

Chlorinated Hydrocarbons

1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D

Dioxins and Furans

1,2,3,4,6,7,8,9-Octachlorodibenzofuran	EPA 8290A
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-diox	EPA 8290A
1,2,3,4,6,7,8-Heptachlorodibenzofuran	EPA 8290A
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxi	EPA 8290A
1,2,3,4,7,8,9-Heptachlorodibenzofuran	EPA 8290A
1,2,3,4,7,8-Hexachlorodibenzofuran	EPA 8290A

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Dioxins and Furans

1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,6,7,8-Hexachlorodibenzofuran	EPA 8290A
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,7,8,9-Hexachlorodibenzofuran	EPA 8290A
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,7,8-Pentachlorodibenzofuran	EPA 8290A
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	EPA 8290A
2,3,4,6,7,8-Hexachlorodibenzofuran	EPA 8290A
2,3,4,7,8-Pentachlorodibenzofuran	EPA 8290A
2,3,7,8-Tetrachlorodibenzofuran	EPA 8290A
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 8290A

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 8270D
4-Bromophenylphenyl ether	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270D

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270D SIM
Anthracene Low Level	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM
Benzo(a)pyrene Low Level	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM

Low Level Polynuclear Aromatic Hydrocarbons

Benzo(k)fluoranthene Low Level	EPA 8270D SIM
Chrysene Low Level	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270D SIM
Fluorene Low Level	EPA 8270D SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
Naphthalene Low Level	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270D SIM
Pyrene Low Level	EPA 8270D SIM

Metals I

Barium, Total	EPA 6010D
	EPA 6020B
Cadmium, Total	EPA 6010D
	EPA 6020B
Calcium, Total	EPA 6010D
	EPA 6020B
Chromium, Total	EPA 6010D
	EPA 6020B
Copper, Total	EPA 6010D
	EPA 6020B
Iron, Total	EPA 6010D
	EPA 6020B
Lead, Total	EPA 6010D
	EPA 6020B
Magnesium, Total	EPA 6010D

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All approved analytes are listed below:

Metals I

Magnesium, Total	EPA 6020B
Manganese, Total	EPA 6010D
	EPA 6020B
Nickel, Total	EPA 6010D
	EPA 6020B
Potassium, Total	EPA 6010D
	EPA 6020B
Silver, Total	EPA 6010D
	EPA 6020B
Sodium, Total	EPA 6010D
	EPA 6020B
Strontium, Total	EPA 6010D
	EPA 6020B

Metals II

Aluminum, Total	EPA 6010D
	EPA 6020B
Antimony, Total	EPA 6010D
	EPA 6020B
Arsenic, Total	EPA 6010D
	EPA 6020B
Beryllium, Total	EPA 6010D
	EPA 6020B
Mercury, Total	EPA 7471B
	EPA 7474
Selenium, Total	EPA 6010D

Metals II

Selenium, Total	EPA 6020B
Vanadium, Total	EPA 6010D
	EPA 6020B
Zinc, Total	EPA 6010D
	EPA 6020B

Metals III

Cobalt, Total	EPA 6010D
	EPA 6020B
Molybdenum, Total	EPA 6010D
	EPA 6020B
Thallium, Total	EPA 6010D
	EPA 6020B
Tin, Total	EPA 6010D
	EPA 6020B
Titanium, Total	EPA 6010D
	EPA 6020B

Miscellaneous

Boron, Total	EPA 6010D
	EPA 6020B
Organic Carbon, Total	Lloyd Kahn Method
	EPA 9060A

Nitroaromatics and Isophorone

2,4-Dinitrotoluene	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D

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Nitroaromatics and Isophorone

Isophorone	EPA 8270D
Nitrobenzene	EPA 8270D
Pyridine	EPA 8270D

Nitrosoamines

N-Nitrosodimethylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D

Petroleum Hydrocarbons

Diesel Range Organics	EPA 8015D

Phthalate Esters

Benzyl butyl phthalate	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 8270D
Di-n-butyl phthalate	EPA 8270D
Di-n-octyl phthalate	EPA 8270D

Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A

Polychlorinated Biphenyls

Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
PCB 1	EPA 8082A
PCB 101	EPA 8082A
PCB 110	EPA 8082A
PCB 118	EPA 8082A
PCB 128	EPA 8082A
PCB 138	EPA 8082A
PCB 141	EPA 8082A
PCB 151	EPA 8082A
PCB 153	EPA 8082A
PCB 170	EPA 8082A
PCB 18	EPA 8082A
PCB 180	EPA 8082A
PCB 183	EPA 8082A
PCB 187	EPA 8082A
PCB 206	EPA 8082A
PCB 31	EPA 8082A
PCB 44	EPA 8082A
PCB 5	EPA 8082A
PCB 52	EPA 8082A
PCB 66	EPA 8082A
PCB 87	EPA 8082A

Polynuclear Aromatic Hydrocarbons

Acenaphthene	EPA 8270D

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Polynuclear Aromatic Hydrocarbons

Acenaphthylene	EPA 8270D
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8270D
Benzo(a)pyrene	EPA 8270D
Benzo(b)fluoranthene	EPA 8270D
Benzo(g,h,i)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 8270D
Chrysene	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270D
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D
Naphthalene	EPA 8270D
Phenanthrene	EPA 8270D
Pyrene	EPA 8270D

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2-Chlorophenol	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D

Priority Pollutant Phenols

2-Nitrophenol	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenol	EPA 8270D

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
Acetophenone	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D

Volatile Organics

1,4-Dioxane	EPA 8270D SIM
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8015D
tert-butyl alcohol	EPA 8015D

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All approved analytes are listed below:

Sample Preparation Methods

EPA 3570
EPA 3580A
EPA 3050B
EPA 3540C
EPA 3051A

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All approved analytes are listed below:

Acrylates	
Acetonitrile	EPA TO-15
Acrylonitrile	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Metals I	
Lead, Total	40 CFR PART 50 2013 APP G
Polychlorinated Biphenyls	
PCBs and Aroclors	EPA TO-10A
	EPA TO-4A
Polynuclear Aromatics	
Acenaphthene	EPA TO-13A
Acenaphthylene	EPA TO-13A
Anthracene	EPA TO-13A
Benzo(a)anthracene	EPA TO-13A
Benzo(a)pyrene	EPA TO-13A
Benzo(b)fluoranthene	EPA TO-13A
Benzo(g,h,i)perylene	EPA TO-13A
Benzo(k)fluoranthene	EPA TO-13A
Chrysene	EPA TO-13A
Dibenzo(a,h)anthracene	EPA TO-13A
Fluoranthene	EPA TO-13A
Fluorene	EPA TO-13A
Polynuclear Aromatics	
Indeno(1,2,3-cd)pyrene	EPA TO-13A
Naphthalene	EPA TO-13A
	EPA TO-15
Phenanthrene	EPA TO-13A
Pyrene	EPA TO-13A
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
2-Chlorotoluene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15

Serial No.: 61464

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. JOHN TRIMBLE
ALPHA ANALYTICAL
320 FORBES BOULEVARD
MANSFIELD, MA 02048

NY Lab Id No: 11627

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Purgeable Halocarbons

1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromo-3-chloropropane	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
3-Chloropropene (Allyl chloride)	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15

Purgeable Halocarbons

Vinyl chloride	EPA TO-15

Volatile Chlorinated Organics

Benzyl chloride	EPA TO-15

Volatile Organics

1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetaldehyde	EPA TO-15
Acetone	EPA TO-15
Acrolein (Propenal)	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Isopropanol	EPA TO-15
Methanol	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
tert-butyl alcohol	EPA TO-15
Vinyl acetate	EPA TO-15

Serial No.: 61464

Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (LC/MS/MS)

References: EPA Method 537.1, Version 2, March 2020, EPA Document #: EPA/600/R-20/006

Department of Defense, Quality Systems Manual for Environmental Laboratories, Version 5.3, 2019

1. Scope and Application

Matrices: Drinking water, Non-potable Water, , Tissues, Biosolids and Soil Matrices (Drinking water is applicable for specific state regulatory requirements for this method)

Definitions: Refer to Alpha Analytical Quality Manual.

1.1 This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water and soil Matrices. Accuracy and precision data have been generated in reagent water, and finished ground and surface waters and soils for the compounds listed in Table 1.

1.2 The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.3 This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

2.1 A 250-mL water sample is fortified with extracted internal standards (EIS) and passed through a solid phase extraction (WAX) cartridge containing a mixed mode, Weak Anion Exchange, reversed phase, water-wettable polymer to extract the method analytes and isotopically-labeled compounds. The compounds are eluted from the solid phase in two fractions with methanol followed by a small amount of 2% ammonium hydroxide in methanol solution. The extract is concentrated with nitrogen in a heated water bath, and then adjusted to a 1-mL volume with 80:20% (vol/vol) methanol:water.

A 2-4 gram soil, solid, tissue or biosolid sample is is fortified with extracted internal standards (EIS), diluted in methanol and agitated rigorously. An aliquot of the methanol is passed across an SPE based clean-up cartridge and the eluate collected. The extract is concentrated with nitrogen in a heated water bath, and then adjusted to a 1-mL volume with 80:20% (vol/vol) methanol:water.

2.2 A 3 µl injection is made into an LC equipped with a C18 column that is interfaced to an MS/MS. The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.3 Method Modifications from Reference

None.

Table 1

Parameter	Acronym	CAS
PERFLUOROALKYL ETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA *	307-24-4
Perfluoroheptanoic acid	PFHpA *	375-85-9
Perfluorooctanoic acid	PFOA *	335-67-1
Perfluorononanoic acid	PFNA *	375-95-1
Perfluorodecanoic acid	PFDA *	335-76-2
Perfluoroundecanoic acid	PFUnA *	2058-94-8
Perfluorododecanoic acid	PFDoA *	307-55-1
Perfluorotridecanoic acid	PFTrDA *	72629-94-8
Perfluorotetradecanoic acid	PFTA *	376-06-7
Perfluorohexadecanoic acid	PFHxDA	67905-19-5
Perfluorooctadecanoic acid	PFODA	16517-11-6
PERFLUOROALKYLSULFONATES (PFASs)		
Perfluorobutanesulfonic acid	PFBS *	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS *	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS *	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5

*** also reportable via the standard 537 method**

Table 1 Cont.

Parameter	Acronym	CAS
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
PERFLUOROOCTANESULFONAMIDES (FOSAs)		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
TELOMER SULFONATES		
1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	4:2FTS	27619-93-8
1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	8:2FTS	39108-34-4
1H,1H,2H,2H-perfluorododecane sulfonate (10:2)	10:2FTS	120226-60-0
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA *	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA *	2991-50-6
NATIVE PERFLUOROOCTANESULFONAMIDOETHANOLS (FOSEs)		
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	NMeFOSE	24448-09-7
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	NEtFOSE	1691-99-2

*** also reportable via the standard 537 method**

3. Reporting Limits

The reporting limit for PFAS's is 2 ng/L for aqueous samples (20 ng/L for HFPO-DA) and 1 ng/g (10 ng/g for HFPO-DA) for soil samples.

4. Interferences

4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/3 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.2. **Subtracting blank values from sample results is not permitted.**

4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4 SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1 The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2 All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3 PFOA has been described as "likely to be carcinogenic to humans." Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

6.1.1 Samples must be collected in two (2) 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap.

6.1.2 The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3 Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4 Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5 After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6 Field Reagent Blank (FRB)

6.1.6.1 A FRB must be handled along with each sample set. The sample set is composed of samples collected from the same sample site and at the same time. At the laboratory, fill the field blank sample bottle with reagent water and preservatives, seal, and ship to the sampling site along with the sample bottles. For each FRB shipped, an empty sample bottle (no preservatives) must also be shipped. At the sampling site, the sampler must open the shipped FRB and pour the reagent water into the empty shipped sample bottle, seal and label this bottle as the FRB. The FRB is shipped back to the laboratory along with the samples and analyzed to ensure that PFAS's were not introduced into the sample during sample collection/handling.

The reagent water used for the FRBs must be initially analyzed for method analytes as a MB and must meet the MB criteria in Section 9.2.1 prior to use. This requirement will ensure samples are not being discarded due to contaminated reagent water rather than contamination during sampling.

6.2 Sample Collection for Soil and Sediment samples.

Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided.

6.3 Sample Preservation

Not applicable.

6.4 Sample Shipping

Samples must be chilled during shipment and must not exceed 10 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 10 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction, but should not be frozen.

NOTE: Samples that are significantly above 10° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.5 Sample Handling

6.5.1 Holding Times

6.5.1.1 Water samples should be extracted as soon as possible but must be extracted within 14 days. Soil samples should be extracted within 14 days. Extracts are stored at < 10 ° C and analyzed within 28 days after extraction.

7. Equipment and Supplies

7.1 SAMPLE CONTAINERS – 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2 SAMPLE JARS – 8 ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.3 POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.4 CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.5 AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.5.1 NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.6 POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.7 Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.8 PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.9 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.10 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.11 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.11.1 SPE CARTRIDGES – 0.5 g SPE cartridges containing a reverse phase copolymer characterized by a weak anion exchanger (WAX) sorbent phase.

7.11.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB (Sect. 9.2.1).

7.11.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8" O.D. x 1/16" I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB (Sect. 9.2.1) and LCS (Sect. 9.3) QC requirements. The PTFE transfer tubes may be used, but an MB must be run on each PFTE transfer tube and the QC requirements in Section 13.2.2 must be met. In the case of automated SPE, the removal of PTFE lines may not be feasible; therefore, MBs will need to be rotated among the ports and must meet the QC requirements of Sections 13.2.2 and 9.2.1.

7.12 Extract Clean-up Cartridge – 250 mg 6ml SPE Cartridge containing graphitized polymer carbon

7.13 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 65 °C.

7.14 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.15 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.15.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots, and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.15.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.15.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.15.4 ANALYTICAL COLUMN – An LC BEH C_{18} column (2.1 x 50 mm) packed with 1.7 µm d_p C_{18} solid phase particles was used. Any column that provides adequate resolution, peak shape, capacity, accuracy, and precision (Sect. 9) may be used.

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/3 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE ($NH_4C_2H_3O_2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences.

8.1.4 ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE,1 ml ACETIC ACID and 50 ml METHANOL into I Liter of REAGENT WATER.

8.1.7 Methanol/Water (80:20) – To prepare a 1 Liter bottle, mix 200 ml of REAGENT WATER with 800 ml of METHANOL.

8.1.8 AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences.

8.1.9 Sodium Acetate ($NaOOCCH_3$, CAS#: 127-09-3) – High purity, demonstrated to be free of analytes and interferences.

8.1.10 25 mM Sodium Acetate Buffer – To prepare 250mls, dissolve .625 grams of sodium acetate into 100 mls of reagent water. Add 4 mls Acetic Acid and adjust the final volume to 250 mls with reagent water.

8.1.11 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.12 ARGON – Used as collision gas in MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

NOTE: Stock standards and diluted stock standards are stored at ≤4 °C.

8.2.1 ISOTOPE DILUTION Extracted Internal Standard (ID EIS) STOCK SOLUTIONS - ID EIS stock standard solutions are stable for at least 6 months when stored at 4 °C. The stock solution is purchased at a concentration of 1000 ng/mL.

8.2.2 ISOTOPE DILUTION Extracted Internal Standard PRIMARY DILUTION STANDARD (ID EIS PDS) – Prepare the ID EIS PDS at a concentration of 500 ng/mL. The ID PDS is prepared in 80:20% (vol/vol) methanol:water. The ID PDS is stable for 6 months when stored at ≤4 °C.

Table 2

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Vol. of EIS Stock (mL)	Final Vol. of EIS PDS (mL)	Final Conc. of EIS PDS (ng/mL)
M4PFBA	1000	1.0	2.0	500
M5PFPeA	1000	1.0	2.0	500
M5PFHxA	1000	1.0	2.0	500
M4PFHpA	1000	1.0	2.0	500
M8PFOA	1000	1.0	2.0	500
M9PFNA	1000	1.0	2.0	500
M6PFDA	1000	1.0	2.0	500
M7PFUdA	1000	1.0	2.0	500
MPFDoA	1000	1.0	2.0	500
M2PFTeDA	1000	1.0	2.0	500
M2PFHxDA	50,000	.02	2.0	500
d3-N-MeFOSA	50,000	.02	2.0	500
d5-N-EtFOSA	50,000	.02	2.0	500
d7-N-MeFOSE	50,000	.02	2.0	500
d9-N-EtFOSE	50,000	.02	2.0	500
M8FOSA	1000	1.0	2.0	500
d3-N-MeFOSAA	1000	1.0	2.0	500
d5-N-EtFOSAA	1000	1.0	2.0	500
M3PFBS	929	1.0	2.0	464.5
M3PFHxS	946	1.0	2.0	473
M8PFOS	957	1.0	2.0	478.5
M2-4:2FTS	935	1.0	2.0	467.5
M2-6:2FTS	949	1.0	2.0	474.5
M2-8:2FTS	958	1.0	2.0	479
M3HFPO-DA	50,000	.4	2.0	10,000

8.2.3 ANALYTE STOCK STANDARD SOLUTION – Analyte stock standards are stable for at least 6 months when stored at 4 °C. When using these stock standards to prepare a PDS, care must be taken to ensure that these standards are at room temperature and adequately vortexed.

8.2.4 Analyte Secondary Spiking Standard Prepare the spiking solution of additional add on components for project specific requirements only. ANALYTE PRIMARY SPIKING STANDARD – Prepare the spiking standard at a concentration of 500 ng/mL in methanol. The spiking standard is stable for at least two months when stored in polypropylene centrifuge tubes at room temperature.

Table 3

Analyte	Conc. of Stock (ng/mL)	Vol. of Stock (mL)	Final Vol. of PDS (mL)	Final Conc. of PDS (ng/mL)
PFBA	2000	1	4	500
PFPeA	2000	1	4	500
PFHxA	2000	1	4	500
PFHpA	2000	1	4	500
PFOA	2000	1	4	500
PFNA	2000	1	4	500
PFDA	2000	1	4	500
PFUdA	2000	1	4	500
PFDoA	2000	1	4	500
PFTrDA	2000	1	4	500
PFTeDA	2000	1	4	500
FOSA	2000	1	4	500
N-MeFOSAA	2000	1	4	500
N-EtFOSAA	2000	1	4	500
L-PFBS	1770	1	4	442.5
L-PFPeS	1880	1	4	470
L-PFHxSK	1480	1	4	370
Br-PFHxSK	344	1	4	86
L-PFHpS	1900	1	4	475
L-PFOSK	1460	1	4	365
Br-PFOSK	391	1	4	97.75
L-PFNS	1920	1	4	480
L-PFDS	1930	1	4	482.5
4:2FTS	1870	1	4	467.5
6:2FTS	1900	1	4	475
8:2FTS	1920	1	4	480

8.2.5 Analyte Secondary Spiking Standard Prepare the spiking solution of additional add on components for project specific requirements only.

Table 4

Analyte	Conc. of IS Stock (ng/mL)	Vol. of IS Stock (mL)	Final Vol. of IS PDS (mL)	Final Conc. of IS PDS (ng/mL)
ADONA	2000	1	4	500
PFHxDA	2000	1	4	500
PFODA	2000	1	4	500
HFPO-DA	100,000	.4	4	10,000
9ClPF3ONS	50,000	0.04	4	500
11ClPF3OUdS	50,000	0.04	4	500

8.2.6 LOW, MEDIUM AND HIGH LEVEL LCS – The LCS's will be prepared at the following concentrations and rotated per batch; 2 ng/L, 40 ng/L, 500 ng/l for drinking waters. The analyte PDS contains all the method analytes of interest at various concentrations in methanol. The analyte PDS has been shown to be stable for six months when stored at ≤4 °C.

8.2.7 Isotope Dilution Labeled Recovery Stock Solutions (ID REC) – ID REC Stock solutions are stable for at least 6 months when stored at 4 °C. The stock solution is purchased at a concentration of 1000 ng/mL.

8.2.8 Isotope Dilution Labeled Recovery Primary Dilution Standard (ID REC PDS) - Prepare the ID REC PDS at a concentration of 500 ng/mL. The ID REC PDS is prepared in 80:20% (vol/vol) methanol:water. The ID REC PDS is stable for at least six months when stored in polypropylene centrifuge tubes at ≤4 °C.

Table 5

Analyte	Conc. of REC Stock (ng/mL)	Vol. of REC Stock (mL)	Final Vol. of REC PDS (mL)	Final Conc. of REC PDS (ng/mL)
M2PFOA	2000	1	4	500
M2PFDA	2000	1	4	500
M3PFBA	2000	1	4	500
M4PFOS	2000	1	4	500

8.2.9 CALIBRATION STANDARDS (CAL) –

Current Concentrations (ng/mL): 0.5, 1.0, 5.0, 10.0, 50.0, 125, 150, 250, 500

Prepare the CAL standards over the concentration range of interest from dilutions of the analyte PDS in methanol containing 20% reagent water. 20 µl of the EIS PDS and REC PDS are added to the CAL standards to give a constant concentration of 10 ng/ml. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity. The CAL standards may also be used as CCVs (Sect. 9.8). To make calibration stock standards:

Table 6

Calibration Standard Concentration	Final Aqueous Cal STD Level Concentration	Final Soil Cal STD Level Concentration	24 compound stock added (ul)	PFHxDA Stock added (ul)	500 ng/ml PFHxDA dilution added (ul)	PFODA Stock added (ul)	500 ng/ml PFODA dilution added (ul)	ADONA, HFPO-DA, 11Cl-PF3OUdS, 9Cl-PF3ONS Stock added (ul)	500 ng/ml ADONA dilution added (ul)	Final Volume in $MeOH/H_2O$ (82:20)
.5 ng/ml	2 ng/L	.25 ng/g	6.25		25		25		25	25 mls
1 ng/ml	4 ng/L	.5 ng/g	5		20		20		20	10 mls
5 ng/ml	20 ng/L	1 ng/g	25		100		100		100	10 mls
10 ng/ml	40 ng/L	5 ng/g	125	5		5		5		25 mls
50 ng/ml	200 ng/L	25 ng/g	250	10		10		10		10 mls
125 ng/ml	500 ng/L	62.5 ng/g	625	25		25		25		10 mls
150 ng/ml	600 ng/L	75 ng/g	750	30		30		30		10 mls
250 ng/ml	1000 ng/L	125 ng/g	625							5 mls
500 ng/ml	2000 ng/L	250 ng/g	1250							5 mls

9. Quality Control

The laboratory must maintain records to document the quality of data that is generated. Ongoing data quality checks are compared with established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

9.1 MINIMUM REPORTING LIMIT (MRL) CONFIRMATION

9.1.1 Fortify, extract, and analyze seven replicate LCSs at 2 ng/l. Calculate the mean measured concentration (*Mean*) and standard deviation for these replicates. Determine the Half Range for the prediction interval of results (HR_{PIR}) using the equation below

$$HR_{PIR} = 3.963s$$

Where:

s = the standard deviation
3.963 = a constant value for seven replicates.

9.1.2 Confirm that the upper and lower limits for the Prediction Interval of Result ($PIR = Mean \pm HR_{PIR}$) meet the upper and lower recovery limits as shown below

The Upper PIR Limit must be ≤150% recovery.

$$\frac{Mean + HR_{PIR}}{Fortified\ Concentration} \times 100\% \leq 150\%$$

The Lower PIR Limit must be ≥ 50% recovery.

$$\frac{Mean - HR_{PIR}}{Fortified\ Concentration} \times 100\% \geq 50\%$$

9.1.3 The RL is validated if both the Upper and Lower PIR Limits meet the criteria described above. If these criteria are not met, the RL has been set too low and must be determined again at a higher concentration.

9.2 Blank(s)

9.2.1 **METHOD BLANK (MB)** - A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch. Because background contamination is a significant problem for several method analytes, it is highly recommended that the analyst maintain a historical record of MB data.

9.2.2 **FIELD REAGENT BLANK (FRB)** - The purpose of the FRB is to ensure that PFAS's measured in the Field Samples were not inadvertently introduced into the sample during sample collection/handling. Analysis of the FRB is required only if a Field Sample contains a method analyte or analytes at or above the RL. The FRB is processed, extracted and analyzed in exactly the same manner as a Field Sample.

9.3 Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicates (LCSD)

9.3.1 An LCS is required with each extraction batch. The fortified concentration of the LCS may be rotated between low, medium, and high concentrations from batch to batch. Default limits of 50-150% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.3.2 Where applicable, LCSD's are to be extracted and analyzed. The concentration and analyte recovery criteria for the LCSD must be the same as the batch LCS The RSD's must fall within ≤30% of the true value for medium and high level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.3.3 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.4 Labeled Recovery Standards (REC)

The analyst must monitor the peak areas of the REC(s) in all injections during each analysis day.

9.5 Extracted Internal Standards (EIS)

9.5.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:

A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

9.5.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria,the data must be reanalyzed.

9.6 Matrix Spike (MS)

9.6.1 Analysis of an MS is required in each extraction batch and is used to determine that the sample matrix does not adversely affect method accuracy. Assessment of method precision is accomplished by analysis of a Field Duplicate (FD) (Sect. 9.6); however, infrequent occurrence of method analytes would hinder this assessment. If the occurrence of method analytes in the samples is infrequent, or if historical trends are unavailable, a second MS, or MSD, must be prepared, extracted, and analyzed from a duplicate of the Field Sample. Extraction batches that contain MSDs will not require the extraction of a field sample duplicate. If a variety of different sample matrices are analyzed regularly, for example, drinking water from groundwater and surface water sources, method performance should be established for each. Over time, MS data should be documented by the laboratory for all routine sample sources.

9.6.2 Within each extraction batch, a minimum of one Field Sample is fortified as an MS for every 20 Field Samples analyzed. The MS is prepared by spiking a sample with an appropriate amount of the Analyte Stock Standard (Sect. 8.2.3). Use historical data and rotate through the low, mid and high concentrations when selecting a fortifying concentration. Calculate the percent recovery (%*R*) for each analyte using the equation

$$\%R = \frac{(A - B)}{C} \times 100$$

Where:

A = measured concentration in the fortified sample
B = measured concentration in the unfortified sample
C = fortification concentration.

9.6.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Laboratory Duplicate

9.7.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.7.2 Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1* and *FD2*) using the equation

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.7.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

9.7.5 RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.8 Initial Calibration Verification (ICV)

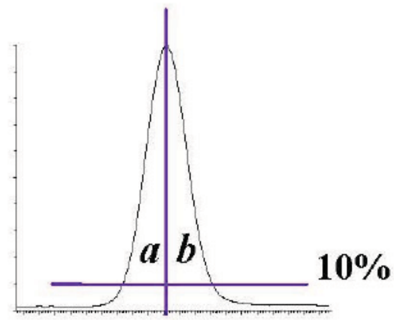
9.8.1 As part of the IDC (Sect. 13.2), and after each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Continuing Calibration Verification (CCV)

9.9.1 CCV Standards are analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch. See Section 10.7 for concentration requirements and acceptance criteria.

9.10 Method-specific Quality Control Samples

9.10.1 PEAK ASYMMETRY FACTOR – A peak asymmetry factor must be calculated using the equation below during the IDL and every time a calibration curve is generated. The peak asymmetry factor for the first two eluting peaks in a midlevel CAL standard (if only two analytes are being analyzed, both must be evaluated) must fall in the range of 0.8 to 1.5. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted. See guidance in Section 10.6.4.1 if the calculated peak asymmetry factors do not meet the criteria.



$$A_s = b / a$$

Where:

A_s = peak asymmetry factor
b = width of the back half of the peak measured (at 10% peak height) from the trailing edge of the peak to a line dropped perpendicularly from the peak apex
a = the width of the front half of the peak measured (at 10% peak height) from the leading edge of the peak to a line dropped perpendicularly from the apex.

9.11 Method Sequence

- CCV-LOW
- MB
- LCS
- LCSD
- MS
- Duplicate or MSD
- Field Samples (1-10)
- CCV-MID
- Field Samples (11-20)
- CCV-LOW

10. Procedure

10.1 Equipment Set-up

10.1.1 This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements (Sect. 9.2).

10.1.2 Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent (Sect 10.3.4) whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected (Sect. 10.3.4).

10.1.3 **NOTE:** The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.2 Sample Preparation and Extraction of Aqueous Samples

10.2.1 Samples are preserved, collected and stored as presented in Section 6.

The entire sample that is received must be sent through the SPE cartridge. In addition, the bottle must be solvent rinsed and this rinse must be sent through the SPE cartridge as well. The method blank (MB) and laboratory control sample (LCS) must be extracted in exactly the same manner (i.e., must include the bottle solvent rinse). It should be noted that a water rinse alone is not sufficient. This does not apply to samples with high concentrations of PFAS that are prepared using serial dilution and not SPE.

10.2.2 Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new 250mL HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may **NOT** be transferred to a graduated cylinder for volume measurement.

10.2.3 The MB, LCS and FRB may be prepared by measuring 250 mL of reagent water with a polypropylene graduated cylinder or filling a 250-mL sample bottle to near the top.

10.2.4 Adjust the QC and sample pH to 3 by adding acetic acid in water dropwise

10.2.5 Add 20 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC, cap and invert to mix.

10.2.6 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.3). Cap and invert each sample to mix.

10.3 Cartridge SPE Procedure

10.3.1 CARTRIDGE CLEAN-UP AND CONDITIONING – DO NOT allow cartridge packing material to go dry during any of the conditioning steps. Rinse each cartridge with 3 X 5 mL of 2% ammonium hydroxide in methanol, followed by 5mls of methanol. Next, rinse each cartridge with 5 mls of the 25 mM acetate buffer, followed by 15 mL of reagent water, without allowing the water to drop below the top edge of the packing. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Add 4-5 mL of reagent water to each cartridge, attach the sample transfer tubes (Sect. 7.9.3), turn on the vacuum, and begin adding sample to the cartridge.

10.3.2 SAMPLE EXTRACTON – Adjust the vacuum so that the approximate flow rate is approximately 4 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.3.3 SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample bottles with 4 ml reagent water followed by 4 ml 25 mM acetate buffer at pH 4 and draw the aliquot through the sample transfer tubes and the cartridges. Draw air or nitrogen through the cartridge for 5-10 min at high vacuum (10-15 in. Hg). NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the entire sample has passed through the cartridge, the reservoirs must be rinsed to waste with reagent water.

10.3.4 SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 1 – Turn off and release the vacuum. Lift the extraction manifold top and insert a rack with collection tubes into the extraction tank to collect the extracts as they are eluted from the cartridges. Rinse the sample bottles with 12 mls of methanol and draw the aliquot through the sample transfer tubes and cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 2 In a separate collection vial, rinse the sample bottles with 12 mL of 2% ammonium hydroxide in methanol and elute the analytes from the cartridges by pulling the 4 mL of methanol through the sample transfer tubes and the cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the reservoirs have been rinsed in Section 10.3.3, the elution solvent used to rinse the sample bottles must be swirled down the sides of the reservoirs while eluting the cartridge to ensure that any method analytes on the surface of the reservoirs are transferred to the extract.

CLEAN-UP CARTRIDGE ELUTION, Elute the clean-up cartridge with 8 additional mls of methanol and draw the aliquot through the cartridge. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

10.3.5 Fractions 1 and 2 are to be combined during the concentration stage (section10.6).

10.4 Sample Prep and Extraction Protocol for Soils, Solids and Sediments.

10.4.1 Homogenize and weigh 4 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 4 grams of clean sand is used.

10.4.2 Add 40 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC.

10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.3). Cap and invert each sample to mix.

10.4.4 To all samples, add 10 mls of methanol, cap, vortex for 25 seconds at 2500 RPM.

10.4.5 Following mixing, sonicate each sample for 30 minutes and let samples sit overnight (at least 2 hours is required for RUSH samples).

10.4.6 Centrifuge each sample at 3500RPM for 10 minutes.

10.4.7 Remove 5ml of supernatant, and reserve for clean-up.

10.5 Sample Prep and Extraction Protocol for Tissues, Oils and Biosolids.

10.5.1 Homogenize and weigh 2-8 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 4 grams of clean sand is used.

10.5.2 Add 40 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC.

10.5.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.3). Cap and invert each sample to mix.

10.5.4 Add 100 ul of Ammonium Hydroxide.

10.5.5 To all samples, add 10 mls of methanol, cap, vortex for 25-30 seconds at 2500 RPM.

10.5.6 Following mixing, sonicate each sample for 30 minutes and let samples sit for 2 hours.

10.5.7 Centrifuge each sample at 3500RPM for 10 minutes.

10.5.8 Remove 5 mls of the supernatant, and reserve for clean-up.

10.6 Extract Clean-up: Soils, Solids and Aqueous Matrices

10.6.1 CARTRIDGE CLEAN-UP AND CONDITIONING –. Rinse each cartridge with 15 mL of methanol and discard. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Attach the sample transfer tubes (Sect. 7.9.3), turn on the vacuum, and begin adding sample to the cartridge. For Soils extracts, transfer 5 mls of the MeOH eluate to the cartridge. Samples should be allowed to pass through the cartridge by gravity feed at a dropwise rate to ensure adequate contact time with the cartridge sorbent. Vacuum is only to applied if the flow of solvent through the cartridge stops.

10.6.2 Adjust the vacuum so that the approximate flow rate is 1-2 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.6.3 SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample collection vial with two 4-mL aliquots of methanol and draw each aliquot through the cartridges. Draw air or nitrogen through the cartridge for 5 min at high vacuum (10-15 in. Hg).

10.6.4 If extracts are not to be immediately evaporated, cover collection tubes and store at ambient temperature till concentration.

10.7 Extract Clean-up: Tissues, Oils and Biosolids

10.7.1 CARTRIDGE CLEAN-UP AND CONDITIONING –. Stack a 500 mg WAX cartridge onto a 250 mg GCB cartridge. Rinse each cartridge set with 10 mL of 2% NH_4OH and discard. Immediately rinse each cartridge stack with 15 mls MeOH and discard, If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Attach the sample transfer tubes (Sect. 7.9.3), turn on the vacuum.

10.7.2 Adjust the vacuum so that the approximate flow rate is 1-2 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.7.3 SAMPLE elution AND CARTRIDGE RINSE – Load 5 mls of the MeOH sample extract to the cartridge. After the entire sample has passed through the cartridge, rinse the cartridges with 5-mLs of methanol and draw through the cartridges. Immediately add and elute 2 5ml aliquots of 2% NH_4OH to the cartridges, collecting the eluate with the MeOH eluate.

If extracts are not to be immediately evaporated, cover collection tubes and store at ambient temperature till concentration.

10.8 Extract Concentration

10.8.1 Concentrate the extract to dryness under a gentle stream of nitrogen in a heated water bath (60-65 °C) to remove all the water/methanol mix. Add the appropriate amount of 80:20% (vol/vol) methanol:water solution and 20 µl of the ID REC PDS (Sect. 8.2.7) to the collection vial to bring the volume to 1 mL and vortex. Transfer two aliquots with a plastic pipet (Sect. 7.6) into 2 polypropylene autosampler vials.

NOTE: It is recommended that the entire 1-mL aliquot not be transferred to the autosampler vial because the polypropylene autosampler caps do not reseal after injection. Therefore, do not store the extracts in the autosampler vials as evaporation losses can occur occasionally in these autosampler vials. Extracts can be split between 2 X 700 µl vials (Sect. 7.4).

10.9 Sample Volume Determination

10.9.1 If the level of the sample was marked on the sample bottle, use a graduated cylinder to measure the volume of water required to fill the original sample bottle to the mark made prior to extraction. Determine to the nearest 10 mL.

10.9.2 If using weight to determine volume, weigh the empty bottle to the nearest 10 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight (Sect. 10.2.2). Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration (Sect. 11.2).

10.10 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.10.1 ESI-MS/MS TUNE

10.10.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.10.1.2 Optimize the [M-H]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

10.10.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions and the sulfonic acids have similar MS/MS conditions.

10.10.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Cautions: LC system components, as well as the mobile phase constituents, contain many of the method analytes in this method. Thus, these PFAS's will build up on the head of the LC column during mobile phase equilibration. To minimize the background PFAS peaks and to keep background levels constant, the time the LC column sits at initial conditions must be kept constant and as short as possible (while ensuring reproducible retention times). In addition, prior to daily use, flush the column with 100% methanol for at least 20 min before initiating a sequence. It may be necessary on some systems to flush other LC components such as wash syringes, sample needles or any other system components before daily use.

10.10.3 Inject a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. If analyzing for PFTA, ensure that the LC conditions are adequate to prevent co-elution of PFTA and the mobile phase interferants. These interferants have the same precursor and products ions as PFTA, and under faster LC conditions may co-elute with PFTA. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.10.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

10.10.4.1 If broad, split or fronting peaks are observed for the first two eluting chromatographic peaks (if only two analytes are being analyzed, both must be evaluated), change the initial mobile phase conditions to higher aqueous content until the peak asymmetry ratio for each peak is 0.8 – 1.5. The peak asymmetry factor is calculated as described in Section 9.9.1 on a mid-level CAL standard. The peak asymmetry factor must meet the above criteria for the first two eluting peaks during the IDL and every time a new calibration curve is generated. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 5 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.10.5 Prepare a set of CAL standards as described in Section 8.2.5. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity.

10.10.6 The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 5 levels are required for a linear calibration model and a minimum of 6 levels are required for a quadratic calibration model.

10.10.7 **CALIBRATION ACCEPTANCE CRITERIA** – A linear fit is acceptable if the coefficient of determination (r^2) is greater than 0.99. When quantitated using the initial calibration curve, each calibration point, except the lowest point, for each analyte must calculate to be within 70-130% of its true value. The lowest CAL point must calculate to be within 50-150% of its true value. If these criteria cannot be met, the analyst will have difficulty meeting ongoing QC criteria. It is recommended that corrective action is taken to reanalyze the CAL standards, restrict the range of calibration, or select an alternate method of calibration (forcing the curve through zero is still required).

10.10.7.1 **CAUTION:** When acquiring MS/MS data, LC operating conditions must be carefully reproduced for each analysis to provide reproducible retention times. If this is not done, the correct ions will not be monitored at the appropriate times. As a precautionary measure, the chromatographic peaks in each window must not elute too close to the edge of the segment time window.

10.11 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a “sample” is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.11.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.11.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each analyte for medium level CCVs must be within ± 30% of the true value with an allowance of 10% of the reported analytes to be greater than 30%. The calculated amount for each EIS must be within ± 50% of the true value. The calculated amount for the lowest calibration point for each analyte must be within ± 50%. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken (Sect. 10.7.4) which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% (150% for the low-level CCV) for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

10.11.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration (Sect 10.6) and verification of sensitivity by analyzing a CCV at or below the RL (Sect 10.7).

10.12 EXTRACT ANALYSIS

10.12.1 Establish operating conditions equivalent to those summarized in Tables 6-8 of Section 16. Instrument conditions and columns should be optimized prior to the initiation of the IDC.

10.12.2 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration and completing the IDC can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.12.3 Calibrate the system by either the analysis of a calibration curve (Sect. 10.6) or by confirming the initial calibration is still valid by analyzing a CCV as described in Section 10.7. If establishing an initial calibration, complete the IDC as described in Section 13.2.

10.12.4 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.12.5 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.12.6 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to insure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 7.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.6. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.6 where:

C_{ex} = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (C_{ex} / sample volume in ml) * 1000

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 5 due to the linear and branch isomers of these compounds (Sect. 10.6.4.1). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified, and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 The IDC must be successfully performed prior to analyzing any Field Samples. Prior to conducting the IDC, the analyst must first generate an acceptable Initial Calibration following the procedure outlined in Section 10.6.

13.2.2 INITIAL DEMONSTRATION OF LOW SYSTEM BACKGROUND – Any time a new lot of SPE cartridges, solvents, centrifuge tubes, disposable pipets, and autosampler vials are used, it must be demonstrated that an MB is reasonably free of contamination and that the criteria in Section 9.2.1 are met. If an automated extraction system is used, an MB should be extracted on each port to ensure that all the valves and tubing are free from potential PFAS contamination.

13.2.3 INITIAL DEMONSTRATION OF PRECISION (IDP) – Prepare, extract, and analyze four to seven replicate LCSs fortified near the midrange of the initial calibration curve according to the procedure described in Section 10. Sample preservatives as described in Section 6.2.1 must be added to these samples. The relative standard deviation (RSD) of the results of the replicate analyses must be less than 20%.

13.2.4 INITIAL DEMONSTRATION OF ACCURACY (IDA) – Using the same set of replicate data generated for Section 13.2.3, calculate average recovery. The average recovery of the replicate values must be within ± 30% of the true value.

13.2.5 INITIAL DEMONSTRATION OF PEAK ASYMMETRY FACTOR – Peak asymmetry factors must be calculated using the equation in Section 9.10.1 for the first two eluting peaks (if only two analytes are being analyzed, both must be evaluated) in a mid-level CAL standard. The peak asymmetry factors must fall in the range of 0.8 to 1.5. See guidance in Section 10.6.4.1 if the calculated peak asymmetry factors do not meet the criteria.

13.2.6 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.7 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 7: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 MeOH/H_2O)	100% Methanol
Initial	100.0	0.0
1.0	100.0	0.0
2.2	85.0	15.0
11	20.0	80.0
11.4	0.0	100.0
12.4	100.0	00.0
15.5	100.0	0.0
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 3 µL injection		

Table 8: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Capillary needle voltage	.5 kV
Cone Gas Flow	25 L/hr
Nitrogen desolvation gas	1000 L/hr
Desolvation gas temp.	500 ºC

Table 9: Method Analyte Source, Retention Times (RTs), and EIS References

#	Analyte	Transition	RT	IS	Type
1	M3PBA	216>171	2.65		REC
2	PFBA	213 > 169	2.65	2: M4PFBA	
3	M4PFBA	217 > 172	2.65	1: M3PBA	EIS
4	PFPeA	263 > 219	5.67	4: M5PFPEA	
5	M5PFPEA	268 > 223	5.66	1: M3PBA	EIS
6	PFBS	299 > 80	6.35	6: M3PFBS	
7	M3PFBS	302 > 80	6.35	29:M4PFOS	EIS
8	FtS 4:2	327 > 307	7.47	9: M2-4:2FTS	
9	M2-4:2FTS	329 > 81	7.47	29:M4PFOS	EIS
10	PFHxA	303 > 269	7.57	10: M5PFHxA	
11	M5PFHxA	318 > 273	7.57	19:M2PFOA	EIS
12	PFPeS	349 > 80	7.88	18: M3PFHxS	
13	PFHpA	363 > 319	8.80	14: M4PFHpA	
14	M4PFHpA	367 > 322	8.80	19:M2PFOA	EIS

#	Analyte	Transition	RT	IS	Type
15	L-PFHxS	399 > 80	8.94	18: M3PFHxS	
16	br-PFHxS	399 > 80	8.72	18: M3PFHxS	
17	PFHxS Total	399 > 80	8.94	18: M3PFHxS	
18	M3PFHxS	402 > 80	8.94	29:M4PFOS	EIS
19	MPFOA	415 > 370	9.7		REC
20	PFOA	413 > 369	9.7	23: M8PFOA	
21	br-PFOA	413 > 369	9.48	23: M8PFOA	
22	PFOA Total	413 > 369	9.7	23: M8PFOA	
23	M8PFOA	421 > 376	9.7	19: M2PFOA	EIS
24	FtS 6:2	427 > 407	9.66	25: M2-6:2FTS	
25	M2-6:2FTS	429 > 409	9.66	29:M4PFOS	EIS
26	PFHpS	449 > 80	9.78	33: M8PFOS	
27	PFNA	463 > 419	10.41	33: M8PFOS	
28	M9PFNA	472 > 427	10.41	19: M2PFOA	EIS
29	M4PFOS	501 > 80	10.45		REC
30	PFOS	499 > 80	10.45	33: M8PFOS	
31	br-PFOS	499 > 80	10.27	33: M8PFOS	
32	PFOS Total	499 > 80	10.45	33: M8PFOS	
33	M8PFOS	507 > 80	10.45	29: M4PFOS	EIS
34	FtS 8:2	527 > 507	10.99	38: M2-8:2FTS	
35	M2-8:2FTS	529 > 509	10.99	29:M4PFOS	EIS
36	M2PFDA	515 > 470	11.00		REC
37	PFDA	513 > 469	11.00	38: M6PFDA	
38	M6PFDA	519 > 474	11.00	36: M2PFDA	EIS
39	PFNS	549 > 80	11.02	33:M8PFOS	
40	NMeFOSAA	570 > 419	11.41	41: D3-NMeFOSAA	
41	d3-NMeFOSAA	573 > 419	11.41	36: M2PFDA	EIS
42	PFOSA	498 > 78	11.48	29: M8FOSA	
43	M8FOSA	506 > 78	11.48	19: M2PFOA	EIS
44	PFUnDA	563 > 519	11.51	41: M7-PFUDA	
45	M7-PFUDA	570 > 525	11.51	36: M2PFDA	EIS
46	PFDS	599 > 80	11.51	33:M8PFOS	
47	NEtFOSAA	584 > 419	11.68	48: d5-NEtFOSAA	
48	d5-NEtFOSAA	589 > 419	11.68	36: M2PFDA	EIS
49	PFDoA	613 > 569	11.96	50: MPFDOA	
50	MPFDOA	615 > 570	11.96	36: M2PFDA	EIS
51	PFTriA	663 > 619	12.34	50: MPFDOA	
52	PFTeA	713 > 669	12.6	53: M2PFTEDA	
53	M2PFTEDA	715 > 670	12.6	36: M2PFDA	EIS

#	Analyte	Transition	RT	IS	Type
54	M3HFPO-DA	329>285	7.97	19: M2PFOA	EIS
55	HFPO-DA	332>287	7.97	54: M3HFPO-DA	
56	ADONA	377>251	8.00	23: M8PFOA	
57	PFHxDA	813>769	13.20	59: M2PFHxDA	
58	PFODA	913>869	13.50	59: M2PFHxDA	
59	M2PFHxDA	815>770	13.20	36:M2PFDA	EIS
60	NEtFOSA	526>169	11.00	61: NMeFOSA	
61	NMeFOSA	512>169	10.50	63: d3-NMeFOSA	
62	d3-NMeFOSA	515>169	10.50	36: M2PFDA	EIS
63	d5-NEtFOSA	531>169	11.00	36: M2PFDA	EIS
64	NMeFOSE	556>122	11.25	66: d7-NMeFOSE	
65	NEtFOSE	570>136	10.75	67: d9-NEtFOSE	
66	d7-NMeFOSE	563>126	11.25	36: M2PFDA	EIS
67	d9-NEtFOSE	579>142	10.75	36: M2PFDA	EIS
68	FtS 10:2	627>607	11.50	25: M2-6:2FTS	
69	PFDoS	699>99	12.50	33: M8PFOS	
70	9ClPF3ONS	531>351	10.23	33: M8PFOS	
10	11ClPF3OUdS	631>451	11.27	33: M8PFOS	

Company Overview

About Alpha Analytical

Since 1985, Alpha Analytical, Inc. has provided full-service environmental laboratory solutions for the most demanding industrial and commercial applications in the U.S. and abroad. Alpha Analytical ranks within the top 8 environmental laboratories in the country, and is the largest environmental laboratory in the Northeast with services and support extending from Maine to Virgina.

Our core services include air, water and soil analysis, with particular expertise in the highly-specialized fields of sediment and tissue analysis and petroleum analysis.

Technical Support

Our staff includes more than 300 professionals with wide-ranging scientific and technical expertise. Their experience has helped Alpha pioneer a number of innovative, cost-effective new procedures that have been widely adopted in the industry. Several of our staff members are acknowledged leaders in their fields, serving on various regulatory and oversight bodies that help formulate sound environmental policies.

Facilities and Locations

Alpha maintains more than 50,000 square feet of state-of-the-art laboratory facilities in Westborough and Mansfield, Massachusetts. Over the past 5 years, we have invested an average $2.0 million per year in our facilities, equipment and technology to meet our clients' growing needs. We have established a network of service centers that include the following locations: Brewer, ME, Portsmouth, NH, Albany and Buffalo, NY, Mahwah, NJ and Holmes, PA.

Quality and Service

Alpha Analytical is committed to timely, responsive customer service. We are staffed and equipped to routinely handle large projects and tight schedules with the utmost accuracy. The majority of our work is completed with a turnaround time of five days or less.

Information Management

Alpha Analytical understands the importance of data accessibility and has implemented sophisticated electronic data delivery and archiving methods. Alpha clients can check on the status of their projects and download data directly from our secure server with an Alpha Data Exchange (ADEx) account. Reports in formats that include Excel, GIS Key, EquIS and Acrobat PDF are generated automatically to eliminate transcription errors, and are available 24/7.

Integrity and Peace of Mind

Alpha Analytical was founded with an absolute commitment to data integrity and the industry's highest ethical and professional standards. Continuing with Alpha's reputation of Quality & Reliability since 1985 — we get it done right — no exceptions. Alpha's financial stability and consistent ownership means we will be there for you.

Laboratories and Instrumentation

Our two laboratory facilities located in Westborough and Mansfield, Massachusetts are comprised of over 50,000 square feet of smart, sophisticated systems. From our back-up generator systems to our LIMS system, ADEx and DataMerger data delivery tools and Fleetmatics GPS courier management system – Alpha Analytical has invested in making sure our clients' work is managed with intelligent efficiency.

Alpha Analytical is focused on being responsive to our clients. Responsive service ranging from our network of couriers, whose responsibility it is to be where you need them and when you need them, to our interactive login staff and front office personnel. Our senior staff is readily available to assist you with setting up your project, reviewing your regulatory requirements or helping you interpret your data. Alpha Analytical's staff is very experienced with the engineering and risk assessment applications of environmental data.

At your discretion, senior laboratory scientists can work together with your project staff on the project's data collection requirement – planning and logistics, sampling and analysis methodologies, data quality objectives, data interpretation and quality assurance. This unique team approach allows the sampling and analysis component to be completely integrated into the project as a whole, which assures that the work will be performed correctly and efficiently with no surprises.

Our laboratory clients include environmental and geotechnical engineering firms; major industrial/commercial facilities; government agencies; and municipalities.

Certifications

Alpha maintains TNI NELAP accreditation as well as various state certifications to support projects nationwide. For State programs, please visit our website at www.alphalab.com for the most up to date certification status for our facilities. Alpha also holds the appropriate U.S. Department of Agriculture (USDA) permits to receive foreign soils.

Alpha Analytical's Westborough, MA Laboratory

Alpha Analytical's Mansfield, MA Laboratory

Alpha Analytical's Service Center locations and current courier network.

Analytical Services

At Alpha Analytical, we offer experienced scientific and technical staff and a wide range of risk-based, compliance-based and specialty analyses. Our capabilities include analyses on environmental matrices such as wastewater, drinking water, ground water, soil, air, sediment & tissue, petroleum forensics and waste samples.

Quality

Alpha Analytical's quality philosophy is second to none. We do it right and guarantee it and ensure our clients the peace of mind in the accuracy and quality of their data. We will always be in a position to defend our analytical work and data.

Volatile Analysis

Alpha performs analysis for volatile organic compounds (VOCs) in support of all major regulatory, engineering and industrial project applications. Analyses are performed utilizing state-of-the-art analytical instrumentation employing RCRA, CWA and SDWA methodologies.

All VOC data is acquired utilizing standard chromatography software. The data is then uploaded via the Alpha local area network to the laboratory information management system (LIMS) for additional processing and reporting.

Alpha currently employs gas chromatographs/mass spectrometers (GC/MS) for the analysis of VOCs by EPA methods 8260B, 624 and 524.2. Alpha also performs EPA method 8260B analysis for soils sampled under EPA 5035 requirements. In fact, Alpha Analytical Labs was one of the first aboratories in New England to offer VOC analysis of soils by the low level, EPA 5035/8260 procedure. Our laboratory has considerable experience with the sample collection, preservation and analytical requirements associated with this method, as well as the high level, methanol preservation technique.

Alpha provides sampling syringes and containers, as well as sampling SOPs and any associated training that is required.

Alpha has >20 gas chromatographs (GC) on line, with various detectors for the analysis of VOCs and for the analysis of volatile petroleum hydrocarbons (VPH) by the MA DEP method.

Alpha has <20 gas chromatographs (GC) on line, with various detectors for the analysis of VOCs by EPA Methods 8021B, and for the analysis of volatile petroleum hydrocarbons (VPH) by the MA DEP method. Several GCs are specifically designated for VPH analysis.

Extractable Organic Analysis

Alpha performs a wide variety of extractable organics analysis. Many parameters, such as semivolatile or Acid/Base-Neutral analysis, are performed by Gas Chromatograph/ Mass Spectrometer (GC/MS). However, other analyses, such as PCBs Aroclors, Pesticides and Herbicides are performed by Gas Chromatograph (GC). All organics data is acquired utilizing standard chromatography software.

The data is then uploaded via the Alpha local area network to the laboratory information management system (LIMS) for additional processing and reporting.

Alpha currently utilizes GC/MS instruments for the semivolatile organic analysis of samples by EPA methods 8270. The instruments are also employed for low-level analysis of polynuclear aromatic hydrocarbons (PAH) by modified EPA Method 8270 – selected ion monitoring (SIM). This technique allows Alpha to achieve the required levels of detec- tion for Massachusetts Contingency Plan GW-1 compliance or any other risk-based regulatory criteria.

Alpha offers extractable and volatile petroleum hydrocarbons (EPH/ VPH), extractable total petroleum hydrocarbons (ETPH), gasoline range and diesel range organics (GRO/ DRO), and TPH by GC-FID to characterize soil and water samples. The laboratory has used these procedures with great success on a countless number of projects. Alpha has been using and evaluating the EPH/VPH procedures since they were released in 1995 and has actively participated in the public comment process as well as both round robin method evaluations. Alpha has also been active in the EPH/VPH Workgroup which was established by the MADEP to revise and improve the methods based on experience gained from working with the methods since they were released. Alpha has been issued a Record of Proficiency statement by the Massachusetts Department of Environmental Protection that states that laboratory is competent to perform EPH and VPH analysis on both water and soil sample matrices.

Trace Metals

Alpha currently performs analysis for metals utilizing the most advanced analytical instrumentation. Alpha currently employs Inductively Coupled Plasma Spectrophotometer/ Mass Spectrometer (ICP/MS), Inductively Coupled Plasma Spectrophotometers (ICP), and Cold Vapor Atomic Absorption Spectrophotometers (CVAA). The CVAA instruments are used for the analysis of mercury only. Alpha employs axial torch ICPs for routine trace metals analysis with instruments that are capable of quickly and reliably achieving levels of detection in the low ppb range.

Wet Chemistry

Alpha boasts one of the largest wet chemistry laboratory spaces in the region for conventional wet chemistry analysis. Alpha performs a wide variety of wet chemical parameters including RCRA characterization, nutrients, anions, demand series, minerals, and solids. Alpha utilizes two Lachat FIA instruments for the analysis of nitrate, nitrate/nitrite, cyanide, ammonia-N, total Kjeldahl nitrogen and chloride. One of the Lachat instruments is also equipped with an ion chromatograph for anion analysis.

Alpha's new total organic carbon (TOC) instrument, the Dohrmann Phoenix 8000 represents state of the art technology for the determination of low level TOC. Alpha can provide oil and grease analysis by EPA Method 1664.

Alpha has considerable experience with cyanide analysis, ranging from the total & amenable cyanide procedures to determinations for reactive, free, physiologically available (PAC), and weak and dissociable cyanides.

Perchlorate Analysis

Alpha Analytical offers the following methods for the analysis of Perchlorate:

EPA Method 314.0, incorporating all USEPA and MADEP method requirements. Method 314.0 is an ion chromatographic method for which Alpha Analytical Labs has a reporting limit of 1.0 ug/L in water and 40 ug/Kg in soil. Estimated concentrations can be reported to the method detection limit (MDL) of 0.20 ug/L for waters. Alpha Analytical is approved for perchlorate by the USEPA under the UCMR Program and by the MADEP for low-level drinking water analysis.

EPA Method 331.0 (SW846 6850) LC/MS/MS and EPA 332.0 (SW846 6860) IC/MS/MS for the determination of perchlorate in water and soil. Liquid Chromatography or Ion Chromatography coupled with MS/ MS detection provides a technology that greatly increases the sensitivity of the analysis. Alpha has achieved reporting limits of 0.05 ug/ L in water and 0.5 ug/Kg in soil. This technology successfully removes interferences from other anions allowing for the identification of per-chlorate in samples with conductivity levels greater than 30,000 µS/cm.

Microbiological Analysis

Alpha currently performs analysis for standard drinking water bacteria. We provide testing for total and fecal coliform by both the membrane filtration and multiple tube fermentation (MPN) methods.

We also employ Colilert® for the analysis of total coliform and E.Coli in drinking water. Alpha recognizes the logistical constraints associated with microbiological analyses and as such, employs a second shift to conduct all micro- biological testing within the required holding times.

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Lead on Air Filter	EPA 40 CFR Part 50 App. G	AE	x	Y
NY	PCBs and Aroclors	EPA TO-10A	AE	x	Y
NY	2-Tolualdehyde	EPA TO-11A	AE	x	Y
NY	2,5-Dimethylbenzaldehyde	EPA TO-11A	AE	x	Y
NY	3-Tolualdehyde	EPA TO-11A	AE	x	Y
NY	4-Tolualdehyde	EPA TO-11A	AE	x	Y
NY	Acetaldehyde	EPA TO-11A	AE	x	Y
NY	Acetone	EPA TO-11A	AE	x	Y
NY	Benzaldehyde	EPA TO-11A	AE	x	Y
NY	Butyraldehyde	EPA TO-11A	AE	x	Y
NY	Crotonaldehyde	EPA TO-11A	AE	x	Y
NY	Formaldehyde	EPA TO-11A	AE	x	Y
NY	Hexanaldehyde	EPA TO-11A	AE	x	Y
NY	Isovaleraldehyde	EPA TO-11A	AE	x	Y
NY	Propionaldehyde	EPA TO-11A	AE	x	Y
NY	Valeraldehyde	EPA TO-11A	AE	x	Y
NY	Acenaphthene	EPA TO-13A Full Scan	AE	x	Y
NY	Acenaphthylene	EPA TO-13A Full Scan	AE	x	Y
NY	Anthracene	EPA TO-13A Full Scan	AE	x	Y
NY	Benzo(a)anthracene	EPA TO-13A Full Scan	AE	x	Y
NY	Benzo(a)pyrene	EPA TO-13A Full Scan	AE	x	Y
NY	Benzo(b)fluoranthene	EPA TO-13A Full Scan	AE	x	Y
NY	Benzo(g,h,i)perylene	EPA TO-13A Full Scan	AE	x	Y
NY	Benzo(k)fluoranthene	EPA TO-13A Full Scan	AE	x	Y
NY	Chrysene	EPA TO-13A Full Scan	AE	x	Y
NY	Dibenzo(a,h)anthracene	EPA TO-13A Full Scan	AE	x	Y
NY	Fluoranthene	EPA TO-13A Full Scan	AE	x	Y
NY	Fluorene	EPA TO-13A Full Scan	AE	x	Y
NY	Indeno(1,2,3-cd)pyrene	EPA TO-13A Full Scan	AE	x	Y
NY	Naphthalene	EPA TO-13A Full Scan	AE	x	Y
NY	Phenanthrene	EPA TO-13A Full Scan	AE	x	Y
NY	Pyrene	EPA TO-13A Full Scan	AE	x	Y
NY	1,1,1-Trichloroethane	EPA TO-15	AE	x	Y
NY	1,1,2,2-Tetrachloroethane	EPA TO-15	AE	x	Y
NY	1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15	AE	x	Y
NY	1,1,2-Trichloroethane	EPA TO-15	AE	x	Y
NY	1,1-Dichloroethane	EPA TO-15	AE	x	Y
NY	1,1-Dichloroethene	EPA TO-15	AE	x	Y
NY	1,2,4-Trichlorobenzene	EPA TO-15	AE	x	Y
NY	1,2,4-Trimethylbenzene	EPA TO-15	AE	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	1,2-Dibromo-3-Chloropropane (DBCP)	EPA TO-15	AE	x	Y
NY	1,2-Dibromoethane (EDB)	EPA TO-15	AE	x	Y
NY	1,2-Dichlorobenzene	EPA TO-15	AE	x	Y
NY	1,2-Dichloroethane	EPA TO-15	AE	x	Y
NY	1,2-Dichloropropane	EPA TO-15	AE	x	Y
NY	1,2-Dichlorotetrafluoroethane	EPA TO-15	AE	x	Y
NY	1,3,5-Trimethylbenzene	EPA TO-15	AE	x	Y
NY	1,3-Butadiene	EPA TO-15	AE	x	Y
NY	1,3-Dichlorobenzene	EPA TO-15	AE	x	Y
NY	1,4-Dichlorobenzene	EPA TO-15	AE	x	Y
NY	1,4-Dioxane	EPA TO-15	AE	x	Y
NY	2,2,4-Trimethylpentane	EPA TO-15	AE	x	Y
NY	2-Butanone	EPA TO-15	AE	x	Y
NY	2-Chlorotoluene	EPA TO-15	AE	x	Y
NY	3-Chloropropene	EPA TO-15	AE	x	Y
NY	4-Methyl-2-Pentanone	EPA TO-15	AE	x	Y
NY	Acetaldehyde	EPA TO-15	AE	x	Y
NY	Acetone	EPA TO-15	AE	x	Y
NY	Acetonitrile	EPA TO-15	AE	x	Y
NY	Acrolein	EPA TO-15	AE	x	Y
NY	Acrylonitrile	EPA TO-15	AE	x	Y
NY	Benzene	EPA TO-15	AE	x	Y
NY	Benzyl Chloride	EPA TO-15	AE	x	Y
NY	Bromodichloromethane	EPA TO-15	AE	x	Y
NY	Bromoform	EPA TO-15	AE	x	Y
NY	Bromomethane	EPA TO-15	AE	x	Y
NY	Carbon disulfide	EPA TO-15	AE	x	Y
NY	Carbon Tetrachloride	EPA TO-15	AE	x	Y
NY	Chlorobenzene	EPA TO-15	AE	x	Y
NY	Chloroethane	EPA TO-15	AE	x	Y
NY	Chloroform	EPA TO-15	AE	x	Y
NY	Chloromethane	EPA TO-15	AE	x	Y
NY	cis-1,2-Dichloroethene	EPA TO-15	AE	x	Y
NY	cis-1,3-Dichloropropene	EPA TO-15	AE	x	Y
NY	Cyclohexane	EPA TO-15	AE	x	Y
NY	Dibromochloromethane	EPA TO-15	AE	x	Y
NY	Dichlorodifluoromethane	EPA TO-15	AE	x	Y
NY	Ethylbenzene	EPA TO-15	AE	x	Y
NY	Hexachlorobutadiene	EPA TO-15	AE	x	Y
NY	Isopropyl Alcohol	EPA TO-15	AE	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Isopropylbenzene	EPA TO-15	AE	x	Y
NY	m+p-Xylene	EPA TO-15	AE	x	Y
NY	Methyl Alcohol (methanol)	EPA TO-15	AE	x	Y
NY	Methyl Methacrylate	EPA TO-15	AE	x	Y
NY	Methyl tert-butyl ether	EPA TO-15	AE	x	Y
NY	Methylene Chloride	EPA TO-15	AE	x	Y
NY	Naphthalene	EPA TO-15	AE	x	Y
NY	n-Heptane	EPA TO-15	AE	x	Y
NY	n-Hexane	EPA TO-15	AE	x	Y
NY	o-Xylene	EPA TO-15	AE	x	Y
NY	Styrene	EPA TO-15	AE	x	Y
NY	Tert-Butyl Alcohol	EPA TO-15	AE	x	Y
NY	Tetrachloroethene	EPA TO-15	AE	x	Y
NY	Toluene	EPA TO-15	AE	x	Y
NY	Total Xylenes	EPA TO-15	AE	x	Y
NY	Trans-1,2-Dichloroethene	EPA TO-15	AE	x	Y
NY	Trans-1,3-Dichloropropene	EPA TO-15	AE	x	Y
NY	Trichloroethene	EPA TO-15	AE	x	Y
NY	Trichlorofluoromethane	EPA TO-15	AE	x	Y
NY	Vinyl acetate	EPA TO-15	AE	x	Y
NY	Vinyl Bromide	EPA TO-15	AE	x	Y
NY	Vinyl Chloride	EPA TO-15	AE	x	Y
NY	Turbidity	EPA 180.1	DW	Y	x
NY	Aluminum	EPA 200.7	DW	x	Y
NY	Barium	EPA 200.7	DW	x	Y
Ny	Boron	EPA 200.7	DW	x	Y
NY	Cadmium	EPA 200.7	DW	x	Y
NY	Calcium	EPA 200.7	DW	x	Y
NY	Calcium Hardness	EPA 200.7	DW	x	Y
NY	Chromium	EPA 200.7	DW	x	Y
NY	Copper	EPA 200.7	DW	x	Y
NY	Iron	EPA 200.7	DW	x	Y
NY	Magnesium	EPA 200.7	DW	x	Y
NY	Manganese	EPA 200.7	DW	x	Y
NY	Nickel	EPA 200.7	DW	x	Y
NY	Potassium	EPA 200.7	DW	x	Y
NY	Silver	EPA 200.7	DW	x	Y
NY	Sodium	EPA 200.7	DW	x	Y
Ny	Vanadium	EPA 200.7	DW	x	Y
NY	Zinc	EPA 200.7	DW	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Aluminum	EPA 200.8	DW	x	Y
NY	Antimony	EPA 200.8	DW	x	Y
NY	Arsenic	EPA 200.8	DW	x	Y
NY	Barium	EPA 200.8	DW	x	Y
NY	Beryllium	EPA 200.8	DW	x	Y
NY	Cadmium	EPA 200.8	DW	x	Y
NY	Copper	EPA 200.8	DW	x	Y
NY	Lead	EPA 200.8	DW	x	Y
Ny	Manganese	EPA 200.8	DW	x	Y
NY	Nickel	EPA 200.8	DW	x	Y
NY	Selenium	EPA 200.8	DW	x	Y
NY	Silver	EPA 200.8	DW	x	Y
NY	Thallium	EPA 200.8	DW	x	Y
NY	Vanadium	EPA 200.8	DW	x	Y
NY	Zinc	EPA 200.8	DW	x	Y
NY	Mercury	EPA 245.1	DW	x	Y
NY	Bromide	EPA 300.0	DW	Y	x
NY	Chloride	EPA 300.0	DW	Y	x
NY	Fluoride	EPA 300.0	DW	Y	x
NY	Nitrate-N	EPA 300.0	DW	Y	x
NY	Sulfate	EPA 300.0	DW	Y	x
NY	Perchlorate	EPA 332.0	DW	Y	x
NY	Nitrate-N	EPA 353.2	DW	Y	x
NY	Nitrite-N	EPA 353.2	DW	Y	x
NY	1,2-Dibromo-3-Chloropropane (DBCP)	EPA 504.1	DW	Y	x
NY	1,2-Dibromoethane (EDB)	EPA 504.1	DW	Y	x
NY	1,4-Dioxane	EPA 522	DW	x	Y
NY	1,1,1,2-Tetrachloroethane	EPA 524.2	DW	Y	x
NY	1,1,1-Trichloroethane	EPA 524.2	DW	Y	x
NY	1,1,2,2-Tetrachloroethane	EPA 524.2	DW	Y	x
NY	1,1,2-Trichloroethane	EPA 524.2	DW	Y	x
NY	1,1-Dichloroethane	EPA 524.2	DW	Y	x
NY	1,1-Dichloroethene	EPA 524.2	DW	Y	x
NY	1,1-Dichloropropene	EPA 524.2	DW	Y	x
NY	1,2,3-Trichlorobenzene	EPA 524.2	DW	Y	x
NY	1,2,3-Trichloropropane	EPA 524.2	DW	Y	x
NY	1,2,4-Trichlorobenzene	EPA 524.2	DW	Y	x
NY	1,2,4-Trimethylbenzene	EPA 524.2	DW	Y	x
NY	1,2-Dichlorobenzene	EPA 524.2	DW	Y	x
NY	1,2-Dichloroethane	EPA 524.2	DW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	1,2-Dichloropropane	EPA 524.2	DW	Y	x
NY	1,3,5-Trimethylbenzene	EPA 524.2	DW	Y	x
NY	1,3-Dichlorobenzene	EPA 524.2	DW	Y	x
NY	1,3-Dichloropropane	EPA 524.2	DW	Y	x
NY	1,4-Dichlorobenzene	EPA 524.2	DW	Y	x
NY	2,2-Dichloropropane	EPA 524.2	DW	Y	x
NY	2-Chlorotoluene	EPA 524.2	DW	Y	x
NY	4-Chlorotoluene	EPA 524.2	DW	Y	x
NY	Benzene	EPA 524.2	DW	Y	x
NY	Bromobenzene	EPA 524.2	DW	Y	x
NY	Bromochloromethane	EPA 524.2	DW	Y	x
NY	Bromodichloromethane	EPA 524.2	DW	Y	x
NY	Bromoform	EPA 524.2	DW	Y	x
NY	Bromomethane	EPA 524.2	DW	Y	x
NY	Carbon Tetrachloride	EPA 524.2	DW	Y	x
NY	Chlorobenzene	EPA 524.2	DW	Y	x
NY	Chloroethane	EPA 524.2	DW	Y	x
NY	Chloroform	EPA 524.2	DW	Y	x
NY	Chloromethane	EPA 524.2	DW	Y	x
NY	cis-1,2-Dichloroethene	EPA 524.2	DW	Y	x
NY	cis-1,3-Dichloropropene	EPA 524.2	DW	Y	x
NY	Dibromochloromethane	EPA 524.2	DW	Y	x
NY	Dibromomethane	EPA 524.2	DW	Y	x
NY	Dichlorodifluoromethane	EPA 524.2	DW	Y	x
NY	Ethylbenzene	EPA 524.2	DW	Y	x
NY	Hexachlorobutadiene	EPA 524.2	DW	Y	x
NY	Isopropylbenzene	EPA 524.2	DW	Y	x
NY	Methyl tert-butyl ether	EPA 524.2	DW	Y	x
NY	Methylene Chloride	EPA 524.2	DW	Y	x
NY	Naphthalene	EPA 524.2	DW	Y	x
NY	n-Butylbenzene	EPA 524.2	DW	Y	x
NY	n-Propylbenzene	EPA 524.2	DW	Y	x
NY	p-Isopropyltoluene	EPA 524.2	DW	Y	x
NY	sec-Butylbenzene	EPA 524.2	DW	Y	x
NY	Styrene	EPA 524.2	DW	Y	x
NY	Tert-Butylbenzene	EPA 524.2	DW	Y	x
NY	Tetrachloroethene	EPA 524.2	DW	Y	x
NY	Toluene	EPA 524.2	DW	Y	x
NY	Total Trihalomethanes	EPA 524.2	DW	Y	x
NY	Total Xylenes	EPA 524.2	DW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Trans-1,2-Dichloroethene	EPA 524.2	DW	Y	x
NY	Trans-1,3-Dichloropropene	EPA 524.2	DW	Y	x
NY	Trichloroethene	EPA 524.2	DW	Y	x
NY	Trichlorofluoromethane	EPA 524.2	DW	Y	x
NY	Vinyl chloride	EPA 524.2	DW	Y	x
NY	Perfluoro-n-octanoic acid (PFOA)	EPA 537	DW	x	Y
NY	Perfluorooctanesulfonic acid (PFOS)	EPA 537	DW	x	Y
NY	Color	SM 2120B	DW	Y	x
NY	Turbidity	SM 2130B	DW	Y	x
NY	Odor	SM 2150B	DW	Y	x
NY	Alkalinity	SM 2320B	DW	Y	x
NY	Specific Conductance	SM 2510B	DW	Y	x
NY	Total Dissolved Solids	SM 2540C	DW	Y	x
NY	Cyanide, Distillation	SM 4500CN-C	DW	Y	x
NY	Cyanide, Total	SM 4500CN-E	DW	Y	x
NY	Fluoride	SM 4500F-C	DW	Y	x
NY	Nitrate-N	SM 4500NO3-F	DW	Y	x
NY	Nitrite-N	SM 4500NO3-F	DW	Y	x
NY	Orthophosphate	SM 4500P-E	DW	Y	x
NY	Dissolved Organic Carbon (DOC)	SM 5310C	DW	Y	x
NY	Total Organic Carbon	SM 5310C	DW	Y	x
NY	Heterotrophic Plate Count	SM 9215B	DW	Y	x
NY	Coliform, Total (Colilert P/A)	SM 9223B	DW	Y	x
NY	E. Coli (Colilert P/A)	SM 9223B	DW	Y	x
NY	E. Coli (Enumeration QuantiTray)	SM 9223B	DW	Y	x
NY	Specific Conductance	EPA 120.1	NPW	Y	x
NY	Mercury	EPA 1631E	NPW	x	Y
NY	Oil & Grease	EPA 1664A	NPW	Y	x
NY	Oil & Grease (TPH)	EPA 1664A	NPW	Y	x
NY	Oil & Grease	EPA 1664B	NPW	Y	x
NY	Oil & Grease (TPH)	EPA 1664B	NPW	Y	x
NY	Turbidity	EPA 180.1	NPW	Y	x
NY	Aluminum	EPA 200.7	NPW	x	Y
NY	Antimony	EPA 200.7	NPW	x	Y
NY	Arsenic	EPA 200.7	NPW	x	Y
NY	Barium	EPA 200.7	NPW	x	Y
NY	Beryllium	EPA 200.7	NPW	x	Y
NY	Boron	EPA 200.7	NPW	x	Y
NY	Cadmium	EPA 200.7	NPW	x	Y
NY	Calcium	EPA 200.7	NPW	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Chromium	EPA 200.7	NPW	x	Y
NY	Cobalt	EPA 200.7	NPW	x	Y
NY	Copper	EPA 200.7	NPW	x	Y
NY	Iron	EPA 200.7	NPW	x	Y
NY	Lead	EPA 200.7	NPW	x	Y
NY	Magnesium	EPA 200.7	NPW	x	Y
NY	Manganese	EPA 200.7	NPW	x	Y
NY	Molybdenum	EPA 200.7	NPW	x	Y
NY	Nickel	EPA 200.7	NPW	x	Y
NY	Potassium	EPA 200.7	NPW	x	Y
NY	Selenium	EPA 200.7	NPW	x	Y
NY	Silica, Dissolved	EPA 200.7	NPW	x	Y
NY	Silver	EPA 200.7	NPW	x	Y
NY	Sodium	EPA 200.7	NPW	x	Y
NY	Strontium	EPA 200.7	NPW	x	Y
NY	Thallium	EPA 200.7	NPW	x	Y
NY	Tin	EPA 200.7	NPW	x	Y
NY	Titanium	EPA 200.7	NPW	x	Y
NY	Total Hardness (CaCO3)	EPA 200.7	NPW	x	Y
NY	Vanadium	EPA 200.7	NPW	x	Y
NY	Zinc	EPA 200.7	NPW	x	Y
NY	Aluminum	EPA 200.8	NPW	x	Y
NY	Antimony	EPA 200.8	NPW	x	Y
NY	Arsenic	EPA 200.8	NPW	x	Y
NY	Barium	EPA 200.8	NPW	x	Y
NY	Beryllium	EPA 200.8	NPW	x	Y
NY	Cadmium	EPA 200.8	NPW	x	Y
NY	Chromium	EPA 200.8	NPW	x	Y
NY	Cobalt	EPA 200.8	NPW	x	Y
NY	Copper	EPA 200.8	NPW	x	Y
NY	Lead	EPA 200.8	NPW	x	Y
NY	Manganese	EPA 200.8	NPW	x	Y
NY	Molybdenum	EPA 200.8	NPW	x	Y
NY	Nickel	EPA 200.8	NPW	x	Y
NY	Selenium	EPA 200.8	NPW	x	Y
NY	Silver	EPA 200.8	NPW	x	Y
NY	Thallium	EPA 200.8	NPW	x	Y
NY	Vanadium	EPA 200.8	NPW	x	Y
NY	Zinc	EPA 200.8	NPW	x	Y
NY	Mercury	EPA 245.1	NPW	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Bromide	EPA 300.0	NPW	Y	x
NY	Chloride	EPA 300.0	NPW	Y	x
NY	Fluoride	EPA 300.0	NPW	Y	x
NY	Nitrate-N	EPA 300.0	NPW	Y	x
NY	Sulfate	EPA 300.0	NPW	Y	x
NY	Acid Digestion of Waters	EPA 3005A	NPW	x	Y
NY	Microwave Acid Digestion	EPA 3015A	NPW	x	Y
NY	Ammonia	EPA 350.1	NPW	Y	x
NY	Nitrogen, Total Kjeldahl	EPA 351.1	NPW	Y	x
NY	Separatory Funnel Extraction	EPA 3510C	NPW	Y	Y
NY	Nitrate-N	EPA 353.2	NPW	Y	x
NY	Nitrate-Nitrite	EPA 353.2	NPW	Y	x
NY	Chemical Oxygen Demand	EPA 410.4	NPW	Y	x
NY	Total Phenolics	EPA 420.1	NPW	Y	x
NY	Purge & Trap Aqueous	EPA 5030C	NPW	Y	x
NY	Aluminum	EPA 6010C	NPW	x	Y
NY	Antimony	EPA 6010C	NPW	x	Y
NY	Arsenic	EPA 6010C	NPW	x	Y
NY	Barium	EPA 6010C	NPW	x	Y
NY	Beryllium	EPA 6010C	NPW	x	Y
NY	Boron	EPA 6010C	NPW	x	Y
NY	Cadmium	EPA 6010C	NPW	x	Y
NY	Calcium	EPA 6010C	NPW	x	Y
NY	Chromium	EPA 6010C	NPW	x	Y
NY	Cobalt	EPA 6010C	NPW	x	Y
NY	Copper	EPA 6010C	NPW	x	Y
NY	Iron	EPA 6010C	NPW	x	Y
NY	Lead	EPA 6010C	NPW	x	Y
NY	Magnesium	EPA 6010C	NPW	x	Y
NY	Manganese	EPA 6010C	NPW	x	Y
NY	Molybdenum	EPA 6010C	NPW	x	Y
NY	Nickel	EPA 6010C	NPW	x	Y
NY	Potassium	EPA 6010C	NPW	x	Y
NY	Selenium	EPA 6010C	NPW	x	Y
NY	Silver	EPA 6010C	NPW	x	Y
NY	Sodium	EPA 6010C	NPW	x	Y
NY	Strontium	EPA 6010C	NPW	x	Y
NY	Thallium	EPA 6010C	NPW	x	Y
NY	Tin	EPA 6010C	NPW	x	Y
NY	Titanium	EPA 6010C	NPW	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Vanadium	EPA 6010C	NPW	x	Y
NY	Zinc	EPA 6010C	NPW	x	Y
NY	Aluminum	EPA 6020A	NPW	x	Y
NY	Antimony	EPA 6020A	NPW	x	Y
NY	Arsenic	EPA 6020A	NPW	x	Y
NY	Barium	EPA 6020A	NPW	x	Y
NY	Beryllium	EPA 6020A	NPW	x	Y
NY	Boron	EPA 6020A	NPW	x	Y
NY	Cadmium	EPA 6020A	NPW	x	Y
NY	Calcium	EPA 6020A	NPW	x	Y
NY	Chromium	EPA 6020A	NPW	x	Y
NY	Cobalt	EPA 6020A	NPW	x	Y
NY	Copper	EPA 6020A	NPW	x	Y
NY	Iron	EPA 6020A	NPW	x	Y
NY	Lead	EPA 6020A	NPW	x	Y
NY	Magnesium	EPA 6020A	NPW	x	Y
NY	Manganese	EPA 6020A	NPW	x	Y
NY	Molybdenum	EPA 6020A	NPW	x	Y
NY	Nickel	EPA 6020A	NPW	x	Y
NY	Potassium	EPA 6020A	NPW	x	Y
NY	Selenium	EPA 6020A	NPW	x	Y
NY	Silver	EPA 6020A	NPW	x	Y
NY	Strontium	EPA 6020A	NPW	x	Y
NY	Thallium	EPA 6020A	NPW	x	Y
NY	Tin	EPA 6020A	NPW	x	Y
NY	Titanium	EPA 6020A	NPW	x	Y
NY	Vanadium	EPA 6020A	NPW	x	Y
NY	Zinc	EPA 6020A	NPW	x	Y
NY	4,4'-DDD	EPA 608.3	NPW	Y	x
NY	4,4'-DDE	EPA 608.3	NPW	Y	x
NY	4,4'-DDT	EPA 608.3	NPW	Y	x
NY	Aldrin	EPA 608.3	NPW	Y	x
NY	Alpha-BHC	EPA 608.3	NPW	Y	x
NY	Beta-BHC	EPA 608.3	NPW	Y	x
NY	Chlordane	EPA 608.3	NPW	Y	x
NY	Delta-BHC	EPA 608.3	NPW	Y	x
NY	Dieldrin	EPA 608.3	NPW	Y	x
NY	Endosulfan I	EPA 608.3	NPW	Y	x
NY	Endosulfan II	EPA 608.3	NPW	Y	x
NY	Endosulfan Sulfate	EPA 608.3	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Endrin	EPA 608.3	NPW	Y	x
NY	Endrin Aldehyde	EPA 608.3	NPW	Y	x
NY	Heptachlor	EPA 608.3	NPW	Y	x
NY	Heptachlor Epoxide	EPA 608.3	NPW	Y	x
NY	Lindane (gamma-BHC)	EPA 608.3	NPW	Y	x
NY	Methoxychlor	EPA 608.3	NPW	Y	x
NY	PCB-1016	EPA 608.3	NPW	Y	x
NY	PCB-1221	EPA 608.3	NPW	Y	x
NY	PCB-1232	EPA 608.3	NPW	Y	x
NY	PCB-1242	EPA 608.3	NPW	Y	x
NY	PCB-1248	EPA 608.3	NPW	Y	x
NY	PCB-1254	EPA 608.3	NPW	Y	x
NY	PCB-1260	EPA 608.3	NPW	Y	x
NY	Toxaphene	EPA 608.3	NPW	Y	x
NY	1,1,1-Trichloroethane	EPA 624.1	NPW	Y	x
NY	1,1,2,2-Tetrachloroethane	EPA 624.1	NPW	Y	x
NY	1,1,2-Trichloroethane	EPA 624.1	NPW	Y	x
NY	1,1-Dichloroethane	EPA 624.1	NPW	Y	x
NY	1,1-Dichloroethene	EPA 624.1	NPW	Y	x
NY	1,2-Dichlorobenzene	EPA 624.1	NPW	Y	x
NY	1,2-Dichloroethane	EPA 624.1	NPW	Y	x
NY	1,2-Dichloropropane	EPA 624.1	NPW	Y	x
NY	1,3-Dichlorobenzene	EPA 624.1	NPW	Y	x
NY	1,4-Dichlorobenzene	EPA 624.1	NPW	Y	x
NY	2-Chloroethyl Vinyl ether	EPA 624.1	NPW	Y	x
NY	Acetone	EPA 624.1	NPW	Y	x
NY	Acrolein	EPA 624.1	NPW	Y	x
NY	Acrylonitrile	EPA 624.1	NPW	Y	x
NY	Benzene	EPA 624.1	NPW	Y	x
NY	Bromodichloromethane	EPA 624.1	NPW	Y	x
NY	Bromoform	EPA 624.1	NPW	Y	x
NY	Bromomethane	EPA 624.1	NPW	Y	x
NY	Carbon Tetrachloride	EPA 624.1	NPW	Y	x
NY	Chlorobenzene	EPA 624.1	NPW	Y	x
NY	Chloroethane	EPA 624.1	NPW	Y	x
NY	Chloroform	EPA 624.1	NPW	Y	x
NY	Chloromethane	EPA 624.1	NPW	Y	x
NY	cis-1,2-Dichloroethene	EPA 624.1	NPW	Y	x
NY	cis-1,3-Dichloropropene	EPA 624.1	NPW	Y	x
NY	Dibromochloromethane	EPA 624.1	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Dichlorodifluoromethane	EPA 624.1	NPW	Y	x
NY	Ethylbenzene	EPA 624.1	NPW	Y	x
NY	Methyl tert-butyl ether	EPA 624.1	NPW	Y	x
NY	Methylene Chloride	EPA 624.1	NPW	Y	x
NY	Styrene	EPA 624.1	NPW	Y	x
NY	Tert-Butyl Alcohol	EPA 624.1	NPW	Y	x
NY	Tetrachloroethene	EPA 624.1	NPW	Y	x
NY	Toluene	EPA 624.1	NPW	Y	x
NY	Total Xylenes	EPA 624.1	NPW	Y	x
NY	Trans-1,2-Dichloroethene	EPA 624.1	NPW	Y	x
NY	Trans-1,3-Dichloropropene	EPA 624.1	NPW	Y	x
NY	Trichloroethene	EPA 624.1	NPW	Y	x
NY	Trichlorofluoromethane	EPA 624.1	NPW	Y	x
NY	Vinyl Acetate	EPA 624.1	NPW	Y	x
NY	Vinyl Chloride	EPA 624.1	NPW	Y	x
NY	1,2-Diphenylhydrazine	EPA 625.1	NPW	Y	x
NY	1,2,4-Trichlorobenzene	EPA 625.1	NPW	Y	x
NY	2,4,5-Trichlorophenol	EPA 625.1	NPW	Y	x
NY	2,4,6-Trichlorophenol	EPA 625.1	NPW	Y	x
NY	2,4-Dichlorophenol	EPA 625.1	NPW	Y	x
NY	2,4-Dimethylphenol	EPA 625.1	NPW	Y	x
NY	2,4-Dinitrophenol	EPA 625.1	NPW	Y	x
NY	2,4-Dinitrotoluene (2,4-DNT)	EPA 625.1	NPW	Y	x
NY	2,6-Dinitrotoluene (2,6-DNT)	EPA 625.1	NPW	Y	x
NY	2-Chloronaphthalene	EPA 625.1	NPW	Y	x
NY	2-Chlorophenol	EPA 625.1	NPW	Y	x
NY	2-Methyl-4,6-dinitrophenol	EPA 625.1	NPW	Y	x
NY	2-Methylphenol	EPA 625.1	NPW	Y	x
NY	2-Nitrophenol	EPA 625.1	NPW	Y	x
NY	3,3'-Dichlorobenzidine	EPA 625.1	NPW	Y	x
NY	3-Methylphenol	EPA 625.1	NPW	Y	x
NY	4-Bromophenyl phenyl ether	EPA 625.1	NPW	Y	x
NY	4-Chloro-3-methylphenol	EPA 625.1	NPW	Y	x
NY	4-Chlorophenyl phenyl ether	EPA 625.1	NPW	Y	x
NY	4-Methylphenol	EPA 625.1	NPW	Y	x
NY	4-Nitrophenol	EPA 625.1	NPW	Y	x
NY	Acenaphthene	EPA 625.1	NPW	Y	x
NY	Acenaphthylene	EPA 625.1	NPW	Y	x
NY	Acetophenone	EPA 625.1	NPW	Y	x
NY	Aniline	EPA 625.1	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Anthracene	EPA 625.1	NPW	Y	x
NY	Benzidine	EPA 625.1	NPW	Y	x
NY	Benzo(a)anthracene	EPA 625.1	NPW	Y	x
NY	Benzo(a)pyrene	EPA 625.1	NPW	Y	x
NY	Benzo(b)fluoranthene	EPA 625.1	NPW	Y	x
NY	Benzo(g,h,i)perylene	EPA 625.1	NPW	Y	x
NY	Benzo(k)fluoranthene	EPA 625.1	NPW	Y	x
NY	bis(2-Chloroethoxy)methane	EPA 625.1	NPW	Y	x
NY	bis(2-Chloroethyl)ether	EPA 625.1	NPW	Y	x
NY	bis(2-Chloroisopropyl)ether	EPA 625.1	NPW	Y	x
NY	bis(2-Ethylhexyl)phthalate	EPA 625.1	NPW	Y	x
NY	Butylbenzyl phthalate	EPA 625.1	NPW	Y	x
NY	Carbazole	EPA 625.1	NPW	Y	x
NY	Chrysene	EPA 625.1	NPW	Y	x
NY	Dibenzo(a,h)anthracene	EPA 625.1	NPW	Y	x
NY	Diethyl phthalate	EPA 625.1	NPW	Y	x
NY	Dimethyl phthalate	EPA 625.1	NPW	Y	x
NY	Di-n-butyl phthalate	EPA 625.1	NPW	Y	x
NY	Di-n-octyl phthalate	EPA 625.1	NPW	Y	x
NY	Fluoranthene	EPA 625.1	NPW	Y	x
NY	Fluorene	EPA 625.1	NPW	Y	x
NY	Hexachlorobenzene	EPA 625.1	NPW	Y	x
NY	Hexachlorobutadiene	EPA 625.1	NPW	Y	x
NY	Hexachlorocyclopentadiene	EPA 625.1	NPW	Y	x
NY	Hexachloroethane	EPA 625.1	NPW	Y	x
NY	Indeno(1,2,3-cd)pyrene	EPA 625.1	NPW	Y	x
NY	Isophorone	EPA 625.1	NPW	Y	x
NY	Naphthalene	EPA 625.1	NPW	Y	x
NY	n-Decane	EPA 625.1	NPW	Y	x
NY	Nitrobenzene	EPA 625.1	NPW	Y	x
NY	n-Nitrosodimethylamine	EPA 625.1	NPW	Y	x
NY	n-Nitroso-di-n-propylamine	EPA 625.1	NPW	Y	x
NY	N-Nitrosodiphenylamine	EPA 625.1	NPW	Y	x
NY	N-Octadecane	EPA 625.1	NPW	Y	x
NY	Pentachlorophenol	EPA 625.1	NPW	Y	x
NY	Phenanthrene	EPA 625.1	NPW	Y	x
NY	Phenol	EPA 625.1	NPW	Y	x
NY	Pyrene	EPA 625.1	NPW	Y	x
NY	Pyridine	EPA 625.1	NPW	Y	x
NY	Chromium VI	EPA 7196A	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Mercury	EPA 7470A	NPW	x	Y
NY	1,2-Dibromo-3-Chloropropane (DBCP)	EPA 8011	NPW	Y	x
NY	1,2-Dibromoethane (EDB)	EPA 8011	NPW	Y	x
NY	Diesel Range Organics	EPA 8015C	NPW	Y	x
NY	Gasoline Range Organics	EPA 8015C	NPW	Y	x
NY	t-Amyl Alcohol	EPA 8015D	NPW	x	Y
NY	Diesel Range Organics	EPA 8015D	NPW	Y	Y
NY	Ethanol	EPA 8015D	NPW	x	Y
NY	Ethylene glycol	EPA 8015D	NPW	x	Y
NY	Gasoline Range Organics	EPA 8015D	NPW	Y	x
NY	Iso-butyl Alcohol	EPA 8015D	NPW	x	Y
NY	Methyl Alcohol (methanol)	EPA 8015D	NPW	x	Y
NY	Tert-Butyl Alcohol	EPA 8015D	NPW	x	Y
NY	4,4'-DDD	EPA 8081B	NPW	Y	Y
NY	4,4'-DDE	EPA 8081B	NPW	Y	Y
NY	4,4'-DDT	EPA 8081B	NPW	Y	Y
NY	Aldrin	EPA 8081B	NPW	Y	Y
NY	alpha-BHC	EPA 8081B	NPW	Y	Y
NY	alpha-Chlordane	EPA 8081B	NPW	Y	Y
NY	beta-BHC	EPA 8081B	NPW	Y	Y
NY	Chlordane	EPA 8081B	NPW	Y	Y
NY	delta-BHC	EPA 8081B	NPW	Y	Y
NY	Dieldrin	EPA 8081B	NPW	Y	Y
NY	Endosulfan I	EPA 8081B	NPW	Y	Y
NY	Endosulfan II	EPA 8081B	NPW	Y	Y
NY	Endosulfan Sulfate	EPA 8081B	NPW	Y	Y
NY	Endrin	EPA 8081B	NPW	Y	Y
NY	Endrin Aldehyde	EPA 8081B	NPW	Y	Y
NY	Endrin Ketone	EPA 8081B	NPW	Y	Y
NY	gamma-Chlordane	EPA 8081B	NPW	Y	Y
NY	Heptachlor	EPA 8081B	NPW	Y	Y
NY	Heptachlor Epoxide	EPA 8081B	NPW	Y	Y
NY	Hexachlorobenzene	EPA 8081B	NPW	x	Y
NY	Lindane (gamma-BHC)	EPA 8081B	NPW	Y	Y
NY	Methoxychlor	EPA 8081B	NPW	Y	Y
NY	Mirex	EPA 8081B	NPW	x	Y
NY	Toxaphene	EPA 8081B	NPW	Y	Y
NY	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)	EPA 8082A	NPW	x	Y
NY	2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	EPA 8082A	NPW	x	Y
NY	2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	EPA 8082A	NPW	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	2,2',3,4,4',5'-Hexachlorobiphenyl (PCB 138)	EPA 8082A	NPW	x	Y
NY	2,2',3,5'-Tetrachlorobiphenyl (PCB 44)	EPA 8082A	NPW	x	Y
NY	2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	EPA 8082A	NPW	x	Y
NY	2,2',5-Trichlorobiphenyl (PCB 18)	EPA 8082A	NPW	x	Y
NY	2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	EPA 8082A	NPW	x	Y
NY	2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	EPA 8082A	NPW	x	Y
NY	PCB-1016	EPA 8082A	NPW	Y	Y
NY	PCB-1221	EPA 8082A	NPW	Y	Y
NY	PCB-1232	EPA 8082A	NPW	Y	Y
NY	PCB-1242	EPA 8082A	NPW	Y	Y
NY	PCB-1248	EPA 8082A	NPW	Y	Y
NY	PCB-1254	EPA 8082A	NPW	Y	Y
NY	PCB-1260	EPA 8082A	NPW	Y	Y
NY	PCB-1262	EPA 8082A	NPW	Y	Y
NY	PCB-1268	EPA 8082A	NPW	Y	Y
NY	2,4,5-T	EPA 8151A	NPW	Y	x
NY	2,4,5-TP (Silvex)	EPA 8151A	NPW	Y	x
NY	2,4-D	EPA 8151A	NPW	Y	x
NY	2,4-DB	EPA 8151A	NPW	Y	x
NY	Dalapon	EPA 8151A	NPW	Y	x
NY	Dicamba	EPA 8151A	NPW	Y	x
NY	Dichloroprop	EPA 8151A	NPW	Y	x
NY	Dinoseb	EPA 8151A	NPW	Y	x
NY	1,1,1,2-Tetrachloroethane	EPA 8260C	NPW	Y	x
NY	1,1,1-Trichloroethane	EPA 8260C	NPW	Y	x
NY	1,1,2,2-Tetrachloroethane	EPA 8260C	NPW	Y	x
NY	1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C	NPW	Y	x
NY	1,1,2-Trichloroethane	EPA 8260C	NPW	Y	x
NY	1,1-Dichloroethane	EPA 8260C	NPW	Y	x
NY	1,1-Dichloroethene	EPA 8260C	NPW	Y	x
NY	1,1-Dichloropropene	EPA 8260C	NPW	Y	x
NY	1,2,3-Trichlorobenzene	EPA 8260C	NPW	Y	x
NY	1,2,3-Trichloropropane	EPA 8260C	NPW	Y	x
NY	1,2,4-Trichlorobenzene	EPA 8260C	NPW	Y	x
NY	1,2,4-Trimethylbenzene	EPA 8260C	NPW	Y	x
NY	1,2-Dibromo-3-Chloropropane (DBCP)	EPA 8260C	NPW	Y	x
NY	1,2-Dibromoethane (EDB)	EPA 8260C	NPW	Y	x
NY	1,2-Dichlorobenzene	EPA 8260C	NPW	Y	x
NY	1,2-Dichloroethane	EPA 8260C	NPW	Y	x
NY	1,2-Dichloropropane	EPA 8260C	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	1,3,5-Trimethylbenzene	EPA 8260C	NPW	Y	x
NY	1,3-Dichlorobenzene	EPA 8260C	NPW	Y	x
NY	1,3-Dichloropropane	EPA 8260C	NPW	Y	x
NY	1,4-Dichlorobenzene	EPA 8260C	NPW	Y	x
NY	1,4-Dioxane	EPA 8260C	NPW	Y	x
NY	1-Butanol	EPA 8260C	NPW	Y	x
NY	2,2-Dichloropropane	EPA 8260C	NPW	Y	x
NY	2-Butanone	EPA 8260C	NPW	Y	x
NY	2-Chloroethyl Vinyl ether	EPA 8260C	NPW	Y	x
NY	2-Chlorotoluene	EPA 8260C	NPW	Y	x
NY	2-Hexanone	EPA 8260C	NPW	Y	x
NY	4-Chlorotoluene	EPA 8260C	NPW	Y	x
NY	4-Methyl-2-Pentanone	EPA 8260C	NPW	Y	x
NY	Acetone	EPA 8260C	NPW	Y	x
NY	Acrolein	EPA 8260C	NPW	Y	x
NY	Acrylonitrile	EPA 8260C	NPW	Y	x
NY	Benzene	EPA 8260C	NPW	Y	x
NY	Bromobenzene	EPA 8260C	NPW	Y	x
NY	Bromochloromethane	EPA 8260C	NPW	Y	x
NY	Bromodichloromethane	EPA 8260C	NPW	Y	x
NY	Bromoform	EPA 8260C	NPW	Y	x
NY	Bromomethane	EPA 8260C	NPW	Y	x
NY	Carbon disulfide	EPA 8260C	NPW	Y	x
NY	Carbon Tetrachloride	EPA 8260C	NPW	Y	x
NY	Chlorobenzene	EPA 8260C	NPW	Y	x
NY	Chloroethane	EPA 8260C	NPW	Y	x
NY	Chloroform	EPA 8260C	NPW	Y	x
NY	Chloromethane	EPA 8260C	NPW	Y	x
NY	cis-1,2-Dichloroethene	EPA 8260C	NPW	Y	x
NY	cis-1,3-Dichloropropene	EPA 8260C	NPW	Y	x
NY	Cyclohexane	EPA 8260C	NPW	Y	x
NY	Dibromochloromethane	EPA 8260C	NPW	Y	x
NY	Dibromomethane	EPA 8260C	NPW	Y	x
NY	Dichlorodifluoromethane	EPA 8260C	NPW	Y	x
NY	Diethyl ether	EPA 8260C	NPW	Y	x
NY	Di-isopropylether (DIPE)	EPA 8260C	NPW	Y	x
NY	Ethanol	EPA 8260C	NPW	Y	x
NY	Ethyl acetate	EPA 8260C	NPW	Y	x
NY	Ethyl Methacrylate	EPA 8260C	NPW	Y	x
NY	Ethylbenzene	EPA 8260C	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Hexachlorobutadiene	EPA 8260C	NPW	Y	x
NY	Iodomethane (Methyl Iodide)	EPA 8260C	NPW	Y	x
NY	Isopropyl Alcohol	EPA 8260C	NPW	Y	x
NY	Isopropylbenzene	EPA 8260C	NPW	Y	x
NY	m+p-Xylene	EPA 8260C	NPW	Y	x
NY	Methyl Acetate	EPA 8260C	NPW	Y	x
NY	Methyl Cyclohexane	EPA 8260C	NPW	Y	x
NY	Methyl Methacrylate	EPA 8260C	NPW	Y	x
NY	Methyl tert-butyl ether	EPA 8260C	NPW	Y	x
NY	Methylene Chloride	EPA 8260C	NPW	Y	x
NY	Naphthalene	EPA 8260C	NPW	Y	x
NY	n-Butylbenzene	EPA 8260C	NPW	Y	x
NY	n-Propylbenzene	EPA 8260C	NPW	Y	x
NY	o-Xylene	EPA 8260C	NPW	Y	x
NY	p-Isopropyltoluene	EPA 8260C	NPW	Y	x
NY	sec-Butylbenzene	EPA 8260C	NPW	Y	x
NY	Styrene	EPA 8260C	NPW	Y	x
NY	tert-Amyl methyl ether (TAME)	EPA 8260C	NPW	Y	x
NY	Tert-Butyl Alcohol	EPA 8260C	NPW	Y	x
NY	tert-butyl Ethyl Ether	EPA 8260C	NPW	Y	x
NY	Tert-Butylbenzene	EPA 8260C	NPW	Y	x
NY	Tetrachloroethene	EPA 8260C	NPW	Y	x
NY	Tetrahydrofuran	EPA 8260C	NPW	Y	x
NY	Toluene	EPA 8260C	NPW	Y	x
NY	Total Xylenes	EPA 8260C	NPW	Y	x
NY	Trans-1,2-Dichloroethene	EPA 8260C	NPW	Y	x
NY	Trans-1,3-Dichloropropene	EPA 8260C	NPW	Y	x
NY	Trans-1,4-Dichloro-2-butene	EPA 8260C	NPW	Y	x
NY	Trichloroethene	EPA 8260C	NPW	Y	x
NY	Trichlorofluoromethane	EPA 8260C	NPW	Y	x
NY	Vinyl acetate	EPA 8260C	NPW	Y	x
NY	Vinyl Chloride	EPA 8260C	NPW	Y	x
NY	1,1'-Biphenyl	EPA 8270D	NPW	Y	Y
NY	1,2,4,5-Tetrachlorobenzene	EPA 8270D	NPW	Y	Y
NY	1,2,4-Trichlorobenzene	EPA 8270D	NPW	Y	Y
NY	1,2-Dichlorobenzene	EPA 8270D	NPW	Y	Y
NY	1,2-Diphenylhydrazine	EPA 8270D	NPW	Y	Y
NY	1,3-Dichlorobenzene	EPA 8270D	NPW	Y	Y
NY	1,4-Dichlorobenzene	EPA 8270D	NPW	Y	Y
NY	2,3,4,6-Tetrachlorophenol	EPA 8270D	NPW	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	2,4,5-Trichlorophenol	EPA 8270D	NPW	Y	Y
NY	2,4,6-Trichlorophenol	EPA 8270D	NPW	Y	Y
NY	2,4-Dichlorophenol	EPA 8270D	NPW	Y	Y
NY	2,4-Dimethylphenol	EPA 8270D	NPW	Y	Y
NY	2,4-Dinitrophenol	EPA 8270D	NPW	Y	Y
NY	2,4-Dinitrotoluene (2,4-DNT)	EPA 8270D	NPW	Y	Y
NY	2,6-Dinitrotoluene (2,6-DNT)	EPA 8270D	NPW	Y	Y
NY	2-Chloronaphthalene	EPA 8270D	NPW	Y	Y
NY	2-Chlorophenol	EPA 8270D	NPW	Y	Y
NY	2-Methyl-4,6-dinitrophenol	EPA 8270D	NPW	Y	Y
NY	2-Methylnaphthalene	EPA 8270D	NPW	Y	Y
NY	2-Methylphenol	EPA 8270D	NPW	Y	Y
NY	2-Naphthylamine	EPA 8270D	NPW	Y	x
NY	2-Nitroaniline	EPA 8270D	NPW	Y	Y
NY	2-Nitrophenol	EPA 8270D	NPW	Y	Y
NY	3,3'-Dichlorobenzidine	EPA 8270D	NPW	Y	Y
NY	3-Methylphenol	EPA 8270D	NPW	Y	Y
NY	3-Nitroaniline	EPA 8270D	NPW	Y	Y
NY	4-Bromophenyl phenyl ether	EPA 8270D	NPW	Y	Y
NY	4-Chloro-3-methylphenol	EPA 8270D	NPW	Y	Y
NY	4-Chloroaniline	EPA 8270D	NPW	Y	Y
NY	4-Chlorophenyl phenyl ether	EPA 8270D	NPW	Y	Y
NY	4-Methylphenol	EPA 8270D	NPW	Y	Y
NY	4-Nitroaniline	EPA 8270D	NPW	Y	Y
NY	4-Nitrophenol	EPA 8270D	NPW	Y	Y
NY	Acenaphthene	EPA 8270D	NPW	Y	Y
NY	Acenaphthylene	EPA 8270D	NPW	Y	Y
NY	Acetophenone	EPA 8270D	NPW	Y	Y
NY	Aniline	EPA 8270D	NPW	Y	Y
NY	Anthracene	EPA 8270D	NPW	Y	Y
NY	Atrazine	EPA 8270D	NPW	Y	Y
NY	Benzaldehyde	EPA 8270D	NPW	Y	Y
NY	Benzidine	EPA 8270D	NPW	Y	Y
NY	Benzo(a)anthracene	EPA 8270D	NPW	Y	Y
NY	Benzo(a)pyrene	EPA 8270D	NPW	Y	Y
NY	Benzo(b)fluoranthene	EPA 8270D	NPW	Y	Y
NY	Benzo(g,h,i)perylene	EPA 8270D	NPW	Y	Y
NY	Benzo(k)fluoranthene	EPA 8270D	NPW	Y	Y
NY	Benzoic Acid	EPA 8270D	NPW	Y	Y
NY	Benzyl alcohol	EPA 8270D	NPW	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	bis(2-Chloroethoxy)methane	EPA 8270D	NPW	Y	Y
NY	bis(2-Chloroethyl)ether	EPA 8270D	NPW	Y	Y
NY	bis(2-Chloroisopropyl)ether	EPA 8270D	NPW	Y	Y
NY	bis(2-Ethylhexyl)phthalate	EPA 8270D	NPW	Y	Y
NY	Butylbenzyl phthalate	EPA 8270D	NPW	Y	Y
NY	Caprolactam	EPA 8270D	NPW	Y	Y
NY	Carbazole	EPA 8270D	NPW	Y	Y
NY	Chrysene	EPA 8270D	NPW	Y	Y
NY	Cresols, Total	EPA 8270D	NPW	Y	x
NY	Dibenzo(a,h)anthracene	EPA 8270D	NPW	Y	Y
NY	Dibenzofuran	EPA 8270D	NPW	Y	Y
NY	Diethyl phthalate	EPA 8270D	NPW	Y	Y
NY	Dimethyl phthalate	EPA 8270D	NPW	Y	Y
NY	Di-n-butyl phthalate	EPA 8270D	NPW	Y	Y
NY	Di-n-octyl phthalate	EPA 8270D	NPW	Y	Y
NY	Diphenylamine	EPA 8270D	NPW	Y	x
NY	Fluoranthene	EPA 8270D	NPW	Y	Y
NY	Fluorene	EPA 8270D	NPW	Y	Y
NY	Hexachlorobenzene	EPA 8270D	NPW	Y	Y
NY	Hexachlorobutadiene	EPA 8270D	NPW	Y	Y
NY	Hexachlorocyclopentadiene	EPA 8270D	NPW	Y	Y
NY	Hexachloroethane	EPA 8270D	NPW	Y	Y
NY	Indeno(1,2,3-cd)pyrene	EPA 8270D	NPW	Y	Y
NY	Isophorone	EPA 8270D	NPW	Y	Y
NY	Naphthalene	EPA 8270D	NPW	Y	Y
NY	Nitrobenzene	EPA 8270D	NPW	Y	Y
NY	n-Nitrosodimethylamine	EPA 8270D	NPW	Y	Y
NY	n-Nitroso-di-n-propylamine	EPA 8270D	NPW	Y	Y
NY	N-Nitrosodiphenylamine	EPA 8270D	NPW	Y	Y
NY	o-Toluidine	EPA 8270D	NPW	Y	x
NY	Parathion	EPA 8270D	NPW	Y	x
NY	Pentachlorophenol	EPA 8270D	NPW	Y	Y
NY	Phenanthrene	EPA 8270D	NPW	Y	Y
NY	Phenol	EPA 8270D	NPW	Y	Y
NY	Pyrene	EPA 8270D	NPW	Y	Y
NY	Pyridine	EPA 8270D	NPW	Y	Y
NY	Thionazin	EPA 8270D	NPW	Y	x
NY	1,4-Dioxane	EPA 8270D-SIM	NPW	x	Y
NY	Acenaphthene	EPA 8270D-SIM	NPW	Y	Y
NY	Acenaphthylene	EPA 8270D-SIM	NPW	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Anthracene	EPA 8270D-SIM	NPW	Y	Y
NY	Benzo(a)anthracene	EPA 8270D-SIM	NPW	Y	Y
NY	Benzo(a)pyrene	EPA 8270D-SIM	NPW	Y	Y
NY	Benzo(b)fluoranthene	EPA 8270D-SIM	NPW	Y	Y
NY	Benzo(g,h,i)perylene	EPA 8270D-SIM	NPW	Y	Y
NY	Benzo(k)fluoranthene	EPA 8270D-SIM	NPW	Y	Y
NY	Chrysene	EPA 8270D-SIM	NPW	Y	Y
NY	Dibenzo(a,h)anthracene	EPA 8270D-SIM	NPW	Y	Y
NY	Fluoranthene	EPA 8270D-SIM	NPW	Y	Y
NY	Fluorene	EPA 8270D-SIM	NPW	Y	Y
NY	Indeno(1,2,3-cd)pyrene	EPA 8270D-SIM	NPW	Y	Y
NY	Naphthalene	EPA 8270D-SIM	NPW	Y	Y
NY	Phenanthrene	EPA 8270D-SIM	NPW	Y	Y
NY	Pyrene	EPA 8270D-SIM	NPW	Y	Y
NY	Formaldehyde	EPA 8315A	NPW	Y	x
NY	Cyanide - Amenable, Distillation	EPA 9010C	NPW	Y	x
NY	Cyanide, Distillation	EPA 9010C	NPW	Y	x
NY	Cyanide, Total	EPA 9012B	NPW	Y	x
NY	Cyanide, Total	EPA 9014	NPW	Y	x
NY	Sulfide	EPA 9030B	NPW	Y	x
NY	Specific Conductance	EPA 9050A	NPW	Y	x
NY	Chloride	EPA 9056A	NPW	Y	x
NY	Fluoride	EPA 9056A	NPW	Y	x
NY	Nitrate-N	EPA 9056A	NPW	Y	x
NY	Sulfate	EPA 9056A	NPW	Y	x
NY	Total Organic Carbon	EPA 9060A	NPW	Y	x
NY	Total Phenolics	EPA 9065	NPW	Y	x
NY	Ethane	EPA RSK-175	NPW	x	Y
NY	Ethene	EPA RSK-175	NPW	x	Y
NY	Methane	EPA RSK-175	NPW	x	Y
NY	Propane	EPA RSK-175	NPW	x	Y
NY	Nitrogen, Total Kjeldahl	Lachat 10-107-06-2-D	NPW	Y	x
NY	Cyanide, Total	Lachat 10-204-00-1-A	NPW	Y	x
NY	Color	SM 2120B	NPW	Y	x
NY	Turbidity	SM 2130B	NPW	Y	x
NY	Acidity	SM 2310B	NPW	Y	x
NY	Alkalinity	SM 2320B	NPW	Y	x
NY	Total Hardness (CaCO3)	SM 2340B	NPW	x	Y
NY	Specific Conductance	SM 2510B	NPW	Y	x
NY	Total Residue	SM 2540B	NPW	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Total Dissolved Solids	SM 2540C	NPW	Y	x
NY	Total Suspended Solids	SM 2540D	NPW	Y	x
NY	Volatile Solids	SM 2540E	NPW	Y	x
NY	Total Settleable Solids	SM 2540F	NPW	Y	x
NY	Chromium VI	SM 3500Cr-B	NPW	Y	x
NY	Ferrous Iron	SM 3500Fe-B	NPW	Y	x
NY	Chloride	SM 4500CL-E	NPW	Y	x
NY	Cyanide, Total	SM 4500CN-E	NPW	Y	x
NY	Fluoride Preliminary Distillation	SM 4500F-B	NPW	Y	x
NY	Fluoride	SM 4500F-C	NPW	Y	x
NY	Ammonia	SM 4500NH3-B	NPW	Y	x
NY	Ammonia	SM 4500NH3-H	NPW	Y	x
NY	Nitrogen, Total Kjeldahl	SM 4500NH3-H	NPW	Y	x
NY	Nitrite-N	SM 4500NO2-B	NPW	Y	x
NY	Nitrate-N	SM 4500NO3-F	NPW	Y	x
NY	Nitrate-Nitrite	SM 4500NO3-F	NPW	Y	x
NY	Nitrite-N	SM 4500NO3-F	NPW	Y	x
NY	Nitrogen, Total Kjeldahl (Distillation)	SM 4500Norg-C	NPW	Y	x
NY	Total Phosphorus (Digestion)	SM 4500P-B	NPW	Y	x
NY	Orthophosphate	SM 4500P-E	NPW	Y	x
NY	Total Phosphorus	SM 4500P-E	NPW	Y	x
NY	Sulfide	SM 4500S2-D	NPW	Y	x
NY	Sulfate	SM 4500SO4-E	NPW	Y	x
NY	Sulfate	SM 4500SO4-E	NPW	Y	x
NY	Biochemical Oxygen Demand	SM 5210B	NPW	Y	x
NY	Biochemical Oxygen Demand - Carbonaceous	SM 5210B	NPW	Y	x
NY	Chemical Oxygen Demand	SM 5220D	NPW	Y	x
NY	Total Organic Carbon	SM 5310C	NPW	Y	x
NY	Surfactants (MBAS)	SM 5540C	NPW	Y	x
NY	Heterotrophic Plate Count	SM 9215B	NPW	Y	x
NY	Coliform, Total	SM 9221B	NPW	Y	x
NY	Coliform, Fecal	SM 9221C	NPW	Y	x
NY	Coliform, Fecal	SM 9221E	NPW	Y	x
NY	Coliform, Total	SM 9222B	NPW	Y	x
NY	Flashpoint	EPA 1010A	SCM	Y	x
NY	Ignitability	EPA 1030	SCM	Y	x
NY	TCLP	EPA 1311	SCM	Y	Y
NY	SPLP	EPA 1312	SCM	Y	x
NY	Microwave Acid Digestion	EPA 3050B	SCM	Y	Y
NY	Microwave Acid Digestion	EPA 3051A	SCM	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Chromium VI Digestion	EPA 3060A	SCM	x	Y
NY	Soxhlet Extraction	EPA 3540C	SCM	Y	Y
NY	Microwave Acid Digestion	EPA 3546	SCM	Y	x
NY	Microscale Solvent Extraction (MSE)	EPA 3570	SCM	x	Y
NY	Waste Dilution	EPA 3580A	SCM	Y	Y
NY	Purge & Trap Soil Low/High	EPA 5035A	SCM	Y	x
NY	Aluminum	EPA 6010C	SCM	x	Y
NY	Antimony	EPA 6010C	SCM	x	Y
NY	Arsenic	EPA 6010C	SCM	x	Y
NY	Barium	EPA 6010C	SCM	x	Y
NY	Beryllium	EPA 6010C	SCM	x	Y
NY	Boron	EPA 6010C	SCM	x	Y
NY	Cadmium	EPA 6010C	SCM	x	Y
NY	Calcium	EPA 6010C	SCM	x	Y
NY	Chromium	EPA 6010C	SCM	x	Y
NY	Cobalt	EPA 6010C	SCM	x	Y
NY	Copper	EPA 6010C	SCM	x	Y
NY	Iron	EPA 6010C	SCM	x	Y
NY	Lead	EPA 6010C	SCM	x	Y
NY	Magnesium	EPA 6010C	SCM	x	Y
NY	Manganese	EPA 6010C	SCM	x	Y
NY	Molybdenum	EPA 6010C	SCM	x	Y
NY	Nickel	EPA 6010C	SCM	x	Y
NY	Potassium	EPA 6010C	SCM	x	Y
NY	Selenium	EPA 6010C	SCM	x	Y
NY	Silver	EPA 6010C	SCM	x	Y
NY	Sodium	EPA 6010C	SCM	x	Y
NY	Strontium	EPA 6010C	SCM	x	Y
NY	Thallium	EPA 6010C	SCM	x	Y
NY	Tin	EPA 6010C	SCM	x	Y
NY	Titanium	EPA 6010C	SCM	x	Y
NY	Vanadium	EPA 6010C	SCM	x	Y
NY	Zinc	EPA 6010C	SCM	x	Y
NY	Aluminum	EPA 6020A	SCM	x	Y
NY	Antimony	EPA 6020A	SCM	x	Y
NY	Arsenic	EPA 6020A	SCM	x	Y
NY	Barium	EPA 6020A	SCM	x	Y
NY	Beryllium	EPA 6020A	SCM	x	Y
NY	Boron	EPA 6020A	SCM	x	Y
NY	Cadmium	EPA 6020A	SCM	x	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Calcium	EPA 6020A	SCM	x	Y
NY	Chromium	EPA 6020A	SCM	x	Y
NY	Cobalt	EPA 6020A	SCM	x	Y
NY	Copper	EPA 6020A	SCM	x	Y
NY	Iron	EPA 6020A	SCM	x	Y
NY	Lead	EPA 6020A	SCM	x	Y
NY	Magnesium	EPA 6020A	SCM	x	Y
NY	Manganese	EPA 6020A	SCM	x	Y
NY	Molybdenum	EPA 6020A	SCM	x	Y
NY	Nickel	EPA 6020A	SCM	x	Y
NY	Potassium	EPA 6020A	SCM	x	Y
NY	Selenium	EPA 6020A	SCM	x	Y
NY	Silver	EPA 6020A	SCM	x	Y
NY	Sodium	EPA 6020A	SCM	x	Y
NY	Strontium	EPA 6020A	SCM	x	Y
NY	Thallium	EPA 6020A	SCM	x	Y
NY	Tin	EPA 6020A	SCM	x	Y
NY	Vanadium	EPA 6020A	SCM	x	Y
NY	Zinc	EPA 6020A	SCM	x	Y
NY	Chromium VI	EPA 7196A	SCM	Y	x
NY	Mercury	EPA 7471B	SCM	x	Y
NY	Mercury	EPA 7474	SCM	x	Y
NY	Diesel Range Organics	EPA 8015C	SCM	Y	x
NY	Gasoline Range Organics	EPA 8015C	SCM	Y	x
NY	Diesel Range Organics	EPA 8015D	SCM	Y	Y
NY	Ethylene glycol	EPA 8015D	SCM	x	Y
NY	Gasoline Range Organics	EPA 8015D	SCM	Y	x
NY	Iso-butyl Alcohol	EPA 8015D	SCM	x	Y
NY	Tert-Butyl Alcohol	EPA 8015D	SCM	x	Y
NY	4,4'-DDD	EPA 8081B	SCM	Y	Y
NY	4,4'-DDE	EPA 8081B	SCM	Y	Y
NY	4,4'-DDT	EPA 8081B	SCM	Y	Y
NY	Aldrin	EPA 8081B	SCM	Y	Y
NY	alpha-BHC	EPA 8081B	SCM	Y	Y
NY	alpha-Chlordane	EPA 8081B	SCM	Y	Y
NY	beta-BHC	EPA 8081B	SCM	Y	Y
NY	Chlordane	EPA 8081B	SCM	Y	Y
NY	delta-BHC	EPA 8081B	SCM	Y	Y
NY	Dieldrin	EPA 8081B	SCM	Y	Y
NY	Endosulfan I	EPA 8081B	SCM	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Endosulfan II	EPA 8081B	SCM	Y	Y
NY	Endosulfan Sulfate	EPA 8081B	SCM	Y	Y
NY	Endrin	EPA 8081B	SCM	Y	Y
NY	Endrin Aldehyde	EPA 8081B	SCM	Y	Y
NY	Endrin Ketone	EPA 8081B	SCM	Y	Y
NY	gamma-Chlordane	EPA 8081B	SCM	Y	Y
NY	Heptachlor	EPA 8081B	SCM	Y	Y
NY	Heptachlor Epoxide	EPA 8081B	SCM	Y	Y
NY	Lindane (gamma-BHC)	EPA 8081B	SCM	Y	Y
NY	Methoxychlor	EPA 8081B	SCM	Y	Y
NY	Mirex	EPA 8081B	SCM	x	Y
NY	Toxaphene	EPA 8081B	SCM	Y	Y
NY	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)	EPA 8082A	SCM	x	Y
NY	2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	EPA 8082A	SCM	x	Y
NY	2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	EPA 8082A	SCM	x	Y
NY	2,2',3,4,4',5,5'-Heptacholorbiphenyl (PCB 180)	EPA 8082A	SCM	x	Y
NY	2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)	EPA 8082A	SCM	x	Y
NY	2,2',3,4,4',5'-Hexachlorobiphenyl (PCB 138)	EPA 8082A	SCM	x	Y
NY	2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)	EPA 8082A	SCM	x	Y
NY	2,2',3,4,5,5'-Hexachlorobiphenyl (PCB 141)	EPA 8082A	SCM	x	Y
NY	2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)	EPA 8082A	SCM	x	Y
NY	2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)	EPA 8082A	SCM	x	Y
NY	2,2',3,5'-Tetrachlorobiphenyl (PCB 44)	EPA 8082A	SCM	x	Y
NY	2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	EPA 8082A	SCM	x	Y
NY	2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)	EPA 8082A	SCM	x	Y
NY	2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	EPA 8082A	SCM	x	Y
NY	2,2',5-Trichlorobiphenyl (PCB 18)	EPA 8082A	SCM	x	Y
NY	2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	EPA 8082A	SCM	x	Y
NY	2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	EPA 8082A	SCM	x	Y
NY	2,3-Dichlorobiphenyl (PCB 5)	EPA 8082A	SCM	x	Y
NY	2,4'-Trichlorobiphenyl (PCB 31)	EPA 8082A	SCM	x	Y
NY	2-Chlorobiphenyl (PCB 1)	EPA 8082A	SCM	x	Y
NY	PCB-1016	EPA 8082A	SCM	Y	Y
NY	PCB-1221	EPA 8082A	SCM	Y	Y
NY	PCB-1232	EPA 8082A	SCM	Y	Y
NY	PCB-1242	EPA 8082A	SCM	Y	Y
NY	PCB-1248	EPA 8082A	SCM	Y	Y
NY	PCB-1254	EPA 8082A	SCM	Y	Y
NY	PCB-1260	EPA 8082A	SCM	Y	Y
NY	PCB-1262	EPA 8082A	SCM	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	PCB-1268	EPA 8082A	SCM	Y	Y
NY	PCBs in Oil	EPA 8082A	SCM	Y	x
NY	2,4,5-T	EPA 8151A	SCM	Y	x
NY	2,4,5-TP (Silvex)	EPA 8151A	SCM	Y	x
NY	2,4-D	EPA 8151A	SCM	Y	x
NY	2,4-DB	EPA 8151A	SCM	Y	x
NY	Dalapon	EPA 8151A	SCM	Y	x
NY	Dicamba	EPA 8151A	SCM	Y	x
NY	Dichloroprop	EPA 8151A	SCM	Y	x
NY	MCPA	EPA 8151A	SCM	Y	x
NY	MCPP	EPA 8151A	SCM	Y	x
NY	1,1,1,2-Tetrachloroethane	EPA 8260C	SCM	Y	x
NY	1,1,1-Trichloroethane	EPA 8260C	SCM	Y	x
NY	1,1,2,2-Tetrachloroethane	EPA 8260C	SCM	Y	x
NY	1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C	SCM	Y	x
NY	1,1,2-Trichloroethane	EPA 8260C	SCM	Y	x
NY	1,1-Dichloroethane	EPA 8260C	SCM	Y	x
NY	1,1-Dichloroethene	EPA 8260C	SCM	Y	x
NY	1,1-Dichloropropene	EPA 8260C	SCM	Y	x
NY	1,2,3-Trichloropropane	EPA 8260C	SCM	Y	x
NY	1,2,4-Trichlorobenzene	EPA 8260C	SCM	Y	x
NY	1,2,4-Trimethylbenzene	EPA 8260C	SCM	Y	x
NY	1,2-Dibromo-3-Chloropropane (DBCP)	EPA 8260C	SCM	Y	x
NY	1,2-Dibromoethane (EDB)	EPA 8260C	SCM	Y	x
NY	1,2-Dichlorobenzene	EPA 8260C	SCM	Y	x
NY	1,2-Dichloroethane	EPA 8260C	SCM	Y	x
NY	1,2-Dichloropropane	EPA 8260C	SCM	Y	x
NY	1,3,5-Trimethylbenzene	EPA 8260C	SCM	Y	x
NY	1,3-Dichlorobenzene	EPA 8260C	SCM	Y	x
NY	1,3-Dichloropropane	EPA 8260C	SCM	Y	x
NY	1,4-Dichlorobenzene	EPA 8260C	SCM	Y	x
NY	1,4-Dioxane	EPA 8260C	SCM	Y	x
NY	2,2-Dichloropropane	EPA 8260C	SCM	Y	x
NY	2-Butanone	EPA 8260C	SCM	Y	x
NY	2-Chloroethyl Vinyl ether	EPA 8260C	SCM	Y	x
NY	2-Chlorotoluene	EPA 8260C	SCM	Y	x
NY	2-Hexanone	EPA 8260C	SCM	Y	x
NY	4-Chlorotoluene	EPA 8260C	SCM	Y	x
NY	4-Methyl-2-Pentanone	EPA 8260C	SCM	Y	x
NY	Acetone	EPA 8260C	SCM	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Acrolein	EPA 8260C	SCM	Y	x
NY	Acrylonitrile	EPA 8260C	SCM	Y	x
NY	Benzene	EPA 8260C	SCM	Y	x
NY	Bromobenzene	EPA 8260C	SCM	Y	x
NY	Bromochloromethane	EPA 8260C	SCM	Y	x
NY	Bromodichloromethane	EPA 8260C	SCM	Y	x
NY	Bromoform	EPA 8260C	SCM	Y	x
NY	Bromomethane	EPA 8260C	SCM	Y	x
NY	Carbon disulfide	EPA 8260C	SCM	Y	x
NY	Carbon Tetrachloride	EPA 8260C	SCM	Y	x
NY	Chlorobenzene	EPA 8260C	SCM	Y	x
NY	Chloroethane	EPA 8260C	SCM	Y	x
NY	Chloroform	EPA 8260C	SCM	Y	x
NY	Chloromethane	EPA 8260C	SCM	Y	x
NY	cis-1,2-Dichloroethene	EPA 8260C	SCM	Y	x
NY	cis-1,3-Dichloropropene	EPA 8260C	SCM	Y	x
NY	Cyclohexane	EPA 8260C	SCM	Y	x
NY	Dibromochloromethane	EPA 8260C	SCM	Y	x
NY	Dibromomethane	EPA 8260C	SCM	Y	x
NY	Dichlorodifluoromethane	EPA 8260C	SCM	Y	x
NY	Diethyl ether	EPA 8260C	SCM	Y	x
NY	Ethyl acetate	EPA 8260C	SCM	Y	x
NY	Ethyl Methacrylate	EPA 8260C	SCM	Y	x
NY	Ethylbenzene	EPA 8260C	SCM	Y	x
NY	Hexachlorobutadiene	EPA 8260C	SCM	Y	x
NY	Isopropylbenzene	EPA 8260C	SCM	Y	x
NY	m+p-Xylene	EPA 8260C	SCM	Y	x
NY	Methyl Acetate	EPA 8260C	SCM	Y	x
NY	Methyl Cyclohexane	EPA 8260C	SCM	Y	x
NY	Methyl tert-butyl ether	EPA 8260C	SCM	Y	x
NY	Methylene Chloride	EPA 8260C	SCM	Y	x
NY	Naphthalene	EPA 8260C	SCM	Y	x
NY	n-Butyl Alcohol	EPA 8260C	SCM	Y	x
NY	n-Butylbenzene	EPA 8260C	SCM	Y	x
NY	n-Propylbenzene	EPA 8260C	SCM	Y	x
NY	o-Xylene	EPA 8260C	SCM	Y	x
NY	p-Isopropyltoluene	EPA 8260C	SCM	Y	x
NY	sec-Butylbenzene	EPA 8260C	SCM	Y	x
NY	Styrene	EPA 8260C	SCM	Y	x
NY	Tert-Butyl Alcohol	EPA 8260C	SCM	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Tert-Butylbenzene	EPA 8260C	SCM	Y	x
NY	Tetrachloroethene	EPA 8260C	SCM	Y	x
NY	Toluene	EPA 8260C	SCM	Y	x
NY	Total Xylenes	EPA 8260C	SCM	Y	x
NY	Trans-1,2-Dichloroethene	EPA 8260C	SCM	Y	x
NY	Trans-1,3-Dichloropropene	EPA 8260C	SCM	Y	x
NY	Trans-1,4-Dichloro-2-butene	EPA 8260C	SCM	Y	x
NY	Trichloroethene	EPA 8260C	SCM	Y	x
NY	Trichlorofluoromethane	EPA 8260C	SCM	Y	x
NY	Vinyl Acetate	EPA 8260C	SCM	Y	x
NY	Vinyl Chloride	EPA 8260C	SCM	Y	x
NY	1,1'-Biphenyl	EPA 8270D	SCM	Y	Y
NY	1,2,4,5-Tetrachlorobenzene	EPA 8270D	SCM	Y	Y
NY	1,2,4-Trichlorobenzene	EPA 8270D	SCM	Y	Y
NY	1,2-Dichlorobenzene	EPA 8270D	SCM	Y	Y
NY	1,2-Diphenylhydrazine	EPA 8270D	SCM	Y	Y
NY	1,3-Dichlorobenzene	EPA 8270D	SCM	Y	Y
NY	1,4-Dichlorobenzene	EPA 8270D	SCM	Y	Y
NY	2,3,4,6-Tetrachlorophenol	EPA 8270D	SCM	Y	Y
NY	2,4,5-Trichlorophenol	EPA 8270D	SCM	Y	Y
NY	2,4,6-Trichlorophenol	EPA 8270D	SCM	Y	Y
NY	2,4-Dichlorophenol	EPA 8270D	SCM	Y	Y
NY	2,4-Dimethylphenol	EPA 8270D	SCM	Y	Y
NY	2,4-Dinitrophenol	EPA 8270D	SCM	Y	Y
NY	2,4-Dinitrotoluene (2,4-DNT)	EPA 8270D	SCM	Y	Y
NY	2,6-Dinitrotoluene (2,6-DNT)	EPA 8270D	SCM	Y	Y
NY	2-Chloronaphthalene	EPA 8270D	SCM	Y	Y
NY	2-Chlorophenol	EPA 8270D	SCM	Y	Y
NY	2-Methyl-4,6-dinitrophenol	EPA 8270D	SCM	Y	Y
NY	2-Methylnaphthalene	EPA 8270D	SCM	Y	Y
NY	2-Methylphenol	EPA 8270D	SCM	Y	Y
NY	2-Nitroaniline	EPA 8270D	SCM	Y	Y
NY	2-Nitrophenol	EPA 8270D	SCM	Y	Y
NY	3,3'-Dichlorobenzidine	EPA 8270D	SCM	Y	Y
NY	3-Methylphenol	EPA 8270D	SCM	Y	Y
NY	3-Nitroaniline	EPA 8270D	SCM	Y	Y
NY	4-Bromophenyl phenyl ether	EPA 8270D	SCM	Y	Y
NY	4-Chloro-3-methylphenol	EPA 8270D	SCM	Y	Y
NY	4-Chlorophenyl phenyl ether	EPA 8270D	SCM	Y	Y
NY	4-Methylphenol	EPA 8270D	SCM	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	4-Nitroaniline	EPA 8270D	SCM	Y	Y
NY	4-Nitrophenol	EPA 8270D	SCM	Y	Y
NY	Acenaphthene	EPA 8270D	SCM	Y	Y
NY	Acenaphthylene	EPA 8270D	SCM	Y	Y
NY	Acetophenone	EPA 8270D	SCM	Y	Y
NY	Aniline	EPA 8270D	SCM	Y	Y
NY	Anthracene	EPA 8270D	SCM	Y	Y
NY	Atrazine	EPA 8270D	SCM	Y	x
NY	Benzaldehyde	EPA 8270D	SCM	Y	Y
NY	Benzidine	EPA 8270D	SCM	Y	Y
NY	Benzo(a)anthracene	EPA 8270D	SCM	Y	Y
NY	Benzo(a)pyrene	EPA 8270D	SCM	Y	Y
NY	Benzo(b)fluoranthene	EPA 8270D	SCM	Y	Y
NY	Benzo(g,h,i)perylene	EPA 8270D	SCM	Y	Y
NY	Benzo(k)fluoranthene	EPA 8270D	SCM	Y	Y
NY	Benzoic Acid	EPA 8270D	SCM	Y	Y
NY	Benzyl alcohol	EPA 8270D	SCM	Y	Y
NY	bis(2-Chloroethoxy)methane	EPA 8270D	SCM	Y	Y
NY	bis(2-Chloroethyl)ether	EPA 8270D	SCM	Y	Y
NY	bis(2-Chloroisopropyl)ether	EPA 8270D	SCM	Y	Y
NY	bis(2-Ethylhexyl)phthalate	EPA 8270D	SCM	Y	Y
NY	Butylbenzyl phthalate	EPA 8270D	SCM	Y	Y
NY	Caprolactam	EPA 8270D	SCM	Y	Y
NY	Carbazole	EPA 8270D	SCM	Y	Y
NY	Chrysene	EPA 8270D	SCM	Y	Y
NY	Dibenzo(a,h)anthracene	EPA 8270D	SCM	Y	Y
NY	Dibenzofuran	EPA 8270D	SCM	Y	Y
NY	Diethyl phthalate	EPA 8270D	SCM	Y	Y
NY	Dimethyl phthalate	EPA 8270D	SCM	Y	Y
NY	Di-n-butyl phthalate	EPA 8270D	SCM	Y	Y
NY	Di-n-octyl phthalate	EPA 8270D	SCM	Y	Y
NY	Diphenylamine	EPA 8270D	SCM	Y	x
NY	Fluoranthene	EPA 8270D	SCM	Y	Y
NY	Fluorene	EPA 8270D	SCM	Y	Y
NY	Hexachlorobenzene	EPA 8270D	SCM	Y	Y
NY	Hexachlorobutadiene	EPA 8270D	SCM	Y	x
NY	Hexachlorocyclopentadiene	EPA 8270D	SCM	Y	Y
NY	Hexachloroethane	EPA 8270D	SCM	Y	Y
NY	Indeno(1,2,3-cd)pyrene	EPA 8270D	SCM	Y	Y
NY	Isophorone	EPA 8270D	SCM	Y	Y

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Naphthalene	EPA 8270D	SCM	Y	Y
NY	Nitrobenzene	EPA 8270D	SCM	Y	Y
NY	n-Nitrosodimethylamine	EPA 8270D	SCM	Y	Y
NY	n-Nitroso-di-n-propylamine	EPA 8270D	SCM	Y	Y
NY	N-Nitrosodiphenylamine	EPA 8270D	SCM	Y	Y
NY	Parathion	EPA 8270D	SCM	Y	x
NY	Pentachloronitrobenzene	EPA 8270D	SCM	Y	Y
NY	Pentachlorophenol	EPA 8270D	SCM	Y	Y
NY	Phenanthrene	EPA 8270D	SCM	Y	Y
NY	Phenol	EPA 8270D	SCM	Y	Y
NY	Pyrene	EPA 8270D	SCM	Y	Y
NY	Pyridine	EPA 8270D	SCM	Y	Y
NY	Acenaphthene	EPA 8270D-SIM	SCM	Y	Y
NY	Acenaphthylene	EPA 8270D-SIM	SCM	Y	Y
NY	Anthracene	EPA 8270D-SIM	SCM	Y	Y
NY	Benzo(a)anthracene	EPA 8270D-SIM	SCM	Y	Y
NY	Benzo(a)pyrene	EPA 8270D-SIM	SCM	Y	Y
NY	Benzo(b)fluoranthene	EPA 8270D-SIM	SCM	Y	Y
NY	Benzo(g,h,i)perylene	EPA 8270D-SIM	SCM	Y	Y
NY	Benzo(k)fluoranthene	EPA 8270D-SIM	SCM	Y	Y
NY	Chrysene	EPA 8270D-SIM	SCM	Y	Y
NY	Dibenzo(a,h)anthracene	EPA 8270D-SIM	SCM	Y	Y
NY	Fluoranthene	EPA 8270D-SIM	SCM	Y	Y
NY	Fluorene	EPA 8270D-SIM	SCM	Y	Y
NY	Indeno(1,2,3-cd)pyrene	EPA 8270D-SIM	SCM	Y	Y
NY	Naphthalene	EPA 8270D-SIM	SCM	Y	Y
NY	Phenanthrene	EPA 8270D-SIM	SCM	Y	Y
NY	Pyrene	EPA 8270D-SIM	SCM	Y	Y
NY	Cyanide - Amenable, Distillation	EPA 9010C	SCM	Y	x
NY	Cyanide, Distillation	EPA 9010C	SCM	Y	x
NY	Cyanide, Total	EPA 9012B	SCM	Y	x
NY	Cyanide, Total	EPA 9014	SCM	Y	x
NY	Extractable Organic Halides (EOX)	EPA 9023	SCM	Y	x
NY	Sulfate	EPA 9038	SCM	Y	x
NY	pH	EPA 9040C	SCM	Y	x
NY	pH	EPA 9045D	SCM	Y	x
NY	Specific Conductance	EPA 9050A	SCM	Y	x
NY	Total Organic Carbon	EPA 9060A	SCM	x	Y
NY	Total Phenolics	EPA 9065	SCM	Y	x
NY	Oil & Grease	EPA 9071B	SCM	Y	x

Summary of Certification

State	Parameter	Method	Matrix	Alpha Westboro	Alpha Mansfield
NY	Chloride	EPA 9251	SCM	Y	x
NY	Total Organic Carbon	Lloyd Kahn	SCM	x	Y

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY:

General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President

- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director

- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager

- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager

- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer

- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager

- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist

- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College

Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional
Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional
Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

State University of New York

State University at Stony Brook

On the Recommendation of the Faculty and by Virtue of the Authority
vested in them the Trustees of the University have conferred on

Lori Ann Isenberg

the Degree of

Bachelor of Science

and have granted this Diploma as evidence thereof
Given at Stony Brook, in the State of New York, in the United States
of America on the twentieth day of December one thousand nine
hundred and eighty-five.

STATE UNIVERSITY OF NEW YORK
TO LEARN - TO SEARCH - TO SERVE
1948

Chairman of the Board of Trustees

Chancellor of the State University of New York

Chairman of the Council,
State University at Stony Brook

John H. Marburger, III
President,
State University at Stony Brook

APPENDIX B

Low-Flow Sampling

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LOW STRESS (low flow) PURGING AND SAMPLING PROCEDURE FOR THE COLLECTION OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Quality Assurance Unit
U.S. Environmental Protection Agency – Region 1
11 Technology Drive
North Chelmsford, MA 01863

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Prepared by:__________________________________ ____________
(Robert Reinhart, Quality Assurance Unit) Date

Approved by:__________________________________ ____________
(John Smaldone, Quality Assurance Unit) Date

Revision Page

Date	Rev #	Summary of changes	Sections
7/30/96	1	Finalized	
01/19/10	2	Updated	All sections
3/23/17	3	Updated	All sections
9/20/17	4	Updated	Section 7.0

Table of Contents

1.0 USE OF TERMS

Equipment blank: The equipment blank shall include the pump and the pump's tubing. If tubing is dedicated to the well, the equipment blank needs only to include the pump in subsequent sampling rounds. If the pump and tubing are dedicated to the well, the equipment blank is collected prior to its placement in the well. If the pump and tubing will be used to sample multiple wells, the equipment blank is normally collected after sampling from contaminated wells and not after background wells.

Field duplicates: Field duplicates are collected to determine precision of the sampling procedure. For this procedure, collect duplicate for each analyte group in consecutive order (VOC original, VOC duplicate, SVOC original, SVOC duplicate, etc.).

Indicator field parameters: This SOP uses field measurements of turbidity, dissolved oxygen, specific conductance, temperature, pH, and oxidation/reduction potential (ORP) as indicators of when purging operations are sufficient and sample collection may begin.

Matrix Spike/Matrix Spike Duplicates: Used by the laboratory in its quality assurance program. Consult the laboratory for the sample volume to be collected.

Potentiometric Surface: The level to which water rises in a tightly cased well constructed in a confined aquifer. In an unconfined aquifer, the potentiometric surface is the water table.

QAPP: Quality Assurance Project Plan

SAP: Sampling and Analysis Plan

SOP: Standard operating procedure

Stabilization: A condition that is achieved when all indicator field parameter measurements are sufficiently stable (as described in the "Monitoring Indicator Field Parameters" section) to allow sample collection to begin.

Temperature blank: A temperature blank is added to each sample cooler. The blank is measured upon receipt at the laboratory to assess whether the samples were properly cooled during transit.

Trip blank (VOCs): Trip blank is a sample of analyte-free water taken to the sampling site and returned to the laboratory. The trip blanks (one pair) are added to each sample cooler that contains VOC samples.

2.0 SCOPE & APPLICATION

The goal of this groundwater sampling procedure is to collect water samples that reflect the total mobile organic and inorganic loads (dissolved and colloidal sized fractions) transported through the subsurface under ambient flow conditions, with minimal physical and chemical alterations from sampling operations. This standard operating procedure (SOP) for collecting groundwater samples will help ensure that the project's data quality objectives (DQOs) are met under certain low-flow conditions.

The SOP emphasizes the need to minimize hydraulic stress at the well-aquifer interface by maintaining low water-level drawdowns, and by using low pumping rates during purging and sampling operations. Indicator field parameters (e.g., dissolved oxygen, pH, etc.) are monitored during purging in order to determine when sample collection may begin. Samples properly collected using this SOP are suitable for analysis of groundwater contaminants (volatile and semi-volatile organic analytes, dissolved gases, pesticides, PCBs, metals and other inorganics), or naturally occurring analytes. This SOP is based on Puls, and Barcelona (1996).

This procedure is designed for monitoring wells with an inside diameter (1.5-inches or greater) that can accommodate a positive lift pump with a screen length or open interval ten feet or less and with a water level above the top of the screen or open interval (Hereafter, the "screen or open interval" will be referred to only as "screen interval"). This SOP is not applicable to other well-sampling conditions.

While the use of dedicated sampling equipment is not mandatory, dedicated pumps and tubing can reduce sampling costs significantly by streamlining sampling activities and thereby reducing the overall field costs.

The goal of this procedure is to emphasize the need for consistency in deploying and operating equipment while purging and sampling monitoring wells during each sampling event. This will help to minimize sampling variability.

This procedure describes a general framework for groundwater sampling. Other site specific information (hydrogeological context, conceptual site model (CSM), DQOs, etc.) coupled with systematic planning must be added to the procedure in order to develop an appropriate site specific SAP/QAPP. In addition, the site specific SAP/QAPP must identify the specific equipment that will be used to collect the groundwater samples.

This procedure does not address the collection of water or free product samples from wells containing free phase LNAPLs and/or DNAPLs (light or dense non-aqueous phase liquids). For this type of situation, the reader may wish to check: Cohen, and Mercer (1993) or other pertinent documents.

This SOP is to be used when collecting groundwater samples from monitoring wells at all Superfund, Federal Facility and RCRA sites in Region 1 under the conditions described herein. Request for modification of this SOP, in order to better address specific situations at individual wells, must include adequate technical justification for proposed changes. <u>All changes and modifications must be approved and included in a revised SAP/QAPP before implementation in field.</u>

3.0 BACKGROUND FOR IMPLEMENTATION

It is expected that the monitoring well screen has been properly located (both laterally and vertically) to intercept existing contaminant plume(s) or along flow paths of potential contaminant migration. Problems with inappropriate monitoring well placement or faulty/improper well installation cannot be overcome by even the best water sampling procedures. This SOP presumes that the analytes of interest are moving (or will potentially move) primarily through the more permeable zones intercepted by the screen interval.

Proper well construction, development, and operation and maintenance cannot be overemphasized. The use of installation techniques that are appropriate to the hydrogeologic setting of the site often prevent "problem well" situations from occurring. During well development, or redevelopment, tests should be conducted to determine the hydraulic characteristics of the monitoring well. The data can then be used to set the purging/sampling rate, and provide a baseline for evaluating changes in well performance and the potential need for well rehabilitation. Note: if this installation data or well history (construction and sampling) is not available or discoverable, for all wells to be sampled, efforts to build a sampling history should commence with the next sampling event.

The pump intake should be located within the screen interval and at a depth that will remain under water at all times. It is recommended that the intake depth and pumping rate remain the same for all sampling events. The mid-point or the lowest historical midpoint of the saturated screen length is often used as the location of the pump intake. For new wells, or for wells without pump intake depth information, the site's SAP/QAPP must provide clear reasons and instructions on how the pump intake depth(s) will be selected, and reason(s) for the depth(s) selected. If the depths to top and bottom of the well screen are not known, the SAP/QAPP will need to describe how the sampling depth will be determined and how the data can be used.

Stabilization of indicator field parameters is used to indicate that conditions are suitable for sampling to begin. Achievement of turbidity levels of less than 5 NTU, and stable drawdowns of less than 0.3 feet, while desirable, are not mandatory. Sample collection may still take place provided the indicator field parameter criteria in this procedure are met. If after 2 hours of purging indicator field parameters have not stabilized, one of three optional courses of action may be taken: a) continue purging until stabilization is achieved, b) discontinue purging, do not collect any samples, and record in log book that stabilization could not be achieved (documentation must describe attempts to achieve stabilization), c) discontinue purging, collect samples and provide full explanation of attempts to achieve stabilization (note: there is a risk that the analytical data obtained, especially metals and strongly hydrophobic organic analytes, may reflect a sampling bias and therefore, the data may not meet the data quality objectives of the sampling event).

It is recommended that low-flow sampling be conducted when the air temperature is above 32°F (0°C). If the procedure is used below 32°F, special precautions will need to be taken to prevent the groundwater from freezing in the equipment. Because sampling during freezing temperatures may adversely impact the data quality objectives, the need for water sample collection during months when these conditions are likely to occur should be evaluated during site planning and special sampling measures may need to be developed. Ice formation in the flow-through-cell will cause the monitoring probes to act erratically. A transparent flow-through-cell needs to be used to observe if ice is forming in the cell. If ice starts to form on the other pieces of the sampling equipment, additional problems may occur.

4.0 HEALTH & SAFETY

When working on-site, comply with all applicable OSHA requirements and the site's health/safety procedures. All proper personal protection clothing and equipment are to be worn. Some samples may contain biological and chemical hazards. These samples should be handled with suitable protection to skin, eyes, etc.

5.0 CAUTIONS

The following cautions need to be considered when planning to collect groundwater samples when the below conditions occur.

If the groundwater degasses during purging of the monitoring well, dissolved gases and VOCs will be lost. When this happens, the groundwater data for dissolved gases (e.g., methane, ethene, ethane, dissolved oxygen, etc.) and VOCs will need to be qualified. Some conditions that can promote degassing are the use of a vacuum pump (e.g., peristaltic pumps), changes in aperture along the sampling tubing, and squeezing/pinching the pump's tubing which results in a pressure change.

When collecting the samples for dissolved gases and VOCs analyses, avoid aerating the groundwater in the pump's tubing. This can cause loss of the dissolved gases and VOCs in the groundwater. Having the pump's tubing completely filled prior to sampling will avoid this problem when using a centrifugal pump or peristaltic pump.

Direct sun light and hot ambient air temperatures may cause the groundwater in the tubing and flow-through-cell to heat up. This may cause the groundwater to degas which will result in loss of VOCs and dissolved gases. When sampling under these conditions, the sampler will need to shade the equipment from the sunlight (e.g., umbrella, tent, etc.). If possible, sampling on hot days, or during the hottest time of the day, should be avoided. The tubing exiting the monitoring well should be kept as short as possible to avoid the sun light or ambient air from heating up the groundwater.

Thermal currents in the monitoring well may cause vertical mixing of water in the well bore. When the air temperature is colder than the groundwater temperature, it can cool the top of the water column. Colder water which is denser than warm water sinks to the bottom of the well and the warmer water at the bottom of the well rises, setting up a convection cell. "During low-flow sampling, the pumped water may be a mixture of convecting water from within the well casing and aquifer water moving inward through the screen. This mixing of water during low-flow sampling can substantially increase equilibration times, can cause false stabilization of indicator parameters, can give false indication of redox state, and can provide biological data that are not representative of the aquifer conditions" (Vroblesky 2007).

Failure to calibrate or perform proper maintenance on the sampling equipment and measurement instruments (e.g., dissolved oxygen meter, etc.) can result in faulty data being collected.

Interferences may result from using contaminated equipment, cleaning materials, sample containers, or uncontrolled ambient/surrounding air conditions (e.g., truck/vehicle exhaust nearby).

Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment and/or proper planning to avoid ambient air interferences. Note that the use of dedicated sampling equipment can also significantly reduce the time needed to complete each sampling event, will promote consistency in the sampling, and may reduce sampling bias by having the pump's intake at a constant depth.

Clean and decontaminate all sampling equipment prior to use. All sampling equipment needs to be routinely checked to be free from contaminants and equipment blanks collected to ensure that the equipment is free of contaminants. Check the previous equipment blank data for the site (if they exist) to determine if the previous cleaning procedure removed the contaminants. If contaminants were detected and they are a concern, then a more vigorous cleaning procedure will be needed.

6.0 PERSONNEL QUALIFICATIONS

All field samplers working at sites containing hazardous waste must meet the requirements of the OSHA regulations. OSHA regulations may require the sampler to take the 40 hour OSHA health and safety training course and a refresher course prior to engaging in any field activities, depending upon the site and field conditions.

The field samplers must be trained prior to the use of the sampling equipment, field instruments, and procedures. Training is to be conducted by an experienced sampler before initiating any sampling procedure.

The entire sampling team needs to read, and be familiar with, the site Health and Safety Plan, all relevant SOPs, and SAP/QAPP (and the most recent amendments) before going onsite for the sampling event. It is recommended that the field sampling leader attest to the understanding of these site documents and that it is recorded.

7.0 EQUIPMENT AND SUPPLIES

A. Informational materials for sampling event

A copy of the current Health and Safety Plan, SAP/QAPP, monitoring well construction data, location map(s), field data from last sampling event, manuals for sampling, and the monitoring instruments' operation, maintenance, and calibration manuals should be brought to the site.

B. Well keys.

C. Extraction device

Adjustable rate, submersible pumps (e.g., centrifugal, bladder, etc.) which are constructed of stainless steel or polytetrafluoroethylene (PTFE, i.e. Teflon®) are preferred. PTFE, however, should not be used when sampling for per- and polyfluoroalkyl substances (PFAS) as it is likely to contain these substances.

Note: If extraction devices constructed of other materials are to be used, adequate information must be provided to show that the substituted materials do not leach contaminants nor cause interferences to the analytical procedures to be used. Acceptance of these materials must be obtained before the sampling event.

If bladder pumps are selected for the collection of VOCs and dissolved gases, the pump setting should be set so that one pulse will deliver a water volume that is sufficient to fill a 40 mL VOC vial. This is not mandatory, but is considered a “best practice”. For the proper operation, the bladder pump will need a minimum amount of water above the pump; consult the manufacturer for the recommended submergence. The pump’s recommended submergence value should be determined during the planning stage, since it may influence well construction and placement of dedicated pumps where water-level fluctuations are significant.

Adjustable rate, peristaltic pumps (suction) are to be used with caution when collecting samples for VOCs and dissolved gases (e.g., methane, carbon dioxide, etc.) analyses. Additional information on the use of peristaltic pumps can be found in Appendix A. If peristaltic pumps are used, the inside diameter of the rotor head tubing needs to match the inside diameter of the tubing installed in the monitoring well.

Inertial pumping devices (motor driven or manual) are not recommended. These devices frequently cause greater disturbance during purging and sampling, and are less easily controlled than submersible pumps (potentially increasing turbidity and sampling variability, etc.). This can lead to sampling results that are adversely affected by purging and sampling operations, and a higher degree of data variability.

D. Tubing

PTFE (Teflon®) or PTFE-lined polyethylene tubing are preferred when sampling is to include VOCs, SVOCs, pesticides, PCBs and inorganics. As discussed in the previous section, PTFE tubing should not be used when sampling for PFAS. In this case, a suitable alternative such as high-density polyethylene tubing should be used.

PVC, polypropylene or polyethylene tubing may be used when collecting samples for metal and other inorganics analyses.

Note: If tubing constructed of other materials is to be used, adequate information must be provided to show that the substituted materials do not leach contaminants nor cause interferences to the analytical procedures to be used. Acceptance of these materials must be obtained before the sampling event.

The use of 1/4 inch or 3/8 inch (inside diameter) tubing is recommended. This will help ensure that the tubing remains liquid filled when operating at very low pumping rates when using centrifugal and peristaltic pumps.

Silastic tubing should be used for the section around the rotor head of a peristaltic pump. It should be less than a foot in length. The inside diameter of the tubing used at the pump rotor head must be the same as the inside diameter of tubing placed in the well. A tubing connector is used to connect the pump rotor head tubing to the well tubing. Alternatively, the two pieces of tubing can be connected to each other by placing the one end of the tubing inside the end of the other tubing. The tubing must not be reused.

E. The water level measuring device

Electronic ”tape”, pressure transducer, water level sounder/level indicator, etc. should be capable of measuring to 0.01 foot accuracy. Recording pressure transducers, mounted above the pump, are especially helpful in tracking water levels during pumping operations, but their use must include check measurements with a water level “tape” at the start and end of each sampling event.

F. Flow measurement supplies

Graduated cylinder (size according to flow rate) and stopwatch usually will suffice.

Large graduated bucket used to record total water purged from the well.

G. Interface probe

To be used to check on the presence of free phase liquids (LNAPL, or DNAPL) before purging begins (as needed).

H. Power source (generator, nitrogen tank, battery, etc.)

When a gasoline generator is used, locate it downwind and at least 30 feet from the well so that the exhaust fumes do not contaminate samples.

I. Indicator field parameter monitoring instruments

Use of a multi-parameter instrument capable of measuring pH, oxidation/reduction potential (ORP), dissolved oxygen (DO), specific conductance, temperature, and coupled with a flow-through-cell is required when measuring all indicator field parameters, except turbidity. Turbidity is collected using a separate instrument. Record equipment/instrument identification (manufacturer, and model number).

Transparent, small volume flow-through-cells (e.g., 250 mLs or less) are preferred. This allows observation of air bubbles and sediment buildup in the cell, which can interfere with the operation of the monitoring instrument probes, to be easily detected. A small volume cell facilitates rapid turnover of water in the cell between measurements of the indicator field parameters.

It is recommended to use a flow-through-cell and monitoring probes from the same manufacturer and model to avoid incompatibility between the probes and flow-through-cell.

Turbidity samples are collected before the flow-through-cell. A “T” connector coupled with a valve is connected between the pump’s tubing and flow-through-cell. When a turbidity measurement is required, the valve is opened to allow the groundwater to flow into a container. The valve is closed and the container sample is then placed in the turbidimeter.

Standards are necessary to perform field calibration of instruments. A minimum of two standards are needed to bracket the instrument measurement range for all parameters except ORP which use a Zobell solution as a standard. For dissolved oxygen, a wet sponge used for the 100% saturation and a zero dissolved oxygen solution are used for the calibration.

Barometer (used in the calibration of the Dissolved Oxygen probe) and the conversion formula to convert the barometric pressure into the units of measure used by the Dissolved Oxygen meter are needed.

J. Decontamination supplies

Includes (for example) non-phosphate detergent, distilled/deionized water, isopropyl alcohol, etc.

K. Record keeping supplies

Logbook(s), well purging forms, chain-of-custody forms, field instrument calibration forms, etc.

L. Sample bottles

M. Sample preservation supplies (as required by the analytical methods)

N. Sample tags or labels

O. PID or FID instrument

If appropriate, to detect VOCs for health and safety purposes, and provide qualitative field evaluations.

P. Miscellaneous Equipment

Equipment to keep the sampling apparatus shaded in the summer (e.g., umbrella) and from freezing in the winter. If the pump's tubing is allowed to heat up in the warm weather, the cold groundwater may degas as it is warmed in the tubing.

8.0 EQUIPMENT/INSTRUMENT CALIBRATION

Prior to the sampling event, perform maintenance checks on the equipment and instruments according to the manufacturer's manual and/or applicable SOP. This will ensure that the equipment/instruments are working properly before they are used in the field.

Prior to sampling, the monitoring instruments must be calibrated and the calibration documented. The instruments are calibrated using U.S Environmental Protection Agency Region 1 *Calibration of Field Instruments (temperature, pH, dissolved oxygen, conductivity/specific conductance, oxidation/reduction [ORP], and turbidity),* March 23, 2017, or latest version or from one of the methods listed in 40CFR136, 40CFR141 and SW-846.

The instruments shall be calibrated at the beginning of each day. If the field measurement falls outside the calibration range, the instrument must be re-calibrated so that all measurements fall within the calibration range. At the end of each day, a calibration check is performed to verify that instruments remained in calibration throughout the day. This check is performed while the instrument is in measurement mode, not calibration mode. If the field instruments are being used to monitor the natural attenuation parameters, then a calibration check at mid-day is highly recommended to ensure that the instruments did not drift out of calibration. Note: during the day if the instrument reads zero or a negative number for dissolved oxygen, pH, specific conductance, or turbidity (negative value only), this indicates that the instrument drifted out of calibration or the instrument is malfunctioning. If this situation occurs the data from this instrument will need to be qualified or rejected.

9.0 PRELIMINARY SITE ACTIVITIES (as applicable)

Check the well for security (damage, evidence of tampering, missing lock, etc.) and record pertinent observations (include photograph as warranted).

If needed, lay out a sheet of clean polyethylene for monitoring and sampling equipment, unless equipment is elevated above the ground (e.g., on a table, etc.).

Remove well cap and if appropriate measure VOCs at the rim of the well with a PID or FID instrument and record reading in field logbook or on the well purge form.

If the well casing does not have an established reference point (usually a V-cut or indelible mark in the well casing), make one. Describe its location and record the date of the mark in the logbook (consider a photographic record as well). All water level measurements must be recorded relative to this reference point (and the altitude of this point should be determined using techniques that are appropriate to site's DQOs.

If water-table or potentiometric surface map(s) are to be constructed for the sampling event, perform synoptic water level measurement round (in the shortest possible time) before any purging and sampling activities begin. If possible, measure water level depth (to 0.01 ft.) and total well depth (to 0.1 ft.) the day before sampling begins, in order to allow for re-settlement of any particulates in the water column. This is especially important for those wells that have not been recently sampled because sediment buildup in the well may require the well to be redeveloped. If measurement of total well depth is not made the day before, it should be measured after sampling of the well is complete. All measurements must be taken from the established referenced point. Care should be taken to minimize water column disturbance.

Check newly constructed wells for the presence of LNAPLs or DNAPLs before the initial sampling round. If none are encountered, subsequent check measurements with an interface probe may not be necessary unless analytical data or field analysis signal a worsening situation. This SOP cannot be used in the presence of LNAPLs or DNAPLs. If NAPLs are present, the project team must decide upon an alternate sampling method. All project modifications must be approved and documented prior to implementation.

If available check intake depth and drawdown information from previous sampling event(s) for each well. Duplicate, to the extent practicable, the intake depth and extraction rate (use final pump dial setting information) from previous event(s). If changes are made in the intake depth or extraction rate(s) used during previous sampling event(s), for either portable or dedicated extraction devices, record new values, and explain reasons for the changes in the field logbook.

10.0 PURGING AND SAMPLING PROCEDURE

Purging and sampling wells in order of increasing chemical concentrations (known or anticipated) are preferred.

The use of dedicated pumps is recommended to minimize artificial mobilization and entrainment of particulates each time the well is sampled. Note that the use of dedicated sampling equipment can also significantly reduce the time needed to complete each sampling event, will promote consistency in the sampling, and may reduce sampling bias by having the pump's intake at a constant depth.

A. Initial Water Level

Measure the water level in the well before installing the pump if a non-dedicated pump is being used. The initial water level is recorded on the purge form or in the field logbook.

B. Install Pump

Lower pump, safety cable, tubing and electrical lines slowly (to minimize disturbance) into the well to the appropriate depth (may not be the mid-point of the screen/open interval). The Sampling and Analysis Plan/Quality Assurance Project Plan should specify the sampling depth (used previously), or provide criteria for selection of intake depth for each new well. If possible keep the pump intake at least two feet above the bottom of the well, to minimize mobilization of particulates present in the bottom of the well.

Pump tubing lengths, above the top of well casing should be kept as short as possible to minimize heating the groundwater in the tubing by exposure to sun light and ambient air temperatures. Heating may cause the groundwater to degas, which is unacceptable for the collection of samples for VOC and dissolved gases analyses.

C. Measure Water Level

Before starting pump, measure water level. Install recording pressure transducer, if used to track drawdowns, to initialize starting condition.

D. Purge Well

From the time the pump starts purging and until the time the samples are collected, the purged water is discharged into a graduated bucket to determine the total volume of groundwater purged. This information is recorded on the purge form or in the field logbook.

Start the pump at low speed and slowly increase the speed until discharge occurs. Check water level. Check equipment for water leaks and if present fix or replace the affected equipment. Try to match pumping rate used during previous sampling event(s). Otherwise, adjust pump speed until there is little or no water level drawdown. If the minimal drawdown that can be achieved exceeds 0.3 feet, but remains stable, continue purging.

Monitor and record the water level and pumping rate every five minutes (or as appropriate) during purging. Record any pumping rate adjustments (both time and flow rate). Pumping rates should, as needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. Adjustments are best made in the first fifteen minutes of pumping in order to help minimize purging time. During pump start-up, drawdown may exceed the 0.3 feet target and then "recover" somewhat as pump flow adjustments are made. Purge volume calculations should utilize stabilized drawdown value, not the initial drawdown. If the initial water level is above the top of the screen do not allow the water level to fall into the well screen. The final purge volume must be greater than the stabilized drawdown volume plus the pump’s tubing volume. If the drawdown has exceeded 0.3 feet and stabilizes, calculate the volume of water between the initial water level and the stabilized water level. Add the volume of the water which occupies the pump’s tubing to this calculation. This combined volume of water needs to be purged from the well after the water level has stabilized before samples are collected.

Avoid the use of constriction devices on the tubing to decrease the flow rate because the constrictor will cause a pressure difference in the water column. This will cause the groundwater to degas and result in a loss of VOCs and dissolved gasses in the groundwater samples.

Note: the flow rate used to achieve a stable pumping level should remain constant while monitoring the indicator parameters for stabilization and while collecting the samples.

Wells with low recharge rates may require the use of special pumps capable of attaining very low pumping rates (e.g., bladder, peristaltic), and/or the use of dedicated equipment. For new monitoring wells, or wells where the following situation has not occurred before, if the recovery rate to the well is less than 50 mL/min., or the well is being essentially dewatered during purging, the well should be sampled as soon as the water level has recovered sufficiently to collect the volume needed for all anticipated samples. The project manager or field team leader will need to make the decision when samples should be collected, how the sample is to be collected, and the reasons recorded on the purge form or in the field logbook. A water level measurement needs to be performed and recorded before samples are collected. If the project manager decides to collect the samples using the pump, it is best during this recovery period that the pump intake tubing not be removed, since this will aggravate any turbidity problems. Samples in this specific situation may be collected without stabilization of indicator field parameters. Note that field conditions and efforts to overcome problematic situations must be recorded in order to support field decisions to deviate from normal procedures described in this SOP. If this type of problematic situation persists in a well, then water sample collection should be changed to a passive or no-purge method, if consistent with the site's DQOs, or have a new well installed.

E. Monitor Indicator Field Parameters

After the water level has stabilized, connect the "T" connector with a valve and the flow-through-cell to monitor the indicator field parameters. If excessive turbidity is anticipated or encountered with the pump startup, the well may be purged for a while without connecting up the flow-through-cell, in order to minimize particulate buildup in the cell (This is a judgment call made by the sampler). Water level drawdown measurements should be made as usual. If possible, the pump may be installed the day before purging to allow particulates that were disturbed during pump insertion to settle.

During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) at a frequency of five minute intervals or greater. The pump's flow rate must be able to "turn over" at least one flow-through-cell volume between measurements (for a 250 mL flow-through-cell with a flow rate of 50 mLs/min., the monitoring frequency would be every five minutes; for a 500 mL flow-through-cell it would be every ten minutes). If the cell volume cannot be replaced in the five minute interval, then the time between measurements must be increased accordingly. <u>Note: during the early phase of purging, emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments followed by stabilization of indicator parameters. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings are within the following limits:</u>

Turbidity (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
Specific Conductance (3%),
Temperature (3%),
pH (± 0.1 unit),
Oxidation/Reduction Potential (±10 millivolts).

All measurements, except turbidity, must be obtained using a flow-through-cell. Samples for turbidity measurements are obtained before water enters the flow-through-cell. Transparent flow-through-cells are preferred, because they allow field personnel to watch for particulate build-up within the cell. This build-up may affect indicator field parameter values measured within the cell. If the cell needs to be cleaned during purging operations, continue pumping and disconnect cell for cleaning, then reconnect after cleaning and continue monitoring activities. Record start and stop times and give a brief description of cleaning activities.

The flow-through-cell must be designed in a way that prevents gas bubble entrapment in the cell. Placing the flow-through-cell at a 45 degree angle with the port facing upward can help remove bubbles from the flow-through-cell (see Appendix B Low-Flow Setup Diagram). Throughout the measurement process, the flow-through-cell must remain free of any gas bubbles. Otherwise, the monitoring probes may act erratically. When the pump is turned off or cycling on/off (when using a bladder pump), water in the cell must not drain out. Monitoring probes must remain submerged in water at all times.

F. Collect Water Samples

When samples are collected for laboratory analyses, the pump's tubing is disconnected from the "T" connector with a valve and the flow-through-cell. The samples are collected directly from the pump's tubing. Samples must not be collected from the flow-through-cell or from the "T" connector with a valve.

VOC samples are normally collected first and directly into pre-preserved sample containers. However, this may not be the case for all sampling locations; the SAP/QAPP should list the order in which the samples are to be collected based on the project's objective(s). Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

If the pump's flow rate is too high to collect the VOC/dissolved gases samples, collect the other samples first. Lower the pump's flow rate to a reasonable rate and collect the VOC/dissolved gases samples and record the new flow rate.

During purging and sampling, the centrifugal/peristaltic pump tubing must remain filled with water to avoid aeration of the groundwater. It is recommended that 1/4 inch or 3/8 inch (inside diameter) tubing be used to help ensure that the sample tubing remains water filled. If the pump tubing is not completely filled to the sampling point, use the following procedure to collect samples: collect non-VOC/dissolved gases samples first, then increase flow rate slightly until the water completely fills the tubing, collect the VOC/dissolved gases samples, and record new drawdown depth and flow rate.

For bladder pumps that will be used to collect VOC or dissolved gas samples, it is recommended that the pump be set to deliver long pulses of water so that one pulse will fill a 40 mL VOC vial.

Use pre-preserved sample containers or add preservative, as required by analytical methods, to the samples immediately after they are collected. Check the analytical methods (e.g. EPA SW-846, 40 CFR 136, water supply, etc.) for additional information on preservation.

If determination of filtered metal concentrations is a sampling objective, collect filtered water samples using the same low flow procedures. The use of an in-line filter (transparent housing preferred) is required, and the filter size (0.45 µm is commonly used) should be based on the sampling objective. Pre-rinse the filter with groundwater prior to sample collection. Make sure the filter is free of air bubbles before samples are collected. Preserve the filtered water sample immediately. Note: filtered water samples are not an acceptable substitute for unfiltered samples when the monitoring objective is to obtain chemical concentrations of total mobile contaminants in groundwater for human health or ecological risk calculations.

Label each sample as collected. Samples requiring cooling will be placed into a cooler with ice or refrigerant for delivery to the laboratory. Metal samples after acidification to a pH less than 2 do not need to be cooled.

G. Post Sampling Activities

If a recording pressure transducer is used to track drawdown, re-measure water level with tape.

After collection of samples, the pump tubing may be dedicated to the well for re-sampling (by hanging the tubing inside the well), decontaminated, or properly discarded.

Before securing the well, measure and record the well depth (to 0.1 ft.), if not measured the day before purging began. Note: measurement of total well depth annually is usually sufficient after the initial low stress sampling event. However, a greater frequency may be needed if the well has a “silting” problem or if confirmation of well identity is needed.

Secure the well.

11.0 DECONTAMINATION

Decontaminate sampling equipment prior to use in the first well, and then following sampling of each subsequent well. Pumps should not be removed between purging and sampling operations. The pump, tubing, support cable and electrical wires which were in contact with the well should be decontaminated by one of the procedures listed below.

The use of dedicated pumps and tubing will reduce the amount of time spent on decontamination of the equipment. If dedicated pumps and tubing are used, only the initial sampling event will require decontamination of the pump and tubing.

Note if the previous equipment blank data showed that contaminant(s) were present after using the below procedure or the one described in the SAP/QAPP, a more vigorous procedure may be needed.

Procedure 1

Decontaminating solutions can be pumped from either buckets or short PVC casing sections through the pump and tubing. The pump may be disassembled and flushed with the decontaminating solutions. It is recommended that detergent and alcohol be used sparingly in the decontamination process and water flushing steps be extended to ensure that any sediment trapped in the pump is removed. The pump exterior and electrical wires must be rinsed with the decontaminating solutions, as well. The procedure is as follows:

Flush the equipment/pump with potable water.

Flush with non-phosphate detergent solution. If the solution is recycled, the solution must be changed periodically.

Flush with potable or distilled/deionized water to remove all of the detergent solution. If the water is recycled, the water must be changed periodically.

Optional - flush with isopropyl alcohol (pesticide grade; must be free of ketones {e.g., acetone}) or with methanol. This step may be required if the well is highly contaminated or if the equipment blank data from the previous sampling event show that the level of contaminants is significant.

Flush with distilled/deionized water. This step must remove all traces of alcohol (if used) from the equipment. The final water rinse must not be recycled.

Procedure 2

Steam clean the outside of the submersible pump.

Pump hot potable water from the steam cleaner through the inside of the pump. This can be accomplished by placing the pump inside a three or four inch diameter PVC pipe with end cap. Hot water from the steam cleaner jet will be directed inside the PVC pipe and the pump exterior will be cleaned. The hot water from the steam cleaner will then be pumped from the PVC pipe through the pump and collected into another container. Note: additives or solutions should not be added to the steam cleaner.

Pump non-phosphate detergent solution through the inside of the pump. If the solution is recycled, the solution must be changed periodically.

Pump potable water through the inside of the pump to remove all of the detergent solution. If the solution is recycled, the solution must be changed periodically.

Pump distilled/deionized water through the pump. The final water rinse must not be recycled.

12.0 FIELD QUALITY CONTROL

Quality control samples are required to verify that the sample collection and handling process has not compromised the quality of the groundwater samples. All field quality control samples must be prepared the same as regular investigation samples with regard to sample volume, containers, and preservation. Quality control samples include field duplicates, equipment blanks, matrix spike/matrix spike duplicates, trip blanks (VOCs), and temperature blanks.

13.0 FIELD LOGBOOK

A field log shall be kept to document all groundwater field monitoring activities (see Appendix C, example table), and record the following for each well:

Site name, municipality, state.

Well identifier, latitude-longitude or state grid coordinates.

Measuring point description (e.g., north side of PVC pipe).

Well depth, and measurement technique.

Well screen length.

Pump depth.

Static water level depth, date, time and measurement technique.

Presence and thickness of immiscible liquid (NAPL) layers and detection method.

Pumping rate, drawdown, indicator parameters values, calculated or measured total volume pumped, and clock time of each set of measurements.

Type of tubing used and its length.

Type of pump used.

Clock time of start and end of purging and sampling activity.

Types of sample bottles used and sample identification numbers.

Preservatives used.

Parameters requested for analyses.

Field observations during sampling event.

Name of sample collector(s).

Weather conditions, including approximate ambient air temperature.

QA/QC data for field instruments.

Any problems encountered should be highlighted.

Description of all sampling/monitoring equipment used, including trade names, model number, instrument identification number, diameters, material composition, etc.

14.0 DATA REPORT

Data reports are to include laboratory analytical results, QA/QC information, field indicator parameters measured during purging, field instrument calibration information, and whatever other field logbook information is needed to allow for a full evaluation of data usability.

Note: the use of trade, product, or firm names in this sampling procedure is for descriptive purposes only and does not constitute endorsement by the U.S. EPA.

15.0 REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, *DNAPL Site Evaluation*; C.K. Smoley (CRC Press), Boca Raton, Florida.

Robert W. Puls and Michael J. Barcelona, *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, April 1996 (EPA/540/S-95/504).

U.S. Environmental Protection Agency, 1992, *RCRA Ground-Water Monitoring: Draft Technical Guidance*; Washington, DC (EPA/530-R-93-001).

U.S. Environmental Protection Agency, 1987, *A Compendium of Superfund Field Operations Methods*; Washington, DC (EPA/540/P-87/001).

U.S Environmental Protection Agency, Region 1, *Calibration of Field Instruments (temperature, pH, dissolved oxygen, conductivity/specific conductance, oxidation/reduction [ORP], and turbidity),* March 23, 2017 or latest version.

U.S Environmental Protection Agency, EPA SW-846.

U.S Environmental Protection Agency, 40 CFR 136.

U.S Environmental Protection Agency, 40 CFR 141.

Vroblesky, Don A., Clifton C. Casey, and Mark A. Lowery, Summer 2007, Influence of Dissolved Oxygen Convection on Well Sampling, *Ground Water Monitoring & Remediation* 27, no. 3: 49-58.

APPENDIX A

PERISTALTIC PUMPS

Before selecting a peristaltic pump to collect groundwater samples for VOCs and/or dissolved gases, (e.g., methane, carbon dioxide, etc.) consideration should be given to the following:

- The decision of whether or not to use a peristaltic pump is dependent on the intended use of the data.
- If the additional sampling error that may be introduced by this device is NOT of concern for the VOC/dissolved gases data’s intended use, then this device may be acceptable.
- If minor differences in the groundwater concentrations could affect the decision, such as to continue or terminate groundwater cleanup or whether the cleanup goals have been reached, then this device should NOT be used for VOC/dissolved gases sampling. In these cases, centrifugal or bladder pumps are a better choice for more accurate results.

EPA and USGS have documented their concerns with the use of the peristaltic pumps to collect water sample in the below documents.

- “Suction Pumps are not recommended because they may cause degassing, pH modification, and loss of volatile compounds” *A Compendium of Superfund Field Operations Methods*, EPA/540/P-87/001, December 1987.
- “The agency does not recommend the use of peristaltic pumps to sample ground water particularly for volatile organic analytes” *RCRA Ground-Water Monitoring Draft Technical Guidance*, EPA Office of Solid Waste, November 1992.
- “The peristaltic pump is limited to shallow applications and can cause degassing resulting in alteration of pH, alkalinity, and volatiles loss”, *Low-flow (Minimal drawdown) Ground-Water Sampling Procedures*, by Robert Puls & Michael Barcelona, April 1996, EPA/540/S-95/504.
- “Suction-lift pumps, such as peristaltic pumps, can operate at a very low pumping rate; however, using negative pressure to lift the sample can result in the loss of volatile analytes”, USGS Book 9 Techniques of Water-Resources Investigation, Chapter A4. (Version 2.0, 9/2006).

APPENDIX B

SUMMARY OF SAMPLING INSTRUCTIONS

These instructions are for using an adjustable rate, submersible pump or a peristaltic pump with the pump's intake placed at the midpoint of a 10 foot or less well screen or an open interval. The water level in the monitoring well is above the top of the well screen or open interval, the ambient temperature is above 32°F, and the equipment is not dedicated. Field instruments are already calibrated. The equipment is setup according to the diagram at the end of these instructions.

1. Review well installation information. Record well depth, length of screen or open interval, and depth to top of the well screen. Determine the pump's intake depth (e.g., mid-point of screen/open interval).

2. On the day of sampling, check security of the well casing, perform any safety checks needed for the site, lay out a sheet of polyethylene around the well (if necessary), and setup the equipment. If necessary a canopy or an equivalent item can be setup to shade the pump's tubing and flow-through-cell from the sun light to prevent the sun light from heating the groundwater.

3. Check well casing for a reference mark. If missing, make a reference mark. Measure the water level (initial) to 0.01 ft. and record this information.

4. Install the pump's intake to the appropriate depth (e.g., midpoint) of the well screen or open interval. Do not turn-on the pump at this time.

5. Measure water level and record this information.

6. Turn-on the pump and discharge the groundwater into a graduated waste bucket. Slowly increase the flow rate until the water level starts to drop. Reduce the flow rate slightly so the water level stabilizes. Record the pump's settings. Calculate the flow rate using a graduated container and a stop watch. Record the flow rate. Do not let the water level drop below the top of the well screen.

If the groundwater is highly turbid or discolored, continue to discharge the water into the bucket until the water clears (visual observation); this usually takes a few minutes. The turbid or discolored water is usually from the well-being disturbed during the pump installation. If the water does not clear, then you need to make a choice whether to continue purging the well (hoping that it will clear after a reasonable time) or continue to the next step. Note, it is sometimes helpful to install the pump the day before the sampling event so that the disturbed materials in the well can settle out.

If the water level drops to the top of the well screen during the purging of the well, stop purging the well, and do the following:

> Wait for the well to recharge to a sufficient volume so samples can be collected. This may take a while (pump may be removed from well, if turbidity is not a problem). The project manager will need to make the decision when samples should be collected and the reasons recorded in the site's log book. A water level measurement needs to be performed and recorded before samples are collected. When samples are being collected, the water level must not drop below the top of the screen or open interval. Collect the samples from the pump's tubing. Always collect the VOCs and dissolved gases samples first. Normally, the samples requiring a small volume are collected before the large volume samples are collected just in case there is not sufficient water in the well to fill all the sample containers. All samples must be collected, preserved, and stored according to the analytical method. Remove the pump from the well and decontaminate the sampling equipment.

If the water level has dropped 0.3 feet or less from the initial water level (water level measure before the pump was installed); proceed to Step 7. If the water level has dropped more than 0.3 feet, calculate the volume of water between the initial water level and the stabilized water level. Add the volume of the water which occupies the pump's tubing to this calculation. This combined volume of water needs to be purged from the well after the water level has stabilized before samples are be collected.

7. Attach the pump's tubing to the "T" connector with a valve (or a three-way stop cock). The pump's tubing from the well casing to the "T" connector must be as short as possible to prevent the groundwater in the tubing from heating up from the sun light or from the ambient air. Attach a short piece of tubing to the other end of the end of the "T" connector to serve as a sampling port for the turbidity samples. Attach the remaining end of the "T" connector to a short piece of tubing and connect the tubing to the flow-through-cell bottom port. To the top port, attach a small piece of tubing to direct the water into a calibrated waste bucket. Fill the cell with the groundwater and remove all gas bubbles from the cell. Position the flow-through-cell in such a way that if gas bubbles enter the cell they can easily exit the cell. If the ports are on the same side of the cell and the cell is cylindrical shape, the cell can be placed at a 45-degree angle with the ports facing upwards; this position should keep any gas bubbles entering the cell away from the monitoring probes and allow the gas bubbles to exit the cell easily (see Low-Flow Setup Diagram). Note:

make sure there are no gas bubbles caught in the probes' protective guard; you may need to shake the cell to remove these bubbles.

8. Turn-on the monitoring probes and turbidity meter.

9. Record the temperature, pH, dissolved oxygen, specific conductance, and oxidation/reduction potential measurements. Open the valve on the "T" connector to collect a sample for the turbidity measurement, close the valve, do the measurement, and record this measurement. Calculate the pump's flow rate from the water exiting the flow-through-cell using a graduated container and a stop watch, and record the measurement. Measure and record the water level. Check flow-through-cell for gas bubbles and sediment; if present, remove them.

10. Repeat Step 9 every 5 minutes or as appropriate until monitoring parameters stabilized. Note: at least one flow-through-cell volume must be exchanged between readings. If not, the time interval between readings will need to be increased. Stabilization is achieved when three consecutive measurements are within the following limits:

Turbidity (10% for values greater than 5 NTUs; if three Turbidity values are less than 5 NTUs, consider the values as stabilized),
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
Specific Conductance (3%),
Temperature (3%),
pH (± 0.1 unit),
Oxidation/Reduction Potential (±10 millivolts).

If these stabilization requirements do not stabilize in a reasonable time, the probes may have been coated from the materials in the groundwater, from a buildup of sediment in the flow-through-cell, or a gas bubble is lodged in the probe. The cell and the probes will need to be cleaned. Turn-off the probes (not the pump), disconnect the cell from the "T" connector and continue to purge the well. Disassemble the cell, remove the sediment, and clean the probes according to the manufacturer's instructions. Reassemble the cell and connect the cell to the "T" connector. Remove all gas bubbles from the cell, turn-on the probes, and continue the measurements. Record the time the cell was cleaned.

11. When it is time to collect the groundwater samples, turn-off the monitoring probes, and disconnect the pump's tubing from the "T" connector. If you are using a centrifugal or peristaltic pump check the pump's tubing to determine if the tubing is completely filled with water (no air space).

All samples must be collected and preserved according to the analytical method. VOCs and dissolved gases samples are normally collected first and directly into pre-preserved sample containers. However, this may not be the case for all sampling locations; the SAP/QAPP should list the order in which the samples are to be collected based on the project's objective(s). Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

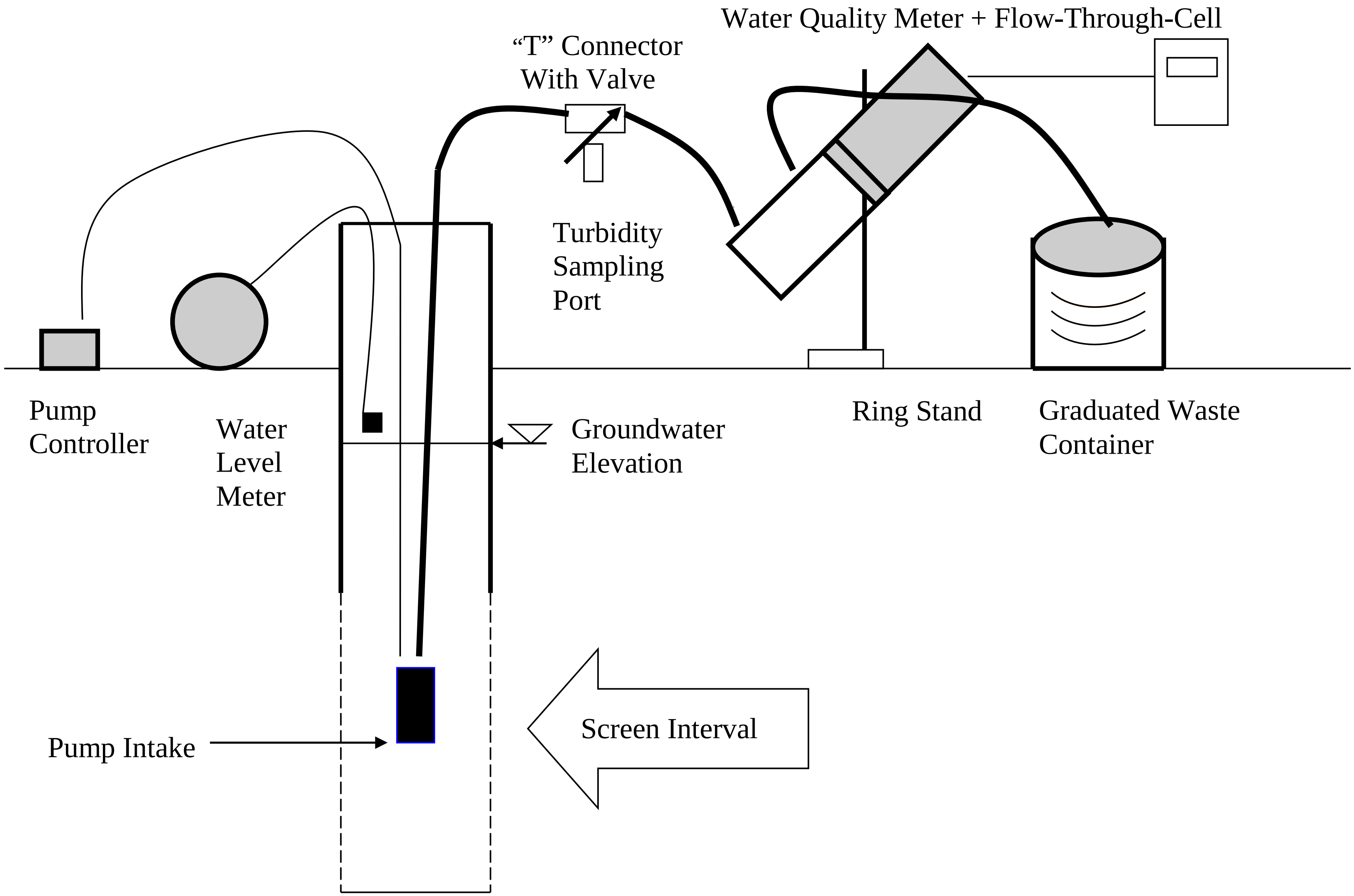
If the pump's tubing is not completely filled with water and the samples are being collected for VOCs and/or dissolved gases analyses using a centrifugal or peristaltic pump, do the following:

> All samples must be collected and preserved according to the analytical method. The VOCs and the dissolved gases (e.g., methane, ethane, ethene, and carbon dioxide) samples are collected last. When it becomes time to collect these samples increase the pump's flow rate until the tubing is completely filled. Collect the samples and record the new flow rate.

12. Store the samples according to the analytical method.

13. Record the total purged volume (graduated waste bucket). Remove the pump from the well and decontaminate the sampling equipment.

Low-Flow Setup Diagram



APPENDIX C

EXAMPLE (Minimum Requirements)

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)________________________________
Well Number_________________ Date________________________
Field Personnel____
Sampling Organization_______________________________________
Identify MP____

Depth to (below MP) ________/_________ of screen
top bottom
Pump Intake at (ft. below MP)_________
Purging Device; (pump type)__________
Total Volume Purged ________________

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. "C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Tur-bidity NTU	Comments
Stabilization Criteria					3%	3%	±0.1	±10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

APPENDIX C

Community Air Monitoring Plan (CAMP)

Community Air Monitoring Plan

134 Metropolitan Avenue
Brooklyn, New York 11249
Block 2364, Lot 16
NYSDEC Site ID No. 224277

Prepared for:
Metro Nort LLC
P.O. Box 416
Oakland, New Jersey 07436
E-Mail: 718rust@gmail.com

August 2020

Prepared by:
CA RICH Consultants, Inc.
17 Dupont Street
Plainview, New York 11803

The Community Air Monitoring Plan (CAMP) involves real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of the designated work area when intrusive activities are in progress. Intrusive activities include soil or waste excavation, grading, staging, movement, or handling; test pitting or trenching; and/or the installation of soil borings. The CAMP provides a measure of protection for on-Site workers and the downwind community (i.e., off-site receptors including residences, parks, businesses, etc.) not directly involved with the subject work activities. Routine monitoring is required to evaluate concentrations and corrective action and/or work stoppage may be required to abate emissions detected at concentrations above specified action levels. Routine data collected during implementation of the CAMP may also help document that work activities did not spread compounds of potential concern off-site through the air. Reliance on the procedures and action levels described in this CAMP should not preclude simple, common sense measures to keep VOCs, dust, and odors at a minimum around work areas.

COMMUNITY AIR MONITORING PLAN

VOC concentrations in air will be measured using calibrated photo-ionization detectors (PIDs). Particulate matter concentrations will be measured using calibrated electronic aerosol monitors.

Relevant weather conditions including wind direction, speed, humidity, temperature, and precipitation will be evaluated and recorded prior to the initiation of subsurface intrusive activities. Background readings of VOCs and particulate matter will be collected on Site prior to the initiation of field work on each day that subsurface intrusive work will be performed. Additional background measurements may be collected if weather conditions change significantly.

Continuous monitoring for VOCs and particulate matter will be performed upwind and downwind of the work area during subsurface intrusive activities.

Periodic monitoring for VOCs will be performed during non-intrusive activities if requested by a New York State Department of Environmental Conservation (NYSDEC) and/or New York State Department of Health (NYSDOH) on-Site representative. Non-intrusive activities include any work activity that does not disturb the subsurface or staged soil piles, including routine site visits, installation of equipment, operations and maintenance, surveying, etc. Periodic monitoring if performed will consist of collecting readings downwind of the work area at the following intervals:

- upon arrival at a sample location or other work activity location;
- during performance of the relevant work activity; and
- prior to leaving a sample location or other work activity location.

VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

VOCs will be monitored at the downwind perimeter on a continuous basis during intrusive activities. Upwind concentrations will be measured continuously or at the start of each workday, during the work activity, and at the end of each work day to establish background conditions. Monitoring equipment that does not require factory calibration will be calibrated at least once a day. Calibration may be performed more frequently if Site conditions or instrument operating conditions are highly variable. The monitoring equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below. The monitoring equipment will be equipped with an alarm to indicate an exceedance of a specified action level.

1. If the ambient air concentration of total VOCs at the downwind perimeter exceeds 5 parts per million (ppm) above background (upwind perimeter) for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total VOC concentration readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total VOC concentrations at the downwind perimeter persists at concentrations greater than 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the VOCs identified, corrective action will be taken to abate emissions (if the source is related to site activities), and monitoring will be continued. After these steps, work activities will resume provided that the total VOC concentration 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less (but in no case less than 20 feet), is below 5 ppm above background for the 15-minute average.

3. If the total VOC concentration is greater than 25 ppm above background at the downwind perimeter, intrusive work activities will be halted, and the source of the VOCs will be identified. Work will resume when additional continuous monitoring demonstrates that VOC concentrations have dropped below 25 ppm for a minimum of one-half hour, and the total VOC concentration 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less (but in no case less than 20 feet), is below 5 ppm above background for the 15-minute average.

4. All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel. Instantaneous VOC readings (if any) used for decision purposes will also be recorded.

PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Fugitive dust migration from the work area will be visually assessed during intrusive activities. Particulate concentrations will be monitored continuously at the downwind perimeter during intrusive activities. Particulate monitoring will be performed using real-time electronic aerosol monitoring equipment capable of measuring particulate matter less than 10-micrometers in size (PM-10) and capable of integrating over a period of 15 minutes for comparison to the airborne particulate action levels referenced below. The monitoring equipment will be equipped with an alarm to indicate an exceedance of a specified action level.

1. If the downwind PM-10 concentration is 100 micrograms per cubic meter (ug/m^3) greater than background for the 15-minute period, or if airborne dust is observed leaving the work

area, dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 concentration does not exceed 150 ug/m^3 above background and provided that significant visible dust is not migrating from the work area.

2. If downwind PM-10 concentrations are greater than 150 ug/m^3 above background after the implementation of dust suppression activities, intrusive activities will be stopped and a re-evaluation of the intrusive activities will be initiated. Work can resume provided that dust suppression measures and/or other controls are successful in reducing the downwind PM-10 concentration to within 150 mcg/m^3 of background and in preventing significant visible dust migration.

3. All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel. Instantaneous readings (if any) used for decision purposes will also be recorded.

APPENDIX D

Health And Safety Plan (HASP)

Health and Safety Plan

For:

134 Metropolitan Avenue
Brooklyn, New York 11249
Block 2364, Lot 16
NYSDEC Site ID No. 224277

Prepared for:

Metro Nort LLC
P.O. Box 416
Oakland, New Jersey 07436
E-Mail: 718rust@gmail.com

August 2020

Prepared by:

CA RICH Consultants, Inc.
17 Dupont Street
Plainview, New York 11803

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1.0 PURPOSE

The purpose of this Health and Safety Plan (HASP) is to assign responsibilities, establish personnel protection standards and mandatory safety practices and procedures, and provide for contingencies that may arise during construction at the project site. The HASP is intended to minimize health and safety risks resulting from the known and potential presence of hazardous materials on the site. This plan is not designed to address potential geotechnical, mechanical, or structural safety concerns, nor to supersede or replace any OSHA regulation and/or local and state construction codes or regulations.

2.0 APPLICABILITY

Work subject to this HASP includes activities that disturb the existing soil or groundwater on-site. The contractors and their subcontractors involved in the construction project will provide a copy of this HASP to their employees whose work involves any potential exposure to the on-site chemical hazards and will complete all work in accordance with this HASP.

3.0 SITE DESCRIPTION

3.1 General Information

This HASP has been prepared by CA RICH for the property located at 134 Metropolitan Avenue, AKA 101 North 1st Street, Borough of Brooklyn, City of New York, New York, identified as Block 2364, Lot 16.

The subject site is currently improved by a two (2) story commercial building, with a partial basement and a partial sub-basement. The building was most recently occupied by “Rust”, a.k.a. “The Living Room”, a bar / nightclub. The subject building is presently vacant.

According to the New York City Department of Buildings, several alteration permits are on file for the site. In addition, Permit No. 310206577, dated September 22, 2009 was issued to convert an existing public parking garage into an eating and drinking establishment. Permit No. 3P0004861, dated February 4, 1994 was issued to construct a one (1) story enlargement (See Appendix F).

According to the New York City Department of Buildings "PROPERTY PROFILE OVERVIEW", Certificate of Occupancy No. 86404, dated March 8, 1938 was issued for a three (3) story commercial building. The first floor was used as a “junk shop” and the second and third floors were vacant. C/O No. 310206577F, dated February 3, 2011 was issued for a two (2) story eating or drinking establishment.

The subject site is listed as a Little "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to Underground Gasoline Storage Tanks Testing Protocol.

According to Sanborn Fire Insurance maps, the south side of the building located along North 1st Street was constructed sometime prior to 1887 as a wireworks building. A three (3) story machine shop building was constructed at 134 Metropolitan Avenue sometime between 1887 and 1905. 101 North 1st Street was used as a wagon house, with a barn located at the south side of the site. The 1916 map depicts 134 Metropolitan Avenue as vacant. The barn at 101 North 1st Street had been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building.

The 1942 map indicates that 134 Metropolitan Avenue was used as ovens and 101 North 1st Street was used for "waste paper". The 1951 map indicates that 134 Metropolitan Avenue was used for manufacturing purposes and 101 North 1st Street was vacant. The 1965 map indicates that the buildings have been combined and were used as "feather storage". A one (1) story addition was made to the rear of the building. This use continued until the most recent 1989 map.

Upon completion of the investigation and remediation activities, the proposed use of the subject site will be a four (4) story building. This will include the addition of two (2) stories on the existing building structure. The first floor will remain commercial. The second, third and fourth floors will have residential apartments. The total building height will be 88.11 feet, plus the mechanical room and bulkhead located on the roof level.

3.2 Hazard Potential

In July 2017, a soil vapor and ambient air sampling investigation was conducted in conformance with the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

Results from the prior investigation activities at the site provide the following information:

> As per the New York State Department of Health, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, and based on the results of the laboratory analytical data, the NYS DOH recommends the following actions:

- Trichloroethylene: Front Building Sub-Basement - Mitigate
- Tetrachloroethylene: Front Building Sub-Basement - Mitigate
  Front Building Basement - Mitigate

The source(s) of the elevated levels of VOCs is not known.

3.3 Hazard Evaluation

The most likely routes of exposure are breathing of volatile and semi-volatile compounds or particulate-laden air released during soil disturbing activities, dermal contact, and accidental ingestion. Appendix A includes specific health effects from the known on-site chemicals. The remaining sections of this HASP address procedures (including training, air monitoring, work practices and emergency response) to reduce the potential for unnecessary and unacceptable exposure to these contaminants. The potential adverse health effects from these detected contaminants are diverse. Many of these compounds are known or suspected to result in chronic illness from long-term exposures. However, due to the limited nature of the proposed construction, only acute effects are a potential concern.

This HASP addresses potential environmental hazards from the presence of hazardous materials. It is not intended to address the normal hazards of construction work, which are separately covered by OSHA regulations and/or local and state construction codes and regulations. Although some of the chemicals of concern listed in the sections below were not detected during the Phase II study conducted, they are included here as a precaution.

3.3.1 Hazards of Concern

- Organic Chemicals
- Inorganic Chemicals
- Heat Stress
- Cold Stress

Comments: No personnel are permitted to enter permit confined spaces.

3.3.2 Physical Characteristics

- Liquid
- Solid
- Vapor

3.3.3 Hazardous Material

- Chemicals: VOCs and SVOCs
- Solids: Ash, Asbestos, Fill Material
- Sludges: None
- Solvents: None
- Oils: None
- Other: None

3.3.4 Known and Suspect Chemicals of Concern

- Trichloroethylene Health Hazards - Central nervous system effects are the primary effects noted from acute inhalation exposure to trichloroethylene in humans, with symptoms including sleepiness, fatigue, headache, confusion, and feelings of euphoria. Effects on the liver, kidneys, gastrointestinal system, and skin have also been noted.

- Tetrachloroethylene Health Hazards - Effects resulting from acute, inhalation exposure of humans to tetrachloroethylene vapors include irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headache, sleepiness, and unconsciousness.

4.0 HEALTH AND SAFETY OFFICER

The contractor or engineer will designate one of its personnel as the Site Safety Officer (SSO). The SSO will be a competent person responsible for the implementation of this plan. The SSO will have completed a 40-hour training course (up-dated by an annual refresher) that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards. The SSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the SSO must be absent from the site, he/she will designate a suitably qualified replacement that is familiar with the HASP. If work is stopped for any reason, the NYSDEC would be notified immediately.

5.0 TRAINING

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All construction personnel upon entering the Site must attend a brief training meeting, its purpose being to:

- Make workers aware of the potential hazards they may encounter;
- Instruct workers on how to identify potential hazards,
- Provide the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- Make workers aware of the purpose and limitations of safety equipment; and
- Ensure that they can safely avoid or escape from emergencies.

Each member of the construction crew will be instructed in these objectives before he/she goes onto the site. Construction personnel will be responsible for identifying potential hazards in the work zone. The SSO or other suitably trained individual will be responsible for conducting the training program. Others who enter the site must be accompanied by a suitably-trained construction worker.

6.0 GENERAL WORK PRACTICES

To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance in contaminated areas.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the SSO.

- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.

- Contact with contaminated or suspected surfaces should be avoided.

- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.

7.0 PERSONAL PROTECTIVE EQUIPMENT & AIR MONITORING

7.1 Personal Protective Equipment

The personal protection equipment required for various kinds of site investigation tasks are based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, Appendix B, "General Description and Discussion of the Levels of Protection and Protective Gear".

CA RICH field personnel and other site personnel will wear, at a minimum, Level D personal protective equipment. The protection will be based on the air monitoring described in Section 7.2.

7.2 Work Zone Air Monitoring

Real time air monitoring will be performed with a photoionization detector (PID) and with a particulate air monitor during sampling and excavation work required for Site development. Measurements would be taken prior to commencement of work and continuously during the work as outlined in the following table. Measurements will be made as close to the workers as practicable and at the breathing height of the workers. The SSO will set up the equipment and confirm that it is working properly. His/her designee may oversee the air measurements during the day. The initial measurement for the day will be performed before the start of work and will establish the background level for that day. The final measurement for the day will be performed after the end of work.

Field personnel will be trained in the proper operation of all field instruments at the start of the field program. Instruction manuals for the equipment will be on file at the site for referencing proper operation, maintenance and calibration procedures. The equipment will be calibrated according to manufacturer specifications at the start of each day of fieldwork. If an instrument fails calibration, the project manager will be contacted immediately to obtain a replacement instrument and arrange for repairs. A calibration log will be maintained to record the date of each calibration, any failure to calibrate and corrective actions taken. The PID will be calibrated each day using 100 parts per million (ppm) isobutylene standard gas.

8.0 DECONTAMINATION PROCEDURES

8.1 Personnel Decontamination

Personnel decontamination (decon), if deemed necessary by the SSO, will take place in a designated decontamination area. This area will be delineated during each stage of work. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Coverall removal (if applicable);
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

8.2 Sampling Equipment Decontamination

Any non-disposable sampling equipment for confirmatory sampling or other equipment that is in contact with contaminated materials will be decontaminated in accordance with the following procedure:

- Double wash with solution of Simple Green and clean tap water;
- Double rinse with clean tap water;
- Rinse with clean distilled water; and
- Allow equipment to air dry.

8.3 Heavy Equipment Decontamination

If heavy equipment comes in contact with contaminated materials, it will be decontaminated prior to being relocated to a clean area or leaving the site. A designated decontamination pad will be constructed, where soil, dust, or oil will be washed off the exterior, undercarriage, and wheels or tracks of the equipment. Wash water will be collected for treatment and/or disposal.

9.0 EMERGENCY RESPONSE

9.1 Emergency Procedures

In the event that an emergency develops on site, the procedures delineated herein are to be immediately followed. Emergency conditions are considered to exist if:

- Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while on site;

- A condition is discovered that suggests the existence of a situation more hazardous than anticipated; and

- A spill of oil or other hazardous materials.

General emergency procedures, and specific procedures for personal injury, chemical exposure and radiation exposure, are described below. In the event of an accident or emergency, an Incident Report form should be filled out and placed in the project file. An example Weekly Safety Report Form and Incident Report Form are provided in Appendix C. Information on emergency hand signals is provided in Appendix D.

9.1.1 Chemical Exposure

If a member of the field crew demonstrates symptoms of chemical exposure the procedures outlined below should be followed:

- Another team member (buddy) should remove the individual from the immediate area of contamination. The buddy should communicate to the SSO (via voice and hand signals) of the chemical exposure. The SSO should contact the appropriate emergency response agency.
- Precautions should be taken to avoid exposure of other individuals to the chemical.
- If the chemical is on the individual's clothing, the chemical should be neutralized or removed if it is safe to do so.
- If the chemical has contacted the skin, the skin should be washed with copious amounts of water.
- In case of eye contact, an emergency eye wash should be used. Eyes should be washed for at least 15 minutes.
- All chemical exposure incidents must be reported in writing to the SSO. The SSO is responsible for completing the Incident Report Form.

9.1.2 Personal Injury

In case of personal injury at the site, the following procedures should be followed:

- Another team member (buddy) should signal the SSO that an injury has occurred.
- A field team member trained in first aid can administer treatment to an injured worker.
- If deemed necessary, the victim should then be transported to the nearest hospital or medical center. If necessary, an ambulance should be called to transport the victim.
- The SSO is responsible for making certain that an Incident Report Form is completed. This form is to be submitted to the SSO. Follow-up action should be taken to correct the situation that caused the accident.
- Any incident (near miss, property damage, first aid, medical treatment, etc.) must be reported.

A first-aid kit, eye-wash, and blood-borne pathogens kit will be kept on-site during the field activities.

9.1.3 Evacuation Procedures

- The SSO will initiate evacuation procedures by signaling to leave the site or containment structure;
- All personnel in the work area should evacuate the area and meet in the common designated area;
- All personnel suspected to be in or near the contract work area should be accounted for and the whereabouts or missing persons determined immediately; and
- The SSO will then give further instruction.

9.1.4 Procedures Implemented in the Event of a Major Fire, Explosion, or Emergency

- Notify the paramedics and/or fire department, as necessary;
- Signal the evacuation procedure previously outlined and implement the entire procedure;
- Isolate the area;
- Stay upwind of any fire;
- Keep the area surrounding the problem source clear after the incident occurs;
- Complete accident report for and distribute to appropriate personnel.

9.1.5 Spill Response

All personnel must take every precaution to minimize the potential for spills during site operations. Any spill will be reported immediately to the SSO. The SSO will immediately report any spills to the NYSDEC Spill Hotline. The OER will be provided with the spill numbers assigned by the NYSDEC. Spill control apparatus (sorbent materials) will be located on-site. All materials used for the clean up of spills will be containerized and labeled separately from other wastes. The SSO, in consultation with CA RICH Project Manager, will determine if additional spill response measures are required.

9.2 Hospital Directions

The location of the nearest hospital, as shown on Figure 1 - Hospital Location Map, is NYC Health & Hospitals / Gotham Health. The address of the hospital is 333 Roebling Street, Brooklyn, NY 11211. Directions to the hospital are provided below.

Hospital Information and Directions

Hospital Name:	NYC Health + Hospitals / Gotham Health Jonathan Williams
Hospital Address:	333 Roebling Street, Brooklyn, NY 11211
Hospital Phone:	7183876470
Directions to ER:	Go east on Metropolitan Avenue, Right on Driggs Avenue; Left on Broadway; Right on Roebling Street. ER is on the left (east) side of Roebling Street.

9.3 HASP Contact Information

CA RICH Project Director	Richard Izzo (516) 576-8844 (office)
CA RICH Project Manager:	Jason Cooper (516) 833-2535 (mobile)
Site Safety Officer (SSO):	Jessica Proscia (516) 576-8844 (office)
Laboratory Project Manager:	Tom Tanico (201) 812-2632 (office)
NYC Health & Hospitals / Gotham Health	(718) 387-3325
Ambulance, Fire and Police Departments	911
Local Poison Control	(212) 764-7667 pm/weekend (212) 340-4494
NYS DEC Spill Response Team	(800) 457-7362

10.0 APPROVAL and ACKNOWLEDGMENTS OF HASP

APPROVAL

Signed:_______________________________ Date:_______________________
Project Manager

Signed:_______________________________ Date: _______________________
Health and Safety Officer

AFFIDAVIT

I,__________________________(name), of_______________________________(company name), have read the Construction Health and Safety Plan (CHASP) for the 134 Metropolitan Avenue site in Brooklyn, New York. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signed:_______________________________ Company:____________________
Date:___________

Signed:_______________________________ Company:____________________
Date:___________

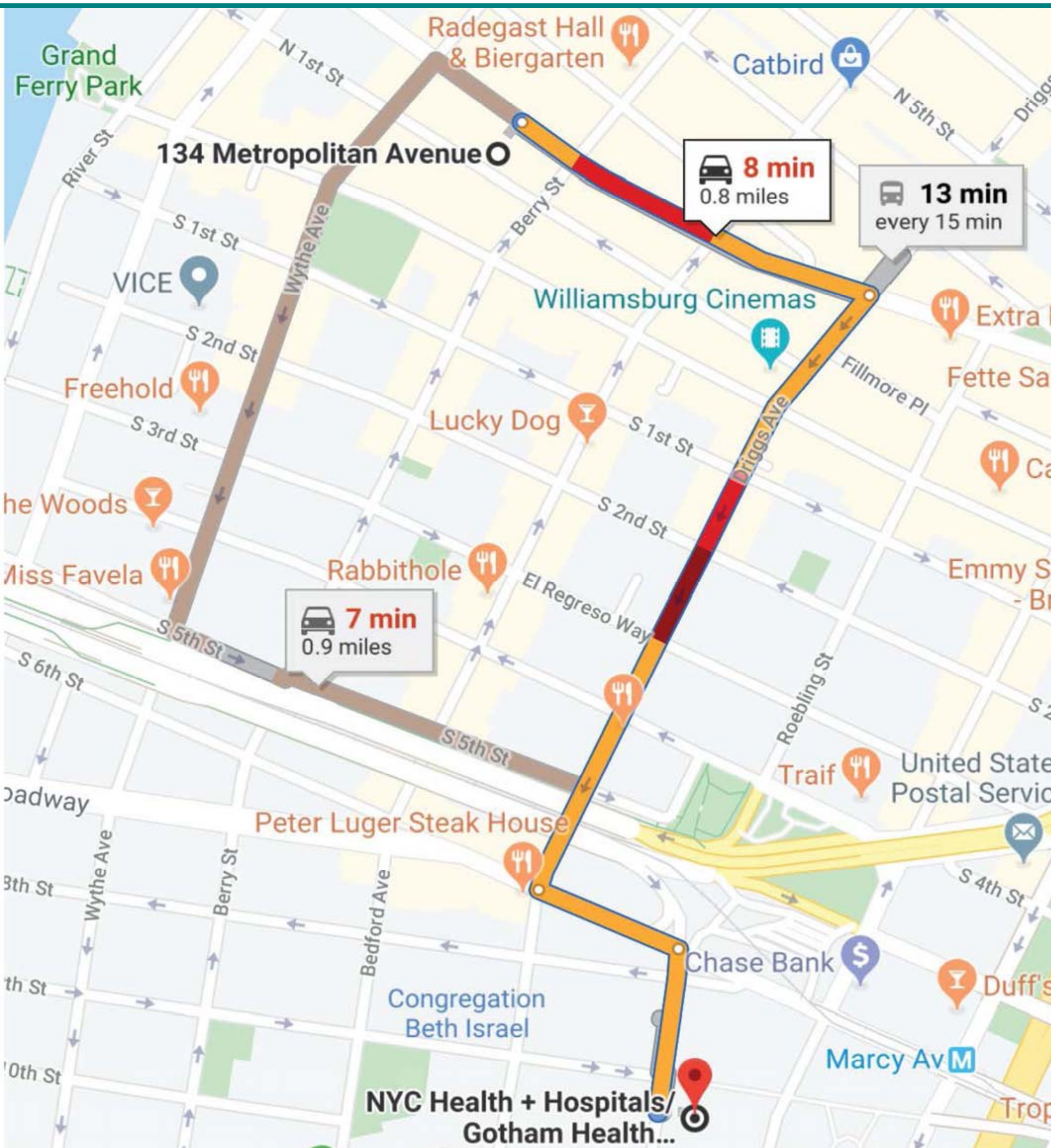
Signed:_______________________________ Company:____________________
Date:___________

Signed:_______________________________ Company:____________________
Date:___________

Signed:_______________________________ Company:____________________
Date:___________

Signed:_______________________________ Company:____________________
Date:___________

Figure 1
Hospital Route



CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **Hospital Route**		DATE: 8/12/20
		SCALE: As SHOWN
FIGURE: 1	134 Metropolitan Avenue Brooklyn, NY 11249	DRAWN BY: SG
DRAWING:		APPR. BY: JTC

Appendix A
Potential Health Effects from On-site Contaminants

Trichloroethylene - ToxFAQs™

CAS # 79-01-6

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is used as a solvent for cleaning metal parts. Exposure to very high concentrations of trichloroethylene can cause dizziness headaches, sleepiness, incoordination, confusion, nausea, unconsciousness, and even death. Trichloroethylene has been found in at least 1,051 of the 1,854 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

Trichloroethylene is a colorless, volatile liquid. Liquid trichloroethylene evaporates quickly into the air. It is nonflammable and has a sweet odor.

The two major uses of trichloroethylene are as a solvent to remove grease from metal parts and as a chemical that is used to make other chemicals, especially the refrigerant, HFC-134a.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene can be released to air, water, and soil at places where it is produced or used.
- Trichloroethylene is broken down quickly in air.
- Trichloroethylene breaks down very slowly in soil and water and is removed mostly through evaporation to air.
- It is expected to remain in groundwater for long time since it is not able to evaporate.
- Trichloroethylene does not build up significantly in plants or animals.

How might I be exposed to trichloroethylene?

- Breathing trichloroethylene in contaminated air.
- Drinking contaminated water.
- Workers at facilities using this substance for metal degreasing are exposed to higher levels of trichloroethylene.
- If you live near such a facility or near a hazardous waste site containing trichloroethylene, you may also have higher exposure to this substance.

How can trichloroethylene affect my health?

Trichloroethylene was once used as an anesthetic for surgery. Exposure to moderate amounts of trichloroethylene may cause headaches, dizziness, and sleepiness; large amounts may cause coma and even death. Eating or breathing high levels of trichloroethylene may damage some of the nerves in the face. Exposure to high levels can also result in changes in the rhythm of the heartbeat, liver damage, and evidence of kidney damage. Skin contact with concentrated solutions of trichloroethylene can cause skin rashes. There is some evidence exposure to trichloroethylene in the work place may cause scleroderma (a systemic autoimmune disease) in some people. Some men occupationally-exposed to trichloroethylene and other chemicals showed decreases in sex drive, sperm quality, and reproductive hormone levels.

How likely is trichloroethylene to cause cancer?

There is strong evidence that trichloroethylene can cause kidney cancer in people and some evidence for trichloroethylene-induced liver cancer and malignant lymphoma. Lifetime exposure to trichloroethylene resulted in increased liver cancer in mice and increased kidney cancer and testicular cancer in rats.

The Department of Health and Human Services (DHHS) considers trichloroethylene to be a known human carcinogen. The International Agency for Research on Cancer (IARC) classified trichloroethylene as carcinogenic to humans. The EPA has characterized trichloroethylene as carcinogenic to humans by all routes of exposure.

Trichloroethylene

CAS # 79-01-6

How can trichloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of trichloroethylene.

Some human studies indicate that trichloroethylene may cause developmental effects such as spontaneous abortion, congenital heart defects, central nervous system defects, and small birth weight. However, these people were exposed to other chemicals as well.

In some animal studies, exposure to trichloroethylene during development caused decreases in body weight, increases in heart defects, changes to the developing nervous system, and effects on the immune system.

How can families reduce the risk of exposure to trichloroethylene?

- Avoid drinking water from sources that are known to be contaminated with trichloroethylene. Use bottled water if you have concerns about the presence of chemicals in your tap water. You may also contact local drinking water authorities and follow their advice.
- Prevent children from playing in dirt or eating dirt if you live near a waste site that has trichloroethylene.
- Trichloroethylene is used in many industrial products. Follow instructions on product labels to minimize exposure to trichloroethylene.

Is there a medical test to determine whether I've been exposed to trichloroethylene?

Trichloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of trichloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because trichloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The EPA set a maximum contaminant goal (MCL) of 0.005 milligrams per liter (mg/L; 5 ppb) as a national primary drinking standard for trichloroethylene.

The Occupational Safety and Health Administration (OSHA) set a permissible exposure limit (PEL) of 100 ppm for trichloroethylene in air averaged over an 8-hour work day, an acceptable ceiling concentration of 200 ppm provided the 8 hour PEL is not exceeded, and an acceptable maximum peak of 300 ppm for a maximum duration of 5 minutes in any 2 hours.

The National Institute for Occupational Safety and Health (NIOSH) considers trichloroethylene to be a potential occupational carcinogen and established a recommended exposure limit (REL) of 2 ppm (as a 60-minute ceiling) during its use as an anesthetic agent and 25 ppm (as a 10-hour TWA) during all other exposures.

Reference

This ToxFAQs™ information is taken from the 2019 Toxicological Profile for Trichloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ on the web: www.atsdr.cdc.gov/ToxFAQs

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Tetrachloroethylene - ToxFAQs™

CAS # 127-18-4

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing and in the aerospace industry. Exposure to very high concentrations of tetrachloroethylene can cause dizziness headaches, sleepiness, incoordination confusion, nausea, unconsciousness, and even death. Tetrachloroethylene has been found in at least 949 of the 1,854 National Priorities List sites identified by U.S. Environmental Protection Agency (EPA).

What is tetrachloroethylene?

Tetrachloroethylene is a nonflammable colorless liquid. Other names for tetrachloroethylene include perchloroethylene, PCE, perc, tetrachloroethene, and perchlor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part in 1 million parts of air (1 ppm) or more.

Tetrachloroethylene is used as a dry cleaning agent and metal degreasing solvent. It is also used as a starting material (building block) for making other chemicals and is used in some consumer products.

What happens to tetrachloroethylene when it enters the environment?

- Tetrachloroethylene can be released into air, water, and soil at places where it is produced or used.
- Tetrachloroethylene breaks down very slowly in the air and so it can be transported long distances in the air. Half of the amount in the air will degrade in approximately 100 days.
- Tetrachloroethylene evaporates quickly from water into air. It is generally slow to break down in water.
- Tetrachloroethylene may evaporate quickly from shallow soils or may filter through the soil and into the groundwater below. It is generally slow to break down in soil.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it. You might also be exposed to tetrachloroethylene that is released into the air during showering and bathing.
- People residing near contaminated sites or dry cleaning locations may be exposed to higher levels than the general population.
- People working in the dry cleaning industries or using metal degreasing products may be exposed to elevated levels of tetrachloroethylene.

How can tetrachloroethylene affect my health?

Breathing high levels of tetrachloroethylene for a brief period may cause dizziness or drowsiness, headache, and incoordination; higher levels may cause unconsciousness and even death.

Exposure for longer periods to low levels of tetrachloroethylene may cause changes in mood, memory, attention, reaction time, and vision.

Studies in animals exposed to tetrachloroethylene have shown liver and kidney effects, and changes in brain chemistry, but we do not know what these findings mean for humans.

Tetrachloroethylene

CAS # 127-18-4

How likely is tetrachloroethylene to cause cancer?

Studies in humans suggest that exposure to tetrachloroethylene might lead to a higher risk of getting bladder cancer, multiple myeloma, or non-Hodgkin's lymphoma.

In animals, tetrachloroethylene has been shown to cause cancers of the liver, kidney, and blood system.

The Department of Health and Human Services (DHHS) considers tetrachloroethylene to be reasonably anticipated to be a human carcinogen. EPA considers tetrachloroethylene likely to be carcinogenic to humans by all routes of exposure. The International Agency for Research on Cancer (IARC) considers tetrachloroethylene probably carcinogenic to humans.

How can tetrachloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of tetrachloroethylene.

A few studies in humans have suggested that exposure to tetrachloroethylene increased the numbers of babies with birth defects, but these studies were not large enough to clearly answer the question. Studies in animals exposed by inhalation or stomach tube have not shown clear evidence of specific birth defects.

How can families reduce the risk of exposure to tetrachloroethylene?

- Tetrachloroethylene has been found in low levels in some food. You can minimize the risk of your family's exposure by peeling and thoroughly washing fruits and vegetables before cooking.
- Use bottled water if you have concerns about the presence of tetrachloroethylene in your tap water. You may also contact local drinking water authorities and follow their advice.
- Prevent children from playing in dirt or eating dirt if you live near a waste site that has tetrachloroethylene.
- Tetrachloroethylene is widely used as a scouring solvent that removes oils from fabrics, as a carrier solvent, as a fabric finish or water repellant, and as a metal degreaser/cleaner. Follow instructions on product labels to minimize exposure to tetrachloroethylene.

Is there a medical test to determine whether I've been exposed to tetrachloroethylene?

Tetrachloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of tetrachloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because tetrachloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an 8-hour time weighted average permissible exposure limit of 100 ppm, an acceptable ceiling exposure limit of 200 ppm, and a maximum peak of 300 ppm (not to be exceeded for more than 5 minutes of any 3-hour period).

The National Institute for Occupational Safety and Health (NIOSH) recommends that workplace exposure to tetrachloroethylene be minimized due to concerns about its carcinogenicity.

Reference

This ToxFAQs™ information is taken from the 2019 Toxicological Profile for Tetrachloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ on the web: www.atsdr.cdc.gov/ToxFAQs

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Appendix B
Report Forms

WEEKLY SAFETY REPORT FORM

Week Ending: ________________ Project Name/Number: ________________________________

Report Date: ________________ Project Manager Name: ________________________________

Summary of any violations of procedures occurring that week:

____

____

____

Summary of any job related injuries, illnesses, or near misses that week:

____

____

____

____

Summary of air monitoring data that week (include and sample analyses, action levels exceeded, and actions taken):

____

____

____

Comments:

____

____

____

Name: ____________________________ Company: ________________________________

Signature: ____________________________ Title: ________________________________

INCIDENT REPORT FORM

Date of Report: ______________________________

Injured: ______________________________

Employer: ______________________________

Site: ____________________ Site Location: ____________________

Report Prepared By: ____________________ ____________________
Signature Title

ACCIDENT/INCIDENT CATEGORY (check all that applies)

___Injury	___ Illness	___ Near Miss
__ Property Damage	___ Fire	___ Chemical Exposure
__ On-site Equipment	___ Motor Vehicle	___ Electrical
__ Mechanical	___ Spill	___ Other

DATE AND TIME OF ACCIDENT/INCIDENT: Narrative report of Accident/Incident: Identify: 1) actions leading to or contributing to the accident/incident; 2) the accident/incident occurrence; and 3) actions following the accident/incident.

____

____

____

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____

____

____

____

____

WITNESS TO ACCIDENT/INCIDENT:

Name:	____________________	Company:	____________________
Address:	____________________	Address:	____________________
Phone No.:	____________________	Phone No.:	____________________
Name:	____________________	Company:	____________________
Address:	____________________	Address:	____________________
Phone No.:	____________________	Phone No.:	____________________

INJURED - ILL:

Name: ____________________ SSN: ____________________

Address: ____________________ Age: ____________________

Length of Service: ____________________ Time on Present Job: ____________________

Time/Classification: ____________________

SEVERITY OF INJURY OR ILLNESS:

____ Disabling ___ Non-disabling ___ Fatality

____ Medical Treatment ___ First Aid Only

ESTIMATED NUMBER OF DAYS AWAY FROM JOB: ____________________

NATURE OF INJURY OR ILLNESS: ____________________

____

____

____

CLASSIFICATION OF INJURY:

__ Abrasions	______ Dislocations	_____ Punctures
__ Bites	______ Faint/Dizziness	_____ Radiation Burns
__ Blisters	______ Fractures	_____ Respiratory Allergy
__ Bruises	______ Frostbite	_____ Sprains
__ Chemical Burns	______ Heat Burns	_____ Toxic Resp. Exposure
__ Cold Exposure	______ Heat Exhaustion	_____ Toxic Ingestion
__ Concussion	______ Heat Stroke	_____ Dermal Allergy
__ Lacerations		

Part of Body Affected: ____________________

Degree of Disability: ____________________

Date Medical Care was Received: ____________________

Where Medical Care was Received: ____________________

Address (if off-site): ____________________

(If two or more injuries, record on separate sheets)

PROPERTY DAMAGE:

Description of Damage: ______________________________

____

Cost of Damage: $ ______________________________

ACCIDENT/INCIDENT LOCATION: ______________________________

ACCIDENT/INCIDENT ANALYSIS: Causative agent most directly related to accident/incident (Object, substance, material, machinery, equipment, conditions)

____

____

____

____

Was weather a factor?: ______________________________

____

Unsafe mechanical/physical/environmental condition at time of accident/incident (Be specific):

____

____

____

Personal factors (Attitude, knowledge or skill, reaction time, fatigue):

____

____

ON-SITE ACCIDENTS/INCIDENTS:

Level of personal protection equipment required in Site Safety Plan:

____

____

Modifications:

____

Was injured using required equipment?:

____

____

If not, how did actual equipment use differ from plan?:

____

____

ACTION TAKEN TO PREVENT RECURRENCE: (Be specific. What has or will be done? When will it be done? Who is the responsible party to insure that the correction is made?

ACCIDENT/INCIDENT REPORT REVIEWED BY:

SSO Name Printed	SSO Signature

OTHERS PARTICIPATING IN INVESTIGATION:

Signature	Title
Signature	Title
Signature	Title

ACCIDENT/INCIDENT FOLLOW-UP: Date:

Outcome of accident/incident:

Physician's recommendations:

Date injured returned to work:

Follow-up performed by:

Signature	Title

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

Appendix C
Emergency Hand Signals

EMERGENCY SIGNALS

In most cases, field personnel will carry portable radios for communication. If this is the case, a transmission that indicates an emergency will take priority over all other transmissions. All other site radios will yield the frequency to the emergency transmissions.

Where radio communications is not available, the following air-horn and/or hand signals will be used:

EMERGENCY HAND SIGNALS

OUT OF AIR, CAN'T BREATH!


Hand gripping throat

LEAVE AREA IMMEDIATELY, NO DEBATE!

(No Picture) Grip partner's wrist or place both hands around waist

NEED ASSISTANCE!


Hands on top of head

OKAY! – I'M ALL RIGHT!

- I UNDERSTAND!


Thumbs up

NO! - NEGATIVE!


Thumbs down

APPENDIX E

Phase I April 2017

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

134 METROPOLITAN AVENUE
(A.K.A. 101 NORTH 1ST STREET)
BROOKLYN, NEW YORK 11249

GCI Project No. 2017047

Prepared For:

Mr. Mark Kaczor
P.O. Box 416
Oakland, New Jersey 07436

Inspection Date: March 29, 2017

Report Date: April 25, 2017

Prepared by:

General Consolidated Industries, Inc. (GCI)
Environmental & Engineering Consultants
1092 Motor Parkway
Hauppauge, New York 11788-5228
1-800-842-5073

EXECUTIVE SUMMARY
134 Metropolitan Avenue (a.k.a. 101 North 1st Street)
Brooklyn, New York 11249

Property Type:	Two (2) story commercial building, with a partial basement and a partial sub-basement.
Size of Property:	2,825 square feet.
Size of Building(s):	3,400 square feet.
Construction Date(s):	Between 1887 and 1905 and between 1905 and 1916.
Inspection Accessibility:	All areas of the site were accessible at the time of the site inspection.

Environmental Issue	Acceptable (Y / N)	Routine Resolution (Y / N)	Additional Action *	Report Page
Site History / Prior Use	No	Yes	Phase II Subsurface Investigation.	6 / 9
Adjacent Properties	Yes			14
Federal & State Database Review	Yes			25
Local Records Review	No	Yes	Satisfy NYC "E" Designation.	28 / 29
Hazardous Materials & Waste	Yes			16
Storage Tanks	Yes			17
PCBs	Yes			18
Vapor Intrusion	Yes			19
Asbestos	No	Yes	Opt. I - Asbestos Inspection. Opt. II - Asbestos O & M Program.	20
Radon	Yes			22
Lead-Based Paint (LBP)	Yes			23
Wetlands	Yes			23

TABLE OF CONTENTS

LIST OF APPENDICES

REPORT SPECIFICATIONS

Copies and circulation of this report are as follows:

Two	(2)	Original bound reports to Mr. Mark Kaczor.
One	(1)	Original report in the confidential client file at General Consolidated Industries, Inc.
One	(1)	Original report on security protected computer disk at General Consolidated Industries, Inc.

This report is prepared for the exclusive use of parties noted above and is considered private and strictly confidential. General Consolidated Industries, Inc. shall not release this report or any of the findings of this report to any person or agency except with the authorization of the principal parties noted above.

1.0 INTRODUCTION

General Consolidated Industries, Inc. (GCI) has been retained to prepare a Phase I Environmental Site Assessment for the property located at 134 Metropolitan Avenue, a.k.a. 101 North 1st Street, Borough of Brooklyn, City of New York, New York, identified on the tax map as Block 2364, Lot 16.

GCI has prepared this assessment in accordance with good commercial and customary practices for conducting an environmental site assessment with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. The assessment is intended to satisfy one of the requirements to qualify for the "innocent landowner defense" to CERCLA liability. The assessment has been completed by a qualified professional in accordance with the specific requirements established by the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the standards for conducting "All Appropriate Inquiry" (AAI), as set forth by the United States Environmental Protection Agency (US EPA) at 40 Code of Federal Regulations (CFR) Part 312. In addition, several non-scope considerations have been assessed, including asbestos containing materials (ACM), radon, lead-based paint (LBP), lead-in drinking (potable) water and wetlands.

1.1 Objectives / Scope of Work

The objective of this Phase I Environmental Site Assessment is to identify any existing or potential "recognized environmental conditions". The term "recognized environmental conditions" is defined by the ASTM as "the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

The objective of the Phase I Environmental Site Assessment (ESA) is as follows:

- To identify the presence, release, or threat of release, of any hazardous substance or petroleum products affecting the subject property.

- To gather preliminary information regarding the level of compliance with current environmental standards, laws, regulations, and permits with respect to the subject property.

- To establish a baseline of environmental conditions for historic and comparative purposes.

- To identify whether any hazardous substances have been stored, released or disposed of on the subject property.

- To reduce uncertainty regarding Recognized Environmental Conditions (RECs).

- To identify the need for additional testing to evaluate the scope, location, source, and nature of any releases or threat of releases of hazardous substances affecting the subject property.

- Constitute an all appropriate inquiry suitable for establishing innocent landowner status, pursuant to 42 U.S.C. 9601 (35) (B) and the Brownfields Revitalization and Environmental Restoration Act of 2001 (Brownfields Act).

1.2 Methodology

To complete the Phase I Environmental Site Assessment, the following tasks were conducted:

1) A detailed field inspection of the subject site was performed, including all accessible areas of the building(s) interior, exterior, property grounds and site perimeter.

2) Property owner(s), property manager(s), maintenance personnel, tenant(s), and other individuals deemed knowledgeable of the subject site were interviewed concerning activities conducted at the subject site, past and present.

3) Neighboring property utilization was evaluated to determine potential impact on subject site.

4) The United States Environmental Protection Agency (US EPA), the New York State Department of Environmental Conservation (NYS DEC) and the tribal regulatory databases were reviewed concerning the location of sites documented as having specific environmental concerns and/or threats proximal to the subject site.

5) Research was conducted through the New York City Department of Buildings (NYC DOB) and the City of New York Fire Department (NYC FD) for the following:

   - Records of all underground and/or aboveground storage tanks (USTs and ASTs) existing or previously existing at the subject site.

   - Records of all past or existing violations for the subject site, including "open" (non-cured) and "closed" (cured) violations.

   - To compile a chain-of-ownership of the subject site to identify past owners and past uses of the subject site.

6) A search was made for sensitive ecological areas and regulated wetlands in the vicinity of the subject site.

1.3 Significant Assumptions

GCI utilized several research tools, including local Village / Town / City records and database search to obtain records for the subject site. Although GCI researched these documents to the extent available, additional documents may exist. Results of this Phase I ESA are based upon information obtained by GCI during the field reconnaissance, interviews, historical research, and database search results. The information obtained is assumed to be from reliable sources; however, GCI was not retained to verify publicly-available information. Therefore, GCI assumes no responsibility or liability for errors in the public data utilized, statements from sources outside GCI, or developments resulting from situations outside the scope of this project. In addition, GCI assumes no responsibility for conditions not readily apparent or identifiable at the site during the field reconnaissance.

1.4 Limitations

The Phase I Environmental Site Assessment was completed with generally accepted protocols as established by the ASTM E 1527-13 Standard. The Phase I Environmental Site Assessment is a useful initial tool in determining the possibility of contamination to be present on-site or in the surrounding area of the subject site which may pose a threat to the subject site.

The accuracy of presenting the findings of this Phase I Environmental Site Assessment was considered of paramount importance during the formulation of this report. However, the report's accuracy is limited to the information available from interviews, records, files and plans released by the property owner and/or his representatives, and/or the respective regulatory agencies and/or information officers.

The Phase I Environmental Site Assessment relies principally on visual observations, a walk-through inspection of the subject site, and review of available records relating to current and former uses of the subject site. The Phase I Environmental Site Assessment does not typically include physical sampling, testing or laboratory analysis of suspect materials. A representative sampling procedure is required to fully assess the occurrence of environmental contaminants. The report is meant to provide the opinion of the environmental professional performing the assessment based on established procedures and protocols. The Phase I Environmental Site Assessment is not, and should not, be construed as a guarantee or warranty with regard to the absence, presence, or potential of environmental contaminants which may impact the subject site.

1.5 Special Terms and Conditions

The Scope of Services performed is in accordance with the contract between the client and GCI. The format and content of the Phase I ESA Report are in general accordance with the ASTM Standard Practice for Environmental Site Assessments: Phase I Site Assessment Process E-1527-13.

It is the responsibility of the User of this report to provide certain information to the Environmental Professional, including reporting any environmental liens or activity and use limitations which are recorded against the subject site. The User is also required to provide the Environmental Professional with any specialized knowledge or experience that is material to recognized environmental conditions at the site, the relationship of the purchase price of the property to the fair market value of the site, and any commonly known or reasonably ascertainable information within the local community about the site that is material to recognized environmental conditions at the site.

1.6 Previous Environmental Assessments

A review was conducted in order to determine the existence of any and all previous reports pertaining to the subject property, including, but not limited to, Phase I Environmental Site Assessments, Phase II Subsurface Investigations, Asbestos Inspections, Lead-Based Paint (LBP) Screenings, etc.

The client did not have any previous environmental reports pertaining to the subject site. There were no environmental reports for the subject site made available at the time of this assessment.

1.7 Personnel

Inspection and Interviews

The inspection of the subject site and the primary interviews were conducted with the assistance of an employee of the owner of the site. The site inspection and interviews were conducted by GCI Senior Environmental Technician, Ms. Diane J. Hawran on March 29, 2017. The report has been written by Ms. Hawran and reviewed by GCI President, Mr. Tom P. Smyth, both qualified Environmental Professionals as defined by the ASTM E 1527-13 Standard and the AAI Regulation. A copy of Ms. Hawran's and Mr. Smyth's resumes are included in Appendix C.

2.0 SITE CHARACTERISTICS

The subject site was surveyed by inspecting the building interior on a room by room basis; areas of particular note were the sources of building heat, the structure's thermal and pipe insulation and areas where there was storage of chemicals or hazardous materials. The exterior was inspected by walking the grounds with special attention given to the perimeter of the site, point sources of discharge or emission, injection wells, drywells, above-ground storage facilities, storage drums, and above-ground connections to underground storage tanks (USTs). The activities conducted in every part of the property were identified for the purpose of determining potential environmental threats, of interest were the waste handling procedures, storage of hazardous materials and neighboring activities. Photographs were also taken of the subject site, please see Appendix H - Site Photographs.

2.1 Site Location and Legal Description	
Street Address	134 Metropolitan Avenue (a.k.a. 101 North 1st Street)
Municipality	Borough of Brooklyn, City of New York
State	New York
Owner	Metro Mort LLC
Tax ID Number	Block 2364, Lot 16
Site Size	2,825 square feet
Building Size	3,400 square feet
References	Area Map - Figure 1.0 and Tax Map - Figure 2.0

2.2 Site Description

Accessibility	All areas of the site were accessible at the time of the site inspection.
Property Type	Two (2) story commercial building, with a partial basement and a partial sub-basement.
Date of Construction	Between 1887 and 1905 and between 1905 and 1916
Number of Apartment Units	None
Interior Improvements	The interior of the building is divided into former bar and nightclub areas and bathrooms. The interior is predominantly finished with poured concrete or wood strip floors, brick, sheetrock or concrete block walls and steel deck ceilings. The bathrooms are predominantly finished with poured concrete floors, concrete block or sheetrock walls and sheetrock ceilings.
Basement Improvements	The partial basement is divided into a walk-in cooler and two (2) bathrooms. The partial sub-basement is divided into a vacant room and mechanical areas.
Heating System	Gas fired system

Utilities

Electric	Consolidated Edison
Gas	Consolidated Edison
Water	City of New York Bureau of Water
Sanitary / Sewer	New York City sewer system (reported)

Note: The information obtained by GCI and provided in this report regarding utilities is provided for informational purposes only. GCI obtains the information regarding the use of utilities at the subject site from the respective utilities and reports the information. GCI can not guarantee the accuracy of the information provided by the respective agencies. The user of the report should independently confirm all utility connections.

Sewer / Storm Water Discharge and Drywells	
Sanitary / Sewer	New York City sewer system (reported). There are three (3) septic vents located at the south side of the building.
Storm Water Drainage	The storm water at the subject site is directed to the municipal storm water collection system.
Interior Discharge Points	There are typical sinks located within the bathrooms of the building.
Evidence of Staining / Spills	None.

2.3 Site History and Operations

The subject site is improved by a two (2) story commercial building, with a partial basement and a partial sub-basement. The building was most recently occupied by "Rust", a.k.a. "The Living Room", a bar / nightclub. The site is presently vacant.

According to the New York City Department of Buildings, several alteration permits are on file for the site. In addition, Permit No. 310206577, dated September 22, 2009 was issued to convert an existing public parking garage into an eating and drinking establishment. Permit No. 3P0004861, dated February 4, 1994 was issued to construct a one (1) story enlargement.

According to the New York City Department of Buildings "PROPERTY PROFILE OVERVIEW", Certificate of Occupancy No. 86404, dated March 8, 1938 was issued for a three (3) story commercial building. The first floor was used as a "junk shop" and the second and third floors were vacant. C/O No. 310206577F, dated February 3, 2011 was issued for a two (2) story eating or drinking establishment.

The subject site is listed as a Little "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to "Underground Gasoline Storage Tanks Testing Protocol." The E designation requires that the owner conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYC Office of Environmental Remediation (OER) before the issuance of a building permit by the NYC DOB. The E designation also includes a mandatory construction related health and safety plan which must be approved by the NYC OER.

According to Sanborn Fire Insurance maps, the south side of the building located along North 1st Street was constructed sometime prior to 1887 as a wireworks building. A three (3) story machine shop building was constructed at 134 Metropolitan Avenue sometime between 1887 and 1905. 101 North 1st Street was used as a wagon house, with a barn located at the south side of the site. The 1916 map depicts 134 Metropolitan Avenue as vacant. The barn at 101 North 1st Street had been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building. The 1942 map indicates that 134 Metropolitan Avenue was used as ovens and 101 North 1st Street was used for "waste paper." The 1951 map indicates that 134 Metropolitan Avenue was used for manufacturing purposes and 101 North 1st Street was vacant. The 1965 map indicates that the buildings have been combined and were used as "feather storage." A one (1) story addition was made to the rear of the building. This use continued until the most recent 1989 map.

Sanborn Historical Map Search

Fire Insurance Maps are produced by private fire insurance map companies and indicate the uses of properties and immediately surrounding properties at specific dates. These fire insurance maps are typically updated, so as to provide the fire insurance company with the historical view of development for a given area.

A Fire Insurance Map Search was conducted for the subject site, and the private agency contacted was Sanborn Mapping and Geographic Information Service. A full search for any existing fire insurance maps was conducted.

The Sanborn Fire Insurance Map Search revealed the following historical use of the property:

SANBORN MAP SEARCH

YEAR	HISTORICAL USE
1887	The subject site is improved by three (3) story "wireworks" building, with a barn located at the south side of the site (101 North 1st Street). The surrounding properties are improved by barns, commercial buildings and residential buildings.
1905	A three (3) story machine shop building has been constructed at 134 Metropolitan Avenue. 101 North 1st Street is now used as a wagon house, with a barn located at the south side of the site. The surrounding properties all appear to now be used for commercial use.
1916	134 Metropolitan Avenue is now vacant. The barn at 101 North 1st Street has been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building. The property to the east is used by a trucking company and the property to the west is used as a boarding and wagon house/barn.
1942	134 Metropolitan Avenue is used as ovens. 101 North 1st Street is used for "waste paper." The property to the east is used as a garage, with a gasoline tank and the property to the west is used as a boarding and wagon house/barn.
1951	134 Metropolitan Avenue is used for manufacturing purposes and 101 North 1st Street is vacant. The properties to the east and west exist as vacant land.

YEAR	HISTORICAL USE
1965	The buildings appear to have been combined and are now used as "feather storage." A one (1) story addition has been made to the rear of the building. The property to the east is used for commercial and manufacturing operations and the property to the west is used for storage.
1979	There do not appear to be any significant changes noted in the subject site or the surrounding properties.
1989	There do not appear to be any significant changes noted in the subject site or the surrounding properties.

Please refer to Figure 7.0 located within Appendix E of this report.

2.4 User Provided Information

GCI sent a pre-survey questionnaire and an AAI User Questionnaire to the site contact. The purpose of the questionnaires was to satisfy the user requirements for all appropriate inquiry and to have the user disclose any environmental conditions which may not have been apparent at the time of GCI's site reconnaissance.

2.4.1 Title Records

As of the date of this report, a title report has not yet been provided for review.

2.4.2 Environmental Liens or Activity or Land Use Restrictions

As of the date of this report, the user questionnaire has not yet been completed and returned to GCI.

2.4.3 Specialized Knowledge

As of the date of this report, the user questionnaire has not yet been completed and returned to GCI.

2.4.4 Commonly Known or Reasonably Ascertainable Information

As of the date of this report, the user questionnaire has not yet been completed and returned to GCI.

2.4.5 Valuation Reduction for Environmental Issues

As of the date of this report, the user questionnaire has not yet been completed and returned to GCI.

2.4.6 Reason for Performing Phase I ESA

The Phase I ESA is being conducted by the owner of the subject site in order to conduct due diligence and All Appropriate Inquiry in order to get clearance on an "E" Designation.

2.5 Interviews

Owner/Key Site Manager

The owner reported that the building was most recently occupied by "Rust", a bar / nightclub. The site is presently vacant.

Occupant(s)

The site is presently vacant.

Past Owners, Operators, and Occupants

The past owner, operator and/or occupant was available for an interview at the time of the site inspection. There was no contact information obtained for the former owner, operator and/or occupant.

State and/or Local Government Officials

Local and state governments were contacted in order to obtain information regarding the subject site. The local and state governments require that a Freedom of Information letter be submitted in order to obtain information on the subject site. Please refer to Sections 4.1, 4.2 and 4.3 of this report for information obtained from state and local governments.

2.6 Site Hydrology and Geology

2.6.1 Surface Water Characteristics

The subject site is improved by the subject building and pedestrian sidewalks. The surface topography at the subject site is nearly level throughout. Storm water runoff is directed to the curb side municipal storm water collection system. The up-gradient drainage area within 1,000 feet of the subject site is improved with mixed use residential buildings.

2.6.2 Groundwater Characteristics

The Borough of Brooklyn is characterized by Alton stony loam (As) and Miami stony loam (Ms) and bedrock. According to groundwater contour maps provided by the United States Geologic Survey (USGS), the depth to groundwater at the subject site is estimated to be between 31 and 50 feet below ground surface. A well located south of the subject site was measured at 38.60 feet below ground surface in 2010. Groundwater generally flows west, northwest. Please note that actual groundwater flow can be affected by many variables including underground utilities and other subsurface openings or obstructions such as basements, underground parking garages and subway lines, bedrock geology, etc.

Groundwater is not used as a drinking water supply in the Borough of Brooklyn. Potable (drinking) water is supplied to the subject site by the New York City Bureau of Water. The Bureau obtains potable water from the Croton Reservoir located in Westchester County and other fresh water reservoirs in upstate New York.

2.6.3 Geological Characteristics

According to the United States Department of Agriculture, Soil Conservation Service - Soil Survey, New York is located in the Atlantic Coastal Plain physiographic province which is characterized by low hills of unconsolidated sands, gravel and silt. The subsurface deposits consist of the Upper Glacial deposits that are characterized by southward sloping deposits of sand, gravel and silt. The Upper Glacial deposits have a maximum thickness of 600 feet.

They are underlain by the Magothy, Raritan and Lloyd Formations. The Gardiners clay and the Jameco gravel separate the Upper Glacial deposits and the Magothy Formation along the south west portion of Long Island. The Borough of Brooklyn is underlain by bedrock, although the majority of it is at several hundred feet below land surface.

2.7 Groundwater Use

The use of local groundwater as a potable drinking water source can compound a property owner's potential financial exposure and associated liabilities from subsurface contamination. GCI therefore evaluated the extent of the local groundwater usage in the area of the subject site.

Groundwater is not used as a drinking water supply in the Borough of Brooklyn. Potable (drinking) water is supplied to the subject site by the New York City Bureau of Water. The New York City Bureau of Water obtains potable water from the Croton Reservoir located in Westchester County and other fresh water reservoirs in upstate New York.

2.8 Current Uses of Adjoining Properties

Direction	Directly Adjacent	Further Beyond
North	Metropolitan Avenue.	Commercial business.
South	North 1st Street.	Commercial business.
East	Commercial business.	Berry Street.
West	Commercial business.	Wythe Avenue.

3.0 SITE INSPECTION / RECONNAISSANCE

3.1 Solid / Hazardous Materials and Waste

The subject property was inspected to determine the presence (generation, use and/or disposal) of hazardous materials.

The operations at the site do not entail the generation, use and/or disposal of hazardous materials or hazardous waste.

Storage Drums
There were no storage drums observed at the time of the site inspection.

Chemical Staining and Stressed Vegetation
A surface spill of petroleum hydrocarbon products or other chemicals may be adsorbed onto the soil particles and retained in the near-surface sediments. Plant life near a spill will often be killed or will suffer stress from the contamination of the soil with these products. The condition of vegetative growth can be an indicator of near-surface soil conditions.

There were no signs of staining or stressed vegetation observed at the subject site at the time of the site inspection.

3.2 Underground and Aboveground Storage Tanks (USTs and ASTs)

Site Inspection	There were no storage tanks observed at the time of the site inspection. The building is currently heated via a gas fired system. There was no evidence of storage tanks, such as fill ports, vent lines, etc. observed at the time of the site inspection.
NYS DEC PBS	The New York State Department of Environmental Conservation (NYS DEC) Petroleum Bulk Storage (PBS) reported that there are no storage tanks registered at the subject site.
NYC FD	As of the date of this report, the New York City Fire Department has not yet responded to the research request. Upon receipt, any pertinent documentation will be forwarded as an addendum to this report.
NYC DOB	The New York City Department of Buildings (NYC DOB) records indicated that there are no records of storage tanks on file for the subject site.

3.3 Poly-Chlorinated Biphenyls (PCBs)

Transformers

There are three (3) types of transformers defined in the PCB regulations:

a. **PCB Transformer:** Any transformer containing 500 parts per million (ppm) PCBs or greater.

b. **Non-PCB Transformer:** Any transformer containing less than 50 ppm PCBs.

c. **PCB-Contaminated Transformer:** Any transformer containing 50-499 ppm PCBs. These transformers are not subject to parts of the regulations such as marking requirements or, if drained of liquid, to the disposal requirements. Any liquid drained from these transformers must be stored and disposed of in accordance with the regulations.

Transformers often contain dielectric liquid for the primary purpose of increasing resistance of the unit to arcing and acting as a heat transfer media, helping to cool the coils. The majority of transformers are filled with mineral oil, but a small percentage of these liquid-filled transformers contain PCB Askarel coolant liquid. The term "Askarel" is a generic term used for a group of nonflammable synthetic chlorinated hydrocarbons. All types of Askarels sold prior to 1960, 1969 and 1971 contained 60 to 100 percent PCBs. Askarel transformers were manufactured in a variety of sizes, i.e. 3 to 3,000 gallons of PCB liquid, and are generally used in hazardous locations where flammability is of concern. PCB transformers are no longer produced because of EPA's ban on the manufacture of new equipment containing PCBs.

Inspection

There were no transformers observed at the subject site at the time of the site inspection.

3.4 Vapor Intrusion

The ASTM definition of a Vapor Encroachment Condition or "VEC" is "the presence or likely presence of chemical of concern vapors in the subsurface of the target property caused by the release of vapors from contaminated soil and/or groundwater either on or near the target property." The ASTM standard requires the Environmental Professional to evaluate "the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface and subsurface, and vapor in the subsurface."

As per the American Society for Testing and Materials (ASTM) E 1527-13, an assessment was made at the subject site in order to determine if a Soil Vapor or Vapor Encroachment Condition (VEC) would exist at the subject site. GCI conducted a site inspection and also reviewed several historical research sources for the subject site, as well as the surrounding properties. Based on this information, a Vapor Encroachment Condition (VEC) is not likely to exist at the site.

3.5 Asbestos

GCI personnel performed a visual scan of accessible common areas for suspected asbestos containing material (ACM). Where a suspected asbestos material was observed, GCI determined the condition of the material and estimated the amount of suspect material.

The US EPA designated material with more than 1% asbestos as an Asbestos Containing Material (ACM). Where asbestos material is determined to be "Friable" (capable of being crushed by hand pressure and having a high potential to release airborne fibers), it is the recommendation of EPA that strong response action be taken. Such actions may take the form of removal, encapsulating, repair, enclosure and the implementation of an operations and maintenance (O & M) program. The response action is determined depending on the severity and nature of the individual situation.

Inspection

A limited visual inspection of the property was conducted for suspect asbestos containing material (ACM), such as friable pipe insulation, friable surface material, and non-friable floor tile. There was no asbestos observed throughout the common / accessible / visible areas of the subject site at the time of the site inspection.

Based on the construction dates of the subject building (between 1887 and 1905 and between 1905 and 1916), the presence of asbestos would be suspected in non-accessible areas, such as behind walls or within roofing materials. Please note that this inspection was limited to areas capable of being accessed and visible at the time of the site inspection. There was no destructive testing performed as part of the inspection.

In addition, according to Title 29 of the Code of Federal Regulations Part 1910.1001 (29 CFR 1910.1001), any thermal system insulation and surfacing material found in buildings constructed no later than 1980 is said to be "presumed asbestos containing material."

Asbestos Operations & Maintenance Program (O & M)

The operations and maintenance instructions should include a statement that in the event of repair, improvement, replacement or disturbance of the asbestos containing material those persons making the repair or disturbance should be cautioned and handle the material in accordance with EPA and industry standard for disturbing asbestos containing material. Building occupants, maintenance staff, custodial works, contract workers and miscellaneous persons should be informed about the location of the asbestos containing material (ACM) and cautioned them against disturbing or damaging the asbestos containing material.

An Operation and Maintenance Program should include the following:

(1) A program for informing persons that may come in contact with the asbestos material.

(2) Work practices for cleaning the building and minimizing ACM disturbance during maintenance and renovation.

(3) Procedures for cleaning up asbestos fibers after a fiber release episode.

(4) Respiratory protection and medical surveillance programs.

(5) A training program for maintenance and service workers and requirements for outside contractors.

(6) Regular surveillance of the ACM (assessing changes in ACM characteristics).

(7) Record keeping.

3.6 Radon

Radon is a heavy colorless, odorless, radioactive gas formed by the radioactive decay of radium. Radon is associated with specific geologic formations which contain granite, uranium minerals, certain shales and phosphate related minerals. Radon, being a gas, can migrate to and accumulate in confined spaces such as building basements. Continued exposure of radon gas has been associated with increased lung cancer risk and possible genetic damage.

The US EPA and the Centers for Disease Control have used a continuous exposure level of 4.0 picocuries per liter (PCI/L) or a 0.02 working level as a guidance level at which the US EPA recommends further testing and/or remedial action to lower the concentrations.

The New York State Department of Health (NYS DOH), Bureau of Radiation Protection monitors radon levels throughout the state. There were 51 recorded test points located in Kings County. The average radon level in a living area was 0.750 pCi/L and 0% of these test points were 4 pCi/L or more. The average radon level in a basement area was 1.370 pCi/L and 10% of these test points were 4 pCi/L or more. The chart below details the full findings of the radon tests of the NYS DOH.

NYS DOH RADON INFORMATION - KINGS COUNTY

AREA	AVERAGE ACTIVITY	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	0.750 pCi/L	100%	0%	0%
Basement	1.370 pCi/L	88%	10%	2%

Conclusion

Given this information, radon is not considered an environmental concern for the subject site.

3.7 Lead-Based Paint (LBP)

The subject site is improved by a commercial building, which was constructed between 1887 and 1905 and between 1905 and 1916. In view of the fact that the subject building was constructed prior to 1978, the site has been deemed to be a "pre-1978 property." For this reason, the subject property would be suspected of having lead-based paint (LBP) present. The painted surfaces within the building were noted to be in average condition, with no areas of chipping and peeling observed.

Being that the subject site is not residential in nature, the potential for lead-based paint (LBP) was not required to be scrutinized. Therefore, an on-site testing of painted surfaces for the presence of lead-based paint (LBP) was not performed.

As per the American Society for Testing and Materials (ASTM) Designation E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Section 12.1.4.3, lead-based paint (LBP) is considered a non-scope consideration. Lead-based paint (LBP) is not considered to be included in CERCLA's definition of hazardous substances (42 USC Sec. 9601(14)), and does not present potential CERCLA liability. Therefore the inspection for lead-based paint (LBP) is beyond the scope of this practice.

3.8 Wetlands

There are no designated wetlands located at the subject site, or within the immediate vicinity of the subject site, as indicated by the National Wetlands Inventory. The subject property is located in a highly developed residential neighborhood.

3.9 Other Potential Environmental Concerns

There were no pertinent site features, such as industrial process water, underground injection, groundwater monitoring wells, sensitive environmental receptors, etc. located at the subject site at the time of the site inspection.

4.0 FEDERAL, STATE, TRIBAL AND LOCAL REGULATORY AGENCY RECORDS

In order to determine if the subject site is listed, known, or suspected of being a listed hazardous waste site, federal and state listing databases were reviewed. The United States Environmental Protection Agency (US EPA), the New York State Department of Environmental Conservation (NYS DEC) and the tribal database records were researched and reviewed. The database search was conducted as per the radii specified by the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The City of New York Fire Department (NYC FD) and the New York City Department of Buildings (NYC DOB) files were reviewed for any records which may have been maintained concerning the subject site.

4.1 US EPA, NYS DEC and Tribal Database Review

US EPA, NYS DEC and Tribal Database Review				
Database	**Search Distance ***	**Subject Property Listed**	**Surrounding Properties Listed**	**Sites Potentially Impacting Subject Site**
US EPA NPL	1.0 Mile	No	None	None
US EPA Delisted NPL	0.5 Mile	No	None	None
US EPA CERCLIS	0.5 Mile	No	1	None
US EPA CERCLIS-NFRAP	0.5 Mile	No	1	None
US EPA CORRACTS	1.0 Mile	No	2	None
US EPA RCRA-TSD	0.5 Mile	No	2	None
US EPA RCRA Generators	SP and APs	No	51	None
US EPA Institutional & Engineering Controls	SP	No	N/A	None
US EPA ERNS	SP	No	N/A	None
NYS DEC & Tribal IHWD	1.0 Mile	No	14	None
NYS DEC & Tribal SWF / LF	0.5 Mile	No	13	None
NYS DEC & Tribal LUST	0.5 Mile	No	58	None
NYS DEC SPILLS	SP	No	N/A	None
NYS DEC and Tribal PBS	SP and APs	No	19	None
NYS DEC & Tribal Institutional & Engineering Controls	SP	No	N/A	None
NYS DEC & Tribal Voluntary Cleanup Sites	0.5 Mile	No	3	None
NYS DEC & Tribal Brownfield Sites	0.5 Mile	No	9	None

Please see the enclosed US EPA, NYS DEC and tribal database for more detailed information of the above search.

SP = Subject Property

AP = Adjacent Properties

US EPA Comprehensive Environmental Response, Compensation and Liability Information (CERCLIS) Sites

There is one (1) CERCLIS site located within a one-half (½) mile radius of the subject property. Based on the cross-gradient location of this site, it would be unlikely for contamination from this source to impact the subject site.

US EPA Comprehensive Environmental Response, Compensation and Liability Information (CERCLIS) No Further Remedial Action Planned (NFRAP) Sites

There is one (1) CERCLIS NFRAP site located within a one-half (½) mile radius of the subject property. Based on the cross-gradient location of this site, it would be unlikely for contamination from this source to impact the subject site.

US EPA Corrective Action (CORRACTS) Sites

There are two (2) CORRACTS sites located within a one (1.0) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these source to impact the subject site.

US EPA RCRA Treatment, Storage and Disposal (TSD) Sites

There are two (2) TSD sites located within a one-half (½) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these source to impact the subject site.

US EPA RCRA Generators of Hazardous Waste Sites

There are fifty-one (51) US EPA RCRA generators of hazardous waste located within a one-eighth (1/8) mile radius of the subject site.

NYS DEC Inactive Hazardous Waste Disposal (IHWD) Sites

There are fourteen (14) IHWD sites located within a one (1.0) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these sources to impact the subject site.

NYS DEC Solid Waste Facility/Landfill (SWF/LF) Sites

There are thirteen (13) SWF/LF sites located within a one-half (½) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these sources to impact the subject site.

NYS DEC Leaking Underground Storage Tank (LUST) Sites

There are fifty-eight (58) LUST sites located within a one-half (½) mile radius of the subject site. Of these LUST sites, all have been remediated to the satisfaction of the NYS DEC, with the exception of eight (8) active LUST sites. Based on the hydraulically cross-gradient or down-gradient locations of these active sites, and/or the small release quantities associated with these active sites, it would be unlikely for contamination from these sources to impact the subject site.

NYS DEC Petroleum Bulk Storage (PBS) Sites

There are nineteen (19) NYS DEC PBS sites located within a one-eighth (1/8) mile radius of the subject site.

NYS DEC Voluntary Cleanup Protection (VCP) Sites

There are three (3) NYS DEC VCP sites located within a one-half (½) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these sources to impact the subject site.

NYS DEC Brownfield Sites

There are nine (9) Brownfield sites located within a one-half (½) mile radius of the subject property. Based on the cross-gradient or down-gradient locations of these sites, it would be unlikely for contamination from these sources to impact the subject site.

Orphan Sites

There are orphan sites, which due to poor or inadequate address information cannot be mapped. By cross-referencing the street names of these sites with the street names surrounding the subject site, it was determined that none of the orphan sites are located within their ASTM-specified search distances in relation to the subject site.

US EPA, NYS DEC and Tribal Database Review Conclusion

Based on the review of the US EPA, NYS DEC and tribal regulatory agency databases mentioned above, as well as a review of the surrounding properties, there do not appear to be any off-site sources posing an apparent environmental threat to the subject site.

4.2 New York City Department of Buildings

Research was conducted in the New York City Department of Buildings to trace the history of all past applications to the City for modification of the subject property, such as permits, new buildings - NB, certificates of occupancy - CO, alterations - ALT, or any other changes at the site, and to search for any past or existing violations.

Permits

According to the New York City Department of Buildings, several alteration permits are on file for the site. In addition, Permit No. 310206577, dated September 22, 2009 was issued to convert an existing public parking garage into an eating and drinking establishment. Permit No. 3P0004861, dated February 4, 1994 was issued to construct a one (1) story enlargement.

Certificates of Occupancy

According to the New York City Department of Buildings "PROPERTY PROFILE OVERVIEW", Certificate of Occupancy No. 86404, dated March 8, 1938 was issued for a three (3) story commercial building. The first floor was used as a "junk shop" and the second and third floors were vacant. C/O No. 310206577F, dated February 3, 2011 was issued for a two (2) story eating or drinking establishment.

Zoning

The Department of Finance classifies the subject building as a "K1-Store Building".

Little "E" Restricted

The subject site is listed as a Little "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to "Underground Gasoline Storage Tanks Testing Protocol." The E designation requires that the owner conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYC Office of Environmental Remediation (OER) before the issuance of a building permit by the NYC DOB. The E designation also includes a mandatory construction related health and safety plan which must be approved by the NYC OER.

A copy of the records obtained from the New York City Department of Buildings is enclosed in Appendix F - Historical Agency Records.

4.3 City of New York Fire Department

ASTM E 1527-13 establishes that a diligent Transaction Screen Environmental Site Assessment considers all information *reasonably ascertained* from a public agency if it is received within twenty (20) days of receipt of a Freedom of Information request. A response to the Freedom of Information request submitted to this agency has not yet been received. Upon receipt, all documentation obtained from this agency will be forwarded as an addendum to this report.

A copy of the records obtained from the City of New York Fire Department is included in Appendix F - Historical Agency Records.

5.0 OPINION OF THE ENVIRONMENTAL PROFESSIONAL

Based on the completion of the Phase I Environmental Site Assessment (ESA), the Environmental Professional has identified conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject site. This opinion is based on the conditions observed at the time of the site inspection, the records reviewed as part of this ESA report, as well as the present and historical uses of the subject site.

5.1 Data Gap

Based on the fact that the City of New York Fire Department has not yet responded to the research request, as well as the fact that a title report and the user questionnaire have not been provided, a data gap exists for the subject site. Upon receipt of the additional records, an addendum letter will be issued to the client. The results of the additional records may alter the findings of this report.

6.0 EVALUATION, CONCLUSIONS AND RECOMMENDATIONS

6.1 Recognized Environmental Conditions

The term "recognized environmental conditions" is defined by the ASTM as "the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

GCI has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM E 1527-13 of the subject site. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report. This assessment has revealed no evidence of Recognized Environmental Conditions (RECs) in connection with the subject site at this time, with the exception of the following:

1. **Historical Site Operations - Phase II Subsurface Investigation**

   It was reported that the subject site is connected to the New York City municipal sewer system. There are three (3) septic vents located at the south side of the building. The storm water at the subject site is directed to the municipal storm water collection system. There are typical sinks located within the bathrooms of the building.

   Based on the historical operations at the site entailing manufacturing, a machine shop and a junk shop, there is a concern that any accidental spills and/or illegal discharges may have caused subsurface soil and/or groundwater contamination.

   A Phase II Subsurface Investigation should be conducted at the subject site. The investigation should include the assessment of all interior discharge points. The discharge points should be dye tested / line traced in order to confirm their point of discharge. If any structures are determined to be on-site leaching structures, these should be sampled and assessed. In addition, the investigation should include subsurface soil and/or groundwater sampling.

2. **Satisfy NYC "E" Site Designation**

The subject site is listed as a Little "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to "Underground Gasoline Storage Tanks Testing Protocol." The E designation requires that the owner conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYC Office of Environmental Remediation (OER) before the issuance of a building permit by the NYC DOB. The E designation also includes a mandatory construction related health and safety plan which must be approved by the NYC OER.

An E-Designation is a City zoning map designation that indicates the presence of an environmental requirement pertaining to potential hazardous materials contamination, window/wall noise attenuation, or air quality impacts on a particular tax lot. E-Designations are established on the Zoning Map by the City Planning Commission and City Council as a part of a zoning change. Before any new construction or change in land use can take place on your property, the environmental requirements of the (E) designation need to be satisfied.

The City Planning Commission (CPC) approves amendments to the New York City Zoning Maps that may include environmental designations of certain tax lots that have physical or historical evidence of uses related to hazardous materials. These "E" designations, shown of the Zoning maps function as indicators of the environmental review that must be conducted when the lots are developed in accordance with the regulations of the rezoned district.

Zoning Resolution (ZR) 11-15 provides that the Department of Buildings (DOB) may not issue a building permit where the subject tax lot has been given an "E" designation on the relevant zoning map due to potential hazardous materials contamination, if the building permit would allow: (1) any development; (2) an enlargement, extension or change of use involving a residential or community facility use; or (3) an enlargement that disturbs the soil on said lot, unless and until the DOB is provided with a report from the NYC OER stating that the environmental requirements for the lot have been met. Zoning resolution 11-15 requires NYC OER approval prior to a permit being issued by the DOB when two (2) conditions are present: (1) the application proposes work on a haz-mat "E" lot; and (2) the application proposes work falling under one of the three (3) categories listed above.

An "E" designation for potential hazardous material contamination may be satisfied and administratively removed from a zoning map through the following procedure:

1. Satisfaction of Requirements
   The owner of any tax lot with an (E) designation for potential hazardous material contamination may file, with the NYC OER, a report from the NYC OER specifying that the environmental requirements relating to such designation have been satisfied regarding that lot. Upon receipt of such report, the NYC OER shall indicate such satisfaction as to that lot on the listing of "E" designations appended to the zoning maps of the Zoning Resolution.

2. Removal of "E" Designation
   The NYC OER shall administratively remove the "E" Designation from a zoning map when all environmental requirements for potential hazardous material contamination have been met on all tax lots specified in the CEQR declaration.

The NYC Office of Environmental Remediation (OER) should be contacted as to the requirements for removal of the "E" designation. The "E" Designation for the subject site should be removed to the satisfaction of the NYC OER.

6.2 Historical Recognized Environmental Conditions

The term "historic recognized environmental condition" is defined by the ASTM as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority; without subjecting the property to any required controls."

Based on the completion of the Phase I ESA for the subject site, there do not appear to be any HRECs which pertain to the subject site at this time.

6.3 Controlled Recognized Environmental Conditions

The term "controlled recognized environmental condition" is defined by the ASTM as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls."

Based on the completion of the Phase I ESA for the subject site, there do not appear to be any CRECs which pertain to the subject site at this time.

6.4 Non-Scope Considerations

Non-scope considerations are outside the scope of a Phase I ESA report, as defined by the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Non-scope considerations are conditions that may lead to contamination of the subject site or of nearby properties but are not included in CERCLA's definition of *hazardous substances* (42U.S.C. 9601(14)) or do not otherwise present potential CERCLA liability.

Based on the completion of the Phase I ESA for the subject site, the following non-scope consideration pertains to the subject site at this time:

1. **Asbestos**

   A limited visual inspection of the property was conducted for suspect asbestos containing material (ACM), such as friable pipe insulation, friable surface material, and non-friable floor tile. There was no asbestos observed throughout the common / accessible / visible areas of the subject site at the time of the site inspection.

   Based on the construction dates of the subject building (between 1887 and 1905 and between 1905 and 1916), the presence of asbestos would be suspected in non-accessible areas, such as behind walls or within roofing materials. Please note that this inspection was limited to areas capable of being accessed and visible at the time of the site inspection. There was no destructive testing performed as part of the inspection.

In addition, according to Title 29 of the Code of Federal Regulations Part 1910.1001 (29 CFR 1910.1001), any thermal system insulation and surfacing material found in buildings constructed no later than 1980 is said to be "presumed asbestos containing material."

The removal / abatement of asbestos is not required by law for the subject building; therefore any asbestos found can remain in place, or it can be removed / abated. An asbestos inspection would be necessary in order to identify any ACM in the subject building. If asbestos remains in place, it is recommended that an ACM Operations and Maintenance (O & M) Program be implemented by the property owner. A general format for a suggested ACM O & M Program is included in Section 3.5 of this report.

6.5 De Minimus Conditions

De minimus conditions are defined as conditions which generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimus are not considered Recognized Environmental Conditions (RECs), although they do warrant discussion within a Phase I ESA report.

Based on the completion of the Phase I ESA for the subject site, there do not appear to be any de minimus conditions which pertain to the subject site at this time.

Limiting Conditions

The purpose of this investigation was to identify potential sources of contamination at the property, and to satisfy the all appropriate inquiry standard set forth in Section 9601 (35)(b) of CERCLA. The findings and conclusions set forth in this report are based upon information that was available to GCI during its inspection of the property and after review of selected records and documents. If new information becomes available concerning the property after this date, or if the property is used in a manner other than that which is in this report, the findings and conclusions contained herein may have to be modified. Additionally, while this investigation was performed in accordance with good commercial and customary practice and generally accepted protocols within the consulting industry, GCI cannot guarantee that the property is completely free of hazardous substances or other materials or conditions that could subject the client to potential liability. The presence or absence of any such condition can only be confirmed through the collection and analysis of air, soil and/or groundwater samples, which was beyond the scope of this investigation.

Future events and/or investigation could change the findings stated herein. Should additional investigations encounter differing conditions, sections of this report may require modification.

The preceding Environmental Assessment is subject to the following conditions and to such other conditions and limiting conditions as are set forth in the report.

1. GCI assumes no responsibility for hidden or latent conditions or misrepresentation by the property owner, his representatives, public information officials or any authority consulted in connection with the compilation of this report.

2. This report is prepared for the sole and explicit purpose for assessing the potential liability with respect to the suspected presence of hazardous materials that may pose a potential health or environmental threat and for evaluating collateral risk associated with the same. This report is not intended to have any direct bearing on the value of the property.

3. The Environmental Assessment Report is for the sole use of the principal parties. No disclosure or reproduction shall be made of the preceding report without the prior written consent of GCI.

4. GCI or any representative of GCI is not required to give testimony with reference to the opinions expressed herein without prior written arrangement.

Disclaimer

This report is for the use of the client as a guide in determining the possible presence of toxic materials on the subject property at the time of the inspection. This report is based on the review of historic records, relating to past occupants, and upon a visual inspection of the surrounding properties at the time of inspection. The records researched may be incomplete, and this report makes no determinations with respect to portions of the surrounding properties which were not inspected. This Phase I report is not a definitive determination of the presence of absence of toxic substances.

Any and all liability on the part of GCI shall be limited solely to the cost of this environmental assessment. GCI shall have no liability for any damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment and report. GCI shall have no liability for any cleanup and/or response costs, or any other incidental, or consequential, punitive, or special costs arising out of, incidental to, or as a result of any action against the client brought by any federal, state, or local government agency. GCI assumes no liability for the use of this assessment and report by any person or entity other than the client for whom it has been prepared.

APPENDIX A

REFERENCES

The following resources and agencies were contacted and or researched in conjunction with the preparation of this Phase I Environmental Site Assessment (ESA):

1. United States Environmental Protection Agency (US EPA)

2. New York State Department of Environmental Conservation (NYS DEC)

3. Consolidated - Edison Electric Company (Con ED)

4. City of New York Fire Department (NYC FD)

5. New York City Department of Buildings (NYC DOB)

6. New York City Bureau of Water (NYC BOW)

7. New York City Sewer System (NYC SS)

8. Sanborn Fire Insurance / Historical Use Maps

9. American Society for Testing and Materials (ASTM) Designation E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

APPENDIX B

<u>SIGNATURE OF ENVIRONMENTAL PROFESSIONAL</u>

The findings, conclusions and recommendations of this Phase I Environmental Site Assessment have been prepared in accordance with generally accepted standards and practices. This report is limited to accessible areas of the subject site and information available at the time of the preparation. GCI certifies that, to the best of our knowledge, the information presented is accurate and reliable with regard to apparent indications of existing or potential "recognized environmental conditions" observed at the time of the site inspection.

The above mentioned parties interest in issues presented herein is unknown to GCI. GCI expressly reserves its common law copyright and other property rights in this report. This report is not to be reproduced, changed or copied in any form or manner whatsoever, nor is it to be assigned to any third party, without first obtaining the express written permission and consent of GCI.

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312. We have the specific qualification based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Diane J. Hawran, Environmental Professional
Senior Environmental Technician
General Consolidated Industries, Inc.

Tom P. Smyth, Environmental Professional
President
General Consolidated Industries, Inc.

APPENDIX C

<u>RESUMES</u>

The following are the qualifications of the Environmental Professionals involved in the preparation of this Phase I ESA report.

Diane J. Hawran

Senior Environmental Technician, Environmental Professional

Education: **Master of Science (M.S.), Environmental Management**
Long Island University, C.W. Post Campus, Upper Brookville, New York

Bachelor of Science, Environmental Science
State University of New York, College At Oneonta, Oneonta, New York

Business Administration, Geographic Planning
State University of New York, College At Oneonta, Oneonta, New York

Experience:

1997 - Present **General Consolidated Industries, Inc.**, Hauppauge, New York
Senior Environmental Technician

Oversee and perform all aspects of Phase I Environmental Site Assessments including: asbestos, LBP, lead in water, and radon testing, and all related lab documentation and report writing. Compose/evaluate Phase I and environmental reports.

Certifications:

Certified Environmental Inspector.
40 Hour OSHA (29 CFR 1910.120) Certification.
New York State Department of Labor Asbestos Inspector certificate.
American Society For Testing and Materials, Phase I ASTM Environmental Site Assessment Process.
American Society For Testing and Materials, Phase II Environmental Site Assessment Process.
The State University of New Jersey, Rutgers Cook College, continuing Professional Education certificate, "How to Deal with Moldy Buildings".
The State University of New Jersey, Rutgers Cook College, continuing Professional Education certificate, "Site Remediation Basics".
The State University of New Jersey, Rutgers Cook College, continuing Professional Education certificate, "Industrial Site Recovery Act".
The State University of New Jersey, Rutgers Cook College, continuing Professional Education certificate, "Regulatory Training in Underground Storage Tanks."
Introduction to ArcView GIS certificate - Bowne Management Systems, Inc., ESRI.
AutoCADD.

APPENDIX D

USER QUESTIONNAIRE

USER QUESTIONNAIRE

Site Address: ______________________________

Following is the "User Questionnaire" which is required to be filled out in order to be compliant with AAI. As per ASTM E 1527-05, the User is required to provide the Environmental Professional with information about any environmental clean-up liens and activity and use limitations(AULs) which have been filed against a property, any specialized knowledge or experience that is material to recognized environmental conditions at the site, the relationship of the purchase price of the property to the fair market value of the property, and any commonly known or reasonably ascertainable information within the local community about the property that is material to recognized environmental conditions at the site. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete. Please fill out the User Questionnaire and fax it back to us at (631) 851-0535 at your earliest convenience.

1. **Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25).**
   Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law? If yes, please explain:

   ____

   ____

2. **Activity and land use limitations that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).**
   Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? If yes, please explain:

   ____

   ____

3. **Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).**
   As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? If yes, please explain:

   ____

   ____

4. **Relationship of the purchase price to the fair market value of the property if it were not contaminated (40CFR 312.29).**
Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

____

____

5. **Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).**
Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as a user,

a. Do you know the past uses of the property? If yes, please explain:

____

____

b. Do you know of specific chemicals that are present or once were present at the property? If yes, please explain:

____

____

c. Do you know of spills or other chemical releases that have taken place at the property? If yes, please explain:

____

____

d. Do you know of any environmental cleanups that have taken place at the property? If yes, please explain:

____

____

6. **The degree of obviousness of the presence or likely presence of likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).**
As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property? If yes, please explain:

____

____

7. **Title Report**
As a User of this Phase I ESA report, it is your responsibility to provide the Environmental Professional with a copy of a title report, if available. So you have a copy of the title report? If so, please provide it to the EP.

____

____

8. **Present and Former Owners**
In order to determine the history of the site, the Environmental Professional would like to contact the present and former owners of the site. Please list the present and former owners, as well as their phone number so that the Environmental Professional can contact them.

____

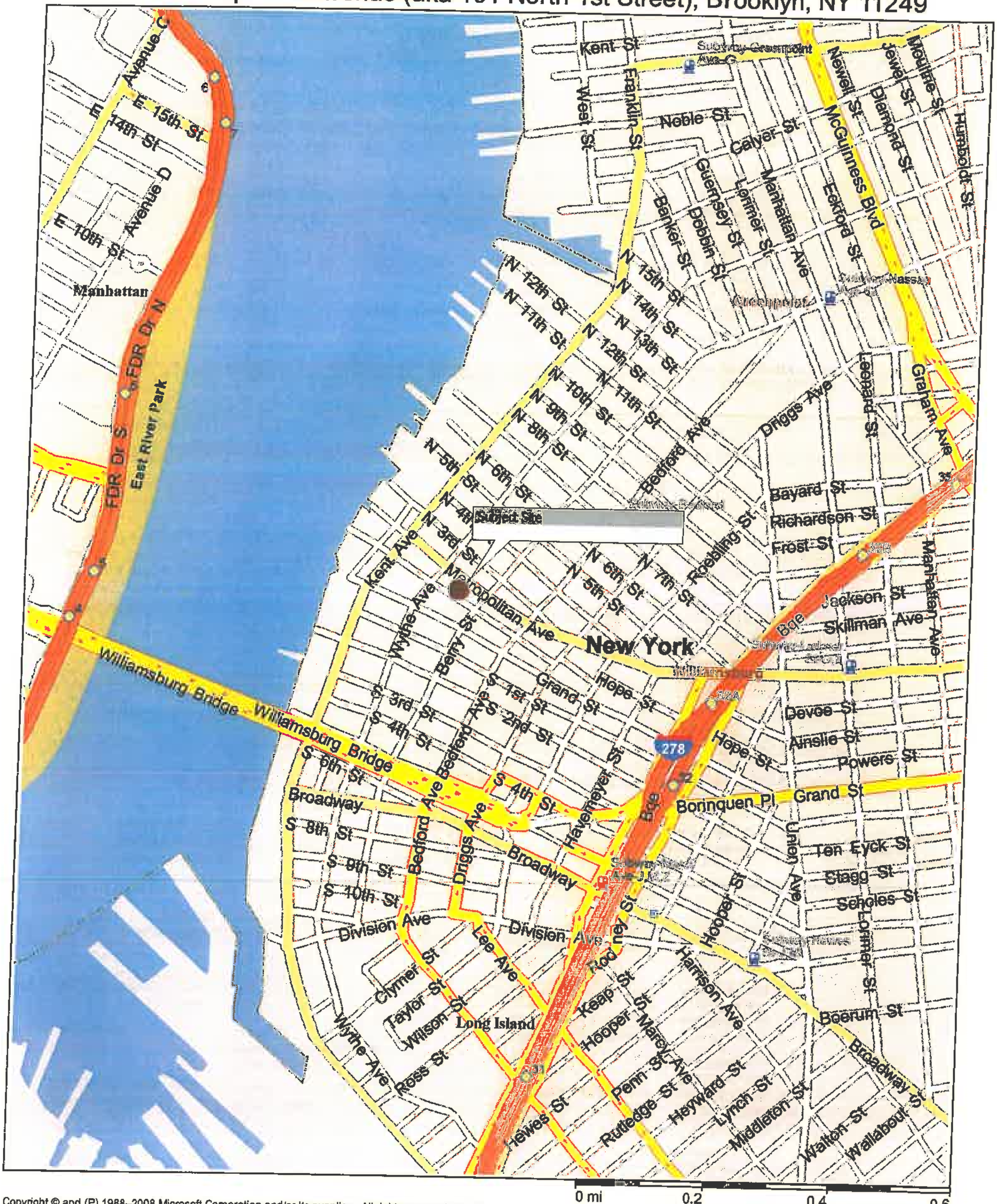
____

______________________________ 3-13-2017
Signature Date

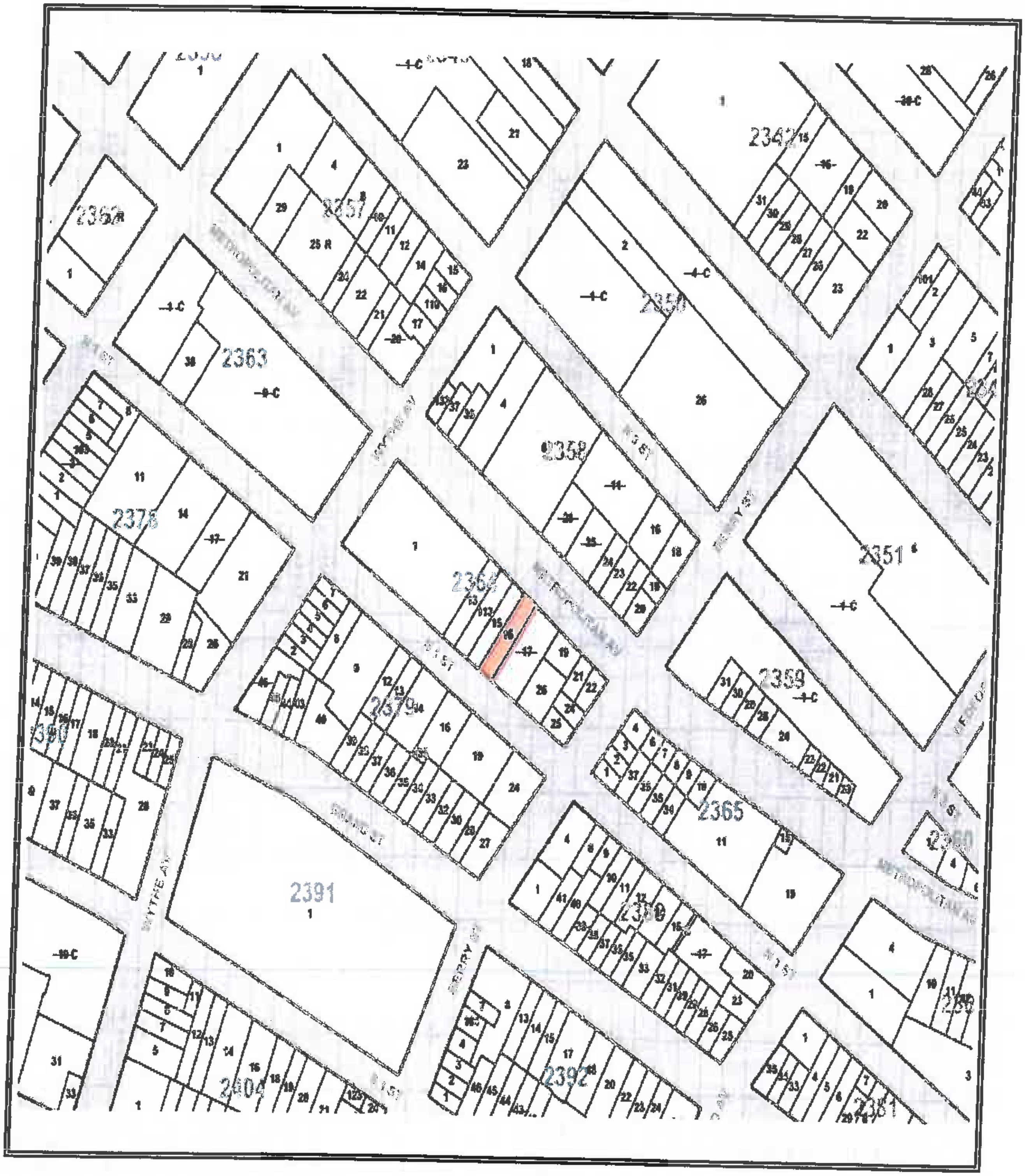
____
Name and Title

SITE AREA LOCATION MAP

134 Metropolitan Avenue (aka 101 North 1st Street), Brooklyn, NY 11249



TAX MAP



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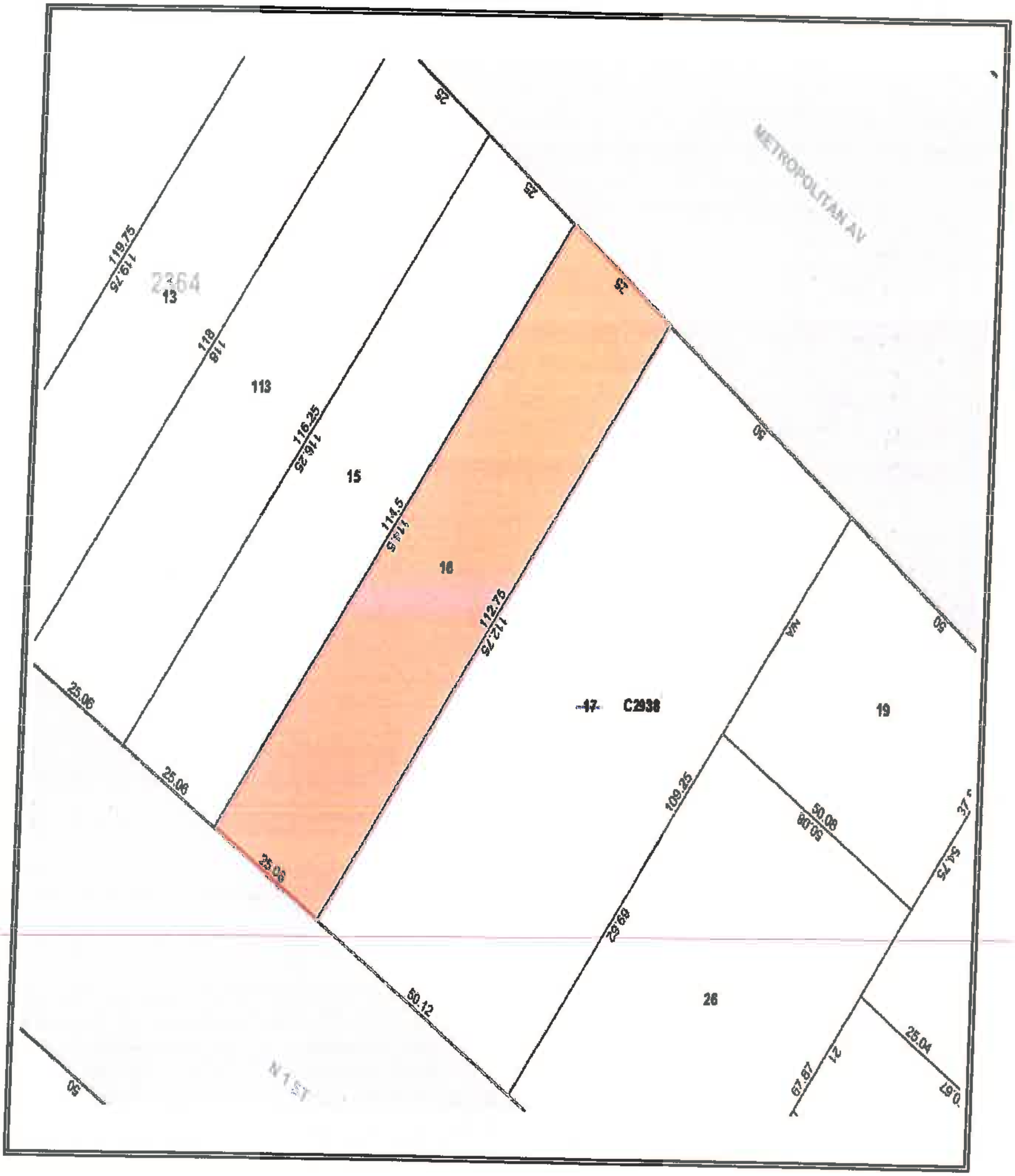
METROPOLITAN AV
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119.75
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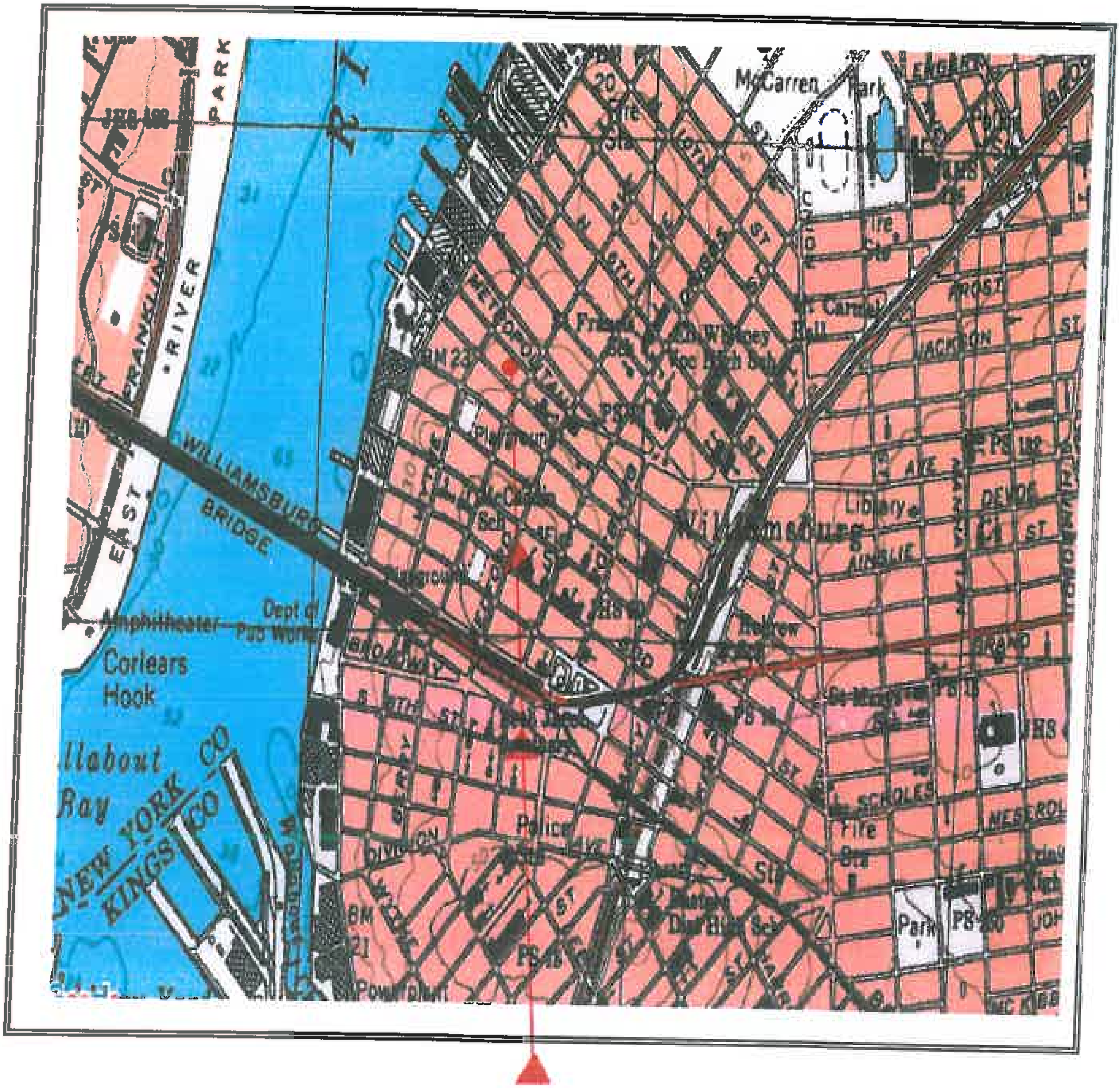
116.25
114.5
112.75
109.25
29.69
25
50
25.06
50.12
50.08
54.75
37
25.04
67.87
21
0.67

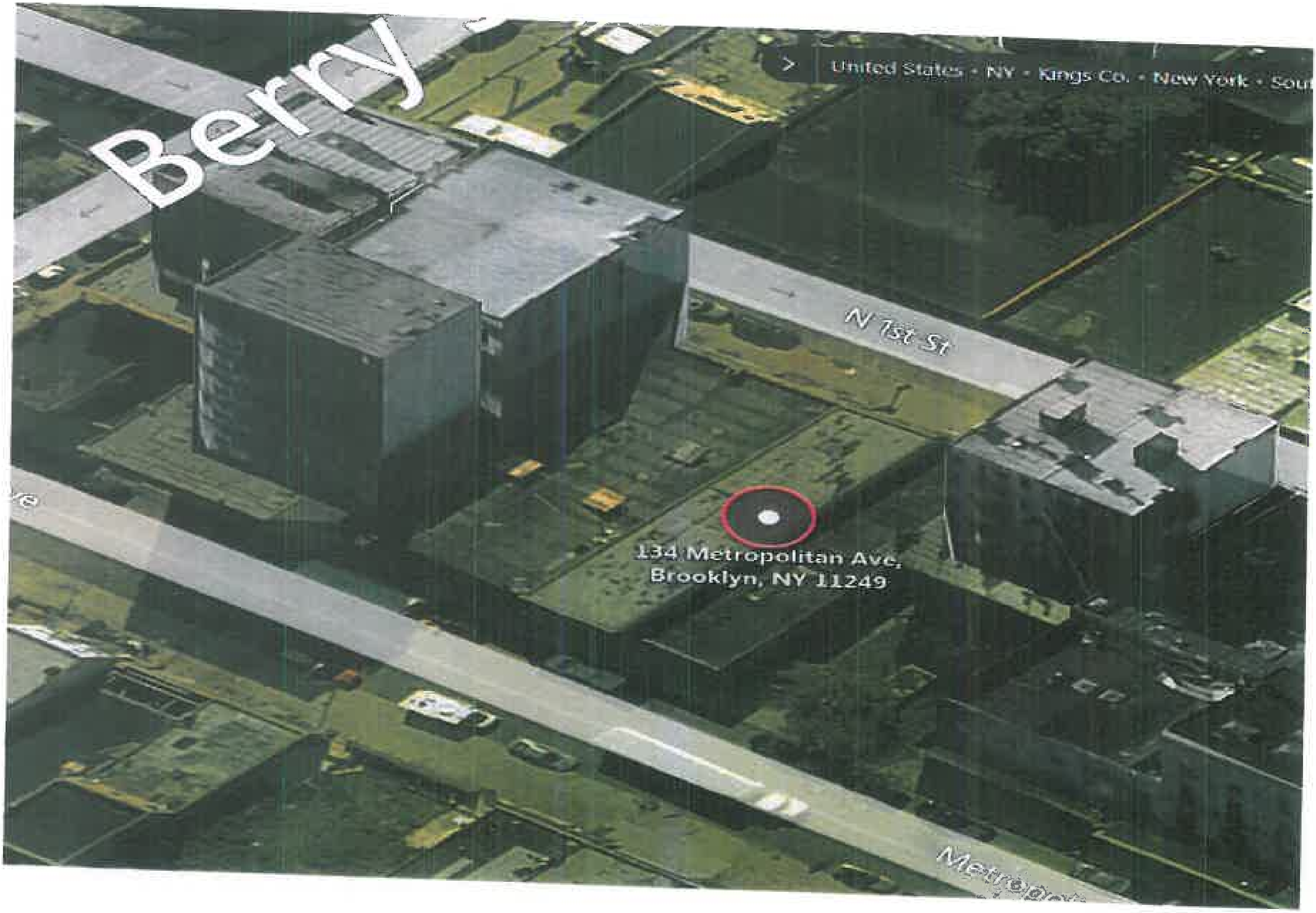
U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP



U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP

134 Metropolitan Avenue
(a.k.a. 101 North 1st Street)
Brooklyn, New York 11249

SUBJECT SITE AERIAL OVERVIEW



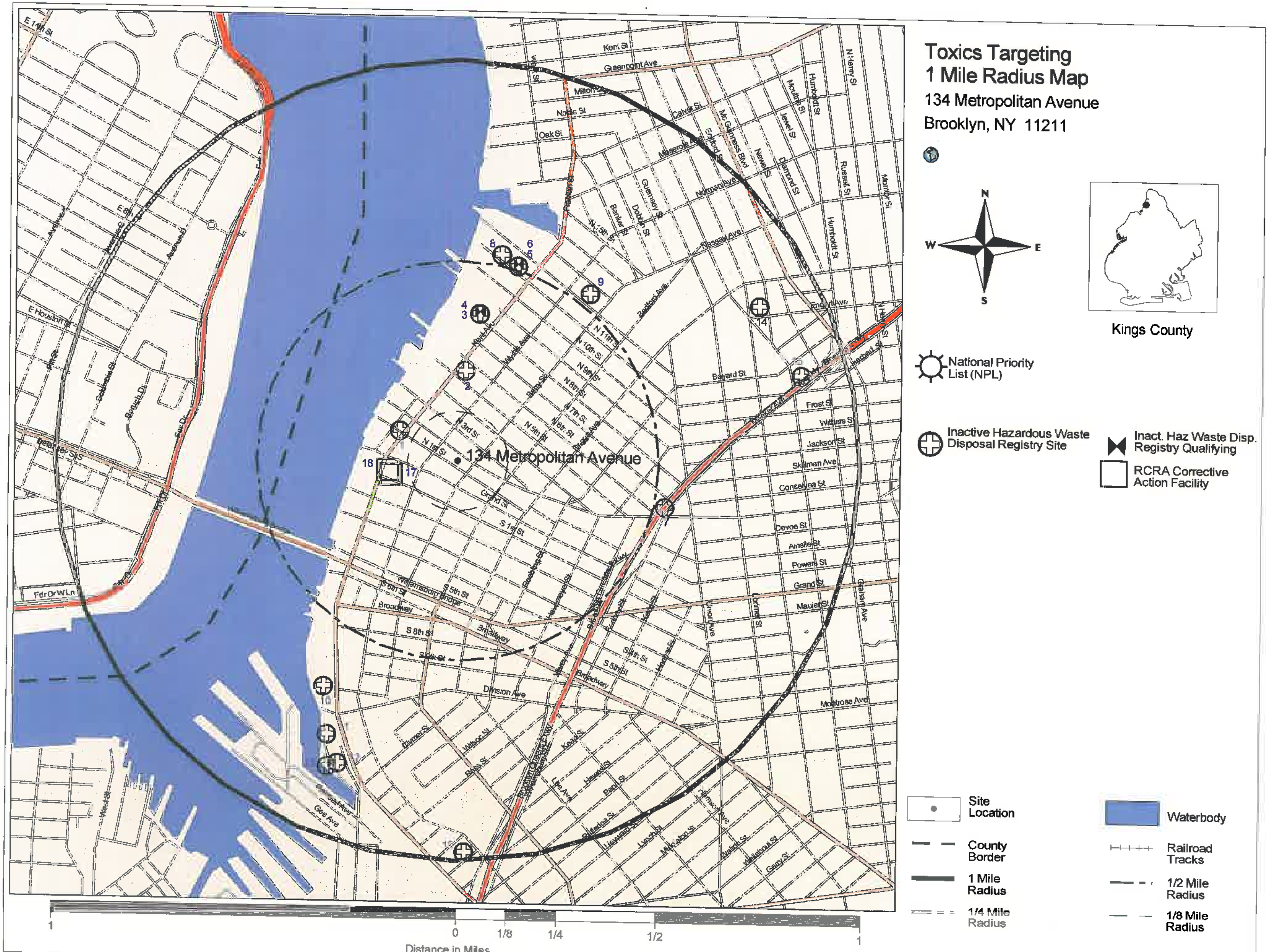
134 Metropolitan Avenue
(a.k.a. 101 North 1st Street)
Brooklyn, New York 11249

ONE (1.0) MILE DATABASE SEARCH OVERVIEW MAP

- **Displays a one mile (ASTM Standard) radius around the target property.**
- **Includes major geographic attributes available in the computer mapping system (i.e., street names, available hydrography)**

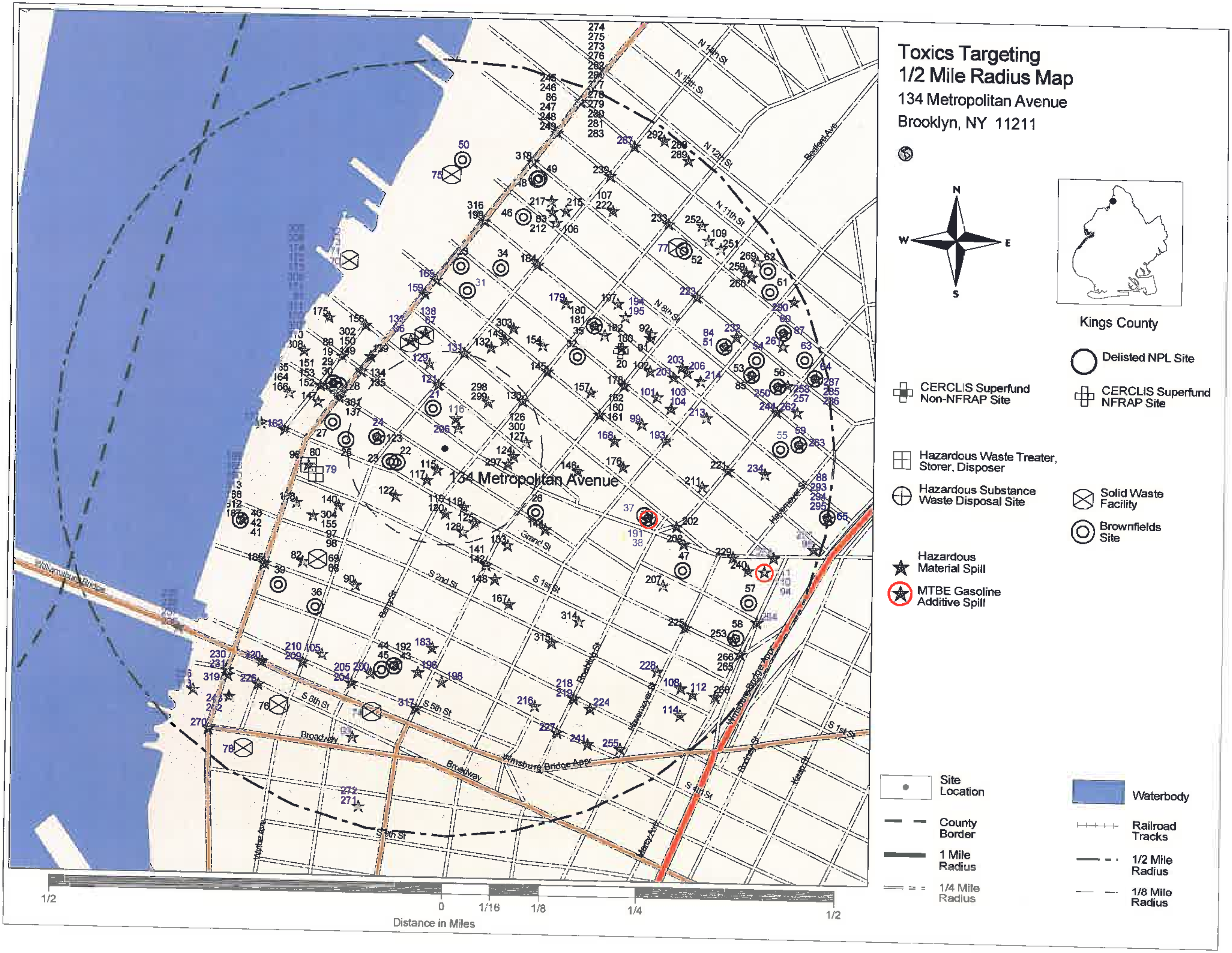
Toxics Targeting
1 Mile Radius Map

134 Metropolitan Avenue
Brooklyn, NY 11211



ONE-HALF (0.5) MILE DATABASE SEARCH OVERVIEW MAP

- **Displays a one-half mile (ASTM Standard) radius around the target property.**
- **Includes major geographic attributes available in the computer mapping system (i.e., street names, available hydrography)**


Toxics Targeting
1/2 Mile Radius Map
134 Metropolitan Avenue
Brooklyn, NY 11211
Kings County
N
S
E
W
Delisted NPL Site
CERCLIS Superfund Non-NFRAP Site
CERCLIS Superfund NFRAP Site
Hazardous Waste Treater, Storer, Disposer
Hazardous Substance Waste Disposal Site
Solid Waste Facility
Brownfields Site
Hazardous Material Spill
MTBE Gasoline Additive Spill
Site Location
County Border
1 Mile Radius
1/4 Mile Radius
Waterbody
Railroad Tracks
1/2 Mile Radius
1/8 Mile Radius
134 Metropolitan Avenue
N 14th St
N 13th St
N 12th St
N 11th St
N 8th St
Bedford Ave
Grand St
S 1st St
S 2nd St
S 5th St
S 8th St
S 9th St
S 4th St
Broadway
Havemeyer St
Roebling St
Marcy Ave
Keap St
Wythe Ave
Wmsburg Bridge Appr
1/2
0
1/16
1/8
1/4
1/2
Distance in Miles

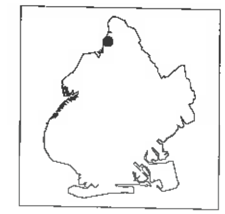
QUARTER (0.25) MILE DATABASE SEARCH DETAIL MAP

- Displays a quarter mile radius around the target property and provides a close-up view.
- Includes all geographic attributes available in the computer mapping system (i.e., street names, address ranges).
- Helps locate "orphan" sites, those sites with insufficient address information such that they can only be identified as within the zip code, city, or county of the target property.

Toxics Targeting
1/8 Mile Radius Map

134 Metropolitan Avenue

Brooklyn, NY 11211



Kings County

Major Oil Storage Facility

Chemical Storage Facility

Toxic Release

Wastewater Discharge

Hazardous Waste Generator, Transp.

Enforcement Docket Facility

Air Release

Env Qual Review E Designation

Petroleum Bulk Storage Facility

Historic Utility Site

Site Location

County Border

1/8 Mile Radius

Waterbody

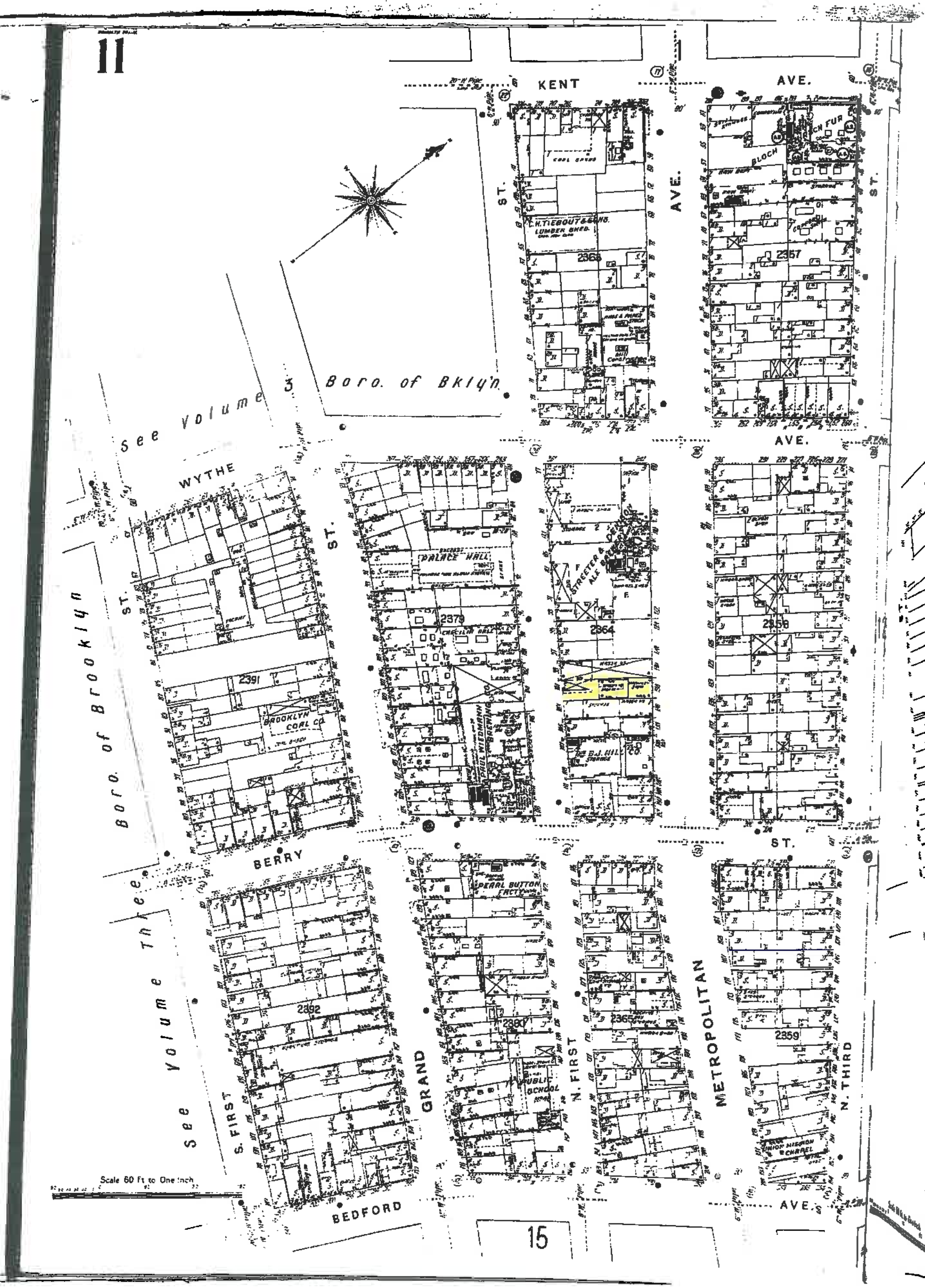
Railroad Tracks

250 Foot Radius

SANBORN FIRE INSURANCE MAPS


105
104
DRIGGS
FILLMORE PL.
102
STREET
STREET
STREET
STREET
STREET
STREET
STREET
HERLEY IRON WORKS
St. Michael's Church
CENTRAL STAMPING CO.
TINWARE FAC. 2
BEDFORD
N. FIFTH ST. M.E. CHURCH
BERRY
102
N. FIFTH
N. FOURTH
N. THIRD
N. SECOND
N. FIRST
GRAND
Cooperage
Tinware Fac.
COLOR PRINTING
Cooperage
Chalk Fac.
Wire Works
RIDGEWOOD
BREWERY
Coal Shed
WYTHE
86
86

1887


11
KENT
AVE.
ST.
AVE.
H.TIEBOUT & SONS. LUMBER SHED.
2368
2367
BLOCH
See Volume 3 Boro. of Bklyn.
AVE.
WYTHE
ST.
ST.
PALACE HALL
2379
STREETER & DENISON ALE BREWERY
2364
2356
Boro. of Brooklyn
2391
BROOKLYN COAL CO.
PAUL WIEDMANN BREWING CO.
B.J. HILL CO. STORAGE
BERRY
ST.
PEARL BUTTON FACTY.
See Volume Three
2392
2380
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GRAND
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METROPOLITAN
N. THIRD
S. FIRST
PUBLIC SCHOOL
UNION MISSION CHAPEL
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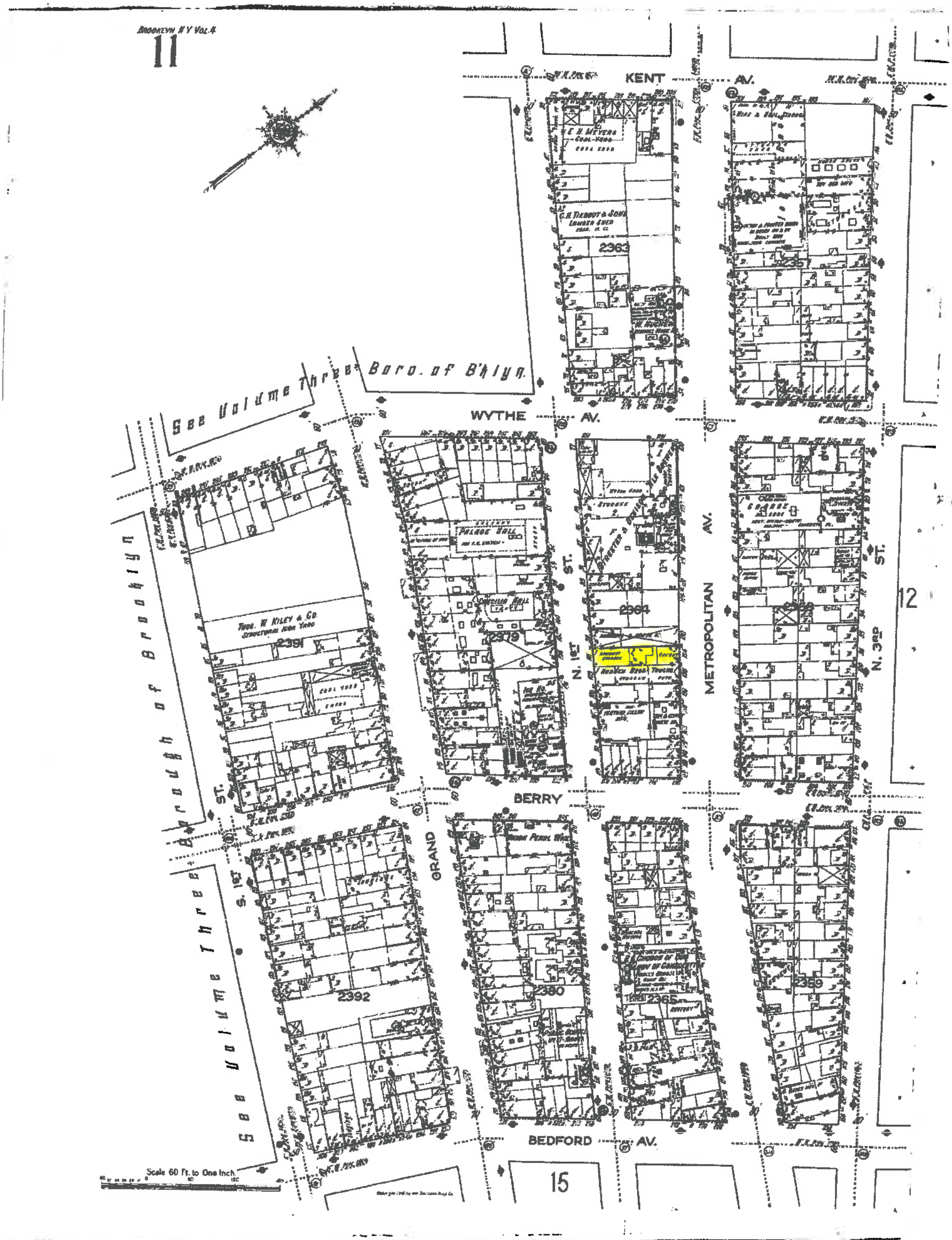
Brooklyn N.Y. Vol. 4
11
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
GRAND
N. 1ST ST.
METROPOLITAN AV.
N. 3RD ST.
S. 1ST ST.
See Volume Three Boro. of B'klyn
Borough of Brooklyn
See Volume Three
Thos. W. Kiley & Co. Structural Iron Yard
Palace Hall
Coal Yard
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Scale 60 Ft. to One Inch
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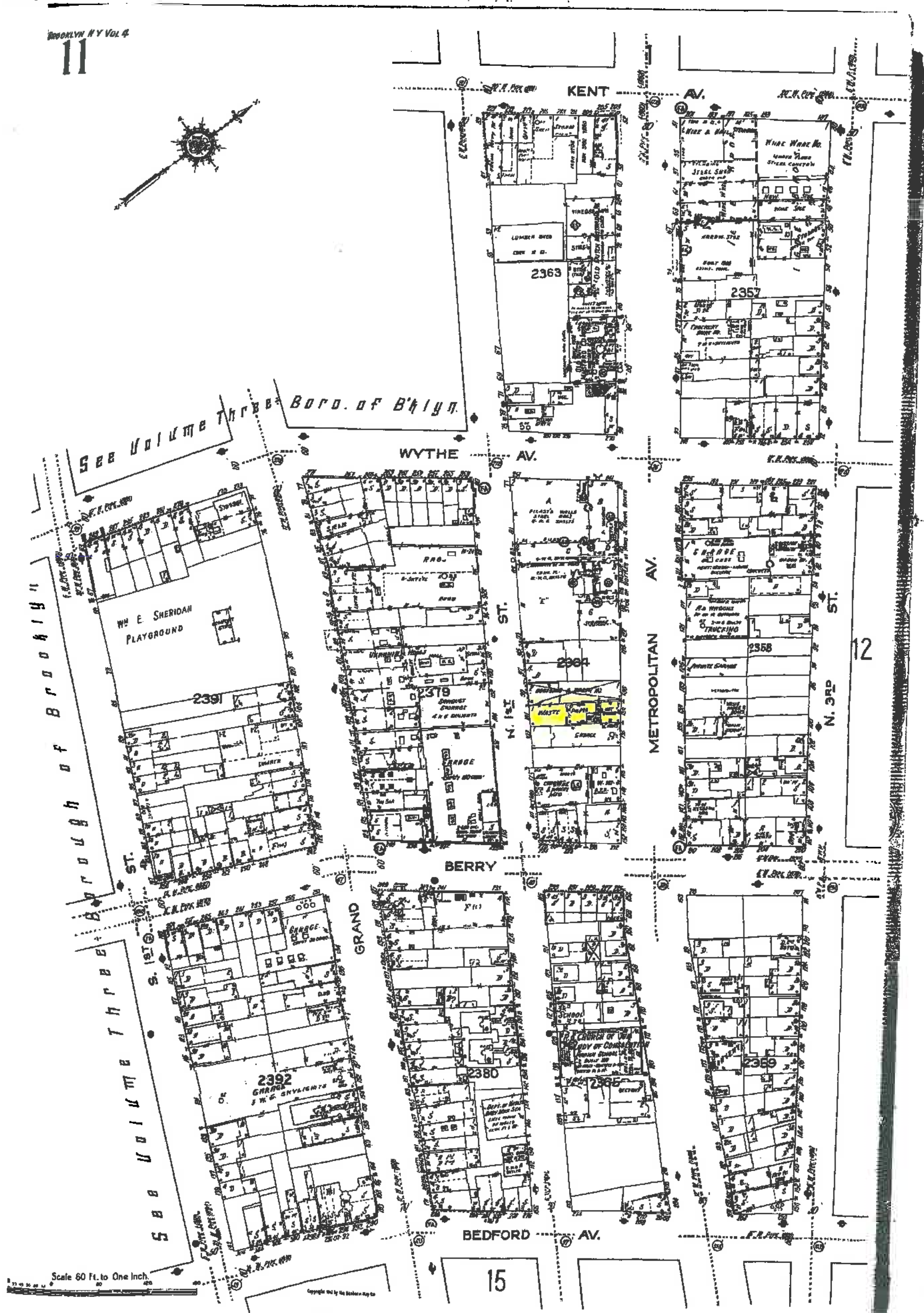

BROOKLYN N Y VOL 4
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KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
METROPOLITAN AV.
N. 1st ST.
N. 3RD ST.
GRAND
S. 1st ST.
See Volume Three Boro. of B'klyn
See Volume Three Borough of Brooklyn
Wm E. SHERIDAN PLAYGROUND
LUMBER SHED
WASTE
GARAGE
CHURCH OF OUR LADY OF CONSOLATION
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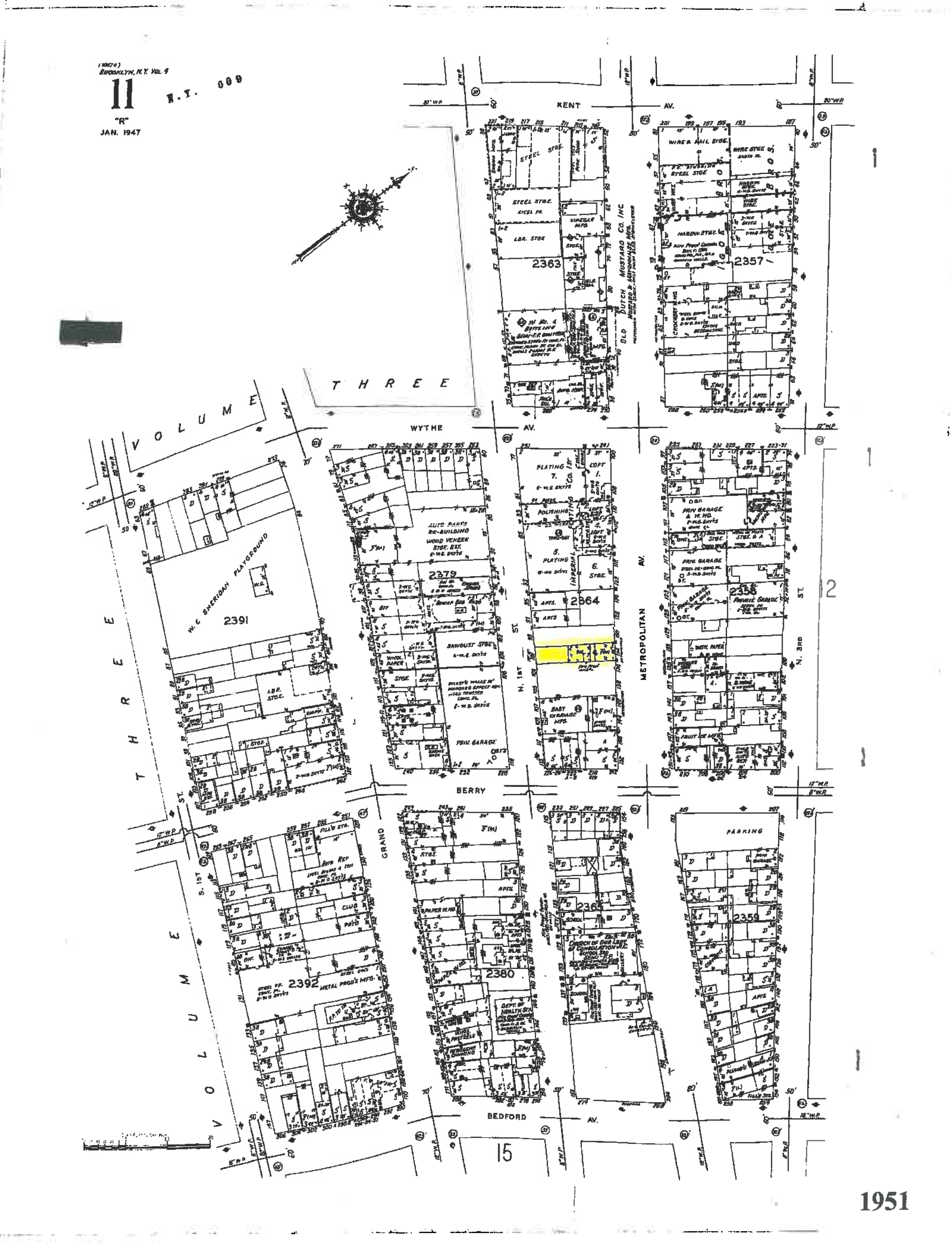
Scale 60 Ft. to One Inch.

1942



BROOKLYN, N.Y. VOL. 4
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JAN. 1947
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
GRAND
METROPOLITAN AV.
N. 1ST ST.
N. 3RD ST.
S. 1ST ST.
VOLUME THREE
THREE
W. E. SHERIDAN PLAYGROUND
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WIRE & NAIL STGE.
STEEL STGE.
VINEGAR MFG.
HARDW. STGE.
OLD DUTCH MUSTARD CO. INC.
PLATING
POLISHING
AUTO PARTS RE-BUILDING WOOD VENEER STGE.
SAWDUST STGE.
PRIV. GARAGE
BABY CARRIAGE MFG.
PARKING
PAPER W. HO.
CLUB
METAL PROD'S MFG.
SCHOOL
CHURCH OF OUR LADY OF CONSOLATION
DEPT. OF HEALTH STA.
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BROOKLYN N.Y. VOL 4

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1965

BROOKLYN, N.Y. VOL. 4

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BROOKLYN, N.Y. VOL. 4

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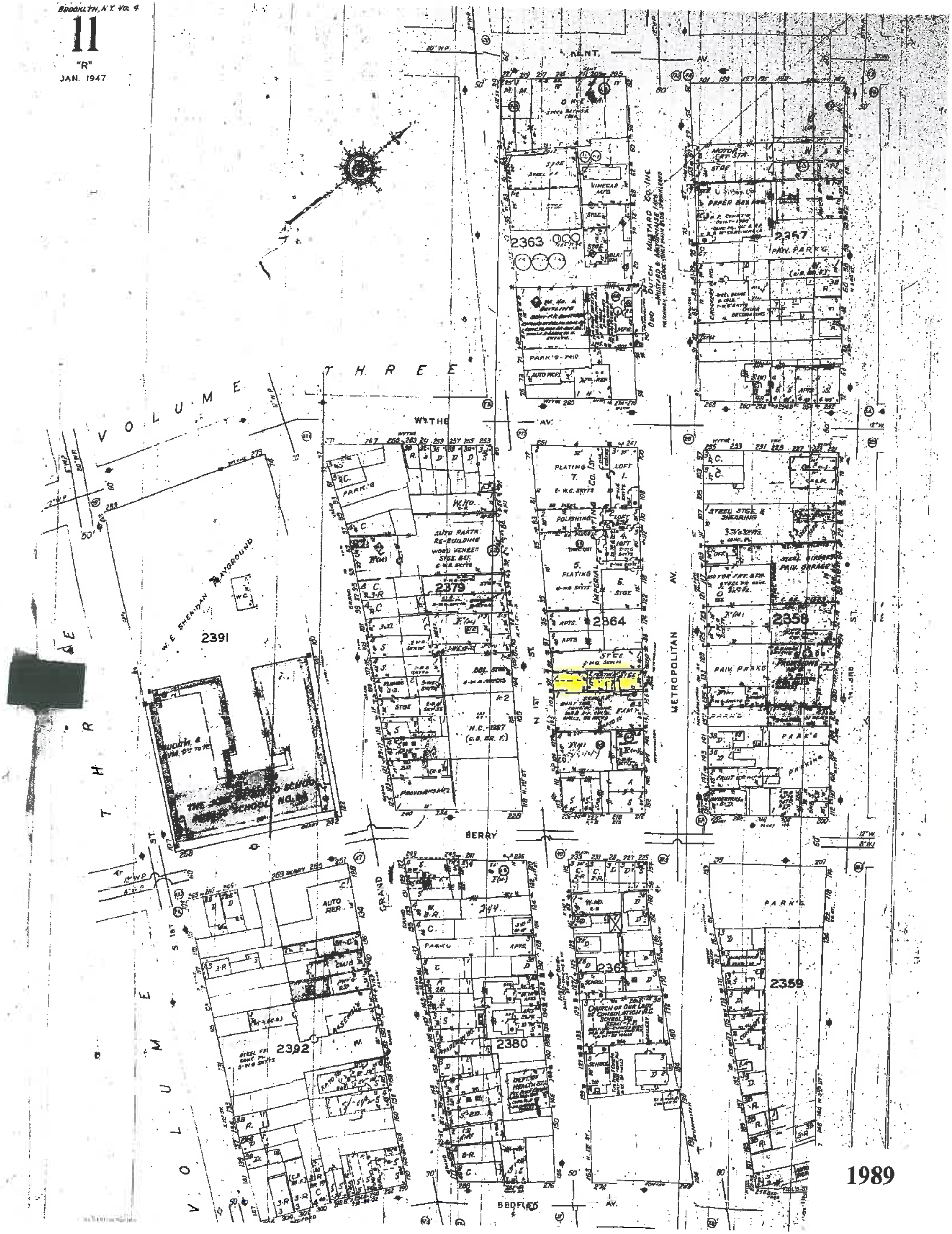

1989

HISTORICAL AND REGULATORY AGENCY RECORDS

Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Property Profile Overview

134 METROPOLITAN AVENUE		**BROOKLYN 11249**		**BIN# 3062436**	
METROPOLITAN AVENUE	134 - 134	**Health Area**	: 400	**Tax Block**	: 2364
NORTH 1 STREET	101 - 101	**Census Tract**	: 555	**Tax Lot**	: 16
		Community Board	: 301	**Condo**	: NO
		Buildings on Lot	: 1	**Vacant**	: NO

View DCP Addresses... **Browse Block**

View Zoning Documents **View Challenge Results** **Pre - BIS PA** **View Certificates of Occupancy**

Cross Street(s):	WYTHE AVENUE, BERRY STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	HAZMAT	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		
Additional Designation(s):	GW - GREENPOINT-WILLIAMSBURG ANTI-HARASSMENT		

Special District: MX-8 - MIXED USE-8 (GREENPOINT-WILLIAMSBURG, BK)

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: K1-STORE BUILDING

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	5	0
Violations-DOB	3	0
Violations-ECB (DOB)	0	0
Jobs/Filings	20	
ARA / LAA Jobs	0	
Total Jobs	20	
Actions	10	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

- **Elevator Records**
- **Electrical Applications**
- **Permits In-Process / Issued**
- **Illuminated Signs Annual Permits**
- **Plumbing Inspections**
- **Open Plumbing Jobs / Work Types**
- **Facades**
- **Marquee Annual Permits**
- **Boiler Records**
- **DEP Boiler Information**
- **Crane Information**
- **After Hours Variance Permits**

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

C of O PDF Listing for Property

Premises: 134 METROPOLITAN AVENUE BROOKLYN **BIN: 3062436 Block: 2364 Lot: 16**

Download the **Adobe Acrobat Reader** if you are unable to open the PDF files

To report a problem with any of these images, please use the **CO Image Problem Form**

CERT 86404-030838:	B000086404.PDF
JOB 321196754:	NO C/Os ISSUED OR NO IMAGE AVAILABLE
JOB 321064487:	NO C/Os ISSUED OR NO IMAGE AVAILABLE
JOB 310206577:	310206577.PDF 310206577-01.PDF

Back

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

18A 2000-37-H

DUPLICATE

CITY OF NEW YORK

No. [illegible]

OFFICE OF THE PRESIDENT OF THE BOROUGH OF BROOKLYN

DEPARTMENT OF BUILDINGS

DATE March 8, 1938

CERTIFICATE OF OCCUPANCY

(Standard form adopted by the Board of Standards and Appeals July 22, 1932, and issued pursuant to Section 411-a, Greater New York Charter, and Chapter 5, Building Code, Code of Ordinances, City of New York.)

This certificate supersedes all previously issued certificates.

To the owner or owners of the building or premises:

THIS CERTIFIES that the ~~NEW~~ ALTERED—BUILDING—PREMISES

Located at 134 Metropolitan Ave [illegible]

Block 2364, Lot 16, conforms substantially to the approved plans and specifications, and to the requirements of the building code and all other laws and ordinances, and of the rules and regulations of the Board of Standards and Appeals, applicable to a building of its class and kind at the time the permit was issued; and CERTIFIES FURTHER that, any provisions of law relating to standpipe and sprinkler equipment have been complied with as certified by a report of the Fire Commissioner to the Commissioner of Buildings.

THIS CERTIFICATE IS ISSUED SUBJECT TO THE LIMITATIONS HEREINAFTER SPECIFIED AND TO THE FOLLOWING RESOLUTIONS OF THE BOARD OF STANDARDS AND APPEALS:

(Calendar numbers to be inserted here)

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOADS LBS. PER SQ. FT.	PERSONS ACCOMMODATED MALE	FEMALE	TOTAL	USE
Cellar					Ordinary use
~~Basement~~					None
First	120	2	—	2	[illegible]
Second					Vacant
Third					Vacant
~~Fourth~~					
Fifth					
Sixth					

Total [illegible] for [illegible] Only 2nd & 3rd floors to be vacant

Permit No. 1056-38 Type of Construction Brick

Height 3 stories, — feet. Date of completion, construction 3/2/38

plumbing [illegible]

Located in Unrestricted zone at time of issuance of permit.

(over)

NO CHANGE OF USE OR OCCUPANCY NOT CONSISTENT WITH THIS CERTIFICATE SHALL BE MADE UNLESS FIRST APPROVED BY THE COMMISSIONER OF BUILDINGS.

Unless an approval for the same has been obtained from the Commissioner of Buildings, no change or rearrangement in the structural parts of the building, or affecting the light and ventilation of any part thereof, or in the exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building be moved from one location or position to another; nor shall there be any reduction or diminution of the area of the lot or plot on which the building is located.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

The superimposed, uniformly distributed loads, or concentrated loads producing the same stresses in the construction in any story shall not exceed the live loads specified above; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons in any story exceed the specified total; and the use to which any story may be put shall be restricted to that fixed by this certificate except as specifically stated.

This certificate does not in any way relieve the owner or owners or any other person or persons in possession or control of the building, or any part thereof, from obtaining such other permits, licenses or approvals as may be described by law for the uses or purposes for which the building is designed or intended; nor from obtaining the special certificates required for the use and operation of elevators; nor from the installation of fire alarm systems where required by law; nor from complying with any lawful order for additional fire extinguishing appliances under the discretionary powers of the fire commissioner; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any authorized direction to remove encroachments into a public highway or other public place, whether attached to or part of the building or not.

If this certificate is marked "Temporary," it is applicable only to those parts of the building indicated on its face, and certifies to the legal use and occupancy of only such parts of the building; it is subject to all the provisions and conditions applying to a final or permanent certificate; it is not applicable to any building under the jurisdiction of the tenement house commissioner unless it is also approved and endorsed by him; and it must be replaced by a full certificate at the date of its expiration.

Examined by [signature]

A. RHEINSTEIN
COMMR. OF HOUSING & BUILDINGS
[signature] Moran

Per ______________________ ______________________

Commissioner of Buildings.
Borough of Brooklyn.

Additional copies of this certificate will be issued, upon written request, to persons having an interest in the building or premises.

NYC Buildings

Certificate of Occupancy

CO Number: 310206577F

This certifies that the premises described herein conforms substantially to the approved plans and specifications and to the requirements of all applicable laws, rules and regulations for the uses and occupancies specified. No change of use or occupancy shall be made unless a new Certificate of Occupancy is issued. *This document or a copy shall be available for inspection at the building at all reasonable times.*

A.

Borough: Brooklyn	**Block Number:** 02364	**Certificate Type:** Final
Address: 134 METROPOLITAN AVENUE	**Lot Number(s):** 16	**Effective Date:** 02/03/2011
Building Identification Number (BIN): 3062436	**Building Type:** Altered	

This building is subject to this Building Code: Prior to 1968 Code

For zoning lot metes & bounds, please see BISWeb.

B.

Construction classification:	3	(Prior to 1968 Code designation)
Building Occupancy Group classification:	A-2	(2008 Code)
Multiple Dwelling Law Classification:	None	

No. of stories: 2 **Height in feet:** 18 **No. of dwelling units:** 0

C. Fire Protection Equipment:
None associated with this filing.

D. Type and number of open spaces:
None associated with this filing.

E. This Certificate is issued with the following legal limitations:
None

Borough Comments: None

, R.A.

Borough Commissioner

Commissioner

DOCUMENT CONTINUES ON NEXT PAGE

NYC Buildings

Certificate of Occupancy

CO Number: **310206577F**

Permissible Use and Occupancy

All Building Code occupancy group designations below are 2008 designations.

Floor From To	Maximum persons permitted	Live load lbs per sq. ft.	Building Code occupancy group	Dwelling or Rooming Units	Zoning use group	Description of use
CEL	10	OG	A-2		12	ACCESSORY STORAGE,MECHANICAL ROOM
MEZ	60	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION.
001 001	218	120	A-2		12	EATING OR DRINKING ESTABLISMENT WITH OUT RESTRICTION.
ROF	55	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION.

ZONING LOT DESCRIPTION EXHIBIT III FILED WITH THE CITY REGISTER UNDER CRFN# 2009000117239. ZONING LOT CERTIFICATE EXHIBIT I FILE WITH THE CITY REGISTER UNDER CRFN#2009000091758

END OF SECTION

, R.A.

Borough Commissioner

Commissioner

END OF DOCUMENT

NYC Buildings

Certificate of Occupancy

CO Number: 310206577T001

This certifies that the premises described herein conforms substantially to the approved plans and specifications and to the requirements of all applicable laws, rules and regulations for the uses and occupancies specified. No change of use or occupancy shall be made unless a new Certificate of Occupancy is issued. *This document or a copy shall be available for inspection at the building at all reasonable times.*

A.

Borough: Brooklyn
Address: 134 METROPOLITAN AVENUE
Building Identification Number (BIN): 3062436

Block Number: 02364
Lot Number(s): 16
Building Type: Altered

Certificate Type: Temporary
Effective Date: 12/30/2010
Expiration Date: 02/28/2011

This building is subject to this Building Code: Prior to 1968 Code

For zoning lot metes & bounds, please see BISWeb.

B.

Construction classification:	3	(Prior to 1968 Code designation)
Building Occupancy Group classification:	A-2	(2008 Code)
Multiple Dwelling Law Classification:	None	

No. of stories: 2 **Height in feet:** 18 **No. of dwelling units:** 0

C. Fire Protection Equipment:
None associated with this filing.

D. Type and number of open spaces:
None associated with this filing.

E. This Certificate is issued with the following legal limitations:
None

Outstanding requirements for obtaining Final Certificate of Occupancy:
There are 7 outstanding requirements. Please refer to BISWeb for further detail.

Borough Comments: None

R.A.

Borough Commissioner

Commissioner

DOCUMENT CONTINUES ON NEXT PAGE

NYC Buildings

Certificate of Occupancy

CO Number: **310206577T001**

Permissible Use and Occupancy

All Building Code occupancy group designations below are 2008 designations.

Floor From To	Maximum persons permitted	Live load lbs per sq. ft.	Building Code occupancy group	Dwelling or Rooming Units	Zoning use group	Description of use
CEL	10	OG	A-2		12	ACCESSORY STORAGE, AND MECHANICAL ROOM
MEZ	60	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION
001 001	218	120	A-2		12	EATING OR DRINKING ESTABLISMENT WITH OUT RESTRICTION
ROF	55	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION

ZONING LOT DESCRIPTION EXHIBIT III FILED WITH THE CITY REGISTER UNDER CRFN# 2009000117239. ZONING LOT CERTIFICATE EXHIBIT I FILE WITH THE CITY REGISTER UNDER CRFN#2009000091758

END OF SECTION

, R.A.

Borough Commissioner

Commissioner

END OF DOCUMENT

Buildings

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Actions

Page: 1

Premises: 134 METROPOLITAN AVENUE BROOKLYN BIN: 3062436 Block: 2364 Lot: 16

NUMBER		TYPE	FILE DATE
ALT 19417OCCUPANCY-112337		ALTERATION	00/00/1937
ALT 1050-38		ALTERATION	00/00/1938
ALT 989DENIEDINACTIV-040642		ALTERATION	00/00/1942
ALT 1259-90		ALTERATION	08/29/1990
ALTA 1050-38			00/00/1938
CERT 86404-030838	(PDF)	CERTIFICATE OF OCCUPANCY	00/00/1938
NB 152FRONTBLDG-031742		NEW BUILDING	00/00/1942
P&D 962-42		PLUMBING & DRAINAGE	00/00/1942
SPR 1226CBL-62		SPRINKLERS	00/00/1962
SPR 392CBL-65		SPRINKLERS	00/00/1965
V* 4653FRIEDMANREMO-111749		DOB VIOLATION - DISMISSED	00/00/0000
V* 4926/134NEWELL12--110365		DOB VIOLATION - DISMISSED	00/00/0000
V* 071509C0101JV		DOB VIOLATION - DISMISSED	07/15/2009

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

Buildings

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Permits In-Process / Issued by Premises

Page: 1 of 1

Premises: 134 METROPOLITAN AVENUE BROOKLYN **BIN: 3062436 Block: 2364 Lot: 16**

NUMBER	JOB TYPE	SEQ NO	ISSUED DATE	EXPIRATION DATE	STATUS	APPLICANT NAME
321198066-01-EW OT	A2 - ALT2	01	08/29/2014	12/03/2014	ISSUED	WILLIAMS KERRY
320098504-01-AL	A3 - ALT3	01	06/10/2010	11/23/2010	ISSUED	KACZOR MAREK
320041398-01-PL	A2 - ALT2	01	06/04/2010	06/04/2011	ISSUED	DIAZ DARIO
320041398-01-EW SP	A2 - ALT2	01	12/02/2009	12/02/2010	ISSUED	HUERTAS JORGE
310206577-01-PL	A1 - ALT1	01	06/03/2009	06/03/2010	ISSUED	GOLDER WARREN
310206577-01-AL	A1 - ALT1	02	09/22/2009	07/07/2010	ISSUED	CLARKE JOSCELYN
3P0004861-01-		04	02/04/1994	01/18/1995	ISSUED	CARACCIOLO AL
3PL002153-01-PL PL		01	07/23/1996	03/15/1997	ISSUED	CHUMSKY HAROLD

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Buildings

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NYC Department of Buildings

Work Permit Data

Premises: 134 METROPOLITAN AVENUE BROOKLYN
Filed At: 134 METROPOLITAN AVENUE BROOKLYN
BIN: 3062436 **Block:** 2364 **Lot:** 16
Job Type: A2 - ALTERATION TYPE 2

CONCRETE WORK NOT AUTHORIZED - CONCRETE PLACEMENT, FORMWORK, STEEL REINFORCING NOT PERMITTED

Job No:	321198066			**Fee:**	STANDARD
Permit No:	321198066-01-EW-OT	**Issued:**	08/29/2014	**Expires:**	12/03/2014
Seq. No.:	01	**Filing Date:**	08/29/2014 INITIAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	08/29/2014	**Work Approved:**	08/21/2014

ALTERATION TYPE 2 - GEN. CONSTR.
THE ADDITION OF NEW INTERIOR PARTITIONS, AWNING, AND EXTERIOR LIGHTING AS PER PLANS FILED. NO CHANGE IN USE, EGRESS, OR OCCUPANCY.

Use: COM - COMMERCIAL BUILDINGS - OLD CODE **Landmark:** NO **Stories:** 2
Site Fill: NOT APPLICABLE
Review is requested under Building Code: 1968

Adding more than three stories: No
Removing one or more stories: No
Performing work in 50% or more of the area of the building: No
Demolishing 50% or more of the area of the building: No
Performing a vertical or horizontal enlargement adding more than 25% of the area of the building: No
Mechanical equipment other than handheld devices to be used for demolition or removal of debris to be used: No

---

Approved work includes concrete: No
Concrete work has been completed: No
Requesting concrete exclusion now: No
Work includes 2,000 cubic yards or more of concrete: No

Issued to: KERRY WILLIAMS
GENERAL CONTRACTOR - NON-REGISTERED: GC 610032

Business: IMPACT BUILDERS CORP
150-38 UNION TURNPIKE STE 7G FLUSHING NY 11367
Phone: 718-902-3300

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

Buildings

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NYC Department of Buildings

Work Permit Data

Premises: 134 METROPOLITAN AVENUE BROOKLYN
BIN: 3062436 Block: 2364 Lot: 16

Filed At: 134 METROPOLITAN AVENUE BROOKLYN
Job Type: A1 - ALTERATION TYPE 1

Inspection History

Job No:	310206577			**Fee:**	STANDARD
Permit No:	310206577-01-PL	**Issued:**	06/03/2009	**Expires:**	06/03/2010
Seq. No.:	01	**Filing Date:**	06/03/2009 INITIAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	06/03/2009	**Work Approved:**	04/03/2009

PLUMBING - ALTERATION TYPE 1
TO CONVERT EXISTING PUBLIC PARKING INTO AN EATING AND DRINKING ESTABLISHMENT.TO CREATE A NEW MEZZANINE.ALL AS PER PLANS FILED HEREWITH.

Use: A-2 - ASSEMBLY: EATING & DRINKING **Landmark:** NO **Stories:** 2
Site Fill: NOT APPLICABLE
Review is requested under Building Code: Prior-to-1968

Issued to: WARREN J GOLDER
Business: WARREN GOLDER LICE PLBR
266 WYCKOFF AVENUE BROOKLYN NY 11237

MASTER PLUMBER
License No: MP 000800
Phone: 718-821-7735

Applicant Can No
Longer Self-Certify

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

Buildings

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NYC Department of Buildings

Work Permit Data

Premises: 134 METROPOLITAN AVENUE BROOKLYN **Filed At: 134 METROPOLITAN AVENUE BROOKLYN**
BIN: 3062436 Block: 2364 Lot: 16 **Job Type: A1 - ALTERATION TYPE 1**

View Permit History

Job No:	310206577			**Fee:**	STANDARD
Permit No:	310206577-01-AL	**Issued:**	09/22/2009	**Expires:**	07/07/2010
Seq. No.:	02	**Filing Date:**	09/22/2009 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	05/29/2009	**Work Approved:**	04/03/2009

ALTERATION TYPE 1 -
TO CONVERT EXISTING PUBLIC PARKING INTO AN EATING AND DRINKING ESTABLISHMENT.TO CREATE A NEW MEZZANINE.ALL AS PER PLANS FILED HEREWITH.

Use: A-2 - ASSEMBLY: EATING & DRINKING **Landmark:** NO **Stories:** 2
Site Fill: NOT APPLICABLE
Review is requested under Building Code: Prior-to-1968

Issued to: JOSCELYN CLARKE

GENERAL CONTRACTOR - NON-REGISTERED: GC 036431

Business: PARDY & SONS CONSTR. CORP
33-13 102 ST CORONA NY 11368

Phone: 718-803-9015

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

NYC

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NYC Department of Buildings

Work Permit Data

Premises: 134 METROPOLITAN AVENUE BROOKLYN **Filed At: 134 METROPOLITAN AVENUE BROOKLYN**
BIN: 3062436 Block: 2364 Lot: 16 **Job Type: PT - PRE-BIS ALTERATION**

View Permit History | Documents Collected | C/O Application Summary

Job No:	3P0004861	**App No.:**	ALT1259-90	**Fee:**	STANDARD
Permit No:	3P0004861	**Issued:**	02/04/1994	**Expires:**	01/18/1995
Seq. No.:	04	**Filing Date:**	02/04/1994 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	09/24/1991	**Work Approved:**	11/15/1990

CONSTRUCT A ONE STORY ENLARGEMENT.

Zoning:	M1-1,,	**Special District:**	N/A		
Total Floor Area:	N/A	**No. Dwellings:**	N/A		
Use:	COM - COMMERCIAL BUILDINGS - OLD CODE	**Landmark:**	NO	**Stories:**	1

Issued to: AL V CARACCIOLO
Business: CARACCIOLO CONSTRUCTION CO.

License No: java.lang.ArrayIndexOutOfBoundsException at org.apache.jsp.bismix03_jsp._jspService (bismix03_jsp.java:1584) at org.apache.jasper.runtime.HttpJspBase.service (HttpJspBase.java:70) at javax.servlet.http.HttpServlet.service (HttpServlet.java:717) at org.apache.jasper.servlet.JspServletWrapper.service (JspServletWrapper.java:388) at org.apache.jasper.servlet.JspServlet.serviceJspFile (JspServlet.java:313) at org.apache.jasper.servlet.JspServlet.service (JspServlet.java:260) at javax.servlet.http.HttpServlet.service (HttpServlet.java:717) at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter (ApplicationFilterChain.java:290) at org.apache.catalina.core.ApplicationFilterChain.doFilter (ApplicationFilterChain.java:206) at org.apache.catalina.core.ApplicationDispatcher.invoke (ApplicationDispatcher.java:646) at org.apache.catalina.core.ApplicationDispatcher.processRequest (ApplicationDispatcher.java:436) at org.apache.catalina.core.ApplicationDispatcher.doForward (ApplicationDispatcher.java:374) at org.apache.catalina.core.ApplicationDispatcher.forward (ApplicationDispatcher.java:302) at nyc.gov.buildings.bis.BISServlet.doForward(Unknown Source) at nyc.gov.buildings.bis.BISServlet.doGet(Unknown Source) at javax.servlet.http.HttpServlet.service(HttpServlet.java:617) at javax.servlet.http.HttpServlet.service(HttpServlet.java:717) at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter (ApplicationFilterChain.java:290) at org.apache.catalina.core.ApplicationFilterChain.doFilter (ApplicationFilterChain.java:206) at org.apache.catalina.core.StandardWrapperValve.invoke (StandardWrapperValve.java:233) at org.apache.catalina.core.StandardContextValve.invoke (StandardContextValve.java:191) at org.apache.catalina.core.StandardHostValve.invoke (StandardHostValve.java:127) at org.apache.catalina.valves.ErrorReportValve.invoke (ErrorReportValve.java:102) at org.apache.catalina.valves.AccessLogValve.invoke (AccessLogValve.java:589) at org.apache.catalina.valves.RequestFilterValve.process

(RequestFilterValve.java:276) at
nyc.gov.buildings.catalinamods.HttpMethodValve.invoke
(HttpMethodValve.java:31) at
org.apache.catalina.core.StandardEngineValve.invoke
(StandardEngineValve.java:109) at
org.apache.catalina.connector.CoyoteAdapter.service
(CoyoteAdapter.java:291) at
org.apache.jk.server.JkCoyoteHandler.invoke
(JkCoyoteHandler.java:190) at
org.apache.jk.common.HandlerRequest.invoke
(HandlerRequest.java:291) at
org.apache.jk.common.ChannelSocket.invoke
(ChannelSocket.java:776) at
org.apache.jk.common.ChannelSocket.processConnection
(ChannelSocket.java:705) at
org.apache.jk.common.ChannelSocket$SocketConnection.runIt
(ChannelSocket.java:898) at
org.apache.tomcat.util.threads.ThreadPool$ControlRunnable.run
(ThreadPool.java:690) at java.lang.Thread.run(Thread.java:738)

Buildings

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NYC Department of Buildings

Boiler Query

NO RECORDS WERE FOUND FOR BOILER FILE

Premises: **BIN:** **Block:** **Lot:**

VIOL	NUM	MD	SER#	STATUS	INSP-DATE	RECV-DATE	NAME

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

FIRE DEPARTMENT - CITY OF NEW YORK
BUREAU OF REVENUE MANAGEMENT
9 Metro Tech Center
Brooklyn, New York 11201-3857

Tank Report Request Form

MAIL TO:

Sholeh Hashemkhani
GCI Environmental
1092 Motor Parkway
Hauppauge, New York 11788
Tel: 1-800-842-5073 ext. 205

134 Metropolitan Avenue (aka 101 North 1st Street)
ADDRESS

Brooklyn
BOROUGH

REPORTS:

✔ The total amount and size of removed or sealed tanks.

Signature: GCI Environmental

Date: 3/08/17

GCI Job No.: 2017047

DO NOT WRITE BELOW

Sir/Madam:

In reply to your request concerning the premises mentioned above, please be advised that as of____________________, our records show the following:

Tank Type: ______________________________

Account No.: ______________________________

Owner: ______________________________

Exp. Date: ____________________

Status: ____________________

New York City Department of Finance
Office of the City Register

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Current Search Criteria:

Borough: BROOKLYN / KINGS
Block: 2364
Lot: 16 **Unit:** N/A
Date Range: To Current Date
Document Class: All Document Classes

Search Results By Parcel Identifier

Records 1 - 10 << previous next >> Max Rows 10 [Search Options] [New BBL Search] [Edit Current Search]
[View Tax Map] **[Print Index]**

View	Reel/Pg/File	CRFN	Lot	Partial	Doc Date	Recorded / Filed	Document Type	Pages	Party1	Party2	Party 3/ Other	More Party 1/2 Names	Corrected/ Remarks	Doc Amount
DET IMG		2015000294910	16	ENTIRE LOT	6/19/2015	8/25/2015 11:10:57 AM	ZONING LOT DESCRIPTION	5	METRO NORTH LLC					0
DET IMG		2015000294909	16	ENTIRE LOT	7/27/2015	8/25/2015 11:10:56 AM	CERTIFICATE	5	FIRST AMERICAN TITLE INSURANCE COMPANY					0
DET IMG		2009000275064	16	ENTIRE LOT	8/13/2009	8/27/2009 11:25:58 AM	SATISFACTION OF MORTGAGE	3	KACZOR, MAREK	WOJCIK, ALBINA JULIANNA				0
DET IMG		2009000231626	16	ENTIRE LOT	6/1/2009	7/28/2009 11:29:32 AM	DEED	4	KACZOR, MAREK	METRO NORT LLC				0
DET IMG		2009000117239	16	ENTIRE LOT	9/12/2008	4/21/2009 11:30:10 AM	ZONING LOT DESCRIPTION	4	PARTNERS ABSTRACT CORP.					0
DET IMG		2009000091758	16	ENTIRE LOT	8/25/2008	3/30/2009 3:21:02 PM	CERTIFICATE	6	PARTNERS ABSTRACT CORP.	KACZOR, MAREK		✓		0
DET IMG		2008000380888	16	ENTIRE LOT	9/12/2008	9/25/2008 11:56:18 AM	ZONING LOT DESCRIPTION	4	PARTNERS ABSTRACT CORP					0
DET IMG		2008000380887	16	ENTIRE LOT	8/25/2008	9/25/2008 11:56:17 AM	CERTIFICATE	5	PARTNERS ABSTRACT CORP					0
DET IMG		2008000380886	16	ENTIRE LOT	8/25/2008	9/25/2008 11:56:16 AM	CERTIFICATE	5	PARTNERS ABSTRACT CORP					0
DET IMG		2007000400479	16	ENTIRE LOT	6/9/2007	8/3/2007 11:06:06 AM	MORTGAGE	7	KACZOR, MAREK	WOJCIK, ALBINA JULIANNA				600,000

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New York City Department of Finance
Office of the City Register

HELP
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Current Search Criteria:

Borough: BROOKLYN / KINGS
Block: 2364
Lot: 16 **Unit:** N/A
Date Range: To Current Date
Document Class: All Document Classes

Search Results By Parcel Identifier

Records 11 - 18 << previous next >> Max Rows 10 [Search Options] [New BBL Search] [Edit Current Search] [View Tax Map] [**Print Index**]

View	Reel/Pg/File	CRFN	Lot	Partial	Doc Date	Recorded / Filed	Document Type	Pages	Party1	Party2	Party 3/ Other	More Party 1/2 Names	Corrected/ Remarks	Doc Amount
DET IMG		2007000400478	16	ENTIRE LOT	7/9/2007	8/3/2007 11:06:05 AM	DEED, OTHER	5	WOJICK, ALBINA JULIANNA	KACZOR, MAREK		✓		1,200,000
DET IMG		2007000326470	16	ENTIRE LOT	5/8/2007	6/25/2007 11:51:16 AM	DEED, OTHER	5	HENRY WOJCIK LIVING TRUST	WOJCIK, HENRY R		✓		0
DET IMG		2006000251642	16	ENTIRE LOT	4/20/2006	5/5/2006 11:43:14 AM	DEED	5	WOJCIK, HENRY	HENRY WOJCIK, TRUSTEE		✓		0
DET IMG		2005000387612	16	ENTIRE LOT		7/11/2005 4:57:06 PM	CORRECT INDEX/DEED-OFFICE USE	4	SIANO, GRACE	WOJCIK, HENRY				0
DET	3724/1803		16	ENTIRE LOT		6/12/1996	TAX LIEN SALE CERTIFICATE	1	CITY OF NEW YORK	BANK OF NEW YORK			✓	0
DET IMG	1836/637		16	ENTIRE LOT		7/1/1986	VACATE ORDER	14	CITY OF NEW YORK	VACATE ORDER				0
DET IMG	1818/603		16	ENTIRE LOT	5/28/1986	5/28/1986	DEED	130	COMMISSIONER OF FINANCE	CITY OF NEW YORK			✓	0
DET IMG	560/246		16	ENTIRE LOT	10/24/1967	10/24/1967	DEED	2	SIANO GRACE	WOJCIK HENRY				0

Search Options | New Parcel Identifier Search | Edit Current Search | View Tax Map

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NYC ENVIRONMENTAL QUALITY REVIEW REQUIREMENTS – "E" DESIGNATION SITES IDENTIFIED WITHIN 250 FT SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 394 **BLOCK: 2364 LOT: 16**
134 METROPOLITAN AVENUE
TT-Id: 820A-0001-496

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: No Change
Revised zip code: No Change

BBL #	E No.	CEQR No.	ULURP No.	NYC Zoning Maps	Effective Date	Lot Remediation Date	Description
3-02364-0016	E-138	04DCP003K	050110 ZRK 050111 ZMK 050415 MMK 040416 MMK 040417 MMK 040418 MMK 050110 (A)ZRK 050111 (A)ZMK	12c 12d 13a 13b	05/11/2005		Underground Gasoline Storage Tanks Testing Protocol

Map Identification Number 395 **BLOCK: 2364 LOT: 15**
130 METROPOLITAN AVENUE
TT-Id: 820A-0001-495

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 26 feet to the NW*

ADDRESS CHANGE INFORMATION
Revised street: No Change
Revised zip code: No Change

BBL #	E No.	CEQR No.	ULURP No.	NYC Zoning Maps	Effective Date	Lot Remediation Date	Description
3-02364-0015	E-138	04DCP003K	050110 ZRK 050111 ZMK 050415 MMK 040416 MMK 040417 MMK 040418 MMK 050110 (A)ZRK 050111 (A)ZMK	12c 12d 13a 13b	05/11/2005		Underground Gasoline Storage Tanks Testing Protocol

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	1050	1,6,61,158	
		Window Wall Attenuation & Alternate Ventilation	1050	1,6,61,158	
		Underground Gasoline Storage Tanks* Testing Protocol.	1051	2,31,32,33,35,36, 135,138,7502	
		Window Wall Attenuation & Alternate Ventilation	1051	2,31,32,33,35,36, 135,138,7502	
		Air Quality - HVAC fuel limited to natural gas	1069	1	
		Exhaust stack location limitations	1069	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	1069	1,29,34	
		Window Wall Attenuation & Alternate Ventilation	1069	1,24,29,34,136	
		Underground Gasoline Storage Tanks* Testing Protocol.	1070	1,49,50,54	
		Window Wall Attenuation & Alternate Ventilation	1070	1,49,50,54	
		Underground Gasoline Storage Tanks* Testing Protocol.	1071	23,29,7503	
		Window Wall Attenuation & Alternate Ventilation	1071	23,29,7503	
		Underground Gasoline Storage Tanks* Testing Protocol.	1090	10,23,29,7501	
		Window Wall Attenuation & Alternate Ventilation	1090	10,23,29,36,42, 7501	
E-138 5/11/2005	04DCP003K 050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A)ZRK, 050111 (A)ZMK	Underground Gasoline Storage Tanks* Testing Protocol.	2277	1	
			2287	1,16,30	
			2289	14	
			2290	5,10	
			2291	1,17	
			2292	11,12,13,14,29,33	
			2294	1,5	
			2296	14	
			2297	1,7501	
			2298	13,21,29,31	
			2299	1,9,21	
			2300	1,5,20,26	
			2301	1,50,60,70	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
	12c, 12d, 13a, 13b		2304	10,12,13,14,15,36,37	
		Window Wall Attenuation & Alternate Ventilation	2304	10,12,13,14	
		Underground Gasoline Storage Tanks* Testing Protocol.	2305	15,16,17,18	
			2306	1,9,11,15,18,27,28,30	
			2307	1,14,16,19,25,27,31,33,36,38	
			2309	5,13,15,17,7501	
			2310	9,10,11	
			2312	22,23	
			2313	1,5,7,11,13,22,24,26,27,28,29,7501	
			2314	1,5	
			2315	14,21	
			2317	1,3,5,6,7,8,12,13,16,17,18,36	
			2319	31	
			2320	15	
			2321	13,14,25,36,37,38,7501	
			2322	1,6,10,11,28,30	
			2323	9,10	
			2324	20,30,40,60,7501	
		Window Wall Attenuation & Alternate Ventilation	2324	20,30,40,60,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2325	4,5,11,12,24,25,26,27,28,29,31,32,103	
			2326	17,19,32,33,34,35	
			2327	2,4,5,16,17,18,19,31,34	
			2331	7,8,42	
		Exhaust stack location limitations	2332	20,30,40,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2332	20,30,40,7501	
		Window Wall Attenuation & Alternate Ventilation	2332	20,30,40,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2333	1	
			2334	1,3,22,23,28,30,40,45,50	
			2335	6,10,12,13,14,15	
			2337	20	
			2338	1	
			2339	7	
			2340	1,3,4,9,10,7501	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Window Wall Attenuation & Alternate Ventilation	2340	1,3,4,9,10,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2341	9	
			2342	1,16,23,26	
			2343	5,18,19	
		No operable window or air intakes limitations	2344	26	3/18/2009
		Underground Gasoline Storage Tanks* Testing Protocol.	2344	5,16,26,7501	
			2346	26,30	
		Window Wall Attenuation & Alternate Ventilation	2346	26,30	
		Underground Gasoline Storage Tanks* Testing Protocol.	2349	1,15,18,21	
			2350	2,4,24,26,7501	
			2351	1,28,40	
			2352	20	
			2353	6,8,13,26,28	
			2357	1,4,18,20,21,22,24,25	
			2358	36	9/12/2013
			2358	1,4,6,11,14,15,22,24,25,28,29,31,38	
			2363	2,3,9,20,26,28,36,38	
			2364	15,16,17	
			2366	1	2/18/2016
			2366	16,21,32	
			2367	7,15,27,28	
			2368	1,12,18,19,21,22,26,27,28,31,32,33,34	
			2369	4,6,7,14,19,27,37,38,40	
			2371	21,40,42,48,50	
			2372	1,5,9	
			2374	1,7,27,28,31	
			2375	1,5,10,12,16	
			2378	1,2,3,11,14,21,26,29,32,35,36,40	
			2379	8,9,12,13,16,19,24,27,40,43,44	
		Window Wall Attenuation & Alternate Ventilation	2379	24,27,40,43,44	
		Underground Gasoline Storage Tanks* Testing Protocol.	2381	14	8/1/2013
			2381	1	
		Window Wall Attenuation & Alternate Ventilation	2381	1,14	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2382	28	
		Window Wall Attenuation & Alternate Ventilation	2382	28	
		Underground Gasoline Storage Tanks* Testing Protocol.	2384	8,22,23,24,25	
		Window Wall Attenuation & Alternate Ventilation	2384	22,23,24,25	
		Underground Gasoline Storage Tanks* Testing Protocol.	2386	7,12,14	
			2387	2,6,7,10,12	
			2390	15,16,17	
			2393	14,23,24	
		Window Wall Attenuation & Alternate Ventilation	2393	14,23,24	
		Underground Gasoline Storage Tanks* Testing Protocol.	2399	1,8	
			2404	1,5	
		Window Wall Attenuation & Alternate Ventilation	2404	1,5	
		Underground Gasoline Storage Tanks* Testing Protocol.	2411	1,12	
			2416	7,8,27	
		Window Wall Attenuation & Alternate Ventilation	2416	8,27	
		Underground Gasoline Storage Tanks* Testing Protocol.	2428	28,29,30	
			2441	12,24,38,41,47,107	
			2442	11,21,25	
			2443	6,13,23,29,30,37, 41	
			2444	2,3,4,5,11,28	
			2446	68	
			2472	2,10,20,21,25,30, 35,50,55,60,65,70, 80,90,100,410,475	
		Window Wall Attenuation & Alternate Ventilation	2472	2,10,20,21,25,30, 35,50,55,60,65,70, 80,90,100,410,475	
		Underground Gasoline Storage Tanks* Testing Protocol.	2482	1,4,6,7,8,21,26,39, 53	
			2483	11,12,14,15,17,19, 20,25,45,48,59,60, 61,62	
		Window Wall Attenuation & Alternate Ventilation	2483	11,12,25	
			2487	10,12,17,18,20,21, 72	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2494	1,6	
		Window Wall Attenuation & Alternate Ventilation	2494	1,6	
		Underground Gasoline Storage Tanks* Testing Protocol.	2502	1	
		Window Wall Attenuation & Alternate Ventilation	2502	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2503	1	
			2510	1	
		Window Wall Attenuation & Alternate Ventilation	2510	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2511	11,12,14,31,7501	
		Window Wall Attenuation & Alternate Ventilation	2511	11,14,31,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2512	52,54,60	
		Window Wall Attenuation & Alternate Ventilation	2512	60	
		Underground Gasoline Storage Tanks* Testing Protocol.	2520	1,57	
		Window Wall Attenuation & Alternate Ventilation	2520	1,57	
		Underground Gasoline Storage Tanks* Testing Protocol.	2521	1,5,6,7,11,12,13, 19,32	
		Window Wall Attenuation & Alternate Ventilation	2521	11	10/23/2008
			2521	5,6,7,12,13	
		Underground Gasoline Storage Tanks* Testing Protocol.	2522	10,16,18,24,31	
			2530	1,55,56	
		Window Wall Attenuation & Alternate Ventilation	2530	1,55,56	
		Underground Gasoline Storage Tanks* Testing Protocol.	2531	1,2,3,9,10,12,20, 35,36,110	
		Window Wall Attenuation & Alternate Ventilation	2531	9,10,12,35,36,110	
		Underground Gasoline Storage Tanks* Testing Protocol.	2532	1	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Window Wall Attenuation & Alternate Ventilation	2532	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2538	1	
		Window Wall Attenuation & Alternate Ventilation	2538	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2539	1,8,27,29	
		Window Wall Attenuation & Alternate Ventilation	2539	1,8,27,29	
		Underground Gasoline Storage Tanks* Testing Protocol.	2543	1	
		Window Wall Attenuation & Alternate Ventilation	2543	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2549	1,5,10,14,25,28,36	
		No operable window or air intakes limitations	2556	55,57,58	
		Underground Gasoline Storage Tanks* Testing Protocol.	2556	1,45,46,55,57,58	
		Window Wall Attenuation & Alternate Ventilation	2556	1,45,46,55,57,58	
		No operable window or air intakes limitations	2557	7	
		Underground Gasoline Storage Tanks* Testing Protocol.	2557	1,3,7,24	
			2562	1,10,29,37,39	
			2564	1	
		Window Wall Attenuation & Alternate Ventilation	2564	1	
		Air Quality - HVAC fuel limited to natural gas	2565	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2565	1	
			2567	1	
		Window Wall Attenuation & Alternate Ventilation	2567	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2568	1	
		Exhaust stack location limitations	2570	36	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2570	1,36	
		Window Wall Attenuation & Alternate Ventilation	2570	1,36	
		No operable window or air intakes limitations	2571	18	
		Underground Gasoline Storage Tanks* Testing Protocol.	2571	1,9,18	
			2589	5,13	
			2590	1,25,100,210,215, 222	
		Window Wall Attenuation & Alternate Ventilation	2590	1,210,215,222	
		No operable window or air intakes limitations	2644	43	
		Underground Gasoline Storage Tanks* Testing Protocol.	2644	43	
			2679	46	
			2697	1,7,16,7501	
			2698	5,7,11,15,25,26, 7501	
			2699	9,15,17	
			2701	1,2,50	
			2713	1,7501,7502	
		No operable window or air intakes limitations	2714	13,33	
		Underground Gasoline Storage Tanks* Testing Protocol.	2714	13,30,32,33	
			2719	11,14,31,32,7501, 7502	
			2720	9,10,12,19,41,43, 44,45,46	
		Exhaust stack location limitations	2721	7502,7503,7504	
		Underground Gasoline Storage Tanks* Testing Protocol.	2721	7501,7502,7503, 7504	
			2722	8,10,13,15,16,25, 34,36,7501	
		No operable window or air intakes limitations	2723	36	3/18/2009
			2723	29,30,33	
		Underground Gasoline Storage Tanks* Testing Protocol.	2723	1,5,7,29,30,33,36, 37,38	
			2724	1,7,10,12,18,30,31, 33,34,37	
			2727	1,47	
			2731	1,35,36,38,41,44, 45,47	
			2732	5,27,30,33	
			2733	6,7,10	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
			2734	3,4,5,7,11,13,35,38	
		No operable window or air intakes limitations	2736	20,23	
		Underground Gasoline Storage Tanks* Testing Protocol.	2736	1,9,20,23,48	
			2737	10,11	
			2738	3,5,10,13,15,21,24	
			2741	3,7,8,13,15,19,47	
			2742	2,4,5,9,15,17,20,35	
			2746	39,40,41,42	
E-139 3/23/2005	05DCP023K 050133 ZRK, 050134 ZMK, 050134 ZMK(A) 22a,22b	Air Quality - HVAC fuel limited to natural gas	6053	14,17	
			6065	28,39	
		Underground Gasoline Storage Tanks* Testing Protocol.	6065	28,39	
			6066	19,31,32,35	
		Air Quality - HVAC fuel limited to natural gas	6082	6,13	
		Underground Gasoline Storage Tanks* Testing Protocol.	6082	6,13,14,33	
		Air Quality - HVAC fuel limited to natural gas	6086	1	
		Window Wall Attenuation & Alternate Ventilation	6106	34	
		Underground Gasoline Storage Tanks* Testing Protocol.	6107	1	
		Air Quality - HVAC fuel limited to natural gas	6116	35,39	
		Window Wall Attenuation & Alternate Ventilation	6116	35,39	
			6126	7,12	
E-140 2/2/2005	05DCP029Q 050153 ZMQ 14b,14d	Air Quality - HVAC fuel limited to natural gas	9249	50	
		Underground Gasoline Storage Tanks* Testing Protocol.	9249	50	
		Window Wall Attenuation & Alternate Ventilation	9249	65	
		Underground Gasoline Storage Tanks* Testing Protocol.	9250	45,49,54	
			9252	28	
			9275	57,59,60,61,62,65,162	
			9281	9,11,16,21,44,118	
		Window Wall Attenuation & Alternate Ventilation	9281	9,11,16,21,44,118	
		Air Quality - HVAC fuel limited to natural gas	9282	2	

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** Indicates that a tax lot with multiple development sites is partially remediated.

ASTM DATABASE SEARCHES

NUMBER OF IDENTIFIED SITES BY DISTANCE INTERVAL

Database Searched	0 – 100 ft	100 ft – 1/8 mi	1/8 mi – 1/4 mi	1/4 mi – 1/2 mi	1/2 mi – 1 mi	Site Category Totals
ASTM–Required 1 Mile Search						
National Priority List (NPL) Sites	0	0	0	0	0	0
NYS Inactive Hazardous Waste Disposal Site Registry	0	0	2	1	11	14
NYS Inactive Haz Waste Disposal Site Registry Qualifying	0	0	0	1	1	2
RCRA Corrective Action (CORRACTS) Sites	0	0	2	0	0	2
ASTM–Required 1/2 Mile Search						
Delisted National Priority List (NPL) Sites	0	0	0	0	Not searched	0
CERCLIS Superfund Non–NFRAP Sites	0	0	1	0	Not searched	1
CERCLIS Superfund NFRAP Sites	0	0	0	1	Not searched	1
Brownfields Sites						
Voluntary Cleanup Program	0	0	1	2	Not searched	3
Environmental Restoration Program	0	0	0	0	Not searched	0
Brownfield Cleanup Program	0	0	4	5	Not searched	9
NYC Voluntary Cleanup Program	0	4	6	23	Not searched	33
NYSDEC Solid Waste Facilities / Landfills	0	0	4	9	Not searched	13
RCRA Hazardous Waste Treatment, Storage, Disposal Sites	0	0	2	0	Not searched	2
NYS Toxic Spills						
Active Tank Failures	0	0	0	0	Not searched	0
Active Tank Test Failures	0	0	0	0	Not searched	0
Active Spills – Unknown / Other Causes	0	0	2	6	Not searched	8
Active Spills – Miscellaneous Causes	0	0	0	0(6)	Not searched	0(6)
Closed Tank Failures	0	0	2	5	Not searched	7
Closed Tank Test Failures	0	0	3	16	Not searched	19
Closed Spills – Unknown / Other Causes	0	16	49	116	Not searched	181
Closed Spills – Miscellaneous Causes	0	5	11(56)	8(75)	Not searched	24(131)
ASTM–Required Property & Adjacent Property (1/8 Mile Search)						
NYS Major Oil Storage Facilities	0	0	Not searched	Not searched	Not searched	0
Local & State Petroleum Bulk Storage Sites	2	17	Not searched	Not searched	Not searched	19
RCRA Hazardous Waste Generators & Transporters	2	49	Not searched	Not searched	Not searched	51
NYS Chemical Bulk Storage Sites	0	0	Not searched	Not searched	Not searched	0
Historic Utility Facilities	0	0	Not searched	Not searched	Not searched	0
ASTM–Required On–Site Only Search						
NYC Environmental Quality Review Requirements ("E") Sites*	3	13	Not searched	Not searched	Not searched	16
Emergency Response Notification System (ERNS)	0	Not searched	Not searched	Not searched	Not searched	0
Institutional Controls / Engineering Controls (IC/EC)	See databases for NPL, CERCLIS, Inactive Hazardous Waste Disposal Site Registry and Brownfield Sites.					
ASTM–Required Databases Distance Interval Totals	**7**	**104**	**89(56)**	**193(81)**	**12**	**405(137)**

Numbers in ( ) indicate spills not mapped and profiled in this report, and are listed at the end of the active and closed spills sections. See these lists for a description of the parameters involved with identifying these spills.

* NYC Environmental Quality Review Requirements ("E") Sites were searched at 250 feet.

NOTE: Table continues on next page.

Non–ASTM Databases 1/2 Mile Search						
1934 NYC Municipal Waste Landfills	0	0	0	0	Not searched	0
Hazardous Substance Waste Disposal Sites	0	0	0	0	Not searched	0
Non–ASTM Databases 1/8 Mile Search						
Toxic Release Inventory Sites (TRI)	0	0	Not searched	Not searched	Not searched	0
Permit Compliance System (PCS) Toxic Wastewater Discharges	0	1	Not searched	Not searched	Not searched	1
Air Discharges	1	2	Not searched	Not searched	Not searched	3
Civil & Administrative Enforcement Docket Facilities	0	0	Not searched	Not searched	Not searched	0
Non–ASTM Databases Distance Interval Totals	**1**	**3**	**0**	**0**	**Not Searched**	**4**
Distance Interval Totals	***8***	***107***	***89(56)***	***193(81)***	***12***	***409(137)***

Numbers in ( ) indicate spills not mapped and profiled in this report, and are listed at the end of the active and closed spills sections. See these lists for a description of the parameters involved with identifying these spills.

Identified Toxic Sites by Direction

134 Metropolitan Avenue
Brooklyn, NY 11211

* Compass directions can vary substantially for sites located very close to the subject property address.

Sites less than 100 feet from subject property sorted by distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
394		BLOCK: 2364 LOT: 16	0 feet	NYC Env. Qual. Review–"E" Designation
395		BLOCK: 2364 LOT: 15	26 feet to the NW*	NYC Env. Qual. Review–"E" Designation
396		BLOCK: 2364 LOT: 17	36 feet to the ESE*	NYC Env. Qual. Review–"E" Designation
391	AMBIDEXTROUS,INC.	136 METROPOLITAN AVENU	44 feet to the ESE*	Air Discharge Site
339	CON EDISON	97 N 1ST ST & WYTHE AVE	46 feet to the WNW*	Hazardous Waste Generator/Transporter
340	CON EDISON	97 N 1ST ST	46 feet to the WNW*	Hazardous Waste Generator/Transporter
320	BIANCO REALTY CO.	107 N 1 ST	87 feet to the SE*	Petroleum Bulk Storage Site
321	LAWERENCE NOVELTY CO INC	140 METROPOLITAN AVE	98 feet to the E*	Petroleum Bulk Storage Site

Sites between 100 ft and 660 ft from the subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
404		BLOCK: 2358 LOT: 31	210 feet to the N	NYC Env. Qual. Review–"E" Designation
121	VAULT #2720	WHITE AVE/N OF N 3RD ST	449 feet to the N	Closed Status Spill (Unk/Other Cause)
363	CONSOLIDATED EDISON	MH4856 C/O N 3RD ST & WYTHE AV	449 feet to the N	Hazardous Waste Generator/Transporter
366	CON EDISON VAULT V2803	242 WYTHE AVE FRONT OF	503 feet to the N	Hazardous Waste Generator/Transporter
376	COUGAR ELECTRONICS	240 WYTHE AVE	585 feet to the N	Hazardous Waste Generator/Transporter
377	CONSOLIDATED EDISON	242 WYTHE AVE	585 feet to the N	Hazardous Waste Generator/Transporter
378	CON EDISON VAULT 2803	242 WYTHE AVE	585 feet to the N	Hazardous Waste Generator/Transporter
379	CONSOLIDATED EDISON	242 WYTHE AVE	585 feet to the N	Hazardous Waste Generator/Transporter
336	R.E. HOLDING CO.	63 NORTH 3RD STREET	597 feet to the N	Petroleum Bulk Storage Site
129	SIX GALLONS OIL IN VAULTS	242 WYTHE AVENUE	599 feet to the N	Closed Status Spill (Unk/Other Cause)
296	PARKING GARAGE	129 METROPOLITON AVE	177 feet to the NNE*	Closed Status Spill (Misc. Spill Cause)
405		BLOCK: 2358 LOT: 29	226 feet to the NNE	NYC Env. Qual. Review–"E" Designation
116	UNDER CONSTRUCTION SITE	125 METROPOLITAN AVENUE	228 feet to the NNE	Closed Status Spill (Unk/Other Cause)
330	LEE WYTHE REALTY CORP	85 N 3 ST	475 feet to the NNE	Petroleum Bulk Storage Site
370	CON EDISON	104 N 4 ST	525 feet to the NNE	Hazardous Waste Generator/Transporter
371	KI-TOV LAMP CO	76 N 4TH ST	525 feet to the NNE	Hazardous Waste Generator/Transporter
333	76 NORTH 4TH STREET	76 NORTH 4TH STREET	557 feet to the NNE	Petroleum Bulk Storage Site
399		BLOCK: 2358 LOT: 25	178 feet to the NE*	NYC Env. Qual. Review–"E" Designation
357	CON EDISON	186 BERRY ST	404 feet to the NE	Hazardous Waste Generator/Transporter

358	CON EDISON	186 BERRY ST	404 feet to the NE	Hazardous Waste Generator/Transporter
298	SPILL NUMBER 0111142	109 NORTH 3RD STREET	439 feet to the NE	Closed Status Spill (Misc. Spill Cause)
299	CANDY & CIGARETTE SUPPLY	109 NORTH 3RD STREET	439 feet to the NE	Closed Status Spill (Misc. Spill Cause)
328	SCHIFF FOOD PRODUCTS	190 BERRY ST (107 N 3RD ST)	461 feet to the NE	Petroleum Bulk Storage Site
329	BERRY ENTERPRISES	109 NORTH 3RD STREET	461 feet to the NE	Petroleum Bulk Storage Site
380	CON EDISON	85 NORTH 4	624 feet to the NE	Hazardous Waste Generator/Transporter
401		BLOCK: 2358 LOT: 24	188 feet to the ENE*	NYC Env. Qual. Review-"E" Designation
355	CONSOLIDATED EDISON	MH12085-3RD ST & BERRY ST	371 feet to the ENE	Hazardous Waste Generator/Transporter
130	MANHOLE 64134	NORTH 4TH ST/BERRY ST	624 feet to the ENE	Closed Status Spill (Unk/Other Cause)
381	CONSOLIDATED EDISON	MH64134-4TH & BERRY	624 feet to the ENE	Hazardous Waste Generator/Transporter
382	CON EDISON	NWC BERRY ST & NORTH 4 ST	624 feet to the ENE	Hazardous Waste Generator/Transporter
383	CON EDISON	NWC BERRY ST & NORTH 4TH ST	624 feet to the ENE	Hazardous Waste Generator/Transporter
384	CON EDISON	NW COR BERRY ST & N 4TH ST	624 feet to the ENE	Hazardous Waste Generator/Transporter
387	CON EDISON	146 N 4TH ST	659 feet to the ENE	Hazardous Waste Generator/Transporter
388	CON EDISON	238 BEDFORD AVE	659 feet to the ENE	Hazardous Waste Generator/Transporter
389	CON EDISON	189 BERRY ST	659 feet to the ENE	Hazardous Waste Generator/Transporter
297	173 METROPOLITAN AVE	173 METROPOLITAN AVE	435 feet to the E	Closed Status Spill (Misc. Spill Cause)
124	MANHOLE 58130	126 NORTH 3RD ST	465 feet to the E	Closed Status Spill (Unk/Other Cause)
126	CONSTRUCTIO PROJ	197 BERRY STREET	552 feet to the E	Closed Status Spill (Unk/Other Cause)
127	VACANT LOT	197 BERRY STREET	552 feet to the E	Closed Status Spill (Unk/Other Cause)
300	CONSTRUCTION SITE	201 BERRY STREET	552 feet to the E	Closed Status Spill (Misc. Spill Cause)
373	CONSOLIDATED EDISON	V902 – 129 N 3 ST	557 feet to the E	Hazardous Waste Generator/Transporter
374	ALCON BUILDERS GROUP	250 BEDFORD AVENUE & 201 BERRY STR	557 feet to the E	Hazardous Waste Generator/Transporter
375	ALCON WILLIAMSBURG CONDO	201 BERRY STREET	557 feet to the E	Hazardous Waste Generator/Transporter
335	GARSHING CO., ZND.	201 BERRY STREET	568 feet to the E	Petroleum Bulk Storage Site
408		BLOCK: 2365 LOT: 3	241 feet to the ESE	NYC Env. Qual. Review-"E" Designation
409		BLOCK: 2365 LOT: 4	245 feet to the ESE	NYC Env. Qual. Review-"E" Designation
359	CON EDISON	173 METROPOLITON AVE	441 feet to the ESE	Hazardous Waste Generator/Transporter
406		BLOCK: 2365 LOT: 2	241 feet to the SE	NYC Env. Qual. Review-"E" Designation
407		BLOCK: 2365 LOT: 1	241 feet to the SE	NYC Env. Qual. Review-"E" Designation
324	136 NORTH 1ST ST.	136 NORTH 1ST STREET	431 feet to the SE	Petroleum Bulk Storage Site
362	CON EDISON	OPP 138 N 1ST ST	447 feet to the SE	Hazardous Waste Generator/Transporter
323	MR. LAZAR	235 BERRY ST	270 feet to the SSE	Petroleum Bulk Storage Site
118	SERVICE BOX 14177	139 GRAND ST	411 feet to the SSE	Closed Status Spill (Unk/Other Cause)
325	145 GRAND ST EXT	145 GRAND ST EXT	434 feet to the SSE	Petroleum Bulk Storage Site
125	COMMERCIAL VACANT BUILDING	152 GRAND ST	540 feet to the SSE	Closed Status Spill (Unk/Other Cause)
372	CON EDISON	157 GRAND ST	548 feet to the SSE	Hazardous Waste Generator/Transporter
128	BASEMENT OF RESIDENCE	150 GRAND STREET	574 feet to the SSE	Closed Status Spill (Unk/Other Cause)
400		BLOCK: 2379 LOT: 24	187 feet to the S*	NYC Env. Qual. Review-"E" Designation
343	CONSOLIDATED EDISON	230 BERRY ST – MH61217	197 feet to the S*	Hazardous Waste Generator/Transporter
348	NYNEX	GRAND ST & BERRY ST	343 feet to the S	Hazardous Waste Generator/Transporter
349	CON ED-MH 14029	GRAND ST & BERRY ST	343 feet to the S	Hazardous Waste Generator/Transporter
350	CON EDISON MANHOLE: 14026	GRAND ST & BERRY ST INTERSECTI	343 feet to the S	Hazardous Waste Generator/Transporter
351	CON EDISON	BERRY ST & GRAND ST	343 feet to the S	Hazardous Waste Generator/Transporter
352	CON ED	"' SWC GRAND STBERRY ST'"	343 feet to the S	Hazardous Waste Generator/Transporter
119	DRUM RUN	255 BERRY ST	434 feet to the S	Closed Status Spill (Unk/Other Cause)
120	OLD GAS STATION	128 GRAND STREET	434 feet to the S	Closed Status Spill (Unk/Other Cause)

326	GRAND SUITES, LLC	128-134 GRAND STREET	434 feet to the S	Petroleum Bulk Storage Site
390	CHARLES J. KING INC.	130 GRAND STREET	444 feet to the S	Wastewater Discharge Facility
334	G & S DESIGNS, INC.	115 SOUTH 1ST STREET	559 feet to the S	Petroleum Bulk Storage Site
115	SPILL NUMBER 0104619	106 N 1ST ST	144 feet to the SSW*	Closed Status Spill (Unk/Other Cause)
397		BLOCK: 2379 LOT: 19	149 feet to the SSW*	NYC Env. Qual. Review-"E" Designation
117	APARTMENT BUILDING	111 GRAND STREET	236 feet to the SSW	Closed Status Spill (Unk/Other Cause)
338	SOUTH FIRST REALTY CORP.	90 SOUTH FIRST STREET	657 feet to the SSW	Petroleum Bulk Storage Site
398		BLOCK: 2379 LOT: 16	151 feet to the SW*	NYC Env. Qual. Review-"E" Designation
342	GARCIA-RIVERA PROPERTY	98 N 1ST ST	178 feet to the SW*	Hazardous Waste Generator/Transporter
344	GARCIA RIVERA	101 GRAND ST	268 feet to the SW	Hazardous Waste Generator/Transporter
327	PUBLIC SCHOOL 84 - BROOKLYN K084	250 BERRY STREET	434 feet to the SW	Petroleum Bulk Storage Site
122	WILLIAM SHERIDAN PLAYGROU	PS 84	457 feet to the SW	Closed Status Spill (Unk/Other Cause)
364	NYC BOARD OF EDUCATION	250 BERRY STREET	494 feet to the SW	Hazardous Waste Generator/Transporter
402		BLOCK: 2379 LOT: 13	193 feet to the WSW*	NYC Env. Qual. Review-"E" Designation
403		BLOCK: 2379 LOT: 12	209 feet to the WSW	NYC Env. Qual. Review-"E" Designation
22	87 GRAND STREET	87 GRAND STREET	337 feet to the WSW	Brownfields Site
23	83 GRAND STREET	83 GRAND STREET	380 feet to the WSW	Brownfields Site
367	CON EDISON	NW COR WYTHE AVE & GRANT ST	507 feet to the WSW	Hazardous Waste Generator/Transporter
368	CON EDISON	GRAND ST & WHYTHE AV	507 feet to the WSW	Hazardous Waste Generator/Transporter
369	CON EDISON	WYTHE AVE & GRAND ST	507 feet to the WSW	Hazardous Waste Generator/Transporter
337	G & S CHAIR FRAME CO	326 WYTHE AVE	647 feet to the WSW	Petroleum Bulk Storage Site
393	G&S DESIGNS INC	326 WYTHE AVENUE	647 feet to the WSW	Air Discharge Site
346	CON EDISON	261 WYTHE AV	342 feet to the W	Hazardous Waste Generator/Transporter
347	CON EDISON	261 WYTHE AV	342 feet to the W	Hazardous Waste Generator/Transporter
354	CON EDISON	263 WYTHE AVE	356 feet to the W	Hazardous Waste Generator/Transporter
356	CON EDISON	FO 261 WYTHE AVE	386 feet to the W	Hazardous Waste Generator/Transporter
392	TRI-BORO SHELVING & PARTITION	296 WYTHE AVENUE	433 feet to the W	Air Discharge Site
360	TRIBORO SHELVING & PARTITION	296 WYTHE AVE	447 feet to the W	Hazardous Waste Generator/Transporter
361	CON EDISON	296 WYTHE AVE & 1ST	447 feet to the W	Hazardous Waste Generator/Transporter
123	290 WYTHE AV	290 WYTHE AVE	459 feet to the W	Closed Status Spill (Unk/Other Cause)
24	296 WYTHE AVENUE	296 WYTHE AVENUE	466 feet to the W	Brownfields Site
385	CON EDISON	FRONT OF 62 GRAND ST	638 feet to the W	Hazardous Waste Generator/Transporter
341	ROHNER FURNITURE INC	100 METROPOLITAN AVE	173 feet to the WNW*	Hazardous Waste Generator/Transporter
345	CONSOLIDATED EDISON - VAULT 1304	N/S NORTH 1 STREET 130' E/O W	340 feet to the WNW	Hazardous Waste Generator/Transporter
322	METRO REALTY	100 METROPOLITAN AVE	197 feet to the NW*	Petroleum Bulk Storage Site
365	CON EDISON	FRONT OF 90S METROPOLITAN AV	498 feet to the NW	Hazardous Waste Generator/Transporter
331	UNICO TRUCK REPAIR CORNER INC.	274 WYTHE AVENUE	499 feet to the NW	Petroleum Bulk Storage Site
332	OLD DUTCH MUSTARD CO INC	80 METROPOLITAN AVE	499 feet to the NW	Petroleum Bulk Storage Site
386	CON EDISON	61 METROPOLITAN AVE	657 feet to the NW	Hazardous Waste Generator/Transporter
21	105 METROPOLITAN AVENUE	105 METROPOLITAN AVENUE	286 feet to the NNW	Brownfields Site
353	CON EDISON	F/O 233 WYTHE AV	348 feet to the NNW	Hazardous Waste Generator/Transporter

Sites equal to or greater than 660 ft from subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category

131	MANHOLE 4855	WYTHE & 4TH ST	674 feet to the N	Closed Status Spill (Unk/Other Cause)
67	JORAL CARTING INC.	157 KENT AVE.	787 feet to the N	Solid Waste Facility
138	VACANT LOT	157 KENT AVE	809 feet to the N	Closed Status Spill (Unk/Other Cause)
159	KENT AVE ROADWAY	KENT AVE BEWTEEN N 4TH ST & N 5TH ST	1073 feet to the N	Closed Status Spill (Unk/Other Cause)
31	149 KENT AVENUE	149 KENT AVENUE	1089 feet to the N	Brownfields Site
169	STREET EXCAVATION	KENT & NORTH 5TH	1160 feet to the N	Closed Status Spill (Unk/Other Cause)
2	FORMER CLEANERS SALES & EQUIPMENT CORP	135 KENT AVENUE	1240 feet to the N	NYSDEC Inactive Haz Waste Disposal Site
33	FORMER CLEANERS SALES & EQUIPMENT CORP	135 KENT AVENUE	1248 feet to the N	Brownfields Site
199	MANHOLE 4823 CON ED	NORTH 7TH ST & KENT AVE	1580 feet to the N	Closed Status Spill (Unk/Other Cause)
316	KENT AVE BETW N 7 & 8TH	KENT AVE / N 7TH ST	1580 feet to the N	Closed Status Spill (Misc. Spill Cause)
75	NEKBOH RECYCLING(5 N. 7TH ST. REGISTRATI	**	1866 feet to the N	Solid Waste Facility
50	KENT TERMINAL	KENT AVE. BETWEEN 5TH-11TH ST.	1965 feet to the N	Brownfields Site
3	KENT TERMINAL	KENT AVE. BETWEEN N.5TH & N.11TH ST.	2005 feet to the N	NYSDEC Inactive Haz Waste Registry Qual.
4	KENT TERMINAL	KENT AVE. BETWEEN 5TH-11TH ST.	2005 feet to the N	NYSDEC Inactive Haz Waste Disposal Site
132	TM2850	80 N 5TH ST	767 feet to the NNE	Closed Status Spill (Unk/Other Cause)
143	VAULT # 4066 HAS 15 GALLONS OIL	IN FRONT OF 80 NORTH 5 STREET	857 feet to the NNE	Closed Status Spill (Unk/Other Cause)
303	DUPLICATE OF	85 N 5TH ST	952 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
34	63 NORTH 6TH STREET	59-63 NORTH 6TH STREET	1289 feet to the NNE	Brownfields Site
184	ON SIDEWALK	NORTH 7TH /WYTHEAVE	1411 feet to the NNE	Closed Status Spill (Unk/Other Cause)
46	66 NORTH 8TH STREET	66 NORTH 8TH STREET	1663 feet to the NNE	Brownfields Site
106	146 WYTHE AVE/BROOKLYN	146 WYTHE AVENUE	1725 feet to the NNE	Closed Status Tank Test Failure
83	APARTMENT BUILDING	73 NORTH 8TH STREET	1778 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
212	73 NORTH 8TH ST/BROOKLYN	73 NORTH 8TH STREET	1778 feet to the NNE	Closed Status Spill (Unk/Other Cause)
215	DUMPSTER	134 WYTHE AVE	1824 feet to the NNE	Closed Status Spill (Unk/Other Cause)
217	RESIDENTS	67 NORTH 8TH STREET	1844 feet to the NNE	Closed Status Spill (Unk/Other Cause)
48	87 KENT AVENUE	56 NORTH 9TH STREET (AKA 87 KENT AVENUE)	1936 feet to the NNE	Brownfields Site
49	87 KENT AVENUE - (OFF-SITE)	56 NORTH 9TH STREET (AKA 87 KENT AVENUE)	1947 feet to the NNE	Brownfields Site
318	KENT AVENUE/N.9TH ST.	KENT AVE / N.9TH ST	2049 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
239	209741; WYTHE AVE; M-4848	WYTHE AVE; M-4848	2180 feet to the NNE	Closed Status Spill (Unk/Other Cause)
86	MANHOLE #4353	KENT AVENUE & N. 10 STREET	2290 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
245	MANHOLE 4353	KENT AV & 10TH ST	2290 feet to the NNE	Closed Status Spill (Unk/Other Cause)
246	MAN HOLE 4353	10 AVE AND NORTH 10 ST	2290 feet to the NNE	Closed Status Spill (Unk/Other Cause)
247	MANHOLE#4353	KENT AVE./ N. 10TH ST.	2290 feet to the NNE	Closed Status Spill (Unk/Other Cause)
248	MANHOLE 4353	KENT AVE/NORTH 10TH ST	2290 feet to the NNE	Closed Status Spill (Unk/Other Cause)
249	MANHOLE 4353	KENT AV & N 10TH ST	2290 feet to the NNE	Closed Status Spill (Unk/Other Cause)
267	MH 4360	WYTHE AVENUE & NORTH 11 STREET	2437 feet to the NNE	Closed Status Spill (Unk/Other Cause)
273	MANHOLE #4352	KENT AVE & NORTH 11TH ST	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
274	MANHOLE 4352	11TH ST & KENT AVE	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
275	MH 4352	NORTH 11TH AND KENT AVE	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
276	CON EDISON VAULT # 6939	KENT AVE AND NORTH 11TH STREET	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
277	MANHOLE 62550	10TH AVE AND NORTH 11TH ST	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
278	TWO PTS OIL IN MANHOLE #4352	KENT AVENUE & NORTH 11 STREET	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
279	MANHOLE # 4352	KENT AVE & NORTH 11 STREET	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
280	NORTH 11 STREET	AND KENT STREET	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
281	MANHOLE 62550	KENT AV/NORTH 11 ST	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
282	VAULT 3223	KENT AVE/ N 11TH ST	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
283	MANHOLE 4352	KENT AVE/N. 11TH AVE	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
284	MANHOLE 4352	KENT AV & N 11TH ST	2543 feet to the NNE	Closed Status Spill (Unk/Other Cause)
5	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	2728 feet to the NNE	NYSDEC Inactive Haz Waste Registry Qual.
6	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	2728 feet to the NNE	NYSDEC Inactive Haz Waste Disposal Site
8	K - WILLIAMSBURG WORKS	KENT AVE & 12TH STREET	2818 feet to the NNE	NYSDEC Inactive Haz Waste Disposal Site
145	THIRTY GAL UNKNOWN LIQUID IN MH 12081	BERRY STREET & 5 STREET	876 feet to the NE	Closed Status Spill (Unk/Other Cause)

154	BUILDING	146 BERRY STREET	976 feet to the NE	Closed Status Spill (Unk/Other Cause)
32	126 N 6TH STREET	126 NORTH 6TH STREET	1097 feet to the NE	Brownfields Site
179	LIKA RESIDENCE	114 NORTH 7TH STREET	1297 feet to the NE	Closed Status Spill (Unk/Other Cause)
35	131 BERRY STREET	125 BERRY STREET	1315 feet to the NE	Brownfields Site
180	SOIL SAMPLES	131 BERRY ST	1326 feet to the NE	Closed Status Spill (Unk/Other Cause)
181	COMMERCIAL	125 BERRY ST	1326 feet to the NE	Closed Status Spill (Unk/Other Cause)
182	REGENCY METAL STAMPING	140 NORTH 7TH ST	1339 feet to the NE	Closed Status Spill (Unk/Other Cause)
194	VACANT BUILDING	142 NORTH 8TH ST	1525 feet to the NE	Closed Status Spill (Unk/Other Cause)
195	MANHOLE 12074	115 BERRY ST	1525 feet to the NE	Closed Status Spill (Unk/Other Cause)
197	MANHOLE 12074	113 BERRY ST	1543 feet to the NE	Closed Status Spill (Unk/Other Cause)
107	COMMERCIAL BUILDING	93 NORTH 9TH STREET	1989 feet to the NE	Closed Status Tank Test Failure
222	93 NORTH 9TH ST	93 NORTH 9TH STREET	1989 feet to the NE	Closed Status Spill (Unk/Other Cause)
77	NATIONAL PAPER STOCK, INC.	136 NORTH 10TH STREET	2098 feet to the NE	Solid Waste Facility
52	138-142 NORTH 10TH STREET	138-142 NORTH 10TH STREET	2112 feet to the NE	Brownfields Site
233	BERRY ST & 10TH AVE/BKLYN	BERRY ST & 10TH AVENUE	2165 feet to the NE	Closed Status Spill (Unk/Other Cause)
109	F N W MECHANICAL	139 NORTH 10TH STREET	2293 feet to the NE	Closed Status Tank Test Failure
251	CAMPBELL RESIDENCE	120 BEDFORD AVE	2322 feet to the NE	Closed Status Spill (Unk/Other Cause)
252	125 NORTH 10TH ST	125 NORTH 10TH ST	2323 feet to the NE	Closed Status Spill (Unk/Other Cause)
288	CONSTRUCITON SITE	40 BERRY STREET	2577 feet to the NE	Closed Status Spill (Unk/Other Cause)
289	34-42 BERRY ST	40 BERRY STREET	2577 feet to the NE	Closed Status Spill (Unk/Other Cause)
292	BUILDING	69 WYTHE AVE	2584 feet to the NE	Closed Status Spill (Unk/Other Cause)
9	K - WYTHE AVE. STATION	WYTHE AVE., BERRY ST., N 12TH & 13TH ST	2847 feet to the NE	NYSDEC Inactive Haz Waste Disposal Site
157	213519; 133 NO. 5 ST	133 NO. 5 ST	1065 feet to the ENE	Closed Status Spill (Unk/Other Cause)
160	CYN BAR	NORTH 5TH & BEDFORD AVE	1075 feet to the ENE	Closed Status Spill (Unk/Other Cause)
161	MANHOLE 4869	BEDFORD AVE/N 5TH ST	1075 feet to the ENE	Closed Status Spill (Unk/Other Cause)
162	MH 4869	BEDFORD AVE/NORTH 5TH STBR	1075 feet to the ENE	Closed Status Spill (Unk/Other Cause)
178	BEDFORD AVE&N 6TH ST/BKLY	BEDFORD AVE / N 6TH ST	1292 feet to the ENE	Closed Status Spill (Unk/Other Cause)
20	ALL PLATING CORP.	154 NORTH 7TH STREET	1372 feet to the ENE	CERCLIS Superfund NFRAP Site
100	154-158 NORTH 7TH ST/BKLY	154-158 NORTH 7TH STREET	1388 feet to the ENE	Closed Status Tank Test Failure
101	ST VINCENT DEPAUL CHURCH	167 N. 6TH ST	1482 feet to the ENE	Closed Status Tank Test Failure
102	187 BEDFORD AVE - TTF	167 BEDFORD AVENUE	1491 feet to the ENE	Closed Status Tank Test Failure
103	MARTIN GURSHON	179 NORTH 6TH STREET	1557 feet to the ENE	Closed Status Tank Test Failure
104	SPILL NUMBER 0104288	179 N 6TH STREET	1557 feet to the ENE	Closed Status Tank Test Failure
91	174 BEDFORD AVE/BKLYN	174 BEDFORD AVENUE	1589 feet to the ENE	Closed Status Tank Failure
92	172 BEDFORD AVE/BKLYN	172 BEDFORD AVENUE	1607 feet to the ENE	Closed Status Tank Failure
201	ROAD WAY	N7 STREET DRIGGS AVE BEDFORD AVE	1626 feet to the ENE	Closed Status Spill (Unk/Other Cause)
203	ON BENCH WALL AND CAT WAL -NYCT	K 177 NO 7TH ST	1703 feet to the ENE	Closed Status Spill (Unk/Other Cause)
206	SB 16241	179 NORTH 7 ST	1726 feet to the ENE	Closed Status Spill (Unk/Other Cause)
214	546 DRIGGS AVE	546 DRIGGS AVE	1795 feet to the ENE	Closed Status Spill (Unk/Other Cause)
223	SPILL NUMBER 0303594	BEDFORD AVE/N 9TH ST	2005 feet to the ENE	Closed Status Spill (Unk/Other Cause)
51	FORMER STERLING TRANSFORMER CORP.	510 DRIGGS AVENUE	2017 feet to the ENE	Brownfields Site
84	VACANT LOT (COMMERCIAL)	510 DRIGGS AVE	2033 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
232	VACANT/ COMMERCIAL	506 DRIGGS AVE	2123 feet to the ENE	Closed Status Spill (Unk/Other Cause)
53	207 NORTH 8TH STREET	207 NORTH 8TH STREET	2138 feet to the ENE	Brownfields Site
85	PETROLEUM CONTAMINATED GROUNDWATER	207 NORTH 8TH STREET	2140 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
54	212-218 N 9TH STREET	212 NORTH 9TH STREET	2196 feet to the ENE	Brownfields Site
56	230 NORTH 9TH STREET	230 NORTH 9TH STREET	2293 feet to the ENE	Brownfields Site
250	PRIVATE PROPERTY (E-DESIGNATION)	219-223 NORTH 8TH STREET	2297 feet to the ENE	Closed Status Spill (Unk/Other Cause)
257	VAPOR COMPLAINT	234 NORTH 9TH STREET	2363 feet to the ENE	Closed Status Spill (Unk/Other Cause)
258	AUNT HEDDY'S BAKERY	234 NORTH 9TH STREET	2363 feet to the ENE	Closed Status Spill (Unk/Other Cause)
259	VACANT LOT	165 NORTH 10TH ST	2378 feet to the ENE	Closed Status Spill (Unk/Other Cause)
260	169-175 NORTH 10TH STREET	169-175 NORTH 10TH STREET	2395 feet to the ENE	Closed Status Spill (Unk/Other Cause)

261	213 NORTH 9TH STREET	213-217 NORTH 9TH STREET	2397 feet to the ENE	Closed Status Spill (Unk/Other Cause)
60	202 NORTH 10TH STREET	202 NORTH 10TH STREET	2428 feet to the ENE	Brownfields Site
87	GROUNDWATER	202 NORTH 10TH ST	2432 feet to the ENE	Active Haz Spill (Unknown/Other Cause)
61	470 DRIGGS AVENUE	470 DRIGGS AVENUE	2451 feet to the ENE	Brownfields Site
269	HYDRO TECH	170 NORTH 11TH STREET	2483 feet to the ENE	Closed Status Spill (Unk/Other Cause)
62	172-174 NORTH 11TH STREET	172-174 NORTH 11TH STREET	2506 feet to the ENE	Brownfields Site
63	28-46 ROEBLING STREET	28 ROEBLING STREET	2512 feet to the ENE	Brownfields Site
64	235-263 NORTH 9TH STREET	235 NORTH 9TH STREET	2553 feet to the ENE	Brownfields Site
285	CONSTRUCTION AT SITE	239 NORTH 9TH STREET	2563 feet to the ENE	Closed Status Spill (Unk/Other Cause)
286	COMMERCIAL PROPERTY	235 NORTH 9TH ST	2563 feet to the ENE	Closed Status Spill (Unk/Other Cause)
287	COMMERICAL VACANT LOT	235-239 N 9TH STREET	2563 feet to the ENE	Closed Status Spill (Unk/Other Cause)
290	COMMERCIAL PROPERTY	200 NORTH 11TH STREET	2578 feet to the ENE	Closed Status Spill (Unk/Other Cause)
14	FORMER BERKMAN BROS SITE	55 ECKFORD STREET	4489 feet to the ENE	NYSDEC Inactive Haz Waste Disposal Site
15	CITY BARREL CO.	421-429 MEEKER STREET	4668 feet to the ENE	NYSDEC Inactive Haz Waste Disposal Site
146	TEN GAL OIL IN SERVICE BOX #23546	239 BEDFORD AVENUE	908 feet to the E	Closed Status Spill (Unk/Other Cause)
168	152 NO. 5TH ST./HOLY GHOS	152 NO. 5TH ST	1149 feet to the E	Closed Status Spill (Unk/Other Cause)
176	CONSTRUCTION SITE	161 NORTH 4TH	1209 feet to the E	Closed Status Spill (Unk/Other Cause)
99	CLOSED-LACKOF RECENT INFO	167 NORTH 5TH STREET	1345 feet to the E	Closed Status Tank Test Failure
193	LOT NEXT TO 583 DRIDGES	CRN DRIGGES AVE & 8TH	1502 feet to the E	Closed Status Spill (Unk/Other Cause)
211	BROTHERS CLEANERS	122 ROEBLING ROAD	1757 feet to the E	Closed Status Spill (Unk/Other Cause)
213	MANHOLE 4880	218 N 7 ST	1784 feet to the E	Closed Status Spill (Unk/Other Cause)
221	MANHOLE #616218	6TH ST & ROEBLING ST	1919 feet to the E	Closed Status Spill (Unk/Other Cause)
234	SUBWAY TRACKS-NYCT	257 NORTH 6TH ST	2171 feet to the E	Closed Status Spill (Unk/Other Cause)
244	W OF ROBLING AV	N 8TH ST	2262 feet to the E	Closed Status Spill (Unk/Other Cause)
55	249 NORTH 7TH STREET	249 NORTH 7TH STREET	2271 feet to the E	Brownfields Site
59	248 NORTH 8TH STREET	248 NORTH 8TH STREET	2395 feet to the E	Brownfields Site
262	FORMER GAS STATION	55 ROEBLING ST	2401 feet to the E	Closed Status Spill (Unk/Other Cause)
263	CONSTRUCTION SITE	248 NORTH 8TH STREET	2403 feet to the E	Closed Status Spill (Unk/Other Cause)
65	304-310 NORTH &TH STREET	304-310 NORTH &TH STREET	2626 feet to the E	Brownfields Site
88	VACANT PROPERTY	304- 308 NORTH 7TH STREET	2633 feet to the E	Active Haz Spill (Unknown/Other Cause)
293	STAR SOAP AND CANDLE CO.	304 NORTH 7TH STREET	2633 feet to the E	Closed Status Spill (Unk/Other Cause)
294	STAR SOAP AND CANDLE CO.	304 NORTH 7TH ST	2633 feet to the E	Closed Status Spill (Unk/Other Cause)
295	310 N 7TH ST	310 N 7TH ST	2633 feet to the E	Closed Status Spill (Unk/Other Cause)
7	BQE/ANSBACHER COLOR & DYE FACTORY	MEEKER AVENUE	2776 feet to the E	NYSDEC Inactive Haz Waste Disposal Site
37	285 AND 291 METROPOLITAN AVE	285, 291 METROPOLITAN AVENUE	1421 feet to the ESE	Brownfields Site
38	291 METROPOLITAN AVENUE	291 METROPOLITAN AVENUE	1449 feet to the ESE	Brownfields Site
191	G&A AUTO REPAIR	291 METROPOLITAN AVE	1452 feet to the ESE	Closed Status Spill (Unk/Other Cause)
202	SPILL NUMBER 0003172	ROEBLING ST & N 4TH ST	1649 feet to the ESE	Closed Status Spill (Unk/Other Cause)
207	CONSTRUCTION SITE	14 HOPE ST	1734 feet to the ESE	Closed Status Spill (Unk/Other Cause)
208	METROPOLITAN AVE/BTWN	HAVEMEYER ST-ROEBLING	1735 feet to the ESE	Closed Status Spill (Unk/Other Cause)
47	25 HOPE STREET	25 HOPE STREET	1804 feet to the ESE	Brownfields Site
229	MANHOLE 15285	METROPOLITAN AVE/HAVEMEYE	2077 feet to the ESE	Closed Status Spill (Unk/Other Cause)
240	390 METROPOLITAN AV/BKLYN	390 METROPOLITAN AVENUE	2204 feet to the ESE	Closed Status Spill (Unk/Other Cause)
57	69 HOPE STREET	69 HOPE STREET	2302 feet to the ESE	Brownfields Site
94	S/W COR METROPOLITAN/MARC	402 METROPOLITAN AVENUE	2311 feet to the ESE	Closed Status Tank Failure
110	402 METROPOLITAN AVE.	402 METROPOLITAN AVENUE	2311 feet to the ESE	Closed Status Tank Test Failure
111	402 METROPOLITAN AV/BKLYN	402 METROPOLITAN AVENUE	2311 feet to the ESE	Closed Status Tank Test Failure
253	VOLUNTARY CLEAN UP SITE THROUGH OER	349-351 GRAND ST	2330 feet to the ESE	Closed Status Spill (Unk/Other Cause)
254	ASCENTION CHURCH/BKLYN	N 5TH ST / METRO. AVE	2339 feet to the ESE	Closed Status Spill (Unk/Other Cause)
58	349-355 GRAND STREET	349-355 GRAND STREET	2345 feet to the ESE	Brownfields Site
264	MAIN ROAD WAY	HOPE STREET AND MARCY AVE	2409 feet to the ESE	Closed Status Spill (Unk/Other Cause)

95	UNICO GAS STATION	445 METROPOLITAN AVE	2582 feet to the ESE	Closed Status Tank Failure
291	GAS STATION	445 METROPOLITAN AVE	2582 feet to the ESE	Closed Status Spill (Unk/Other Cause)
26	263 BEDFORD AVE	263 BEDFORD AVE	749 feet to the SE	Brownfields Site
133	176 GRAND ST EXT/BKLYN	176 GRAND ST EXTENSION	773 feet to the SE	Closed Status Spill (Unk/Other Cause)
144	INTERSECTION	NORTH 1ST STREET	865 feet to the SE	Closed Status Spill (Unk/Other Cause)
314	202 SOUTH 1ST STREET	202 SOUTH 1ST STREET	1471 feet to the SE	Closed Status Spill (Misc. Spill Cause)
225	GRAND & HAVEMEYER ST	GRAND & HAVEMEYER ST	2023 feet to the SE	Closed Status Spill (Unk/Other Cause)
228	SERVICE BOX #1906	144 HAVEMEYER ST	2074 feet to the SE	Closed Status Spill (Unk/Other Cause)
108	APARTMENT BUILDING	265 SOUTH 2ND ST	2266 feet to the SE	Closed Status Tank Test Failure
112	273 SOUTH SECOND STREET	273 SOUTH SECOND STREET	2352 feet to the SE	Closed Status Tank Test Failure
114	APARTMENT BUILDING	278 SOUTH 2ND ST	2396 feet to the SE	Closed Status Tank Test Failure
265	SPILL NUMBER 9909597	MARCY AV NORTH OF GRAND S	2427 feet to the SE	Closed Status Spill (Unk/Other Cause)
266	MH 59599	MARCY AVE AND GRAND ST	2427 feet to the SE	Closed Status Spill (Unk/Other Cause)
268	MANHOLE 38010	84 MARCY AVE	2473 feet to the SE	Closed Status Spill (Unk/Other Cause)
141	TRANSFORMER VAULT #45	STH 1ST /BEDFORD AVE	829 feet to the SSE	Closed Status Spill (Unk/Other Cause)
142	SPILL NUMBER 0303595	SOUTH 1ST ST/BEDFORD AV	829 feet to the SSE	Closed Status Spill (Unk/Other Cause)
148	SPILL NUMBER 0206265	299 BEDFORD AVE	939 feet to the SSE	Closed Status Spill (Unk/Other Cause)
167	ENG CO. 221	161 SOUTH 2ND ST	1131 feet to the SSE	Closed Status Spill (Unk/Other Cause)
315	190 SOUTH 2ND STREET	190 SOUTH 2ND STREET	1494 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
216	PARKING LOT - MISC	185-191 SOUTH 4TH STREET	1840 feet to the SSE	Closed Status Spill (Unk/Other Cause)
218	ROEBLING AV & S 3RD ST	ROEBLING AV & S 3RD ST	1897 feet to the SSE	Closed Status Spill (Unk/Other Cause)
219	MAN HOLE 62	ROEBLING ST / S 3RD ST	1897 feet to the SSE	Closed Status Spill (Unk/Other Cause)
224	SERVICE BOX 37792	I/FO 216 S. 3RD STREET	2009 feet to the SSE	Closed Status Spill (Unk/Other Cause)
227	MANHOLE #63	ROEBLING ST /SOUTH 4TH ST	2061 feet to the SSE	Closed Status Spill (Unk/Other Cause)
241	MANHOLE #37845	IFO 223 S 4TH ST	2214 feet to the SSE	Closed Status Spill (Unk/Other Cause)
255	ALONGSIDE BUILDING	188 HAVEMEYER STREET	2345 feet to the SSE	Closed Status Spill (Unk/Other Cause)
183	APT. BUILDING	352 BEDFORD AVE	1351 feet to the S	Closed Status Spill (Unk/Other Cause)
196	OLD GAS STATION	364 -368 BEDFORD AVE	1526 feet to the S	Closed Status Spill (Unk/Other Cause)
198	MANHOLE 42	351 BEDFORD AVENUE	1576 feet to the S	Closed Status Spill (Unk/Other Cause)
317	SPILL NUMBER 9911530	S 5ST/BEDFORD AV	1770 feet to the S	Closed Status Spill (Misc. Spill Cause)
16	K - KEAP ST. STATION	KEAP ST., WYTHE AVE, HOOPER ST. & KENT AVE.	5128 feet to the S	NYSDEC Inactive Haz Waste Disposal Site
90	BTWN NERRY ST & WHITE ST	65 SOUTH 3RD STREET	1103 feet to the SSW	Closed Status Tank Failure
192	98 SOUTH 4TH ST	98 SOUTH 4TH ST	1496 feet to the SSW	Closed Status Spill (Unk/Other Cause)
43	98-116 SOUTH 4TH STREET (EL PUENTE)	98-116 SOUTH 4TH STREET	1521 feet to the SSW	Brownfields Site
44	WILLIAMSBURG BRIDGEVIEW APARTMENTS	337 BERRY STREET	1567 feet to the SSW	Brownfields Site
45	WILLIAMSBURG BRIDGEVIEW APARTMENTS	105 S. 5TH STREET	1567 feet to the SSW	Brownfields Site
200	EXTERIOR STOCK YARD	95 SOUTH 5TH ST	1602 feet to the SSW	Closed Status Spill (Unk/Other Cause)
105	373 WYTHE AVENUE	373 WYTHE AVE	1623 feet to the SSW	Closed Status Tank Test Failure
204	MANHOLE 12111	BAY ST & 5TH ST	1710 feet to the SSW	Closed Status Spill (Unk/Other Cause)
205	MANHOLE #12111	BERRY STREET AND SOUTH 5	1710 feet to the SSW	Closed Status Spill (Unk/Other Cause)
209	MANHOLE 64824	WYTHE AVENUE	1739 feet to the SSW	Closed Status Spill (Unk/Other Cause)
210	WYTHE AV/	SO 5TH ST	1739 feet to the SSW	Closed Status Spill (Unk/Other Cause)
74	LOCAL TRANSFER STATION	353 BERRY STREET	1857 feet to the SSW	Solid Waste Facility
93	97 BROADWAY	97 BROADWAY	2054 feet to the SSW	Closed Status Tank Failure
76	ISSAAC D INC	426 WYTHE AVENUE	2078 feet to the SSW	Solid Waste Facility
78	CONTAINER SERVICE CORP.	36 BROADWAY	2454 feet to the SSW	Solid Waste Facility
271	IN BACK OF	424 BEDFORD AVE	2497 feet to the SSW	Closed Status Spill (Unk/Other Cause)
272	RESIDENTIAL CONSTRUCTION SITE	110-120 S 8TH ST	2497 feet to the SSW	Closed Status Spill (Unk/Other Cause)
10	K - PEOPLES WORKS	KENT AVE. S. 10TH ST., S. 11TH ST.	3430 feet to the SSW	NYSDEC Inactive Haz Waste Disposal Site

11	KENT AVENUE GENERATING STATION	500 KENT AVENUE	3967 feet to the SSW	NYSDEC Inactive Haz Waste Disposal Site
12	BROOKLYN NAVY YARD 13 ACRE PARCEL	KENT AVENUE	4258 feet to the SSW	NYSDEC Inactive Haz Waste Disposal Site
13	K-NASSAU WORKS MGP	KENT AVENUE	4353 feet to the SSW	NYSDEC Inactive Haz Waste Disposal Site
68	BJR REALTY CORP.	60 SOUTH 2ND STREET (WYTHE ST.)	1143 feet to the SW	Solid Waste Facility
69	POLICE CARS UNLIMITED INC	60 SOUTH 2ND STREET	1143 feet to the SW	Solid Waste Facility
82	ROADWAY/MAN HOLE	37 SOUTH 3 ST	1228 feet to the SW	Active Haz Spill (Unknown/Other Cause)
36	59 SOUTH 4TH STREET	51-59 SOUTH 4TH STREET	1393 feet to the SW	Brownfields Site
39	DOMINO SUGAR SITE E	317-329 KENT AVENUE	1462 feet to the SW	Brownfields Site
220	BRIDGE REPAIR SHOP DOT -DDC	17 SOUTH 6TH STREET	1901 feet to the SW	Closed Status Spill (Unk/Other Cause)
226	BRIDGE	SOUTH 6TH ST/S. DUNHAM ST	2037 feet to the SW	Closed Status Spill (Unk/Other Cause)
230	EAST SIDE OF KENT AVE	EAST SIDE OF KENT AVE	2107 feet to the SW	Closed Status Spill (Unk/Other Cause)
231	MANHOLE	KENT AV/S 6TH ST	2107 feet to the SW	Closed Status Spill (Unk/Other Cause)
319	385 KENT AVENUE	385 KENT AVE	2124 feet to the SW	Closed Status Spill (Misc. Spill Cause)
235	EAST RIVER	KENT AVE	2175 feet to the SW	Closed Status Spill (Unk/Other Cause)
236	WILLIAMBURG BRIDGE	E. RIVER- WILLIAMSBURG BR	2175 feet to the SW	Closed Status Spill (Unk/Other Cause)
237	WILLIAMSBURG BRIDGE	NR DOMINO SUGAR- W.BRIDGE	2175 feet to the SW	Closed Status Spill (Unk/Other Cause)
238	WILLIAMSBURG BRIDGE	WILLIAMSBURG BRIDGE	2175 feet to the SW	Closed Status Spill (Unk/Other Cause)
242	4G'S TRUCK RENTING CO INC	389 KENT AVENUE	2227 feet to the SW	Closed Status Spill (Unk/Other Cause)
243	FORMER GAS & WAREHOUSE	11-23 BROADWAY/375-393 1O	2227 feet to the SW	Closed Status Spill (Unk/Other Cause)
113	CLOSED-LACKOF RECENT INFO	390 KENT AVE	2361 feet to the SW	Closed Status Tank Test Failure
256	WILLIAMSBURG BRIDGE DOT -DDC	378 KENT AVENUE	2361 feet to the SW	Closed Status Spill (Unk/Other Cause)
270	MANHOLE 16	10 AVE/BROADWAY	2485 feet to the SW	Closed Status Spill (Unk/Other Cause)
140	MANHOLE 4860	330 WYTHE AVE	815 feet to the WSW	Closed Status Spill (Unk/Other Cause)
17	RADIAC RESEARCH CORP	33 S 1ST ST	890 feet to the WSW	RCRA Corrective Action Site
79	RADIAC RESEARCH CORP	33 S 1ST ST	890 feet to the WSW	Hazardous Waste Treat, Storage, Disposal
97	CLOSED-LACKOF RECENT INFO	49 SOUTH 2ND STREET	998 feet to the WSW	Closed Status Tank Test Failure
98	CLOSED-LACKOF RECENT INFO	49 SOUTH 2ND ST.	998 feet to the WSW	Closed Status Tank Test Failure
155	49 S 2ND ST	49 SOUTH 2ND STREET	998 feet to the WSW	Closed Status Spill (Unk/Other Cause)
304	49 S 2ND ST/DOMINO SUGAR	49 S 2ND ST/DOMINO SUGAR	998 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
158	RADAIC CORPORATION	271 KENT AVE	1066 feet to the WSW	Closed Status Spill (Unk/Other Cause)
185	MANHOLE #4817	KENT AV / SO 3RD ST	1446 feet to the WSW	Closed Status Spill (Unk/Other Cause)
186	316 KENT AVE	316 KENT AVENUE	1449 feet to the WSW	Closed Status Spill (Unk/Other Cause)
187	292 KENT AVE	292 KENT AVE	1449 feet to the WSW	Closed Status Spill (Unk/Other Cause)
188	262-266 KENT AVE	262-266 KENT AVE	1449 feet to the WSW	Closed Status Spill (Unk/Other Cause)
189	DOMINO SUGAR	266 KENT AVENUE	1449 feet to the WSW	Closed Status Spill (Unk/Other Cause)
190	DOMINO SUGAR	316 KENT AVENUE	1449 feet to the WSW	Closed Status Spill (Unk/Other Cause)
312	SPILL NUMBER 9812191	292 KENT AVE	1449 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
313	DOMINO SUGAR/S 2ND ST	DOMINO SUGAR/S 2ND ST	1449 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
40	DOMINO SUGAR SITE A	254-268 KENT AVENUE	1470 feet to the WSW	Brownfields Site
41	DOMINO SUGAR SITE B	270-290 KENT AVENUE	1470 feet to the WSW	Brownfields Site
42	DOMINO SUGAR SITE D	330-350 KENT AVENUE	1470 feet to the WSW	Brownfields Site
25	53 GRAND STREET	53 GRAND STREET	671 feet to the W	Brownfields Site
18	RADIAC RESEARCH	261 KENT AVE	928 feet to the W	RCRA Corrective Action Site
80	RADIAC RESEARCH CORP	261 KENT AVE	928 feet to the W	Hazardous Waste Treat, Storage, Disposal
96	D61 KENT AVE. BKLYN/RADIA	261 KENT AVE.	928 feet to the W	Closed Status Tank Test Failure
163	SPILL NUMBER 9900648	RIVER & GRAND ST	1093 feet to the W	Closed Status Spill (Unk/Other Cause)
177	EAST RIVER -GRAND STREET	EAST RIVER AT GRAND AVE	1256 feet to the W	Closed Status Spill (Unk/Other Cause)
27	235-237 KENT AVENUE	235-237 KENT AVENUE	780 feet to the WNW	Brownfields Site
137	NORTH 1ST/KENT AVE.	NORTH 1ST ST & KENT AVE	797 feet to the WNW	Closed Status Spill (Unk/Other Cause)

301	N 1ST ST & KENT AV/CON ED	NORTH 1ST ST & KENT AVE	797 feet to the WNW	Closed Status Spill (Misc. Spill Cause)
28	FYN PAINT AND LACQUER CO., INC. - OFF-SITE	230 KENT AVENUE	836 feet to the WNW	Brownfields Site
1	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	874 feet to the WNW	NYSDEC Inactive Haz Waste Disposal Site
19	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	874 feet to the WNW	CERCLIS Superfund Non-NFRAP Site
89	FYN PAINT	33 NORTH 1ST STREET	875 feet to the WNW	Closed Status Tank Failure
29	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	876 feet to the WNW	Brownfields Site
30	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	876 feet to the WNW	Brownfields Site
147	240 KENT AVE/YORK DISPLAY	240 KENT AVE	918 feet to the WNW	Closed Status Spill (Unk/Other Cause)
151	NORTH 1ST ST FUEL OIL TERMINAL	NORTH 1ST ST AND RIVER RD	949 feet to the WNW	Closed Status Spill (Unk/Other Cause)
152	SHEEN TO SOIL	NORTH 1ST ST AND RIVER ST	949 feet to the WNW	Closed Status Spill (Unk/Other Cause)
153	NORTH 1ST STREET AND	NORTH 1ST ST $ RIVER	949 feet to the WNW	Closed Status Spill (Unk/Other Cause)
164	NYPA	47-79 RIVER ST	1122 feet to the WNW	Closed Status Spill (Unk/Other Cause)
165	PLANT SITE	4749 RIVER ST	1122 feet to the WNW	Closed Status Spill (Unk/Other Cause)
166	EAST RIVER LIPA PLANT	NORTH 1ST ST/RIVER ST	1122 feet to the WNW	Closed Status Spill (Unk/Other Cause)
134	BETWEEN NORTH 1ST & 3RD	10TH AVE	779 feet to the NW	Closed Status Spill (Unk/Other Cause)
135	CORNER METROPOLATAIN AND	KENT AVE	779 feet to the NW	Closed Status Spill (Unk/Other Cause)
139	IN FRONT OF	214 KENT AVENUE	811 feet to the NW	Closed Status Spill (Unk/Other Cause)
149	VAULT 2597	METROPOLITAN AV	943 feet to the NW	Closed Status Spill (Unk/Other Cause)
150	VAULT 4048	RIVER ST/METROPOLITAN AV	943 feet to the NW	Closed Status Spill (Unk/Other Cause)
302	METROPOLITAN AVENUE	AT RIVER STREET	943 feet to the NW	Closed Status Spill (Misc. Spill Cause)
81	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW	Active Haz Spill (Unknown/Other Cause)
170	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Unk/Other Cause)
171	CON ED FUEL DEPOT	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Unk/Other Cause)
172	LINE FAILURE	87 RIVER ST/ METRO AVE	1165 feet to the NW	Closed Status Spill (Unk/Other Cause)
173	NORTH FIRST STREET FUEL OIL TERMINAL	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Unk/Other Cause)
174	KENT AVE YARD	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Unk/Other Cause)
305	CON EDISON BUILDING	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
306	NORTH FIRST STREET	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
307	N FIRST ST TERMINAL	NORTH FIRST ST TERMINAL	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
308	NORTH 1ST ST TERMINAL	NORTH 1ST STREET	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
309	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
310	NORTH 1ST ST TERMINAL	NORTH 1ST ST & KENT AVE	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
311	CON ED-N 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW	Closed Status Spill (Misc. Spill Cause)
175	TANK FARM	105 RIVER ST	1192 feet to the NW	Closed Status Spill (Unk/Other Cause)
66	V. M. TRANSFER, LTD.(CARDELLA)	175 KENT AVE	762 feet to the NNW	Solid Waste Facility
136	ANTHONY CONCRETE	175 KENT AVE	783 feet to the NNW	Closed Status Spill (Unk/Other Cause)
156	1 GAL HYDRAULIC OIL FROM DRILL RIG	NORTH 3 STREET & RIVER STREET	1003 feet to the NNW	Closed Status Spill (Unk/Other Cause)
70	NEKBOH RECYCLING INC. (2 N. 5TH ST.)	2 NORTH 5TH STREET	1434 feet to the NNW	Solid Waste Facility
71	WASTE MANAGEMENT OF NEW YORK (USAWASTE S	2 NORTH 5TH STREET	1434 feet to the NNW	Solid Waste Facility
72	RECYCLE AMERICA ALLIANCE (A WASTEMANAGEMENT OF NY COMPANY)	2 NORTH 5TH STREET	1434 feet to the NNW	Solid Waste Facility
73	DEMICCO BROS. INC.	2 NORTH 5TH STREET	1434 feet to the NNW	Solid Waste Facility

Identified Toxic Sites by Category

134 Metropolitan Avenue
Brooklyn, NY 11211

* Compass directions can vary substantially for sites located very close to the subject property address.

NYSDEC Inactive Haz. Waste Disposal Site Registry -- Total Sites - 14

Database searched at 1 MILE – ASTM required search distance: 1 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
1	224154	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	874 feet to the WNW
2	224177	FORMER CLEANERS SALES & EQUIPMENT CORP	135 KENT AVENUE	1240 feet to the N
4	224029	KENT TERMINAL	KENT AVE. BETWEEN 5TH–11TH ST.	2005 feet to the N
6	224028	BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	2728 feet to the NNE
7	224016	BQE/ANSBACHER COLOR & DYE FACTORY	MEEKER AVENUE	2776 feet to the E
8	224055	K – WILLIAMSBURG WORKS	KENT AVE & 12TH STREET	2818 feet to the NNE
9	224069	K – WYTHE AVE. STATION	WYTHE AVE., BERRY ST., N 12TH & 13TH ST	2847 feet to the NE
10	224053	K – PEOPLES WORKS	KENT AVE. S. 10TH ST., S. 11TH ST.	3430 feet to the SSW
11	224137	KENT AVENUE GENERATING STATION	500 KENT AVENUE	3967 feet to the SSW
12	224019A	BROOKLYN NAVY YARD 13 ACRE PARCEL	KENT AVENUE	4258 feet to the SSW
13	224019B	K–NASSAU WORKS MGP	KENT AVENUE	4353 feet to the SSW
14	224168	FORMER BERKMAN BROS SITE	55 ECKFORD STREET	4489 feet to the ENE
15	224005	CITY BARREL CO.	421–429 MEEKER STREET	4668 feet to the ENE
16	224064	K – KEAP ST. STATION	KEAP ST., WYTHE AVE, HOOPER ST. & KENT AVE.	5128 feet to the S

Inactive Haz. Waste Disposal Site Registry Qualifying -- Total Sites - 2

Database searched at 1 MILE – ASTM required search distance: 1 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
3		KENT TERMINAL	KENT AVE. BETWEEN N.5TH & N.11TH ST.	2005 feet to the N
5		BROOKLYN NORTH 1 GARAGE	50 KENT AVENUE	2728 feet to the NNE

RCRA Corrective Action Sites -- Total Sites - 2

Database searched at 1 MILE – ASTM required search distance: 1 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
17	NYD049178296	RADIAC RESEARCH CORP	33 S 1ST ST	890 feet to the WSW
18	224021	RADIAC RESEARCH	261 KENT AVE	928 feet to the W

CERCLIS Superfund Non–NFRAP Sites -- Total Sites - 1

Database searched at 1/2 MILE – ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
19	NYC200400950	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	874 feet to the WNW

CERCLIS Superfund NFRAP Sites -- Total Sites - 1

Database searched at 1/2 MILE – ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
20	NYD001384072	ALL PLATING CORP.	154 NORTH 7TH STREET	1372 feet to the ENE

Brownfields Sites -- Total Sites - 45

Database searched at 1/2 MILE – ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
21	11CBCP013K	105 METROPOLITAN AVENUE	105 METROPOLITAN AVENUE	286 feet to the NNW
22	14CVCP198K	87 GRAND STREET	87 GRAND STREET	337 feet to the WSW
23	15CVCP050K	83 GRAND STREET	83 GRAND STREET	380 feet to the WSW
24	16CVCP034K	296 WYTHE AVENUE	296 WYTHE AVENUE	466 feet to the W
25	15CVCP071K	53 GRAND STREET	53 GRAND STREET	671 feet to the W
26	12CVCP051K	263 BEDFORD AVE	263 BEDFORD AVE	749 feet to the SE
27	14CVCP231K	235–237 KENT AVENUE	235–237 KENT AVENUE	780 feet to the WNW
28	C224154A	FYN PAINT AND LACQUER CO., INC. – OFF–SITE	230 KENT AVENUE	836 feet to the WNW
29	C224154	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	876 feet to the WNW
30	V00380	FYN PAINT AND LACQUER CO., INC.	230 KENT AVENUE	876 feet to the WNW
31	C224159	149 KENT AVENUE	149 KENT AVENUE	1089 feet to the N

32	12CBCP041K	126 N 6TH STREET	126 NORTH 6TH STREET	1097 feet to the NE
33	C224177	FORMER CLEANERS SALES & EQUIPMENT CORP	135 KENT AVENUE	1248 feet to the N
34	15CVCP028K	63 NORTH 6TH STREET	59-63 NORTH 6TH STREET	1289 feet to the NNE
35	13CVCP112K	131 BERRY STREET	125 BERRY STREET	1315 feet to the NE
36	14CVCP237K	59 SOUTH 4TH STREET	51-59 SOUTH 4TH STREET	1393 feet to the SW
37	C224124	285 AND 291 METROPOLITAN AVE	285, 291 METROPOLITAN AVENUE	1421 feet to the ESE
38	13CVCP118K	291 METROPOLITAN AVENUE	291 METROPOLITAN AVENUE	1449 feet to the ESE
39	15CVCP001K	DOMINO SUGAR SITE E	317-329 KENT AVENUE	1462 feet to the SW
40	15CVCP002K	DOMINO SUGAR SITE A	254-268 KENT AVENUE	1470 feet to the WSW
41	15CVCP003K	DOMINO SUGAR SITE B	270-290 KENT AVENUE	1470 feet to the WSW
42	15CVCP004K	DOMINO SUGAR SITE D	330-350 KENT AVENUE	1470 feet to the WSW
43	V00094	98-116 SOUTH 4TH STREET (EL PUENTE)	98-116 SOUTH 4TH STREET	1521 feet to the SSW
44	16CVCP037K	WILLIAMSBURG BRIDGEVIEW APARTMENTS	337 BERRY STREET	1567 feet to the SSW
45	C224233	WILLIAMSBURG BRIDGEVIEW APARTMENTS	105 S. 5TH STREET	1567 feet to the SSW
46	13CVCP101K	66 NORTH 8TH STREET	66 NORTH 8TH STREET	1663 feet to the NNE
47	12CVCP053K	25 HOPE STREET	25 HOPE STREET	1804 feet to the ESE
48	C224188	87 KENT AVENUE	56 NORTH 9TH STREET (AKA 87 KENT AVENUE)	1936 feet to the NNE
49	C224188A	87 KENT AVENUE - (OFF-SITE)	56 NORTH 9TH STREET (AKA 87 KENT AVENUE)	1947 feet to the NNE
50	V00064	KENT TERMINAL	KENT AVE. BETWEEN 5TH-11TH ST.	1965 feet to the N
51	C224203	FORMER STERLING TRANSFORMER CORP.	510 DRIGGS AVENUE	2017 feet to the ENE
52	15CVCP077K	138-142 NORTH 10TH STREET	138-142 NORTH 10TH STREET	2112 feet to the NE
53	15CVCP008K	207 NORTH 8TH STREET	207 NORTH 8TH STREET	2138 feet to the ENE
54	13CVCP122K	212-218 N 9TH STREET	212 NORTH 9TH STREET	2196 feet to the ENE
55	12CVCP068K	249 NORTH 7TH STREET	249 NORTH 7TH STREET	2271 feet to the E
56	14CVCP165K	230 NORTH 9TH STREET	230 NORTH 9TH STREET	2293 feet to the ENE
57	15CVCP139K	69 HOPE STREET	69 HOPE STREET	2302 feet to the ESE
58	15CVCP075K	349-355 GRAND STREET	349-355 GRAND STREET	2345 feet to the ESE
59	12CVCP069K	248 NORTH 8TH STREET	248 NORTH 8TH STREET	2395 feet to the E
60	15CVCP101K	202 NORTH 10TH STREET	202 NORTH 10TH STREET	2428 feet to the ENE
61	12CBCP021K	470 DRIGGS AVENUE	470 DRIGGS AVENUE	2451 feet to the ENE
62	15CVCP054K	172-174 NORTH 11TH STREET	172-174 NORTH 11TH STREET	2506 feet to the ENE
63	14CVCP214K	28-46 ROEBLING STREET	28 ROEBLING STREET	2512 feet to the ENE
64	13CVCP086K	235-263 NORTH 9TH STREET	235 NORTH 9TH STREET	2553 feet to the ENE
65	15CVCP147K	304-310 NORTH &TH STREET	304-310 NORTH &TH STREET	2626 feet to the E

Solid Waste Facilities -- Total Sites - 13 **Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
66	NY00000000033	V. M. TRANSFER, LTD.(CARDELLA)	175 KENT AVE	762 feet to the NNW
67	NY00000000060	JORAL CARTING INC.	157 KENT AVE.	787 feet to the N
68	NY00000000035	BJR REALTY CORP.	6O SOUTH 2ND STREET (WYTHE ST.)	1143 feet to the SW
69	NY40000011840	POLICE CARS UNLIMITED INC	60 SOUTH 2ND STREET	1143 feet to the SW
70	NY00000000304	NEKBOH RECYCLING INC. (2 N. 5TH ST.)	2 NORTH 5TH STREET	1434 feet to the NNW
71	NY00000000476	WASTE MANAGEMENT OF NEW YORK (USAWASTE S	2 NORTH 5TH STREET	1434 feet to the NNW
72	NY40000010210	RECYCLE AMERICA ALLIANCE (A WASTEMANAGEMENT OF NY COMPANY)	2 NORTH 5TH STREET	1434 feet to the NNW
73	NY40000010709	DEMICCO BROS. INC.	2 NORTH 5TH STREET	1434 feet to the NNW
74	NY00000000272	LOCAL TRANSFER STATION	353 BERRY STREET	1857 feet to the SSW
75	NY00000000320	NEKBOH RECYCLING(5 N. 7TH ST. REGISTRATI	5 NORTH 7TH STREET (KENT AVE BETWEEN NORTH 6 TO NORTH 7TH	1866 feet to the N
76	NY40000011828	ISSAAC D INC	426 WYTHE AVENUE	2078 feet to the SSW
77	NY00000000276	NATIONAL PAPER STOCK, INC.	136 NORTH 10TH STREET	2098 feet to the NE
78	NY00000000057	CONTAINER SERVICE CORP	36 BROADWAY	2454 feet to the SSW

Hazardous Waste Treatment, Storage, Disposal Facilities — Total Sites - 2 Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
79	NYD049178296	RADIAC RESEARCH CORP	33 S 1ST ST	890 feet to the WSW
80	NYD986902138	RADIAC RESEARCH CORP	261 KENT AVE	928 feet to the W

Active Haz Spills (Unknown Causes & Other Causes) -- Total Sites - 8 Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
81	9910798	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW
82	1601343	ROADWAY/MAN HOLE	37 SOUTH 3 ST	1228 feet to the SW
83	9614852	APARTMENT BUILDING	73 NORTH 8TH STREET	1778 feet to the NNE
84	1407145	VACANT LOT (COMMERCIAL)	510 DRIGGS AVE	2033 feet to the ENE
85	1409694	PETROLEUM CONTAMINATED GROUNDWATER	207 NORTH 8TH STREET	2140 feet to the ENE
86	0601588	MANHOLE #4353	KENT AVENUE & N. 10 STREET	2290 feet to the NNE
87	1504506	GROUNDWATER	202 NORTH 10TH ST	2432 feet to the ENE
88	1404500	VACANT PROPERTY	304- 308 NORTH 7TH STREET	2633 feet to the E

Closed Status Tank Failures -- Total Sites - 7 Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
89	9815508	FYN PAINT	33 NORTH 1ST STREET	875 feet to the WNW
90	9401369	BTWN NERRY ST & WHITE ST	65 SOUTH 3RD STREET	1103 feet to the SSW
91	9008726	174 BEDFORD AVE/BKLYN	174 BEDFORD AVENUE	1589 feet to the ENE
92	9006489	172 BEDFORD AVE/BKLYN	172 BEDFORD AVENUE	1607 feet to the ENE
93	0330029	97 BROADWAY	97 BROADWAY	2054 feet to the SSW
94	9212269	S/W COR METROPOLITAN/MARC	402 METROPOLITAN AVENUE	2311 feet to the ESE
95	9909193	UNICO GAS STATION	445 METROPOLITAN AVE	2582 feet to the ESE

Closed Status Tank Test Failures -- Total Sites - 19 Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
96	8605975	D61 KENT AVE. BKLYN/RADIA	261 KENT AVE.	928 feet to the W
97	8807845	CLOSED-LACKOF RECENT INFO	49 SOUTH 2ND STREET	998 feet to the WSW
98	8706162	CLOSED-LACKOF RECENT INFO	49 SOUTH 2ND ST.	998 feet to the WSW
99	8906957	CLOSED-LACKOF RECENT INFO	167 NORTH 5TH STREET	1345 feet to the E
100	8909928	154-158 NORTH 7TH ST/BKLY	154-158 NORTH 7TH STREET	1388 feet to the ENE
101	0301163	ST VINCENT DEPAUL CHURCH	167 N. 6TH ST	1482 feet to the ENE
102	0307525	187 BEDFORD AVE - TTF	187 BEDFORD AVENUE	1491 feet to the ENE
103	0902485	MARTIN GURSHON	179 NORTH 6TH STREET	1557 feet to the ENE
104	0104288	SPILL NUMBER 0104288	179 N 6TH STREET	1557 feet to the ENE
105	8801453	373 WYTHE AVENUE	373 WYTHE AVE	1623 feet to the SSW
106	8905160	146 WYTHE AVE/BROOKLYN	146 WYTHE AVENUE	1725 feet to the NNE
107	9913062	COMMERCIAL BUILDING	93 NORTH 9TH STREET	1989 feet to the NE
108	0600214	APARTMENT BUILDING	265 SOUTH 2ND ST	2266 feet to the SE
109	0306649	F N W MECHANICAL	139 NORTH 10TH STREET	2293 feet to the NE
110	9213355	402 METROPOLITAN AVE.	402 METROPOLITAN AVENUE	2311 feet to the ESE
111	8907310	402 METROPOLITAN AV/BKLYN	402 METROPOLITAN AVENUE	2311 feet to the ESE
112	9712027	273 SOUTH SECOND STREET	273 SOUTH SECOND STREET	2352 feet to the SE
113	8710648	CLOSED-LACKOF RECENT INFO	390 KENT AVE	2361 feet to the SW
114	0600215	APARTMENT BUILDING	278 SOUTH 2ND ST	2396 feet to the SE

Closed Status Spills (Unknown Causes & Other Causes) -- Total Sites - 181 Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
115	0104619	SPILL NUMBER 0104619	106 N 1ST ST	144 feet to the SSW*
116	1604271	UNDER CONSTRUCTION SITE	125 METROPOLITAN AVENUE	228 feet to the NNE

117	0913080	APARTMENT BUILDING	111 GRAND STREET	236 feet to the SSW
118	0010983	SERVICE BOX 14177	139 GRAND ST	411 feet to the SSE
119	0702880	DRUM RUN	255 BERRY ST	434 feet to the S
120	0613966	OLD GAS STATION	128 GRAND STREET	434 feet to the S
121	9807872	VAULT #2720	WHITE AVE/N OF N 3RD ST	449 feet to the N
122	9903017	WILLIAM SHERIDAN PLAYGROU	PS 84	457 feet to the SW
123	8803014	290 WYTHE AV	290 WYTHE AVE	459 feet to the W
124	0909652	MANHOLE 58130	126 NORTH 3RD ST	465 feet to the E
125	1503264	COMMERCIAL VACANT BUILDING	152 GRAND ST	540 feet to the SSE
126	0802803	CONSTRUCTIO PROJ	197 BERRY STREET	552 feet to the E
127	0708001	VACANT LOT	197 BERRY STREET	552 feet to the E
128	1404285	BASEMENT OF RESIDENCE	150 GRAND STREET	574 feet to the SSE
129	0713079	SIX GALLONS OIL IN VAULTS	242 WYTHE AVENUE	599 feet to the N
130	0004421	MANHOLE 64134	NORTH 4TH ST/BERRY ST	624 feet to the ENE
131	0813448	MANHOLE 4855	WYTHE & 4TH ST	674 feet to the N
132	0012440	TM2850	80 N 5TH ST	767 feet to the NNE
133	8809562	176 GRAND ST EXT/BKLYN	176 GRAND ST EXTENSION	773 feet to the SE
134	9605434	BETWEEN NORTH 1ST & 3RD	10TH AVE	779 feet to the NW
135	0106099	CORNER METROPOLATAIN AND	KENT AVE	779 feet to the NW
136	0009981	ANTHONY CONCRETE	175 KENT AVE	783 feet to the NNW
137	9007240	NORTH 1ST/KENT AVE.	NORTH 1ST ST & KENT AVE	797 feet to the WNW
138	0802695	VACANT LOT	157 KENT AVE	809 feet to the N
139	9901816	IN FRONT OF	214 KENT AVENUE	811 feet to the NW
140	0012714	MANHOLE 4860	330 WYTHE AVE	815 feet to the WSW
141	0411505	TRANSFORMER VAULT #45	STH 1ST /BEDFORD AVE	829 feet to the SSE
142	0303595	SPILL NUMBER 0303595	SOUTH 1ST ST/BEDFORD AV	829 feet to the SSE
143	0800933	VAULT # 4066 HAS 15 GALLONS OIL	IN FRONT OF 80 NORTH 5 STREET	857 feet to the NNE
144	0403847	INTERSECTION	NORTH 1ST STREET	865 feet to the SE
145	0803056	THIRTY GAL UNKNOWN LIQUID IN MH 12081	BERRY STREET & 5 STREET	876 feet to the NE
146	0703005	TEN GAL OIL IN SERVICE BOX #23546	239 BEDFORD AVENUE	908 feet to the E
147	8802124	240 KENT AVE/YORK DISPLAY	240 KENT AVE	918 feet to the WNW
148	0206265	SPILL NUMBER 0206265	299 BEDFORD AVE	939 feet to the SSE
149	0312422	VAULT 2597	METROPOLITAN AV	943 feet to the NW
150	0211678	VAULT 4048	RIVER ST/METROPOLITAN AV	943 feet to the NW
151	1113073	NORTH 1ST ST FUEL OIL TERMINAL	NORTH 1ST ST AND RIVER RD	949 feet to the WNW
152	1112968	SHEEN TO SOIL	NORTH 1ST ST AND RIVER ST	949 feet to the WNW
153	0102881	NORTH 1ST STREET AND	NORTH 1ST ST $ RIVER	949 feet to the WNW
154	0508322	BUILDING	146 BERRY STREET	976 feet to the NE
155	9108256	49 S 2ND ST	49 SOUTH 2ND STREET	998 feet to the WSW
156	0607410	1 GAL HYDRAULIC OIL FROM DRILL RIG	NORTH 3 STREET & RIVER STREET	1003 feet to the NNW
157	0814442	213519; 133 NO. 5 ST	133 NO. 5 ST	1065 feet to the ENE
158	9907510	RADAIC CORPORATION	271 KENT AVE	1066 feet to the WSW
159	1400122	KENT AVE ROADWAY	KENT AVE BEWTEEN N 4TH ST & N 5TH ST	1073 feet to the N
160	0610684	CYN BAR	NORTH 5TH & BEDFORD AVE	1075 feet to the ENE
161	0203510	MANHOLE 4869	BEDFORD AVE/N 5TH ST	1075 feet to the ENE
162	0203177	MH 4869	BEDFORD AVE/NORTH 5TH STBR	1075 feet to the ENE
163	9900648	SPILL NUMBER 9900648	RIVER & GRAND ST	1093 feet to the W
164	1010703	NYPA	47-79 RIVER ST	1122 feet to the WNW
165	0204128	PLANT SITE	4749 RIVER ST	1122 feet to the WNW
166	0102918	EAST RIVER LIPA PLANT	NORTH 1ST ST/RIVER ST	1122 feet to the WNW
167	9803301	ENG CO. 221	161 SOUTH 2ND ST	1131 feet to the SSE
168	8705743	152 NO. 5TH ST./HOLY GHOS	152 NO. 5TH ST	1149 feet to the E
169	0704430	STREET EXCAVATION	KENT & NORTH 5TH	1160 feet to the N

170	9910708	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW
171	9604977	CON ED FUEL DEPOT	214 KENT AVENUE	1165 feet to the NW
172	1200752	LINE FAILURE	87 RIVER ST/ METRO AVE	1165 feet to the NW
173	1112991	NORTH FIRST STREET FUEL OIL TERMINAL	214 KENT AVENUE	1165 feet to the NW
174	0411925	KENT AVE YARD	214 KENT AVENUE	1165 feet to the NW
175	1110602	TANK FARM	105 RIVER ST	1192 feet to the NW
176	0513611	CONSTRUCTION SITE	161 NORTH 4TH	1209 feet to the E
177	9409786	EAST RIVER -GRAND STREET	EAST RIVER AT GRAND AVE	1256 feet to the W
178	8710843	BEDFORD AVE&N 6TH ST/BKLY	BEDFORD AVE / N 6TH ST	1292 feet to the ENE
179	0700853	LIKA RESIDENCE	114 NORTH 7TH STREET	1297 feet to the NE
180	1109224	SOIL SAMPLES	131 BERRY ST	1326 feet to the NE
181	0403650	COMMERCIAL	125 BERRY ST	1326 feet to the NE
182	9803782	REGENCY METAL STAMPING	140 NORTH 7TH ST	1339 feet to the NE
183	0705486	APT. BUILDING	352 BEDFORD AVE	1351 feet to the S
184	0514745	ON SIDEWALK	NORTH 7TH /WYTHEAVE	1411 feet to the NNE
185	9907262	MANHOLE #4817	KENT AV / SO 3RD ST	1446 feet to the WSW
186	9600373	316 KENT AVE	316 KENT AVENUE	1449 feet to the WSW
187	9414098	292 KENT AVE	292 KENT AVE	1449 feet to the WSW
188	0809044	262-266 KENT AVE	262-266 KENT AVE	1449 feet to the WSW
189	0302849	DOMINO SUGAR	266 KENT AVENUE	1449 feet to the WSW
190	0030003	DOMINO SUGAR	316 KENT AVENUE	1449 feet to the WSW
191	0607903	G&A AUTO REPAIR	291 METROPOLITAN AVE	1452 feet to the ESE
192	9611887	98 SOUTH 4TH ST	98 SOUTH 4TH ST	1496 feet to the SSW
193	9904275	LOT NEXT TO 583 DRIDGES	CRN DRIGGES AVE & 8TH	1502 feet to the E
194	9813469	VACANT BUILDING	142 NORTH 8TH ST	1525 feet to the NE
195	0502373	MANHOLE 12074	115 BERRY ST	1525 feet to the NE
196	0512374	OLD GAS STATION	364 -368 BEDFORD AVE	1526 feet to the S
197	0501940	MANHOLE 12074	113 BERRY ST	1543 feet to the NE
198	9911389	MANHOLE 42	351 BEDFORD AVENUE	1576 feet to the S
199	0900808	MANHOLE 4823 CON ED	NORTH 7TH ST & KENT AVE	1580 feet to the N
200	1401467	EXTERIOR STOCK YARD	95 SOUTH 5TH ST	1602 feet to the SSW
201	1305502	ROAD WAY	N7 STREET DRIGGS AVE BEDFORD AVE	1626 feet to the ENE
202	0003172	SPILL NUMBER 0003172	ROEBLING ST & N 4TH ST	1649 feet to the ESE
203	9800014	ON BENCH WALL AND CAT WAL -NYCT	K 177 NO 7TH ST	1703 feet to the ENE
204	9909173	MANHOLE 12111	BAY ST & 5TH ST	1710 feet to the SSW
205	0405732	MANHOLE #12111	BERRY STREET AND SOUTH 5	1710 feet to the SSW
206	0005762	SB 16241	179 NORTH 7 ST	1726 feet to the ENE
207	0707011	CONSTRUCTION SITE	14 HOPE ST	1734 feet to the ESE
208	9513631	METROPOLITAN AVE/BTWN	HAVEMEYER ST-ROEBLING	1735 feet to the ESE
209	9903609	MANHOLE 64824	WYTHE AVENUE	1739 feet to the SSW
210	0007928	WYTHE AV/	SO 5TH ST	1739 feet to the SSW
211	0410954	BROTHERS CLEANERS	122 ROEBLING ROAD	1757 feet to the E
212	9013128	73 NORTH 8TH ST/BROOKLYN	73 NORTH 8TH STREET	1778 feet to the NNE
213	0508207	MANHOLE 4880	218 N 7 ST	1784 feet to the E
214	8604284	546 DRIGGS AVE	546 DRIGGS AVE	1795 feet to the ENE
215	0607587	DUMPSTER	134 WYTHE AVE	1824 feet to the NNE
216	0313533	PARKING LOT - MISC	185-191 SOUTH 4TH STREET	1840 feet to the SSE
217	9614853	RESIDENTS	67 NORTH 8TH STREET	1844 feet to the NNE
218	9711978	ROEBLING AV & S 3RD ST	ROEBLING AV & S 3RD ST	1897 feet to the SSE
219	0104389	MAN HOLE 62	ROEBLING ST / S 3RD ST	1897 feet to the SSE
220	9611385	BRIDGE REPAIR SHOP DOT -DDC	17 SOUTH 6TH STREET	1901 feet to the SW
221	9913229	MANHOLE #616218	6TH ST & ROEELING ST	1919 feet to the E
222	0103335	93 NORTH 9TH ST	93 NORTH 9TH STREET	1989 feet to the NE

223	0303594	SPILL NUMBER 0303594	BEDFORD AVE/N 9TH ST	2005 feet to the ENE
224	0012638	SERVICE BOX 37792	I/FO 216 S. 3RD STREET	2009 feet to the SSE
225	9409087	GRAND & HAVEMEYER ST	GRAND & HAVEMEYER ST	2023 feet to the SE
226	0003010	BRIDGE	SOUTH 6TH ST/S. DUNHAM ST	2037 feet to the SW
227	9815104	MANHOLE #63	ROEBLING ST /SOUTH 4TH ST	2061 feet to the SSE
228	0005859	SERVICE BOX #1906	144 HAVEMEYER ST	2074 feet to the SE
229	0002608	MANHOLE 15285	METROPOLITAN AVE/HAVEMEYE	2077 feet to the ESE
230	9600357	EAST SIDE OF KENT AVE	EAST SIDE OF KENT AVE	2107 feet to the SW
231	9600279	MANHOLE	KENT AV/S 6TH ST	2107 feet to the SW
232	0712729	VACANT/ COMMERCIAL	506 DRIGGS AVE	2123 feet to the ENE
233	8905700	BERRY ST & 10TH AVE/BKLYN	BERRY ST & 10TH AVENUE	2165 feet to the NE
234	9800896	SUBWAY TRACKS-NYCT	257 NORTH 6TH ST	2171 feet to the E
235	9714162	EAST RIVER	KENT AVE	2175 feet to the SW
236	9409142	WILLIAMBURG BRIDGE	E. RIVER- WILLIAMSBURG BR	2175 feet to the SW
237	9409075	WILLIAMSBURG BRIDGE	NR DOMINO SUGAR- W.BRIDGE	2175 feet to the SW
238	0312946	WILLIAMSBURG BRIDGE	WILLIAMSBURG BRIDGE	2175 feet to the SW
239	0890353	209741; WYTHE AVE; M-4848	WYTHE AVE; M-4848	2180 feet to the NNE
240	8808650	390 METROPOLITAN AV/BKLYN	390 METROPOLITAN AVENUE	2204 feet to the ESE
241	9907385	MANHOLE #37845	IFO 223 S 4TH ST	2214 feet to the SSE
242	0703703	4G'S TRUCK RENTING CO INC	389 KENT AVENUE	2227 feet to the SW
243	0508266	FORMER GAS & WAREHOUSE	11-23 BROADWAY/375-393 10	2227 feet to the SW
244	9814263	W OF ROBLING AV	N 8TH ST	2262 feet to the E
245	9913425	MANHOLE 4353	KENT AV & 10TH ST	2290 feet to the NNE
246	1215544	MAN HOLE 4353	10 AVE AND NORTH 10 ST	2290 feet to the NNE
247	0502765	MANHOLE#4353	KENT AVE./ N. 10TH ST.	2290 feet to the NNE
248	0000352	MANHOLE 4353	KENT AVE/NORTH 10TH ST	2290 feet to the NNE
249	0000208	MANHOLE 4353	KENT AV & N 10TH ST	2290 feet to the NNE
250	1216805	PRIVATE PROPERTY (E-DESIGNATION)	219-223 NORTH 8TH STREET	2297 feet to the ENE
251	9702730	CAMPBELL RESIDENCE	120 BEDFORD AVE	2322 feet to the NE
252	9902614	125 NORTH 10TH ST	125 NORTH 10TH ST	2323 feet to the NE
253	1602016	VOLUNTARY CLEAN UP SITE THROUGH OER	349-351 GRAND ST	2330 feet to the ESE
254	8900756	ASCENTION CHURCH/BKLYN	N 5TH ST / METRO. AVE	2339 feet to the ESE
255	0711476	ALONGSIDE BUILDING	188 HAVEMEYER STREET	2345 feet to the SSE
256	9700718	WILLIAMSBURG BRIDGE DOT -DDC	378 KENT AVENUE	2361 feet to the SW
257	1410331	VAPOR COMPLAINT	234 NORTH 9TH STREET	2363 feet to the ENE
258	0608858	AUNT HEDDY'S BAKERY	234 NORTH 9TH STREET	2363 feet to the ENE
259	0601688	VACANT LOT	165 NORTH 10TH ST	2378 feet to the ENE
260	0611495	169-175 NORTH 10TH STREET	169-175 NORTH 10TH STREET	2395 feet to the ENE
261	0708819	213 NORTH 9TH STREET	213-217 NORTH 9TH STREET	2397 feet to the ENE
262	0503901	FORMER GAS STATION	55 ROEBLING ST	2401 feet to the E
263	1215877	CONSTRUCTION SITE	248 NORTH 8TH STREET	2403 feet to the E
264	0902116	MAIN ROAD WAY	HOPE STREET AND MARCY AVE	2409 feet to the ESE
265	9909597	SPILL NUMBER 9909597	MARCY AV NORTH OF GRAND S	2427 feet to the SE
266	9908492	MH 59599	MARCY AVE AND GRAND ST	2427 feet to the SE
267	0711308	MH 4360	WYTHE AVENUE & NORTH 11 STREET	2437 feet to the NNE
268	9908504	MANHOLE 38010	84 MARCY AVE	2473 feet to the SE
269	0508858	HYDRO TECH	170 NORTH 11TH STREET	2483 feet to the ENE
270	0504940	MANHOLE 16	10 AVE/BROADWAY	2485 feet to the SW
271	0803424	IN BACK OF	424 BEDFORD AVE	2497 feet to the SSW
272	0702511	RESIDENTIAL CONSTRUCTION SITE	110-120 S 8TH ST	2497 feet to the SSW
273	9914827	MANHOLE #4352	KENT AVE & NORTH 11TH ST	2543 feet to the NNE
274	9913421	MANHOLE 4352	11TH ST & KENT AVE	2543 feet to the NNE
275	9900819	MH 4352	NORTH 11TH AND KENT AVE	2543 feet to the NNE

276	1113629	CON EDISON VAULT # 6939	KENT AVE AND NORTH 11TH STREET	2543 feet to the NNE
277	1007696	MANHOLE 62550	10TH AVE AND NORTH 11TH ST	2543 feet to the NNE
278	0704852	TWO PTS OIL IN MANHOLE #4352	KENT AVENUE & NORTH 11 STREET	2543 feet to the NNE
279	0601507	MANHOLE # 4352	KENT AVE & NORTH 11 STREET	2543 feet to the NNE
280	0012099	NORTH 11 STREET	AND KENT STREET	2543 feet to the NNE
281	0007344	MANHOLE 62550	KENT AV/NORTH 11 ST	2543 feet to the NNE
282	0007337	VAULT 3223	KENT AVE/ N 11TH ST	2543 feet to the NNE
283	0006192	MANHOLE 4352	KENT AVE/N. 11TH AVE	2543 feet to the NNE
284	0000333	MANHOLE 4352	KENT AV & N 11TH ST	2543 feet to the NNE
285	1302760	CONSTRUCTION AT SITE	239 NORTH 9TH STREET	2563 feet to the ENE
286	1302474	COMMERCIAL PROPERTY	235 NORTH 9TH ST	2563 feet to the ENE
287	0801333	COMMERICAL VACANT LOT	235-239 N 9TH STREET	2563 feet to the ENE
288	0803822	CONSTRUCITON SITE	40 BERRY STREET	2577 feet to the NE
289	0803266	34-42 BERRY ST	40 BERRY STREET	2577 feet to the NE
290	0609092	COMMERCIAL PROPERTY	200 NORTH 11TH STREET	2578 feet to the ENE
291	9909344	GAS STATION	445 METROPOLITAN AVE	2582 feet to the ESE
292	0711821	BUILDING	69 WYTHE AVE	2584 feet to the NE
293	0706592	STAR SOAP AND CANDLE CO.	304 NORTH 7TH STREET	2633 feet to the E
294	0706478	STAR SOAP AND CANDLE CO.	304 NORTH 7TH ST	2633 feet to the E
295	0510912	310 N 7TH ST	310 N 7TH ST	2633 feet to the E

Closed Status Spills (Miscellaneous Spill Causes) -- Total Sites - 24

Database searched at 1/2 MILE - ASTM required search distance: 1/2 Mile

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
296	1509079	PARKING GARAGE	129 METROPOLITON AVE	177 feet to the NNE*
297	9314920	173 METROPOLITAN AVE	173 METROPOLITAN AVE	435 feet to the E
298	0111142	SPILL NUMBER 0111142	109 NORTH 3RD STREET	439 feet to the NE
299	0108329	CANDY & CIGARETTE SUPPLY	109 NORTH 3RD STREET	439 feet to the NE
300	0710895	CONSTRUCTION SITE	201 BERRY STREET	552 feet to the E
301	9009234	N 1ST ST & KENT AV/CON ED	NORTH 1ST ST & KENT AVE	797 feet to the WNW
302	0301261	METROPOLITAN AVENUE	AT RIVER STREET	943 feet to the NW
303	0513902	DUPLICATE OF	85 N 5TH ST	952 feet to the NNE
304	9111094	49 S 2ND ST/DOMINO SUGAR	49 S 2ND ST/DOMINO SUGAR	998 feet to the WSW
305	9412429	CON EDISON BUILDING	214 KENT AVENUE	1165 feet to the NW
306	9412417	NORTH FIRST STREET	214 KENT AVENUE	1165 feet to the NW
307	9106388	N FIRST ST TERMINAL	NORTH FIRST ST TERMINAL	1165 feet to the NW
308	9010046	NORTH 1ST ST TERMINAL	NORTH 1ST STREET	1165 feet to the NW
309	9007596	NORTH 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW
310	9004154	NORTH 1ST ST TERMINAL	NORTH 1ST ST & KENT AVE	1165 feet to the NW
311	0103037	CON ED-N 1ST ST TERMINAL	214 KENT AVENUE	1165 feet to the NW
312	9812191	SPILL NUMBER 9812191	292 KENT AVE	1449 feet to the WSW
313	9112232	DOMINO SUGAR/S 2ND ST	DOMINO SUGAR/S 2ND ST	1449 feet to the WSW
314	9508902	202 SOUTH 1ST STREET	202 SOUTH 1ST STREET	1471 feet to the SE
315	8902949	190 SOUTH 2ND STREET	190 SOUTH 2ND STREET	1494 feet to the SSE
316	9001453	KENT AVE BETW N 7 & 8TH	KENT AVE / N 7TH ST	1580 feet to the N
317	9911530	SPILL NUMBER 9911530	S 5ST/BEDFORD AV	1770 feet to the S
318	8704050	KENT AVENUE/N.9TH ST.	KENT AVE / N.9TH ST	2049 feet to the NNE
319	0705120	385 KENT AVENUE	385 KENT AVE	2124 feet to the SW

Petroleum Bulk Storage Sites -- Total Sites - 19

Database searched at 1/8 MILE - ASTM required search distance: Property & Adjacent

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
320	NY02014	BIANCO REALTY CO.	107 N 1 ST	87 feet to the SE*
321	NY05961	LAWERENCE NOVELTY CO INC	140 METROPOLITAN AVE	98 feet to the E*
322	2-364878	METRO REALTY	100 METROPOLITAN AVE	197 feet to the NW*

Tax Parcel Information Table

134 Metropolitan Avenue
Brooklyn, NY 11211

Subject Parcel or Parcels

BBL #	Address	Owner	Zoning District(s)	Building Class	# of Buildings	Year Built	Assessment	Lot Area
3-02364-0016	134 METROPOLITAN AVENUE	METRO NORT LLC	M1-2/R6A	F9	1	1920	67500	2825

Other Parcels Found On The Tax Parcel Map

BBL #	Address	Owner	Zoning District(s)	Building Class	# of Buildings	Year Built	Assessment	Lot Area
3-02358-0019	BERRY STREET	POL S, JOHN	M1-2/R6A	G7	0		7200	847
3-02379-0009	88 NORTH 1 STREET	90 NORTH FIRST STREET	M1-2/R6A R6A	E9	1	1920	146700	9175
3-02365-0008	164 METROPOLITAN AVENUE	WEGLINSKI, SOFIA	R6A	G7	0		18900	967
3-02350-0026	103 NORTH 3 STREET	BERRY ENTERPRISES USA	M1-2/R6A	D5	6	1920	3482100	36511
3-02359-7501	258 BEDFORD AVENUE	OWNER / AGENT	R6B	R3	19	1991	716598	33236
3-02363-7501	80 METROPOLITAN AVENUE		M1-2/R6A	RM	4	2008	6159157	40614
3-02379-0013	96 NORTH 1 STREET	PIKA INC.	M1-2/R6A R6A	E9	1	1950	99450	2520
3-02358-0018	212 BERRY STREET	212 BERRY CORP	M1-2/R6A	K9	1	1920	333450	2925
3-02358-0004	80 NORTH 3 STREET	80 NORTH LLC	M1-2/R6A	E9	1	1970	279450	8400
3-02379-0019	106 NORTH 1 STREET	LOEFFLER PROPERTIES L	M1-2/R6A	E9	1	1987	357750	6980
3-02358-0037	103 METROPOLITAN AVENUE	KOWALCZYKOWSKI STEPHE	M1-2/R6A	S4	1	1910	29595	1541
3-02379-0035	105 GRAND STREET	YELLIN, DAVID G	R6A	S3	1	1910	33673	1911
3-02358-0137	101 METROPOLITAN AVENUE	LINDA MARY KOWALCZYKO	M1-2/R6A	S2	1	1910	21937	1083
3-02365-0037	119 NORTH 1 STREET	GM REALTY CO	R6A	F9	1	1959	39150	1590
3-02379-0008	86 NORTH 1 STREET	86 NORTH 1ST STREET R	M1-2/R6A R6A	E9	1	1959	90450	2700
3-02391-0001	238 BERRY STREET	BOARD OF EDUCATION	R6	W1	2	1968	6442650	92675
3-02365-0001	233 BERRY STREET	DANIEL H LEIMAN	R6A	S2	1	1910	8557	820
3-02358-0006	84 NORTH 3 STREET	TRISTANI COSIMO	M1-2/R6A	E9	2	1950	563400	8225
3-02358-0024	141 METROPOLITAN AVENUE	JACOBOWITZ, MOSES	M1-2/R6A	C0	1	1901	12340	1940
3-02364-0013	95 NORTH 1 STREET	KRYSTYNA MALIK	M1-2/R6A	C4	1	1910	60148	2994
3-02358-7502	129 METROPOLITAN AVENUE		M1-2/R6A	RM	1	2008	407247	4100
3-02358-7501	100 NORTH 3 STREET		M1-2/R6A	RM	1	2007	1768952	9819
3-02379-0039	97 GRAND STREET	BARRY X. BALL	R6A	S3	1	1899	37040	2020
3-02379-0135	100 NORTH 1 STREET	DAVID GARO YELLIN	R6A M1-2/R6A	Z9	1	1900	1350	250
3-02380-0001	249 BERRY STREET	LAM BROTHERS REALTY L	R6B	C7	1	1910	498150	3350
3-02365-0036	121 NORTH 1 STREET	MARDI LAND CORP.	R6A	V0	0		6855	1525
3-02380-0011	130 NORTH 1 STREET	FISHMAN, STEVE	R6B	C0	1	1899	10275	2092
3-02365-0002	231 BERRY STREET	ERAZO ANGEL	R6A	C0	1	1910	6842	800
3-02379-0037	101 GRAND STREET	BOWER, STEPHANIE A	R6A	C2	1	1910	18041	1972
3-02379-0034	109 GRAND STREET	MARION TINA SMIT	R6A M1-2/R6A	C3	1	1910	35283	2150
3-02380-0010	128 NORTH 1 STREET	FELIX SHEPELUK	R6B	C2	1	1910	28217	2115
3-02380-0009	126 NORTH 1 STREET	126 NORTH 1ST STREET	R6B	B9	1	1899	8557	1240
3-02365-0006	160 METROPOLITAN AVENUE	WOJCIK, MARCIN	R6A	C0	1	1901	8557	856
3-02364-0025	224 BERRY STREET	DOLORES WISKOTZIL	M1-2/R6A	S5	1	1910	43811	1320
3-02379-0016	102 NORTH 1 STREET	LOEFFLER PROPERTIES L	M1-2/R6A	E9	1	1900	189000	4350
3-02364-0024	222 BERRY STREET	ZIMMERMANN FRANK	M1-2/R6A	C2	1	1910	34529	1267
3-02365-0035	123 NORTH 1 STREET	PAULA HERNANDEZ	R6A	A9	1	1915	6168	1500
3-02358-0036	105 METROPOLITAN AVENUE	105 METROPOLITAN AVE.	M1-2/R6A	V1	0		43650	2113

BBL #	Address	Owner	Zoning District(s)	Building Class	# of Buildings	Year Built	Assessment	Lot Area
3-02379-0032	115 GRAND STREET	KAHAN, ADAM	R6A M1-2/R6A	S2	1	1899	9266	2127
3-02365-0004	227 BERRY STREET	MASLOWSKA, MARIANNA	R6A	C0	1	1910	6842	1292
3-02380-0008	NORTH 1 STREET	K&C II LLC	R6B	G7	0		32400	1642
3-02358-0020	151 METROPOLITAN AVENUE	SAWICKI ROBERT	M1-2/R6A	C4	1	1920	74181	1599
3-02379-0029	121 GRAND STREET	A TO Z KOSHER MEAT PR	R6A M1-2/R6A	E9	1	1950	120600	1828
3-02364-0021	146 METROPOLITAN AVENUE	TORRES VIDAL	M1-2/R6A	G9	1	1950	70650	1369
3-02364-7501	136 METROPOLITAN AVENUE		M1-2/R6A	RM	1	1952	759151	5550
3-02358-0031	117 METROPOLITAN AVENUE	TRISTANI COSIMO	M1-2/R6A	G9	1	1950	148050	4113
3-02364-0015	130 METROPOLITAN AVENUE	LESAN REALTY CORP	M1-2/R6A	F4	1	1957	103050	2875
3-02364-0026	109 NORTH 1 STREET	GROUND FLOOR MANAGEME	M1-2/R6A	F9	1	1920	391050	3485
3-02379-0038	99 GRAND STREET	SCIBETTA, PETER	R6A	S3	1	1899	16654	1997
3-02379-0036	103 GRAND STREET	MARY ANDREYCAK	R6A	S3	1	1910	12729	1925
3-02365-0011	172 METROPOLITAN AVENUE	ROMAN CATH CHURCH OFO	R6A	M9	5	1920	565650	14889
3-02379-0007	253 WYTHE AVENUE	SPOTO, ANTHONY	M1-2/R6A	S3	1	1899	11749	1083
3-02358-0023	143 METROPOLITAN AVENUE	GELFAND, FRED	M1-2/R6A	S4	1	1910	26061	1925
3-02379-0030	119 GRAND STREET	119 GRAND ST HDFC	R6A M1-2/R6A	C6	1	1920	92277	2354
3-02364-0113	97 NORTH 1 STREET	FILECCIA, GIOVANNI	M1-2/R6A	C4	1	1900	60148	2950
3-02364-0001	100 METROPOLITAN AVENUE	100 METROPOLITAN AVRL	M1-2/R6A	L8	7	1920	577350	25502
3-02358-7503	135 METROPOLITAN AVENUE		M1-2/R6A	RM	1	2010	543902	3908
3-02379-0027	123 GRAND STREET	A TO Z KOSHER MEAT PR	R6A M1-2/R6A	F9	1	1930	56700	3185
3-02358-0022	147 METROPOLITAN AVENUE	METRO KOSHER FROZEN D	M1-2/R6A	E9	1	1950	132300	5550
3-02364-0022	152 METROPOLITAN AVENUE	TORRES VIDAL	M1-2/R6A	S1	1	1901	19444	1489
3-02379-0014	98 NORTH 1 STREET	100 NORTHSPAN INC	M1-2/R6A R6A	E3	1	1895	313200	4933
3-02358-0029	123 METROPOLITAN AVENUE	TRISTANI COSIMO	M1-2/R6A	E9	1	1950	270450	8108
3-02379-0012	94 NORTH 1 STREET	PIKA INC.	M1-2/R6A R6A	E9	1	1950	74700	2559
3-02364-0019	142 METROPOLITAN AVENUE	140 METROPOLITAN REAL	M1-2/R6A	F9	1	1910	429750	1979
3-02365-0007	162 METROPOLITAN AVENUE	WEGLINSKI, SOFIA	R6A	C0	1	1910	8557	900
3-02379-0040	89 GRAND STREET	ROBERT H SMITH	R6A	L9	1	1900	148950	2729
3-02365-0034	125 NORTH 1 STREET	ALBERTO FONTANEZ	R6A	A9	1	1915	6168	1500
3-02379-0033	111 GRAND STREET	HOPE STREET ENTERPRIS	R6A M1-2/R6A	S2	1	1899	8916	2153
3-02379-0024	228 BERRY STREET	A TO Z KOSHER MEAT PR	M1-2/R6A	E9	1	1997	40050	5058
3-02380-0004	235 BERRY STREET	K&C II LLC	R6B	F9	1	1910	490500	3851
3-02365-0003	229 BERRY STREET	PIERINA JACHEMCZYK	R6A	C0	1	1910	6168	780

NO NATIONAL PRIORITIES LIST (NPL) SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS

INACTIVE HAZARDOUS WASTE DISPOSAL REGISTRY OR REGISTRY-QUALIFYING SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS

Map Identification Number 1 PYN PAINT AND LACQUER CO., INC [illegible]

[illegible]

[illegible]

Map Identification Number [illegible] **N-PEOPLES WORKS** [illegible]

Facility Id [illegible]

[illegible]

Map Identification Number 11 **KENT AVENUE GENERATING STATION**

Facility Id 224197

[illegible]

Map Identification Number 12 **BROOKLYN NAVY YARD 12 ACRE PARCEL**

[illegible]

Map Identification Number 13 **N-NASSAU WORKS MGP**

BROOKLYN NY 11205

[illegible]

RCRA CORRECTIVE ACTION SITES IDENTIFIED [illegible] MILE SEARCH RADIUS

Map Identification Number 17 RADIAC RESEARCH CORP

[illegible]

Map Identification Number 18 RADIAC RESEARCH

[illegible]

[illegible] SUPERFUND SITES IDENTIFIED WITHIN [illegible] MILE SEARCH RADIUS

Map Identification Number [illegible] [illegible] PAINT AND LACQUER CO. INC

[illegible]

BROWNFIELDS SITES (STATE / LOCAL) IDENTIFIED WITHIN [illegible] MILE SEARCH RADIUS

[illegible]

Map Identification Number 21 105 METROPOLITAN AVENUE

Facility Id: [illegible]

[illegible]

Map Identification Number 22 87 GRAND STREET

Facility Id: [illegible]

[illegible]

Map Identification Number 23 83 GRAND STREET

Facility Id: [illegible]

[illegible]

Map Identification Number 24 [illegible]

Facility Id: [illegible]

[illegible]

Map Identification Number 25 85 GRAND STREET

Facility Id: [illegible]

[illegible]

Map Identification Number 26 583 BEDFORD AVE

[illegible]

Map Identification Number 28 FYN PAINT AND LACQUER CO., INC

[illegible]

Map Identification Number 29 FYN PAINT AND LACQUER CO., INC

[illegible]

[illegible]

Map Identification Number 32 **124 NINTH STREET**

[illegible]

Map Identification Number 33 **FORMER CLEANERS SALES & EQUIPMENT CORP**

[illegible]

Map Identification Number 38 **[illegible] METROPOLITAN AVENUE**

[illegible]

Map Identification Number 39 **DOMINO SUGAR [illegible]**

[illegible]

Map Identification Number 40 **DOMINO SUGAR SITE A**

[illegible]

Map Identification Number 41 **DOMINO SUGAR SITE B**

[illegible]

Map Identification Number 42 **DOMINO SUGAR SITE [illegible]**

[illegible]

Map Identification Number [illegible] **WILLIAMSBURG BRIDGEVIEW APARTMENTS**

[illegible]

Map Identification Number [illegible] **WILLIAMSBURG BRIDGEVIEW APARTMENTS**

[illegible]

Map Identification Number [illegible] [illegible] STREET

[illegible]

Map Identification Number [illegible] [illegible] NORTH 7TH STREET

[illegible]

Map Identification Number [illegible] [illegible] NORTH [illegible] STREET

[illegible]

Map Identification Number [illegible] [illegible] ROEBLING STREET

[illegible]

Map Identification Number [illegible] [illegible] NORTH [illegible] STREET

[illegible]

Map Identification Number [illegible] [illegible] NORTH [illegible] STREET

[illegible]

[illegible]

Map Identification Number 68 SUR REALTY CORP Facility Id: [illegible]

[illegible]

Map Identification Number 69 POLICE CARS UNLIMITED INC Facility Id: [illegible]

[illegible]

Map Identification Number 70 NEWSOM RECYCLING INC (2 N 5TH ST) Facility Id: [illegible]

[illegible]

Map Identification Number 71 WASTE MANAGEMENT OF NEW YORK [illegible] Facility Id: [illegible]

[illegible]

Map Identification Number 72 RECYCLE AMERICA ALLIANCE (A WASTE MANAGEMENT OF NY COMPANY) Facility Id: [illegible]

[illegible]

Map Identification Number 73 DEMICCO BROS INC Facility Id: [illegible]

[illegible]

Map Identification Number 74 LOCAL TRANSFER STATION Facility Id: [illegible]

[illegible]

Map Identification Number 75 NEWSOM RECYCLING [illegible] Facility Id: [illegible]

[illegible]

Map Identification Number 76 ISRAAC D INC Facility Id: [illegible]

[illegible]

Map Identification Number 77 NATIONAL PAPER STOCK INC Facility Id: [illegible]

[illegible]

Map Identification Number 78 CONTAINER SERVICE CORP Facility Id: [illegible]

[illegible]

HAZARDOUS WASTE TREATMENT, STORAGE & DISPOSERS IDENTIFIED WITHIN THE [illegible] MILE SEARCH RADIUS

Map Identification Number [illegible] RADIAC RESEARCH CORP Facility Id: [illegible]

[illegible]

[illegible]

MAJOR/OIL MATERIAL SPILLS [illegible] VIEW

[illegible]

Please note that spills reported within 0.25 mile (or one-eighth mile in New York City) are mapped and profiled.

Between 0.25 mile (or one-eighth mile in New York City) and 0.5 mile, only the following spills are mapped and profiled:

[illegible]

NO ACTIVE TANK FAILURES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

NO ACTIVE TANK TEST FAILURES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

ACTIVE UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Map Identification Number [illegible] **NORTH 1ST ST TERMINAL** **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 63 **APARTMENT BUILDING** **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 64 **VACANT LOT (COMMERCIAL)** **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 65 **PETRO. SLN CONTAMINATED GROUNDWATER** **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

THE FOLLOWING ACTIVE SPILLS FOR THIS CATEGORY WERE REPORTED BETWEEN [illegible] MILE AND [illegible] MILE SEARCH RADIUS FROM THE SUBJECT ADDRESS. THESE SPILLS WERE REPORTED TO BE LESS THAN [illegible] UNITS IN QUANTITY AND CAUSED BY: EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, VANDALISM, OR STORMS. THESE SPILLS ARE NEITHER MAPPED NOR PROFILED IN THIS REPORT

[illegible]

CLOSED STATUS [illegible]

Map Identification Number [illegible] FYH PAINT Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 102 181 BEDFORD AVE - TTF Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 103 MARTIN DURKHOM Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 104 SPILL NUMBER [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 105 373 WYTHE AVENUE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 106 148 WYTHE AVENUE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 107 COMMERCIAL BUILDING Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 108 APARTMENT BUILDING Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 109 F M W MECHANICAL Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 110 405 METROPOLITAN AVE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 111 403 METROPOLITAN AVENUE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 112 173 SOUTH SECOND STREET Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 113 CLOSED-LACKOF RECENT INFO Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 114 APARTMENT BUILDING Spill Number: [illegible] Close Date: [illegible]

[illegible]

CLOSED STATUS [illegible] SPILLS AND OTHER CLOSED SPILLS [illegible] WITHIN [illegible] SEARCH RADIUS

Map Identification Number [illegible] SPILL NUMBER [illegible]

Spill Number: [illegible] Close Date: [illegible]

[illegible]

[illegible]

Map Identification Number 131 [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 132 WILLIAM SHERIDAN PLAYGROU[illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 13[illegible] 280 WYTHE AV Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 134 [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 139 INFRONT OF [illegible]

Map Identification Number 140 MANHOLE [illegible]

Map Identification Number 141 TRANSFORMER VAULT [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 142 SPILL NUMBER [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 144 INTERSECTION

[illegible]

Map Identification Number 158 [illegible] CORPORATION Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

[illegible]

Map Identification Number 173 NORTH FIRST STREET FUEL OIL TERMINAL **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 174 KENT AVE YARD **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 175 TANK FARM **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 176 CONSTRUCTION SITE **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 177 EAST RIVER - GRAND STREET **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 178 [illegible] **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 179 [illegible] **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 180 SOIL SAMPLES **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 181 COMMERCIAL **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 182 [illegible] **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 183 APT. BUILDING **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 184 ON SIDEWALK **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 185 [illegible] **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 186 [illegible] KENT AVE **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 187 [illegible] KENT AVE **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

Map Identification Number 188 [illegible] **Spill Number:** [illegible] **Close Date:** [illegible]

[illegible]

[illegible]

Spill Number [illegible] Close Date [illegible]

[illegible]

G&A AUTO REPAIR

Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 192 [illegible] SMITH STREET
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 193 LOT NEXT TO [illegible]
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] VACANT BUILDING
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] [illegible] GAS STATION
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] MANHOLE [illegible]
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 197 MANHOLE [illegible]
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] MANHOLE [illegible]
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] MANHOLE [illegible]
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] [illegible] STOCK YARD
Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 201 ROADWAY Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 202 SPILL NUMBER [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] METROPOLITAN AVIATION Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] CONSTRUCTION [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] BROTHERS CLEANERS Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] PARKING LOT [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] DUMPSTER Spill Number [illegible] Close Date [illegible]

[illegible]

[illegible]

Map Identification Number 217 [illegible]

Spill Number [illegible] **Close Date** [illegible]

[illegible]

[illegible]

Map Identification Number 228 SERVICE BOX #1608 Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 229 MANHOLE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 230 EAST SIDE OF KENT AVE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 231 MANHOLE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 232 [illegible] COMMERCIAL Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 233 BERRY ST & [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

The following DEC Investigator Remarks were available prior to 1/1/2002

[illegible]

Map Identification Number 234 [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 235 [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 236 WILLIAMSBURG BRIDGE Spill Number: [illegible] Close Date: [illegible]

[illegible]

The following DEC Investigator Remarks were available prior to 1/1/2002

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Map Identification Number 237 WILLIAMSBURG BRIDGE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 238 WILLIAMSBURG BRIDGE Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 239 [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 240 METROPOLITAN [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 241 MANHOLE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 242 [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 245 FOREIGN GAS & WAREHOUSE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 246 [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number [illegible] MAN HOLE [illegible] Spill Number: 1217544 Close Date: [illegible]

[illegible]

Map Identification Number 247 MANHOLE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 249 MANHOLE [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

Map Identification Number 250 PRIVATE PROPERTY [illegible] Spill Number: [illegible] Close Date: [illegible]

[illegible]

[illegible]

Map Identification Number 251 **CAMPBELL RESIDENCE** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number 25[illegible] **E-Z NORTH 8TH ST** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number 26[illegible] **VOLUNTARY CLEAN UP SITE THROUGH DE[illegible]** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number 25[illegible] **ASCENSION CHURCH/[illegible]** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number [illegible] **ALONGSIDE BUILDING** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number [illegible] **WILLIAMSBURG BRIDGE DOT-DEC** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number 257 **VAPOR COMPLAINT** **Spill Number: [illegible]** **Close Date: [illegible]**

[illegible]

Map Identification Number [illegible] **[illegible]** **Spill Number** [illegible] **Close Date** [illegible]

Map Identification Number [illegible] **[illegible]** **Spill Number** [illegible] **Close Date** [illegible]

Map Identification Number [illegible] **[illegible] NORTH 10TH STREET** **Spill Number** [illegible] **Close Date** [illegible]

Map Identification Number [illegible] **[illegible] NORTH [illegible] STREET** **Spill Number** [illegible] **Close Date** [illegible]

Map Identification Number [illegible] **[illegible] GAS STATION** **Spill Number** [illegible] **Close Date** [illegible]

[illegible]

Map Identification Number [illegible] CONSTRUCTION SITE Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] RESIDENTIAL CONSTRUCTION SITE Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

[illegible]

Map Identification Number 275 [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 276 CON EDISON VAULT [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 277 MANHOLE [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 278 TWO FTS OIL IN MANHOLE [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 294 MANHOLE [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 296 CONSTRUCTION AT SITE

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 302 COMMERCIAL PROPERTY

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] COMMERCIAL VACANT LOT

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] CONSTRUCTION SITE

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] [illegible]

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number 290 COMMERCIAL PROPERTY Spill Number [illegible] Close Date [illegible]

Map Identification Number 291 GAS STATION Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] BUILDING Spill Number [illegible] Close Date [illegible]

Map Identification Number 292 STAR SOAP AND CANDLE CO Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] STAR SOAP AND CANDLE CO Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] PARKING GARAGE Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] [illegible] METROPOLITAN AVE Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] SPILL NUMBER [illegible] Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] CONSTRUCTION SITE Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] [illegible] Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] METROPOLITAN AVENUE Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] DUPLICATE OF Spill Number [illegible] Close Date [illegible]

Map Identification Number [illegible] [illegible] STREET

Spill Number: [illegible] Close Date: [illegible]

Map Identification Number [illegible] [illegible] SOUTH 2ND STREET

NEW YORK, [illegible]

Spill Number: [illegible] Close Date: [illegible]

The following DEC Investigator Remarks were available prior to [illegible]

THE FOLLOWING CLOSED SPILLS FOR THIS CATEGORY WERE REPORTED BETWEEN 1/8 MILE AND 1/4 MILE FROM THE SUBJECT ADDRESS. THESE SPILLS WERE REPORTED TO BE LESS THAN 100 UNITS IN QUANTITY AND CAUSED BY: EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE, SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, VANDALISM OR STORMS. THESE SPILLS ARE NEITHER MAPPED NOR PROFILED IN THIS REPORT.

[illegible]	FACILITY NAME	STREET	CITY

[illegible]

[illegible] STORAGE FACILITIES LARGER THAN [illegible] GALLONS [illegible] WITHIN [illegible] MILE SEARCH RADIUS [illegible]

PETROLEUM BULK STORAGE FACILITIES LESS THAN [illegible] GALLONS [illegible]

Map Identification Number [illegible] [illegible] REALTY CO [illegible] Facility Id: [illegible] Source: NYC FIRE DEPT

[illegible]

Map Identification Number [illegible] LAWRENCE NOVELTY CO INC [illegible] Facility Id: [illegible] Source: NYC FIRE DEPT

[illegible]

Map Identification Number [illegible] [illegible] REALTY [illegible] Facility Id: [illegible] Source: NYS DEC

[illegible]

Map Identification Number [illegible] PUBLIC SCHOOL [illegible] BROOKLYN [illegible] Source: NYS DEC

[illegible]

Map Identification Number [illegible] [illegible] Source: NYC FIRE DEPT

[illegible]

Map Identification Number [illegible] NYSDEC Name CON EDISON Facility Id: [illegible]

[illegible]

Map Identification Number [illegible] NYSDEC Name CON EDISON Facility Id: [illegible]

[illegible]

Map Identification Number [illegible] NYSDEC Name [illegible] Facility Id: [illegible]

[illegible]

Map Identification Number [illegible] EPA (RCRA) Name CON ED-[illegible] Facility Id: [illegible]

[illegible]

Map Identification Number 372 NYSDEC Name: [illegible] Facility Id: [illegible]

Map Identification Number 374 NYSDEC Name: ALCON BUILDERS GROUP [illegible] Facility Id: [illegible]

Map Identification Number 375 NYSDEC Name ALCON WILLIAMSBURG CONDO Facility Id: [illegible]

Map Identification Number 376 NYSDEC Name COUGAR ELECTRONICS Facility Id: [illegible]

Map Identification Number 377 NYSDEC Name CONSOLIDATED EDISON Facility Id: [illegible]

Map Identification Number 378 NYSDEC Name CON EDISON - VAULT [illegible] Facility Id: [illegible]

Map Identification Number 379 NYSDEC Name CONSOLIDATED EDISON Facility Id: [illegible]

Map Identification Number 380 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 381 NYSDEC Name CONSOLIDATED EDISON Facility Id: [illegible]

Map Identification Number 382 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 383 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 384 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 385 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 386 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 387 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 388 NYSDEC Name CON EDISON Facility Id: [illegible]

Map Identification Number 389 NYSDEC Name CON EDISON Facility Id: [illegible]

NO CHEMICAL STORAGE FACILITIES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO HISTORIC UTILITY SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO HAZARDOUS SUBSTANCE WASTE DISPOSAL SITES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO TOXIC AIR, LAND AND WATER RELEASES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

WASTEWATER DISCHARGES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Map Identification Number 390 CHARLES J. HINE [illegible] Facility Id: [illegible]

AIR DISCHARGE FACILITIES IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

Map Identification Number 391 [illegible] Facility Id: [illegible] State-county code: [illegible]

Map Identification Number 392 TRIBOROUGH BRIDGE & TUNNEL AUTHORITY Facility Id: [illegible] State-county code: [illegible]

[illegible]

Map Identification Number [illegible] [illegible]

[illegible]

NYC [illegible] ENFORCEMENT [illegible] FACILITIES IDENTIFIED WITHIN THE [illegible] SEARCH RADIUS

[illegible]

NYC ENVIRONMENTAL QUALITY REVIEW REQUIREMENTS – E DESIGNATION [illegible] SEARCH RADIUS

Map Identification Number [illegible] BLOCK [illegible] LOT [illegible]

[illegible]

Map Identification Number [illegible] BLOCK [illegible] LOT [illegible]

[illegible]

Map Identification Number [illegible] BLOCK [illegible] LOT [illegible]

[illegible]

Map Identification Number [illegible] BLOCK [illegible] LOT [illegible]

[illegible]

Hazardous waste codes presented in Individual Toxic Information Profiles are defined below

How Toxic Site Locations Are Mapped

Toxic Targeting maps toxic site locations on a digital version of the U. S. Census map or those used by local authorities using addresses and map coordinates provided by site owners/operators or government agencies. In order to allow site locations to be verified independently, the information used to map each site is presented in the first section of each Toxic Site Profile, along with a description of the mapping technique used and any address corrections that were made in order to locate toxic sites with incomplete or inadequate site location information. The mapping process is explained below.

Map Identification Number: 12

Site Name: Acme World Manufacturing, Inc

Site Address: 55 Main Street

Anytown, NY 11797

MAP LOCATION INFORMATION

Site location mapped by

Address Matching

Note: Some sites have an address match location and a map coordinate location. Both locations are mapped because they can be equally correct.

or Map Coordinates

or Manual Mapping

or Site Visit

ADDRESS CHANGE INFORMATION

Revised Street: NO CHANGE

Revised zip code: NO CHANGE

Information Source Guide

[illegible]

[illegible]

SITE PHOTOGRAPHS

1. View of subject site.

2. View of rear of site.

3. View of building interior.

4. View of building interior.

5. View of building interior.

6. View of bathroom.

7. View of sub-basement.

8. View of electric mains.

9. View of roof.

10. View of surrounding properties.

11. View of surrounding properties.

APPENDIX F

Soil Vapor Survey July 2017

SOIL VAPOR SURVEY

For:

Metropolitan LLC
134 Metropolitan Avenue
(A.K.A. 101 North 1st Street)
Brooklyn, New York 11249
Block 2364, Lot 16
OER Project Number: 15TMP0073K
E-Designation No.: E-138
GCI Project No. 2017047

Prepared for:

Metropolitan LLC
P.O. Box 416
Oakland, New Jersey 07436
E-Mail: 718rust@gmail.com

Field Investigation Date: July 27, 2017

Prepared by:

General Consolidated Industries, Inc. (GCI)
Environmental and Engineering Consultants
1092 Motor Parkway
Hauppauge, New York 11788-5228
1-800-842-5073

EXECUTIVE SUMMARY

The Soil Vapor Survey was conducted in order to address the requirements of the New York City Office of Environmental Remediation (NYC OER). The purpose of the survey was to assess whether the subsurface soil contamination had impacted the sub-slab vapors and/or the indoor air quality at the subject site.

The soil vapor and ambient air sampling procedure was conducted in conformance with the New York State Department of Health (NYS DOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

A total of five (5) soil vapor and air samples were obtained, specifically three (3) sub-slab samples, one (1) indoor ambient air sample and one (1) outdoor ambient control sample. The locations of the sample points are indicated on the Site Diagram.

The five (5) vapor samples were analyzed by a National Environmental Laboratory Approval Program (NELAP) certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) utilizing TO-15.

As per the New York State Department of Health, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, and based on the results of the laboratory analytical data, the NYS DOH recommends the following:

Matrix A (May 2017)

- Carbon Tetrachloride - No Further Action
- 1,1 - Dichloroethene - No Further Action
- cis-1,2 - Dichloroethene - No Further Action
- Trichloroethylene

  SS–1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate

  SS–2 Sub-Slab Sample - Front Building Basement - No Further Action

  SS–3 Sub-Slab Sample - Rear Building First Floor (no basement) - No Further Action

Matrix B (May 2017)

- Methylene Chloride - No Further Action
- Tetrachloroethylene

  SS–1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate

  SS–2 Sub-Slab Sample - Front Building Basement - Mitigate

  SS–3 Rear Building First Floor (no basement) - No Further Action

  1,1,1 - Trichloroethane (1,1,1 - TCA) - No Further Action

Matrix C (May 2017)

Vinyl Chloride - No Further Action

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

REPORT SPECIFICATIONS

Copies and circulation of this report are as follows:

Two	(2)	Original bound reports to Mr. Mark Kaczor, Metropolitan LLC.
One	(1)	Electronic portable document format (PDF) uploaded to the NYC DEP Environmental Project Information Center (EPIC) web site.
One	(1)	Bound original report in the confidential client file at General Consolidated Industries, Inc. (GCI).
One	(1)	Copy on security protected computer disk at General Consolidated Industries, Inc. (GCI).

This report is prepared for the exclusive use of parties noted above and is considered private and strictly confidential. General Consolidated Industries, Inc. (GCI) shall not release this report or any of the findings of this report to any person or agency except with the authorization of the principal parties noted above.

1.0 INTRODUCTION

General Consolidated Industries, Inc. (GCI) has been retained to conduct a Soil Vapor Survey for the subject site located at 134 Metropolitan Avenue, a.k.a. 101 North 1st Street, Borough of Brooklyn, City of New York, New York, identified on the tax map as Block 2364, Lot 16.

The subject property is depicted on Figure 1.0 - Site Location Map and the Figure 3.0 - U.S.G.S 7.5 Minute Topographic Map.

This investigation is predicated upon the findings of the Phase I Environmental Site Assessment (ESA), dated April 25, 2017, as well as communications with the NYC DEP OER.

The subject site is listed as an "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to "Underground Gasoline Storage Tanks Testing Protocol." The E designation requires that the owner conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYC Office of Environmental Remediation (OER) before the issuance of a building permit by the NYC DOB. The E designation also includes a mandatory construction related health and safety plan which must be approved by the NYC OER.

The soil vapor and ambient air sampling procedure was conducted in conformance with the New York State Department of Health (NYS DOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

1.1 Objectives / Methodology

The objectives of this investigation, as well as the methods employed during the field activities, are summarized as follows:

To obtain a minimum of five (5) soil vapor and ambient air samples, specifically as follows:

- **Sub-Slab Samples**
  Three (3) samples inside the building footprint and below the slab / foundation of the building. The soil vapor samples were obtained from two (2) inches below the slab / foundation of the subject building. The locations of the sub-slab sample points (SS) are indicated on the Site Diagram.

- **Indoor Ambient Sample**
  One (1) sample inside the first floor level of the building. The air / vapor sample were obtained from three (3) feet above the slab / foundation of the subject building. The location of the indoor ambient air sample point (IA) is indicated on the Site Diagram.

- **Outdoor Ambient Control Sample**
  One (1) outdoor ambient air sample in the front exterior sidewalk area, specifically located at an upwind location based on prevailing winds and site conditions on the day of the sampling. The air / vapor sample was obtained from three (3) feet above the grade level.

Representative soil vapor and air samples were obtained utilizing Summa canisters. The representative soil vapor samples were submitted to the laboratory for analysis of volatile organic compounds (VOCs) utilizing EPA Method TO-15.

The locations of the above noted concerns are depicted on Figure 5.0 - Site Diagram. Photographs were taken to document the recent field investigation activities conducted at the subject site and are included as Appendix B.

The scope of work was designed in accordance with all applicable regulatory and industry standards regarding subsurface investigations. The scope of work performed at the site will provide the necessary information to determine whether or not there has been an impact to the subject property as a result of the operations conducted at the site.

Conclusions and recommendations are submitted based on the careful consideration of the results of the above work. Recommendations are formulated with respect for maintaining the collateral value of the property. This report is intended to assess the threat to human health or collateral value of the property.

The accuracy of presenting the findings of this investigation was considered of paramount importance during the formulation of this report. The report's accuracy is limited to the information available from interviews, records, files and plans released by the property owner and/or his representatives and/or the respective regulatory agencies, their attorneys and information officers. The above mentioned parties interest in issues presented herein is unknown to GCI.

Tom P. Smyth

Tom P. Smyth
President
General Consolidated Industries, Inc.

2.0 SITE CHARACTERIZATION

2.1 Site Description

The subject site is currently improved by a two (2) story commercial building, with a partial basement and a partial sub-basement. The building was most recently occupied by "Rust", a.k.a. "The Living Room", a bar / nightclub. The subject building is presently vacant.

According to the New York City Department of Buildings, several alteration permits are on file for the site. In addition, Permit No. 310206577, dated September 22, 2009 was issued to convert an existing public parking garage into an eating and drinking establishment. Permit No. 3P0004861, dated February 4, 1994 was issued to construct a one (1) story enlargement.

According to the New York City Department of Buildings "PROPERTY PROFILE OVERVIEW", Certificate of Occupancy No. 86404, dated March 8, 1938 was issued for a three (3) story commercial building. The first floor was used as a "junk shop" and the second and third floors were vacant. C/O No. 310206577F, dated February 3, 2011 was issued for a two (2) story eating or drinking establishment.

The subject site is listed as a Little "E" Restricted site under E No. E-138, dated May 11, 2005. Upon comparison of the site's tax map numbers to the most updated City Environmental Quality Review Requirements (CEQR) Declarations, it was determined that the "E" designation for the subject site pertains to "Underground Gasoline Storage Tanks Testing Protocol."

According to Sanborn Fire Insurance maps, the south side of the building located along North 1st Street was constructed sometime prior to 1887 as a wireworks building. A three (3) story machine shop building was constructed at 134 Metropolitan Avenue sometime between 1887 and 1905. 101 North 1st Street was used as a wagon house, with a barn located at the south side of the site. The 1916 map depicts 134 Metropolitan Avenue as vacant. The barn at 101 North 1st Street had been demolished and replaced with a one (1) story sawdust storage building. This is connected with the original building. The 1942 map indicates that 134 Metropolitan Avenue was used as ovens and 101 North 1st Street was used for "waste paper." The 1951 map indicates that 134 Metropolitan Avenue was used for manufacturing purposes and 101 North 1st Street was vacant. The 1965 map indicates that the buildings have been combined and were used as "feather storage." A one (1) story addition was made to the rear of the building. This use continued until the most recent 1989 map.

2.2 Site Hydrology and Geology

Surface Water Characteristics

The subject site is improved by the subject building and the pedestrian sidewalks. The surface topography at the subject site is nearly level throughout. Storm water runoff is directed to the curb side municipal storm water collection system. The up-gradient drainage area within 1,000 feet of the subject site is improved with mixed use residential, retail and commercial buildings.

Groundwater Characteristics

The elevation of the subject site is approximately 32 feet above mean sea level. The depth to bedrock is greater than 100 feet below grade. The Borough of Brooklyn is characterized by Alton stony loam (As) and Miami stony loam (Ms) and bedrock. According to groundwater contour maps provided by the United States Geologic Survey (USGS), the depth to groundwater at the subject site is estimated to be approximately 32 feet below ground surface. A well located south of the subject site was measured at 38.60 feet below ground surface in 2010. Groundwater generally flows west, northwest. Please note that actual groundwater flow can be affected by many variables including underground utilities and other subsurface openings or obstructions such as basements, underground parking garages and subway lines, bedrock geology, etc.

Groundwater is not used as a drinking water supply in the Borough of Brooklyn. Potable (drinking) water is supplied to the subject site by the New York City Bureau of Water. The Bureau obtains potable water from the Croton Reservoir located in Westchester County and other fresh water reservoirs in upstate New York.

Geological Characteristics

According to the United States Department of Agriculture, Soil Conservation Service - Soil Survey, New York is located in the Atlantic Coastal Plain physiographic province which is characterized by low hills of unconsolidated sands, gravel and silt. The subsurface deposits consist of the Upper Glacial deposits that are characterized by southward sloping deposits of sand, gravel and silt. The Upper Glacial deposits have a maximum thickness of 600 feet. They are underlain by the Magothy, Raritan and Lloyd Formations. The Gardiners clay and the Jameco gravel separate the Upper Glacial deposits and the Magothy Formation along the south west portion of Long Island. The Borough of Brooklyn is underlain by bedrock, although the majority of it is located at several hundred feet below land surface.

3.0 SOIL VAPOR SURVEY FIELD INVESTIGATION

The following sections summarize the work conducted, the field observations and data collected, as well as any other pertinent site information which may have been obtained during the performance of the investigative activities.

3.1 Soil Vapor Sampling

A total of five (5) soil vapor and ambient air samples were obtained from the subject site, specifically listed as follows:

- **Sub-Slab Samples**
  Three (3) samples inside the building footprint and below the slab / foundation of the building. The soil vapor samples were obtained from two (2) inches below the slab / foundation of the subject building. The locations of the sub-slab sample points (SS) are indicated on the Site Diagram.

- **Indoor Ambient Sample**
  One (1) sample inside the first floor level of the building. The air / vapor sample were obtained from three (3) feet above the slab / foundation of the subject building. The location of the indoor ambient air sample point (IA) is indicated on the Site Diagram.

- **Outdoor Ambient Control Sample**
  One (1) outdoor ambient air sample in the front exterior sidewalk area, specifically located at an upwind location based on prevailing winds and site conditions on the day of the sampling. The air / vapor sample was obtained from three (3) feet above the grade level.

The weather was noted to be partly sunny. The temperature was approximately 67 degrees Fahrenheit. During the exterior field activities, typical pedestrian and vehicular traffic was observed.

Sub-Slab Vapor Sampling

A concrete core drill, stainless steel hand auger, and Geoprobe tooling were used to install the sub-slab borings. The borings within the subject building were installed to a maximum depth of two (2) feet below grade. A tight surface seal utilizing bentonite slurry was placed around the tubing where it enters the concrete floor. Helium tracer gas and a Dielectric Helium Leak Detector was utilized as a quality assurance / quality control (QA/QC) measure to confirm there was a tight seal around the soil vapor probe seal. The helium tracer gas was utilized prior to and after sampling. A syringe was used to purge the air within the sample probe and tube.

A representative soil vapor sample was obtained from the location utilizing a Summa canister and polyethylene tubing. The Summa canisters utilized a flow control which collected the samples over a period of eight (8) hours.

Indoor and Outdoor Air Sampling

One (1) indoor air sample and one (1) outdoor air sample were also obtained. The Summa canister for the indoor air sample was placed approximately three (3) feet above the ground surface on the first floor of the building. The Summa canister for the outdoor air sample was placed approximately three (3) feet above the ground surface at the outside of the building.

A representative soil vapor sample was obtained from the locations utilizing a Summa canister and polyethylene tubing. The Summa canisters utilized a flow control which collected the samples over a period of eight (8) hours.

The soil vapor and ambient air sampling procedure was conducted in conformance with the New York State Department of Health (NYS DOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

The five (5) vapor samples were analyzed by a National Environmental Laboratory Approval Program (NELAP) certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) utilizing TO-15.

Helium Tracer Field Data

The helium was tested before, during and after the field sampling. Cubic Centimeters per second (cc/sec) offers a volumetric leak rate that directly measures the volume of a gas escaping from a given point, it is also known as Milliliters per second (ml/sec). The background levels for the helium detector were 0.00020 to 0.00032 cubic centimeters per second (cc/sec).

The analytical results are summarized in Section 4.1. The location of the relevant site features are depicted on Figure 5.0 - Site Diagram.

3.2 Quality Assurance (QA) / Quality Control (QC) Procedures

To avoid contamination and cross-contamination of soil samples, all sampling equipment was cleaned before each sample was collected. Appropriate Quality Assurance/Quality Control (QA/QC) procedures will be utilized during implementation of all field activities, including but not limited to the following:

- Use of disposable vinyl gloves during all sampling.
- All sampling will be conducted with disposable, hermetically sealed, sampling equipment.
- Routine maintenance and calibration schedules will be established according to manufacturer recommendations for all field instruments.
- All non-disposable sampling equipment (i.e., augers, hand augers, Geoprobe sampling devices, etc.) will be decontaminated between use to prevent cross contamination.
- Laboratory sample containers will be shipped to the site in a sealed cooler.
- A chain of custody form will accompany the containers during transportation, sample collection and analysis.
- Upon receipt of the sample cooler, field staff will inspect the custody seal to determine if it is intact. The seal number and condition of the cooler upon arriving at the Site will be recorded in a field book.
- The chain of custody form will be completed at the time of sample collection and included with samples during shipment to the laboratory for signature upon receipt.
- There will be no QA/QC samples collected or analyzed during the course of the Remedial Action activities.

Field Instrument Calibration / Maintenance

Routine maintenance and calibration schedules will be established according to manufacturer recommendations for all field instruments. The maintenance and calibration program is described below. Routine daily maintenance will be performed to ensure that the equipment operates properly. Field maintenance procedures include:

- Removal of dirt and debris;
- Replacement of disposable parts (i.e. filters, probe membranes, etc.) as required;
- Storage of equipment in a secure, dry area; and,
- Recharging of battery packs when not in use.

Sampling Equipment Decontamination Procedures

All non-disposable sampling equipment (i.e., augers, hand augers, bailers, sampling devices, etc.) will be decontaminated between use to prevent cross contamination. The decontamination procedures are as follows:

- Equipment will be scrubbed in a bath of potable water and low-phosphate detergent.
- Potable water rinse.
- Scrub with low-phosphate detergent.
- Potable water rinse.
- Air dry.

Laboratory Analysis Protocol

All samples and summa canisters will be stored appropriately and then delivered to a National Environmental Laboratory Approval Program (NELAP) certified laboratory for analysis. The samples will be delivered to the laboratory within twelve (12) hours of being collected.

Chain of Custody Procedures

A chain of custody form will accompany the containers during transportation, sample collection and analysis. Upon receipt of the sample cooler, field staff will inspect the custody seal to determine if it is intact. The chain of custody form will be completed at the time of sample collection and included with samples during shipment to the laboratory for signature upon receipt:

Chain of custody forms will include the following information:

- Sample identification/number;
- Date and time of collection;
- Sample matrix;
- Sample location;
- Number of containers;
- Analytical parameters;
- Dates of possession; and,
- Signatures of all individuals involved in possession.

The custody seal number will be recorded in the project field book prior to shipment of samples from the field to the laboratory. Copies of all Chain of Custody forms will be included.

General Field Procedures and Field Documentation

During the field work when sub-slab vapor / indoor air samples are collected, the following actions will be taken in order to document conditions during sampling and ultimately to aid in the interpretation of the sampling results:

- Historic and current storage and uses of volatile chemicals will be identified.
- The use of heating or air conditioning systems during sampling will be noted.
- the floor plan sketches will be drawn to include the floor layout with sampling locations, chemical storage areas, garages, doorways, stairways, location of subsurface drains and utility perforations through building foundations, HVAC system air supply and return registers, compass orientation (north), footings that create separate foundation sections, and any other pertinent information.
- The outdoor plot sketches will be drawn to include the building site, area streets, outdoor air sampling locations, compass orientation (north), and paved areas.
- The weather conditions (e.g., precipitation and indoor and outdoor temperature) and ventilation conditions (e.g., heating system active and windows closed) will be reported.
- Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppbRAE, Jerome Mercury Vapor Analyzer, etc.), will be recorded.

4.0 ANALYTICAL RESULTS

All samples were immediately stored on ice and delivered to a National Environmental Laboratory Approval Program (NELAP) certified laboratory for analysis. The laboratory chosen for this investigation was Long Island Analytical Laboratories Inc., which is located in Holbrook, Long Island, New York. The NELAP certification number for the laboratory is NY01273.

4.1 Soil Vapor Sampling Analytical Data

The NYS DOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006 was utilized as a guidance document for the Subsurface Soil Vapor Investigation, and the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017, were utilized as a guidance document for the Soil Vapor Investigation.

As stated in Section 3.3.1. of the above mentioned guidance document, "New York State does not currently have any standards, criteria or guidance values for concentrations of compounds in soil vapor. Additionally, there are currently no databases available of background levels of volatile chemicals in soil vapor. In the absence of this information, soil vapor sampling results are reviewed as a whole, in conjunction with the results of other environmental sampling and the site conceptual model, to identify trends and spatial variations in the data. To put some perspective on the data, soil vapor results might be compared to background outdoor air levels, site-related outdoor air sampling results, or the NYS DOH's guidelines for volatile chemicals in air".

The five (5) vapor samples were analyzed by a National Environmental Laboratory Approval Program (NELAP) certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) utilizing TO-15.

Sample No. 1 - OA **Outdoor Ambient Sample**

The analytical results for the sample indicated that there were VOCs detected.

The following are the compounds listed in Table 3.1 - Air guideline values derived by the NYS DOH:

- Methylene Chloride was not detected (<2.00 ug/m^3).
- Tetrachloroethylene was not detected (<2.00 ug/m^3).
- Trichloroethylene was not detected (<2.00 ug/m^3).

The other VOCs identified are not listed in Table 3.1 - Air guideline values derived by the NYS DOH.

Sample No. 2 - IA **Indoor Ambient Sample**

The analytical results for the sample indicated that there were VOCs detected.

The following are the compounds listed in Table 3.1 - Air guideline values derived by the NYS DOH:

- Methylene Chloride was detected at 7.92 ug/m^3, which is below the NYS DOH air guideline value of 60 mcg / m^3.
- Tetrachloroethylene was not detected (<2.00 ug/m^3).
- Trichloroethylene was not detected (<2.00 ug/m^3).

The other VOCs identified are not listed in Table 3.1 - Air guideline values derived by the NYS DOH.

Sample No. 3 - SS-1 **Sub-Slab Sample - Front Building Sub-Basement**

The analytical results for the sample indicated that there were VOCs detected.

The following are the compounds listed in Table 3.1 - Air guideline values derived by the NYS DOH:

- Methylene Chloride was detected at 117 ug/m^3, which is above the NYS DOH air guideline value of 60 mcg / m^3.
- Tetrachloroethylene was detected at 223,000 ug/m^3, which is above the NYS DOH air guideline value of 100 mcg / m^3.
- Trichloroethylene was detected at 203 ug/m^3, which is above the NYS DOH air guideline value of 5 mcg / m^3.

The other VOCs identified are not listed in Table 3.1 - Air guideline values derived by the NYS DOH.

Sample No. 4 - SS-2 **Sub-Slab Sample - Front Building Basement**

The analytical results for the sample indicated that there were VOCs detected.

The following are the compounds listed in Table 3.1 - Air guideline values derived by the NYS DOH:

- Methylene Chloride was detected at 87.4 ug/m^3, which is above the NYS DOH air guideline value of 60 mcg / m^3.
- Tetrachloroethylene was detected at 25,500 ug/m^3, which is above the NYS DOH air guideline value of 100 mcg / m^3.
- Trichloroethylene was detected at 46.9 ug/m^3, which is above the NYS DOH air guideline value of 5 mcg / m^3.

The other VOCs identified are not listed in Table 3.1 - Air guideline values derived by the NYS DOH.

Sample No. 5 - SS-3 **Sub-Slab Sample - Rear Building First Floor (no basement)**
The analytical results for the sample indicated that there were VOCs detected.

The following are the compounds listed in Table 3.1 - Air guideline values derived by the NYS DOH:

- Methylene Chloride was detected at 25.2 ug/m^3, which is above the NYS DOH air guideline value of 60 mcg / m^3.
- Tetrachloroethylene was detected at 234 ug/m^3, which is above the NYS DOH air guideline value of 100 mcg / m^3.Trichloroethylene was not detected.
- Trichloroethylene was not detected (<2.00 ug/m^3).

The other VOCs identified are not listed in Table 3.1 - Air guideline values derived by the NYS DOH.

Complete laboratory analytical reports and chain of custody forms are included with this report as Appendix A - Laboratory Analytical Results.

Matrix A Conclusions

Carbon Tetrachloride

Carbon Tetrachloride was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix A (May 2017) recommends "No further action" for sub-slab vapor concentrations detected below 6 mcg / m^3, when the indoor air concentration is less than 0.20 mcg / m^3.

- **Carbon Tetrachloride - No Further Action**

1,1 - Dichloroethene

1,1 - Dichloroethene was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix A (May 2017) recommends "No further action" for sub-slab vapor concentrations detected below 6 mcg / m^3, when the indoor air concentration is less than 0.20 mcg / m^3.

- **1,1 - Dichloroethene - No Further Action**

cis-1,2 - Dichloroethene

cis-1,2 - Dichloroethene was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix A (May 2017) recommends "No further action" for sub-slab vapor concentrations detected below 6 mcg / m^3, when the indoor air concentration is less than 0.20 mcg / m^3.

- **cis-1,2 - Dichloroethene - No Further Action**

Trichloroethylene (TCE)

Trichloroethylene was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, or the sub-slab sample SS-3 Rear Building First Floor (no basement).

Trichloroethylene was detected in the two (2) sub-slab samples SS-1 at 203 mcg / m^3 and SS-2 at 46.9 mcg / m^3.

SS–1 Sub-Slab Sample - Front Building Sub-Basement

The NYS DOH Soil Vapor / Indoor Air Matrix A (May 2017) recommends "Mitigate" for sub-slab vapor concentrations detected 60 mcg / m^3 and above, regardless of the indoor air concentration.

- **Trichloroethylene - Mitigate**

SS–2 Sub-Slab Sample - Front Building Basement

The NYS DOH Soil Vapor / Indoor Air Matrix 1, recommends "No further action" when the sub-slab vapor concentration is between 6 mcg / m^3 and < 60 mcg / m^3, and when the indoor air concentration is less than 0.20 mcg / m^3.

- **Trichloroethylene - No Further Action**

SS–3 Sub-Slab Sample - Rear Building First Floor (no basement)

The NYS DOH Soil Vapor / Indoor Air Matrix A (May 2017), recommends "No further action" when the sub-slab vapor concentration is less than 6 mcg / m^3, and when the indoor air concentration is less than 0.20 mcg / m^3.

- **Trichloroethylene - No Further Action**

Matrix B Conclusions

Methylene Chloride

Methylene Chloride was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix B (May 2017) recommends "No further action" for sub-slab vapor concentrations detected below 100 mcg / m3, when the indoor air concentration is less than 3.0 mcg / m3.

- **Methylene Chloride - No Further Action**

Tetrachloroethylene

Tetrachloroethylene was not detected in the one (1) outdoor ambient air sample or the one (1) indoor ambient air sample.

Tetrachloroethylene was detected in the three (3) sub-slab samples at 223,000 mcg / m^3, 25,500 mcg / m^3, and 234 mcg / m^3.

SS–1 Sub-Slab Sample - Front Building Sub-Basement
SS–2 Sub-Slab Sample - Front Building Basement

The NYS DOH Soil Vapor / Indoor Air Matrix B (May 2017) recommends "Mitigate" when the sub-slab vapor concentrations detected are 1,000 mcg / m^3 or above, regardless of the indoor air concentration.

- **Tetrachloroethylene - Mitigate**

SS–3 Rear Building First Floor (no basement)

The NYS DOH Soil Vapor / Indoor Air Matrix B (May 2017), recommends "No further action" when the sub-slab vapor concentration are between 100 mcg / m^3 and < 1,000 mcg / m^3, and when the indoor air concentration is less than 3.0 mcg / m^3.

- **Tetrachloroethylene - No Further Action**

<u>1,1,1 - Trichloroethane (1,1,1 - TCA)</u>

1,1,1 - Trichloroethane (1,1,1 - TCA) was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix B (May 2017) recommends "No further action" when the sub-slab vapor concentrations detected are less than 100 mcg / m^3, and when the indoor air concentration is less than 3 mcg / m^3.

- **1,1,1 - Trichloroethane (1,1,1 - TCA) - No Further Action**

Matrix C Conclusions

Vinyl Chloride

Vinyl Chloride was not detected in the one (1) outdoor ambient air sample, the one (1) indoor ambient air sample, nor the three (3) sub-slab samples.

The NYS DOH Soil Vapor / Indoor Air Matrix C (May 2017) recommends "No further action" for sub-slab vapor concentrations detected below 6 mcg / m3, when the indoor air concentration is less than 0.2 mcg / m3.

- **Vinyl Chloride - No Further Action**

Complete laboratory analytical reports and chain of custody forms are included with this report as Appendix A - Laboratory Analytical Results.

5.0 CONCLUSIONS and RECOMMENDATIONS

5.1 Conclusions

Based on the completion of the Soil Vapor Survey of the subject site, GCI provides the following conclusions:

The Soil Vapor Survey was conducted in order to address the requirements of the New York City Office of Environmental Remediation (NYC OER). The purpose of the survey was to assess whether the subsurface soil contamination had impacted the sub-slab vapors and/or the indoor air quality at the subject site.

The soil vapor and ambient air sampling procedure was conducted in conformance with the New York State Department of Health (NYS DOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006, as well as the updates to the Soil Vapor / Indoor Air Decision Matrices, dated November 2017.

A total of five (5) soil vapor and air samples were obtained, specifically three (3) sub-slab samples, one (1) indoor ambient air sample and one (1) outdoor ambient control sample. The locations of the sample points are indicated on the Site Diagram.

The five (5) vapor samples were analyzed by a National Environmental Laboratory Approval Program (NELAP) certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) utilizing TO-15.

5.2 Recommendations

As per the New York State Department of Health, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, and based on the results of the laboratory analytical data, the NYS DOH recommends the following:

Matrix A (May 2017)

- Carbon Tetrachloride - No Further Action
- 1,1 - Dichloroethene - No Further Action
- cis-1,2 - Dichloroethene - No Further Action
- Trichloroethylene

  SS–1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate

  SS–2 Sub-Slab Sample - Front Building Basement - No Further Action

  SS–3 Sub-Slab Sample - Rear Building First Floor (no basement) - No Further Action

Matrix B (May 2017)

- Methylene Chloride - No Further Action
- Tetrachloroethylene

  SS–1 Sub-Slab Sample - Front Building Sub-Basement - Mitigate

  SS–2 Sub-Slab Sample - Front Building Basement - Mitigate

  SS–3 Rear Building First Floor (no basement) - No Further Action

  1,1,1 - Trichloroethane (1,1,1 - TCA) - No Further Action

Matrix C (May 2017)

Vinyl Chloride - No Further Action

Limitations

The purpose of this investigation was to identify potential sources of contamination. The findings and conclusions set forth in this report are based upon information that was available to GCI, during its inspection of the property and after review of selected records and documents. If new information becomes available concerning the property after this date, or if the property is used in a manner other than that which is identified in this report, the findings and conclusions contained herein may have to be modified. Additionally, while this investigation was performed in accordance with good commercial and customary practice and generally accepted protocols within the consulting industry, GCI can not guarantee that the property is completely free of hazardous substances or other materials or conditions that could subject the owner and/or operator to potential liability. Future events and/or investigation could change the findings stated herein. Should additional investigations encounter differing conditions, sections of this report may require modification.

The preceding Environmental Assessment is subject to the following conditions and to such other conditions and limiting conditions as are set forth in the report.

1. GCI assumes no responsibility for hidden or latent conditions or misrepresentation by the property owner, his/her representatives, public information officials or any authority consulted in connection with the compilation of this report.

2. This report is prepared for the sole and explicit purpose for assessing the potential liability with respect to the presence of hazardous materials that may pose a potential health or environmental threat and for evaluating collateral risk associated with the same. This report is not intended to have any direct bearing on the value of the property.

3. The Environmental Assessment is for the sole use of the principal parties. No disclosure or reproduction shall be made of the preceding report without the prior written consent of GCI.

4. GCI or any representative of GCI is not required to give testimony with reference to the opinions expressed herein without prior written arrangement.

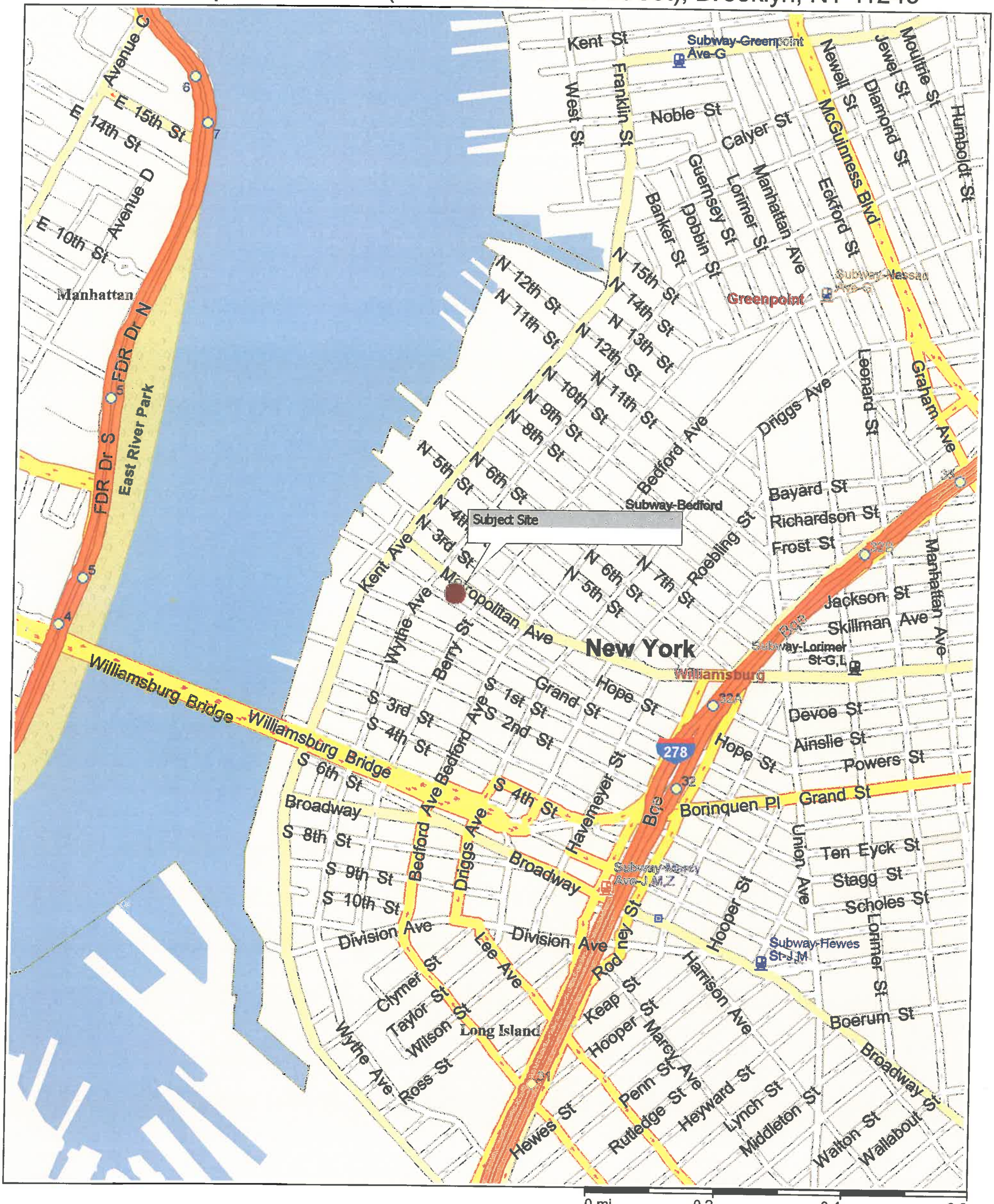
Disclaimer

This report is for the use by the client as a guide in determining the possible presence of toxic materials on the subject property at the time of the inspection. This report is based on the review of historic records (which may be incomplete), relating to past occupants, and upon a visual inspection of the surrounding properties at the time of inspection, and makes no determinations with respect to portions of the surrounding properties which were not inspected.

Any and all liability on the part of GCI shall be limited solely to the cost of this environmental assessment. GCI shall have no liability for any damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment and report. GCI shall have no liability for any cleanup and/or response costs, or any other incidental, or consequential, punitive, or special costs arising out of, incidental to, or as a result of any action against the client brought by any federal, state, or local government agency. GCI assumes no liability for the use of this assessment and report by any person or entity other than the client for whom it has been prepared.

SUBJECT SITE AREA LOCATION MAP

134 Metropolitan Avenue (aka 101 North 1st Street), Brooklyn, NY 11249

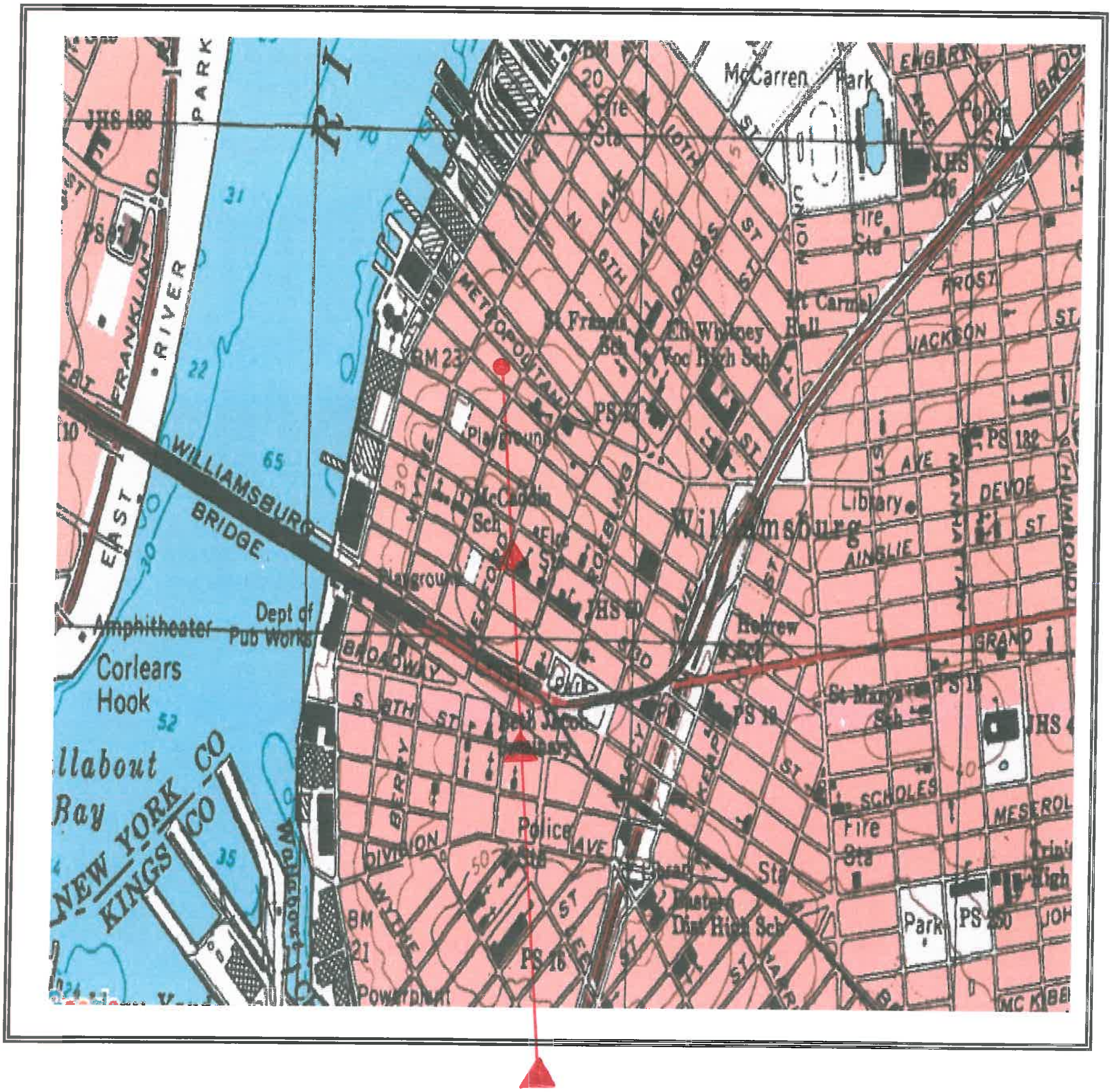


SUBJECT SITE TAX MAP

METROPOLITAN AV
N 1 ST
WYTHE AV
N 3 ST
BERRY ST
GRAND ST
S 1 ST
2342
2350
2351
2357
2358
2359
2363
2364
2365
2378
2379
2380
2391
2392
2404


METROPOLITAN AV
N 1 ST
2364
13
113
15
16
-17- C2938
19
26
25
25
25
50
50
119.75
119.75
118
118
116.25
116.25
114.5
114.5
112.75
112.75
109.25
69.62
25.06
25.06
25.06
50.12
50
N/A
50.08
50.08
54.75
25.04
67.87
21
0.67

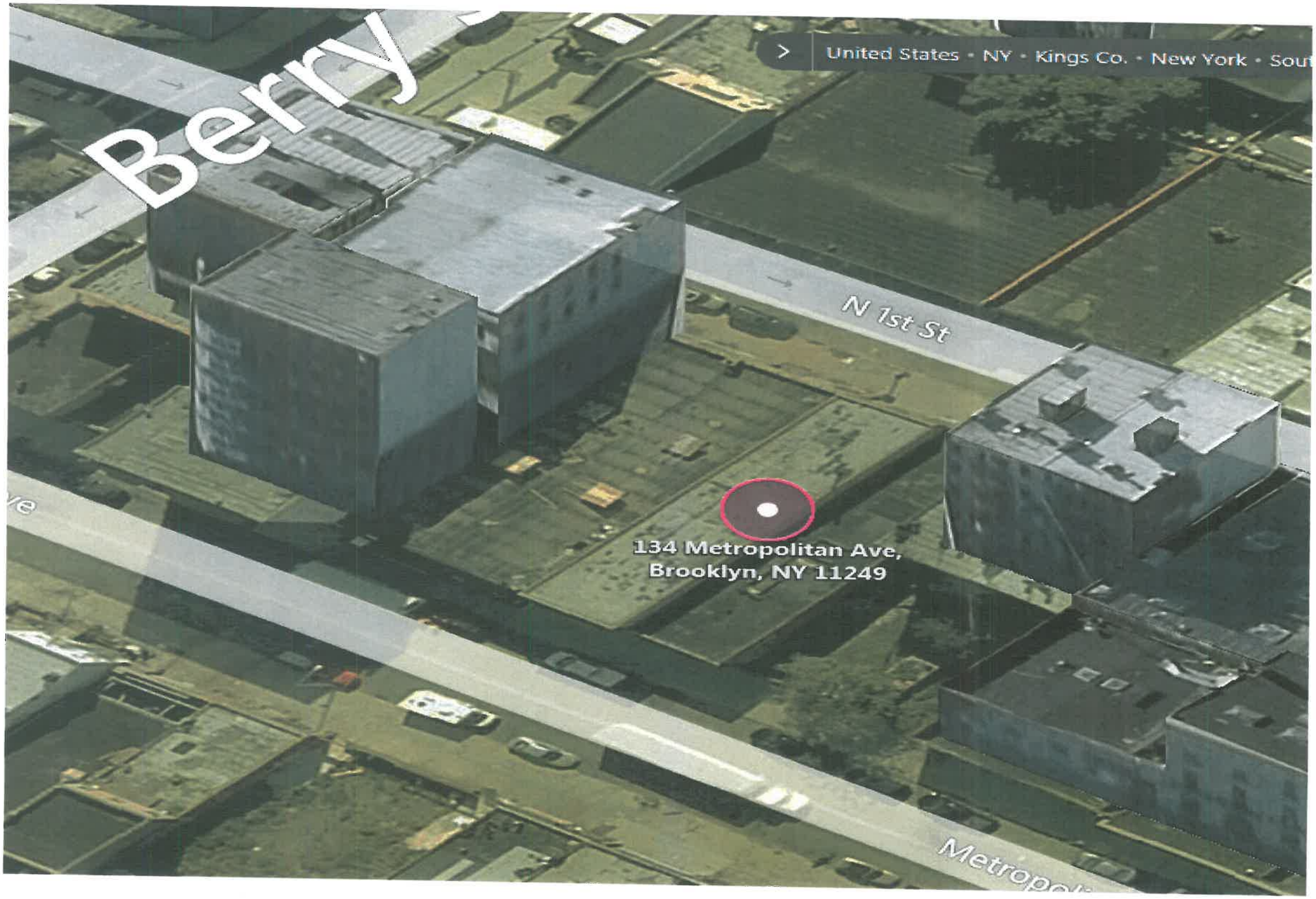
U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP



U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP

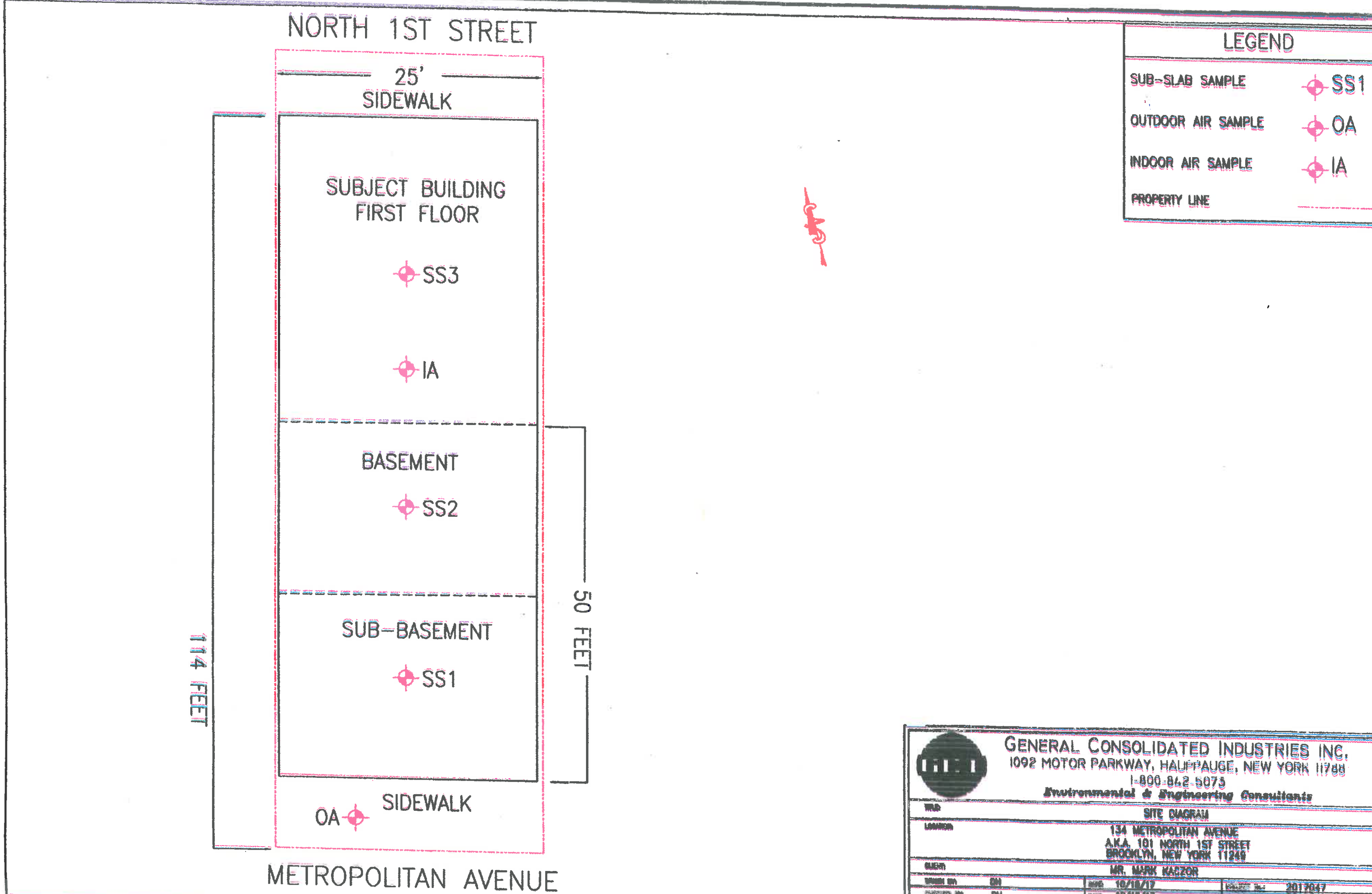
134 Metropolitan Avenue
(a.k.a. 101 North 1st Street)
Brooklyn, New York 11249

SUBJECT SITE AERIAL OVERVIEW



134 Metropolitan Avenue
(a.k.a. 101 North 1st Street)
Brooklyn, New York 11249

SITE DIAGRAM



GENERAL CONSOLIDATED INDUSTRIES INC.
1092 MOTOR PARKWAY, HAUPPAUGE, NEW YORK 11788
1-800-842-5073
Environmental & Engineering Consultants

SITE DIAGRAM

134 METROPOLITAN AVENUE
A.K.A. 101 NORTH 1ST STREET
BROOKLYN, NEW YORK 11249

MR. MARK KACZOR

DH		10/18/17			2017047
DH		10/18/17			2017047
				SCALE N/A	1 OF 1

LABORATORY ANALYTICAL RESULTS

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Laboratory Report

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDEP# NY012
PADEP# 68-2943

LIAL# 7072819

August 07, 2017

GCI
Tom Smyth
1092 Motor Parkway
Hauppauge, NY 11788

Re: 134 Metropol. Brooklyn

Dear Tom Smyth,
Enclosed please find the laboratory Analysis Report(s) for sample(s) received on July 28, 2017. Long Island Analytical laboratories analyzed the samples on August 02, 2017 for the following:

SAMPLE ID	ANALYSIS
OA	TO-15
IA	TO-15
SS1	TO-15
SS2	TO-15
SS3	TO-15

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

Michael Veraldi - Laboratory Director

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:45	Sample ID: OA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-01
Matrix: Air	ELAP: #11693

Volatiles Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
1,1,1-Trichloroethane	71-55-6	2.00	<2.00	ug/m³	3.A
1,1,2,2-Tetrachloroethane	79-34-5	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloroethane	79-00-5	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethane	75-34-3	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethylene	75-35-4	2.00	<2.00	ug/m³	3.A
1,2,4-Trichlorobenzene	120-82-1	2.00	<2.00	ug/m³	3.A
1,2,4-Trimethylbenzene	95-63-6	2.00	<2.00	ug/m³	3.A
1,2-Dibromoethane	106-93-4	2.00	<2.00	ug/m³	3.A
1,2-Dichlorobenzene	95-50-1	2.00	<2.00	ug/m³	3.A
1,2-Dichloroethane	107-06-2	2.00	<2.00	ug/m³	3.A
1,2-Dichloropropane	78-87-5	2.00	<2.00	ug/m³	3.A
1,2-Dichlorotetrafluoroethane	76-14-2	2.00	<2.00	ug/m³	3.A
1,3,5-Trimethylbenzene	108-67-8	2.00	<2.00	ug/m³	3.A
1,3-Butadiene	106-99-0	2.00	<2.00	ug/m³	3.A
1,3-Dichlorobenzene	541-73-1	2.00	<2.00	ug/m³	3.A
1,4-Dichlorobenzene	106-46-7	2.00	<2.00	ug/m³	3.A
1,4-Dioxane	123-91-1	2.00	<2.00	ug/m³	3.A
4-Ethyltoluene	622-96-8	2.00	<2.00	ug/m³	3.A
4-Methyl-2-Pentanone	108-10-1	2.00	<2.00	ug/m³	3.A
Acetone	67-64-1	4.00	17.7	ug/m³	3.E
Acrolein	107-02-8	2.00	<2.00	ug/m³	3.A
Benzene	71-43-2	2.00	<2.00	ug/m³	3.A
Benzyl Chloride	100-44-7	2.00	<2.00	ug/m³	3.A
Bromodichloromethane	75-27-4	2.00	<2.00	ug/m³	3.A
Bromoform	75-25-2	2.00	<2.00	ug/m³	3.A
Bromomethane	74-83-9	2.00	<2.00	ug/m³	3.A
Carbon disulfide	75-15-0	2.00	<2.00	ug/m³	3.A
Carbon Tetrachloride	56-23-5	2.00	<2.00	ug/m³	3.A
Chlorobenzene	108-90-7	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:45	Sample ID: OA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-01
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
Chloroethane	75-00-3	2.00	<2.00	ug/m³	3.A
Chloroform	67-66-3	2.00	<2.00	ug/m³	3.A
Chloromethane	74-87-3	2.00	<2.00	ug/m³	3.A
cis-1,2-Dichloroethylene	156-59-2	2.00	<2.00	ug/m³	3.A
cis-1,3-Dichloropropylene	10061-01-5	2.00	<2.00	ug/m³	3.A
Cyclohexane	110-82-7	2.00	<2.00	ug/m³	3.A
Dibromochloromethane	124-48-1	2.00	<2.00	ug/m³	3.A
Dichlorodifluoromethane	75-71-8	2.00	<2.00	ug/m³	3.A
Ethanol	64-17-5	2.00	124	ug/m³	3.E
Ethyl Acetate	141-78-6	2.00	<2.00	ug/m³	3.A
Ethylbenzene	100-41-4	2.00	<2.00	ug/m³	3.A
Hexachlorobutadiene	87-68-3	2.00	<2.00	ug/m³	3.A
Isopropanol	67-63-0	2.00	<2.00	ug/m³	3.A
m,p-Xylenes	108-38-3/106-42-3	2.00	<2.00	ug/m³	3.A
Methyl Butyl Ketone (2-Hexanone)	591-78-6	2.00	<2.00	ug/m³	3.A
Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.00	<2.00	ug/m³	3.A
Methyl Methacrylate	80-62-6	2.00	<2.00	ug/m³	3.A
Methylene Chloride	75-09-2	2.00	<2.00	ug/m³	3.A
Methyl-tert-Butyl Ether	1634-04-4	2.00	<2.00	ug/m³	3.A
Naphthalene	91-20-3	2.00	<2.00	ug/m³	3.A
n-Heptane	142-82-5	2.00	<2.00	ug/m³	3.A
n-Hexane	110-54-3	2.00	<2.00	ug/m³	3.A
o-Xylene	95-47-6	2.00	<2.00	ug/m³	3.A
Propylene	115-07-1	2.00	<2.00	ug/m³	3.A
Styrene	100-42-5	2.00	<2.00	ug/m³	3.A
Tetrachloroethylene	127-18-4	2.00	<2.00	ug/m³	3.A
Tetrahydrofuran	109-99-9	2.00	<2.00	ug/m³	3.A
Toluene	108-88-3	2.00	<2.00	ug/m³	3.A
trans-1,2-Dichloroethylene	156-60-5	2.00	<2.00	ug/m³	3.A

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"
110 Colin Drive • Holbrook, New York 11741
Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:45	Sample ID: OA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-01
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
trans-1,3-Dichloropropylene	10061-02-6	2.00	<2.00	ug/m³	3.A
Trichloroethylene	79-01-6	2.00	<2.00	ug/m³	3.A
Trichlorofluoromethane	75-69-4	2.00	<2.00	ug/m³	3.A
Vinyl acetate	108-05-4	2.00	<2.00	ug/m³	3.A
Vinyl chloride	75-01-4	2.00	<2.00	ug/m³	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
4-Bromofluorobenzene	460-00-4	102	70-130	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Difluorobenzene	540-36-3	91	60-140	
Bromochloromethane	74-97-5	87	60-140	3.E
Chlorobenzene-d5	3114-55-4	92	60-140	

Date Prepared: 07/31/2017

Date Analyzed: 08/01/2017

Preparation Method: TO-15

Analytical Method: TO-15

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:50	Sample ID: IA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-02
Matrix: Air	ELAP: #11693

Volatiles Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
1,1,1-Trichloroethane	71-55-6	2.00	<2.00	ug/m³	3.A
1,1,2,2-Tetrachloroethane	79-34-5	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloroethane	79-00-5	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethane	75-34-3	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethylene	75-35-4	2.00	<2.00	ug/m³	3.A
1,2,4-Trichlorobenzene	120-82-1	2.00	<2.00	ug/m³	3.A
1,2,4-Trimethylbenzene	95-63-6	2.00	<2.00	ug/m³	3.A
1,2-Dibromoethane	106-93-4	2.00	<2.00	ug/m³	3.A
1,2-Dichlorobenzene	95-50-1	2.00	<2.00	ug/m³	3.A
1,2-Dichloroethane	107-06-2	2.00	<2.00	ug/m³	3.A
1,2-Dichloropropane	78-87-5	2.00	<2.00	ug/m³	3.A
1,2-Dichlorotetrafluoroethane	76-14-2	2.00	<2.00	ug/m³	3.A
1,3,5-Trimethylbenzene	108-67-8	2.00	<2.00	ug/m³	3.A
1,3-Butadiene	106-99-0	2.00	<2.00	ug/m³	3.A
1,3-Dichlorobenzene	541-73-1	2.00	<2.00	ug/m³	3.A
1,4-Dichlorobenzene	106-46-7	2.00	<2.00	ug/m³	3.A
1,4-Dioxane	123-91-1	2.00	<2.00	ug/m³	3.A
4-Ethyltoluene	622-96-8	2.00	<2.00	ug/m³	3.A
4-Methyl-2-Pentanone	108-10-1	2.00	<2.00	ug/m³	3.A
Acetone	67-64-1	4.00	21.2	ug/m³	3.E
Acrolein	107-02-8	2.00	<2.00	ug/m³	3.A
Benzene	71-43-2	2.00	<2.00	ug/m³	3.A
Benzyl Chloride	100-44-7	2.00	<2.00	ug/m³	3.A
Bromodichloromethane	75-27-4	2.00	<2.00	ug/m³	3.A
Bromoform	75-25-2	2.00	<2.00	ug/m³	3.A
Bromomethane	74-83-9	2.00	<2.00	ug/m³	3.A
Carbon disulfide	75-15-0	2.00	<2.00	ug/m³	3.A
Carbon Tetrachloride	56-23-5	2.00	<2.00	ug/m³	3.A
Chlorobenzene	108-90-7	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:50	Sample ID: IA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-02
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
Chloroethane	75-00-3	2.00	<2.00	ug/m³	3.A
Chloroform	67-66-3	2.00	<2.00	ug/m³	3.A
Chloromethane	74-87-3	2.00	<2.00	ug/m³	3.A
cis-1,2-Dichloroethylene	156-59-2	2.00	<2.00	ug/m³	3.A
cis-1,3-Dichloropropylene	10061-01-5	2.00	<2.00	ug/m³	3.A
Cyclohexane	110-82-7	2.00	<2.00	ug/m³	3.A
Dibromochloromethane	124-48-1	2.00	<2.00	ug/m³	3.A
Dichlorodifluoromethane	75-71-8	2.00	<2.00	ug/m³	3.A
Ethanol	64-17-5	2.00	134	ug/m³	3.E
Ethyl Acetate	141-78-6	2.00	<2.00	ug/m³	3.A
Ethylbenzene	100-41-4	2.00	<2.00	ug/m³	3.A
Hexachlorobutadiene	87-68-3	2.00	<2.00	ug/m³	3.A
Isopropanol	67-63-0	2.00	5.01	ug/m³	3.E
m,p-Xylenes	108-38-3/106-42-3	2.00	<2.00	ug/m³	3.A
Methyl Butyl Ketone (2-Hexanone)	591-78-6	2.00	<2.00	ug/m³	3.A
Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.00	<2.00	ug/m³	3.A
Methyl Methacrylate	80-62-6	2.00	<2.00	ug/m³	3.A
Methylene Chloride	75-09-2	2.00	7.92	ug/m³	3.E
Methyl-tert-Butyl Ether	1634-04-4	2.00	<2.00	ug/m³	3.A
Naphthalene	91-20-3	2.00	<2.00	ug/m³	3.A
n-Heptane	142-82-5	2.00	<2.00	ug/m³	3.A
n-Hexane	110-54-3	2.00	<2.00	ug/m³	3.A
o-Xylene	95-47-6	2.00	<2.00	ug/m³	3.A
Propylene	115-07-1	2.00	<2.00	ug/m³	3.A
Styrene	100-42-5	2.00	<2.00	ug/m³	3.A
Tetrachloroethylene	127-18-4	2.00	<2.00	ug/m³	3.A
Tetrahydrofuran	109-99-9	2.00	<2.00	ug/m³	3.A
Toluene	108-88-3	2.00	<2.00	ug/m³	3.A
trans-1,2-Dichloroethylene	156-60-5	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 17:50	Sample ID: IA
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-02
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
trans-1,3-Dichloropropylene	10061-02-6	2.00	<2.00	ug/m³	3.A
Trichloroethylene	79-01-6	2.00	<2.00	ug/m³	3.A
Trichlorofluoromethane	75-69-4	2.00	<2.00	ug/m³	3.A
Vinyl acetate	108-05-4	2.00	<2.00	ug/m³	3.A
Vinyl chloride	75-01-4	2.00	<2.00	ug/m³	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
4-Bromofluorobenzene	460-00-4	103	70-130	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Difluorobenzene	540-36-3	87	60-140	
Bromochloromethane	74-97-5	90	60-140	3.E
Chlorobenzene-d5	3114-55-4	92	60-140	

Date Prepared: 07/31/2017

Date Analyzed: 08/01/2017

Preparation Method: TO-15

Analytical Method: TO-15

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:00	Sample ID: SS1
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-03
Matrix: Air	ELAP: #11693

Volatiles Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
1,1,1-Trichloroethane	71-55-6	2.00	<2.00	ug/m³	3.A
1,1,2,2-Tetrachloroethane	79-34-5	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloroethane	79-00-5	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethane	75-34-3	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethylene	75-35-4	2.00	<2.00	ug/m³	3.A
1,2,4-Trichlorobenzene	120-82-1	2.00	<2.00	ug/m³	3.A
1,2,4-Trimethylbenzene	95-63-6	2.00	<2.00	ug/m³	3.A
1,2-Dibromoethane	106-93-4	2.00	<2.00	ug/m³	3.A
1,2-Dichlorobenzene	95-50-1	2.00	<2.00	ug/m³	3.A
1,2-Dichloroethane	107-06-2	2.00	<2.00	ug/m³	3.A
1,2-Dichloropropane	78-87-5	2.00	<2.00	ug/m³	3.A
1,2-Dichlorotetrafluoroethane	76-14-2	2.00	<2.00	ug/m³	3.A
1,3,5-Trimethylbenzene	108-67-8	2.00	<2.00	ug/m³	3.A
1,3-Butadiene	106-99-0	2.00	<2.00	ug/m³	3.A
1,3-Dichlorobenzene	541-73-1	2.00	<2.00	ug/m³	3.A
1,4-Dichlorobenzene	106-46-7	2.00	<2.00	ug/m³	3.A
1,4-Dioxane	123-91-1	2.00	<2.00	ug/m³	3.A
4-Ethyltoluene	622-96-8	2.00	<2.00	ug/m³	3.A
4-Methyl-2-Pentanone	108-10-1	2.00	<2.00	ug/m³	3.A
Acetone	67-64-1	4.00	27.8	ug/m³	3.E
Acrolein	107-02-8	2.00	<2.00	ug/m³	3.A
Benzene	71-43-2	2.00	<2.00	ug/m³	3.A
Benzyl Chloride	100-44-7	2.00	<2.00	ug/m³	3.A
Bromodichloromethane	75-27-4	2.00	<2.00	ug/m³	3.A
Bromoform	75-25-2	2.00	<2.00	ug/m³	3.A
Bromomethane	74-83-9	2.00	<2.00	ug/m³	3.A
Carbon disulfide	75-15-0	2.00	<2.00	ug/m³	3.A
Carbon Tetrachloride	56-23-5	2.00	<2.00	ug/m³	3.A
Chlorobenzene	108-90-7	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:00	Sample ID: SS1
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-03
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
Chloroethane	75-00-3	2.00	<2.00	ug/m³	3.A
Chloroform	67-66-3	2.00	107	ug/m³	3.E
Chloromethane	74-87-3	2.00	<2.00	ug/m³	3.A
cis-1,2-Dichloroethylene	156-59-2	2.00	114	ug/m³	3.E
cis-1,3-Dichloropropylene	10061-01-5	2.00	<2.00	ug/m³	3.A
Cyclohexane	110-82-7	2.00	<2.00	ug/m³	3.A
Dibromochloromethane	124-48-1	2.00	<2.00	ug/m³	3.A
Dichlorodifluoromethane	75-71-8	2.00	<2.00	ug/m³	3.A
Ethanol	64-17-5	2.00	184	ug/m³	3.E
Ethyl Acetate	141-78-6	2.00	8.58	ug/m³	3.E
Ethylbenzene	100-41-4	2.00	<2.00	ug/m³	3.A
Hexachlorobutadiene	87-68-3	2.00	<2.00	ug/m³	3.A
Isopropanol	67-63-0	2.00	5.06	ug/m³	3.E
m,p-Xylenes	108-38-3/106-42-3	2.00	19.2	ug/m³	3.E
Methyl Butyl Ketone (2-Hexanone)	591-78-6	2.00	<2.00	ug/m³	3.A
Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.00	6.37	ug/m³	3.E
Methyl Methacrylate	80-62-6	2.00	<2.00	ug/m³	3.A
Methylene Chloride	75-09-2	2.00	117	ug/m³	3.E
Methyl-tert-Butyl Ether	1634-04-4	2.00	<2.00	ug/m³	3.A
Naphthalene	91-20-3	2.00	<2.00	ug/m³	3.A
n-Heptane	142-82-5	2.00	<2.00	ug/m³	3.A
n-Hexane	110-54-3	2.00	<2.00	ug/m³	3.A
o-Xylene	95-47-6	2.00	<2.00	ug/m³	3.A
Propylene	115-07-1	2.00	<2.00	ug/m³	3.A
Styrene	100-42-5	2.00	<2.00	ug/m³	3.A
Tetrachloroethylene	127-18-4	25.0	223000	ug/m³	3.E, 4.A
Tetrahydrofuran	109-99-9	2.00	<2.00	ug/m³	3.A
Toluene	108-88-3	2.00	16.3	ug/m³	3.E
trans-1,2-Dichloroethylene	156-60-5	2.00	<2.00	ug/m³	3.A

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Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:00	Sample ID: SS1
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-03
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
trans-1,3-Dichloropropylene	10061-02-6	2.00	<2.00	ug/m³	3.A
Trichloroethylene	79-01-6	2.00	203	ug/m³	3.E
Trichlorofluoromethane	75-69-4	2.00	<2.00	ug/m³	3.A
Vinyl acetate	108-05-4	2.00	<2.00	ug/m³	3.A
Vinyl chloride	75-01-4	2.00	<2.00	ug/m³	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
4-Bromofluorobenzene	460-00-4	112	70-130	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Difluorobenzene	540-36-3	104	60-140	
Bromochloromethane	74-97-5	93	60-140	3.E
Chlorobenzene-d5	3114-55-4	105	60-140	

Date Prepared: 07/31/2017

Date Analyzed: 08/01/2017

Preparation Method: TO-15

Analytical Method: TO-15

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:10	Sample ID: SS2
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-04
Matrix: Air	ELAP: #11693

Volatiles Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
1,1,1-Trichloroethane	71-55-6	2.00	<2.00	ug/m³	3.A
1,1,2,2-Tetrachloroethane	79-34-5	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloroethane	79-00-5	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethane	75-34-3	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethylene	75-35-4	2.00	<2.00	ug/m³	3.A
1,2,4-Trichlorobenzene	120-82-1	2.00	<2.00	ug/m³	3.A
1,2,4-Trimethylbenzene	95-63-6	2.00	<2.00	ug/m³	3.A
1,2-Dibromoethane	106-93-4	2.00	<2.00	ug/m³	3.A
1,2-Dichlorobenzene	95-50-1	2.00	<2.00	ug/m³	3.A
1,2-Dichloroethane	107-06-2	2.00	<2.00	ug/m³	3.A
1,2-Dichloropropane	78-87-5	2.00	<2.00	ug/m³	3.A
1,2-Dichlorotetrafluoroethane	76-14-2	2.00	<2.00	ug/m³	3.A
1,3,5-Trimethylbenzene	108-67-8	2.00	<2.00	ug/m³	3.A
1,3-Butadiene	106-99-0	2.00	<2.00	ug/m³	3.A
1,3-Dichlorobenzene	541-73-1	2.00	<2.00	ug/m³	3.A
1,4-Dichlorobenzene	106-46-7	2.00	<2.00	ug/m³	3.A
1,4-Dioxane	123-91-1	2.00	<2.00	ug/m³	3.A
4-Ethyltoluene	622-96-8	2.00	<2.00	ug/m³	3.A
4-Methyl-2-Pentanone	108-10-1	2.00	<2.00	ug/m³	3.A
Acetone	67-64-1	50.0	230	ug/m³	3.E
Acrolein	107-02-8	2.00	5.92	ug/m³	3.E
Benzene	71-43-2	2.00	<2.00	ug/m³	3.A
Benzyl Chloride	100-44-7	2.00	<2.00	ug/m³	3.A
Bromodichloromethane	75-27-4	2.00	<2.00	ug/m³	3.A
Bromoform	75-25-2	2.00	<2.00	ug/m³	3.A
Bromomethane	74-83-9	2.00	<2.00	ug/m³	3.A
Carbon disulfide	75-15-0	2.00	9.97	ug/m³	3.E
Carbon Tetrachloride	56-23-5	2.00	<2.00	ug/m³	3.A
Chlorobenzene	108-90-7	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:10	Sample ID: SS2
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-04
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
Chloroethane	75-00-3	2.00	<2.00	ug/m³	3.A
Chloroform	67-66-3	2.00	45.8	ug/m³	3.E
Chloromethane	74-87-3	2.00	<2.00	ug/m³	3.A
cis-1,2-Dichloroethylene	156-59-2	2.00	13.2	ug/m³	3.E
cis-1,3-Dichloropropylene	10061-01-5	2.00	<2.00	ug/m³	3.A
Cyclohexane	110-82-7	2.00	<2.00	ug/m³	3.A
Dibromochloromethane	124-48-1	2.00	<2.00	ug/m³	3.A
Dichlorodifluoromethane	75-71-8	2.00	<2.00	ug/m³	3.A
Ethanol	64-17-5	25.0	1690	ug/m³	3.E
Ethyl Acetate	141-78-6	2.00	8.07	ug/m³	3.E
Ethylbenzene	100-41-4	2.00	<2.00	ug/m³	3.A
Hexachlorobutadiene	87-68-3	2.00	<2.00	ug/m³	3.A
Isopropanol	67-63-0	2.00	16.4	ug/m³	3.E
m,p-Xylenes	108-38-3/106-42-3	2.00	23.3	ug/m³	3.E
Methyl Butyl Ketone (2-Hexanone)	591-78-6	2.00	<2.00	ug/m³	3.A
Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.00	9.50	ug/m³	3.E
Methyl Methacrylate	80-62-6	2.00	<2.00	ug/m³	3.A
Methylene Chloride	75-09-2	2.00	87.4	ug/m³	3.E
Methyl-tert-Butyl Ether	1634-04-4	2.00	<2.00	ug/m³	3.A
Naphthalene	91-20-3	2.00	<2.00	ug/m³	3.A
n-Heptane	142-82-5	2.00	<2.00	ug/m³	3.A
n-Hexane	110-54-3	2.00	<2.00	ug/m³	3.A
o-Xylene	95-47-6	2.00	<2.00	ug/m³	3.A
Propylene	115-07-1	2.00	9.71	ug/m³	3.E
Styrene	100-42-5	2.00	<2.00	ug/m³	3.A
Tetrachloroethylene	127-18-4	25.0	25500	ug/m³	3.E, 4.A
Tetrahydrofuran	109-99-9	2.00	<2.00	ug/m³	3.A
Toluene	108-88-3	2.00	<2.00	ug/m³	3.A
trans-1,2-Dichloroethylene	156-60-5	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:10	Sample ID: SS2
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-04
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
trans-1,3-Dichloropropylene	10061-02-6	2.00	<2.00	ug/m³	3.A
Trichloroethylene	79-01-6	2.00	46.9	ug/m³	3.E
Trichlorofluoromethane	75-69-4	2.00	<2.00	ug/m³	3.A
Vinyl acetate	108-05-4	2.00	<2.00	ug/m³	3.A
Vinyl chloride	75-01-4	2.00	<2.00	ug/m³	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
4-Bromofluorobenzene	460-00-4	108	70-130	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Difluorobenzene	540-36-3	93	60-140	
Bromochloromethane	74-97-5	93	60-140	
Chlorobenzene-d5	3114-55-4	92	60-140	

Date Prepared: 07/31/2017

Date Analyzed: 08/01/2017

Preparation Method: TO-15

Analytical Method: TO-15

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:20	Sample ID: SS3
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-05
Matrix: Air	ELAP: #11693

Volatiles Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
1,1,1-Trichloroethane	71-55-6	2.00	<2.00	ug/m³	3.A
1,1,2,2-Tetrachloroethane	79-34-5	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.00	<2.00	ug/m³	3.A
1,1,2-Trichloroethane	79-00-5	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethane	75-34-3	2.00	<2.00	ug/m³	3.A
1,1-Dichloroethylene	75-35-4	2.00	<2.00	ug/m³	3.A
1,2,4-Trichlorobenzene	120-82-1	2.00	<2.00	ug/m³	3.A
1,2,4-Trimethylbenzene	95-63-6	2.00	<2.00	ug/m³	3.A
1,2-Dibromoethane	106-93-4	2.00	<2.00	ug/m³	3.A
1,2-Dichlorobenzene	95-50-1	2.00	<2.00	ug/m³	3.A
1,2-Dichloroethane	107-06-2	2.00	<2.00	ug/m³	3.A
1,2-Dichloropropane	78-87-5	2.00	<2.00	ug/m³	3.A
1,2-Dichlorotetrafluoroethane	76-14-2	2.00	<2.00	ug/m³	3.A
1,3,5-Trimethylbenzene	108-67-8	2.00	<2.00	ug/m³	3.A
1,3-Butadiene	106-99-0	2.00	<2.00	ug/m³	3.A
1,3-Dichlorobenzene	541-73-1	2.00	<2.00	ug/m³	3.A
1,4-Dichlorobenzene	106-46-7	2.00	<2.00	ug/m³	3.A
1,4-Dioxane	123-91-1	2.00	<2.00	ug/m³	3.A
4-Ethyltoluene	622-96-8	2.00	<2.00	ug/m³	3.A
4-Methyl-2-Pentanone	108-10-1	2.00	50.6	ug/m³	3.E
Acetone	67-64-1	4.00	184	ug/m³	3.E
Acrolein	107-02-8	2.00	<2.00	ug/m³	3.A
Benzene	71-43-2	2.00	10.6	ug/m³	3.E
Benzyl Chloride	100-44-7	2.00	<2.00	ug/m³	3.A
Bromodichloromethane	75-27-4	2.00	<2.00	ug/m³	3.A
Bromoform	75-25-2	2.00	<2.00	ug/m³	3.A
Bromomethane	74-83-9	2.00	<2.00	ug/m³	3.A
Carbon disulfide	75-15-0	2.00	<2.00	ug/m³	3.A
Carbon Tetrachloride	56-23-5	2.00	<2.00	ug/m³	3.A
Chlorobenzene	108-90-7	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:20	Sample ID: SS3
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-05
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
Chloroethane	75-00-3	2.00	<2.00	ug/m³	3.A
Chloroform	67-66-3	2.00	<2.00	ug/m³	3.A
Chloromethane	74-87-3	2.00	<2.00	ug/m³	3.A
cis-1,2-Dichloroethylene	156-59-2	2.00	<2.00	ug/m³	3.A
cis-1,3-Dichloropropylene	10061-01-5	2.00	<2.00	ug/m³	3.A
Cyclohexane	110-82-7	2.00	<2.00	ug/m³	3.A
Dibromochloromethane	124-48-1	2.00	<2.00	ug/m³	3.A
Dichlorodifluoromethane	75-71-8	2.00	<2.00	ug/m³	3.A
Ethanol	64-17-5	25.0	3130	ug/m³	3.E, 4.A
Ethyl Acetate	141-78-6	2.00	<2.00	ug/m³	3.A
Ethylbenzene	100-41-4	2.00	<2.00	ug/m³	3.A
Hexachlorobutadiene	87-68-3	2.00	<2.00	ug/m³	3.A
Isopropanol	67-63-0	2.00	24.8	ug/m³	3.E
m,p-Xylenes	108-38-3/106-42-3	2.00	57.6	ug/m³	3.E
Methyl Butyl Ketone (2-Hexanone)	591-78-6	2.00	<2.00	ug/m³	3.A
Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.00	15.6	ug/m³	3.E
Methyl Methacrylate	80-62-6	2.00	<2.00	ug/m³	3.A
Methylene Chloride	75-09-2	2.00	25.2	ug/m³	3.E
Methyl-tert-Butyl Ether	1634-04-4	2.00	<2.00	ug/m³	3.A
Naphthalene	91-20-3	2.00	<2.00	ug/m³	3.A
n-Heptane	142-82-5	2.00	<2.00	ug/m³	3.A
n-Hexane	110-54-3	2.00	<2.00	ug/m³	3.A
o-Xylene	95-47-6	2.00	<2.00	ug/m³	3.A
Propylene	115-07-1	2.00	8.16	ug/m³	3.E
Styrene	100-42-5	2.00	<2.00	ug/m³	3.A
Tetrachloroethylene	127-18-4	25.0	234	ug/m³	3.E
Tetrahydrofuran	109-99-9	2.00	<2.00	ug/m³	3.A
Toluene	108-88-3	2.00	14.6	ug/m³	3.E
trans-1,2-Dichloroethylene	156-60-5	2.00	<2.00	ug/m³	3.A

Client: GCI	Client ID: 134 Metropol. Brooklyn
Date (Time) Collected: 07/27/2017 18:20	Sample ID: SS3
Date (Time) Received: 07/28/2017 13:40	Laboratory ID: 7072819-05
Matrix: Air	ELAP: #11693

Parameter	CAS No.	LOQ	Result	Units	Flag
trans-1,3-Dichloropropylene	10061-02-6	2.00	<2.00	ug/m³	3.A
Trichloroethylene	79-01-6	2.00	<2.00	ug/m³	3.A
Trichlorofluoromethane	75-69-4	2.00	<2.00	ug/m³	3.A
Vinyl acetate	108-05-4	2.00	<2.00	ug/m³	3.A
Vinyl chloride	75-01-4	2.00	<2.00	ug/m³	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
4-Bromofluorobenzene	460-00-4	106	70-130	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Difluorobenzene	540-36-3	92	60-140	
Bromochloromethane	74-97-5	91	60-140	3.E
Chlorobenzene-d5	3114-55-4	95	60-140	

Date Prepared: 07/31/2017

Date Analyzed: 08/01/2017

Preparation Method: TO-15

Analytical Method: TO-15

Data Qualifiers Key Reference:

3.A Reporting limit raised due to matrix interfernce.

3.E Compound reported at a dilution factor.

4.A Estimated concentration, exceeds calibration range.

MDL Minimum Detection Limit

LOQ Limit of Quantitation

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Chain of Custody – TO-15

CLIENT	PROJECT	DATE COLLECTED	
GCI	134 Metropol.	7-27-2017	7072819
CLIENT ADDRESS: 1092 Motor Parkway Hauppauge	LOCATION: Brooklyn	TECHNICIAN: Tim Smyth	
CLIENT PHONE: 631-851-1605	E-MAIL ADDRESS	TURNAROUND TIME: BY ☑ NORMAL ☐ STAT	

LABORATORY NO. For Laboratory Use Only	CANISTER NO. / REGULATOR NO.	SAMPLE LOCATION	TIME ON	TIME OFF	VACUUM GUAGE START ("Hg)	VACUUM GUAGE END ("Hg)	LEAK DETECTOR ANALYTE	ANALYSIS METHOD
1. 7072819-01	044	OA	9:45 am	5:45 pm	-30	-7		
2. -02	053	IA	9:50 am	5:50 pm	-30	-5		
3. -03	036	SS1	10:00 AM	6:00 pm	-30	-5		
4. -04	042	SS2	10:10 AM	6:10 pm	-30	-5		
5. -05	058A	SS3	10:20 AM	6:20 pm	-30	-5		
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								

COMMENTS

LEAK DETECTOR ANALYTES
(1) ISOPROPYL ALCOHOL (2) HELIUM (BY TECHNICIAN IN THE FIELD) (3) OTHER:

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY (SIGNATURE)	DATE / TIME	PRINTED NAME
Tim Smyth	DATE 7-28-17 TIME 1:40 pm	Tim Smyth		DATE TIME	
RELINQUISHED BY (SIGNATURE)	DATE TIME	PRINTED NAME	SAMPLE CUSTODIAN: Kelley Kavanaugh	DATE 7-28-17 TIME 13:40	Kelley Kavanaugh

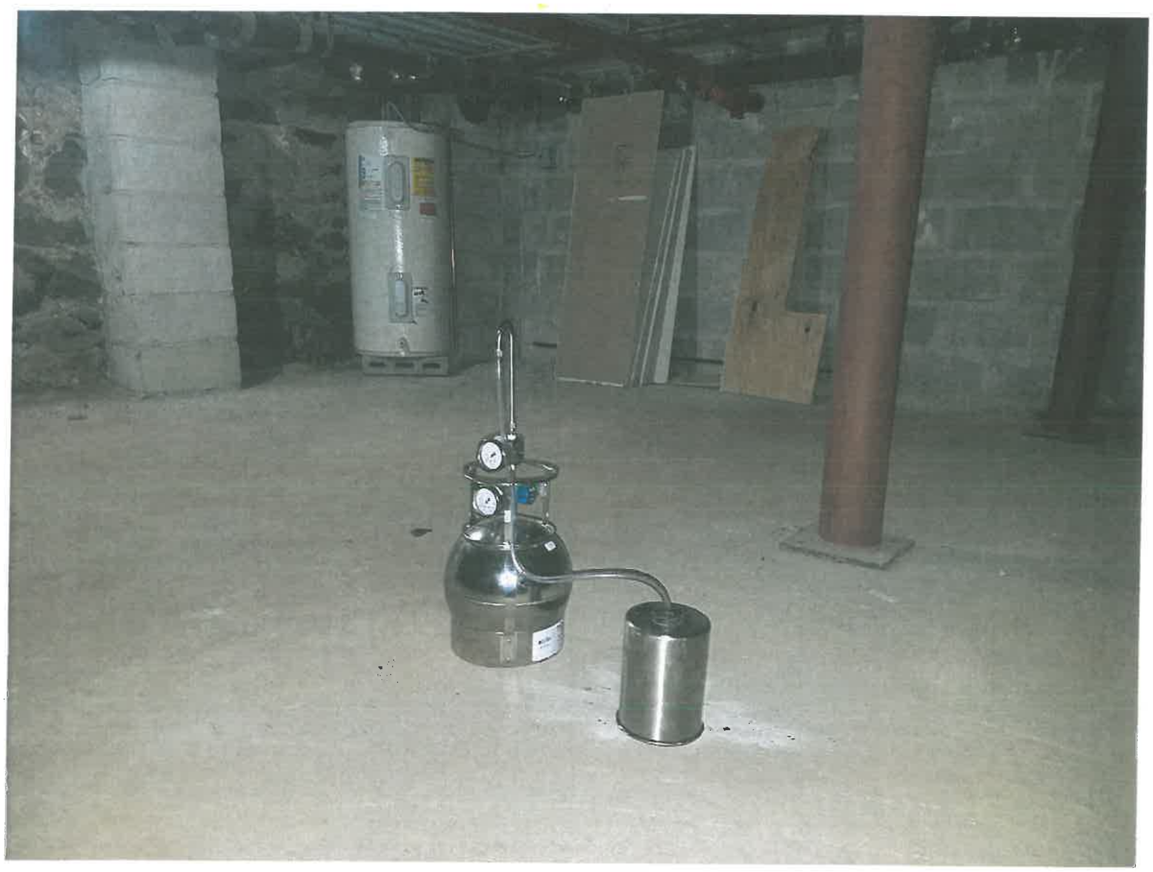
WHITE-LAB CANARY-CLIENT

SUBJECT SITE PHOTOGRAPHS

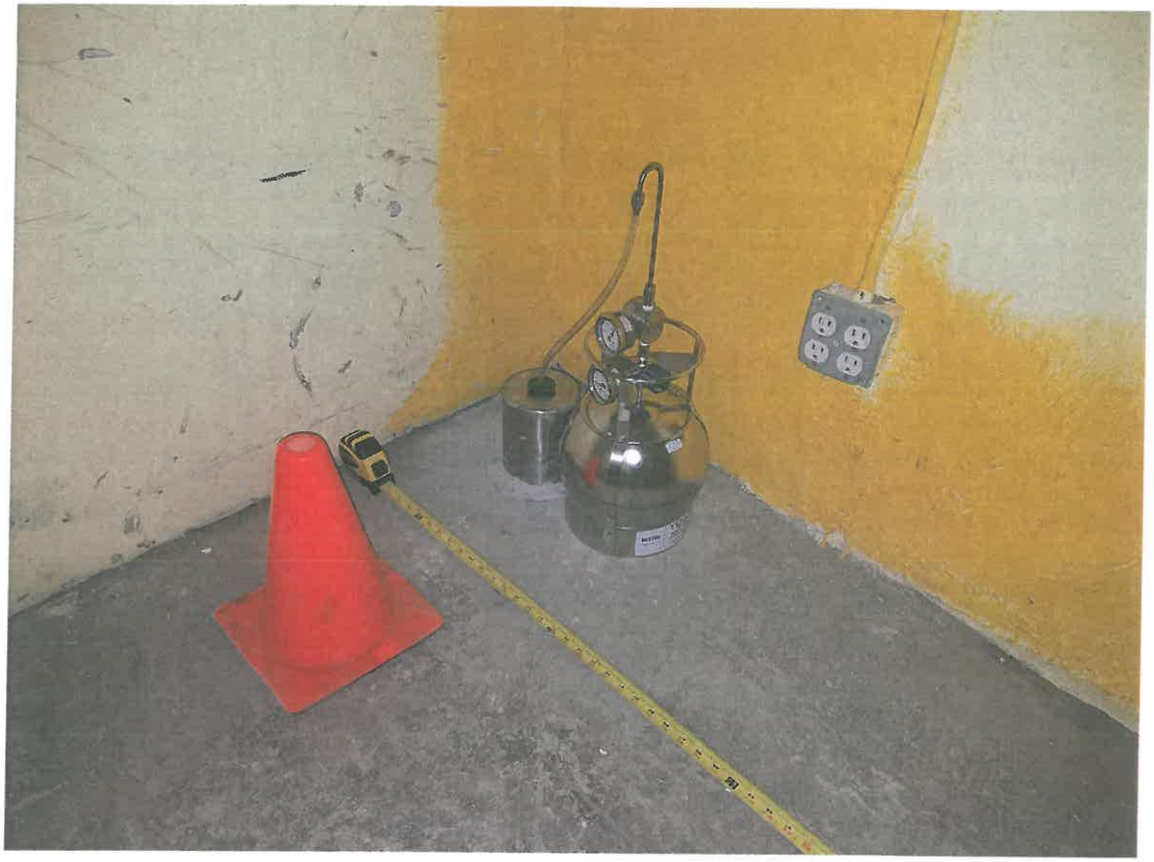
1. View of subject site.

2. View of location of outdoor ambient air sample (OA).

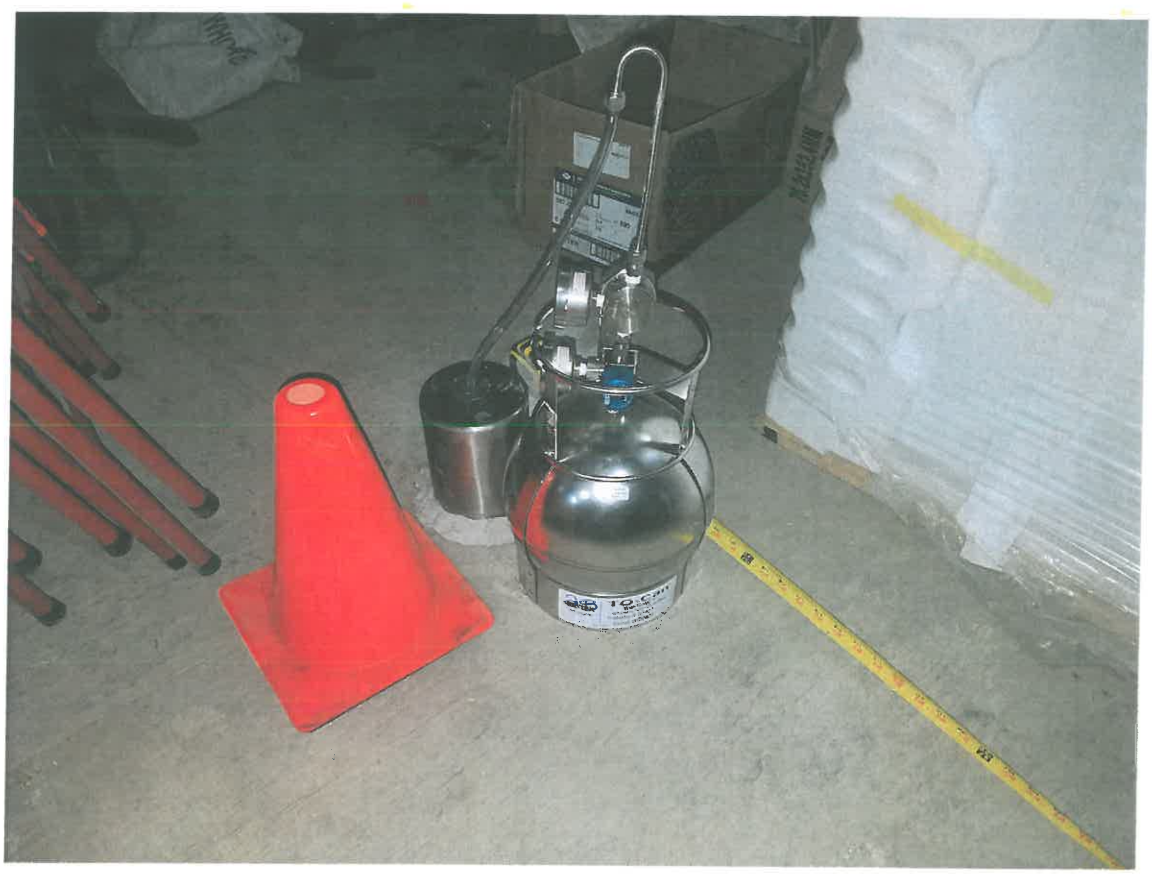
3. View of location of indoor ambient air sample (IA).



4. View of location of sub slab soil vapor sample (SS1) in sub basement.



5. View of location of sub slab soil vapor sample (SS2) in basement.



6. View of location of sub slab soil vapor sample (SS2) in ground floor slab.

7. View of overall ground floor.

APPENDIX G

NYC DOB Records

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Property Profile Overview

134 METROPOLITAN AVENUE		BROOKLYN 11249		BIN# 3062436	
METROPOLITAN AVENUE	134 - 134	**Health Area**	: 400	**Tax Block**	: 2364
NORTH 1 STREET	101 - 101	**Census Tract**	: 555	**Tax Lot**	: 16
		Community Board	: 301	**Condo**	: NO
		Buildings on Lot	: 1	**Vacant**	: NO

View DCP Addresses... Browse Block

View Zoning Documents View Challenge Results Pre - BIS PA View Certificates of Occupancy

Cross Street(s):	WYTHE AVENUE, BERRY STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	HAZMAT	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		
Additional Designation(s):	GW - GREENPOINT-WILLIAMSBURG ANTI-HARASSMENT		

Special District: MX-8 - MIXED USE-8 (GREENPOINT-WILLIAMSBURG, BK)

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: K1-STORE BUILDING

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	5	0
Violations-DOB	3	0
Violations-OATH/ECB	0	0
Jobs/Filings	21	
ARA / LAA Jobs	0	
Total Jobs	21	
Actions	10	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

- Elevator Records
- Electrical Applications
- Permits In-Process / Issued
- Illuminated Signs Annual Permits
- Plumbing Inspections
- Open Plumbing Jobs / Work Types
- Facades
- Marquee Annual Permits
- Boiler Records
- DEP Boiler Information
- Crane Information
- After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Department of Buildings

C of O PDF Listing for Property

Premises: 134 METROPOLITAN AVENUE BROOKLYN **BIN: 3062436** **Block: 2364** **Lot: 16**

Download the **Adobe Acrobat Reader** if you are unable to open the PDF files

To report a problem with any of these images, please use the **CO Image Problem Form**

CERT 86404-030838:	B000086404.PDF
JOB 321196754:	NO C/Os ISSUED OR NO IMAGE AVAILABLE
JOB 310206577:	310206577.PDF 310206577-01.PDF

Back

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

10A 2095-37-N

DUPLICATE

CITY OF NEW YORK No. [illegible]

OFFICE OF THE PRESIDENT OF THE BOROUGH OF BROOKLYN

DEPARTMENT OF BUILDINGS

DATE March 8, 1938

CERTIFICATE OF OCCUPANCY

(Standard form adopted by the Board of Standards and Appeals July 22, 1932, and issued pursuant to Section 411-a, Greater New York Charter, and Chapter 5, Building Code, Code of Ordinances, City of New York.)

This certificate supersedes all previously issued certificates.

To the owner or owners of the building or premises:

THIS CERTIFIES that the ~~NEW~~ ALTERED—BUILDING—PREMISES

Located at 134 Metropolitan Ave. S/S 150' 9" W/ of Berry St.

Block 2364, Lot 16, conforms substantially to the approved plans and specifications, and to the requirements of the building code and all other laws and ordinances, and of the rules and regulations of the Board of Standards and Appeals, applicable to a building of its class and kind at the time the permit was issued; and CERTIFIES FURTHER that, any provisions of law relating to standpipe and sprinkler equipment have been complied with as certified by a report of the Fire Commissioner to the Commissioner of Buildings.

THIS CERTIFICATE IS ISSUED SUBJECT TO THE LIMITATIONS HEREINAFTER SPECIFIED AND TO THE FOLLOWING RESOLUTIONS OF THE BOARD OF STANDARDS AND APPEALS:

(Calendar numbers to be inserted here)

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOADS LBS. PER SQ. FT.	PERSONS ACCOMMODATED MALE	FEMALE	TOTAL	USE
Cellar					Ordinary use
~~Basement~~					Storage
First	120	2	–	2	Junk Shop
Second					Vacant
Third					Vacant
~~Fourth~~					
Fifth					
Sixth					

Total – Junk Shop – for metals Only. 2nd – 3rd – floors to be vacant.

Permit No. 1056 / 38 Type of Construction Brick

Height 3 stories, – feet. Date of completion, construction 3/2/38

plumbing HP

Located in Unrestricted zone at time of issuance of permit.

(over)

NO CHANGE OF USE OR OCCUPANCY NOT CONSISTENT WITH THIS CERTIFICATE SHALL BE MADE UNLESS FIRST APPROVED BY THE COMMISSIONER OF BUILDINGS.

Unless an approval for the same has been obtained from the Commissioner of Buildings, no change or rearrangement in the structural parts of the building, or affecting the light and ventilation of any part thereof, or in the exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building be moved from one location or position to another; nor shall there be any reduction or diminution of the area of the lot or plot on which the building is located.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

The superimposed, uniformly distributed loads, or concentrated loads producing the same stresses in the construction in any story shall not exceed the live loads specified above; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons in any story exceed the specified total; and the use to which any story may be put shall be restricted to that fixed by this certificate except as specifically stated.

This certificate does not in any way relieve the owner or owners or any other person or persons in possession or control of the building, or any part thereof, from obtaining such other permits, licenses or approvals as may be described by law for the uses or purposes for which the building is designed or intended; nor from obtaining the special certificates required for the use and operation of elevators; nor from the installation of fire alarm systems where required by law; nor from complying with any lawful order for additional fire extinguishing appliances under the discretionary powers of the fire commissioner; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any authorized direction to remove encroachments into a public highway or other public place, whether attached to or part of the building or not.

If this certificate is marked "Temporary," it is applicable only to those parts of the building indicated on its face, and certifies to the legal use and occupancy of only such parts of the building; it is subject to all the provisions and conditions applying to a final or permanent certificate; it is not applicable to any building under the jurisdiction of the tenement house commissioner unless it is also approved and endorsed by him; and it must be replaced by a full certificate at the date of its expiration.

Examined by ______________________

Per ______________________

A. RHEINSTEIN
COMMR. OF HOUSING & BUILDINGS
J. G. J. Moran

Commissioner of Buildings.
Borough of Brooklyn.

Additional copies of this certificate will be issued, upon written request, to persons having an interest in the building or premises.

NYC Buildings

Certificate of Occupancy

CO Number: 310206577F

This certifies that the premises described herein conforms substantially to the approved plans and specifications and to the requirements of all applicable laws, rules and regulations for the uses and occupancies specified. No change of use or occupancy shall be made unless a new Certificate of Occupancy is issued. *This document or a copy shall be available for inspection at the building at all reasonable times.*

A.

Borough: Brooklyn	**Block Number:** 02364	**Certificate Type:** Final
Address: 134 METROPOLITAN AVENUE	**Lot Number(s):** 16	**Effective Date:** 02/03/2011
Building Identification Number (BIN): 3062436	**Building Type:** Altered	

This building is subject to this Building Code: Prior to 1968 Code

For zoning lot metes & bounds, please see BISWeb.

B.

Construction classification:	3	(Prior to 1968 Code designation)
Building Occupancy Group classification:	A-2	(2008 Code)
Multiple Dwelling Law Classification:	None	

No. of stories: 2 **Height in feet:** 18 **No. of dwelling units:** 0

C. Fire Protection Equipment:
None associated with this filing.

D. Type and number of open spaces:
None associated with this filing.

E. This Certificate is issued with the following legal limitations:
None

Borough Comments: None

, R.A.

Borough Commissioner

Commissioner

DOCUMENT CONTINUES ON NEXT PAGE

Buildings

Certificate of Occupancy

CO Number: **310206577F**

Permissible Use and Occupancy

All Building Code occupancy group designations below are 2008 designations.

Floor From	Floor To	Maximum persons permitted	Live load lbs per sq. ft.	Building Code occupancy group	Dwelling or Rooming Units	Zoning use group	Description of use
CEL		10	OG	A-2		12	ACCESSORY STORAGE,MECHANICAL ROOM
MEZ		60	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION.
001	001	218	120	A-2		12	EATING OR DRINKING ESTABLISMENT WITH OUT RESTRICTION.
ROF		55	120	A-2		12	ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTION.

ZONING LOT DESCRIPTION EXHIBIT III FILED WITH THE CITY REGISTER UNDER CRFN# 2009000117239. ZONING LOT CERTIFICATE EXHIBIT I FILE WITH THE CITY REGISTER UNDER CRFN#2009000091758

END OF SECTION

, R.A.

Borough Commissioner

Commissioner

END OF DOCUMENT

Buildings

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NYC Department of Buildings

Actions

Page: 1

Premises: 134 METROPOLITAN AVENUE BROOKLYN		BIN: 3062436 Block: 2364 Lot: 16
NUMBER	**TYPE**	**FILE DATE**
ALT 19417OCCUPANCY-112337	ALTERATION	00/00/1937
ALT 1050-38	ALTERATION	00/00/1938
ALT 989DENIEDINACTIV-040642	ALTERATION	00/00/1942
ALT 1259-90	ALTERATION	08/29/1990
ALTA 1050-38		00/00/1938
CERT 86404-030838 (PDF)	CERTIFICATE OF OCCUPANCY	00/00/1938
NB 152FRONTBLDG-031742	NEW BUILDING	00/00/1942
P&D 962-42	PLUMBING & DRAINAGE	00/00/1942
SPR 1226CBL-62	SPRINKLERS	00/00/1962
SPR 392CBL-65	SPRINKLERS	00/00/1965
V* 4653FRIEDMANREMO-111749	DOB VIOLATION - DISMISSED	00/00/0000
V* 4926/134NEWELL12--110365	DOB VIOLATION - DISMISSED	00/00/0000
V* 071509C0101JV	DOB VIOLATION - DISMISSED	07/15/2009

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

Permits In-Process / Issued by Premises

Premises: 134 METROPOLITAN AVENUE BROOKLYN **BIN: 3062436** **Block: 2364** **Lot: 16**

NUMBER	JOB TYPE	SEQ NO	ISSUED DATE	EXPIRATION DATE	STATUS	APPLICANT NAME
321198066-01-EW OT	A2 - ALT2	01	08/29/2014	12/03/2014	ISSUED	WILLIAMS KERRY
320098504-01-AL	A3 - ALT3	01	06/10/2010	11/23/2010	ISSUED	KACZOR MAREK
320041398-01-PL	A2 - ALT2	01	06/04/2010	06/04/2011	ISSUED	DIAZ DARIO
320041398-01-EW SP	A2 - ALT2	01	12/02/2009	12/02/2010	ISSUED	HUERTAS JORGE
310206577-01-PL	A1 - ALT1	01	06/03/2009	06/03/2010	ISSUED	GOLDER WARREN
310206577-01-AL	A1 - ALT1	02	09/22/2009	07/07/2010	ISSUED	CLARKE JOSCELYN
3P0004861-01-		04	02/04/1994	01/18/1995	ISSUED	CARACCIOLO AL
3PL002153-01-PL PL		01	07/23/1996	03/15/1997	ISSUED	CHUMSKY HAROLD

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

APPENDIX H

NYC E-Designation Records

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	1050	1,6,61,158	
		Window Wall Attenuation & Alternate Ventilation	1050	1,6,61,158	
		Underground Gasoline Storage Tanks* Testing Protocol.	1051	2,31,32,33,35,36, 135,138,7502	
		Window Wall Attenuation & Alternate Ventilation	1051	2,31,32,33,35,36, 135,138,7502	
		Air Quality - HVAC fuel limited to natural gas	1069	1	
		Exhaust stack location limitations	1069	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	1069	1,29,34	
		Window Wall Attenuation & Alternate Ventilation	1069	1,24,29,34,136	
		Underground Gasoline Storage Tanks* Testing Protocol.	1070	1,49,50,54	
		Window Wall Attenuation & Alternate Ventilation	1070	1,49,50,54	
		Underground Gasoline Storage Tanks* Testing Protocol.	1071	23,29,7503	
		Window Wall Attenuation & Alternate Ventilation	1071	23,29,7503	
		Underground Gasoline Storage Tanks* Testing Protocol.	1090	10,23,29,7501	
		Window Wall Attenuation & Alternate Ventilation	1090	10,23,29,36,42, 7501	
E-138 5/11/2005	04DCP003K 050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A)ZRK, 050111 (A)ZMK	Underground Gasoline Storage Tanks* Testing Protocol.	2277	1	
			2287	1,16,30	
			2289	14	
			2290	5,10	
			2291	1,17	
			2292	11,12,13,14,29,33	
			2294	1,5	
			2296	14	
			2297	1,7501	
			2298	13,21,29,31	
			2299	1,9,21	
			2300	1,5,20,26	
			2301	1,50,60,70	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
	12c, 12d, 13a, 13b		2304	10,12,13,14,15,36, 37	
		Window Wall Attenuation & Alternate Ventilation	2304	10,12,13,14	
		Underground Gasoline Storage Tanks* Testing Protocol.	2305	15,16,17,18	
			2306	1,9,11,15,18,27,28, 30	
			2307	1,14,16,19,25,27, 31,33,36,38	
			2309	5,13,15,17,7501	
			2310	9,10,11	
			2312	22,23	
			2313	1,5,7,11,13,22,24, 26,27,28,29,7501	
			2314	1,5	
			2315	14,21	
			2317	1,3,5,6,7,8,12,13, 16,17,18,36	
			2319	31	
			2320	15	
			2321	13,14,25,36,37,38, 7501	
			2322	1,6,10,11,28,30	
			2323	9,10	
			2324	20,30,40,60,7501	
		Window Wall Attenuation & Alternate Ventilation	2324	20,30,40,60,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2325	4,5,11,12,24,25,26, 27,28,29,31,32,103	
			2326	17,19,32,33,34,35	
			2327	2,4,5,16,17,18,19, 31,34	
			2331	7,8,42	
		Exhaust stack location limitations	2332	20,30,40,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2332	20,30,40,7501	
		Window Wall Attenuation & Alternate Ventilation	2332	20,30,40,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2333	1	
			2334	1,3,22,23,28,30,40, 45,50	
			2335	6,10,12,13,14,15	
			2337	20	
			2338	1	
			2339	7	
			2340	1,3,4,9,10,7501	

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** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Window Wall Attenuation & Alternate Ventilation	2340	1,3,4,9,10,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2341	9	
			2342	1,16,23,26	
			2343	5,18,19	
		No operable window or air intakes limitations	2344	26	3/18/2009
		Underground Gasoline Storage Tanks* Testing Protocol.	2344	5,16,26,7501	
			2346	26,30	
		Window Wall Attenuation & Alternate Ventilation	2346	26,30	
		Underground Gasoline Storage Tanks* Testing Protocol.	2349	1,15,18,21	
			2350	2,4,24,26,7501	
			2351	1,28,40	
			2352	20	
			2353	6,8,13,26,28	
			2357	1,4,18,20,21,22,24,25	
			2358	36	9/12/2013
			2358	1,4,6,11,14,15,22,24,25,28,29,31,38	
			2363	2,3,9,20,26,28,36,38	
			2364	15,16,17	
			2366	1	2/18/2016
			2366	16,21,32	
			2367	7,15,27,28	
			2368	1,12,18,19,21,22,26,27,28,31,32,33,34	
			2369	4,6,7,14,19,27,37,38,40	
			2371	21,40,42,48,50	
			2372	1,5,9	
			2374	1,7,27,28,31	
			2375	1,5,10,12,16	
			2378	1,2,3,11,14,21,26,29,32,35,36,40	
			2379	8,9,12,13,16,19,24,27,40,43,44	
		Window Wall Attenuation & Alternate Ventilation	2379	24,27,40,43,44	
		Underground Gasoline Storage Tanks* Testing Protocol.	2381	14	8/1/2013
			2381	1	
		Window Wall Attenuation & Alternate Ventilation	2381	1,14	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2382	28	
		Window Wall Attenuation & Alternate Ventilation	2382	28	
		Underground Gasoline Storage Tanks* Testing Protocol.	2384	8,22,23,24,25	
		Window Wall Attenuation & Alternate Ventilation	2384	22,23,24,25	
		Underground Gasoline Storage Tanks* Testing Protocol.	2386	7,12,14	
			2387	2,6,7,10,12	
			2390	15,16,17	
			2393	14,23,24	
		Window Wall Attenuation & Alternate Ventilation	2393	14,23,24	
		Underground Gasoline Storage Tanks* Testing Protocol.	2399	1,8	
			2404	1,5	
		Window Wall Attenuation & Alternate Ventilation	2404	1,5	
		Underground Gasoline Storage Tanks* Testing Protocol.	2411	1,12	
			2416	7,8,27	
		Window Wall Attenuation & Alternate Ventilation	2416	8,27	
		Underground Gasoline Storage Tanks* Testing Protocol.	2428	28,29,30	
			2441	12,24,38,41,47,107	
			2442	11,21,25	
			2443	6,13,23,29,30,37, 41	
			2444	2,3,4,5,11,28	
			2446	68	
			2472	2,10,20,21,25,30, 35,50,55,60,65,70, 80,90,100,410,475	
		Window Wall Attenuation & Alternate Ventilation	2472	2,10,20,21,25,30, 35,50,55,60,65,70, 80,90,100,410,475	
		Underground Gasoline Storage Tanks* Testing Protocol.	2482	1,4,6,7,8,21,26,39, 53	
			2483	11,12,14,15,17,19, 20,25,45,48,59,60, 61,62	
		Window Wall Attenuation & Alternate Ventilation	2483	11,12,25	
			2487	10,12,17,18,20,21, 72	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2494	1,6	
		Window Wall Attenuation & Alternate Ventilation	2494	1,6	
		Underground Gasoline Storage Tanks* Testing Protocol.	2502	1	
		Window Wall Attenuation & Alternate Ventilation	2502	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2503	1	
			2510	1	
		Window Wall Attenuation & Alternate Ventilation	2510	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2511	11,12,14,31,7501	
		Window Wall Attenuation & Alternate Ventilation	2511	11,14,31,7501	
		Underground Gasoline Storage Tanks* Testing Protocol.	2512	52,54,60	
		Window Wall Attenuation & Alternate Ventilation	2512	60	
		Underground Gasoline Storage Tanks* Testing Protocol.	2520	1,57	
		Window Wall Attenuation & Alternate Ventilation	2520	1,57	
		Underground Gasoline Storage Tanks* Testing Protocol.	2521	1,5,6,7,11,12,13,19,32	
		Window Wall Attenuation & Alternate Ventilation	2521	11	10/23/2008
			2521	5,6,7,12,13	
		Underground Gasoline Storage Tanks* Testing Protocol.	2522	10,16,18,24,31	
			2530	1,55,56	
		Window Wall Attenuation & Alternate Ventilation	2530	1,55,56	
		Underground Gasoline Storage Tanks* Testing Protocol.	2531	1,2,3,9,10,12,20,35,36,110	
		Window Wall Attenuation & Alternate Ventilation	2531	9,10,12,35,36,110	
		Underground Gasoline Storage Tanks* Testing Protocol.	2532	1	

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CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Window Wall Attenuation & Alternate Ventilation	2532	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2538	1	
		Window Wall Attenuation & Alternate Ventilation	2538	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2539	1,8,27,29	
		Window Wall Attenuation & Alternate Ventilation	2539	1,8,27,29	
		Underground Gasoline Storage Tanks* Testing Protocol.	2543	1	
		Window Wall Attenuation & Alternate Ventilation	2543	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2549	1,5,10,14,25,28,36	
		No operable window or air intakes limitations	2556	55,57,58	
		Underground Gasoline Storage Tanks* Testing Protocol.	2556	1,45,46,55,57,58	
		Window Wall Attenuation & Alternate Ventilation	2556	1,45,46,55,57,58	
		No operable window or air intakes limitations	2557	7	
		Underground Gasoline Storage Tanks* Testing Protocol.	2557	1,3,7,24	
			2562	1,10,29,37,39	
			2564	1	
		Window Wall Attenuation & Alternate Ventilation	2564	1	
		Air Quality - HVAC fuel limited to natural gas	2565	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2565	1	
			2567	1	
		Window Wall Attenuation & Alternate Ventilation	2567	1	
		Underground Gasoline Storage Tanks* Testing Protocol.	2568	1	
		Exhaust stack location limitations	2570	36	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Underground Gasoline Storage Tanks* Testing Protocol.	2570	1,36	
		Window Wall Attenuation & Alternate Ventilation	2570	1,36	
		No operable window or air intakes limitations	2571	18	
		Underground Gasoline Storage Tanks* Testing Protocol.	2571	1,9,18	
			2589	5,13	
			2590	1,25,100,210,215,222	
		Window Wall Attenuation & Alternate Ventilation	2590	1,210,215,222	
		No operable window or air intakes limitations	2644	43	
		Underground Gasoline Storage Tanks* Testing Protocol.	2644	43	
			2679	46	
			2697	1,7,16,7501	
			2698	5,7,11,15,25,26,7501	
			2699	9,15,17	
			2701	1,2,50	
			2713	1,7501,7502	
		No operable window or air intakes limitations	2714	13,33	
		Underground Gasoline Storage Tanks* Testing Protocol.	2714	13,30,32,33	
			2719	11,14,31,32,7501,7502	
			2720	9,10,12,19,41,43,44,45,46	
		Exhaust stack location limitations	2721	7502,7503,7504	
		Underground Gasoline Storage Tanks* Testing Protocol.	2721	7501,7502,7503,7504	
			2722	8,10,13,15,16,25,34,36,7501	
		No operable window or air intakes limitations	2723	36	3/18/2009
			2723	29,30,33	
		Underground Gasoline Storage Tanks* Testing Protocol.	2723	1,5,7,29,30,33,36,37,38	
			2724	1,7,10,12,18,30,31,33,34,37	
			2727	1,47	
			2731	1,35,36,38,41,44,45,47	
			2732	5,27,30,33	
			2733	6,7,10	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 – (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
			2734	3,4,5,7,11,13,35,38	
		No operable window or air intakes limitations	2736	20,23	
		Underground Gasoline Storage Tanks* Testing Protocol.	2736	1,9,20,23,48	
			2737	10,11	
			2738	3,5,10,13,15,21,24	
			2741	3,7,8,13,15,19,47	
			2742	2,4,5,9,15,17,20,35	
			2746	39,40,41,42	
E-139 3/23/2005	05DCP023K 050133 ZRK, 050134 ZMK, 050134 ZMK(A) 22a,22b	Air Quality - HVAC fuel limited to natural gas	6053	14,17	
			6065	28,39	
		Underground Gasoline Storage Tanks* Testing Protocol.	6065	28,39	
			6066	19,31,32,35	
		Air Quality - HVAC fuel limited to natural gas	6082	6,13	
		Underground Gasoline Storage Tanks* Testing Protocol.	6082	6,13,14,33	
		Air Quality - HVAC fuel limited to natural gas	6086	1	
		Window Wall Attenuation & Alternate Ventilation	6106	34	
		Underground Gasoline Storage Tanks* Testing Protocol.	6107	1	
		Air Quality - HVAC fuel limited to natural gas	6116	35,39	
		Window Wall Attenuation & Alternate Ventilation	6116	35,39	
			6126	7,12	
E-140 2/2/2005	05DCP029Q 050153 ZMQ 14b,14d	Air Quality - HVAC fuel limited to natural gas	9249	50	
		Underground Gasoline Storage Tanks* Testing Protocol.	9249	50	
		Window Wall Attenuation & Alternate Ventilation	9249	65	
		Underground Gasoline Storage Tanks* Testing Protocol.	9250	45,49,54	
			9252	28	
			9275	57,59,60,61,62,65,162	
			9281	9,11,16,21,44,118	
		Window Wall Attenuation & Alternate Ventilation	9281	9,11,16,21,44,118	
		Air Quality - HVAC fuel limited to natural gas	9282	2	

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** Indicates that a tax lot with multiple development sites is partially remediated.

APPENDIX I

Sanborn Historical Fire Insurance Maps

105
104
DRIGGS
FILLMORE PL.
102
STREET
HERLEY IRON WORKS
St. Michael's Church
CENTRAL STAMPING CO.
TINWARE FAC. 2
BEDFORD
N. FIFTH ST. M.E. CHURCH
BERRY
N. FIFTH
N. FOURTH
N. THIRD
N. SECOND
N. FIRST
GRAND
COLOR PRINTING
Cooperage
Tinware Fac.
RIDGEWOOD
BREWERY
Coal Shed
WYTHE
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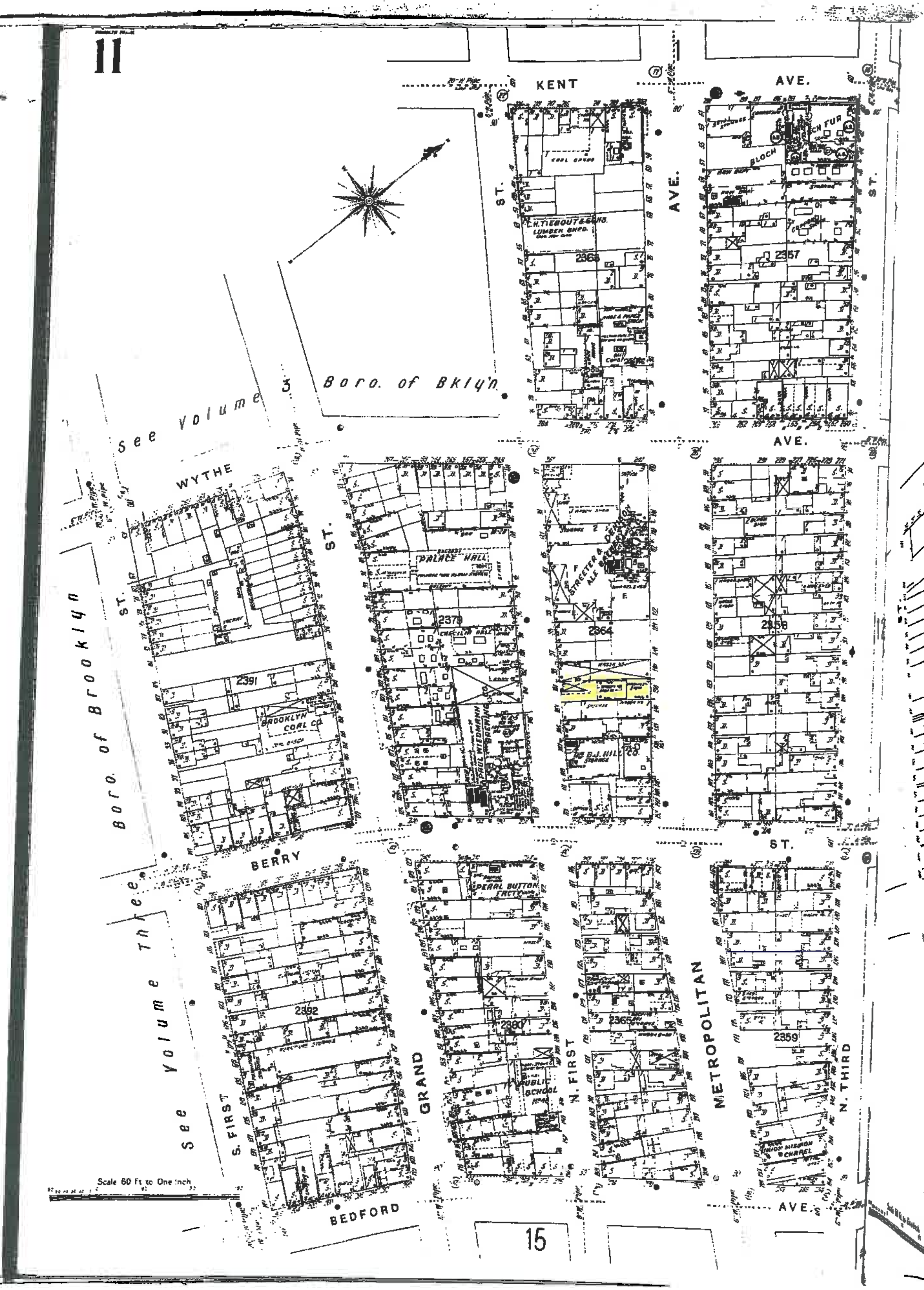
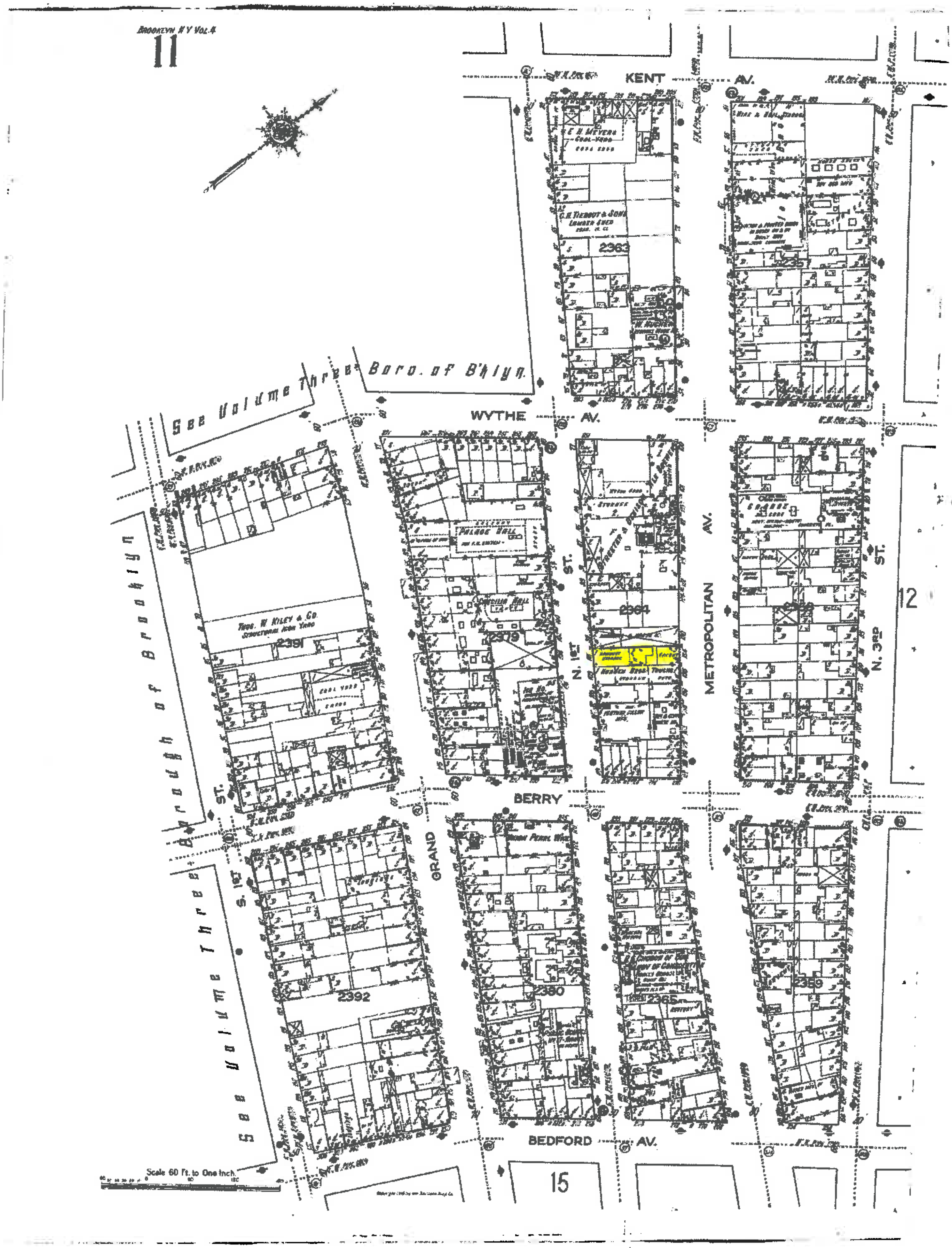
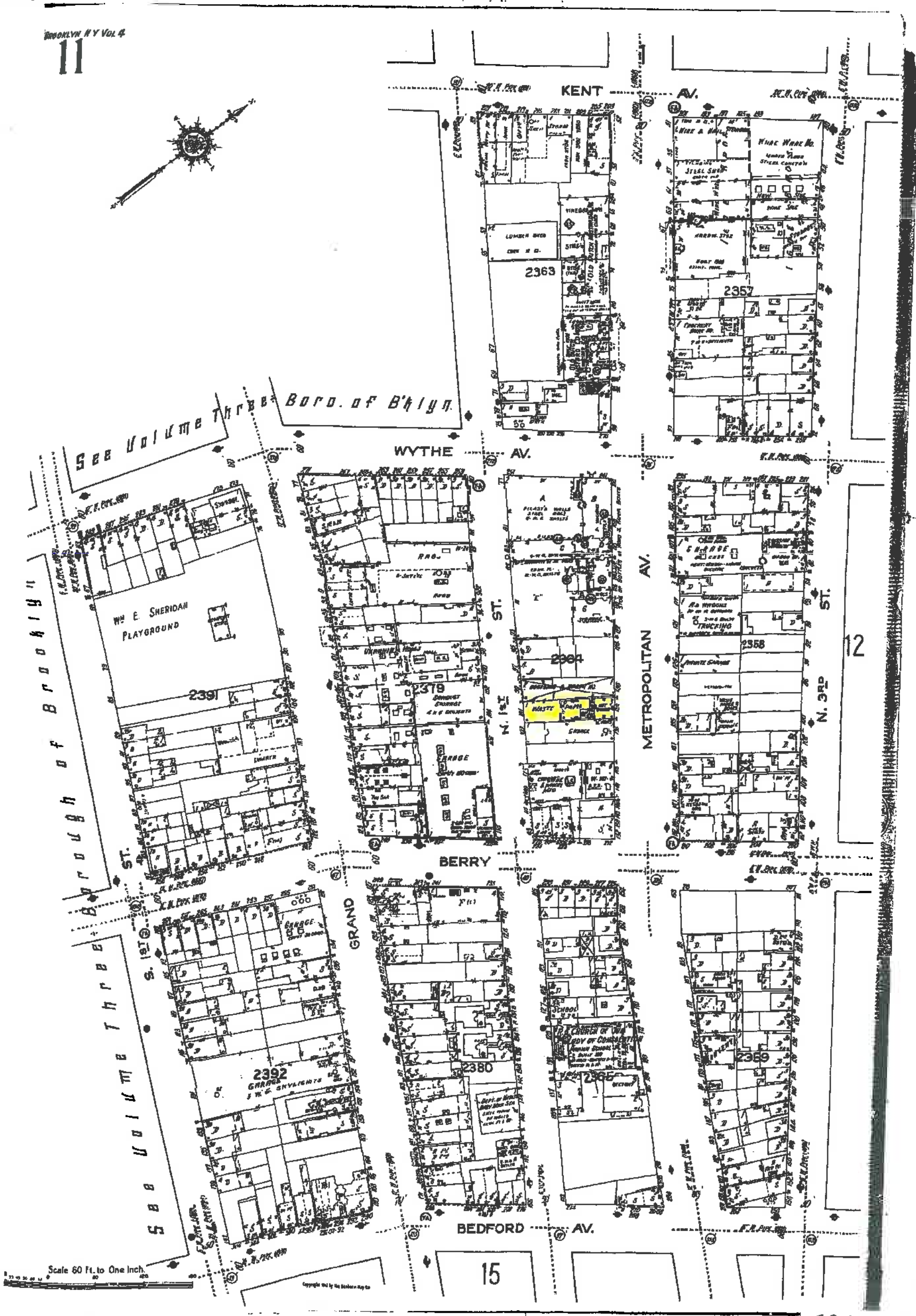
1887


11
KENT
AVE.
WYTHE
AVE.
ST.
BERRY
ST.
BEDFORD
AVE.
S. FIRST
GRAND
N. FIRST
METROPOLITAN
N. THIRD
See Volume 3 Boro. of Bklyn
Boro. of Brooklyn
See Volume Three
H. TIEBOUT & SONS
LUMBER SHED
COAL SHED
BLOCH
2368
2357
PALACE HALL
2379
2364
2356
2391
BROOKLYN COAL CO.
PAUL WIEDMANN BREWING CO.
B.J. HILL CO.
STORAGE
PEARL BUTTON FACTY
2392
2380
2365
2359
PUBLIC SCHOOL
UNION MISSION CHAPEL
Scale 60 Ft to One Inch
15

1905


BROOKLYN N Y VOL. 4
11
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
N. 1ST ST.
METROPOLITAN AV.
N. 3RD ST.
GRAND
S. 1ST ST.
See Volume Three Boro. of B'klyn
Borough of Brooklyn
See Volume Three
E. H. MEYERS COAL YARD
C. H. TIEBOUT & SONS LUMBER SHED
THOS. W. KILEY & CO. STRUCTURAL IRON YARD
PALACE HALL
COAL YARD
2363
2357
2364
2379
2391
2392
2380
2365
2359
12
15
Scale 60 Ft. to One Inch

1916



Brooklyn N Y Vol 4
11
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
METROPOLITAN AV.
N. 1st ST.
N. 3RD ST.
GRAND
S. 1st ST.
See Volume Three Boro. of B'klyn
See Volume Three Borough of Brooklyn
Wm. E. Sheridan Playground
2363
2357
2391
2379
2364
2358
2392
2380
2365
2359
12
15
Lumber Shed
Garage
Scale 60 Ft. to One Inch

1942


BROOKLYN, N.Y. VOL. 9
11
"R"
JAN. 1947
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
GRAND
S. 1ST ST.
N. 1ST ST.
N. 3RD ST.
METROPOLITAN AV.
VOLUME THREE
THREE
2363
2357
2379
2364
2358
2391
W. E. SHERIDAN PLAYGROUND
2392
2380
2359
STEEL STGE.
WIRE & NAIL STGE.
HARDW. STGE.
VINEGAR MFG.
LBR. STGE.
OLD DUTCH MUSTARD CO. INC.
MUSTARD & MAYONNAISE MFG.
AUTO PARTS RE-BUILDING WOOD VENEER STGE.
PLATING
POLISHING
IMPERIAL
SAWDUST STGE.
PRIV. GARAGE
PRIVATE GARAGE
BABY CARRIAGE MFG.
PARKING
METAL PROD'S MFG.
CLUB
PAPER W.HO.
SCHOOL
CHURCH OF OUR LADY OF CONSOLATION
DEPT. OF HEALTH STA.
APTS.
12
15

1951

BROOKLYN, N.Y. VOL 4
11
"R"
JAN. 1947
KENT AV.
WYTHE AV.
BERRY
BEDFORD AV.
METROPOLITAN AV.
GRAND
N 1ST ST
N. 3RD ST.
S. 1ST
VOLUME THREE
2363
2357
2379
2364
2356
2391
2392
2380
2365
2359
12
W. E. SHERIDAN PLAYGROUND
PLASTIC STGE
VINEGAR MFG.
LBR STGE
PAPER BOX MFG.
AUTO PARTS RE-BUILDING
PLATING
POLISHING
IMPERIAL PLATING CO.
STEEL STGE & SHEARING
PRIV. PARKG
PRIV. GARAGE
CHURCH OF OUR LADY OF CONSOLATION R.C. SCHOOL
DEPT. OF HEALTH STA.
METAL PROD'S MFG.
1965

Brooklyn, N.Y. Vol. 4
11
"R"
JAN. 1947

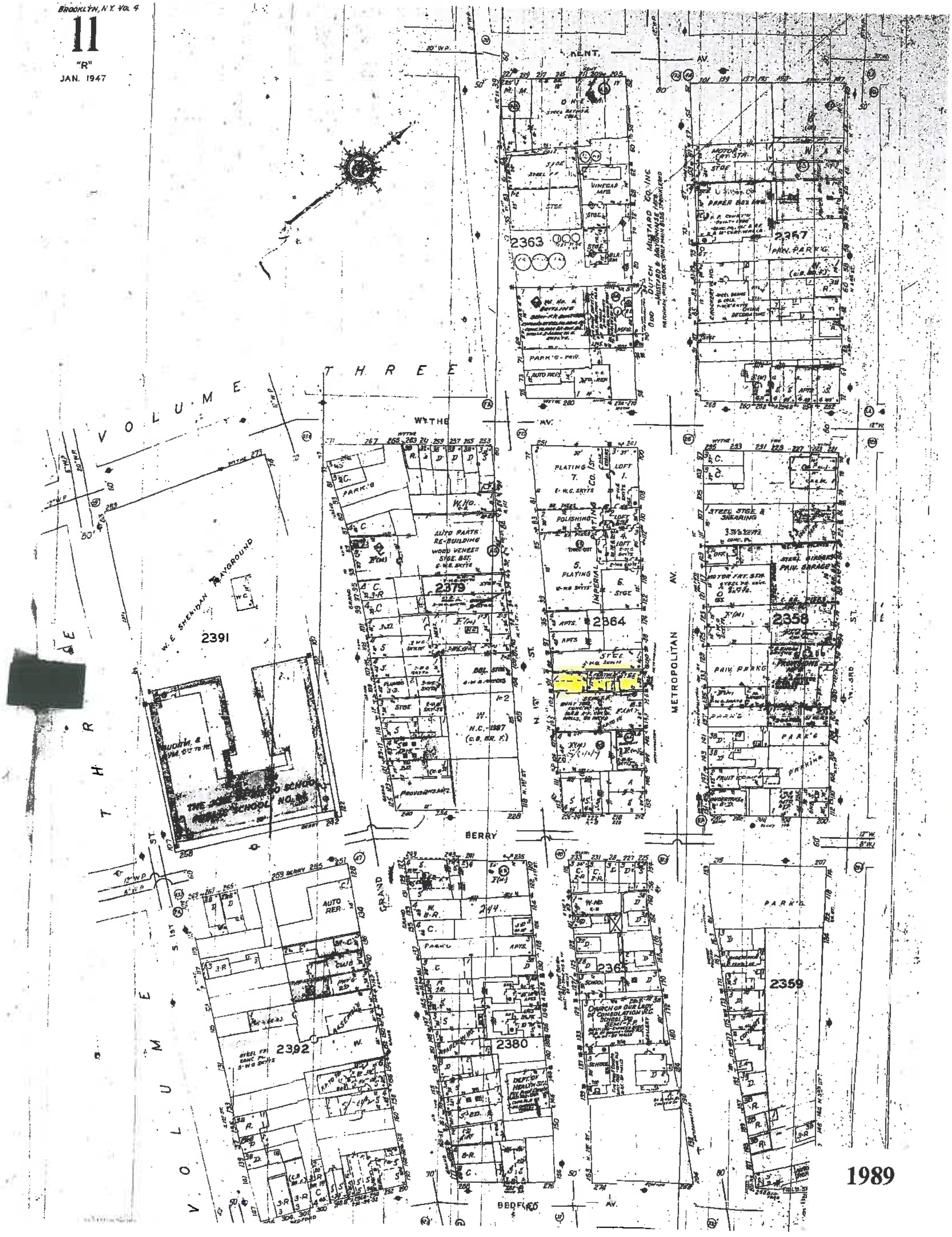
1979

BROOKLYN, N.Y. VOL. 4

11

"R"

JAN. 1947



1989

APPENDIX J

Proposed Architectural Drawings

134 METROPOLITAN AVENUE, BROOKLYN

VERTICAL EXTENSION OF 1-STORY BUILDING

ARCHITECTURAL DRAWING LIST

OTHER WORK APPLICATIONS

1. MECHANICAL, PLUMBING & STRUCTURAL FILED UNDER SEPARATE APPLICATIONS

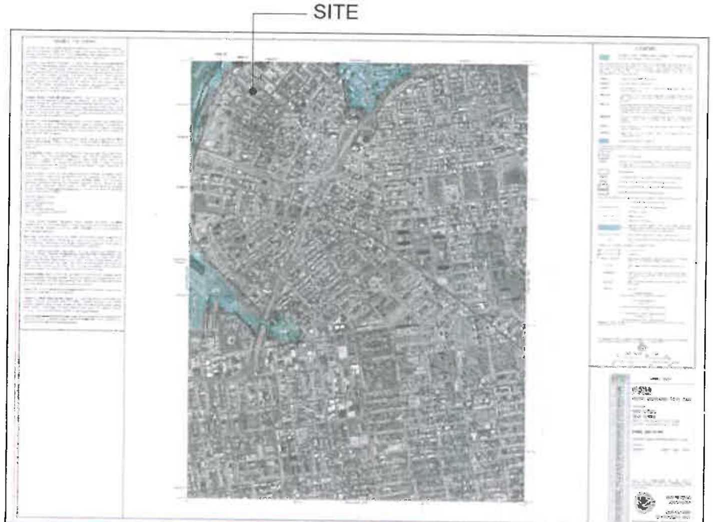
SCOPE OF WORK

3 STORY VERTICAL EXTENSION OF EXISTING 1 STORY BUILDING. OBTAIN NEW CERTIFICATE OF OCCUPANCY.

EXISTING AERIAL PHOTO OF THE SITE

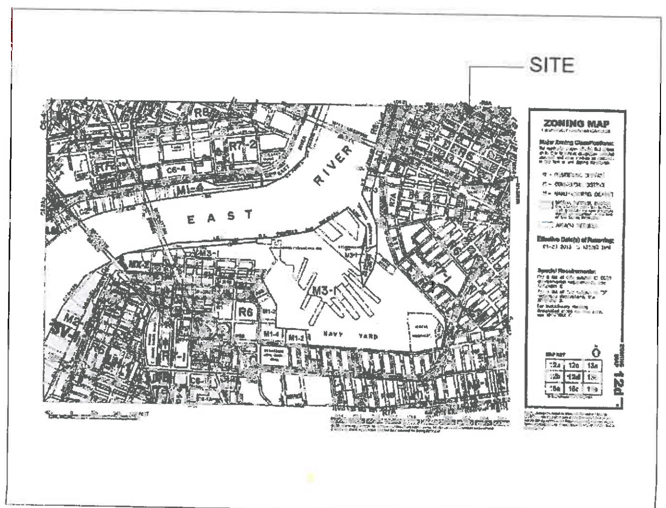
EXISTING METROPOLITAN AVENUE PHOTOGRAPH

SITE



FLOOD MAP

SITE



NYC ZONING MAP 12D

No:	Description:	Date:

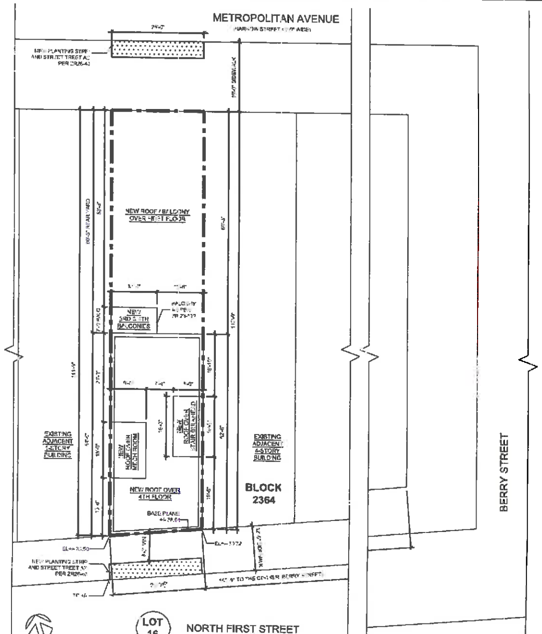
Versatile Engineering P.C.
240-02 66TH AVE. DOUGLASTON, NY 11362-1925
Tel.(917) 873-0602 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

PHOTOS, MAPS DRAWING INDEX & NOTES

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-000
CAD FILE No:	1 OF 17



SITE PLAN
1/16" = 1'-0"

EXISTING BUILDING CHARACTERISTICS

PROPERTY ADDRESS:	134 METROPOLITAN AVENUE AKA 101 NORTH 1ST STREET
BOROUGH:	BROOKLYN
BLOCK NUMBER:	2364
LOT NUMBER:	16
ZONING MAP NUMBER:	12C
ZONING DISTRICT:	MX-8; GW MIXED USE-8 GREENPOINT-WILLIAMSBURG M1-2/R6A; LIGHT MANUFACTURING DISTRICT
EXISTING BUILDING HEIGHT:	23'-0" 2 STORIES & CELLAR
CONSTRUCTION CLASS:	3 NON-FIREPROOF BUILDING
SITE SURVEY DATED:	02-28-2016

SPECIAL INSPECTIONS

1. FIRE-RESISTANT PENETRATIONS AND JOINTS________ BC1704.27
2. FIRE-RESTANCE RATED CONSTRUCTION________ BC110.34.
3. ENERGY CODE COMPLIANCE INSPECTIONS________ BC109.3.5

REQUIRED ITEMS

1. ANTI-HARASSMENT AREA CHECKLIST

OTHER DOB NOTES

1. TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.
2. THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD ZONE.

A. USE REGULATIONS AS PER ZR 22-12, 42-00 & 123-00
EXISTING USE AS PER CERTIFICATE OF OCCUPANCY #310206577F

EXISTING CELLAR: UG 12; ACCESSORY STORAGE, MECHANICAL ROOM - NO CHANGE
EXISTING FIRST FLOOR: UG 12; EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTIONS - NO CHANGE
EXISTING FIRST FLOOR MEZZ: ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTIONS - NO CHANGE
EXISTING ROOF: ACCESSORY EATING OR DRINKING ESTABLISHMENT WITHOUT RESTRICTIONS - NO CHANGE

PROPOSED 2ND FLOOR: UG 2; CLASS "A" APARTMENT
PROPOSED 3RD FLOOR: UG 2; CLASS "A" APARTMENT
PROPOSED 4TH FLOOR: UG 2; CLASS "A" APARTMENT

B. BULK REGULATIONS

ZONING FLOOR AREA CHART

FLOOR	GROSS EX. FA COMMERCIAL	PROPOSED GROSS FA COMMERCIAL	PROPOSED GROSS FA RESIDENTIAL	PROPOSED FA DEDUCTIONS	TOTAL ZONING FLOOR AREA
CELLAR	N/A	N/A	N/A	N/A	N/A
FIRST	2,827.5 SF	2,692.5 SF	135.5 SF	———	2,827.5 SF
1ST FL MEZZ.	687.1 SF	687.1 SF	———	———	687.1 SF
SECOND	———	———	1,227.5 SF	78.5 SF	1,161.0 SF
THIRD	———	———	1,227.5 SF	66.5 SF	1,161.0 SF
FOURTH	———	———	1,227.5 SF	66.5 SF	1,161.0 SF
TOTALS	3,514.6 SF	3,379.6 SF	3,818.0 SF	211.5 SF	6,997.6 SF

LOT SIZE & WIDTH & COVERAGE
25'-0" WIDE LIGHT
25'-0" X ((114'- 6" + 112'-9")/2) = 2,827.5 S.F.
EXISTING FIRST FLOOR LOT COVERAGE = 100% - NO CHANG

MAXIMUM PERMITTED COMMERCIAL FLOOR AREA RATIO FOR R6A DISTRICT AS PER ZR 23-145
FAR = 2.0

MAXIMUM PERMITTED COMMERCIAL FLOOR AREA
2,827.0 S.F. (LOT SIZE) X 2.0 = 5,654.0Z.S.F.

COMMERCIAL FLOOR AREA CALCULATIONS
EXISTING COMMERCIAL FLOOR AREA = 3,514.6 Z.S.F. - NO CHANGE
TOTAL PERMITTED COMMERCIAL FLOOR AREA = 5,654.0 Z.S.F.
EXISTING 3,514.6 Z.S.F. < PERMITTED 5,654.0 Z.S.F.
THEREFOR PROPOSED COMMERCIAL ZONING FLOOR AREAS COMPLIES

ZONING ANALYSIS AS PER 23-00, 28-00 & 43-00 (AS APPLICABLE)
ZONING DISTRICT : MX-8; GW MIXED USE-8 GREENPOINT-WILLIAMSBURGM1-2/R6A; LIGHT MANUFACTURING DISTRICT

MAXIMUM PERMITTED RESIDENTIAL FLOOR AREA RATIO FOR R6A DISTRICT AS PER ZR 23-145
FAR = 2.7

MAXIMUM PERMITTED RESIDENTIAL FLOOR AREA
2,827.0 S.F. (LOT SIZE) X 2.7 = 7,632.9 Z.S.F.

RESIDENTIAL FLOOR AREA CALCULATIONS
EXISTING RESIDENTIAL FLOOR AREA = 0 Z.S.F.
PROPOSED 2ND, 3RD & 4TH FLOOR RESIDENTIAL FLOOR AREA = ((54'- 6" + 52'-6")/2) X 25'-0" = 1,227.5 Z.S.F. EACH FLOOR
PROPOSED TOTAL RESIDENTIAL FLOOR AREA = 3,818.0 Z.S.F.
TOTAL PERMITTED RESIDENTIAL FLOOR AREA = 7,632.9 Z.S.F.
PROPOSED 3,818.0 Z.S.F. < PERMITTED 7,632.9 Z.S.F.
THEREFOR PROPOSED RESIDENTIAL ZONING FLOOR AREAS COMPLIES

RESIDENTIAL LOT COVERAGE AS PER ZR 23-145
MORE THAN 100 FEET FROM THE CORNER
MAXIMUM PERMITTED LOT COVERAGE = 65%
EXISTING LOT COVERAGE FIRST FLOOR = 100% - NO CHANGE
PROPOSED LOT COVERAGE FOR SECOND, THIRD AND FOURTH FLOORS = ((54'- 6" + 52'-6")/2) X 25'-0" = 1,227.5 S.F. EACH
LOT COVERAGE 1,227.5 S.F. / LOT SIZE 2,827.5 S.F. = 43% LOT COVERAGE
PROPOSED 43% < PERMITTED 65%
THEREFOR PROPOSED LOT COVERAGE COMPLIES

LOT COVERAGE AS PER ZR 123-64(b)
LOT COVERAGE REQUIREMENTS SHALL NOT APPLY TO ANY PORTION OF A MIXED USE BUILDING IN A SPECIAL MIXED USED DISTRICT

MAXIMUM DWELLING UNITS AS PER ZR 23-22
DENSITY FACTOR FOR DWELLING UNITS = 680 UNITS
MAXIMUM DWELLING UNITS = MAXIMUM FLOOR AREA 7,632.9 S.F. / 680 = 11
PROPOSED DWELLING UNITS = 3
3 PROPOSED < 11 PERMITTED
THEREFOR PROPOSED UNITS COMPLY

MINIMUM LOT COVERAGE AS PER ZR 23-32
MINIMUM LOT AREA = 1,700 S.F. ZERO LOT LINE BUILDINGS
EXISTING LOT AREA = 2,827.5 S.F.
EXISTING 2,827.5 S.F. > PERMITTED 1,700 S.F.
THEREFOR MINIMUM LOT COVERAGE COMPLIES

C. BULK REGULATIONS

MINIMUM REQUIRED FRONT YARDS AS PER ZR 23-45 & 43-25
NO FRONT YARDS ARE REQUIRED

MINIMUM REQUIRED SIDE YARDS AS PER ZR 23-462(c) & 43-25
NO SIDE YARD IS REQUIRED

MINIMUM REQUIRED REAR YARD AND REAR YARD EQUIVALENTS AS PER ZR 23-532(S)
OPEN AREA WITH A MINIMUM DEPTH OF 60'-0" MIDWAY (OR WITHIN FIVE FEET) BETWEEN THE TWO STREET LINES UPON WHICH THROUGH LOT FRONTS
PROPOSED REAR YARD = 60'-6"
PROPOSED 60'-6" > MINIMUM 60'-0"
THEREFOR PROPOSED UNITS COMPLIES

C. BULK REGULATIONS (CONTINUED)

MINIMUM REQUIRED REAR YARD AND REAR YARD AS PER ZR 43-23
NO REAR YARD REQUIRED IF THE HEIGHT OF THE BUILDING'S FIRST FLOOR IS NOT HIGHER THAN 23'-0"
EXISTING NORTH FIRST STREET FIRST FLOOR = 21.08 FEET -COMPLIES NO CHANGE
EXISTING METROPOLITAN AVENUE FIRST FLOOR = 27.60 FEET - EXISTING NON-COMPLIANCE NO CHANGE

HEIGHT AND SETBACKS AS PER ZR 23-632 & 23-633 (QUALITY HOUSING)
EXISTING BUILDING IS ON A NARROW STREET
MINIMUM REQUIRED BASE HEIGHT = 40'-O"
PROPOSED BASE HEIGHT = 55'-0"
PROPOSED BASE HEIGHT 55'-0" > MINIMUM BASE HEIGHT 40'-0"
MAXIMUM BASE HEIGHT = 60'-0"
PROPOSED BASE HEIGHT 55'-0" < MAXIMUM BASE HEIGHT 60'-0"
MAXIMUM BUILDING HEIGHT = 70'-0"
PROPOSED BUILDING HEIGHT = 55'-0"
PROPOSED BUILDING HEIGHT 55'-0" < MAXIMUM BUILDING HEIGHT 70'-0"
ALL COMPLY

STREET TREE PLANTING AS PER ZR 26-41 & 28-12
PROVIDE ONE STREET TREE PER 25'-0" OF FRONTAGE
STREET TREE FRONTAGE:
NORTH FIRST STREET = 25.06' WIDE; THEREFOR 1 STREET TREE (25.6/25) MUST BE PLANTED.
METROPOLITAN AVENUE = 25' WIDE; THEREFOR 1 STREET TREE (25/25) MUST BE PLANTED.

PLANTING STRIP SHALL BE PROVIDED FOR ANY TREE REQUIREMENT FROM ZR 26-40, AND SHALL BE LOCATED ALONG AND EXTENDED ALONG THE ENTIRE LENGTH OF THE STREET CURB ON NORTH FIRST STREET AND METROPOLITAN AVENUE.

D. QUALITY HOUSING REGULATIONS

ALLOWABLE SIZE PER DWELLING UNITS AS PER ZR 28-21
MINIMUM FLOOR AREA PER DWELLING UNIT = 400 S.F.
SMALLEST PROPOSED DWELLING UNIT = 1,278 S.F.
PROPOSED FLOOR AREA 1,278 S.F. > 400 S.F.ALLOWABLE FLOOR AREA
THEREFOR IT COMPLIES

WINDOWS AS PER 28-22
ALL WINDOWS SHALL BE DOUBLE-GLAZED IN ANY RESIDENTIAL PORTIONS.

REFUSE STRORAGE AS PER ZR 28-23
ALL DEVELOPMENTS OR CONVERSIONS WITH NINE OR MORE DWELLING UNITS SHALL COM;Y WITH THE PROVISIONS OF THIS SECTION.
3 DWELLING UNITS ARE PROPOSED
3 DWELLING UNITS < 9 DWELLING UNITS
THEREFOR THIS DOES NOT APPLY

LAUNDRY FACILITES AS PER ZR 28-24
ONE WASHING MACHINE PER 20 DWELLING UNITS SHALL COMPLY WITH THE PROVISIONS OF THIS SECTION.
3 DWELLING UNITS ARE PROPOSED
3 DWELLING UNITS < 20 DWELLING UNITS
THEREFOR THIS DOES NOT APPLY

DAYLIGHT IN CORRIDORS AS PER ZR 28-25
NOT USED

PLANTING AREAS AS PER ZR 28-33
NO AREAS OF OR SPACE BETWEEN STREET WALL AND STREET LINE
THEREFOR NO PLANTING AREAS WILL BE PROVIDED

DENISTY PER CORRIDOR AS PER ZR 28-25
DOES NOT APPLY

PARKING AS PER ZR 28-41
PARKING SPACES SHALL BE PROVIDED AT A MINIMUM OF 50% OF UNITS
NUMBER OF DWELLING UNITS = 3
REQUIRED PARKING SPACES =1.5

PARKING AS PER ZR 28-50, 25-261 & 25-266
MAXIMUM PARKING SPACES THAT CAN BE WAIVED = 5 IN R6A DISTRICT
REQUIRED PARKING SPACES 3 < WAIVED SPACES 5
THEREFOR NO PARKING SPACES ARE REQUIRED

TENANT SAFETY NOTES AS PER ZR 28-104.8.4

1. EGRESS.
AT ALL TIMES IN THE COURSE OF CONSTRUCTION PROVISION SHALL BE MADE FOR ADEQUATE EGRESS AS REQUIRED BY THIS CODE AND THE TENANT PROTECTION PLAN SHALL IDENTIFY THE EGRESS THAT WILL BE PROVIDED. REQUIRED EGRESS SHALL NOT BE OBSTRUCTED AT ANY TIME EXCEPT WHERE APPROVED BY THE COMMISSIONER.

2. FIRE SAFETY. ALL NECESSARY LAWS AND CONTROLS, INCLUDING THOSE WITH RESPECT TO OCCUPIED DWELLINGS, AS WELL AS ADDITIONAL SAFETY MEASURES NECESSITATED BY THE CONSTRUCTION SHALL BE STRICTLY OBSERVED.

3. HEALTH REQUIREMENTS. SPECIFICATION OF METHODS TO BE USED FOR CONTROL OF DUST, DISPOSAL OF CONSTRUCTION DEBRIS, PEST CONTROL AND MAINTENANCE OF SANITARY FACILITIES AND LIMITATION OF NOISE TO ACCEPTABLE LEVELS SHALL BE INCLUDED.

3.1. THERE SHALL BE INCLUDED A STATEMENT OF COMPLIANCE WITH APPLICABLE PROVISIONS OF LAW RELATING TO LEAD AND ASBESTOS.

4. COMPLIANCE WITH HOUSING STANDARDS.THE REQUIREMENTS OF THE NEW YORK CITY HOUSING MAINTENANCE CODE , AND, WHERE APPLICABLE, THE NEW YORK STATE MULTIPLE DWELLING LAW SHALL BE STRICTLY OBSERVED.

5. STRUCTURAL SAFETY. NO STRUCTURAL WORK SHALL BE DONE THAT MAY ENDANGER THE OCCUPANTS.

6. NOISE RESTRICTIONS WHERE HOURS OF THE DAY OR THE DAYS OF THE WEEK IN WHICH CONSTRUCTION WORK MAY BE UNDERTAKEN ARE LIMITED PURSUANT TO THE NEW YORK CITY NOISE CONTROL CODE, SUCH LIMITATIONS SHALL BE STATED.

CO & SMOKE DETECTOR NOTES

1. SMOKE DETECTION DEVICES SHALL BE OF A TYPE APPROVED BY THE BOARD OF STANDARDS AND APPEALS, UNDERWRITERS' LABORATORIES, INC. OR AN ACCEPTED ENTITY PURSUANT TO THE RULES AND REGULATIONS PROMULGATED BY THE COMMISSIONER.
2. SMOKE DETECTORS MUST EITHER BE THE IONIZATION CHAMBER OR PHOTOELECTRIC CELL TYPE AND COMPLY WITH RS 17-11 AND BE INSTALLED IN A MANNER CONSISTENT WITH RS 17-12.
3. SMOKE DETECTORS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING, THERE SHALL BE NO SWITCHES IN THE CIRCUIT OTHER THAN THE OVER-CURRENT DEVICE PROTECTING THE BRANCH CIRCUIT.
4. SMOKE DETECTORS SHALL BE INSTALLED OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS AND IN THE CELLAR.
5. EACH SMOKE DETECTOR SHALL HAVE AN INTEGRAL TEST MEANS.
6. MOUNT SMOKE DETECTORS ON OR NEAR THE CEILING AND WITHIN 15' OF ALL SLEEPING ROOMS & INSIDE SLEEPING ROOMS.
7. IF CEILING-MOUNTED, THE CLOSEST EDGE OF THE DEVICE SHALL BEA MINIMUM OF 4' FROM ALL WALLS. IF WALL-MOUNTED, THE CLOSEST EDGE OF THE DEVICE SHALL BE A MINIMUM OF 12' AND A MAXIMUM OF 4' FROM THE CEILING.
8. HARDWIRED CARBON MONOXIDE DETECTORS SHALL COMPLY WITH BC 907 AND INSTALLED IN ACCORDANCE WITH BC 907. IT SHALL BE PROVIDED IN EVERY DWELLING UNIT WITHIN FIFTEEN FEET OF THE PRIMARY ENTRANCE OF EACH BEDROOM.

DRAWING LEGEND

ILLUMINATED EXIT SIGN WITH EMERGENCY LIGHTS
EXISTING 3-HOUR FIRE-RATED WALL
EXISTING RATED WALL
EXISTING WALL TO BE DEMOLISHED
NEW 2-HOUR FIRE-RATED WALL
NEW 3-HOUR FIRE-RATED WALL
NEW NON-RATED PARTITION
X WALL TYPE

X MECHANICAL DEDUCTION TAG
CO/SD COMBINATION HARD-WIRED CARBON MONOXIDE AND SMOKE DETECTOR (TO COMPLY WITH RS 17-13 AND INSTALLED IN ACCORDANCE WITH RS 17-14).
X DOOR TYPE
REVISION NUMBER
(N) NEW
(E) EXISTING
FPSC FIREPROOF, SELF-CLOSING

No:	Description:	Date:

Versatile Engineering P.C.
240-02 66TH AVE. DOUGLASTON, NY 11362-1925
Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

PLOT PLAN, NOTES AND ZONING ANALYSIS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-001
CAD FILE No:	2 OF 17

GENERAL CONDITIONS

1. THE "ARCHITECT" REFERRED TO THROUGHOUT THE GENERAL NOTES SHALL MEAN VERSATILE ENGINEERING. THE "OWNER" SHALL MEAN ____________________.

2. THE GENERAL CONTRACTOR AND/OR BUILDING CONTRACTOR IS TO PROVIDE EVERYTHING NECESSARY FOR THE COMPLETION OF THE WORK SHOWN IN ALL DRAWINGS. WITH THE EXCEPTION OF THOSE ITEMS INDICATED "BY OTHERS". IN ALL CASES, THE CONTRACTOR IS TO COORDINATE HIS WORK WITH THE VARIOUS "BY OTHERS", WHICH WILL MEAN CONTRACTORS UNLESS SPECIFICALLY INSTRUCTED OTHERWISE.

3. THE CONTRACTOR WILL BE FURNISHED FREE OF CHARGE, ONE SEPIA TRANSPARENCY AND ONE SET OF BLACK AND WHITE PRINTS OF THE DRAWINGS AND SPECIFICATIONS FOR THE EXECUTION OF THE WORK, IF REQUESTED IN WRITING. ADDITIONAL COPIES WILL BE PROVIDED AT REPRODUCTION AND HANDLING COST.

4. THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONTRACT DOCUMENTS AND SHALL AT ONCE REPORT TO THE ARCHITECT ANY ERROR, INCONSISTENCY OR OMISSION THAT HE MAY DISCOVER. THE CONTRACTOR SHALL BE LIABLE TO THE OWNER AND THE ARCHITECT FOR ANY DAMAGE RESULTING FROM ANY SUCH ERRORS, INCONSISTENCIES, OR OMISSIONS IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL DO NO WORK WITHOUT DRAWINGS, SPECIFICATIONS, OR MODIFICATIONS. THE DRAWINGS AND SPECIFICATIONS RELATIVE TO EXISTING CONSTRUCTION SHOW CONDITIONS AS THEY ARE BELIEVED TO EXIST, BUT IT IS NOT INTENDED OR TO BE INFERRED THAT THE CONDITIONS SHOWN ON THE DRAWINGS CONSTITUTE A REPRESENTATION BY OWNER OF SUCH CONDITIONS.

5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
LAYING OUT THE WORK: THE CONTRACTOR SHALL VERIFY THE LAYOUT OF THE WORK, AND ALL RELATED WORK, AND SHALL PROVIDE FOR HIMSELF AND FOR ALL SUB-CONTRACTORS AND SEPARATE CONTRACTORS THE NECESSARY LINES, LEVELS, MEASUREMENTS, AND LOCATIONS, AND SHALL ASSUME COMPLETE RESPONSIBILITY FOR THEIR CORRECTNESS. EXTRA CHARGES OR COMPENSATION WILL NOT BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL MEASUREMENTS AND THE DIMENSIONS SHOWN ON THE DRAWINGS, BUT ANY SUCH DIFFERENCES THAT MAY BE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR ADJUSTMENT BEFORE PROCEEDING WITH WORK.
SUPERINTENDENCE: THE CONTRACTOR SHALL PROVIDE A FULLY QUALIFIED AND ADEQUATE FIELD STAFF, INCLUDING AN APPROVED PROJECT PROJECT SUPERINTENDENT AND ADMINISTRATOR AND OTHER PERSONNEL REQUIRED IN ORDER TO ASSURE COMPLETE AND COMPREHENSIVE SUPERVISION, ADMINISTRATION AND COORDINATION OF ALL WORK. SUCH SUPERINTENDENCE OF WORK BY THE PROJECT SUPERINTENDENT OR A DESIGNATED MEMBER OF HIS STAFF IN HIS ABSENCE SHALL BE CONTINUOUS AT ALL TIMES WHEN WORK OF ANY KIND IS IN PROGRESS.

6. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL PROVIDE AND PAY FOR ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY. WATER, HEAT, UTILITIES, TRANSPORTATION AND OTHER FACILITIES AND SERVICES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

7. THE CONTRACTOR SHALL AT ALL TIMES ENFORCE STRICT DISCIPLINE AND GOOD ORDER AMONG HIS EMPLOYEES, AND SHALL NOT EMPLOY ANY UNFIT PERSON OR ANYONE NOT SKILLED IN HIS ASSIGNED TASK.

8. CONTRACTOR WARRANTS TO THE OWNER AND THE ARCHITECT THAT ALL MATERIAL AND EQUIPMENT FURNISHED UNDER THIS CONTRACT WILL BE NEW UNLESS OTHERWISE SPECIFIED, AND THAT ALL WORK WILL BE COMPLETED IN GOOD, CAREFUL AND WORKMAN LIKE MANNER, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND WILL BE OF FIRST-CLASS QUALITY, FREE FROM FAULTS AND DEFECTS. ALL WORK NOT CONFORMING TO THESE STANDARDS WILL BE CONSIDERED DEFECTIVE. CONTRACTOR AGREES THAT HE WILL REPLACE OR REPAIR ANY DEFECTIVE WORK, OR WORK THAT IS OTHER THAN SPECIFIED, OR DOES NOT PERFORM THE FUNCTION FOR WHICH IT WAS DESIGNED, AND WILL REIMBURSE THE OWNER FOR ANY EXPENSE IN CONNECTION WITH ANY DAMAGE DONE TO ANY PROPERTY BY REASON OF ANY OF SAID CAUSES, OR BY REASON OF THE REMOVAL AND REPLACEMENT OF WORK DONE BY CONTRACTOR, SUBCONTRACTORS, OR SUB-CONTRACTORS.

10. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES AND LICENCES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK WHICH ARE APPLICABLE AT THE TIME THE BIDS ARE RECEIVED.

11. THE CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR CONTROLLED INSPECTION OF MATERIALS AND CONSTRUCTION METHODS IN ACCORDANCE WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE NEW YORK CITY BUILDING DEPARTMENT AND OTHER AUTHORITIES HAVING JURISDICTION. THIS SHALL INCLUDE, BUT NOT LIMITED TO, CONTROLLED INSPECTION OF CONTRACTORS PERMITS; FILING AND APPROVAL OF MISCELLANEOUS APPLICATIONS; HEALTH DEPARTMENT APPROVALS; FIRE DEPARTMENT APPROVALS; CONSTRUCTION SIGH-OFF AND RELATED FIELD INSPECTIONS; SECURING OF AMENDED CERTIFICATE OF OCCUPANCY, ETC.

12. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER FOR THE ACTS AND OMISSIONS OF ALL OF HIS EMPLOYEES AND ALL SUBCONTRACTORS, THEIR AGENTS AND EMPLOYEES AND ALL OTHER PERSONS PERFORMING ANY OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR.

13. THE CONTRACTOR, IMMEDIATELY AFTER BEING AWARDED THE CONTRACT, SHALL PREPARE AND SUBMIT FOR THE ARCHITECT'S APPROVAL AN ESTIMATED PROGRESS SCHEDULE FOR THE WORK. THE PROGRESS SCHEDULE SHALL BE RELATED TO THE ENTIRE PROJECT TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, THIS SCHEDULE SHALL INDICATE THE DATES FOR THE START AND COMPLETION OF THE VARIOUS STAGES OF CONSTRUCTION, AND SHALL BE REVISED AS REQUIRED BY THE CONDITIONS OF THE WORK, SUBJECT TO THE ARCHITECT'S APPROVAL.

14. THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP DRAWINGS, CHANGE ORDERS, AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE WORK.

15. THE CONTRACTOR SHALL REVIEW, STAMP WITH HIS APPROVAL AND SUBMIT, WITH REASONABLE PROMPTNESS AND IN ORDERLY SEQUENCE SO AS TO AVOID DELAY IN THE WORK OR IN THE WORK OF ANY OTHER CONTRACTOR, ALL SHOP DRAWINGS AND SAMPLES REQUIRED BY THE CONTRACT DOCUMENTS OR SUBSEQUENTLY BY THE ARCHITECT AS COVERED BY MODIFICATIONS. SHOP DRAWINGS AND SAMPLES SHALL BE PROPERLY IDENTIFIED AS SPECIFIED OR AS THE ARCHITECT MAY REQUIRE. AT THE TIME OF SUBMISSION THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DEVIATION IN THE SHOP DRAWING OF SAMPLES FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

16. BY APPROVING AND SUBMITTING SHOP DRAWINGS AND SAMPLES, THE CONTRACTOR THEREBY REPRESENTS THAT HE HAS DETERMINED AND VERIFIED ALL FIELD MEASUREMENTS, FIELD CONSTRUCTION CRITERIA, MATERIALS, CATALOGUE NUMBERS AND SIMILAR DATA-OR WILL DO SO-AND THAT HE HAS CHECKED AND COORDINATED EACH SHOP DRAWING AND SAMPLE WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS.

17. THE ARCHITECT WILL REVIEW AND APPROVE SHOP DRAWINGS AND SAMPLES WITH REASONABLE PROMPTNESS SO AS TO CAUSE NO DELAY, BUT ONLY FOR CONFORMITY WITH THE DESIGN CONCEPT OF THE PROJECT AND WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE ARCHITECTS'S APPROVAL OF A SEPARATE ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY IN WHICH THE ITEM FUNCTIONS.

18. THE CONTRACTOR SHALL MAKE ANY CORRECTIONS REQUIRED BY THE ARCHITECT AND SHALL RESUBMIT THE REQUIRED NUMBER OF CORRECTED COPIES OF SHOP DRAWINGS OR NEW SAMPLES UNTIL APPROVED.

19. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY SERVICES, INCLUDING ELECTRIC POWER, LIGHT, WATER AND HEAT REQUIRED TO EXECUTE THE WORK PROPERLY, INCLUDING TEMPORARY PIPING CONNECTIONS, ETC. AND THE REMOVAL OF SAME AS AND WHEN REQUIRED. WATER AND ELECTRIC CURRENT (AS AVAILABLE) WILL BE WITHOUT COST TO THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE OWNER. ANY OTHER CHARGES INCURRED IN CONNECTION WITH TEMPORARY SERVICES SHALL BE BORNE BY THE CONTRACTOR. OFFICE AND TELEPHONE THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY OFFICE SPACE AT THE PREMISES, WHERE HE SHALL KEEP ON FILE AT ALL TIMES A COPY OF THE LATEST DRAWINGS, SPECIFICATIONS AND SHOP DRAWINGS AND SAMPLES OF MATERIALS. THE OFFICE LOCATION SHALL BE APPROVED BY THE OWNER AND PROVIDED WITH LIGHT, HEAT AND TELEPHONE. THE CONTRACTOR SHALL ARRANGE AND PAY FOR THE COSTS OF TELEPHONE INSTALLATION, WHICH SHALL BE FOR THE USE OF ALL EMPLOYED UPON THE WORK. TELEPHONE SHALL BE LOCATED IN THE TEMPORARY FIELD OFFICE AND SHALL BE REMOVED UPON COMPLETION OF THE WORK

IN ADDITION, TELEPHONE SERVICES SHALL BE PROVIDED IN THE FIELD QUARTERS FOR USE OF OWNER'S AND ARCHITECT'S
REPRESENTATIVES, AND CONTRACTOR SHALL ASSUME COST FOR SAME.

20. THE CONTRACTOR SHALL DO ALL CUTTING, FITTING OR PATCHING OF HIS WORK THAT MAY BE REQUIRED TO MAKE ITS SEVERAL PARTS FIT TOGETHER PROPERLY, AND SHALL NOT ENDANGER ANY WORK BY CUTTING, EXCAVATING OR OTHERWISE ALTERING THE WORK OR ANY PART OF IT.

21. THE CONTRACTOR AT ALL TIMES SHALL KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS OPERATIONS. AT THE COMPLETION OF THE WORK HE SHALL REMOVE ALL HIS WASTE MATERIALS AND RUBBISH FROM AND ABOUT THE PROJECT, AS WELL AS ALL HIS TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIALS, AND SHALL CLEAN ALL GLASS SURFACES AND LEAVE THE WORK BROOM-CLEAN OR ITS EQUIVALENT, EXCEPT AS OTHERWISE SPECIFIED.

22. THE CONTRACTORS SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ARCHITECT AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES - INCLUDING ATTORNEYS' FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSE (1) IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THEREFROM: AND (2) IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER.

23. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR IN THE INSTRUCTIONS TO BIDDERS, THE CONTRACTOR, AS SOON AS PRACTICABLE AFTER THE AWARD OF THE CONTRACT SHALL FURNISH TO THE ARCHITECT IN WRITING FOR ACCEPTANCE BY THE OWNER AND THE ARCHITECT A LIST OF THE NAMES OF THE SUBCONTRACTORS PROPOSED FOR THE PRINCIPAL PORTIONS OF THE WORK. THE ARCHITECT SHALL PROMPTLY NOTIFY THE CONTRACTOR IN WRITING IF EITHER THE OWNER OR THE ARCHITECT, AFTER DUE INVESTIGATION HAS REASONABLE OBJECTION TO ANY SUBCONTRACTOR IN SUCH LIST, AND DOES NOT ACCEPT HIM. FAILURE OF THE OWNER OR ARCHITECT TO MAKE OBJECTION PROMPTLY TO ANY SUBCONTRACTOR ON THE LIST SHALL CONSTITUTE ACCEPTANCE OF SUCH SUBCONTRACTOR.

24. THE CONTRACTOR SHALL NOT MAKE ANY SUBSTITUTION FOR ANY SUBCONTRACTOR OR PERSON OR ORGANIZATION WHO HAS BEEN ACCEPTED BY THE OWNER AND THE ARCHITECT, UNLESS THE SUBSTITUTION IS ACCEPTABLE TO THE OWNER AND THE ARCHITECT.

25. THE CONTRACTOR SHALL AFFORD OTHER CONTRACTORS REASONABLE OPPORTUNITY FOR THE INTRODUCTION AND STORAGE OF THEIR MATERIALS AND EQUIPMENT AND THE EXECUTION OF THEIR WORK, AND SHALL CONNECT AND COORDINATE HIS WORK WITH THEIRS PROPERLY.

26. IF ANY PART OF THE CONTRACTOR'S WORK DEPENDS FOR PROPER EXECUTION OR RESULTS UPON THE WORK OF ANY OTHER SEPARATE CONTRACTOR, THE CONTRACTOR SHALL INSPECT AND PROMPTLY REPORT TO THE ARCHITECT ANY APPARENT DISCREPANCIES OR DEFECTS IN SUCH WORK THAT RENDER IT UNSUITABLE FOR SUCH PROPER EXECUTION AND RESULTS. FAILURE OF THE CONTRACTOR TO INSPECT AND REPORT SHALL CONSTITUTE AN ACCEPTANCE OF THE OTHER CONTRACTOR'S WORK AS FIT AND PROPER TO RECEIVE HIS WORK, EXCEPT AS TO DEFECTS WHICH MAY DEVELOP IN THE OTHER SEPARATE CONTRACTOR'S WORK AFTER THE EXECUTION OF THE CONTRACTOR'S WORK.

27. THE CONTRACTOR SHALL BE GOVERNED BY THE LAW OF THE PLACE WHERE THE PROJECT IS LOCATED. BUILDING OFFICIALS AND CODE ADMINISTRATORS AND ALL OTHER AGENCIES HAVING JURISDICTION OVER CODES AND REQUIREMENTS SHALL GOVERN THE CONSTRUCTION OF THIS PROJECT.

28. THE OWNER SHALL HAVE THE RIGHT TO REQUIRE THE CONTRACTOR TO FURNISH BONDS COVERING THE FAITHFUL PERFORMANCE OF THE CONTRACT AND THE PAYMENT OF ALL OBLIGATIONS ARISING THEREUNDER, AND AS REQUIRED IN THE INSTRUCTIONS TO BIDDERS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. OWNER WILL ADVICE THE CONTRACTOR IN WRITING IF SUCH BONDS ARE REQUIRED, AND THE OWNER WILL PAY THE COST.

29. THE CONTRACT DOCUMENTS, LAWS, ORDINANCES, RULES, REGULATIONS OR ORDERS OF ANY PUBLIC AUTHORITY HAVING JURISDICTION REQUIRE ANY WORK TO BE INSPECTED, TESTED OR APPROVED. THE CONTRACTOR SHALL GIVE THE ARCHITECT CERTIFICATION OF INSPECTION, TESTING OR APPROVAL, THE CONTRACTOR SHALL BEAR ALL COSTS OF SUCH INSPECTIONS, TESTS AND APPROVALS UNLESS OTHERWISE PROVIDED.

30. REQUIRED CERTIFICATES OF INSPECTION, TESTING, OR APPROVAL SHALL BE SECURED BY THE CONTRACTOR, AND PROMPTLY DELIVERED BY HIM TO THE ARCHITECT.

31. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS FOR THE SAFETY OF AND SHALL PROVIDE ALL REASONABLE PROTECTION TO PREVENT DAMAGE, INJURY OR LOSS TO:

1 ALL EMPLOYEES ON THE WORK AND ALL OTHER PERSONS WHO MAY BE AFFECTED THEREBY.
2 ALL THE WORK AND ALL MATERIALS AND EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE, UNDER THE CARE, CUSTODY OR CONTROL OF THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS OR SUB-SUBCONTRACTORS; AND
3 OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, SHRUBS, LAWNS, WALKS, UTILITIES NOT DESIGNATED FOR REMOVAL, RELOCATION OR REPLACEMENT IN THE COURSE OF CONSTRUCTION.

32. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OR PUBLIC AUTHORITY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY OR LOSS. HE SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT UTILITIES.

33. THE CONTRACTOR SHALL SECURE, PAY FOR, AND MAINTAIN UNTIL ALL WORK IS COMPLETED, SUCH INSURANCE AS WILL PROTECT HIM, THE OWNERS AND ARCHITECT FROM CLAIMS UNDER WORKMEN'S COMPENSATION ACT, WORKMEN'S OCCUPATIONAL DESEASES ACT, AND FROM ANY OTHER CLAIMS FOR DAMAGES TO PROPERTY OR BODILY INJURY, INCLUDING DEATH, WHICH MAY ARISE FROM OPERATIONS UNDER THIS CONTRACT, WHETHER SUCH OPERATIONS BE BY THE CONTRACTOR OR ANY SUBCONTRACTOR OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY EITHER OF THEM, BEFORE PROCEEDING WITH ANY WORK. THE CONTRACTOR SHALL FURNISH TO THE OWNER CERTIFICATES OF INSURANCE IN DUPLICATE, AND ONE COPY TO THE ARCHITECT EXECUTED BY INSURANCE COMPANIES, APPROVED BY THE OWNER, TO EVIDENCE COVERAGE BY THE CONTRACTOR. THE CONTRACTOR SHALL KEEP SAID INSURANCE IN FULL FORCE UNTIL ACCEPTANCE OF THE WORK BY THE OWNER. SUCH INSURANCE SHALL BE MODIFIED OR CANCELABLE ONLY ON WRITTEN NOTICE FROM SUCH INSURANCE COMPANIES, MAILED TO THE OWNER THIRTY (30) DAYS IN ADVANCE OF MODIFICATION OF CANCELLATION. HOLD HARMLESS OF OWNER AND ARCHITECT. THE CONTRACTOR AGREES TO PROTECT, DEFEND, INDEMNIFY AND SAVE HARMLESS THE OWNER, ARCHITECT, AND THEIR AGENTS AND EMPLOYEES, AGAINST ANY AND ALL LIABILITY ARISING FROM ANY ACT, OMISSION OR NEGLIGENCE, WHETHER REAL OR ALLEGED, OF CONTRACTOR AND ALL SUBCONTRACTORS, OR OF THE OFFICERS, AGENTS, SERVANTS OR EMPLOYEES OR EITHER, OR ARISING FROM ANY INJURY OR DAMAGE, WHETHER REAL OR ALLEGED, CAUSED TO ANY PERSON OR TO THE PROPERTY OF ANY PERSON OCCURING IN, ON, OR ABOUT THE PROJECT SITE DURING THE PERFORMANCE OF THE CONTRACT, AND THE CONTRACTOR SHALL INDEMNIFY OWNER, ARCHITECT, AND THEIR AGENTS AND EMPLOYEES, FOR ANY AND ALL COSTS, EXPENSES, AND/OR LOSSES RESULTANT THEREFROM, EXCEPTING ONLY THE ACT, OMISSIONS AND NEGLIGENCE OF OWNER, AND ARCHITECT. NO PROVISIONS REQUIRING THE FURNISHING OF INSURANCE SHALL BE CONSTRUED TO AFFECT, IMPAIR OR EXCUSE CONTRACTOR'S OBLIGATION TO INDEMNIFY AND SAVE OWNER AND ARCHITECT HARMLESS.

34. ALL CUTTING AND PATCHING FOR ALL TRADES TO BE PERFORMED BY THE CONTRACTOR.

35. ALL WORK PERFORMED BY CONTRACTOR AND SUBCONTRACTORS SHALL COMPLY WITH BUILDING RULES REGARDING SUCH WORK, AS PROVIDED BY THE BUILDING MANAGEMENT.

CEILINGS

1. BEFORE WORK BEGINS THE CONTRACTOR SHALL INSPECT SPACE AND ASSURE THAT SPACE IS DRY, AND THAT ALL WORK THAT MIGHT CAUSE DAMPNESS HAS BEEN COMPLETED. AREA TO RECEIVE CEILING TO BE THOROUGHLY CLEAN.

2. BEGINNING WORK SHALL CONSTITUTE ACCEPTANCE OF SPACE AS FOUND. CEILING THAT DEVELOPS DEFECTS AND THAT FAILS TO MEET SPECIFIED STANDARDS REGARDLESS OF CAUSE SHALL BE CORRECT AT NO ADDITIONAL COST TO THE OWNER.

3. MECHANICAL AND ELECTRICAL WORK ABOVE CEILING SHALL BE INSTALLED AND TESTED BEFORE CEILING WORK IS STARTED. LIGHTING FIXTURES ABOVE CEILING SHALL BE SUSPENDED AT REQUIRED LEVELS AND LOCATIONS.

4. CEILING TO BE 5/8" FIREPROOF SHEETROCK, PERFECTLY LEVELED, SMOOTH TAPED AND SPACKLED CEILING HEIGHT "AS SHOWN".

5. PROVIDE ACCESS DOORS IN HUNG CEILING AS REQUIRED. ACCESS DOORS TO BE FLUSH WITH CEILING, AND THE LOCATIONS TO BE DETERMINED IN CONJUNCTION WITH, AND SUBJECT TO THE APPROVAL OF JOSEPH PELL LOMBARDI AND ASSOCIATES, ARCHITECTS. ACCESS DOORS TO BE FRAMES FOR SUPPORT. VENTILATING DEVICES IN CEILING TO BE FRAMED.

6. AT FULL-HEIGHT DOORS, HARDWARE TO BE RECESSED FLUSH TO CEILING AND PROVIDE WOOD GROUND ABOVE SHEETROCK.

7. ALL LIGHT FIXTURES (FLORESCENT, INCANDESCENT, AND TRACKS FOR FIXTURES) RECESSED IN CEILINGS UNLESS OTHERWISE INDICATED. CONTRACTOR TO PROVIDE ALL CUTOUTS AND GROUND REQUIRED.

8. ALL DUCT GRILLS AND DIFFUSERS TO BE PAINTED TO MATCH CEILING, UNLESS OTHERWISE INDICATED.

9. CEILING BREAKS AND LEVELS TO BE LIMITED TO THOSE ON PLANS.

10. CONTRACTOR SHALL EXAMINE CLOSELY AND COORDINATE HIS WORK WITH THE HVAC, PLUMBING, CABINET WORK, ELECTRICAL AND SPECIAL EFFECTS. PRIOR TO CLOSING OF CEILING, ALL SYSTEMS TO BE CHECKED AND TESTED BY CONTRACTORS AND BY AUTHORITIES HAVING JURISDICTION TO INSURE THEIR PROPER INSTALLATION AND FUNCTION.

11. EXISTING WOOD-BOARD CEILING WHERE EXPOSED, TO BE CLEANED AND SEAL IN A MANNER ACCEPTABLE TO THE DEPARTMENT OF HEALTH AND SHALL MEET THE REQUIREMENTS OF ALL OTHER ADMINISTRATIVE CODES HAVING JURISDICTION. A FINISHED SAMPLE ON SITE SHALL BE PREPARED FOR APPROVAL OF JOSEPH PELL LOMBARDI AND ASSOCIATES, ARCHITECTS AS WELL. SUGGESTED TREATMENT ACCEPTABLE TO JOSEPH PELL LOMBARDI & ASSOCIATES, ARCHITECTS SHALL BE 1 COAT CLEAR SHELLAC MIXED 1:1 WITH ALCOHOL, FOLLOWED BY 1 COAT SATIN FINISH POLYURETHANE.

ELECTRICAL, TELEPHONE, AND LIGHTING SPECIFICATIONS

1. THE GENERAL CONTRACTOR SHALL COORDINATE ALL WORK AND OBTAIN ENGINEERING DRAWINGS FOR ELECTRICAL INSTALLATIONS IF REQUIRED. MODIFY AND REUSE EXISTING ELECTRICAL RUNS, CONDUITS, AND EQUIPMENT ONLY WHERE NECESSARY. ENGINEERING DRAWINGS TO BE DONE ON TRANSPARENCIES OF JOSEPH PELL LOMBARDI AND ASSOCIATES, ARCHITECTS PLANS.

2. ELECTRICAL/ENGINEERING DRAWINGS SHALL BE USED FOR CIRCUITING AND PANEL INFORMATION AND LOCATION OF OUTLETS, FIXTURES, ETC.

CONTRACTOR TO PROVIDE:

A. TEMPORARY LIGHT AND POWER FOR ALL TRADES.

B. CONCEALED WIRING THROUGHOUT, INCLUDING TELEPHONE, CASHIERS, AND AUDIO WORK, UNLESS OTHERWISE INSTRUCTED.

C. ALL NECESSARY CONDUITS AS REQUIRED FOR TELEPHONE AND AUDIO EQUIPMENT.

D. FINAL CONNECTION OA ANY EQUIPMENT, FIXTURES, AND OTHER ITEMS REQUIRING ELECTRICAL CONNECTION.

3. VERIFY TELEPHONE CABLE SIZES, CONDUIT OR SAME ONLY WHERE REQUIRED BY LAW.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL ELECTRICAL WORK, AS WELL AS COORDINATING ALL DRAWINGS WITH TELEPHONE COMPANY, AUDIO EQUIPMENT, HVAC, ETC.

5. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LAMPS AND FIXTURES CALLED FOR. FLORESCENT FIXTURES TO BE PROVIDED WITH WARM, COLOR T 8 TUBES. SEE REFLECTED CEILING PLAN AND LIGHTING FIXTURES FOR ALL FIXTURE SPECIFICATIONS.

6. ALL SPECIAL SECURITY AND ALARM REQUIREMENTS TO BE SPECIFIED BY OWNER.

CABINET AND WOODWORKING

1. ALL DIMENSIONS AND CONDITIONS ON CABINETWORK DRAWINGS TO BE VERIFIED IN RELATION TO FINISHED CONSTRUCTION CONDITIONS BEFORE ANY WORK BEGINS.

2. SHOP DRAWINGS TO BE PREPARED PER ITEM AND APPROVED BY ARCHITECT.

3. CABINETMAKER TO REVIEW ARCHITECTURAL DRAWINGS AND BECOME AWARE OF ALL ITEMS TO BE INSTALLED BY HIM, I.E., MIRRORED SURFACES, WOOD TRIM AT CEILING, SECURITY LOCKING-SYSTEMS, ETC.

4. CABINETMAKER TO COORDINATE HIS WORK IN ACCORDANCE WITH RELATED WORK BY OTHER TRADES.

5. SUBMIT TO ARCHITECT FOR APPROVAL 6" X 12" SAMPLES FOR ALL MATERIALS SPECIFIED, SHOWING WOOD GRAIN AND FINISHES.

6. ALL MATERIALS SHALL BE FREE OF CHIPPING, BRASURES, DISTRESS, WARPING CRACKING, FLAKING, SPLITTING, OR ANY MARRING THAT WOULD RESULT IN AN UNEVEN OR DAMAGED SURFACE.

7. ASSEMBLE CABINETWORK FINISHED IN AS LARGE UNITS AS POSSIBLE AT MILL, READY FOR ERECTION. INSURE AMPLE ALLOWANCE FOR CUTTING AND BACKING.

8. AFTER COMPLETION OF ERECTION, ALL NAIL HOLES, SCRATCHES, AND OPEN JOINTS SHALL BE FILLED AND TOUCHED UP SO AS TO BE INVISIBLE.

10. CABINETMAKER TO COORDINATE LOCKING DEVICES, SECURITY, OR SPECIAL ALARMS, WITH OWNER.

PAINTING

1. BEFORE PAINTING BEGINS, AREA MUST BE FREE OF DEBRIS AND AIRBORNE POLLUTANTS WHICH MIGHT AFFECT FINISH.

2. CONTRACTOR SHALL PREPARE AND SUBMIT TO JOSEPH PELL LOMBARDI AND ASSOCIATES, ARCHITECTS AN 8 1/2" SAMPLE FOR APPROVAL BEFORE BEGINNING WORK.

3. ONLY MATERIALS APPROVED OR SPECIFIED MAY BE DELIVERED TO, OR ACCEPTED AT THE PROJECT SITE.

4. BEFORE BEGINNING WORK, THE PAINTING SUBCONTRACTOR SHALL INSPECT ALL SURFACES TO BE PAINTED OR FINISHED. HE SHALL NOTIFY THE CONTRACTOR IN WRITING OF ANY UNSUITABLE CONDITIONS.

5. THE PRIME COAT ON ALL SURFACES MUST APPROXIMATE THE COLOR OF THE FINISHED SURFACE.

6. ALL PAINTED SURFACES TO RECEIVE 2 COATS OF FINISH PAINT.

7. FINISHED SURFACE TO BE PERFECTLY SMOOTH AND TO THE PATCHED WHERE REQUIRED, AND REPAINTED.

8. AT COMPLETION OF WORK, ANY DAMAGED SURFACES TO BE PATCHED WHERE REQUIRED AND REPAINTED.

TILE & FLOORING

1. TILE AND GROUT SHALL BE AS SPECIFIED. ANY CHANGES IN TILE TO BE SUBMITTED TO JOSEPH PELL LOMBARDI & ASSOCIATES, ARCHITECTS FOR APPROVAL.

2. ALL TILE SURFACES TO BE SET FLUSH UNLESS NOTED OTHERWISE.

3. SURFACE TO RECEIVE TILE SHALL BE DRY, CLEAN, FIRM, LEVEL, AND PLUM BEFORE WORK BEGINS.

4. DO NOT START WORK UNTIL ALL ELECTRICAL AND/OR MECHANICAL WORK IN OR BEHIND TILES HAS BEEN INSTALLED.

5. USE FULL TILES THROUGHOUT, CUTTING ONLY WHERE NECESSARY. ANY CUTTING OR DRILLING TO BE DONE WITHOUT MARRING FACE OF TILE.

6. AT COMPLETION OF WORK, ALL TILE SHALL BE THOROUGHLY CLEANED, JOINTS REGROUTED WHERE REQUIRED, AND ANY DEFECTIVE WORK REPLACED IN A MANNER SUITABLE TO JOSEPH PELL LOMBARDI AND ASSOCIATES, ARCHITECTS AT NO ADDITIONAL COST OF THE OWNER.

7. FINISHED WOOD FLOOR TO BE LEVEL, AND FLUSH WITH ANY ADJOINING AREAS UNLESS NOTED OTHERWISE.

No:	Description:	Date:

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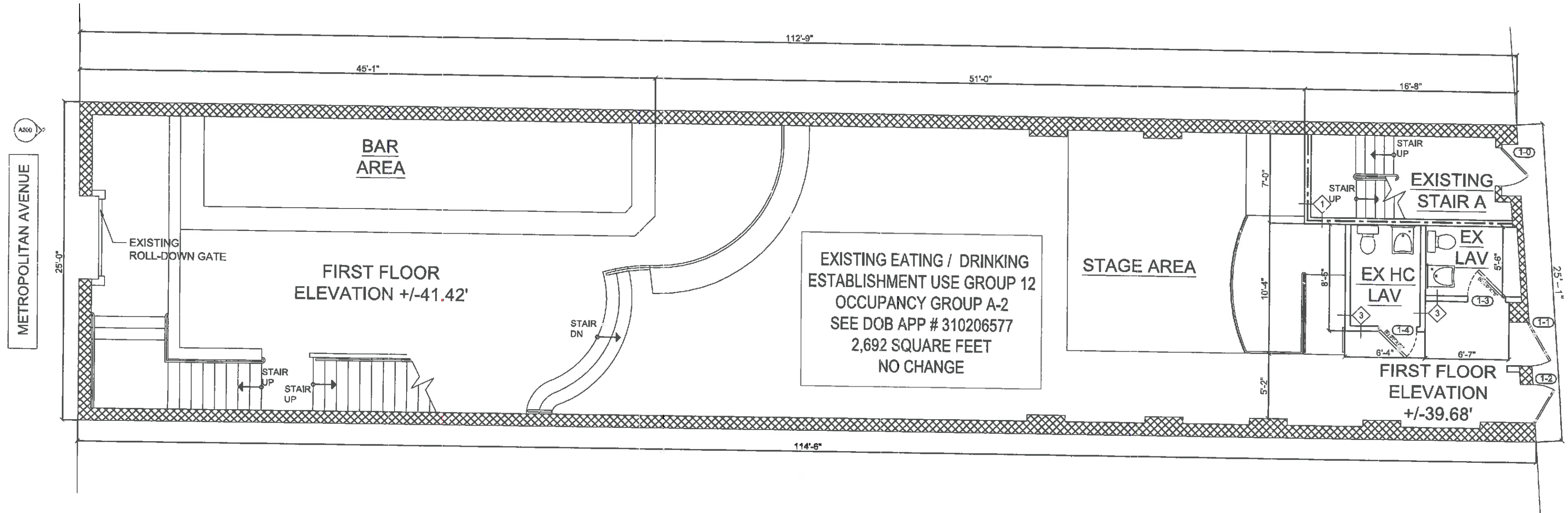
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

GENERAL NOTES

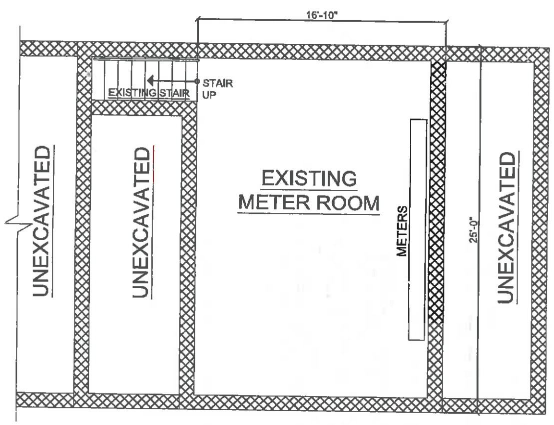
SEAL & SIGNATURE

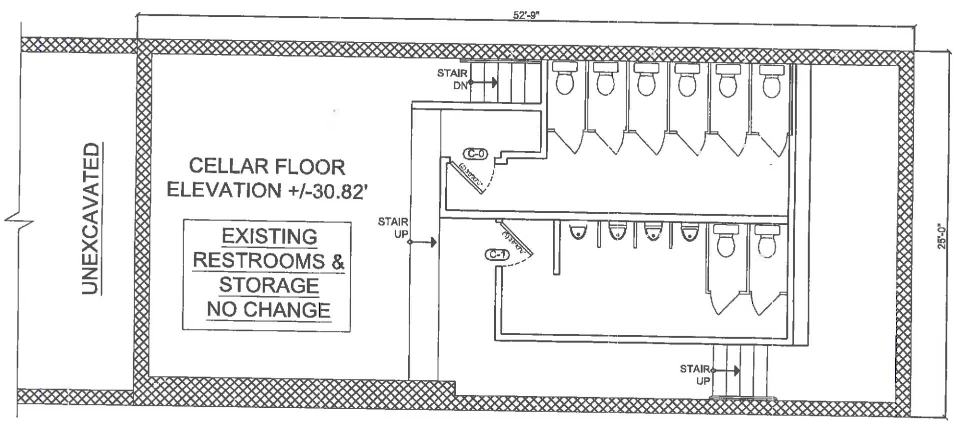
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	I.N.
CHK BY:	R.S.
DWG No:	A-002
CAD FILE No:	3 OF 17



1 EXISTING FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

NO WORK PROPOSED IN THIS AREA





NO WORK PROPOSED IN THIS AREA

2 EXISTING CRAWEL SPACE- NO CHANGE
SCALE: 1/4" = 1'-0"

3 EXISTING CELLAR - NO CHANGE
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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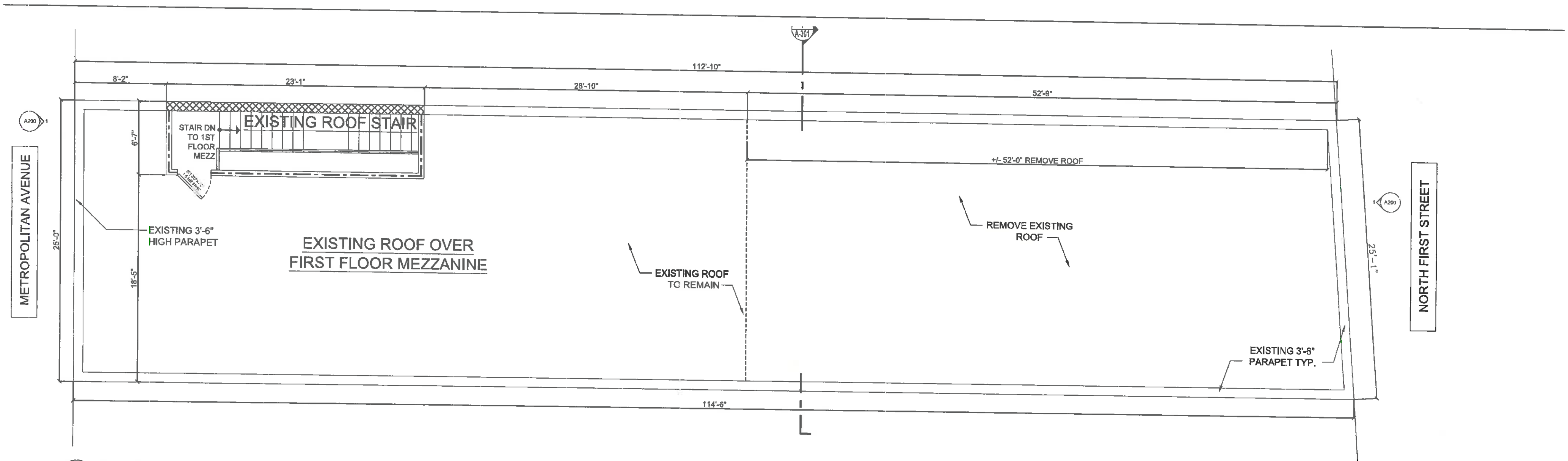
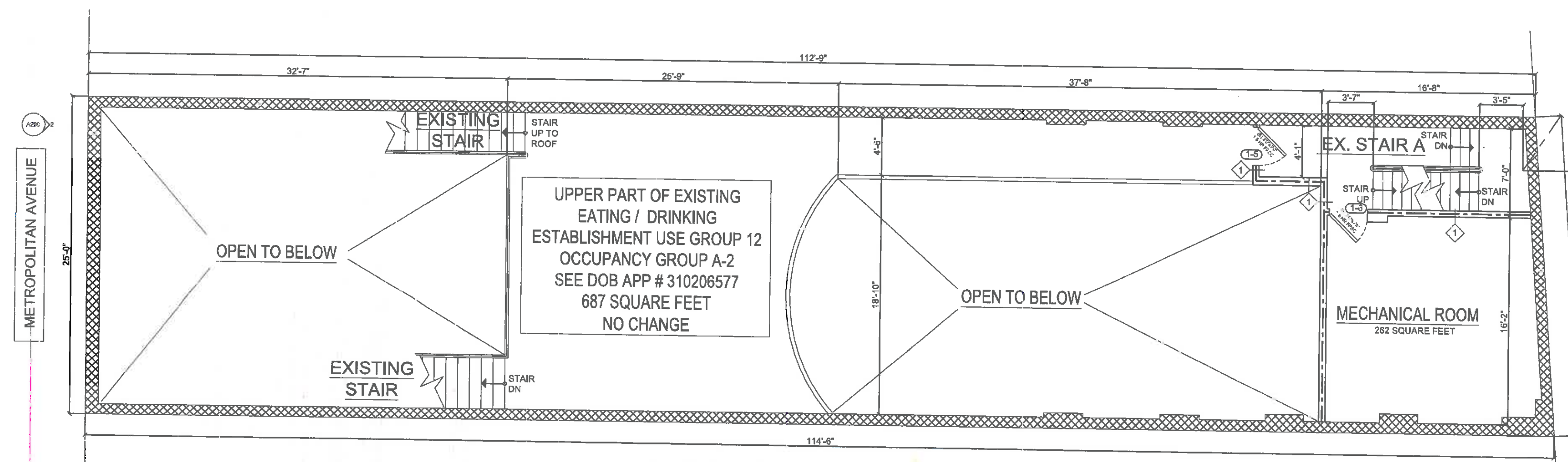
EX. CRAWL SPACE, CELLAR AND 1ST FLOOR PLANS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-100
CAD FILE No:	4 OF 17



1 EXISTING ROOF PLAN
SCALE: 1/4" = 1'-0"



NO WORK PROPOSED IN THIS AREA

2 EXISTING FIRST FLOOR MEZZANINE PLAN
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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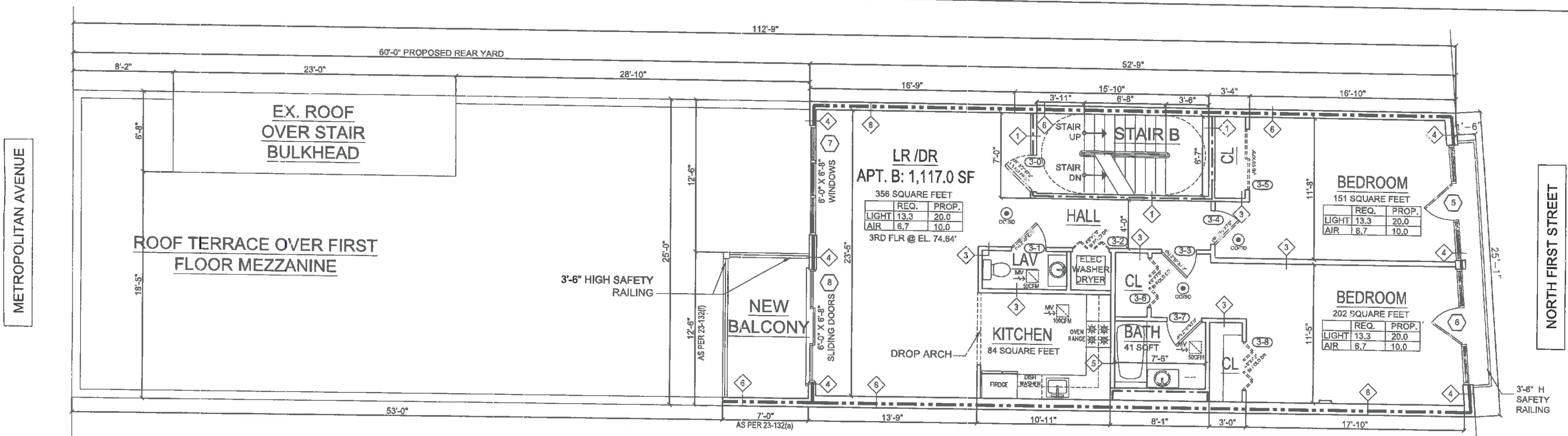
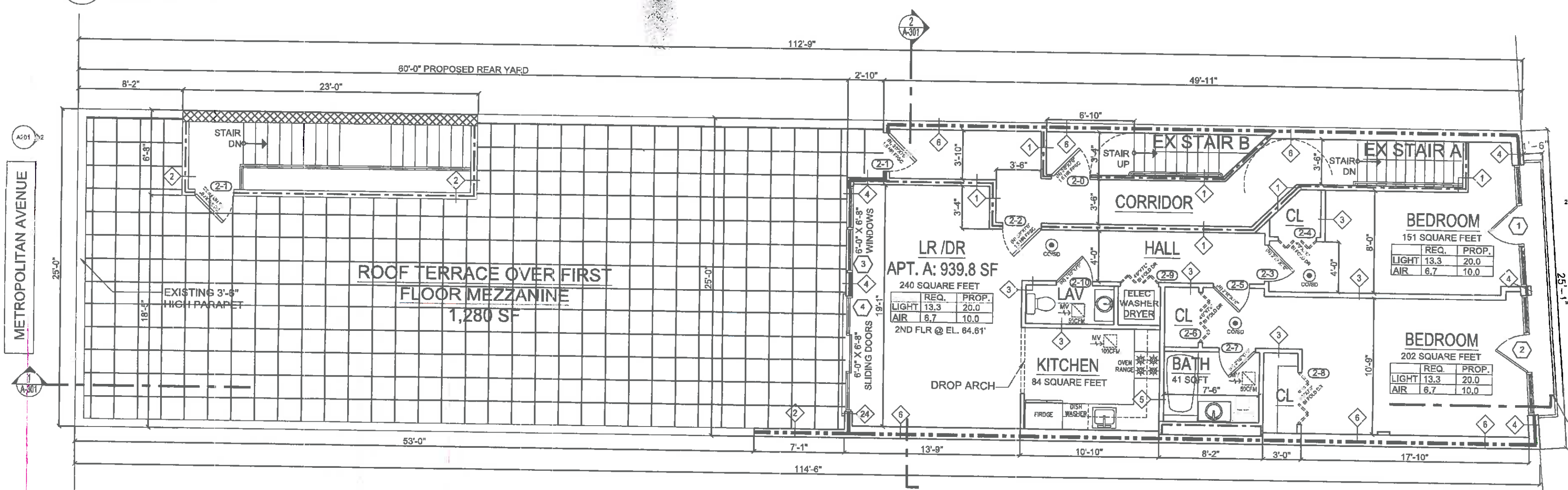
EX. FIRST FLOOR MEZZ. AND ROOF PLANS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-101
CAD FILE No:	5 OF 17



1 PROPOSED THIRD FLOOR
SCALE: 1/4" = 1'-0"



2 PRPOSED SECOND FLOOR
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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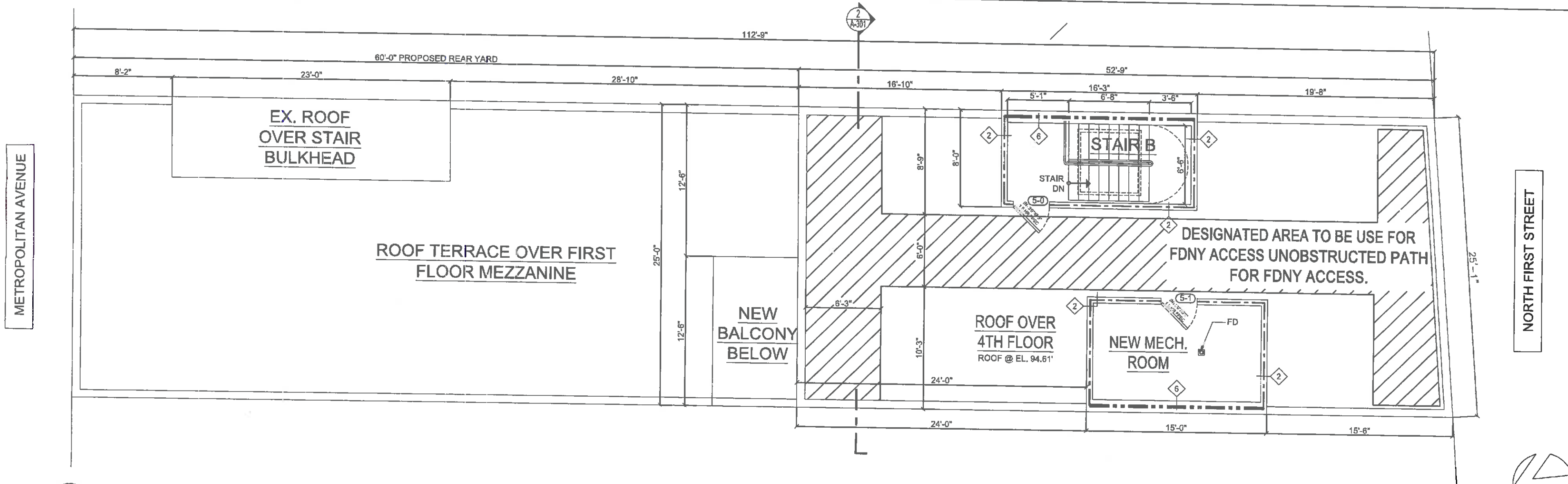
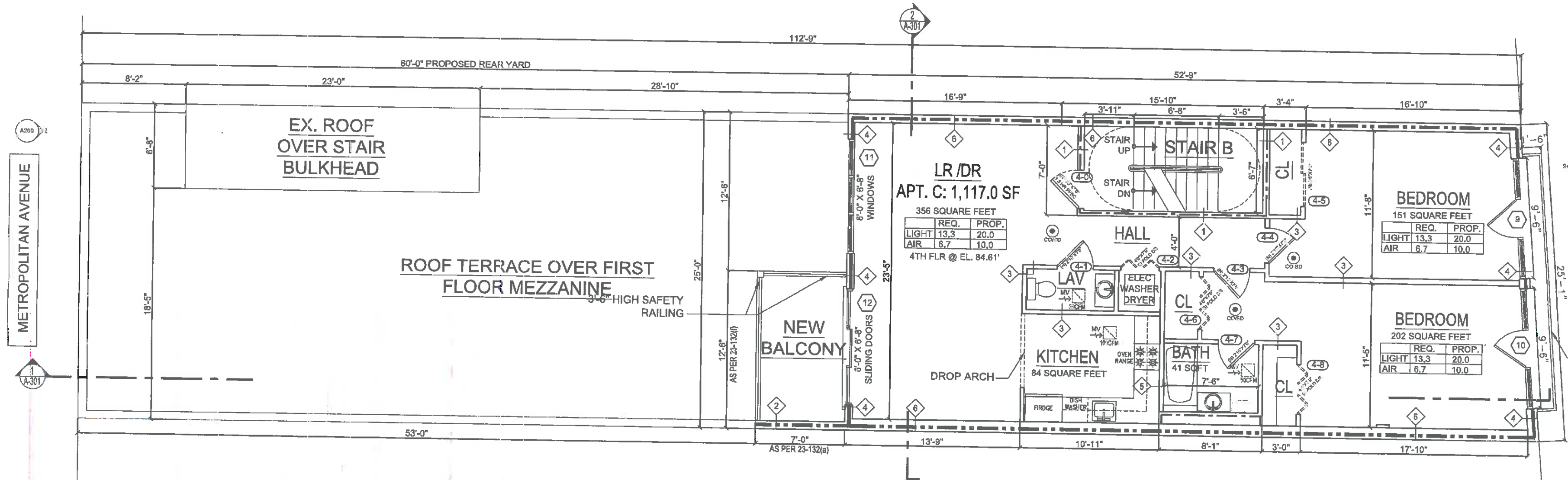
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

PROPOSED SECOND AND THIRD FLOOR PLANS

SEAL & SIGNATURE	
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-102
CAD FILE No:	6 OF 17



1 PROPOSED ROOF PLAN
SCALE: 1/4" = 1'-0"



	REQ.	PROP.
LIGHT	13.3	20.0
AIR	6.7	10.0

2 PROPOSED FOURTH FLOOR
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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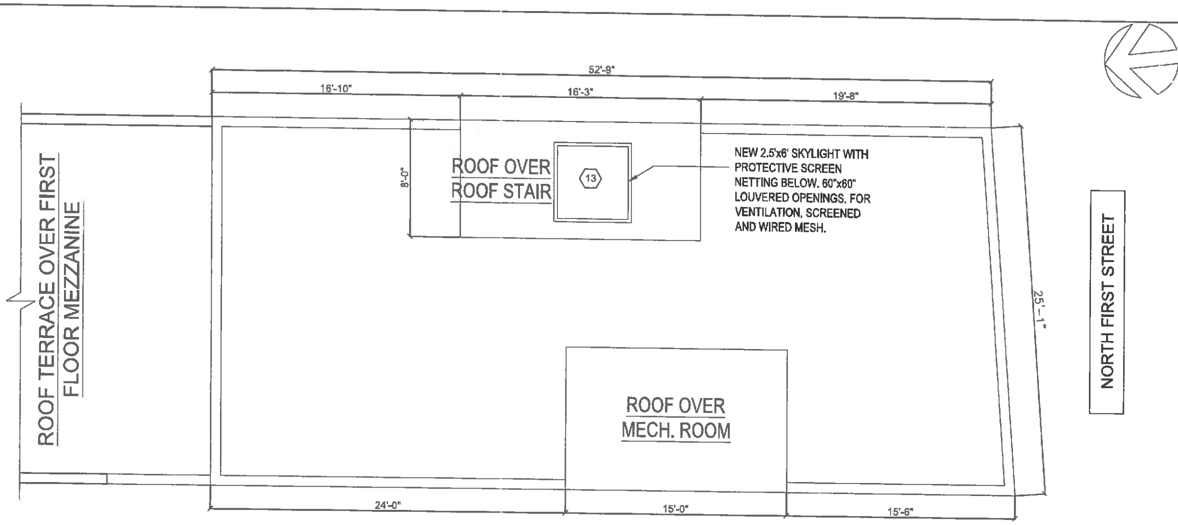
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

PROPOSED FOURTH FLOOR AND ROOF PLANS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY.	R.S.
DWG No:	A-103
CAD FILE No:	7 OF 17



6 BULKHEAD ROOF PLAN
SCALE: 1/4" = 1'-0"

DOOR SCHEDULE

ALL DOORS AND DOOR HARDWARE TO BE SALVAGED UNLESS OTHERWISE NOTED
(N) DENOTES NEW DOOR - NEW INTERIOR DOORS TO MATCH EXISTING PANELED DOOR DESIGN
(R) DENOTES RELOCATED DOOR, DOOR FRAME AND DOOR HARDWARE

NO.	FLOOR	SIZE W x H	NEW DR Y	NEW DR N	LOCATION	HARDWARE TYPE	SILL TYPE	NOTES
C-0	CELLAR	3'-0" x 7'-0"		X	LAVATORY	EXISTING	EXISTING	
C-1	CELLAR	3'-0" x 7'-0"		X	LAVATORY	EXISTING	EXISTING	
1-0	FIRST	3'-0" x 7'-0"		X	EXTERIOR ENTRY	EXISTING	EXISTING	PAINTED METAL DOOR 3/4 HR FPSC
1-1	FIRST	3'-0" x 7'-0"		X	EXTERIOR ENTRY	EXISTING	EXISTING	PAINTED METAL DOOR 3/4 HR FPSC
1-2	FIRST	2'-10" x 7'-0"		X	EXTERIOR ENTRY	EXISTING	EXISTING	PAINTED METAL DOOR 3/4 HR FPSC
1-3	FIRST	3'-0" x 7'-0"		X	LAVATORY	EXISTING	EXISTING	
1-4	FIRST	3'-0" x 7'-0"		X	LAVATORY	EXISTING	EXISTING	
1-5	FIRST MZ	3'-0" x 7'-0"		X	STAIR B	PRIVACY	EXISTING	PAINTED METAL DOOR 3/4 HR FPSC
1-6	FIRST MZ	3'-0" x 7'-0"		X	MECHANICAL ROOM	EXISTING	EXISTING	PAINTED METAL DOOR 3/4 HR FPSC
2-0	SECOND	3'-0" x 7'-0"	X		STAIR B	PASSAGE	A	PAINTED METAL DOOR 3/4 HR FPSC
2-1	SECOND	3'-0" x 7'-0"	X		EXTERIOR TERRACE	PRIVACY	B	PAINTED METAL DOOR 3/4 HR FPSC
2-2	SECOND	3'-0" x 7'-0"	X		APT. A ENTRY	PRIVACY	C	PAINTED METAL DOOR 3/4 HR FPSC
2-3	SECOND	2'-10" x 7'-0"	X		BEDROOM	PRIVACY	C	PAINTED WOOD
2-4	SECOND	4'-0" x 7'-0"	X		BEDROOM CLOSET	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
2-5	SECOND	2'-10" x 7'-0"	X		BEDROOM	PRIVACY	C	PAINTED WOOD
2-6	SECOND	4'-0" x 7'-0"	X		BEDROOM CLOSET	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
2-7	SECOND	2'-10" x 7'-0"	X		BATHROOM	PRIVACY	C	PAINTED WOOD
2-8	SECOND	4'-0" x 7'-0"	X		BEDROOM CLOSET	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
2-9	SECOND	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
2-10	SECOND	2'-10" x 7'-0"	X		LAVATORY	PRIVACY	C	PAINTED WOOD
3-0	THIRD	3'-0" x 7'-0"	X		APT. B ENTRY	PRIVACY	C	PAINTED METAL DOOR 3/4 HR FPSC
3-1	THIRD	2'-10" x 7'-0"	X		LAVATORY	PRIVACY	C	PAINTED WOOD DOOR
3-2	THIRD	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
3-3	THIRD	2'-10" x 7'-0"	X		BEDROOM	PRIVACY	C	PAINTED WOOD
3-4	THIRD	2'-10" x 7'-6"	X		BEDROOM	PRIVACY	C	PAINTED WOOD DOOR
3-5	THIRD	4'-0" x 7'-6"	X		BEDROOM CLOSET	SLIDING		(2) BYPASSING PAINTED WOOD DOOR
3-6	THIRD	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
3-7	THIRD	2'-7" x 7'-6"	X		BATHROOM	EXISTING	EXISTING	PAINTED WOOD SLIDING DOOR
3-8	THIRD	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
4-0	FOURTH	3'-0" x 7'-0"	X		APT. B ENTRY	PRIVACY	C	PAINTED METAL DOOR 3/4 HR FPSC
4-1	FOURTH	2'-10" x 7'-0"	X		LAVATORY	PRIVACY	C	PAINTED WOOD DOOR
4-2	FOURTH	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
4-3	FOURTH	2'-10" x 7'-0"	X		BEDROOM	PRIVACY	C	PAINTED WOOD
4-4	FOURTH	2'-10" x 7'-6"	X		BEDROOM	PRIVACY	C	PAINTED WOOD DOOR
4-5	FOURTH	4'-0" x 7'-6"	X		BEDROOM CLOSET	SLIDING		(2) BYPASSING PAINTED WOOD DOOR
4-6	FOURTH	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
4-7	FOURTH	2'-7" x 7'-6"	X		BATHROOM	EXISTING	EXISTING	PAINTED WOOD SLIDING DOOR
4-8	FOURTH	4'-0" x 7'-0"	X		WASHER/DRYER	DUMMY	E	(4) PAINTED WOOD BI-FOLD DOORS
5-0	ROOF	2'-6" x 6'-8"	X		EXT. ENTRY STAIR			PAINTED METAL DOOR 3/4 HR FPSC
5-1	ROOF	2'-6" x 6'-8"	X		EXT. MECH ROOM			PAINTED METAL DOOR 3/4 HR FPSC

ALL EXTERIOR DOORS TO BE PROVIDED WITH WEATHER STRIPPING AND INTERLOCKING SADDLES
ALL INTERIOR DOORS ARE SOLID WOOD CORE DOORS UNLESS OTHERWISE SELECTED BY THE OWNER.

WINDOW SCHEDULE

ALL DIMENSIONS ARE APPROXIMATE & SHOULD BE VERIFIED IN THE FIELD
ALL WINDOWS TO BE PRIMED AND PAINTED EXTERIOR AND CLEAR FINISH INTERIOR

NO.	FLOOR	M.O. WIDTH	M.O. HEIGHT	WINDOW MATERIAL	WINDOW DESCRIPTION
1	2ND	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
2	2ND	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
3	2ND	4'-0"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG
4	2ND	6'-0"	6'-8"	PAINTED METAL	SLIDING DOOR (3 LEAFS)
5	3RD	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
6	3RD	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
7	3RD	6'-0"	6'-8"	PAINTED METAL	SLIDING DOOR (3 LEAFS)
8	3RD	6'-0"	6'-8"	PAINTED METAL	SLIDING DOOR (3 LEAFS)
9	4TH	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
10	4TH	9'-6"	6'-8"	PAINTED METAL	(2)DOUBLE-HUNG & 1 DOOR
11	4TH	6'-0"	6'-8"	PAINTED METAL	(3)DOUBLE-HUNG
12	4TH	6'-0"	6'-8"	PAINTED METAL	SLIDING DOOR (3 LEAFS)
13	ROOF	5'-0"	5'-0"	PAINTED METAL	SKYLIGHT W/ VENTILATION

PELLA WINDOWS OR APPROVED EQUAL. U VALUE = 0.3, SHGC RATING = .28
ALL WINDOWS TO BE LOW E GLASS

No:	Description:	Date:

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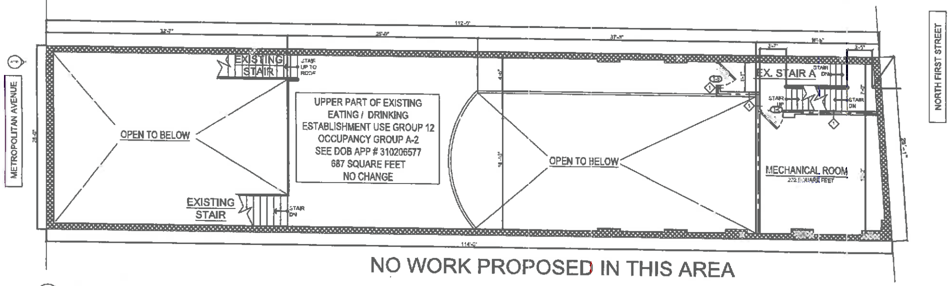
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

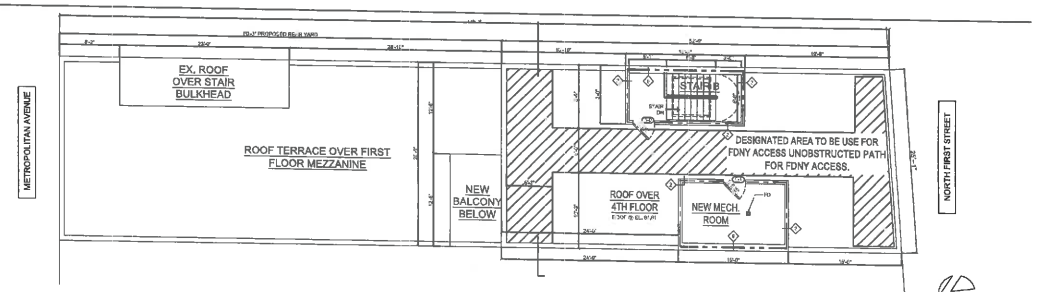
PROPOSED ROOF
BULKHEAD PLAN, WINDOW
AND DOOR SCHEDULES

SEAL & SIGNATURE

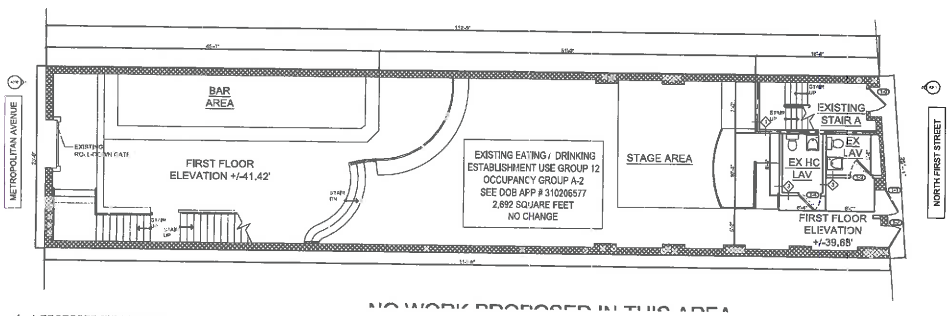
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-104
CAD FILE No:	8 OF 17



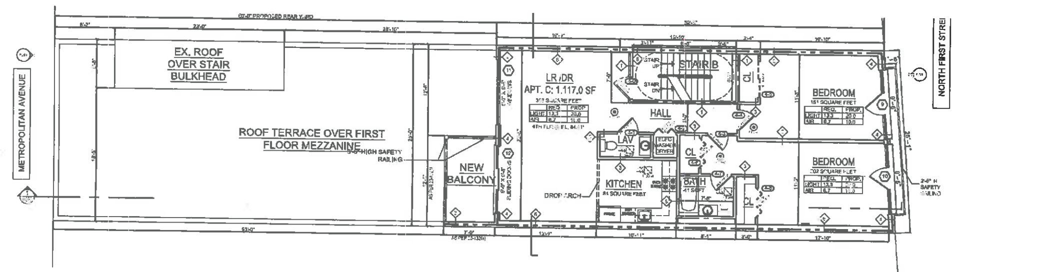
2 EXISTING FIRST FLOOR MEZZANINE PLAN
SCALE: 1/4" = 1'-0"



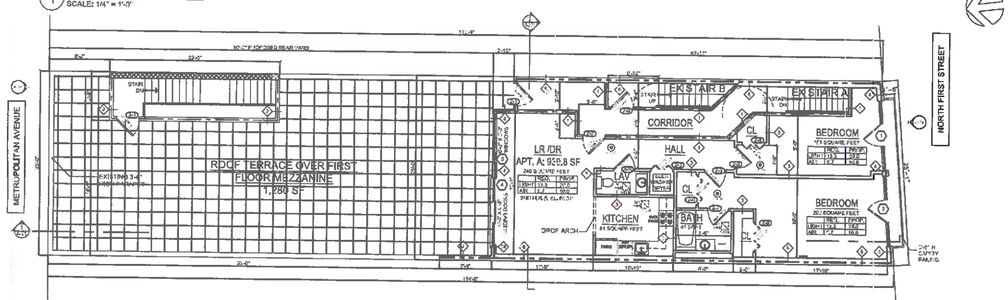
PROPOSED ROOF PLAN



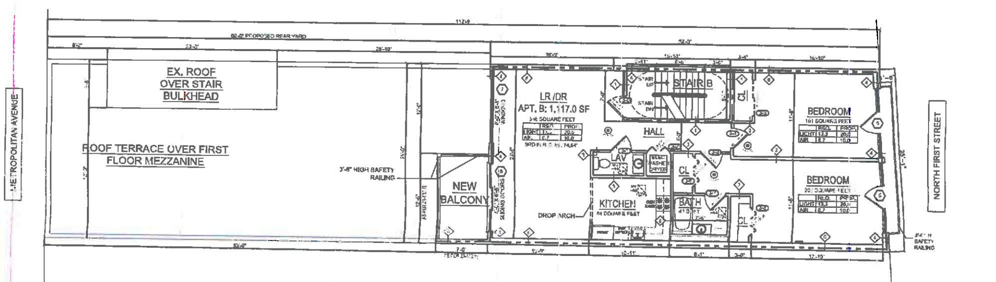
1 PROPOSED THIRD FLOOR
SCALE: 1/4" = 1'-0"



2 PROPOSED FOURTH FLOOR



3 PRPOSED SECOND FLOOR



4 PROPOSED THIRD FLOOR

No:	Description:	Date:

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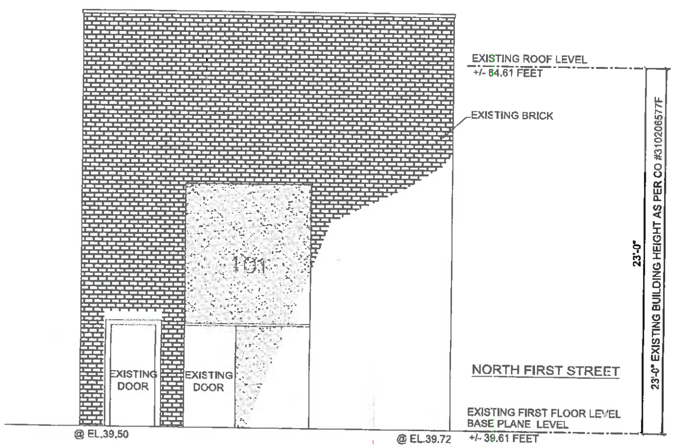
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

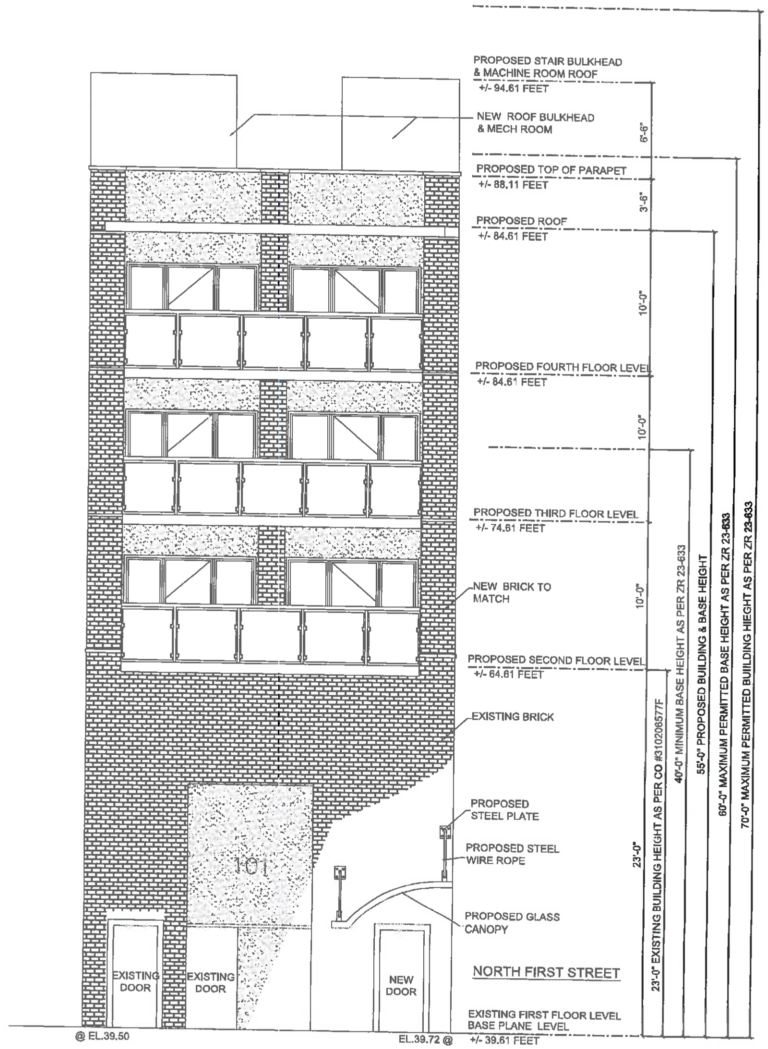
REFLECTED CEILING PLANS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-105
CAD FILE No:	9 OF 17



1 EXISTING NORTH FIRST STREET ELEVATION
SCALE: 1/4" = 1'-0"



1 PROPOSED NORTH FIRST STREET ELEVATION
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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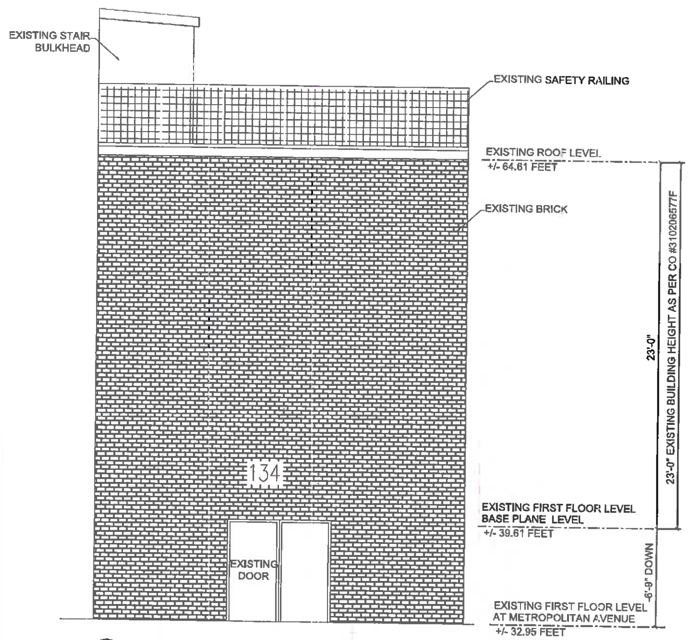
PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

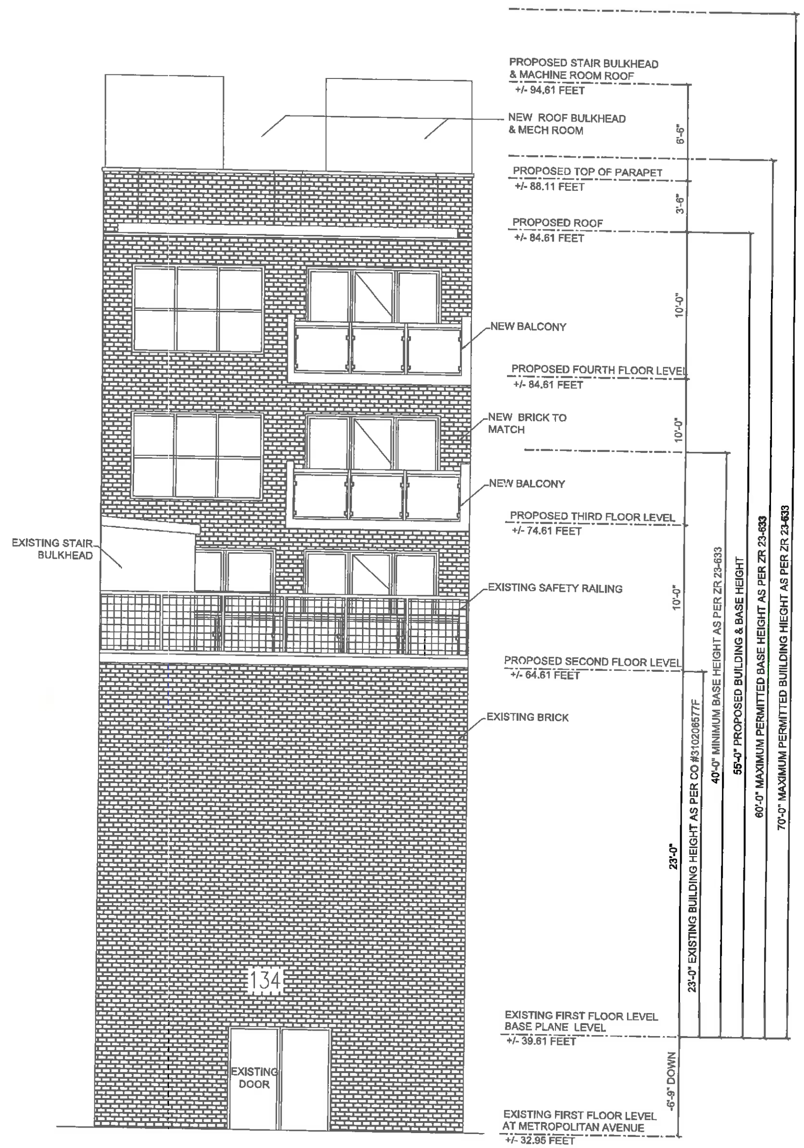
EXISTING AND PROPOSED NORTH STREET ELEVATIONS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-200
CAD FILE No:	10 OF 17



1 EXISTING METROPOLITAN AVENUE ELEVATION
SCALE: 1/4" = 1'-0"



2 PROPOSED METROPOLITAN AVENUE ELEVATION
SCALE: 1/4" = 1'-0"

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PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

EXISTING AND PROPOSED METROPOLITAN AVENUE ELEVATIONS

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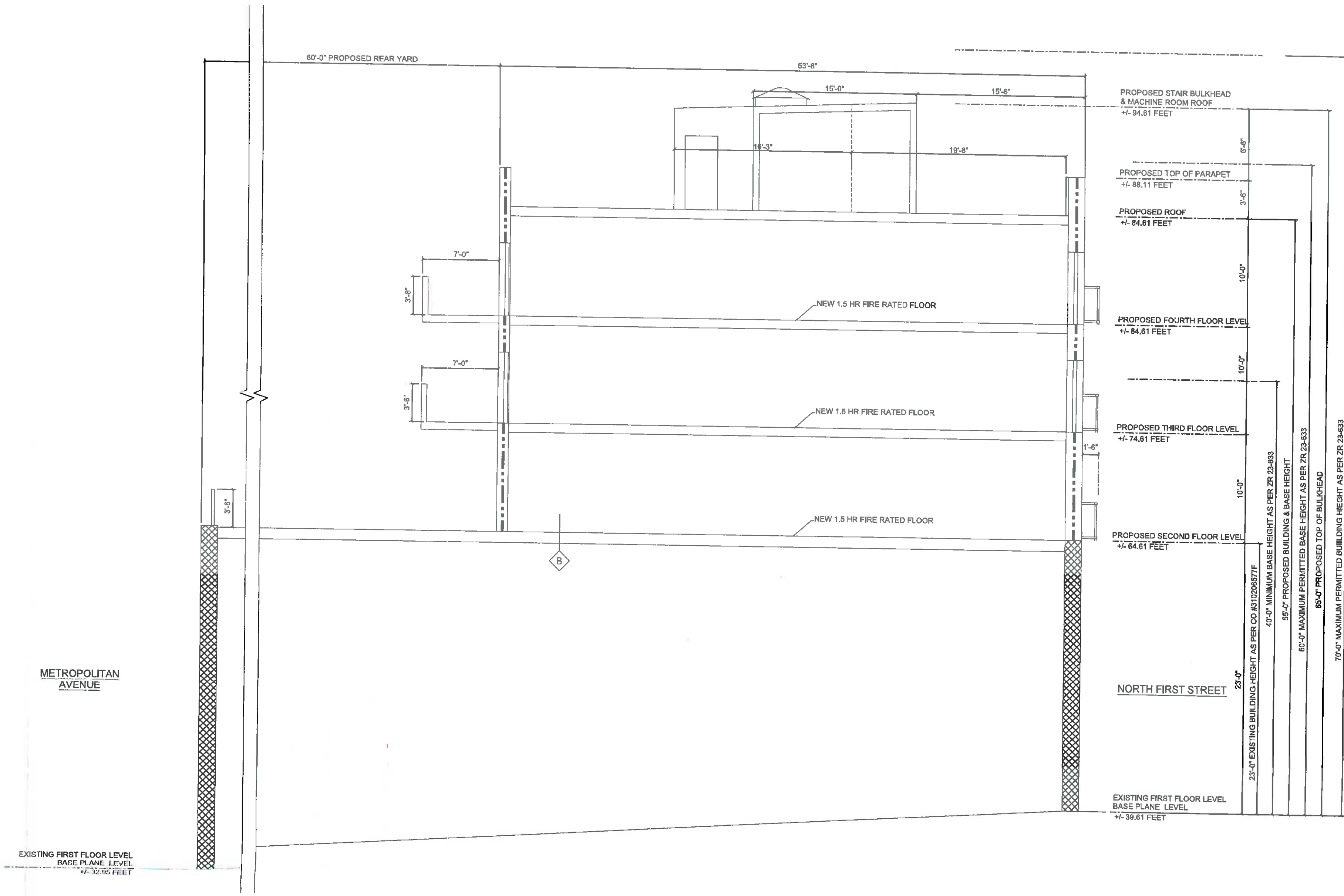
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-201
CAD FILE No:	11 OF 17



No:	Description:	Date:

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PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

PROPOSED BUILDING SECTION

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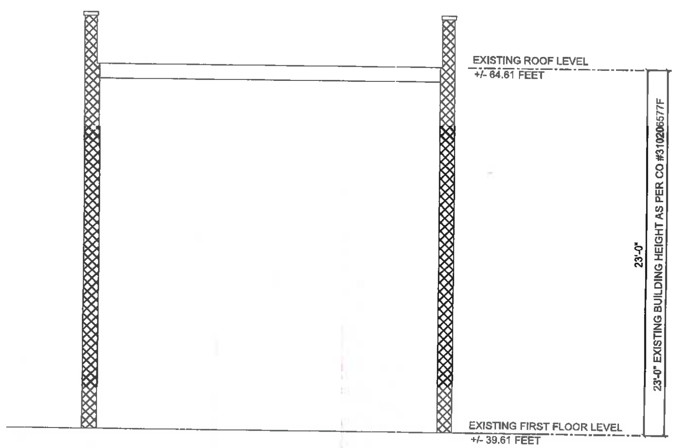
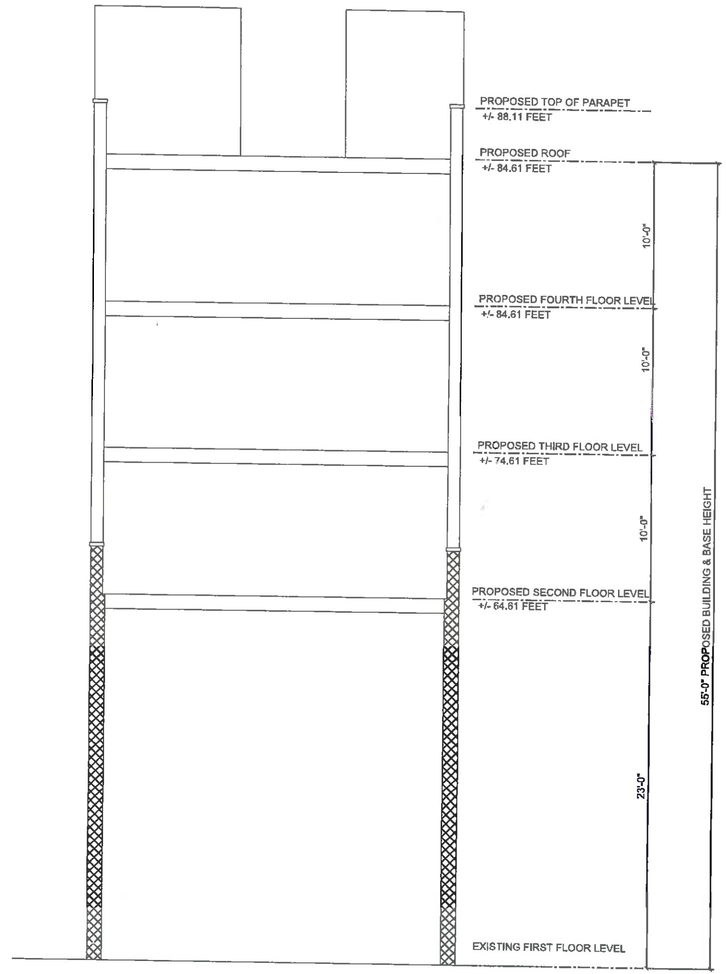
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	I.N.
CHK BY:	R.S.
DWG No:	A-300
CAD FILE No:	12 OF 17



1 EXISTING CROSS SECTION
SCALE: 1/4" = 1'-0"



2 PROPOSED CROSS SECTION
SCALE: 1/4" = 1'-0"

No:	Description:	Date:

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BROOKLYN, N.Y. 11249

EXISTING AND PROPOSED
CROSS SECTION

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DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
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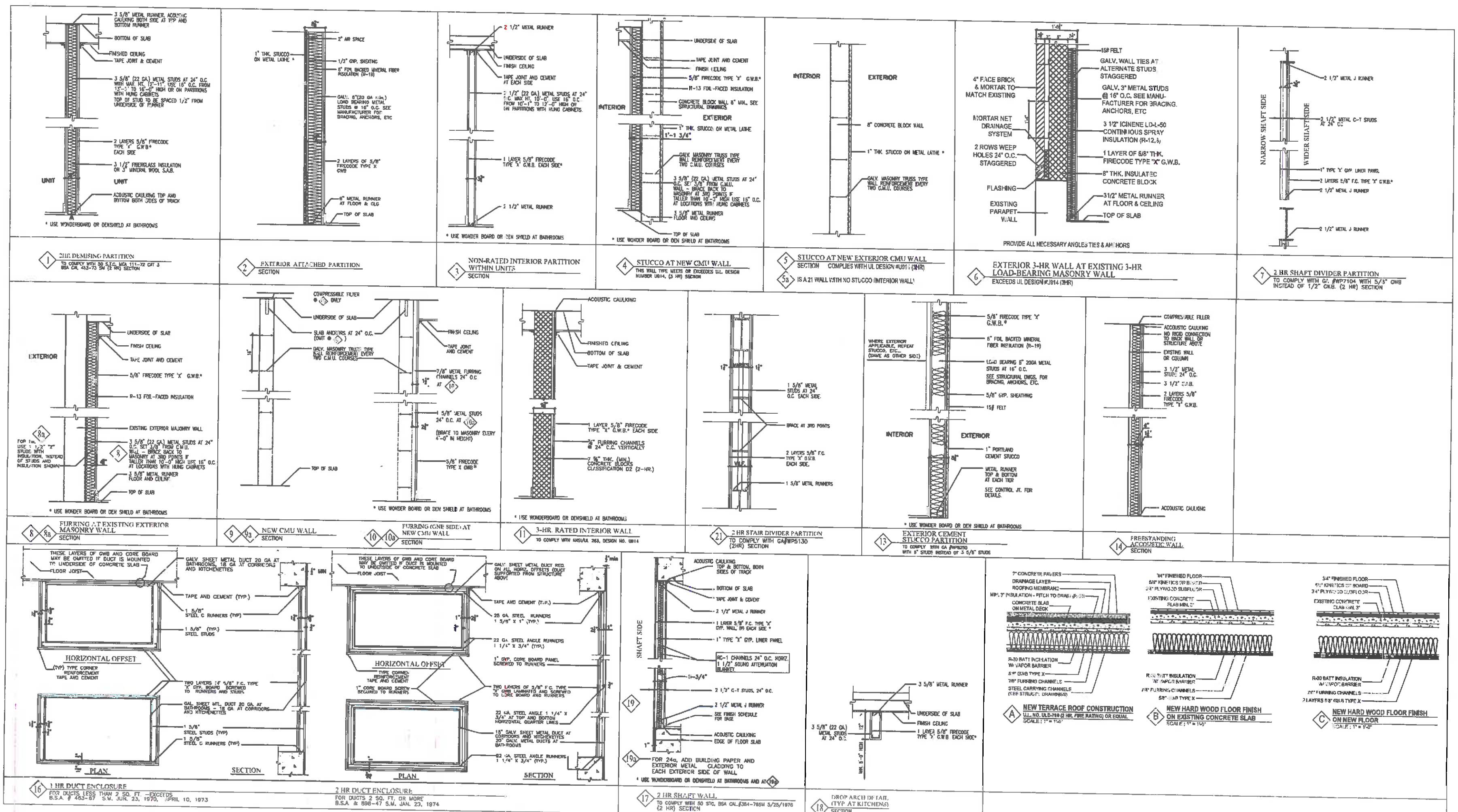
DWG No:	A-301
CAD FILE No:	13 OF 17



No:	Description:	Date:

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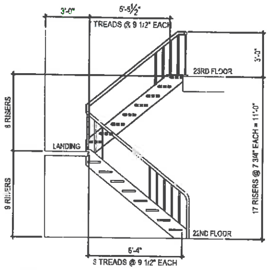
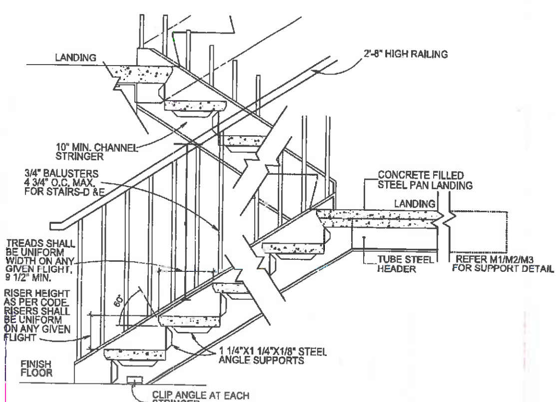
WALL, ROOF AND FLOOR DETAILS

SEAL & SIGNATURE

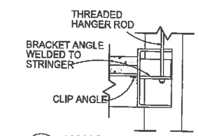
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-400
CAD FILE No:	13 OF 17



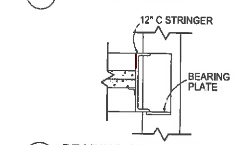
1 SECTION : RESIDENTIAL UNIT 22A ACCESS STAIR
SCALE : 1/4" = 1'-0"



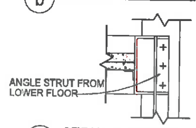
2 TYPICAL SECTION OF NEW EGRESS STAIR
SCALE : 1" = 1'-0"



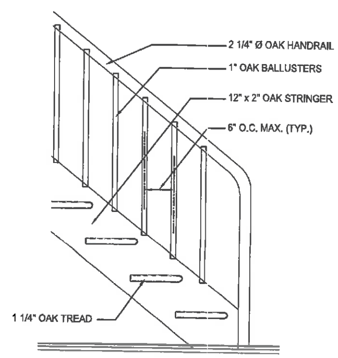
a HANGER SUPPORT

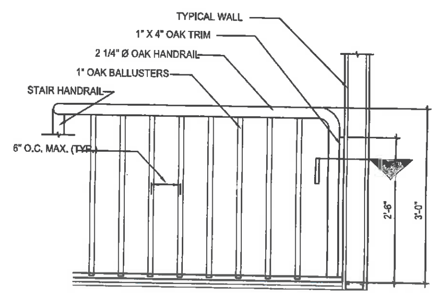


b BEARING SUPPORT



c STRUT SUPPORT





SECTION

PLAN

3 TYPICAL SECTION : ACCESS STAIR WITHIN APARTMENT-22A
SCALE : 1" = 1'-0"

No:	Description:	Date:

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PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

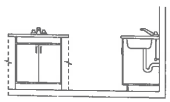
STAIR DETAILS

SEAL & SIGNATURE

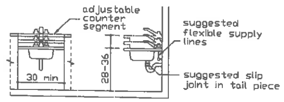
DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-401
CAD FILE No:	14 OF 17

BC 11 : RESIDENTIAL ADAPTIBILITY DETAILS (AS PER BC 1107.6.1.1)

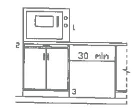
KITCHEN DETAILS



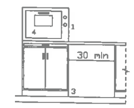
(A) BEFORE REMOVAL OF CABINETS AND BASE



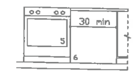
(B) CABINETS AND BASE REMOVED AND HEIGHT ALTERNATIVES



(A) SIDE-HINGED DOOR

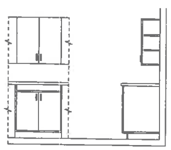


(B) BOTTOM-HINGED DOOR

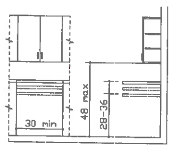


(C) RANGE OVEN

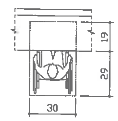
SYMBOL KEY
1. Countertop or wall-mounted oven
2. Pull-out board preferred with side-opening door
3. Clear open space
4. Bottom-hinged door
5. Range oven
6. Preferred clear open space



(A) BEFORE REMOVAL OF CABINETS AND BASE

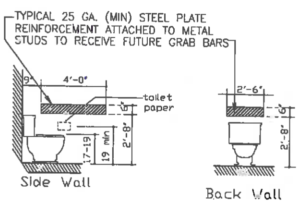


(B) CABINETS AND BASE REMOVED AND HEIGHT ALTERNATIVES

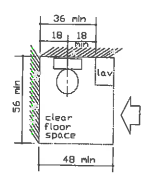


(C) CLEAR FLOOR SPACE UNDER WORK SURFACE

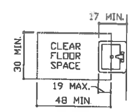
BATHROOM DETAILS



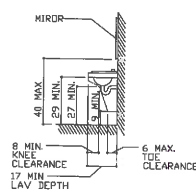
REINFORCED AREAS AT WATER CLOSETS



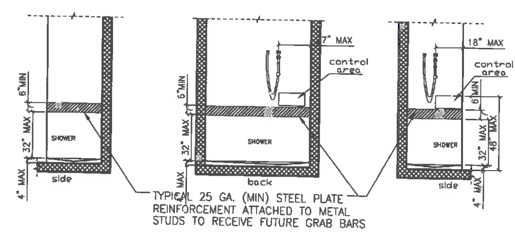
CLEAR FLOOR SPACE AT WATER CLOSET



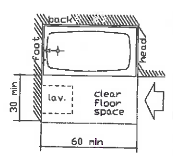
CLEAR FLOOR SPACE AT LAVATORIES



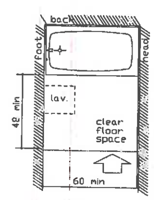
LAVATORY CLEARANCES



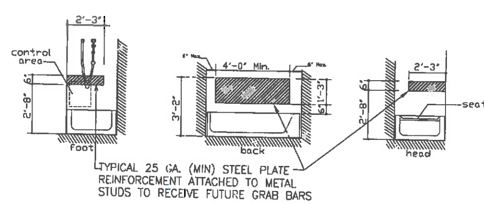
REINFORCED AREAS AT SHOWER



CLEAR FLOOR SPACE AT BATHTUB



CLEAR FLOOR SPACE AT BATHTUB



REINFORCED AREAS AT BATHTUB

No:	Description:	Date:

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Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

HANDICAP DETAILS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	A-402
CAD FILE No:	15 OF 17

COMcheck Software Version 4.0.2.5
Envelope Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conser. Constr. Code (by application of 90.1 (2010) Standard)
Project Title:	134 Metropolitan Avenue
Location:	New York County, New York
Climate Zone:	4a
Project Type:	Addition
Vertical Glazing / Wall Area:	10%

Construction Site:
134 Metropolitan Avenue
Brooklyn, NY 11249

Owner/Agent:

Designer/Contractor:
Roman Serokko
Versatile Engineering P.C.
240-02 66th Avenue
Douglaston, NY 11362
9178730662
versatile.pc@gmail.com

Building Area

Building Area	Floor Area
1-Multifamily : Nonresidential	3618

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Roof Over Fourth Floor: Insulation Entirely Above Deck, [Bldg. Use 1 - Multifamily]	1167	---	20.0	0.048	0.048
Roof Over Roof Stair: Insulation Entirely Above Deck, [Bldg. Use 1 - Multifamily]	150	---	20.0	0.078	0.048
Roof Over Mechanical Room: Insulation Entirely Above Deck, [Bldg. Use 1 - Multifamily]	173	---	20.0	0.048	0.048
Roof Walls: Steel-Framed, [illegible], [Bldg. Use 1 - Multifamily]	200	0.0	10.0	0.078	0.081
Party Wall 1: Concrete Block 8", Solid Grouted, Medium Density, Furring: Metal, [Bldg. Use 1 - Multifamily]	1690	0.0	10.0	0.077	0.104
Party Wall 2: Concrete Block 8", Solid Grouted, Medium Density, Furring: Metal, [Bldg. Use 1 - Multifamily]	1690	0.0	10.0	0.077	0.104
North First Street Wall: Concrete Block 8", Partially Grouted, Cells Empty, Medium Density, Furring: Metal, [Bldg. Use 1 - Multifamily]	735	0.0	10.0	0.075	0.104
Window 1: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Window [illegible]: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Window [illegible]: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Window [illegible]: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Window [illegible]: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Window 12: Metal Frame with Thermal Break, Perf. Specs.: Product ID Pella, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	60	---	---	0.300	0.550
Metropolitan Avenue Street Wall: Concrete Block 8", Partially Grouted, Cells Empty, Medium Density, Furring: Metal, [Bldg. Use 1 - Multifamily]	735	0.0	10.0	0.075	0.104
Window 4: Metal Frame, Perf. Specs.: Product ID Pella, SHGC 0.30, [Bldg. Use 1 - Multifamily] (b)	25	---	---	0.280	0.550
Window 3: Metal Frame, Perf. Specs.: Product ID Pella, SHGC 0.30, [Bldg. Use 1 - Multifamily] (b)	12	---	---	0.350	0.550
Window 2: Metal Frame, Perf. Specs.: Product ID Pella, SHGC 0.30, [Bldg. Use 1 - Multifamily] (b)	12	---	---	0.330	0.550
Window 11: Metal Frame, Perf. Specs.: Product ID Pella, SHGC 0.30, [Bldg. Use 1 - Multifamily] (b)	12	---	---	0.350	0.550
Window 10: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID Pella Sliding Door, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	35	---	---	0.100	0.850
Window 7: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID Pella Sliding Door, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	35	---	---	0.100	0.850
Window 6: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID Pella Sliding Door, SHGC 0.28, [Bldg. Use 1 - Multifamily] (b)	38	---	---	0.100	0.850
Door 8: Uninsulated Single-Layer Metal, Swinging, [Bldg. Use 1 - Multifamily]	21	---	---	1.200	0.700

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.

Envelope PASSES: Design 9% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 4.0.2.5 and to comply with the mandatory requirements listed in the Inspection Checklist.

Name - Title   Signature   Date

COMcheck Software Version 4.0.2.5
Interior Lighting Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conser. Constr. Code (by application of 90.1 (2010) Standard)
Project Title:	134 Metropolitan Avenue
Project Type:	Addition

Construction Site:
134 Metropolitan Avenue
Brooklyn, NY 11249

Owner/Agent:

Designer/Contractor:
Roman Serokko
Versatile Engineering P.C.
240-02 66th Avenue
Douglaston, NY 11362
9178730662
versatile.pc@gmail.com

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Multifamily	3618	[illegible]	2291
		Total Allowed Watts =	[illegible]

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Multifamily				
Apartment Lights: LED MR 10W:	1	90	20	1800
Emergency lights: LED MR 10W:	2	5	20	100
LED 5: LED MR 10W:	1	[illegible]	20	[illegible]
		Total Proposed Watts =		2020

Interior Lighting PASSES: Design 12% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 4.0.2.5 and to comply with the mandatory requirements listed in the Inspection Checklist.

Name - Title   Signature   Date

COMcheck Software Version 4.0.2.5
Exterior Lighting Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conser. Constr. Code (by application of 90.1 (2010) Standard)
Project Title:	134 Metropolitan Avenue
Project Type:	Addition
Exterior Lighting Zone:	2 (Residentially zoned area)

Construction Site:
134 Metropolitan Avenue
Brooklyn, NY 11249

Owner/Agent:

Designer/Contractor:
Roman Serokko
Versatile Engineering P.C.
240-02 66th Avenue
Douglaston, NY 11362
9178730662
versatile.pc@gmail.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
		Total Tradable Watts (a) =		0
		Total Allowed Watts =		0
		Total Allowed Supplemental Watts (b) =		600

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

[illegible] does not exceed allowance for [illegible] type

COMcheck Software Version 4.0.2.5
Mechanical Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conser. Constr. Code (by application of 90.1 (2010) Standard)
Project Title:	134 Metropolitan Avenue
Location:	New York County, New York
Climate Zone:	4a
Project Type:	Addition

Construction Site:
134 Metropolitan Avenue
Brooklyn, NY 11249

Owner/Agent:

Designer/Contractor:
Roman Serokko
Versatile Engineering P.C.
240-02 66th Avenue
Douglaston, NY 11362
9178730662
versatile.pc@gmail.com

Mechanical Systems List

Quantity   System Type & Description

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 4.0.2.5 and to comply with the mandatory requirements listed in the Inspection Checklist.

Name - Title   Signature   Date

COMcheck Software Version 4.0.2.5
Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2,5.4.3.1.1,5.7 [PR1][1]	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
4.2.2,9.4.4,9.7 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1)   2 Medium Impact (Tier 2)   3 Low Impact (Tier 3)

No:	Description:	Date:

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Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

ENERGY ANALYSIS

SEAL & SIGNATURE	
	DATE: 02.29.2016
	PROJECT No: 05-2012
	DRAWING BY: L.N.
	CHK BY: R.S.
	DWG No: EN-001
	CAD FILE No: 16 OF 17

Section # & Req.ID	Footing / Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.5.3.5 [FO3][1]	Below-grade wall insulation R-value.	R-___	R-___	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.5.3.6 [FO4][1]	Slab edge insulation R-value.	R-___ ☐ Unheated ☐ Heated	R-___ ☐ Unheated ☐ Heated	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.5.3.6 [FO5][1]	Slab edge insulation depth/length.	___ ft	___ ft	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.8.1.7.3 [FO7][2]	Insulation in contact with the ground has <=0.3% water absorption rate per ASTM C272			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.4.3.2 [FR1][3]	Factory-built fenestration and doors are labeled as meeting air leakage requirements.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.4.3.4 [FR4][3]	Vestibules are installed where building entrances separate conditioned space from the exterior, and meet exterior envelope requirements. Doors have self-closing devices, and are >=7 ft apart.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.4.3a [FR8][1]	Vertical fenestration U-Factor.	U-___	U-___	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.5.4.3b [FR9][1]	Skylight fenestration U-Factor.	U-___	U-___	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.5.4.4.1 [FR10][1]	Vertical fenestration SHGC value.	SHGC:___	SHGC:___	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.5.4.4.2 [FR11][1]	Skylight SHGC value.	SHGC:___	SHGC:___	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.8.2.1 [FR12][2]	Fenestration products rated in accordance with NFRC.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.2.2 [FR13][1]	Fenestration products are certified as to performance labels or certificates provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.2.3.5, 5.3.6 [FR14][1]	U-factor of opaque doors associated with the building thermal envelope meets requirements.	U-___ ☐ Swinging ☐ Nonswinging	U-___ ☐ Swinging ☐ Nonswinging	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.4.3.1 [FR15][1]	Continuous air barrier is wrapped, sealed, caulked, gasketed, and/or taped in an approved manner, except in semiheated spaces and in climate zones 1-6.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
9.4.1.1 [EL1][2]	Automatic controls to shut off all building lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.1.2 [EL2][2]	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.1.3 [EL11][2]	Parking garage lighting is equipped with required lighting controls and daylight transition zone lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.1.4 [EL12][1]	Primary sidelighted areas >=250 ft2 are equipped with required lighting controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.1.5 [EL13][1]	Enclosed spaces with daylight area under skylights and rooftop monitors >900 ft2 are equipped with required lighting controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.1.6 [EL4][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.4.3 [EL5][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.6.2 [EL6][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.4.3.1 [IN1][1]	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor permeable wrapping material to minimize air leakage.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.1 [IN2][1]	Roof R-value. For some ceiling systems, verification may need to occur during Framing Inspection.	R-___ ☐ Above deck ☐ Metal ☐ Attic	R-___ ☐ Above deck ☐ Metal ☐ Attic	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.8.1.2, 5.8.1.3 [IN3][1]	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is <=3 in 12.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.2 [IN6][1]	Above-grade wall insulation R-value.	R-___ ☐ Mass ☐ Metal ☐ Steel ☐ Wood	R-___ ☐ Mass ☐ Metal ☐ Steel ☐ Wood	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.8.1.2 [IN7][2]	Above-grade wall insulation installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.4 [IN8][2]	Floor insulation R-value.	R-___ ☐ Mass ☐ Steel ☐ Wood	R-___ ☐ Mass ☐ Steel ☐ Wood	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Envelope Assemblies table for values.
5.8.1.1 [IN10][2]	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.4 [IN11][2]	Eaves are baffled to deflect air to above the insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.5 [IN12][2]	Insulation is installed in substantial contact with the inside surface separating conditioned space from unconditioned space.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.6 [IN13][2]	Recessed equipment installed in building envelope assemblies does not compress the adjacent insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.8.1.7 [IN14][2]	Exterior insulation is protected from damage with a protective material. Verification for exposed foundation insulation may need to occur during Foundation Inspection.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.7.1 [IN15][2]	Attics and mechanical rooms have insulation protected where adjacent to attic or equipment access.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.7.2 [IN16][2]	Foundation vents do not interfere with insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.8 [IN17][3]	Insulation intended to meet the roof insulation requirements cannot be installed on top of a suspended ceiling. Mark this requirement compliant if insulation is installed accordingly.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
5.4.3.3 [FI1][1]	Weatherseals installed on all loading dock cargo doors in Climate Zones 4-8.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
8.7.1 [FI16][3]	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
8.7.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
9.2.2.3 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Interior Lighting fixture schedule for values.

Additional Comments/Assumptions:

No:	Description:	Date:

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240-02 66TH AVE. DOUGLASTON, NY 11362-1925
Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
BROOKLYN, N.Y. 11249

ENERGY ANALYSIS

SEAL & SIGNATURE

DATE:	02.29.2016
PROJECT No:	05-2012
DRAWING BY:	L.N.
CHK BY:	R.S.
DWG No:	EN-002
CAD FILE No:	17 OF 17

GENERAL NOTES

1. ALL WORK TO COMPLY WITH NEW YORK CITY BUILDING CODE LATEST EDITION.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AS REQUIRED TO VERIFY THE DRAWINGS AND TO PERFORM THIS WORK PROPERLY. ANY DISCREPANCY BETWEEN THE DRAWINGS AND THE SURVEY SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
3. DETAILS NOT SHOWN OR SPECIFIED BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION AND INSTALLATION OF ANY PART OF THE WORK AS DETERMINED BY THE OWNER REPRESENTATIVE SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
4. THE INTENT OF THE STRUCTURAL DRAWINGS IS TO SHOW THE MAIN STRUCTURAL FEATURES AND DESIGN FOR THE COMPLETED PROJECT. FOR ARCHITECTURAL DETAILS AND OTHER COMPONENTS THAT MAY BE NECESSARY TO CONSTRUCT THE PROJECT SEE ARCHITECTURAL AND CONSULTANTS DRAWINGS.
5. REFER TO ARCHITECTURAL, HVAC, MECHANICAL AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATIONS AND DIMENSIONS OF ALL CHASES. SLOTS. INSERTS, CURBS, OPENINGS, SLEEVES. ANCHOR BOLTS, FLOOR PITCHES AND ALL OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLLE FOR THE PROTECTION OF ALL STRUCTURES AGAINST DAMAGE DURING CONSTRUCTION.
6. SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TO BE TYPICAL FOR ALL SIMILAR CONDITIONS.
7. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING THE COMPLETE LAYOUT AND DETAILS OF ALL STRUCTURAL WORK TO BE PERFORMED,THE CONTRACTOR MAY NOT PERFORM WORK UNTIL THE SHOP DRAWINGS HAVE BEEN APPROVED.

EXCAVATION NOTES:

1. THE PERIMETER OF THE GENERAL EXCAVATION SHALL BE RETAINED BY A SOIL RETENTION SYSTEM(WHERE APPLICABLE). THE INSTALLATION, MAINTENANCE AND REMOVAL (WHERE REQUIRED) SHALL BE THE COMPLETE AND SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND PRECAUTIONS NECESSARY TO PREVENT DAMAGE AND MINIMIZE SETTLEMENT OF EXISTING OR NEW CONSTRUCTION INSIDE AND OUTSIDE THE PROJECT LIMITS. ANY DAMAGE TO NEW OR EXISTING CONSTRUCTION INSIDE OR OUTSIDE OF THE PROJECT LIMITS, CAUSED BY CONSTRUCTION TECHNIQUES OR MOVEMENTS OF THE SOIL RETENTION SYSTEM. IS THE RESPONSIBILITY OF THE CONTRACTOR. THE DESIGN OF THE SOIL RETENTION SYSTEM WILL BE PROVIDED BY THE OWNER. THE CONTRACTOR WILL ASSIST THE OWNER IN THE APPROVAL PROCESS FOR THE RETENTION SYSTEM IF SO REQUIRED. THE CONTRACTOR SHALL PROVIDE ALL CONTROLLED INSPECTIONS REQUIRED BY THE STATE BUILDING CODE RELATING TO THE RETENTION SYSTEM.
2. THE CONTRACTOR SHALL COORDINATE ALL ELEMENTS OF THE SOIL RETENTION SYSTEM WITH ALL ELEMENTS OF THE PERMANENT BUILDING.
3. PRIOR TO ANY EXCAVATION OR INSTALLATION OF ELEMENTS OF THE SOIL RETENTION SYSTEM, THE CONTRACTOR SHALL ESTABLISH SURVEY POINTS AROUND THE PERIMETER OF THE AREA TO BE EXCAVATED AND OTHER POINTS UP TO 200 FEET BEYOND THE PERIMETER. THESE POINTS SHALL BE SURVEYED FOR VERTICAL AND HORIZONTAL MOVEMENT AT FREQUENT INTERVALS DURING ACTUAL EXCAVATION
AND CONTINUING DURING EACH SUBSEQUENT PHASE OF THE WORK AND SUBMITTED TO THE ARCHITECT FOR INFORMATION.
4. ALL EXCAVATION SHALL BE BASED ON ENGINEERED DRAWINGS PREPARED BY THE CONTRACTOR INCLUDING PLANS AND SECTIONS OF EXCAVATION SEQUENCES. THE EXCAVATION SEQUENCES SHALL BE CONTROLLED TO MATCH THE REQUIREMENTS OF THE DESIGN OF THE SOIL RETENTION SYSTEM AND TO PERMIT MONITORING OF WALL AND GROUND MOVEMENTS.
5. THE GENERAL EXCAVATION ACROSS THE SITE SHALL NOT EXTEND DEEPER THAN THE SLAB-ON-GRADE SUBGRADE ELEVATION. THE EXCAVATIONS FOR FOOTINGS, GRADE BEAMS, PILE CAPS, MATS, PITS, SLABS, ETC. SHALL BE EXCAVATED ON AN INDIVIDUAL, LOCALIZED BASIS DOWN FROM THE SLAB-ON-GRADE SUBGRADE LEVEL.
6. ALL EXCAVATION BELOW THE SLAB LEVEL REQUIRED FOR PITS SHALL BE RETAINED BY LOCALIZED SOIL RETENTION SYSTEMS AS MAY BE NECESSARY BASED ON A DESIGN USING APPROPRIATED EARTH AND HYDRAULIC PRESSURES AND OTHER CONSTRUCTION LOADINGS.
7. THE CONTRACTOR SHALL PROVIDE POSITIVE PROTECTION (MAT/SHEET COVERINGS) FOR ALL EXCAVATION SLOPES TO PROTECT SLOPES FROM INSTABILITY ANDDETERIORATION DUE TO RAIN, WIND OR SNOW/ICE.
8. THE CONTRACTOR SHALL PROVIDE SURFACE DRAINAGE CHANNELS AND SUMPS AND SUMP PUMPS TO PROTECT ALL EXCAVATIONS FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF THE SUBGRADE WILL BE CAUSE FOR COMPLETE REPREPARTION AND APPROVAL OF THE SUBGRADE.
9. PROVIDE A DRAINAGE PANEL AGAINST THE OUTSIDE FACE OF THE FOUNDATION WALL AT LOCATIONS INDICATED ON THE ARCHITECTURAL DRAWINGS.
10. THE OWNER'S SOIL TESTING LABORATORY SHALL REVIEW AND MONITOR THE EXCAVATION, DEWATERING AND SOIL RETENTION SYSTEMS. THE CONTRACTOR SHALL PROVIDE, INSTALL AND SURVEY: (A) VERTICAL AND HORIZONTAL MOVEMENTS OF THE TOP OF THE SOIL RETENTION SYSTEM: AND (B) BENCH MARKS ADJACENT TO AND AWAY FROM THE SITE PERIMETER FOR VERTICAL AND HORIZONTAL MOVEMENTS.
11. SEE PLUMBING AND ELECTRICAL DRAWINGS FOR UNDERFLOOR UTILITY AND GROUNDING REQUIREMENTS.

GENERAL FOUNDATION NOTES:

1. ALL FOOTINGS SHALL BEAR ON ACCEPTABLE SOIL, WITH 2 TONS BEARING CAPACITY. THE BOTTOM OF THE FOOTING ELEVATIONS AND SOIL BEARING CAPACITIES AS SHOW ON THE DRAWINGS ARE ESTIMATED FROM THE SOIL BEARING DATA. FINAL EXACT ELEVATIONS SHALL BE FIELD VERIFIED BY THE GEOTECHNICAL CONSULTANT AND REVIEWED BY THE ARCHITECT/ENGINEER DURING CONSTRUCTION.
2. THE SOIL SUBGRADE FOR ALL FOOTINGS AND SLABS SHALL BE INSPECTED AND APPROVED BY THE OWNER'S TESTING LABORATORY IMMEDIATELY PRIOR TO PLACING FOUNDATION CONCRETE OR CONCRETE MUD SLABS.
3. DO NOT BACKFILL AGAINST BASEMENT WALLS UNTIL GROUND FLOOR AND LOWER LEVEL SLABS HAVE BEEN PLACED AND THE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH.
4. NO FOOTINGS OR SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST ENTER A PILE CAP OR FOOTING EXCAVATION AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE RE-INSPECTED AFTER REMOVAL OF WATFR OR FROST.
5. THE CONTRACTOR (WHERE APPLICABLE) SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING, OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT RIDING STRUCTURE.
6. WHERE APPLICABLE , ALL 11-65 MATERIALS UNDER THE SLAB SHALL BE REMOVED, REPLACED WITH COMPACTED GRANURAL MATERIAL AND TOPPED OFF WITH 6 INCHES OF CRUSHED STONE. THE GRANURAL MATERIAL MAY BE SAND OR SAND/GRAVEL.
7. THE SOIL UNDER SLAB SHALL BE COMPACTED TO HIGH DENSITY EQUIVALENT TO A MINIMUN of 115% MAXIMUN DENSITY AT OPTIMUM MOISTURE DETERMINE BY THE SOIL COMPACTION TEST (ASTM D-698). THE MAXIMUN LIFT FOR THE COMPACTION WILL BE 12 INCHES.
8. SEE ARCHITECTURAL DRAWINGS FOR ALL WATERPROOFING AND DAMPROOFING DETAILS.
9. PROVIDE SLEEVES FOR UTILITY PENETRATIONS, COORDINATE WITH MECHANICAL TRADES

STRUCTURAL CONCRETE NOTES:

1. ALL CAST-IN-PLACE CONCRETE SHALL BE AIR ENTRAINED, NORMAL WEIGHT STONE CONCRETE, A ND SHALL HAVE 4000PSI MINIMUM 28 DAY COMPRESSIVE STRENGTHS .
2. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO THE STANDARDS OF ASTM A615,GRADE 60.
3. ALL WELDED WIRE FABRIC SHALL CONFORM TO THE STANDARDS OF ASTM A185.
4. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORM; AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". ACI 318-99 AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
5. CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION.
6. THE CONTRACTOR SHALL SUBMIT DETAILED DRAWIGS SHOWING THE LOCATIONS OF ALL CONSTRUCTION JOINTS. CURBS, SLAB DEPRESSIONS. SLEEVES, OPENINGS. ETC.
7. ALL REINFORCING SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318. BUT IN NO CASE SHALL BE LESS THAN 40 DIAMETERS, UNLESS NOTED OTHERWISE.
8. ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY.
9. WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS OTHERWISE NOTED.
10. ALL WALLS AND STRUCTURAL SLABS SHALL BE REINFORCED WITH AT LEAST #4 @12 INCHES EACH WAY, EACH FACE, UNLESS NOTED OTHERWISE. ALL SLABS-ON-GRADE SHALL BE REINFORCED WITH AT LEAST ONE (1) LAYER OF 4X4-W4.0XW4.0 W.W.M. UNLESS NOTED OTHERWISE.
11. CONSTRUCTION JOINTS IN ALL CONTINUOUS FOOTINGS, WALLS, SLABS AND BEAMS SHALL BE NOT FURTHER APART THAN 60 FEET IN ANY DIRECTION.
12. ALL ADJOINING SURFACES NOT CAST MONOLITHICALLY SHALL BE ROUGHENED TO INCH AMPLITUDE FOR THE ENTIRE INTERSECTION SURFACE ACCORDING TO ACI RECOMMENDATIONS AND SHALL BE COATED WITH BONDING COMPOUND BEFORE PLACING CONCRETE.
13. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE WITHOUT THE ARCHITECT'S PRIOR REVIEW AND WRITTEN APPROVAL.
14. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED.
15. PLACE SLABS-ON-GRADE IN ACCORDANCE WITH ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".
16. CONCRETE AND REINFORCING MATERIALS TO CONFORM TO THE FOLLOWING STANDARDS;
    a.) PORTLAND CEMENT AS PER ASTM C 150.
    b.) AIR ENTRAINING PORTLAND CEMENT AS PER ASTM C 175.
    c.) CONCRETE AGGREGATES AS PER ASTM C 33.
    d.) WATER SHALL BE CLEAN AND FREE OF ANY INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIS, SALT, ORGANIC MATERIALS AND DELETERIOUS SUBSTANCES.
17. SLUMP SHALL NOT EXCEED 5" PLUS OR MINUS 1" FOR STONE AGGREGATE CONCRETE.
18. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE,IF REQUIRED ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT to ALL BARS.
19. ALL BEAMS AND SLABS SHALL BE CAST MONOLITHICALLY UNLESS OTHERWISE NOTED.
20. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 1" FOR SLABS,1" FOR WALLS,1" FOR BEAMS.
21. CONTRACTOR SHALL SUBMIT CONCRETE DESIGN MIXES TO ENGINEER FOR REVIEW AND APPROVAL.
22. ALL CONCRETE SHALL BE CONTROLLED CONCRETE AND SHALL BE TESTED IN ACCORDANCE WITH NYC BUILDING CODE REQUIRMENTS.
23. ALL REINFORCING BARS SHALL BE LAPPED AS INDICATED ON THE DRAWINGS,UNLESS OTHERWISE NOTED TERMINATE CONTINUOUS BARS AT DISCONTINUOUS ENDS WITH STANDARD HOOKS.
24. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF 4 DAYS,CURING SHALL BE PERFORMED BY COVERING FRESHLY PLACED CONCRETE WITH PLASTIC SHEET AND MAINTAINING SHEET IN PLACE UNTIL CONCRETE IS CURED.
25. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES, FLOOR DEPRESSIONS AND CURBS.
26. SEE ARCHITECTURAL DRAWINGS FOR ALL WATERPROOFING/DAMPROOFING DETAILS.
27. SEE ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL WALL/SLAB OPENINGS.
28. SEE SPECIFICATION SECTION "CAST-IN-PLACE CONCRETE" FOR ADDITIONAL REQUIREMENTS.

REINFORCING BAR NOTES:

1. REINFORCING BARS TO BE DEFORMED AND CONFORM TO ASTM A-996 GRADE 60 WITH MINIMUM YIELD STRESS Fy=60,000 psi
2. ALL CONTINUOUS REINFORCING BARS TO BE LAPPED 36 BAR DIAMETERS AT SPLICES AND CORNERS UNLESS OTHERWISE INDICATED. LAP CONTINUOUS BOTTOM BARS AT SUPPORTS AND TOP BARS AT CENTER OF SPANS. SPLICES SPACED CLOSER THAN 12 BAR DIAMETERS TO EACH OTHER OR 6" FROM ANY OUTSIDE EDGE SHALL BE INCREASED TO 43 BAR DIAMETERS (20%).
3. PROVIDE CORNER BARS AT ALL WALL INTERSECTIONS.
4. PROVIDE 1-#5 BAR x 3'-0' LONGER THAN OPENING FOR EACH 4" OF WALL THICKNESS, OVER ALL OPENINGS UNLESS OTHERWISE INDICATED.
5. ALL BARS SHALL BE HELD SECURELY IN PROPER POSITION WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO PROPERLY SUPPORT BARS.
6. MINIMUM CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS:
    a.) FOOTINGS AND OTHER MEMBERS PLACED DIRECTLY ON GROUND 3"
    b.) CONCRETE THAT AFTER REMOVAL OF FORMS IS IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER 2" FOR BARS LARGER THAN #5, AND 1- 1/2" FOR #5 BARS OR SMALLER.
    c.) SLABS AND WALLS NOT EXPOSED TO WEATHER OR GROUND 3/4'. d.) BEAMS AND GIRDERS NOT EXPOSED TO WEATHER OR GROUND 1- 1 /2".
7. CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
8. CONTRACTOR SHALL INSTALL ALL PIPE SLEEVES, BOXED OPENINGS, ANCHOR BOLTS, BEARING PLATES, ETC. AS REQUIRED FOR VARIOUS TRADES.
9. PROVIDE SHOP DRAWINGS PRIOR TO PLACEMENT OF CONCRETE.
10. THE ARCHITECT HAS NOT BEEN RETAINED TO PROVIDE FIELD SUPERVISION, NOR CONTROLLED INSPECTIONS AS PER N.Y. CITY BUILDING CODE.

MASONRY NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND SPECIFICATTONS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION AND BRICK INSTITUTE OF AMERICA .
2. MATERIALS:
    A. HOLLOW LOAD BEARING CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-90, GRADE N, TYPE 1, WITH A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2500 PSI ON THE NET SECTION.
    B. BRICK MASONRY UNITS SHALL CONFORM TO ASTM C62/C652. AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 1500 PSI ON THE NET SECTION.
    C. MORTAR AND GROUT
1. MORTAR FOR STRUCTURAL MASONRY SHALL BE TYPE S. CONFIRMING TO ASTM C270 (JOB-MIXED PROPORTION SPECIFICATIONS; NCMA TEK 20, AND BIA TECHNICAL NOTES 8, 8A, AND 8B) AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI.
2. GROUT FOR STRUCTURAL MASONRY SHALL BE FINE OR COARSE AS REQUIRED. CONFORMING TO ASTM C476 AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI.
3. WHERE APPLICABLE, NON-SHRINK, NON-METALLIC. HIGH STRENGTH GROUT SHALL BE "FIVE STAR GROUT" BY U.S. GROUT OR EQUAL
3. VERTICAL CELLS TO BE FILLED WITH GROUT SHALL BE ALIGNED TO PROVIDE A CONTINUOUS. UNOBSTRUCTED OPENING OF THE DIMENSIONS SHOWN ON THE PLANS.
4. HOLLOW UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS EXCEPT THAT WEBS SHALL ALSO BE BEDDED WHERE THEY ARE ADJACENT TO CELLS TO BE REINFORCED AND/OR FILLED WITH GROUT.
5. ALL CUTTING AND FITTING OF MASONRY, INCLUDING THAT REQUIRED TO ACCOMMODATE THE WORK OF OTHER TRADES, SHALL BE DONE WITH MASONRY SAWS.
6. REINFORCING BARS FOR REINFORCED MASONRY SHALL CONFORM TO ASTM A615-60.
7. GROUT FOR FILLING REINFORCED OR NON-REINFORCED CELLS SHALL BE FLUID AND PLACED BY ACCEPTABLE PRESSURE GROUTING PROCEDURES.
8. GROUT FOR FILLING REINFORCED OR NON-REINFORCED CELLS SHALL BE PLACED IN MAXIMUM FOUR (4) FOOT LIFTS AND CONSOLIDATED IN PLACE BY VIBRATION OR OTHER METHODS WHICH INSURE COMPLETE FILLING OF THE CELLS. ALL CELLS CONTAINING REINFORCING BARS AND/OR ANCHOR BOLTS SHALL BE FULLY GROUTED.
9. POINTS OF BEARING SHALL BE ON TWO (2) COURSES OF HOLLOW MASONRY GROUTED SOLID. CHASES SHALL BE BUILT INTO WALLS, NOT CUT IN. CHASES SHALL BE PLUMB AND SHALL BE A MINIMUM OF ONE (1) MASONRY UNIT LENGTH FROM JAMBS OF WALL OPENINGS. NO CHASES OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE CONSTRUCTED WITHOUT
PRIOR REVIEW OF THE ARCHITECT/ENGINEER.
10. REINFORCED MASONRY:
    A. ALL WALLS AND PIERS SHALL HAVE HORIZONTAL JOINT REINFORCEMENTS AT 32" ON CENTER (U.O.N.) CONSISTING OF TWO (2) 9 GAGE RODS WITH 9 GAGE CROSS TIES AT 32" ON CENTER, (U.O.N.) ASTM A116, CLASS 3 (TWO (2) RODS IN C.M.U. AND ONE (1) ROD IN FACE BRICK). REINFORCEMENT SHALL LAP AT CORNERS AND INTERSECTIONS.
    B. THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS EXCEPT IN COLUMN SHALL BE EQUAL TO THE NOMINAL DIAMETER OF THE BAR.
    C. VERTICAL REINFORCEMENT SHALL BE LAP SPLICED A MINIMUM OF 40 BAR DIAMETER (1'-6 MINIMUM) WHERE REQUIRED.
    D. ALL BARS SHALL BE COMPLETLY EMBEDDED IN MORTAR OR GROUT. ALL BARS SHALL HAVE A COVERAGE OF MASONRY NOT LESS THAN:
    BARS LARGER THAN #5 - 2"
    #5 BARS OR SMALLER - 1-1/2"
    E. VERTICAL REINFORCEMENT OF AT LEAST TWO #5 BARS SHALL BE PROVIDED CONTINUOUSLY FROM SUPPORT TO SUPPORT AT EACH CORNER, AT EACH SIDE OF EACH OPENING AND AT THE ENDS OF WALLS.
    F. HORIZONTAL REINFORCEMENT NOT LESS THAN ONE #4 BAR SHALL BE PROVIDED:
        1. AT THE BOTTOM AND TOP OF WALL OPENINGS AND SHALL EXTEND NOT LESS THAN 24 IN. NOR LESS THAN 40 BAR DIAMETERS PAST THE OPENING.
        2. CONTINUOUSLY AT STRUCTURALLY CONNECTED ROOF AND FLOOR LEVELS AND AT THE TOP OF WALLS.
        3. AT THE BOTTOM OF THE WALL OR IN THE TOP OF THE FOUNDATIONS WHEN DOWELLED TO THE WALL
        4. AT MAXIMUM SPACING OF 10 FT. UNLESS UNIFORMLY DISTRIBUTED JOINT REINFORCEMENT IS PROVIDED. REINFORCEMENT AT THE TOP AND BOTTOM OF OPENINGS WHEN USED IN DETERMINING THIS MAXIMUM SPACING SHALL BE CONTINUOUS IN THE WALL.
11. PROVIDE ADEQUATE, TEMPORARY BRACING AS REQUIRED DURING CONSTRUCTION TO WITHSTAND LATERAL LOADS AND THE PRESSURES OF FLUID GROUT.
12. CONCRETE MASONRY SHALL BE PROTECTED FROM ABSORBING MOISTURE AND WATER WHILE AT THE PLANT,DURING SHIPMENT AND AT THE SITE DURING CONSTRUCTION.
13. ANCHORS, WALL PLUGS, ACCESSORIES AND OTHER ITEMS TO BE BUILT IN SHALL BE INSTALLED AS THE MASONRY WORK PROGRESSES. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAILS.
14. MASONRY WALLS SHALL BE ANCHORED TO THE FLOOR SLAB OR CURB WITH #5 DOWELS AT 24 INCHES ON CENTER. THESE BARS SHALL BE HOOKED AND EMBEDDED INTO THE CONCRETE AND EXTEND AT LEAST 1'-6" INTO THE MASONRY AND GROUTED SOLID, UNLESS OTHERWISE SHOWN.
15. POINTS OF BEARING SHALL BE ON A MINIMUM OF TWO (2) COURSES OF HOLLOW MASONRY GROUTED SOLID.
16. WALLS WHICH TERMINATE BELOW FLOOR DECKS SHALL BE ANCHORED LATERALLY WITH L4x4x1/4 ANGLES SPACED AT 4 FEET ON CENTER EACH SIDE OF THE WALL
17. PROVIDE LOOSE LINTELS FOR OPENINGS IN BRICK FACADE AS FOLLOWS:
    0'-0" < OPENINGS < 4'-0" L4x3.5x5/16'
    4'-0" < OPENINGS < 7'-0" L6x3.5x5/16

MATERIALS:

UNLESS OTHERWISE SHOWN OR NOTED ON DRAWINGS:

1. STRUCTURAL STEEL:

ALL ROLLED SHAPES:	ASTM A572
ALL PLATES AND CONNECTION MATERIAL:	ASTM A36
ALL TUBULAR SECTIONS:	ASTM A500, GRADE B
ALL PIPE SECTIONS:	ASTM A53, GRADE B
ANCHOR BOLTS, U.O.N.:	ASTM F1554

2. METAL DECK:
FABRICATE FROM ASTM A611 OR ASTM A653 STEEL WITH ASTM A653 G60 GALVANIZING. SIZE AND GAGE AS NOTED ON DRAWINGS. U.O.N., FLOOR DECKING SHALL BE COMPOSITE DECK WITH CONFIGURATION THAT PERMITS FULL AISC SHEAR CONNECTOR VALUE.
3. SHEAR CONNECTOR:
3/4" DIAMETER X 3" HEADED STUDS, U.O.N.
4. CAST-IN-PLACE CONCRETE:

FOUNDATIONS:	4 KSI NORMAL WT.
SLABS ON METAL DECK:	4 KSI NORMAL WT.

5. REINFORCEMENT:

DEFORMED BARS:	ASTM A615, GRADE 60.
WELDED WIRE FABRIC:	ASTM A185.
WELDED DEFORMED WIRE FABRIC:	ASTM A497, GRADE 60.

6. WELDING ELECTRODES: E70XX LOW HYDROGEN.
7. BOLTING MATERIALS: U.O.N. ASTM A325/F1852 OR A490/F2280,
8. LIGHT GAGE FRAMING: ASTM A653; GRADE 50 FOR 16 GAGE AND HEAVIER, GRADE 40 FOR 18 GAGE AND LIGHTER; WITH G60 GALVANIZING

STRUCTURAL STEEL NOTES:

1. ALL COLUMN, BEAMS, GIRDERS ,SHALL CONFORM TO THE ASTM STANDARD A-572, GRADE 50, WITH A MINIMUM YIELD STRENGTH OF 50KSI, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
2. STRUCTURAL STEEL FOR TUBES SHALL BE ASTM A500-GRADE B.
3. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 OR A490. ALL BOLTS SHALL BE 3/4 INCH DIAMETER, UNLESS NOTED OTHERWISE-
4. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO AISC "ALLOWABLE STRESS DESIGN SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" AND AISC "CODE OF STANDARD PRACTICE" . LATEST EDITIONS.
5. ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION", LATEST EDITION. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S A5.1 GRADE E-70 BARE ELECTRODES AND GRANULAR FLUX SHALL CONFORM TO A.W.S A5.17,F70 A.W.S FLUX CLASSIFICATION.
6. THE FABRICATOR/ERECTOR SHALL SUBMIT TO THE ARCHITECT. FOR REVIEW. ENGINEERED AND CHECKED DRAWINGS SHOWING SHOP FABRICATION DETAILS, FIELD ASSEMBLY DETAILS AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL.
7. UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL CONNECTIONS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. CALCULATIONS SHALL BEAR THE SEAL AND SIGNATURE OF A NEW YORK STATE REGISTERED PROFESSIONAL ENGINEER. DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES, UNLESS SPECIFICALLY NOTED.
8. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2).
9. MINIMUM FILLET WELDS SHALL COMPLY WITH THE AISC. BUT SHALL NOT BE LESS THAN 1/4 INCH, UNLESS NOTED OTHERWISE.
10. SIMPLE SHEAR CONNECTIONS SHALL BE CAPABLE OF END ROTATION AS PER THE REQUIREMENTS OF THE AISC CODE FOR UNRESTRAINED MEMBERS.
11. SHOP AND FIELD TESTING OF WELDS AND BOLTS SHALL BE AS FOLLOWS:
    A. ALL WELDS SHALL BE VISUALLY INSPECTED. FIFTEEN (15) PERCENT AT RANDOM SHALL BE MEASURED.
    B. FILLET WELDS FOR BEAM AND GIRDER SHEAR CONNECTION PLATES (30 PERCENT AT RANDOM) SHALL BE CHECKED BY MAGNETIC PARTICLE FOR FINAL PASS ONLY.
    C. ULTRASONICALLY TEST 100 PERCENT OF ALL FULL PENETRATION WELDS.
    D. THE OWNER'S TESTING AGENCY SHALL PERFORM ALL SHOP AND FIELD INSPECTION AND TESTING AS OUTLINED ABOVE.
    E. THE STRUCTURAL STEEL FABRICATOR AND ERECTOR SHALL SCHEDULE ALL WORK TO ALLOW THE ABOVE TESTING REQUIREMENTS TO BE COMPLETED.
12. FABRICATE BEAMS WITH NATURAL CAMBER UP.
13. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS.
14. ALL EXTERIOR ELEMENT AND LOOSE LINTELS TO BE PAINTED. EXTERIOR ELEMENTS AR ANY ELEMENTS WHICH FALL OUTSIDE THE BUILDING INSULATION. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. PRIOR TO APPLICATION OF SPRAYED-ON FIREPROOFING, THE CONTRACTOR SHALL REMOVE, IN THE FIELD, ALL LOOSE MILL SCALE OR RUST.
16. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT.

STEEL CONTRACTOR.

18. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE ASIC'S "MANUAL OF STEEL CONSTRUCTION" LATEST EDITION.
19. ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ASIC'S "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS"
20. ALL BEAM TO GIRDER & BEAM TO BEAM CONNECTIONS SHALL BE BOLTED, USING 3/4" DIA. A325 BEARING BOLTS, IN STANDARD HOLES, OR SLIP CITICALBOLTS IN OVERSIZED OR SLOTTED HOLES, U.O.N.
21. ALL BEAM TO BEAM & BEAM TO GIRDER CONNECTIONS SHALL BE OF TWO SIDED WEB ANGLE CONNECTIONS, PER ASIC SPECIFICATIONS, LATEST EDITION.
22. CUTS, HOLES, COPES, ETC REQUIRED FOR WORK SHALL BE SHOWN ON SHOP DRAWINGS AND MADE IN THE SHOP. CUTS OR BURNING OF HOLES IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.
23. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A325 UNLESS OTHERWISE NOTED.
24. ALL CLIP ANGLES,BASE PLATES,GUSSET PLATES,COLUMN REINFORCING PLATES,AND COLUMN CAP PLATES SHALL CONFORM TO ASTM STANDARD A36 UNLESS OTHERWISE NOTED.
25. ALL FIELD SPLICES AND CONNECTIONS SHALL BE WELDED OR BOLTED USING HIGH STRENGHT BOLTS.
26. SPLICES SHALL BE DESIGNED TO DEVELOP THE FULL CAPACITY OFTHE MEMBER AT THE POINT OF SPLICE UNLESS OTHERWISE NOTED.MEMBERS SHALL NOT BE SPLICED AT THE POINTS OF MAXIMUM STRESS.
27. PROVIDE TEMPORARY BRACING OR GUYS TO PROVIDE LATERAL SUPPORT UNTIL PERMANENT NEW STRUCTURAL CONCRETE SLABS ARE INSTALLED AND FULLY CURED.
28. ALL WELDS NOT SPECIFICALLY CALLED OUT SHALL BE AT LEAST THE MINIMUM WELD SIZE AS SPECIFIED BY THE AISC MANUAL OF STEEL DESIGN LATEST EDITION.
29. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING LOCATIONS SHALL BE REPEATED.
30. ALL EXISTING STEEL SHALL BE CLEANED AS A.W.S LATEST EDITION IN PREPARATION FOR WELDING NEW STEEL TO EXISTING MEMBERS.
31. ALL EXTERIOR EXPOSED STEEL MEMBERS SHALL BE HOT DIPPED GALAVANIZED (G90).

STRUCTURAL DESIGN CRITERIA:

1. CODES AND STANDARDS:
    A. THE BUILDING CODE OF THE CITY OF NEW YORK
    B. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-99)
    C. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES(ACI 530-99), AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-99)
    D. SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTIONOF STRUCTURAL STEEL FOR BUILDINGS, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), LATEST EDITION.
2. DESIGN LOADS:
    A. LATERAL LOADS:
        a. WIND LOADS: PER NY STATE BUILDING CODE
        b. SEISMIC LOADS: PER NY STATE BUILDING CODE
            SEISMIC ZONE: C
            Z = 0.15
            I = 1.0
            STRUCTURAL PERIOD= 0.4 Sec

SPECIAL INSPECTIONS

1. SOILS. INVESTIGATIONS (TEST PITS) tr-4 BC 17047.4
2. SOILS. FILL PLACEMENT AND IN-PLACE DENSITY BC 1704.7.2, 1704.7.3
3. STRUCTURAL STEEL -ERECTION AND BOLTING BC 1704.3.2, BC 1704 3.,3
4. STRUCTURAL STABILITY BC 1704.19
5. REINFORCED MACONRY BC 1704.5
6. CONCRETE CAST-IN-PLACE BC 1704.4
7. CONCRETE TEST CYLINDER, TR-2 BC 1905.6
8. CONCRETE DESIGN MIX; TR-3 BC 1905.3

LOAD SCHEDULE

DL: LBS/SF	80 LBS/SF	DL:	60
SDL: LBS/SF	20 LBS/SF	SDL:	20
LLRES: LBS/SF	40 LBS/SF	LLCORRIDOR:	100
TOTAL: LBS/SF	120 LBS/SF		180

WIND LOAD = 20 LBS/SF

No:	Description:	Date:

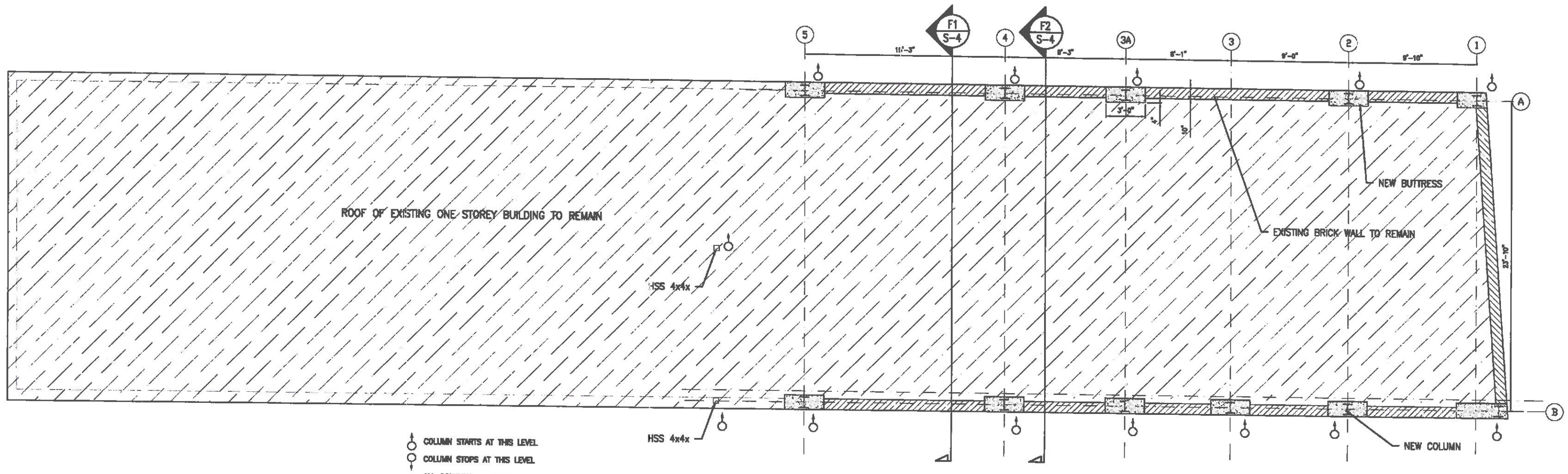
Versatile Engineering P.C.
47-30 244 STREET DOUGLASTON, NY 11362
Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
NEW YORK, NY 10009

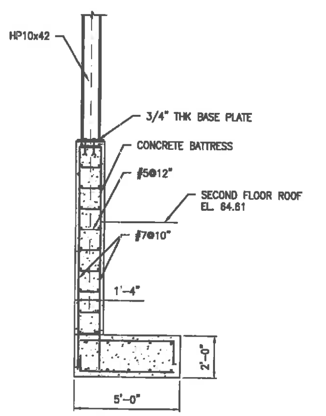
GENERAL NOTES & DETAILS

SEAL & SIGNATURE

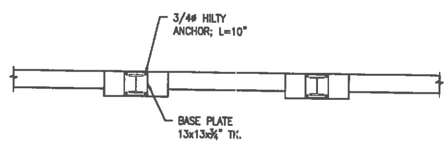
DATE:	01.10.2016
PROJECT No:	04-2016
DRAWING BY:	K.G.
CHK BY:	R.S.
DWG No:	S-001.00
CAD FILE No:	134 Metropolitan ave STRUCT



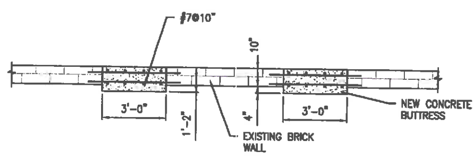
SECOND FLOOR PLAN
NOT TO SCALE



NEW COLUMN INSTALLATION ON EXISTING CONCRETE BUTTRESS
SCALE 3/8" = 1'-0"



NEW COLUMNS CONNECTION TO NEW CONCRETE BUTTRESS
SCALE 3/8" = 1'-0"



NEW CONCRETE BUTTRESS AND EXISTING CONCRETE WALL CONNECTION
SCALE 3/8" = 1'-0"

No:	Description:	Date:

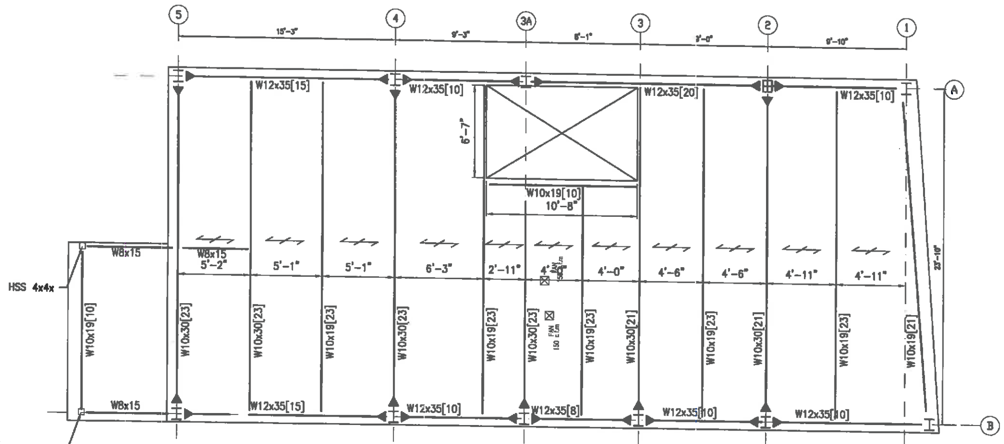
Versatile Engineering P.C.
47-30 244 STREET DOUGLASTON, NY 11362
Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
NEW YORK, NY 10009

SECOND FLOOR PLAN

SEAL & SIGNATURE

DATE:	01.10.2016
PROJECT No:	04-2016
DRAWING BY:	K.G.
CHK BY:	R.S.
DWG No:	S-002.00
CAD FILE No:	134 Metropolitan ave STRUCT



THIRD TO FIFTH FLOOR TYPICAL PLAN
NOT TO SCALE

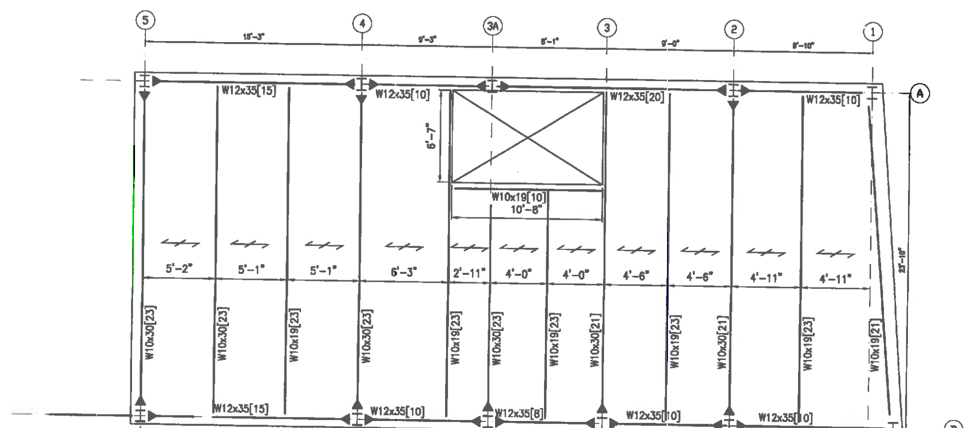
METAL DECK, GA18, WITH 4" CONCRETE SLAB, 4000 PSI.
RIBS HEIGHT 1.5,
RIBS WIDTH 2.2
DECK ORIENTATION: TRANSVERSE

MOMENT CONNECTION

COLUMN STARTS AT THIS LEVEL

COLUMN STOPS AT THIS LEVEL

ALL COLUMNS – W10x42



ROOF PLAN
NOT TO SCALE

METAL DECK, GA18, WITH 4" CONCRETE SLAB, 4000 PSI.
RIBS HEIGHT 1.5,
RIBS WIDTH 2.2
DECK ORIENTATION: TRANSVERSE

MOMENT CONNECTION

COLUMN STARTS AT THIS LEVEL

COLUMN STOPS AT THIS LEVEL

ALL COLUMNS – W10x42

No:	Description:	Date:

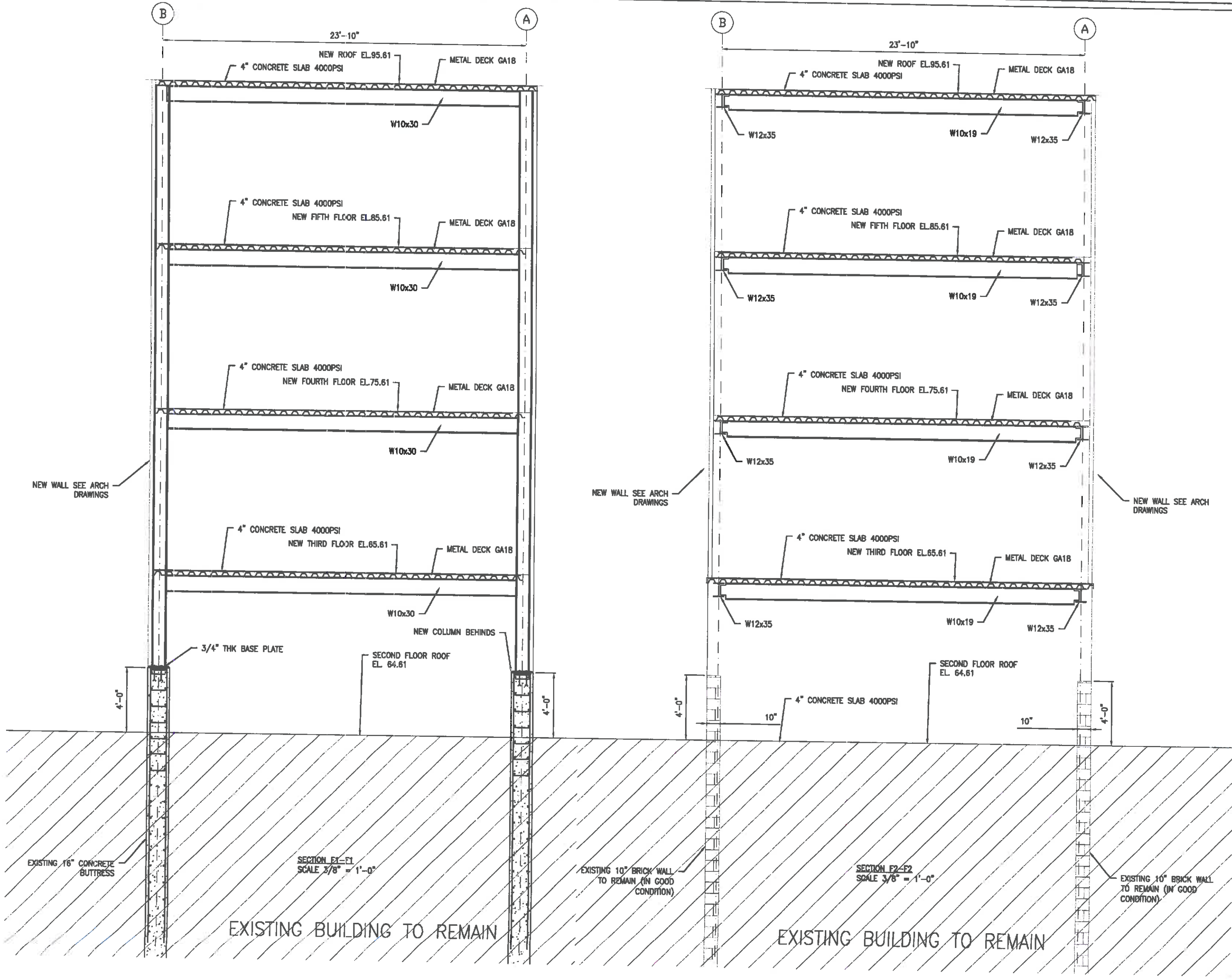
Versatile Engineering P.C.
47-30 244 STREET DOUGLASTON, NY 11362
Tel.(917) 873-0682 Fax.(718) 247-5943
E.mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
NEW YORK, NY 10009

THIRD TO FIFTH FLOOR TYPICAL AND ROOF PLANS

SEAL & SIGNATURE

DATE:	01.10.2016
PROJECT No:	04-2016
DRAWING BY:	K.G.
CHK BY:	R.S.
DWG No:	S-003.00
CAD FILE No:	134 Metropolitan ave STRUCT



No:	Description:	Date:

Versatile Engineering P.C.
47-30 244 STREET DOUGLASTON, NY 11362
Tel.(917) 873-0662 Fax.(718) 247-5943
E mail. versatile.pc@gmail.com

PROJECT:
134 METROPOLITAN AVENUE
NEW YORK, NY 10009

SECTIONS

SEAL & SIGNATURE

DATE:	01.10.2016
PROJECT No:	04-2016
DRAWING BY:	K.G.
CHK BY:	R.S.
DWG No:	S-004.00
CAD FILE No:	134 Metropolitan ave STRUCT

APPENDIX K

Site Photographs

1. View of subject site.

2. View of rear of site.

3. View of building interior.

4. View of building interior.

5. View of building interior.

6. View of bathroom.

7. View of sub-basement.

8. View of electric mains.

9. View of roof.

10. View of surrounding properties.

11. View of surrounding properties.

APPENDIX L

Personnel and Qualifications

RICHARD J. IZZO, CPG

- **TITLE**

  Vice President

- **EDUCATION**

  Bachelor of Science, Geology, State University of New York at Oneonta, 1983

- **CERTIFICATIONS AND REGISTRATIONS**

  AIPG Certified Professional Geologist No. 9644
  Hazardous Waste Operations & Emergency Response Supervisor (29 CFR 1910.120)
  Health & Safety Operations at Hazardous Materials Sites (29 CFR 1910.120)

- **PROFESSIONAL AFFILIATIONS**

  American Institute of Professional Geologists
  Association of Groundwater Scientists and Engineers
  New York State Council of Professional Geologists
  American Society for Testing and Materials (ASTM)

- **PROFESSIONAL EXPERIENCE**

  Vice President, CA Rich Consultants, Inc., 1985 - Present

  Mr. Izzo possesses over thirty years experience in the design, implementation, and management of environmental testing and remediation programs throughout the Tri-State Area. Examples of these programs include several NY State Brownfield Cleanup Program Investigations and Cleanups in the Bronx, NY a NYSDEC Brownfields Investigation in Bushwick, NY, a Remedial Investigation for a Superfund Site in Maybrook, NY and a NYSDEC Phase II investigation in Croton-on-Hudson, NY. His responsibilities included design of monitoring well networks, including well location and depth selection; supervision of drilling and well installation; design of sampling and analysis programs including sampling methodology, protocol, and analytical parameters; sampling of soil, groundwater, surface water, ambient air, soil vapor, building materials, and interior radon testing; data reduction (including interpretation of laboratory results, determination of ground water flow direction and rate), and preparation of written reports; interface between responsible parties and regulatory agencies.

  Mr. Izzo has designed, implemented, and managed several remediation programs in the Tri-State Area including a NYSDEC Voluntary Cleanup of a former decal manufacturing facility in Mount Vernon, NY to restore the site to “unrestricted usage” conditions for redevelopment and occupation by the foods service industry.

  Mr. Izzo has managed remedial investigative testing and analysis as well as conceptual design of active soil vapor extraction and groundwater treatmant systems. In addition, Mr. Izzo has participated in the design and implementation of passive and active floating product removal systems utilizing pump and treatment methods, oil-sorbent materials and oxygen-releasing products to remove light non-aqueous phase liquids (LNAPLS) and enhance natural bioremediation of dissolved hydrocarbons. Additional remedial action programs managed by Mr. Izzo include removal, testing and proper disposal of abandoned underground storage tanks, as well as contaminated soils and water at a US Postal Service construction site in Manhattan; and identification, testing, excavation and proper disposal of over 7,000 tons of hydrocarbon-impacted soils under a NYSDEC consent Order at a Suffolk County, NY former industrial property as part of site re-development into a residential community.

Mr. Izzo implemented quarterly water quality monitoring program at a New Jersey Site contaminated with chlorinated hydrocarbons. As part of this project, he directed testing and remedial activities including excavation and disposal of contaminated soil based on soil vapor screening with real-time vapor monitoring equipment; removal and disposal of buried 1000 gallon storage tank; removal of contaminated groundwater through installation of small scale recovery well system. In addition, Mr. Izzo assisted in the design of a pilot-scale pump and treatment operation involving the installation of an air stripper to mitigate volatile organic contamination in shallow groundwater. Mr. Izzo designed, authored, and assisted in the implementation of a Site Health and Safety Plan for the construction and eventual occupation of a United States Postal Service General Mail Facility/Vehicle Maintenance Facility on a former landfill in Brooklyn, NY.

Mr. Izzo assisted in development of the Firm's real property transfer assessment capabilities, and currently provides senior-level review on all written reports. In addition, Richard has helped clients satisfy or close out Orders on Consent, Petroleum and Chemical Spill Cases, and Stipulation Agreements. Mr. Izzo has been called upon as an expert witness in several matters involving the transfer of environmentally impacted real property, and remediation of chemical and petroleum releases.

Mr. Izzo managed and participated in several ground water resource investigations for potential developers in Westchester, Putnam, and Dutchess Counties in New York. His experience includes seismic profiling, fracture trace analysis, selection of test well locations, supervision of test well installation, design and implementation of 24, 48 and 72-hour pumping tests, as well as reduction and analysis of pumping test data.

Mr. Izzo managed a hydrogeologic investigation in support of a ground water allocation permit application for a golf course in Monmouth County, New Jersey. His responsibilities included a drainage basin recharge estimate, analysis of pumping test data and a computer model assessing pumpage impacts to surrounding wells. Additional related responsibilities included preparation of written report and expert testimony at a NJDEP hearing.

Mr. Izzo designed and implemented a town-wide ground water resource management study for the Town of North Castle, New York. This study included mapping of stratified drift and fracture bedrock aquifers, analysis of hydrogeologic information from existing well inventory, development of water budget and estimate of current and potential future ground water resource demand.

Mr. Izzo managed a water resource feasibility study for a golf course DEIS application in northern Westchester County. Activities included determination of irrigation requirements and ground water resource exploration. In addition, Mr. Izzo designed and managed a hydrogeologic assessment for a community water supply system in Westchester County. Activities include determination of normal well system operation impacts on nearby surface water bodies, and prediction of well interference effects through utilization of computer modeling.

Mr. Izzo serves as the Firm's Human Resources Director and is the Senior Editor of the Firm's newsletter, "Environmental Bulletin"

- **SELCTED PUBLICATIONS & RECOGNITION**

Izzo, Richard J. "From Fort Apache to The Green Way" Brownfield Renewal Magazine; May 2012

Izzo, Richard J. *"Buyer Beware: User Responsibilities under All Appropriate Inquiry Standards"* New York Real Estate Journal; December 2007

Izzo, Richard J. & Rich, Charles A. "*Monitored Natural Attenuation is not NO ACTION"* Long Island Business News; April 1999

Izzo, Richard J*. "Lead Based Paint Risk and Risk Management"*
Long Island Business News, New England Real Estate Journal; May 1993

Who's Who in Environmental Consulting, Engineering & Building Services
Long Island Business News, 2011

JASON T. COOPER, CPG # 11626, PG 152

- **TITLE**

  Senior Project Manager

- **EDUCATION**

  Bachelor of Science, Geology, State University of New York at Buffalo, 1999

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training
  10-hour OSHA Occupational Construction Safety and health Course
  Standard First Aid Training - American Red Cross
  CPR Training – American Red Cross

- **PROFESSIONAL AFFILIATIONS**

  Long Island Association of Professional Geologists (LIAPG)
  American Institute of Professional Geologist (AIPG)
  New York State Professional Geologist (PG)

- **PROFESSIONAL EXPERIENCE**

  Project Environmental Scientist/Project Manager,
  CA RICH Consultants, Inc., 2005 - Present

  As a Project Environmental Scientist with CA RICH, Mr. Cooper's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments (ESAs). Jason's Phase I and Phase II ESA experience includes coordinating historical and regulatory database searches, conducting Property inspections, collecting soil, groundwater, and sediment samples and authoring Phase I and Phase II reports for sites in New York City, Long Island, and Westchester County. Additionally, he is well-versed in AutoCAD 2010 and provides drafting services for the company.

  Mr. Cooper has managed numerous projects involved in the New York City Office of Environmental Remediation (NYC OER) E-designation program, the New York City Brownfield Cleanup Program (BCP), and New York State Spills program. He has received approval from the State for numerous BCP applications and has closed out numerous New York State Spills sites.

  Mr. Cooper has also assisted with the construction, pilot tests, and start-up tests associated with air sparge/soil vapor extraction (AS/SVE) and sub-slab depressurization (SSD) systems for the remediation/mitigation of contamination. In addition, he has conducted monitoring and troubleshooting for the AS/SVE and SSD systems.

  Mr. Cooper also conducts annual property inspections for the highly successful Tenant Environmental Compliance Program, which helps to ensure that the tenants are not contaminating a landlord's properties. This Program now covers almost two million square feet of multi-tenanted buildings on Long Island, NY.

Geologist, Geologic Services Corporation (AKA Kleinfelder), 2001 - 2005

As a Geologist with Geologic Services Corporation, Mr. Cooper's responsibilities included the authoring of quarterly monitoring reports, sub-surface investigation reports, and sensitive receptor survey reports. In addition he has conducted monitoring well installation oversight with logging and sampling, remediation system maintenance, well surveying, groundwater sampling, 24-hour pump tests, equipment maintenance and peer mentoring.

Mr. Cooper developed and implemented a program for the management and oversight for the collection of over 1,000 groundwater samples for a retail gasoline station in Smithtown, New York. His duties included the training of personnel, management and QA/QC of samples, and meeting monthly deadlines. In addition, he conducted monthly mass flux calculations, MTBE vertical cross-section contour maps, vertical cross-section groundwater flow maps (flow nets), and aerial groundwater flow maps.

Jason has also assisted with the construction of a groundwater pump and treat remediation system and determined the most affective locations for the submersible pumps for maximum contamination recovery.

Jason has completed the ExxonMobil Loss Prevention Safety (LPS) program and participated in monthly Health and Safety meetings. Jason conducted health and safety oversight of drilling activities, tank cleanings and removals and soil removal. The LPS and health and safety programs were implemented in the field by Jason as a health and safety officer with zero incidences.

Field Technician, Environmental Assessment and Remediation (EAR) 2000 - 2001

As a field technician with EAR, Mr. Cooper's responsibilities included the construction of remediation systems, operations and maintenance along with troubleshooting of remediation systems, groundwater sampling, air sampling and well abandonment.

- **PUBLICATIONS**

Cooper, Jason T., *"Changing Times; From SVE to SSD,"* CA RICH Newsletter, Holiday 2015.

Cooper, Jason T., *"The Lingering Effects of Superstorm Sandy,"* CA RICH Newsletter, Spring 2013.

Jason Cooper, "*Who's Who in Environmental Consulting & Engineering, Long Island Business News",* April 2013.

Cooper, Jason T., *"Greening E-Waste"*, CA RICH Newsletter, Holiday 2010.

JESSICA E. PROSCIA

- **TITLE**

  Project Environmental Scientist

- **EDUCATION**

  Bachelor of Science, Health Science, Environmental Health and Safety, State University of New York at Stony Brook, 2007

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training
  10-hour OSHA Occupational Construction Safety and Health Course
  Standard First Aid Training - American Red Cross
  CPR Training – American Red Cross

- **PROFESSIONAL EXPERIENCE**

  <u>Project Environmental Scientist, C A Rich Consultants, Inc., Oct. 2008 – Present</u>

  As a Project Environmental Scientist with CA RICH, Ms. Proscia's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments. Ms. Proscia is currently managing the testing and remediation of redevelopment sites under the New York State Department of Environmental Conservation's Brownfield Cleanup Program; New York City Brownfield Cleanup Program and State Superfund Program. She has also conducted all aspects of environmental investigations including UST removals, supervision of drilling and well installation, sanitary system or dry well clean-outs, groundwater, and soil sampling, soil delineation, excavation, petroleum and hazardous waste disposal, analytical interpretation, groundwater contouring, soil vapor intrusion testing and report preparation. She has received approval from the State for BCP applications and has closed out numerous New York State Spills sites.

  Ms. Proscia conducts annual property inspections for the highly successful Tenant Environmental Compliance Program, which helps to ensure that the tenants are not contaminating a landlord's properties. This Program now covers almost two million square feet of multi-tenanted buildings on Long Island, NY.

  <u>Environmental Scientist/Health and Safety Officer, Hydro Tech Environmental, Corp., 2007 - 2008</u>

  As an Environmental Scientist with Hydro Tech Environmental, Ms. Proscia's responsibilities included Phase I ESA's through Subsurface Investigations. Ms. Proscia was also involved in site supervision on several properties in New York State.

  Ms. Proscia performed on site safety inspections for the company's field crew as well as trained staff for the OSHA 40-hour and 8-hour refresher course.

- **PUBLICATIONS**

Proscia, Jessica and Weinstock, Eric A., 2015, "*Legacy from an Industrial Past: Volatile Vapor Intrusion*," The Corridor, April 2015.

Jessica Proscia, *Who's Who in Environmental Consulting & Engineering*, Long Island Business News, April 2014.

Thomas R. Brown

- **TITLE**

  Geologist

- **EDUCATION**

  Bachelor of Science, Geology, Environmental Geoscience, State University of New York at New Paltz, 2012

- **CERTIFICATIONS**

  40-hour OSHA Hazardous Waste Operations and Emergency Response Training (OSHA 29 CFR 1910.120)
  8-hour OSHA Hazardous Waste Operations and Emergency Response Refresher Training

- **PROFESSIONAL EXPERIENCE**

  Project Environmental Scientist, C A Rich Consultants, Inc., May 2012 – Present

  As a Project Environmental Scientist with CA RICH, Mr. Brown's responsibilities include the conductance of Phase I and Phase II Environmental Site Assessments (ESAs). Mr. Brown has also conducted all aspects of environmental investigations including supervision of drilling and well installation, sanitary system or dry well clean-outs, groundwater, indoor air, soil gas, subslab vapor, and soil sampling, soil delineation, excavation, UST removals, petroleum and hazardous waste disposal, analytical interpretation, groundwater contouring, mapping, and report preparation.

  Mr. Brown assisted with the start-up tests for soil vapor extraction (SVE) systems for the remediation of PCE contamination on Federal Superfund sites.

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY: General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President

- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director

- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager

- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager

- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer

- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager

- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist

- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College

Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional
Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College

Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional
Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

State University of New York

State University at Stony Brook

On the Recommendation of the Faculty and by Virtue of the Authority vested in them the Trustees of the University have conferred on

Lori Ann Isenberg

the Degree of

Bachelor of Science

and have granted this Diploma as evidence thereof

Given at Stony Brook, in the State of New York, in the United States of America on the twentieth day of December one thousand nine hundred and eighty-five.

Chairman of the Board of Trustees

Chairman of the Council,
State University at Stony Brook

Chancellor of the State University of New York

John H. Marburger III
President,
State University at Stony Brook