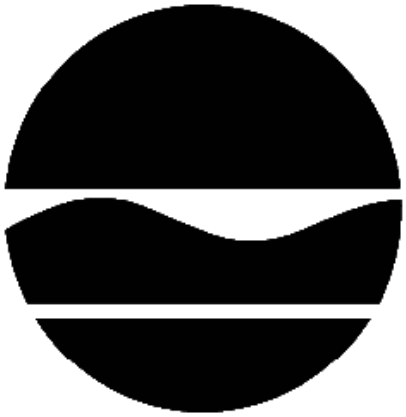
DECISION DOCUMENT

2103 Ralph Avenue
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224205
May 2019



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

2103 Ralph Avenue
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224205
May 2019

Statement of Purpose and Basis

This document presents the remedy for the 2103 Ralph Avenue site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 2103 Ralph Avenue site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

During the course of the investigation, certain actions known as interim remedial measures (IRMs), were undertaken at the above referenced site. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the remedial investigation (RI) or alternatives analysis (AA). The IRM(s) undertaken at this site are discussed in Section 6.2.

Based on the implementation of the IRM(s), the findings of the investigation of this site indicate that the site no longer poses a threat to human health or the environment; therefore, No Further Action is the selected remedy. The remedy may include continued operation of a remedial system if one was installed during the IRM and the implementation of any prescribed institutional controls/engineering controls (ICs/ECs) that have been identified as being part of the proposed remedy for the site.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

June 12, 2019

Date:

Gerard Burke, Director
Remedial Bureau B

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SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site resulted in threats to public health and the environment that were addressed by actions known as interim remedial measures (IRMs), which were undertaken at the site. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the remedial investigation (RI) or alternative analysis (AA). The IRMs undertaken at this site are discussed in Section 6.2.

Based on the implementation of the IRM(s), the findings of the investigation of this site indicate that the site no longer poses a threat to human health or the environment. The IRM(s) conducted at the site attained the remediation objectives identified for this site, which are presented in Section 6.5, for the protection of public health and the environment. No Further Action is the selected remedy. A No Further Action remedy may include continued operation of any remedial system installed during the IRM and the implementation of any prescribed controls that have been identified as being part of the remedy for the site. This Decision Document identifies the IRM(s) conducted and discusses the basis for No Further Action.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held from April 10, 2019 through May 25, 2019, during which the public was encouraged to submit comments on the proposed remedy. No comments on the remedy were received during the comment period. Site-related reports and documents were made available for review by the public at the following document repositories:

Brooklyn Public Library - Paerdegat Branch
850 E. 59th St. at Paerdegat Ave. South
Brooklyn, NY 11234
Phone: (718) 241-3994

Brooklyn Community Board 18
1097 Bergen Ave.
Brooklyn, NY 11234
Phone: 718-241-0422

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The 2103 Ralph Avenue site is located in an urban area in Brooklyn, Kings County. The site is identified as Unit #33, with an address of 2103 Ralph Avenue, which is located within the southwest portion of the Georgetown Shopping Center with an overall address of 2181 Ralph Avenue, Brooklyn, NY. The Georgetown Shopping center, an approximately 6.72-acre area, is bounded by Avenue K to the north, Avenue L to the south, East 72nd Street to the east, and Ralph Avenue to the west.

Site Features: The site is 2,004 square feet (0.046 acre) unit in a one-story building located at the southwest portion of the Georgetown Shopping Center. The unit is currently occupied by an eyeglass retail store.

Current Zoning and Land Use: The site is located in an R3-2 zoning district within a C2-2 overlay, which permits commercial use. The site is surrounded by commercial uses both within the Georgetown Shopping center and to the east across Ralph Avenue. Residential uses exist to the southeast across Avenue L, and to the north adjacent to E 72nd Street.

Past Use of the Site: The subject property was originally marshland that was drained by 1924. The larger property containing the site was used by the Jamaica Dredging Company from the 1920s through the early 1950s, which likely filled the site and surrounding areas using dredged material from Paerdegat Basin. The site was developed as a shopping center between 1967-1970 and has been used for commercial spaces since that time. Past land uses include a number of commercial establishments, including a dry cleaner which operated on-site for 27 years until at least the early 1990s.

Site Geology and Hydrogeology: The surface topography slopes down to the southeast towards East Mill Basin. The property lies at an elevation of approximately 15 feet above mean sea level. Shallow soils consisting of historic fill material (silty to medium coarse sands mixed with anthropogenic materials) exist to approximately ten feet below grade. Below the fill, approximately five feet of loamy soil with organic material exists followed by fine sands with gravel to depths of 50 feet below grade. The approximate depth to bedrock is 800 feet from grade surface.

Groundwater has been measured at an average depth of approximately 8.5 feet below grade and flows toward the south-southwest.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the Remedial Investigation (RI) Report.

SECTION 5: ENFORCEMENT STATUS

One or more of the Applicants under the Brownfield Cleanup Agreement is a Participant. The Participant(s) has/have an obligation to address on-site and off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water

or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings, or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

tetrachloroethene (PCE)

Based on the investigation results, comparison to the SCGs, and the potential public health and environmental exposure routes, certain media and areas of the site required remediation. These media were addressed by the IRM(s) described in Section 6.2. More complete information can be found in the RI Report and the IRM Construction Completion Report.

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

Soil removal and sub-slab depressurization system

The IRM was conducted at the site between July 2016 and April 2017 and included the following elements:

- Excavation of soil/fill to an elevation of approximately one foot below ground surface and off-site disposal of approximately 40 cubic yards of PCE contaminated soil exceeding commercial Soil Cleanup Objectives (SCOs). Reclaimed construction and demolition debris (C&D) material from the site was used to replace the excavated soil and establish the design grades at the site.

- A vapor barrier and active sub-slab depressurization system (SSDS) were installed in the building to protect against soil vapor intrusion beneath the site (2103 Ralph Avenue) and two adjacent storefronts (2097 and 2099 Ralph Avenue) which were found to have been impacted by vapor intrusion.

- To prevent exposure to remaining contamination in the soil and fill at the site, a cover system was placed over the site and within the two adjacent storefronts. This cover system is comprised of a six-inch thick concrete building slab underlain by the vapor barrier and the SSDS.

Post-excavation soil sampling results indicated no detections of VOCs above Commercial Use SCOs in the soil that remained. Several SVOCs, primarily polyaromatic hydrocarbons (PAHs), were detected in endpoint samples in addition to various metals above Commercial Use SCOs consistent with contaminated historic fill.

The completion of the IRM was documented in the February 2019 Construction Completion Report.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:
A site-wide investigation was conducted from December 2015 to May 2016 to delineate any contamination in soil, groundwater and soil vapor. Soil and groundwater at the site were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds in the form of polycyclic aromatic hydrocarbons (PAHs), metals, polychlorinated biphenyls (PCBs), and pesticides. Groundwater was also analyzed for the emerging contaminants per- and polyfluoroalkylated substances (PFAS) and 1,4-dioxane. Soil vapor was analyzed for VOCs.

Based upon investigations conducted to date, the primary contaminant of concern is PCE.

Soil - A total of 23 post-excavation end-point soil samples were collected on-site and from the two adjacent storefronts which were remediated during the IRM.

No samples exceeded the commercial Soil Cleanup Objectives (SCOs) for PCE of 150 parts per million (ppm), or the commercial SCO of any other VOC. However, end point samples did exceed the unrestricted (groundwater protection) SCO for PCE of 1.3 ppm in 6 locations, with a maximum concentration of 61 ppm. The unrestricted SCO for 2-butanone of 0.12 ppm was also exceeded in 5 locations with a maximum concentration of 0.26 ppm.

Nine of the 23 samples exceeded unrestricted SCOs for historic fill related SVOCs, and six of those nine also exceeded the commercial SCOs. Most notable was benzo(a)anthracene, which exceeded the unrestricted SCO of 1 ppm in 22 of 23 locations, and the commercial SCO of 5.6 ppm in 11 of 23 locations, with a maximum concentration of 22 ppm.

Six metals exceeded unrestricted SCOs, and five metals exceeded commercial SCOs in at least one on-site location. Most notable was copper, which exceeded the unrestricted SCO of 50 ppm in all 22 locations sampled and exceeded the commercial SCO of 270 ppm in seven locations with a maximum concentration of 1600 ppm.

Three of the 23 samples exceeded the unrestricted and commercial SCO for PCBs, specifically aroclor 1254, on-site. The maximum concentration of aroclor 1254 was 3.9 ppm. The unrestricted SCO for aroclor 1254 is 0.1 ppm and the commercial SCO is 1 ppm.

No contamination related to site activities exceeded SCOs off-site beyond the area covered by the IRM.

Groundwater - Groundwater samples were taken in seven permanent and four temporary monitoring well locations, all off-site, in December 2015 and April 2016 and analyzed for the compounds listed above. The only VOC detected above groundwater standards was benzene at a concentration of 3 parts per billion (ppb) in an upgradient well, slightly exceeding the standard of 1 ppb.

At least one SVOC exceeded groundwater standards in six locations, likely related to turbidity in the samples from the surrounding fill. Benzo(a)anthracene was the most notable, with concentrations up to 0.54 ppb, exceeding the groundwater standard of 0.002 ppb.

Soil Vapor & Indoor Air – Sub-slab vapor/indoor air data (2014) collected from the site (2103 Ralph Avenue) and adjoining commercial spaces (i.e., 2097 & 2099 Ralph Avenue) indicated that elevated concentrations of tetrachloroethene (PCE) existed beneath portions of the commercial building foundation slab and in indoor air samples within the referenced tenant spaces at levels above the NYSDOH air guideline for PCE in air (30 micrograms per cubic meter or $\mu g/m^3$). As a result, actions were recommended to address exposures related to soil vapor intrusion. An IRM was completed in which 40 cubic yards of contaminated soil was removed beneath the building slab, and a vapor barrier and active sub-slab depressurization system was installed beneath the new slab, a 6-inch concrete cover system.

Post-mitigation air sampling was performed following the completion of the IRMs. Two indoor air locations were sampled at the site. PCE was detected at 0.475 $\mu g/m^3$ and 0.576 $\mu g/m^3$, which is consistent with levels commonly found in the indoor air of buildings.

Based on the environmental data collected to date, SVI sampling was offered to the owner of one off-site building, beyond the plaza, but access was denied. Three soil vapor points and one ambient air sample were collected off-site following the completion of the IRMs. The results indicate the concentrations of PCE dropped from the highest pre-remedy concentration in SG-4 of 252 $\mu g/m^3$ down to 0.488 $\mu g/m^3$. The highest post IRM concentration of PCE in soil vapor indicated 0.759 µg/m3 at SG-11.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by site-related contamination. People will not come into contact with contaminated soil or groundwater unless they dig below the site's surface/site cover (concrete building foundation). Volatile organic compounds in the groundwater and/or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. A sub-slab depressurization system (system that ventilates/removes the air beneath the building) has been installed at the site and within the two adjacent storefronts to prevent soil vapor intrusion. Environmental sampling conducted to date indicates soil vapor intrusion concerns are limited to these three tenant spaces; however, additional sampling may be necessary to evaluate other off-site structures in the event that access is granted.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or

mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with contaminated groundwater.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternatives Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

Based on the results of the investigations at the site, the IRM(s) that have been performed, and the evaluation presented here, the Department is selecting No Further Action as the remedy for the site. This No Further Action remedy includes the continued operation of the sub-slab depressurization system and the implementation of institutional controls/engineering controls (ICs/ECs) as the selected remedy for the site. The Department believes that this remedy is protective of human health and the environment and satisfies the remediation objectives described in section 6.5.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the No Further Action with institutional/engineering controls remedy.

The elements of the IRM already completed, as shown in Figures 3a and 3b, are listed below in paragraphs 1, 2 and 3. Additional required institutional controls follow paragraph 3.

1. Excavation:

   The existing on-site and adjacent storefronts floor slabs were removed and materials which could not be beneficially reused on site were taken off-site for proper disposal in order to implement the remedy. Excavation included the removal of soil/fill to an elevation of approximately one foot below ground surface at the site and two adjoining units. One hotspot of PCE in soil discovered during endpoint sampling was excavated and disposed of off-site.

2. Cover System:

   A site cover currently exists and will be maintained to allow for commercial or industrial use of the site. Any site redevelopment will maintain the existing site cover. The site composite cover system consists of a six-inch thick concrete building slab underlain by a vapor barrier. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

3. Vapor Mitigation:

   Any on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to mitigate the migration of vapors into the building from soil and/or groundwater. The on-site and adjacent storefronts impacted by the site have an active sub-slab depressurization system installed to mitigate the migration of vapors into the buildings from soil.

4. Institutional Controls:

   Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

   - require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
   - allow the use and development of the controlled property for commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
   - restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
   - require compliance with the Department approved Site Management Plan.

   Additionally, the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code that prohibits potable use of groundwater without prior approval.

5. Site Management Plan:

   A Site Management Plan is required, which includes the following:

a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement and local use restriction discussed in paragraph 4 above.

Engineering Controls: The cover discussed in Paragraph 2 and the sub-slab depressurization system discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 2 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs);
- a provision that should the off-site property owners that previously declined soil vapor intrusion sampling request to have their properties sampled in the future, the NYSDEC, in consultation with the NYSDOH, shall determine if soil vapor intrusion sampling is still appropriate. If necessary, additional off-site groundwater and soil vapor sampling will be completed and actions to address exposures related to soil vapor intrusion will be implemented.
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:
    - procedures for operating and maintaining the system(s);
    - monitoring for vapor intrusion for any occupied existing or future buildings off-site as may be required by the Institutional and Engineering Control Plan discussed above; and
    - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

Figure 1 – Site Location Map:

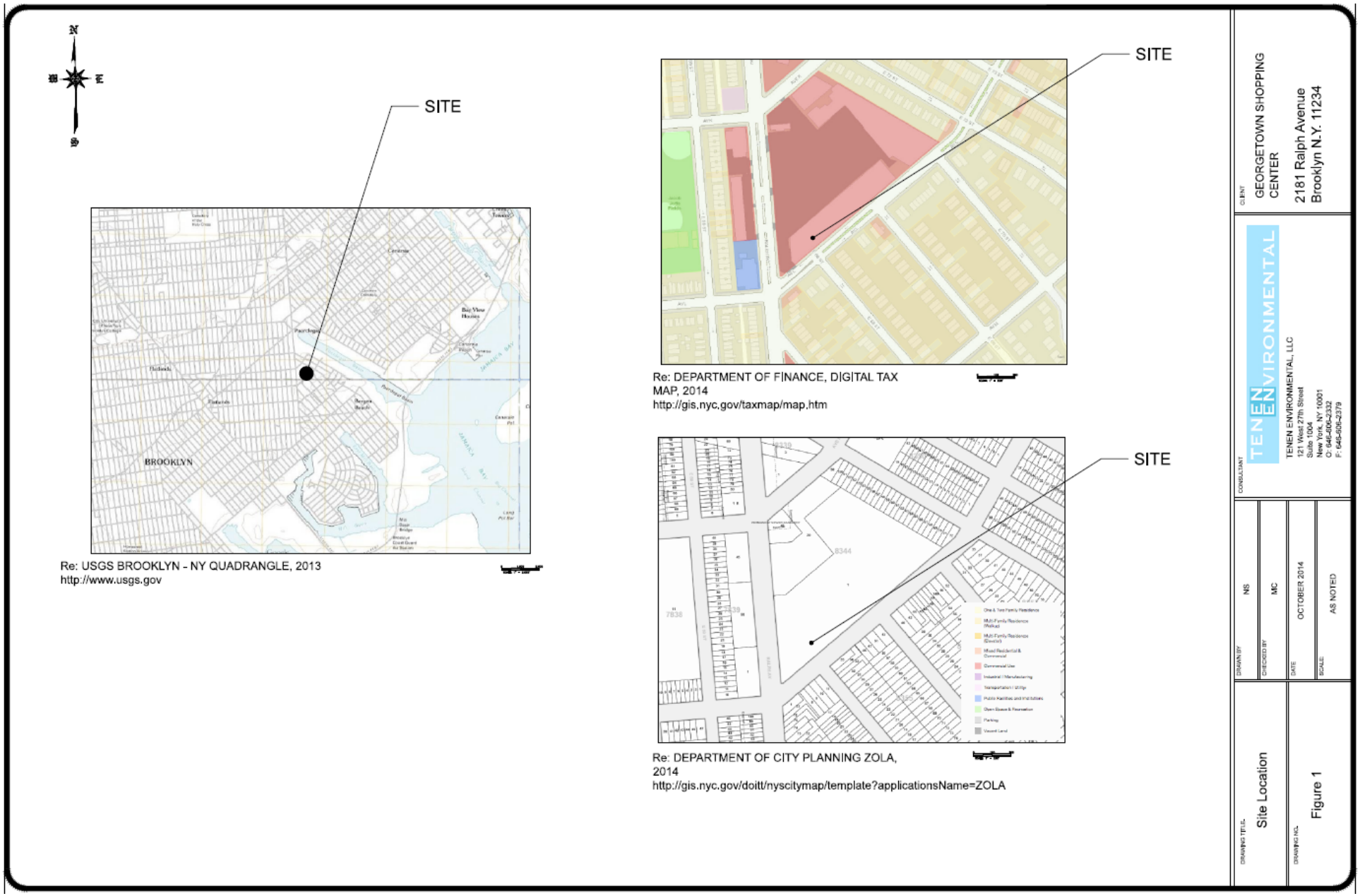

Figure 2a - Site Plan:

Figure 2b – Site Plan:

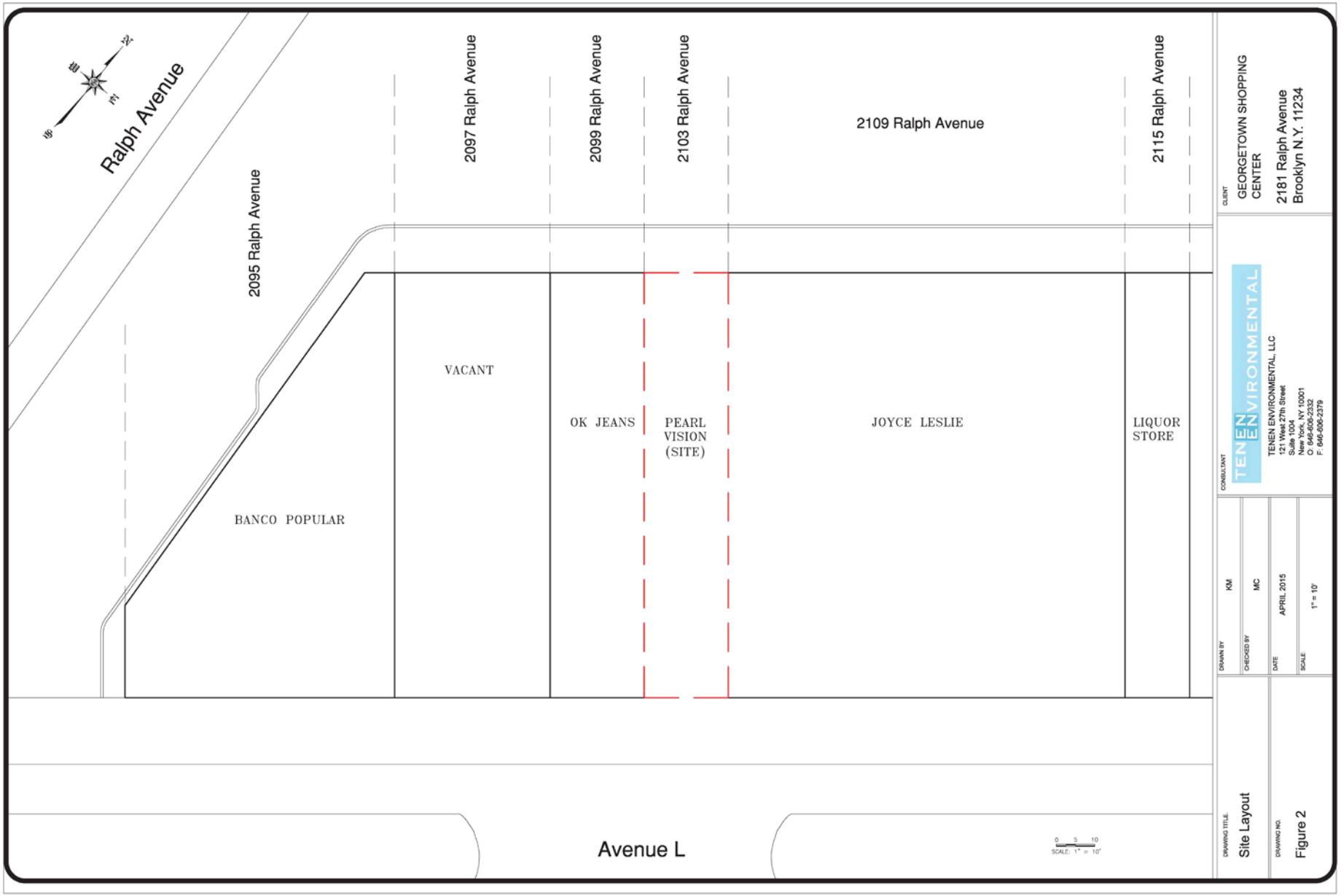

Figure 3a – Selected Remedy - Excavation:

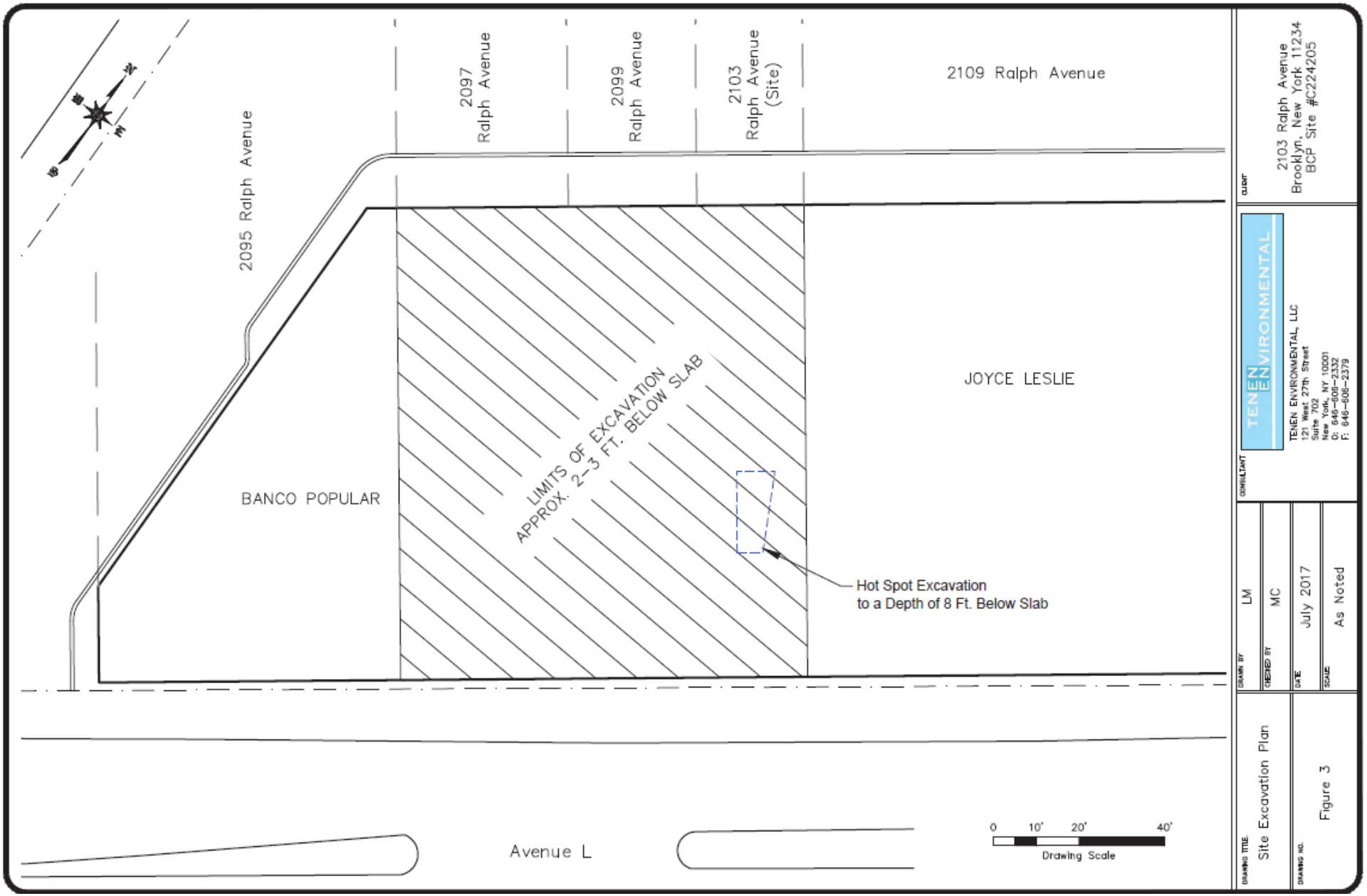

Figure 3b – Selected Remedy - Composite Cover and SSDS: