DECISION DOCUMENT

Former Union Wire Die Corp.
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241163
August 2016

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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Union Wire Die Corp.
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241163
August 2016

Statement of Purpose and Basis

This document presents the remedy for the Former Union Wire Die Corp. 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 Former Union Wire Die Corp. site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;

- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and

- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Cover System
A site cover currently exists and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover, which consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. 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. Soil Vapor Extraction (SVE)
Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface and address the potential for soil vapor intrusion to occur. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

Four SVE wells will be installed into the vadose zone and screened from 1 foot below the ground surface to a depth of approximately 10 feet. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere. The SVE system will also be relied upon to mitigate the migration of vapors into the building. Based on monitoring of the SVE effectiveness, the SVE system may transition to a sub-slab depressurization system to mitigate the migration of vapors into the building for long term use, if needed.

4. Enhanced Bioremediation
A pre-design study will be undertaken to better understand and confirm the presence of an on-site source area. If results of the pre-design study confirm a site-related source of TCE in groundwater, then in-situ enhanced biodegradation will be employed to treat contaminants in groundwater in an area to be determined during the pre-design study and subsequent remedial design. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting a compound such as zero-valent metals into the subsurface or by injecting a molasses and water solution into the subsurface to promote microbe growth. The material, method and depth of injection will be determined during the remedial design.

5. Institutional Control
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 restricted residential 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.

6. 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 discussed in Paragraph 5 above.

Engineering Controls: The cover system discussed in Paragraph 2 and the soil vapor extraction system discussed in Paragraph 3.

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 water use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion in any occupied existing or future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- 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. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of sub-slab vapor, indoor air and groundwater, to assess the performance and effectiveness of the remedy;

- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy; and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

Declaration

The remedy conforms to 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.

August 12, 2016

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

Former Union Wire Die Corp.
Long Island City, Queens County
Site No. C241163
August 2016

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 has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

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, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

Queens Library - Long Island City Branch
37-44 21st Street
Long Island City, NY 11101
Phone: 718-752-3700

Queens Community Board 1
45-02 Ditmars Ave, Suite 125
Astoria, NY 11105
Phone: 718-626-1021

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 site is located in the Long Island City section of the borough of Queens at the corner of 30th Street and 40th Ave.

Site Features: There is a 2-story building on-site. The first floor is primarily storage and the second floor is used as office space.

Current Zoning and Land Use: The site is zoned M1-3/R7X. M1 indicates light industrial use while R7X is a higher-density residential district (apartments). The building is currently occupied by a wireless communications distributor. Future use is anticipated to be a combination of commercial and restricted residential use.

Past Use of the Site: The site was undeveloped until sometime between 1915 and 1936. By 1936, a gas station occupied the site. The property was redeveloped by 1947 into a 2-story warehouse utilized by Optical Products Corporation for manufacturing, shipping and as an office. Other occupants of the building include Union Wire Die Corp. (1960s - 1980s), National Tea Packaging Co. Inc. (1962 - 1991) and a warehouse (1991 - 2006).

Site Geology and Hydrogeology: Subsurface soils at the site consist of a mixture of a silty non-native fill to a depth ranging from 0 to 6 feet below grade (fbg). The fill is followed by a silty-sand. A coarse sand was noted at two of the boring locations in place of the silty-sand. The bedrock is an igneous intrusive classified as Ravenswood granodiorite of middle Ordovician to middle Cambrian age. Unconsolidated sediments overlie the bedrock and consist of Pleistocene aged sand, gravel and silty clays. The elevation of the site is 28 feet above the National Geodetic Vertical Datum. The area topography gradually slopes to the southeast.

Groundwater at the site is present under water table conditions at a depth of approximately 20 feet below grade. Investigation at the site indicates groundwater flow to the south-southeast.

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 restricted-residential use (which allows for commercial use and 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 Remedial Investigation (RI) 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 RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

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:

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

trichloroethene (TCE)
perchloroethylene (PCE)
benzo(b)fluoranthene
lead

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion
- indoor air

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.

There were no IRMs performed at this site during the RI.

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:
Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides.

Soil: TCE was found in soil at varying depths below the southern half of the building and exceeded the protection of groundwater soil cleanup objective (SCO) of 0.47 parts per million (ppm). The highest concentration was 6.1 ppm at a depth of 0 to 2 feet below ground surface (bgs).

Some metals and SVOCs were identified in soil above restricted residential SCOs. The highest values were lead (525 ppm) and benzo(b)fluoranthene (4.2 ppm), both of which exceed the restricted-residential use SCO of 400 ppm and 1 ppm, respectively.

Data does not indicate any off-site impacts in soil related to this site. Pre-design soil studies are being undertaken to assess previously inaccessible areas beneath the rear equipment compound and in the vicinity of the site UST.

Groundwater: TCE was identified in groundwater with a maximum concentration of 280 parts per billion (ppb). Perchloroethylene (PCE), a chemical commonly used at drycleaners, is present in groundwater (up to 730 ppb) but has been concluded to be primarily from an immediately adjacent, upgradient, off-site BCP Site No. C241127. Off-site wells sampled at the downgradient edge of the site indicate low concentrations of TCE (11 ppb in MW6, 3.5 ppb in MW7) and PCE (81 ppb in MW6, 57 ppb in MW7) migrating off-site. In addition, a well installed by the Department located immediately adjacent to the site and side-gradient, also contained PCE at 440 ppb and TCE at 32 ppb in 2012.

Soil Vapor: TCE was sampled in soil vapor at 12 feet below grade (just above the water table) in 2013 and 2014. TCE ranged from 77 to 9,400 micrograms per cubic meter (µg/m3) in 2013. In 2014, TCE ranged from 50 to 2,750 µg/m3. No off-site soil vapor samples have been collected, although soil vapor may be migrating off-site. An investigation of off-site soil vapor and groundwater will be done.

Sub Slab and Indoor Air: In 2014, two sub-slab samples were taken below the building. TCE levels were 31 to 180 µg/m3 and PCE were 67 to 73 µg/m3. No indoor air samples were collected in 2014.

Six sub-slab and six indoor air samples were performed in August 2015. TCE in sub-slab samples ranged from 355 to 27,700 µg/m3 and indoor air values ranged between 43 to 47 µg/m3. NYSDOH's air guideline for TCE in air is 2 µg/m3. The NYSDOH recommends taking immediate and effective action to reduce exposure when TCE in air is equal to or exceeds 20 µg/m3. Air samples taken on the second floor indicated TCE in the range of 8 to 12 µg/m3. PCE was also present at lower concentrations (18 to 1100 µg/m3 in sub-slab samples and 8.3 to 13.1 µg/m3 in indoor air). In consultation with the Department and NYSDOH, the building owner implemented immediate measures to reduce the indoor air concentrations. These immediate measures were intended to expedite reduction of elevated indoor air concentrations prior to installing a permanent soil vapor extraction (SVE) remedial system to permanently address soil vapor intrusion. Follow-up sampling of indoor air has varied but results remain below the initial August 2015 results. Results from April 2016 sampling indicate TCE levels ranging from 3.58 to 8.49 µg/m3 and PCE levels from 4.41 to 8.47 µg/m3.

Based on the results of the environmental investigation, the Department and NYSDOH have determined that the site presents a significant threat to human health and the environment.

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 may come into contact with contaminated groundwater or soil if they dig below the surface. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains its water from a different source that is not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into the overlying buildings and affect the indoor air quality. This process similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Soil vapor intrusion sampling identified impacts to indoor air quality at levels that warranted immediate action to reduce exposure. Actions were taken and have reduced the levels; however, additional actions are recommended to reduce the levels further. Additional investigation is needed to evaluate whether actions are needed to address soil vapor intrusion within off-site structures.

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.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

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 Alternative 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.

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

The selected remedy is referred to as the Soil Vapor Extraction, Cover System and Enhanced Bioremediation (contingent) remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the

design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
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4. Enhanced Bioremediation

A pre-design study will be undertaken to better understand and confirm the presence of an on-site source area. If results of the pre-design study confirm a site-related source of TCE in groundwater, then in-situ enhanced biodegradation will be employed to treat contaminants in groundwater in an area to be determined during the pre-design study and subsequent remedial design. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting a compound such as zero-valent metals into the subsurface or by injecting a molasses and water solution into the subsurface to promote microbe growth. The material, method and depth of injection will be determined during the remedial design.

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This plan includes, but may not be limited to:

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- descriptions of the provisions of the environmental easement including any land use and groundwater water use restrictions;

- a provision for evaluation of the potential for soil vapor intrusion any occupied existing or future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor

intrusion;

- 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. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

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- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy; and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

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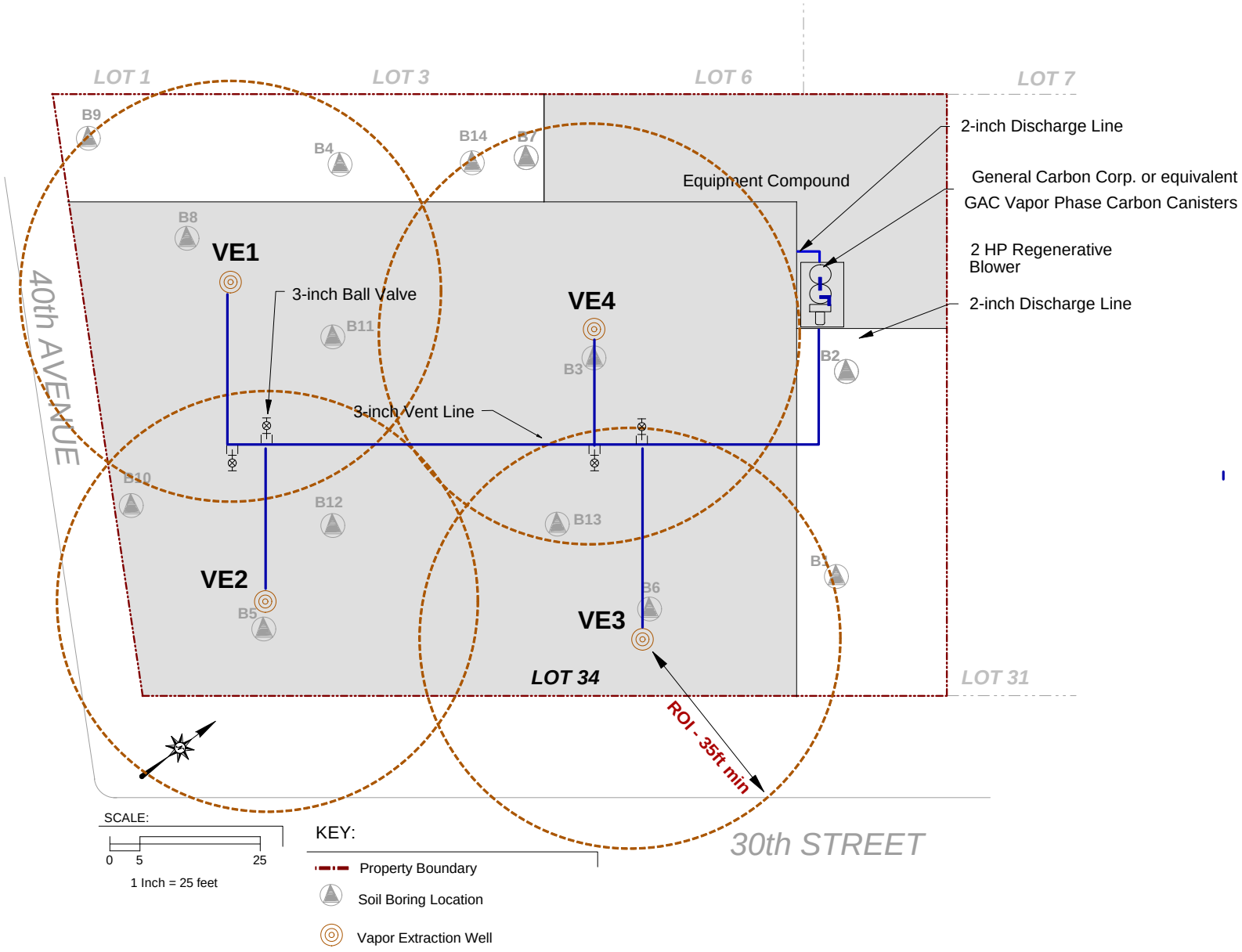
Site Location Map

Former Union Wire Corporation
Long Island City, Queens
Site No. C241163



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1808 MIDDLE COUNTRY ROAD. RIDGE. NY 11961
Phone 631.504.6000
Fax 631.924.2780

FORMER UNION WIRE DIE
39-40 30TH STREET, LONG ISLAND CITY, NY

Figure 2

SVE SYSTEM LAYOUT

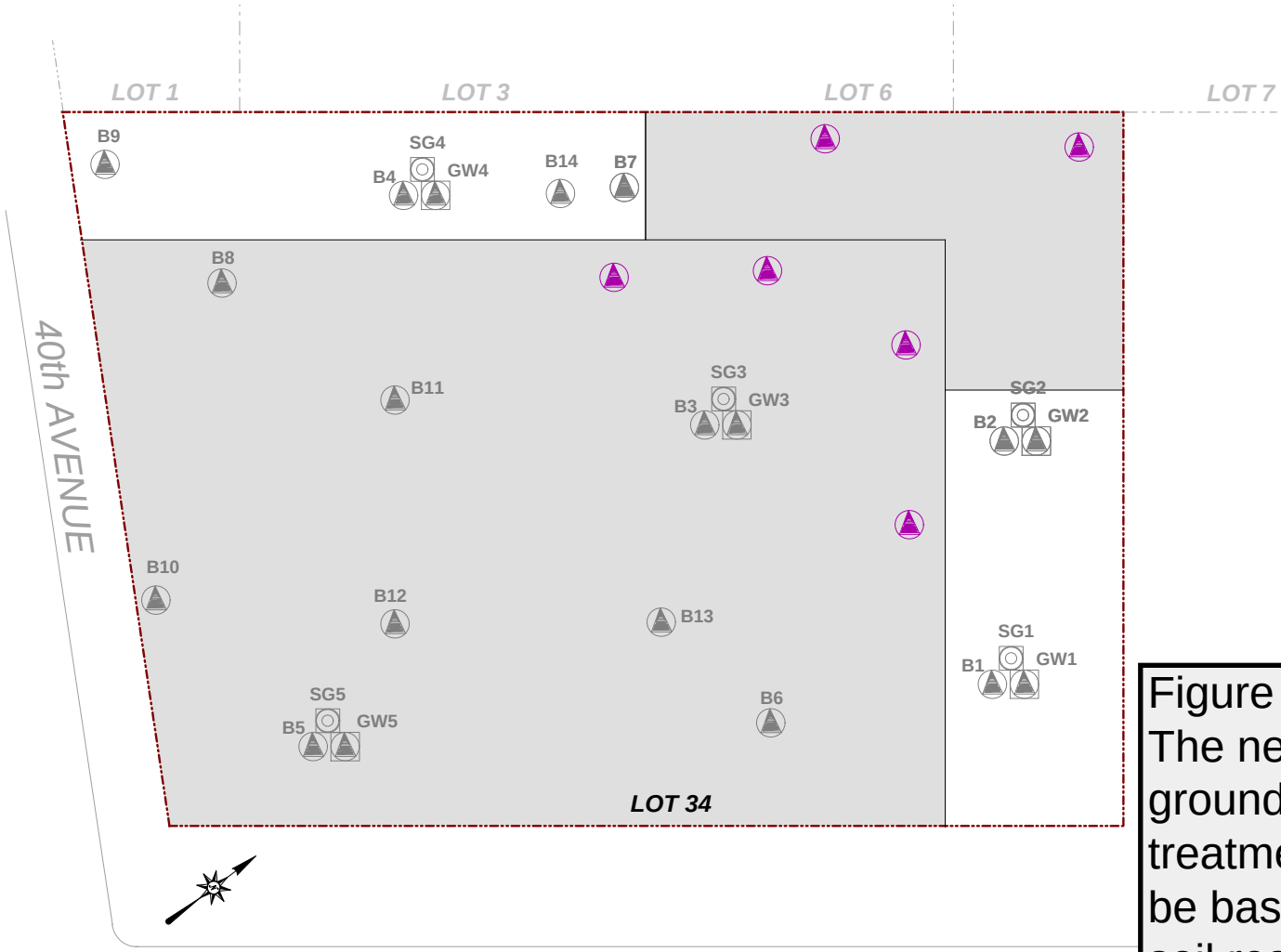

Figure 3
The need for groundwater treatment will be based on soil results from the pre-design sampling

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