

# DECISION DOCUMENT

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Johnson and Hoffman Manufacturing Corp.  
Voluntary Cleanup Program  
Carle Place, Nassau County  
Site No. V00684  
September 2017



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

# DECLARATION STATEMENT - DECISION DOCUMENT

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Voluntary Cleanup Program  
Carle Place, Nassau County  
Site No. V00684  
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## **Statement of Purpose and Basis**

This document presents the remedy for the Johnson and Hoffman Manufacturing Corp. site, a voluntary cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and applicable guidance.

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

## **Description of Selected Remedy**

The elements of the 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. Soil Excavation: Excavation of contaminated shallow subsurface soil from the five drywells (SWCB-01 drywell in AOC 1, both SWCB-02 and SWCB-03 drywells in AOC 5, Northeast

drywell, Southeast drywell); excavation of soil from the storm water recharge basin; and removal of surface soil from the former scrap metal piles area exceeding the lower of the protection of public health Soil Cleanup Objectives (SCOs) for commercial use and/or protection of groundwater SCOs for PAHs. Approximately 1100 tons of contaminated soil will be excavated from the site for off-site disposal. Excavations will be backfilled with clean soil meeting the requirements of Part 375-6.7(d). Deeper contaminated soil with PAHs in two drywells (SWCB-02 and SWCB-03) located approximately 25 feet below grade surface will be managed under institutional controls and a site management plan.

3. Cover System: A site cover currently exists consisting of the existing buildings and pavement at the site. A site cover will be maintained as a component of any future site development to allow for the commercial use of the site, which will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where a soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. Institutional Control: Imposition of an institutional control in the form of the deed restrictions for the controlled property that:

- requires 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);
- allows the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

#### 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 Deed Restrictions discussed in paragraph 4.

Engineering Controls: The cover system discussed in Paragraph 3 and the sub-slab depressurization system (SSDS);

This plan includes, but may not be limited to:

- continued operation of the sub-slab depressurization system (SSDS):

- an Excavation Plan which details the provisions for management of future excavation in areas of remaining contamination;
- descriptions of the provisions of the deed restrictions including any land use, and/or groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any 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 on-site and off-site groundwater, SSDS vacuum measurements, indoor air, sub-slab vapor and soil vapor to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for the existing on-site building, any buildings developed on the site or 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, optimization, monitoring, 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;
- compliance monitoring of sub-slab depressurization system (SSDS) to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records;
- the periodic monitoring of the groundwater will continue until the remedial objectives have been achieved, or until the NYSDEC, in consultation with NYSDOH, determines that continued monitoring is not needed because the remedial goals were achieved or the concentration of contaminants are asymptotic.

### **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.

September 20, 2017

Date



Eric R. Obrecht, Director  
Remedial Bureau A

## DECISION DOCUMENT

Johnson and Hoffman Manufacturing Corp.  
Carle Place, Nassau County  
Site No. V00684  
August 2017

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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 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 Voluntary Cleanup Program (VCP) is a voluntary program. The goal of the VCP is to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfields." 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:

Westbury Memorial Public Library  
445 Jefferson Street  
Westbury, NY 11590  
Phone: (516) 333-0176

NYSDEC – Region 1  
Attn: Bill Fonda  
SUNY @ Stony Brook  
50 Circle Road  
Stony Brook, NY 11790  
Phone: (631) 444-0350

## **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**

**Site Location:** The Johnson & Hoffman Manufacturing Corp. site is located at 40 Voice Road Carle Place, Nassau County. The site is bounded to the north by Voice Road. Located to the south and southeast of the site are the Long Island Rail Road right-of-way and the 115 Old Country Road state superfund site (Site No. 130199). To the east is an occupied small commercial building. An AM radio station is situated west of the site along with a storage yard for trucks and landscaping equipment, a commercial building and the A.K. Allen state superfund site (Site No. 130100).

**Site Features:** The site is approximately 4 acres in size and occupied by a 59,000 square foot one story building with associated parking and grass areas. The ground surface elevation at the site slopes gently from the north to the south. Storm water runoff from the site drains to a number of drywells and a storm water recharge basin located along the south western border of the property. A fence restricts access to the recharge basin. The two floor drains from Area of Concern 1 (AOC 1) were formerly connected to storm water discharge system that services the parking lot west of the manufacturing building.

Three concrete pad mounted transformers are located in a locked room with a metal grated roof, in the northwest corner of the building. These transformers are owned and maintained by PSEG Long Island. The building has been connected to sanitary sewer.

**Current Zoning/Use(s):** The property is currently zoned as Industrial B and is currently occupied. The current and intended use is the continued production of metal parts, as well as operation of a cell tower located on the site. The other surrounding properties are used for industrial/commercial use.

**Past Use of the Site:** The site was developed in 1962 on former agricultural land. Since that time, the site has been used for the production of small metal parts using processes that include metal stamping, deburring and washing.

Johnson and Hoffman Manufacturing Corporation (J&H) owned and operated the site from 1962 to 2004. At various times in the past, J&H used tetrachloroethene (PCE) and trichloroethene (TCE) at the site. The use of PCE and TCE was discontinued by the end of 1996. The spent PCE and TCE were shipped off-site as hazardous waste.

Geology/Hydrogeology: The site is underlain by the upper Glacial and Magothy aquifers which are designated by the United States Environmental Protection Agency (USEPA) as sole source aquifers. Groundwater is found at approximately 50 feet below grade surface (bgs). Based on the latest groundwater contour maps, the flow direction at the site is to the south-southeast.

Based on borings completed at the site, the shallow soils at the site consists of fine, medium and coarse sand with traces of gravel. A small amount of surficial fill was also found adjacent to and beneath the building. This fill layer extends below grade surface to a maximum of five feet where present and consists of clay, silt and fine sand.

The groundwater is not used for any purpose at the site. Potable water in the area is supplied by the Carle Place Water District whose one well located approximately 2,500 feet side gradient of the site in the Magothy aquifer. 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, at a minimum, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in DER-10, Technical Guidance for Site Investigation and Remediation were/was evaluated.

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 voluntary cleanup agreement, Index # W1-0979-03-12, dated July 6, 2004, as amended on September 9, 2016, is with several Volunteers. If the Volunteers elect not to complete the remedial program under the VCP, the Department will make a determination if the site poses a significant threat to human health and the environment. If the site is determined to pose a significant threat, the Department will approach the potentially responsible parties (PRPs) to implement the remedy. PRPs are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

#### **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 ground water 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 was also 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:

- air
- indoor air
- groundwater
- soil
- soil vapor
- 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)  
trichloroethene (TCE)  
cis-1,2 dichloroethene (DCE)

benzo(a)anthracene  
benzo(b)fluoranthene  
benzo[k]fluoranthene

chrysene

indeno(1,2,3-CD)pyrene

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

- groundwater
- soil
- soil vapor intrusion

## **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 IRMs have been completed at this site based on conditions observed during the RI.

### **IRM Remedial Program**

An interim remedial measure (IRM) was implemented to address PCE impacted soils in a former PCE/TCE storage and transfer area (Area of Concern 7) associated with areas located south and southeast of the manufacturing building. A soil vapor extraction (SVE) system was installed primarily to remediate the PCE impacted soils and to provide sub-slab depressurization beneath the manufacturing building to prevent the migration of vapors into the buildings. The SVE system uses a blower attached to several soil vapor extraction wells to draw air through soils. This flow of air allows VOCs to evaporate from the soils and into the air spaces between soil particles. Contaminants are then drawn toward the wells and into the treatment system where the vapors are treated prior to discharge to the atmosphere.

The SVE system was installed in March 2006. Soil samples were collected in 2010 to assess the progress of the soil remediation by SVE system. Two of ten locations detected PCE in soil in exceeding soil cleanup objectives (SCOs) for the protection of groundwater. An excavation of PCE impacted soils exceeding SCOs for the protection of groundwater from the area was completed as a separate IRM to remove the soil instead of modifying the SVE system. In total, approximately 213 tons (130 cubic yards) of impacted soil was excavated and disposed off-site in 2011.

At the conclusion of the IRM, the SVE system was converted to a sub-slab depressurization (SSD) system consisting of a single extraction point (VEW-5) located beneath the southeast corner of the building. The SVE system continues to operate with a single extraction well to provide sub-slab depressurization beneath the manufacturing building where mitigation is required and maintains designed vacuum of 0.004 inches of water. A construction completion report for AOC 7 dated August 27, 2012 was prepared to document the implementation of remedial actions.

## **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:** Numerous samples were taken at the site from surface and subsurface soils, and groundwater, and analyzed for the following: volatile organic compounds (VOCs), Semi-volatile organic compounds (SVOCs), pesticides/PCBs, and metals. Soil vapor, sub-slab vapor and indoor air were analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern (COC) at the site are VOCs such as tetrachloroethene (PCE), trichloroethene (TCE), cis, 1,2 dichloroethene (DCE) and SVOCs such as benzo(a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, chrysene and indeno (1,2,3-cd) pyrene. These compounds are also called polycyclic aromatic hydrocarbons (PAHs). PCE was detected at elevated levels in the on-site soils, on-site and off-site groundwater and on-site soil vapor. PAH compounds were detected in on-site soils and on-site and off-site groundwater.

**Groundwater:** Groundwater sampling found that shallow groundwater at the site was impacted by VOCs, primarily PCE, at a maximum concentration of 240 parts per billion (ppb) in on-site monitoring well MW-01. TCE and cis 1,2 DCE were also found in the groundwater on the property at 22ppb and 43 ppb respectively in monitoring well MW-05. The last groundwater sampling round detected PCE, TCE and cis 1,2 DCE at maximum concentration of 13.3 ppb, 0.47 ppb and non-detect respectively in MW-01. Two of the five off-site groundwater profile borings detected PCE at a maximum concentration of 52 ppb in a sample collected at 800 feet south of the site boundary. TCE and cis 1,2 DCE were detected at 14 ppb and 29 ppb respectively in off-site groundwater profile borings. However, results of PCE, TCE and cis 1,2 DCE in groundwater samples collected from off-site monitoring wells installed in the vicinity were non-detect.

Several PAHs such as benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene and indeno(1,2,3-cd) pyrene were detected in excess of the Department's ambient groundwater quality standards and guidance values in on-site and off-site monitoring wells. Benzo(a)anthracene, benzo(b)fluoranthene and chrysene were detected at maximum concentration of 0.862 ppb, 2.19 ppb and 1.43 ppb, respectively in on-site monitoring wells. Benzo (a) anthracene, benzo(b)fluoranthene and chrysene were detected at maximum concentration of 0.437 ppb, 0.770 ppb and 0.559 ppb respectively in off-site monitoring wells.

**Soil:** Soil samples were collected from several AOCs. PAHs were found exceeding soil clean up objectives (SCOs) for commercial use and protection of groundwater in compressor/annealing room drainage system (AOC 1), former scrap metal parts and tumbling media piles area in the southwest portion of the site (AOC 4), stormwater recharge basin located in the southwest portion of the site (AOC 5), southeast dry well located outside the southeast corner of the building (AOC 8) and northeast dry well located outside the northeast corner of the building (AOC 9). Benzo(a)anthracene, benzo(b)fluoranthene and chrysene were detected at maximum concentrations of 250 ppm, 440 ppm and 400 ppm respectively. PAHs were found in several drywells at various depths from 6.5 feet bgs to 31.5 feet bgs. Benzo(a)anthracene,

benzo(a)pyrene, benzo(b)fluoranthene and chrysene were detected in surface soils in AOC 4 at maximum concentrations of 1.3 ppm, 1.400 ppm, 2.2 ppm and 1.7 ppm respectively.

The Site Investigation delineated the extent of PCE and other volatile organic compounds in excess of the SCOs for protection of groundwater in an area located south and southeast of the site building (AOC 7). The PCE was detected at maximum concentrations of 300 ppm, TCE was detected at 12.4 ppm and cis-1,2 DCE was detected at 4.9 ppm in AOC 7 exceeding the soil cleanup objectives (SCOs) for the protection of groundwater. This area was addressed by the IRM completed in September, 2011.

Soil Vapor: Eight soil vapor samples were collected at 5 feet bgs in March 2006. PCE was detected from 0.31 ug/m<sup>3</sup> to 140,000 ug/m<sup>3</sup>, TCE was detected from non-detect to 3300 ug/m<sup>3</sup> and 1,2 Cis-DCE was detected from non-detect to 8.7 ug/m<sup>3</sup> respectively.

Soil vapor samples were collected in March 2007 along the southern property boundary at two locations where soil vapor samples were previously collected. Total four samples were collected at depths of 5 and 25 feet bgs. PCE was detected from 2 to 1600 ug/m<sup>3</sup>, TCE was detected from non-detect to 24 ug/m<sup>3</sup> and 1,2 cis- DCE was non-detect respectively at 5 feet bgs respectively. At 25 feet depth bgs, PCE was detected from 440 ug/m<sup>3</sup> to 19,000 ug/m<sup>3</sup>, TCE was detected from 15 ug/m<sup>3</sup> to 710 ug/m<sup>3</sup> and 1,2 cis-DCE was detected from non-detect to 3.7 ug/m<sup>3</sup> respectively. Soil samples were collected at depths 7 feet bgs and 25 feet bgs in March 2017 along the southern property boundary at two locations where soil vapor samples were collected. PCE was non-detect at 7 feet bgs and was detected at 6 ppb at 25 feet bgs, TCE and cis- 1,2 DCE were not detected respectively.

Five soil vapor samples were collected at 5 feet bgs in December 2009. Two samples were collected along the southern property boundary at two locations where samples were previously collected in 2006 and 2007. PCE was detected from 8.1 ug/m<sup>3</sup> to 1840 ug/m<sup>3</sup>, TCE was detected from 1.3 ug/m<sup>3</sup> to 48 ug/m<sup>3</sup> and cis 1,2 -DCE from non-detect to 44 ug/m<sup>3</sup> respectively. One soil vapor sample was collected along south east property boundary. PCE was detected at 0.33 ug/m<sup>3</sup> and TCE and cis 1,2 DCE were non-detect. Two soil vapor samples were collected along eastern property boundary and PCE was detected from 1.3 ug/m<sup>3</sup> to 4.1 ug/m<sup>3</sup>, TCE was detected from 0.37 and 13 ug/m<sup>3</sup> and cis-1,2 DCE was non-detect respectively.

Sub-slab Vapor and Indoor Air: Soil vapor intrusion (SVI) evaluations were conducted at the on-site building and four off-site properties to evaluate impacts to indoor air in the on-site building and buildings adjacent to the site.

Sub-slab vapor and indoor air samples were collected from five locations inside the on-site building in July 2011. PCE was detected at 4,200 ug/m<sup>3</sup> in a sub slab soil vapor sample (and 16 ug/m<sup>3</sup> in indoor air sample at one of the five locations). These levels indicate the potential for exposures through soil vapor intrusion and action to reduce exposures are recommended. Soil vapor intrusion was addressed by the operation of the SVE system. At the conclusion of the soil remedy in 2011, the SVE system was kept operating as a sub-slab depressurization (SSD) system with a single vapor extraction point.

PCE and TCE were detected at 56 ug/m<sup>3</sup> and 7.5 ug/m<sup>3</sup> in sub-slab soil vapor samples and 1.1 ug/m<sup>3</sup> and non-detect in the indoor air samples respectively from an off-site building east of the site. No actions to address potential exposures from soil vapor intrusion are needed at this building.

1,1,1 TCA and PCE were detected at 2700 ug/m<sup>3</sup> and 1600 ug/m<sup>3</sup> in sub-slab vapor samples and 1.7 ug/m<sup>3</sup> and 21 ug/m<sup>3</sup> in indoor air samples from an off-site building southeast of the site. However, the detected VOCs did not appear to be related to the site. Further investigations and the installation of a sub-slab depressurization system were subsequently completed by the remedial party for the 115 Old Country Road state superfund site (Site No. 130199) as part of that site's remedial program.

An office building located south of the site was investigated for SVI. Six co-located sub-slab soil vapor and indoor air samples and one outdoor air sample were collected. PCE was detected 67.81 ug/m<sup>3</sup> in sub-slab soil vapor sample and 2.03 ug/m<sup>3</sup> in indoor air sample respectively. No actions to address potential exposures from soil vapor intrusion are needed at this building.

Two additional off-site buildings south of the site were also sampled. SVI samples (sub-slab vapor, crawlspace air, and indoor air) were collected from a utility room in each building. PCE was detected in sub-slab vapor at 33 ug/m<sup>3</sup> to 1600 ug/m<sup>3</sup> and TCE was detected at non-detect(0.21ug/m<sup>3</sup>) to 21 ug/m<sup>3</sup> from the two utility rooms. Crawlspace air indicated up to 0.44ug/m<sup>3</sup> of TCE and 11 ug/m<sup>3</sup> of PCE. TCE indoor air concentrations were all non-detect (0.21ug/m<sup>3</sup>) and PCE ranged from non-detect to 0.73ug/m<sup>3</sup> in both utility rooms. As the current crawlspace allows for passive venting of potential vapors and because all indoor air concentrations were within typical background levels encountered in residential settings, additional mitigative actions to address potential exposures from the soil vapor intrusion are not necessary at this time. The Department, in consultation with NYSDOH, will further evaluate potential off-site sources of contamination and associated human exposure pathways. Appropriate actions will be taken to address identified off-site sources of contamination.

#### **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*.

Access to the majority of the site is unrestricted and persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. A fence restricts access to the recharge basin where surface and subsurface soil contamination remains. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater 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) was installed in the on-site building to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the building.

## **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 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.

The selected remedy is referred to as the Soil Excavation, Soil Vapor Intrusion Mitigation, Groundwater Monitoring and ICs 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;
- 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. Soil Excavation: Excavation of contaminated shallow subsurface soil from the five drywells (SWCB-01 drywell in AOC 1, both SWCB-02 and SWCB-03 drywells in AOC 5, Northeast drywell, Southeast drywell); excavation of soil from the storm water recharge basin; and removal of surface soil from the former scrap metal piles area exceeding the lower of the protection of public health SCOs for commercial use and/or protection of groundwater SCOs for PAHs. Approximately 1100 tons of contaminated soil will be excavated from the site for off-site disposal. Excavations will be backfilled with clean soil meeting the requirements of Part 375-6.7(d). Deeper contaminated soils with PAHs in two drywells (SWCB-02 and SWCB-03) located approximately 25 feet below grade surface will be managed under institutional controls and a site management plan.

3. Cover System: A site cover currently exists consisting of the existing buildings and pavement at the site. A site cover will be maintained as a component of any future site development to allow for the commercial use of the site, which will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where a soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a

vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. Institutional Control: Imposition of an institutional control in the form of the deed restrictions for the controlled property that:

- requires 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);
- allows the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

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 Deed Restrictions discussed in paragraph 4.

Engineering Controls: The cover system discussed in Paragraph 3 and the sub-slab depressurization system (SSDS);

This plan includes, but may not be limited to:

- continued operation of the sub-slab depressurization system (SSDS);
- an Excavation Plan which details the provisions for management of future excavation in areas of remaining contamination;
- descriptions of the provisions of the deed restrictions including any land use, and/or groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any 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.

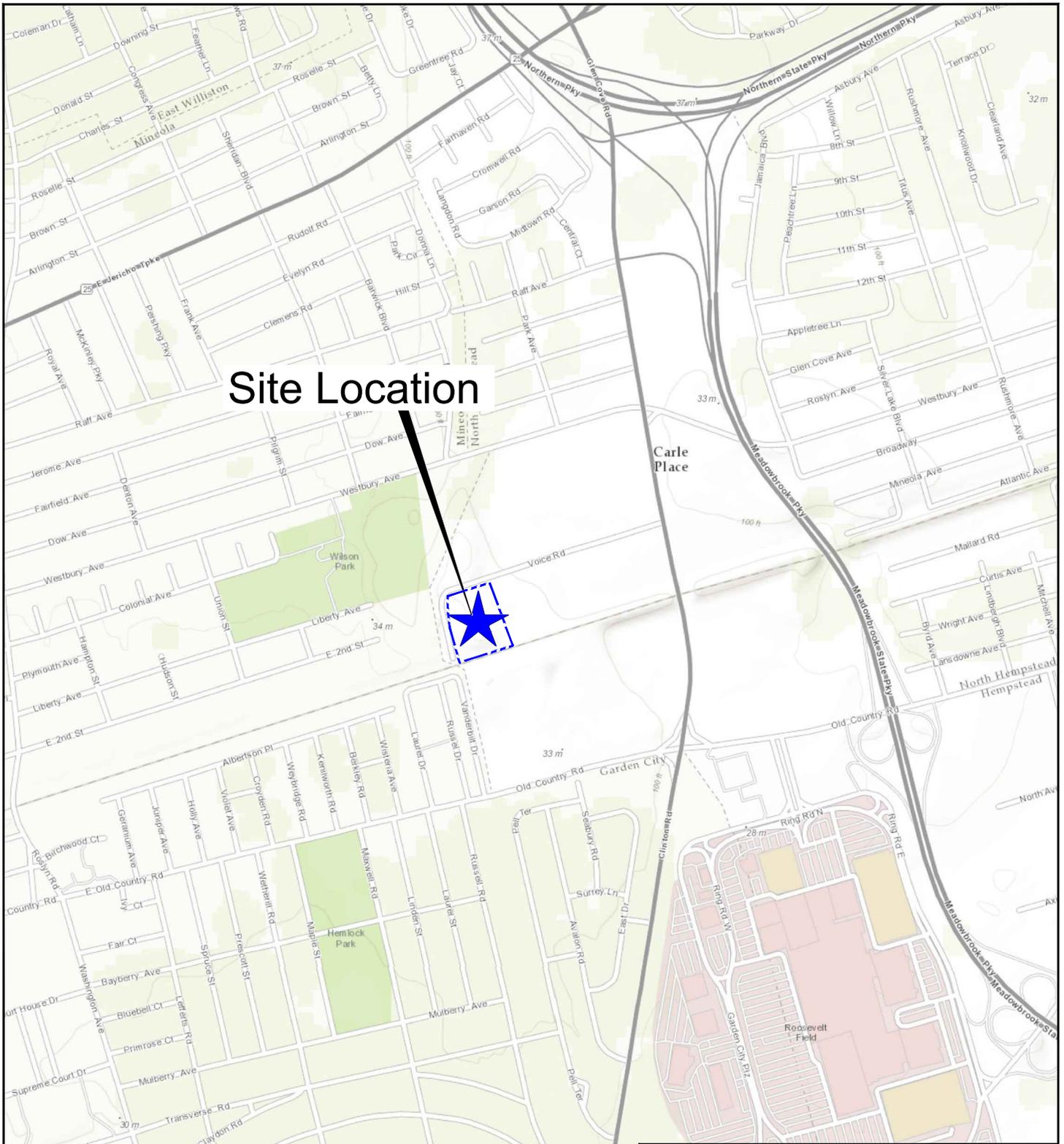
b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of on-site and off-site groundwater, SSDS vacuum measurements, indoor air, sub-slab vapor and soil vapor to assess the performance and effectiveness of the remedy;

- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for the existing on-site building, any buildings developed on the site or 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, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

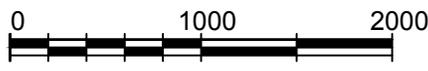
- procedures for operating and maintaining the remedy;
- compliance monitoring of sub-slab depressurization system (SSDS) to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records;
- the periodic monitoring of the groundwater will continue until the remedial objectives have been achieved, or until the NYSDEC, in consultation with NYSDOH, determines that continued monitoring is not needed because the remedial goals were achieved or the concentration of contaminants are asymptotic.



Site Location



NEW YORK



GRAPHIC SCALE IN FEET

Notes: Base Map - USGS Topo  
 Freeport, NY Quadrangle 2013  
 Lynbrook, NY Quadrangle 2013  
 Hicksville, NY Quadrangle 2013

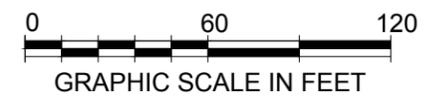
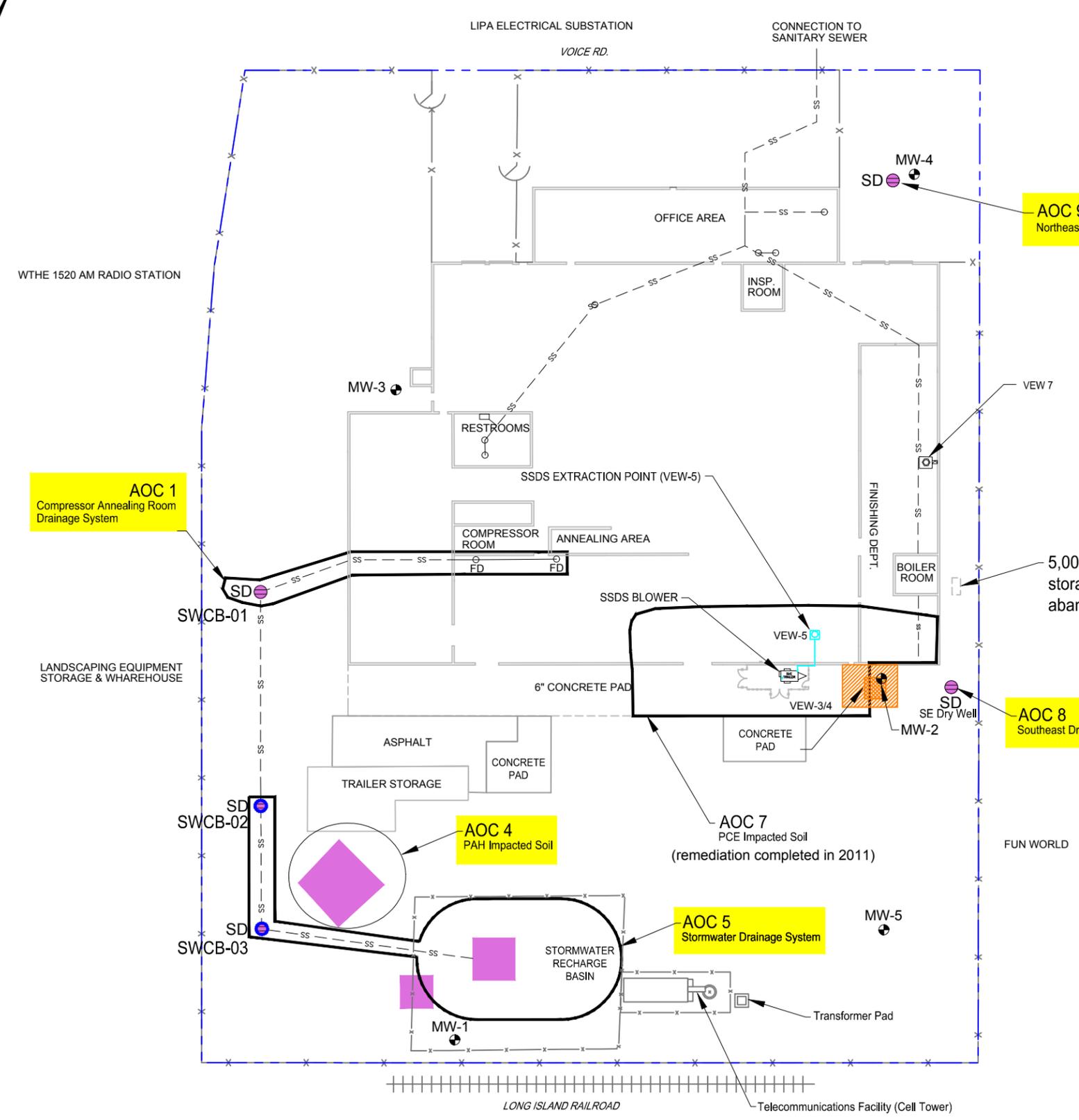
TITLE			
<b>Site Location Map</b> <b>40 Voice Road</b> <b>Carle Place, NY</b>			
PREPARED FOR			
<b>Johnson &amp; Hoffman Site No. V000684</b>			
DRAWN BY		SCALE	DATE
EMF		AS SHOWN	03/13/15
JOB NO.			FIGURE
0262028			<b>1</b>

**LEGEND**

- AOC Requiring Remediation
- Property Line/Site Boundary
- Fence
- Railroad
- Subsurface Drainage
- Storm Drain/Drywell
- Floor Drain
- Extent of AOC 7 Soil Excavation Completed in 2011 (6 ft Deep)
- Extent of AOC 7 Soil Excavation Completed in 2011 (10 ft Deep)
- Proposed Soil or Sediment Excavation
- Proposed Soil Cover over Remaining Contamination (SWCB-02, SWCB-03)
- Location of Vapor Extraction Well (Shallow/Deep)
- Piping for SSDS Extraction Point
- Monitoring Well Location

**Notes:**

- In addition to deed restrictions on the areas shown on this map, the following institutional and engineering controls will be implemented:
1. Use and development of the entire property will be restricted to commercial and industrial uses as defined by 6 NYCRR Part 375-1.8(g), although land use is subject to local zoning laws (currently zoned industrial 1-B).
  2. The use of groundwater as a source of potable or process water is restricted, without necessary water quality treatment as determined by the NYSDOH or County DOH.
  3. The sub-slab depressurization system will remain in operation until demonstrated to the satisfaction of the New York State Department of Environmental Conservation (NYSDEC) that it may be turned off.
  4. Proposed soil cover will be maintained per requirements of the Site Management Plan (SMP). Prior approval from NYSDEC must be obtained before disturbing soil cover. All excavated soil must be handled in accordance with the SMP.



<b>Remedial Elements - Completed &amp; Proposed</b>			
PREPARED FOR <b>JOHNSON &amp; HOFFMAN MANUFACTURING</b>			
Environmental Resources Management		FIGURE <b>2</b>	
DRAWN BY EMF	SCALE GRAPHIC	DATE 09/13/16	JOB NO. 0262028

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