

DECISION DOCUMENT

Silo City Phase I Project
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915361
January 2021



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

DECLARATION STATEMENT - DECISION DOCUMENT

Silo City Phase I Project
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915361
November 2020

Statement of Purpose and Basis

This document presents the remedy for the Silo City Phase I Project 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 Silo City Phase I Project 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation and off-site disposal of contaminant source areas, including:

- soil containing total PAHs exceeding 500 ppm;
- soil containing arsenic exceeding 25 ppm;
- soil containing metals exceeding commercial SCOs on the North Parcel;
- soil containing metals exceeding industrial SCOs on the South Parcels; and
- surface soil impacted with asbestos containing material.

Approximately 1,500 cubic yards of contaminated soil will be removed from the site.

3. Backfill: On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 5 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site.

On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 5.

4. Concrete Removal: Concrete impacted with PCBs greater than 1 ppm will be removed from Building 3 and transported off-site for disposal.

5. A site cover will be required to allow for restricted residential on the North Parcel where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs) and to allow for commercial use on the South Parcels where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where a soil cover is to be used it will be a minimum of one foot in the commercial use area (the South Parcels) and two feet in the restricted residential use area (the North Parcel) of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs. A site cover currently exists on the North Parcel (Buildings 1, 2, and 3) and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover for both the North and South Parcels.

6. Activated carbon will be added to the subsurface to capture and prevent the migration of chlorinated VOCs. A reagent will also be added to the subsurface to enhance the biodegradation of petroleum related VOCs. In the area of the captured contamination, conditions will be

maintained that will allow anaerobic degradation of petroleum related VOCs to occur. Activated carbon and the reagent will be added to the subsurface: in an approximately 625 square foot area located north of Building 1 via direct push injection probes from 6 to 13 fbs.

Monitoring will be required within the treatment zone. Monitoring will be conducted for chlorinated and petroleum related VOCs within treatment zone. The treatment zone will be monitored for dissolved oxygen and other geochemical parameters.

7. 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 (North Parcel) and commercial use (South Parcels) 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 County DOH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

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

1. 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 remedy element 7 above.

Engineering Controls: The soil cover discussed in remedy element 5 and groundwater monitoring wells in remedy element 6.

This plan includes, but may not be limited to:

- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- o a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- o a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in remedy element 5, above, will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- o provisions for the management and inspection of the identified engineering controls;
- o maintaining site access controls and Department notification; and
- o the steps necessary for the periodic reviews and certification of the institutional and/or

engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to
 - o monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - o a schedule of monitoring and frequency of submittals to the Department;
 - o monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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.

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cruden

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Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Silo City Phase I Project
Buffalo, Erie County
Site No. C915361
January 2021

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 repository:

DECInfo Locator - Web Application
<https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C915361>

Buffalo and Erie County Public Library
1 Lafayette Square
Buffalo, NY 14203
Phone: (716) 858-8900

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 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 Silo City Phase I Project Site is approximately 6.8-acres and is comprised of two non-contiguous parcels bisected by Silo City Row access road, located within the Silo City Cultural and Ecological Campus in the City Buffalo, Erie County. The site consists of the North Parcel at 139 Buffalo River and the South Parcels comprised of 4 Lot Lines, 77 Lot Lines, and portions of 610 Ohio Street. The site is in an industrial and commercial area just south of Downtown Buffalo. The north portion of the North Parcel is located along the Buffalo River.

Site Features: The site is located on a peninsula surrounded by the Buffalo River. The site is currently developed with three vacant industrial buildings and a parking area. Building 1 and 2 were historically used for grain processing and warehouse facilities. Building 3 was historically used as a grain silo/elevator. The three buildings are located on the North Parcel of the site. The parking area is located on the South Parcel and consists of a gravel lot, small electrical outbuilding, a stormwater drainage swale and retention pond, art exhibits, and an inactive electric service tower.

Current Zoning and Land Use: The site is currently located in the D-IL Light Industrial Zone District and falls within the Coastal Overlay Zone allowing for mixed use residential and commercial redevelopment. The surrounding properties include a restaurant in one building, and vacant buildings and grain silos which make up the Silo City Campus. The closest residential area is a neighborhood across the Buffalo River approximately 550-feet northwest of the site.

Past Use of the Site: From at least 1900 to approximately 1998, historic operations on the North Parcel included flour milling, malting, processing, and warehousing within Buildings 1 and 2. Building 3 was historically utilized for grain storage. From at least 1894 to prior to 2006, the properties that comprise the South Parcels were developed with multiple rail lines. Previous Phase I and Phase II investigations have identified the presence of historic fill across the site from 2 to 8 feet below ground surface (fbgs). Historic records indicate past use of petroleum products in aboveground storage tanks on the North Parcel.

Site Geology and Hydrogeology: Site overburden soils consist of vegetated topsoil, gravel, and historic fill (including black granular material, cinders, brick, concrete, coal, and ash) ranging from 0 to 8 fbgs overlying a native sandy clay or fine sand to a depth of at least 16 fbgs. Depth to bedrock has not been determined.

Groundwater was measured at depths ranging from 4.5 to 6.2 fbgs. Perched groundwater was

observed in several locations in porous fill materials ranging from 4 to 5 fbgs. Groundwater flow is north-northeast towards the Buffalo River.

A site location map and site plan are attached as Figures 1 and 2 respectively.

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 on the North Parcel (which allows for commercial use and industrial use) and commercial use on the South Parcels (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 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(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do not have an obligation to address 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:

- air
- groundwater
- soil
- 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:

arsenic	cis-1,2-dichloroethene
barium	tetrachloroethene (PCE)
lead	xylene (mixed)
1,2,4-trimethylbenzene	polycyclic aromatic hydrocarbons (PAHS),
1,3,5-trimethylbenzene	total

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

- soil
- groundwater

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

During Phase II investigations for the site and the RI, samples were collected from soil, groundwater, sub-slab soil vapor, indoor air, and outdoor air. Based upon investigations conducted to date, the primary contaminants of concern (COCs) are polycyclic aromatic hydrocarbons (PAHs) and metals in soil, and volatile organic compounds (VOCs) in groundwater.

Surface Soil:

On the North Parcel, a total of three samples were collected from 0 to 2 inches below the vegetated cover (if present) and analyzed for semi-volatile organic compounds (SVOCs) and metals. Two of the three samples were analyzed for polychlorinated biphenyls (PCBs), pesticides, herbicides and per- and polyfluoroalkyl substances (PFAS). No PCBs, pesticides, or herbicides were detected exceeding restricted residential use soil cleanup objectives (SCOs). Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were not detected above restricted residential guidance values of 33 parts per billion (ppb) and 44 ppb, respectively. Arsenic was detected at 24.6 parts per million (ppm) at one location exceeding the restricted residential SCO (RRSCO) of 16 ppm. No other metals were detected above RRSCOs. Total PAHs were detected at 981 ppm at one location, exceeding the site-specific action limit (SSAL) of 500 ppm. Asbestos containing material from deteriorating brick was identified in surface soils to the west of Building 1.

On the South Parcels, a total of six samples were collected from 0 to 2 inches below the vegetated cover (if present) and analyzed for SVOCs and metals. Three of the six samples were analyzed for PCBs, pesticides, herbicides and PFAS. No metals, PCBs, pesticides, or herbicides were detected exceeding commercial use SCOs. PFOA and PFOS were not detected above commercial guidance values of 500 ppb and 440 ppb, respectively. Investigation results do not indicate that off-site surface soil is impacted by the site.

Subsurface Soil: On the North Parcel, a total of 29 samples were collected ranging from 0.5 to 13 fbs. Of the 29 samples, 10 were analyzed for the target compound list (TCL) VOCs, 7 for PAHs, 21 for TCL SVOCs, 7 for RCRA metals, 20 for target analyte list (TAL) metals and cyanide, 17 for PCBs, 10 for pesticides, 10 for herbicides, and 10 for PFAS. No VOCs, PCBs, pesticides, or herbicides were detected above RRSCOs. PFOA and PFOS were not detected above the restricted residential guidance values. Total PAHs were detected at 815.2 ppm at one location exceeding the SSAL of 500 ppm. The following were detected in at least one location exceeding RRSCOs:

- arsenic up to 201 ppm (RRSCO 16 ppm)
- barium up to 742 ppm (RRSCO 400 ppm)

- cadmium up to 28.3 ppm (RRSCO 4.3 ppm)
- lead up to 914 ppm (RRSCO 400 ppm)
- mercury up to 4.6 ppm (RRSCO 0.81 ppm)

On the South Parcels, a total of 19 samples were collected ranging from 0.5 to 6 fbgs. Of the 19 samples, 8 were analyzed for TCL VOCs, 8 for PAHs, 11 for TCL SVOCs, 8 for RCRA metals, 11 for TAL metals and cyanide, 11 for PCBs, 7 for pesticides, 7 for herbicides, and 7 for PFAS. No VOCs, PCBs, pesticides, or herbicides were detected above CSCOs. PFOA and PFOS were not detected above the commercial guidance values. Total PAHs were detected at 504.4 ppm at one location exceeding the SSAL of 500 ppm. The following were detected in at least one location exceeding CSCOs:

- arsenic up to 22.6 ppm (CSCO 16 ppm)
- barium up to 782 ppm (CSCO 400 ppm)
- lead up to 4,220 (CSCO 1,000 ppm)

Investigation results do not indicate that off-site soil is impacted by the site.

Groundwater: Samples were collected from five temporary monitoring wells on the North and South Parcels during the Phase II investigations installed in the overburden and screened at depths ranging from 1.3 to 13.3 fbgs and analyzed for TCL VOCs. VOCs were not detected above groundwater quality standards (GWQS) in the temporary monitoring wells.

On the North Parcel groundwater samples were collected from four monitoring wells installed in the overburden during the RI and screened at depths ranging from 3.6 to 15.6 fbgs. All monitoring wells were analyzed for CP-51 and TCL VOCs with two monitoring wells being analyzed for TCL SVOCs, TAL metals, PCBs, pesticides, herbicides 1,4-dioxane, and PFAS. No PCBs or herbicides were detected above GWQS. 1,4-dioxane was not detected above the screening level of 1 part per billion (ppb). The following VOCs were detected in monitoring well RI MW-2 exceeding GWQS:

- 1,2,4-trimethylbenzene: 23 ppb (GWQS 5 ppb)
- 1,3,5-trimethylbenzene: 9.9 ppb (GWQS 5 ppb)
- cis-1,2-dichloroethene: 12 ppb (GWQS 5 ppb)
- tetrachloroethene: 19 ppb (GWQS 5 ppb)
- total xylenes: 26 ppb (GWQS 5 ppb)

The following SVOCs were detected in monitoring well RI MW-1 exceeding GWQS:

- benzo(a)anthracene: 1.3 ppb (GWQS 0.002 ppb)
- benzo(a)pyrene: 1.2 ppb (GWQS non-detect)
- benzo(b)fluoranthene: 1.2 ppb (GWQS 0.002 ppb)
- chrysene: 1.3 ppb (GWQS 0.002 ppb)
- indeno(1,2,3-cd)pyrene: 0.54 ppb (GWQS 0.002 ppb)
- total phenols: 2.55 ppb (GWQS 1 ppb)

Arsenic (38 ppb, GWQS 25 ppb) was detected exceeding GWQS in RI MW-3. The metals iron, manganese, and sodium were detected exceeding GWQS, but are likely attributed to natural aquifer conditions, not the contamination at the site. The pesticides alpha-BHC (0.017 ppb, GWQS 0.01 ppb) and beta-BHC (0.033 ppb, GWQS 0.01 ppb) were detected exceeding GWQS in monitoring well RI MW-1.

On the South Parcels groundwater samples were collected from three monitoring wells installed in the overburden during the RI and screened at depths ranging from 5.2 to 15.8 fbs. All monitoring wells were analyzed for TCL VOCs with two monitoring wells being analyzed for TCL SVOCs, TAL metals, PCBs, pesticides, herbicides 1,4-dioxane, and PFAS. No VOCs, SVOCs, PCBs or herbicides were detected above GWQS. 1,4-dioxane was not detected above the screening level of 1 part per billion (ppb). The metals cobalt (9.8 ppb, GWQS 5 ppb) and vanadium (25 ppb, GWQS 14 ppb) were detected exceeding GWQS in RI MW-6. The metals iron, magnesium, manganese, and sodium were detected exceeding GWQS, but are likely attributed to natural aquifer conditions, not the contamination at the site.

The PFAS compounds PFOA and PFOS were detected above the guidance value of 10 parts per trillion (ppt). PFOA was detected at 11 ppt in monitoring well RI MW-6 on the South Parcels. PFOS was detected at 15 ppt in monitoring well RI MW-3 on the North Parcel. The slight exceedances of guidance values do not indicate the presence of a source of PFOA or PFOS contamination.

Groundwater in the overburden generally flows north to northeast towards the Buffalo River. Although individual monitoring well locations have GWQS exceedances, there is no evidence of a widespread impact of a specific chemical class in groundwater. The VOC exceedances in monitoring well RI MW-2 and site groundwater flow direction indicate a possible impact to off-site surface water in the Buffalo River.

Soil Vapor Intrusion: A limited soil vapor intrusion (SVI) assessment was completed on-site in Buildings 1, 2, and 3. The assessments included the collection of concurrent sub-slab/indoor air pairs and an outdoor ambient air sample that were analyzed for VOCs using Method TO-15. The VOCs tetrachloroethene (up to 3.3 micrograms per cubic meter, or ug/m³, in sub-slab soil vapor), methylene chloride (1.1 ug/m³ in sub-slab vapor, 3.5 ug/m³ in outdoor air), vinyl chloride (0.23 ug/m³ in sub-slab vapor) were detected in SVI samples, however, no immediate action is needed to address potential exposures to these compounds at this time. Carbon tetrachloride was detected in every SVI sample up to 6.2 ug/m³ in sub-slab vapor, up to 0.49 ug/m³ in indoor air, and 0.3 ug/m³ in outdoor air. The results for sample location pair SSV-4/IA4 (6.2 ug/m³ sub-slab vapor, 0.35 ug/m³ indoor air) require further monitoring. Based on background concentration of carbon tetrachloride in outdoor air, the fact that all three buildings are open to the elements, and the SVI assessment was completed during summer, further investigation is required prior to building redevelopment and occupancy to determine if any action to address potential exposures is necessary for any of the compounds detected.

Concrete Floors: A total of 39 concrete samples were collected from Buildings 1 and 2 and analyzed for PCBs. PCBs were detected at six locations on the second floor of Building 2 and the third floor of Building 1 exceeding the United States Environmental Protection Agency (USEPA)

cleanup level for PCBs in porous material in high occupancy areas of 1 ppm. The concentrations of PCBs ranged from non-detect to 3.14 ppm. Areas exceeding the USEPA standards were not located in an area that would constitute a future cover system. These areas are being addressed during hazardous building material abatement.

Additionally, five samples were collected from stained concrete in proximity to a former transformer location in Building 3 and analyzed for PCBs. PCBs were detected at two locations up to 5.8 ppm, exceeding the USEPA threshold for high occupancy areas. The sampling in Building 3 was located on the first floor. Building 3 has not been designated for demolition or redevelopment and the impacted concrete would constitute a cover system, therefore this area will be addressed under the remedial elements for the site. Investigation results indicate that the off-site environmental media is not impacted by the stained concrete floors.

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*.

The site is currently unoccupied. However, access is not restricted and people who enter the site could contact contaminants in the soil by walking, digging or otherwise disturbing the surface. 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 soil vapor (air spaces within the soil), may move into buildings and affect 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. Environmental sampling indicates that soil vapor intrusion is not a concern for adjacent offsite buildings. As the onsite buildings are vacant, soil vapor intrusion is not a current concern. However, the potential for soil vapor intrusion to occur onsite should be evaluated should site use change.

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.
- Prevent the discharge of contaminants to surface water.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated 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 Excavation, Site Cover, and Groundwater Treatment remedy.

The elements of the selected remedy, as shown in Figures 3 through 6, 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and

- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation and off-site disposal of soil exceeding at least one or more of the following criteria (Figures 3 and 4):

- total PAHs exceeding 500 ppm;
- arsenic exceeding 25 ppm;
- metals exceeding commercial SCOs on the North Parcel;
- metals exceeding industrial SCOs on the South Parcels; and
- surface soil impacted with asbestos containing material.

Approximately 1,500 cubic yards of contaminated soil will be removed from the site.

3. Backfill: On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 5 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site.

On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 5.

4. Concrete Removal: Concrete impacted with PCBs greater than 1 ppm will be removed from Building 3 and transported off-site for disposal.

5. A site cover (Figure 6) will be required to allow for restricted residential on the North Parcel where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs) and to allow for commercial use on the South Parcels where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where a soil cover is to be used it will be a minimum of one foot in the commercial use area (the South Parcels) and two feet in the restricted residential use area (the North Parcel) of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

A site cover currently exists on portions of the North Parcel (Buildings 1, 2, and 3) and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover for the North Parcel.

6. Activated carbon will be added to the subsurface to capture and prevent the migration of chlorinated VOCs (Figure 5). A reagent will also be added to the subsurface to enhance the biodegradation of petroleum related VOCs. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of petroleum related VOCs to occur. Activated carbon and the reagent will be added to the subsurface in an approximately 625 square foot area located north of Building 1 via direct push injection probes from 6 to 13 fbs.

Monitoring will be required within the treatment zone. Monitoring will be conducted for chlorinated and petroleum related VOCs within treatment zone. The treatment zone will be monitored for dissolved oxygen and other geochemical parameters.

7. 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 (North Parcel) and commercial use (South Parcels) 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 County DOH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

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

1. 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 remedy element 7 above.

Engineering Controls: The soil cover discussed in remedy element 5 and groundwater monitoring wells in remedy element 6.

This plan includes, but may not be limited to:

- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- o a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

- o a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in remedy element 5, above, will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)

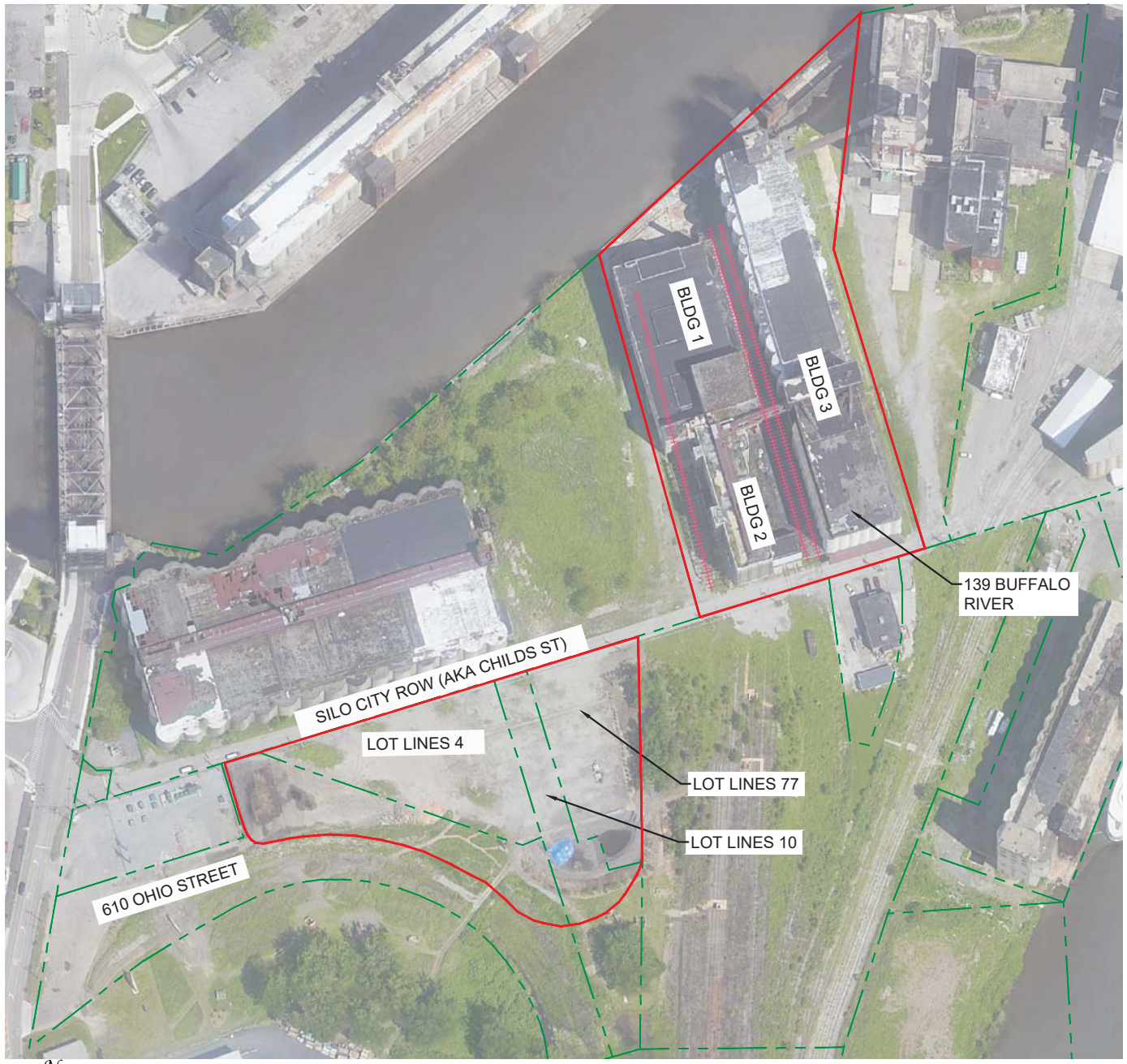
- o provisions for the management and inspection of the identified engineering controls;
- o maintaining site access controls and Department notification; and
- o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- o monitoring of groundwater to assess the performance and effectiveness of the remedy;
- o a schedule of monitoring and frequency of submittals to the Department;
- o monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

FIGURE 2

F:\CAD\Benchmark\Generation Development Group\SiCo City Phase I Site\RI-IR\AA Report\Figure 2 - Site Plan (Aerial).dwg



200' 0' 200' 400'

SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

LEGEND:

- BCP SITE BOUNDARY
- - - - - PARCEL BOUNDARY
- +++++ INACTIVE RAILROAD SPURS



2558 HAMBURG TURNPIKE
SUITE 300
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SITE PLAN (AERIAL)

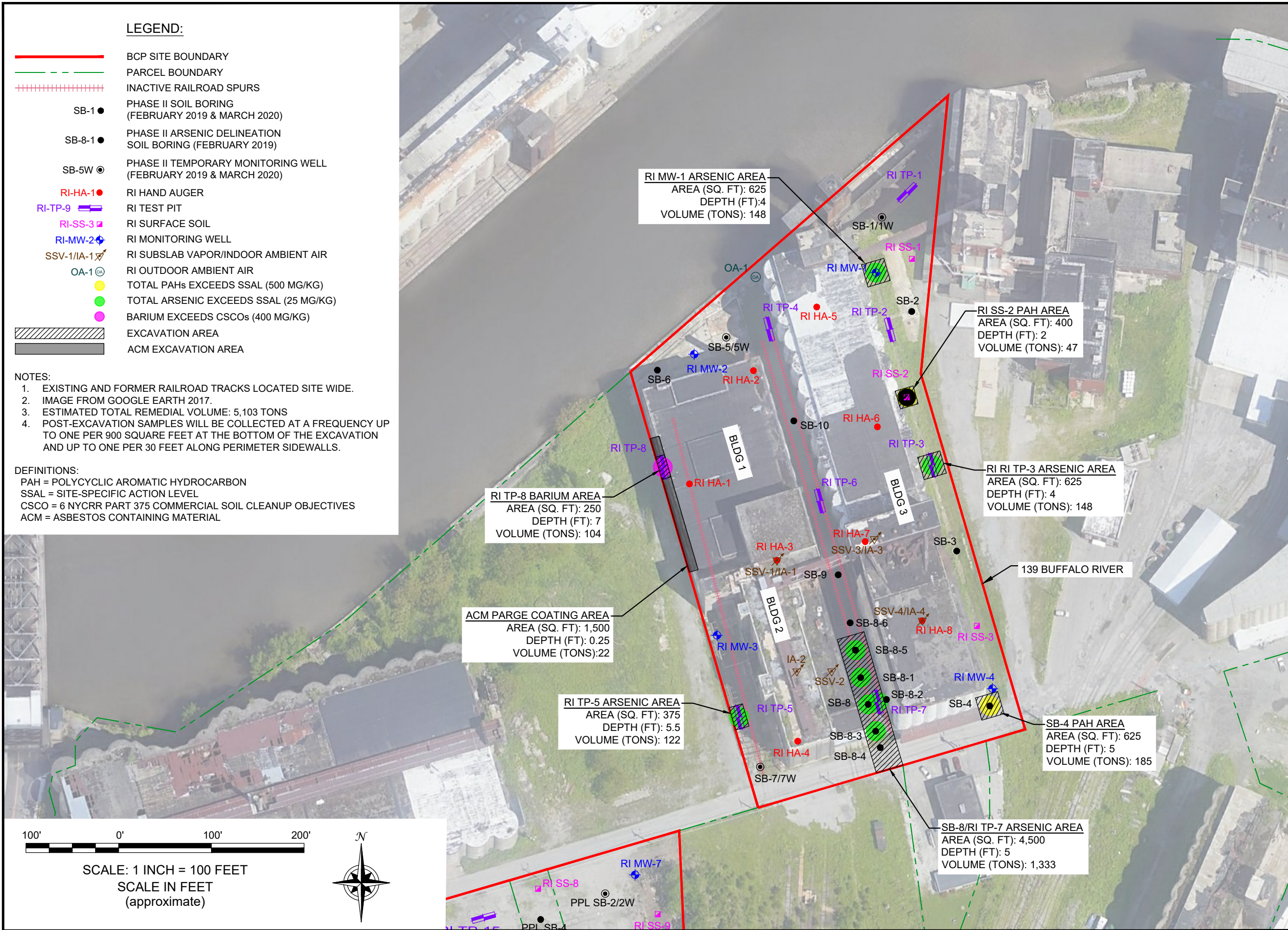
RI/AA REPORT
SILO CITY PHASE I PROJECT SITE
BCP SITE NO. C915361
BUFFALO, NEW YORK
PREPARED FOR

SILO CITY PHASE I LLC c/o GENERATION DEVELOPMENT GROUP, LLC

PROJECT NO.: B0474-018-001
DATE: AUGUST 2020
DRAFTED BY: CMS

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DATE: SEPTEMBER 2020 DRAFTED BY: CNK F:\CAD\Benchmark\Generation Development Group\Silo City Phase I Site\Remedial Action Work Plan\Figure 3 - North Parcel Hot Spot Soil Remedial Areas.dwg



LEGEND:

- BCP SITE BOUNDARY
- - - PARCEL BOUNDARY
- +++++ INACTIVE RAILROAD SPURS
- SB-1 PHASE II SOIL BORING (FEBRUARY 2019 & MARCH 2020)
- SB-8-1 PHASE II ARSENIC DELINEATION SOIL BORING (FEBRUARY 2019)
- ⊙ SB-5W PHASE II TEMPORARY MONITORING WELL (FEBRUARY 2019 & MARCH 2020)
- RI-HA-1 RI HAND AUGER
- RI-TP-9 RI TEST PIT
- RI-SS-3 RI SURFACE SOIL
- RI-MW-2 RI MONITORING WELL
- SSV-1/IA-1 RI SUBSLAB VAPOR/INDOOR AMBIENT AIR
- ⊙ OA-1 RI OUTDOOR AMBIENT AIR
- TOTAL PAHs EXCEEDS SSAL (500 MG/KG)
- TOTAL ARSENIC EXCEEDS SSAL (25 MG/KG)
- BARIUM EXCEEDS CSCOs (400 MG/KG)
- ▨ EXCAVATION AREA
- ▨ ACM EXCAVATION AREA

NOTES:

1. EXISTING AND FORMER RAILROAD TRACKS LOCATED SITE WIDE.
2. IMAGE FROM GOOGLE EARTH 2017.
3. ESTIMATED TOTAL REMEDIAL VOLUME: 5,103 TONS
4. POST-EXCAVATION SAMPLES WILL BE COLLECTED AT A FREQUENCY UP TO ONE PER 900 SQUARE FEET AT THE BOTTOM OF THE EXCAVATION AND UP TO ONE PER 30 FEET ALONG PERIMETER SIDEWALLS.

DEFINITIONS:

- PAH = POLYCYCLIC AROMATIC HYDROCARBON
- SSAL = SITE-SPECIFIC ACTION LEVEL
- CSCO = 6 NYGRR PART 375 COMMERCIAL SOIL CLEANUP OBJECTIVES
- ACM = ASBESTOS CONTAINING MATERIAL

NORTH PARCEL HOT SPOT SOIL REMEDIAL AREAS

REMEDIAL ACTION WORK PLAN
 SILO CITY PHASE I PROJECT SITE
 BCP SITE NO. C915361
 BUFFALO, NEW YORK

PREPARED FOR

SILO CITY PHASE I LLC c/o GENERATION DEVELOPMENT GROUP, LLC

BENCHMARK
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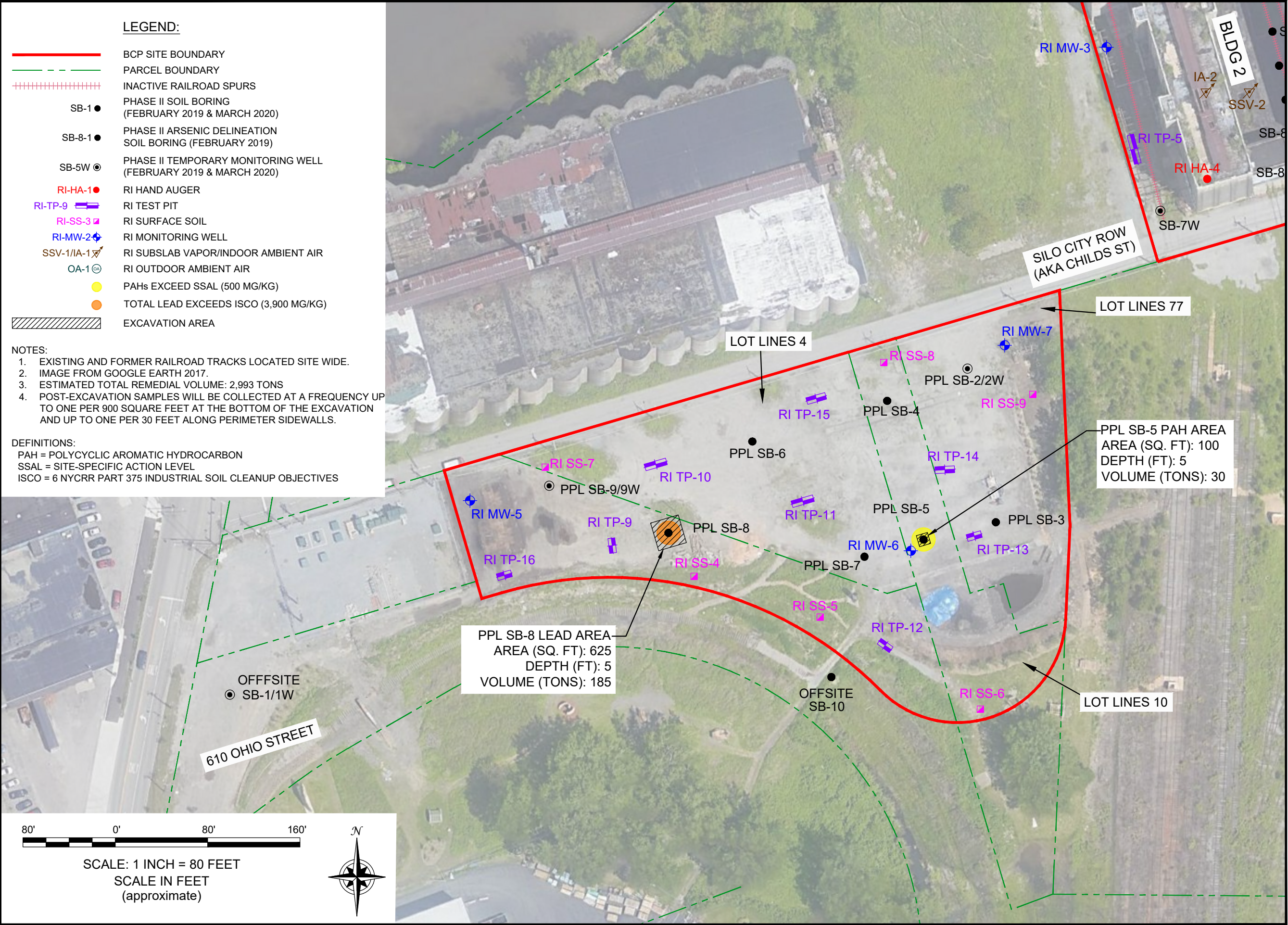
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FIGURE 3

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F:\CAD\Benchmark\Development\Group\Silo City Phase I Site\Remedial Action Work Plan\Figure 4 - South Parcel Hot Spot Soil Remedial Areas.dwg, 9/23/2020 9:50:16 AM



LEGEND:


- BCP SITE BOUNDARY
- - - PARCEL BOUNDARY
- +++++ INACTIVE RAILROAD SPURS
- SB-1 PHASE II SOIL BORING (FEBRUARY 2019 & MARCH 2020)
- SB-8-1 PHASE II ARSENIC DELINEATION SOIL BORING (FEBRUARY 2019)
- ⊙ SB-5W PHASE II TEMPORARY MONITORING WELL (FEBRUARY 2019 & MARCH 2020)
- RI-HA-1 RI HAND AUGER
- ▭ RI-TP-9 RI TEST PIT
- ▭ RI-SS-3 RI SURFACE SOIL
- ⊕ RI-MW-2 RI MONITORING WELL
- ⚡ SSV-1/IA-1 RI SUBSLAB VAPOR/INDOOR AMBIENT AIR
- ⊙ OA-1 RI OUTDOOR AMBIENT AIR
- PAHs EXCEED SSAL (500 MG/KG)
- TOTAL LEAD EXCEEDS ISCO (3,900 MG/KG)
- ▨ EXCAVATION AREA

NOTES:

1. EXISTING AND FORMER RAILROAD TRACKS LOCATED SITE WIDE.
2. IMAGE FROM GOOGLE EARTH 2017.
3. ESTIMATED TOTAL REMEDIAL VOLUME: 2,993 TONS
4. POST-EXCAVATION SAMPLES WILL BE COLLECTED AT A FREQUENCY UP TO ONE PER 900 SQUARE FEET AT THE BOTTOM OF THE EXCAVATION AND UP TO ONE PER 30 FEET ALONG PERIMETER SIDEWALLS.

DEFINITIONS:

- PAH = POLYCYCLIC AROMATIC HYDROCARBON
- SSAL = SITE-SPECIFIC ACTION LEVEL
- ISCO = 6 NYCRR PART 375 INDUSTRIAL SOIL CLEANUP OBJECTIVES



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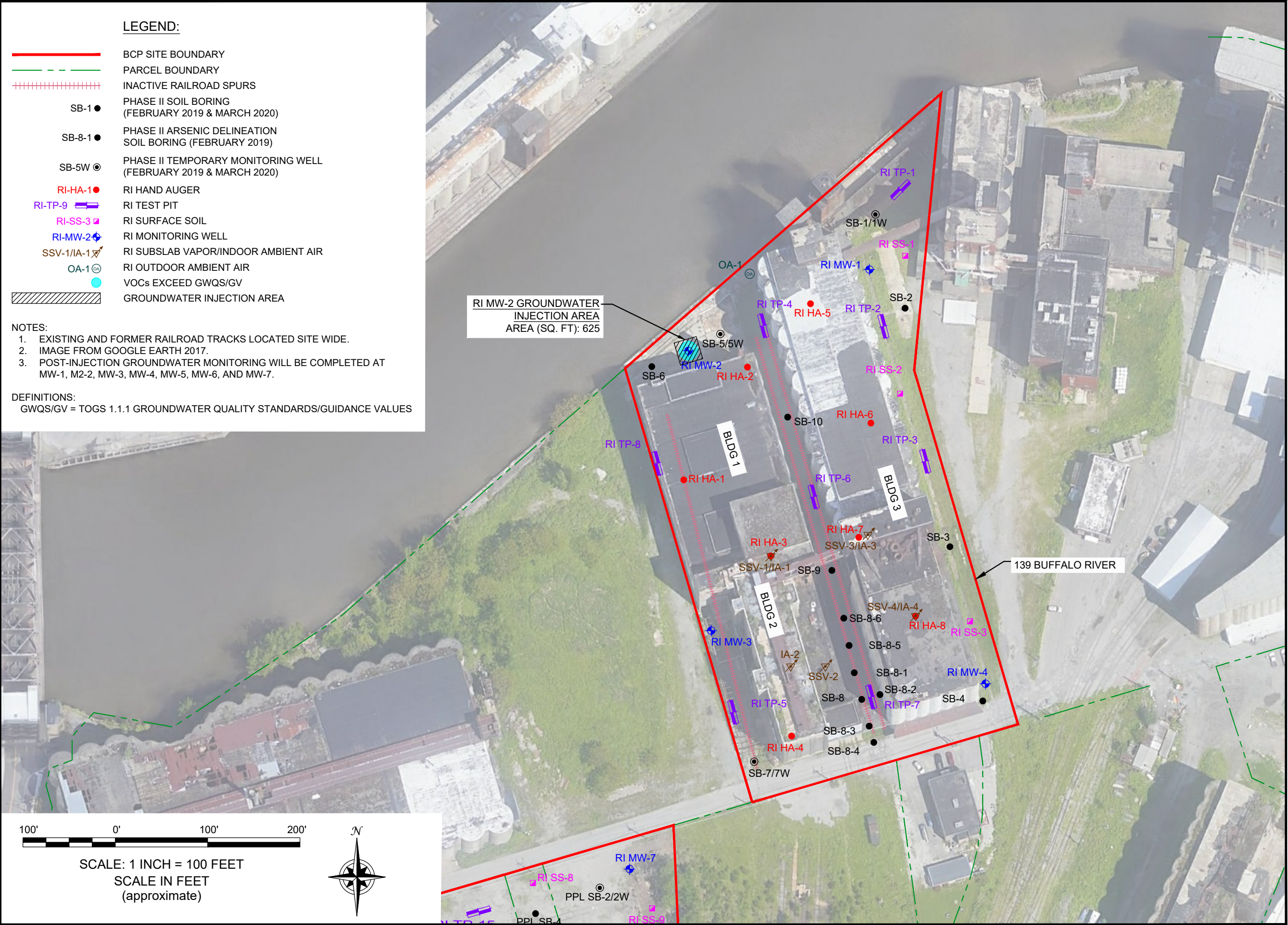
SOUTH PARCEL HOT SPOT SOIL REMEDIAL AREAS

REMEDIAL ACTION WORK PLAN
SILO CITY PHASE I PROJECT SITE
BCP SITE NO. C915361
BUFFALO, NEW YORK
PREPARED FOR
SILO CITY PHASE I LLC c/o GENERATION DEVELOPMENT GROUP, LLC

FIGURE 4

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DATE: SEPTEMBER 2020
DRAFTED BY: CNK



LEGEND:

- BCP SITE BOUNDARY
- - - PARCEL BOUNDARY
- +++++ INACTIVE RAILROAD SPURS
- SB-1 ● PHASE II SOIL BORING (FEBRUARY 2019 & MARCH 2020)
- SB-8-1 ● PHASE II ARSENIC DELINEATION SOIL BORING (FEBRUARY 2019)
- SB-5W ● PHASE II TEMPORARY MONITORING WELL (FEBRUARY 2019 & MARCH 2020)
- RI-HA-1 ● RI HAND AUGER
- RI-TP-9 ■ RI TEST PIT
- RI-SS-3 ■ RI SURFACE SOIL
- RI-MW-2 ◆ RI MONITORING WELL
- SSV-1/IA-1 ✂ RI SUBSLAB VAPOR/INDOOR AMBIENT AIR
- OA-1 ● RI OUTDOOR AMBIENT AIR
- VOCs EXCEED GWQS/GV
- GROUNDWATER INJECTION AREA

NOTES:

1. EXISTING AND FORMER RAILROAD TRACKS LOCATED SITE WIDE.
2. IMAGE FROM GOOGLE EARTH 2017.
3. POST-INJECTION GROUNDWATER MONITORING WILL BE COMPLETED AT MW-1, M2-2, MW-3, MW-4, MW-5, MW-6, AND MW-7.

DEFINITIONS:

GWQS/GV = TOGS 1.1.1 GROUNDWATER QUALITY STANDARDS/GUIDANCE VALUES

RI MW-2 GROUNDWATER INJECTION AREA (SQ. FT): 625



SCALE: 1 INCH = 100 FEET
SCALE IN FEET (approximate)



GROUNDWATER INJECTION AREA

REMEDIAL ACTION WORK PLAN
SILO CITY PHASE I PROJECT SITE
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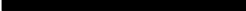


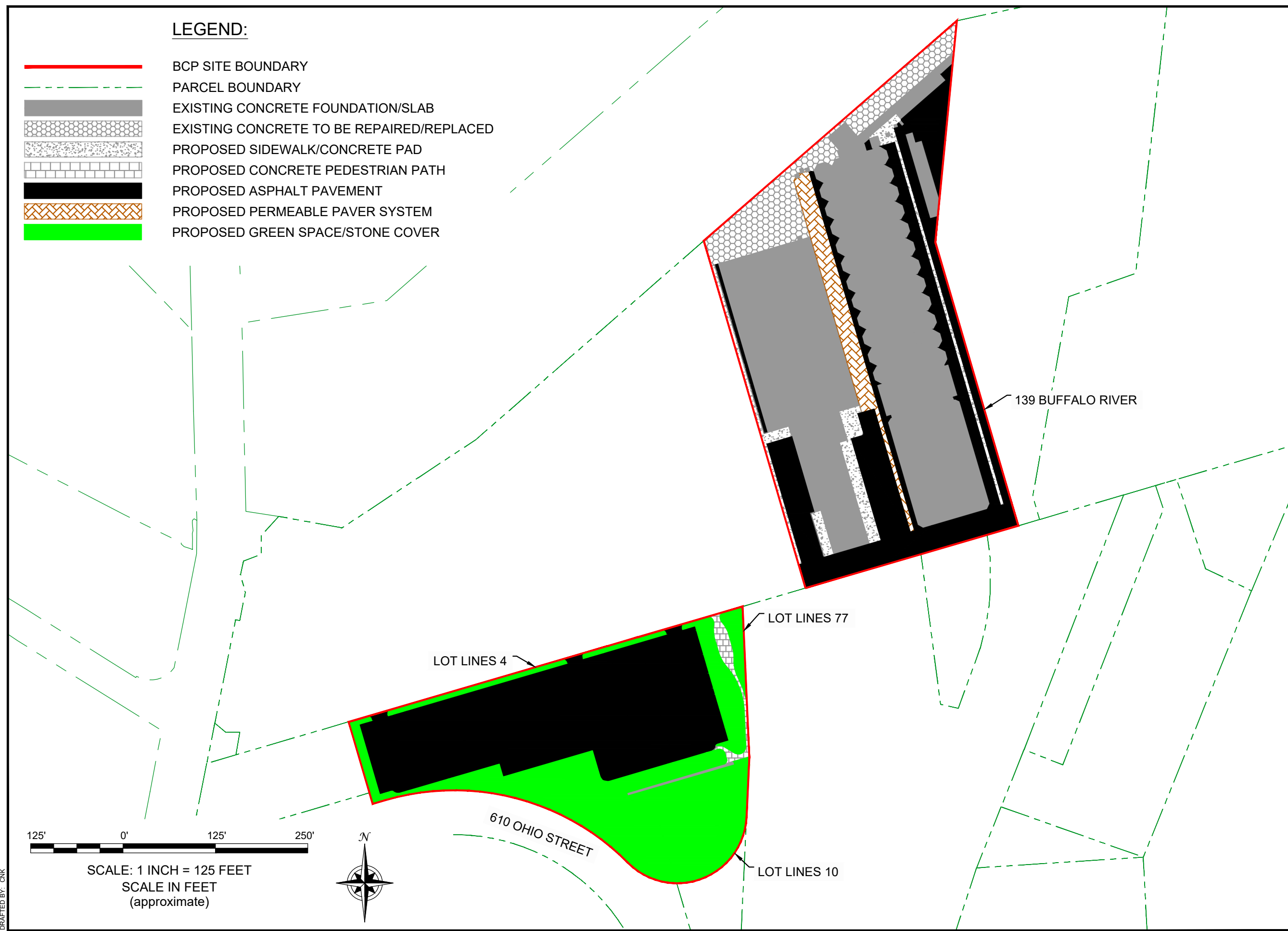
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FIGURE 5

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LEGEND:

-  BCP SITE BOUNDARY
-  PARCEL BOUNDARY
-  EXISTING CONCRETE FOUNDATION/SLAB
-  EXISTING CONCRETE TO BE REPAIRED/REPLACED
-  PROPOSED SIDEWALK/CONCRETE PAD
-  PROPOSED CONCRETE PEDESTRIAN PATH
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED PERMEABLE PAVER SYSTEM
-  PROPOSED GREEN SPACE/STONE COVER



COVER SYSTEM LAYOUT

REMEDIAL ACTION WORK PLAN
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FIGURE 6

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