ROUX

January 21, 2026

Ms. Taylor Monnin
Assistant Engineer
NYSDEC Division of Environmental Remediation
700 Delaware Avenue
Buffalo, NY 14209

Re: Work Plan for Brownfield Cleanup Program (BCP) Remediation Support Activities
North Aud Block (C915406)
Buffalo, New York

Dear Ms. Monnin:

Roux Environmental Engineering and Geology, D.P.C. (Roux) is pleased to submit this Work Plan for BCP remediation support activities at the North Aud Block site (BCP Site No. C915406) located on a portion of 130 Main Street, Buffalo, Erie County, New York (Site; see Figures 1 and 2).

North Aud Owner LLC elected to pursue investigation, cleanup, and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP) and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in August 2024 (Index No. C915406-06-24). Remedial Investigation (RI) activities, completed in February and April 2025, are documented in the October 2025 Remedial Investigation/Alternatives Analysis (RI/AA) Report[1]. As summarized in the RI/AA Report, based on the nature of the Site and the RI findings, the chosen remedy is a Track 1 Unrestricted Cleanup.

Due to the expedited nature of this project, as previously discussed and agreed upon, the purpose of this Work Plan is to facilitate completion of delineation work and bench scale treatability testing in the characteristically hazardous lead area. Additional tasks referenced herein to assist with facilitating this project include collection of additional soil/fill waste characterization samples and preliminary groundwater management activities necessary to obtain a temporary groundwater discharge permit from the Buffalo Sewer Authority (BSA).

Background

As detailed in Roux's RI/AA report, elevated concentrations of total lead were identified in fill samples collected from the Site and, due to those exceedances, certain fill samples (RISB-2, RISB-3, TP-34, and TP-32) were expanded to include lead analysis by Toxicity Characteristic Leaching Procedure (TCLP) to determine whether a characteristically hazardous lead condition exists in fill. In addition, five fill samples (WC-1 through WC-5, were collected to represent the fill units at TP-34, TP-32, RISB-6, RISB-9, and RISB-4, respectively), and analyzed for waste characterization landfill parameters, which included lead by TCLP[2]. The results of TCLP sampling revealed lead concentrations below the characteristic

[1] Roux Environmental Engineering and Geology, D.P.C. *Remedial Investigation/Alternatives Analysis Report, North Aud Block, NYSDEC BCP #C915406, Portion of 130 Main Street, Buffalo, New York*. October 2025.

[2] Roux notes that environmental samples from TP-34 and TP-32 were analyzed for TCLP lead due to their elevated total lead concentrations and in addition, fill samples representative of the fill units from those same locations were collected for laboratory analysis for waste characterization purposes (WC-1 and WC-2).

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hazardous waste threshold for lead (5 milligrams per liter, mg/L) in all but one fill sample, RISB-2 (1-4 ft interval) that yielded an elevated lead concentration of 9.1 mg/L. A table showing TCLP lead concentrations for fill samples selected for analysis is attached as Table 1.

As part of the selected remedy, soil/fill in the RI-SB-2 area identified as characteristically hazardous for lead will be treated via in-situ solidification or stabilization prior to off-site disposal. To determine the horizontal and vertical extent of soil requiring treatment, delineation sampling will be completed to assess the horizontal and vertical extents of characteristically hazardous soil/fill in the RISB-2 Characteristically Hazardous Lead Area. Soil/fill from that area will be collected and undergo a bench scale treatability assessment to assess the type and amount of amendment material required to successfully treat the lead-impacted soil/fill to render the material non-hazardous prior to disposal. Further details of the planned activities under this Work Plan are provided below.

RISB-2 Delineation Activities

Using an excavator, additional test pits will be completed in the RISB-2 Characteristically Hazardous Lead Area to assess the horizontal and vertical extent of characteristically hazardous lead. Specifically, one additional test pit (TP-35) will be completed at previous sample location RISB-2 (see Figure 3); a fill sample will be collected from the same interval that was characteristically hazardous for lead, the 1- to 4-foot interval, for bench scale testing further discussed below. In addition, a native soil sample from beneath the impacted fill unit, anticipated to be from the 4.5- to 7-foot interval, will be analyzed for TCLP lead analysis for vertical delineation purposes. An additional native soil from the bottom of the test pit, anticipated to be from 8 fbgs, will be selected and placed on hold pending TCLP lead results for the shallower native soil sample interval.

To assess the horizontal extent of characteristically hazardous lead, four step-out test pits will be completed approximately 15 feet laterally from RISB-2, 7.5 feet in all cardinal directions to the north, south, east, and west of RISB-2 (see Figure 3). One fill sample will be collected from each test pit, anticipated from the 1- to 4-foot intervals, and analyzed for TCLP lead (RISB-2-N1, RISB-2-S1, RISB-2-E1, RISB-2-W1). A second row of four step-out test pits, 7.5 feet in all cardinal directions will be completed approximately 30 feet out from RISB-2 (15 feet laterally from the first set of step-out test pits). One soil/fill sample will be collected from each test pit, anticipated from the 1- to 4-foot intervals, and placed on hold at the laboratory for TCLP lead analysis pending analytical results from the first set of step-out test pit analytical results (RISB-2-N2, RISB-2-S2, RISB-2-E2, RISB-2-W2). Additional TCLP lead samples may be placed on hold or selected for laboratory analysis from additional depths at the step-out test pits, based on field observations and the laboratory analytical results from initial runs.

Test pit spoils will be placed next to each test pit on polyethylene sheeting. Once sampling is completed, the spoils will then be used to backfill each test pit excavations and the removed soils will be placed back into the test pit excavations in the same depths that they were removed. Exposure to potential TCLP lead soils will be mitigated through the proper use of personal protective equipment (PPE), in accordance with the Health and Safety Plan (HASP) included in the approved Remedial Investigation Work Plan (RIWP). Further regarding mitigation of exposure to TCLP soils, Site access is currently limited to authorized personnel only and following TCLP lead delineation activities, upon the horizontal extent of TCLP lead soils being determined, a snow fence will be installed surrounding the extents of the TCLP lead area to prevent access.

RISB-2 Bench Scale Testing

Bench-scale soil/fill treatability testing will be completed to evaluate potential amendments that will treat the soil/fill to TCLP lead concentrations below 5 mg/L and consequently render the material non-hazardous. The scope of work associated with the bench-scale lead assessment to be completed by Roux will consist of the following:

- One five-gallon bucket of soil/fill from TP-35 (to be advanced in the RISB-2 Characteristically Hazardous Lead Area as discussed above) will be collected by Roux between 1 and 4 fbgs using an excavator.
- The collected soil/fill will be homogenized and separated into two piles. One soil/fill sample will be collected from each pile and analyzed for TCLP lead to establish a baseline.
- The soil/fill pile with the higher of the two TCLP lead results will be selected for treatment.
- The selected soil/fill pile will be separated into four homogenized samples and will be placed and weighed in disposable aluminum containers.
- Amendments will be weighed into aliquots, based on the weight of the soil/fill samples, and mixed into the soil/fill samples. Each of samples will be mixed with one of the following amendment mixtures:
    - Sample 1: Phosphoric acid at 0.5% by weight
    - Sample 2: Phosphoric acid at 1% by weight
    - Sample 3: Portland cement at 5% by weight and 3.25% by weight of water
    - Sample 4: Portland cement at 10% by weight and 3.25% by weight of water
- The four treated soil/fill samples (two treated with phosphoric acid and two treated with Portland cement) will be tested for TCLP lead to determine the most cost-effective amendment and dosing to treat soil/fill in the RISB-2 Characteristically Hazardous Lead Area.

Additional Test Pits for Fill Depth Assessment

If necessary to assist with a volume assessment and/or redevelopment discussions, additional test pits or soil borings may be completed in areas outside of the TCLP lead area to verify fill depths in certain areas of the Site where fill depths are unknown (i.e., previous investigation locations did not reach native soil beneath the fill unit). Removed soil/fill will be handled in a similar manner discussed above with removed material being placed on poly and being placed back into the test pit excavations in the same depths that they were removed.

Additional Site Soil/Fill Waste Characterization

Five waste characterization samples (WC-1 through WC-5) were previously collected for laboratory analysis from representative fill units across the Site during the RI. While on-site during the delineation activities discussed above, additional waste characterization fill samples may be collected, if necessary, to secure landfill disposal requirements for the estimated volume (approximately 27,000 tons). Pre-characterization of the soil/fill will allow for direct loading and off-site transportation to the disposal facility at the time of the planned impacted soil/fill excavation.

Site Groundwater Management

Full-scale remedial activities include excavation of soil/fill from various depths across the Site to meet USCOs. If necessary, water present within excavations and any rainwater that may infiltrate excavations during the impacted soil/fill removal work will be handled on-site prior to discharge to the municipal sanitary sewer system in accordance with Buffalo Sewer Authority requirements. In general, water removed from excavations will be stored/settled in a portable storage tank(s), and if deemed necessary, will be pumped through a bag or cartridge filter prior to treatment using granular activated carbon (GAC). To facilitate securing a temporary groundwater discharge permit from the BSA, prior to remedial activities, a groundwater sample will be collected from existing monitoring wells (further discussed

below), filtered, and analyzed by the laboratory in accordance with BSA analytical requirements. Roux plans to complete the BSA-required groundwater sampling using the following monitoring wells:

- MW-1, located up-gradient on the northwest portion of the Site, was chosen as a representative groundwater sample as this is the only groundwater sample with a chlorinated VOC concentration (trichloroethene) identified above its laboratory detection limit (note that the concentration is significantly below its Groundwater Quality Standard, GWQS). As such, all VOC-related BSA-required analyses will be collected from MW-1. All other parameters will be collected from MW-6 discussed below:
- MW-6, located on the southeastern portion of the Site, is located on the down-gradient part of the Site, including the lead treatment area, and will therefore be considered a representative groundwater sample for all BSA-required analyses excluding VOCs, which will be collected from MW-1.
- During the test pit work described above completed as part of the bench scale testing, a groundwater sample will be collected from the RISB-2 area, directly from the TP-35 test pit (assuming groundwater is encountered) and analyzed for lead by the BSA-required discharge methodology, 200.7 Rev 4.4. If groundwater is not encountered at TP-35, an additional groundwater sample collected from MW-4 located proximate (east) of the lead treatment area will be analyzed for lead by the BSA-required discharge methodology, 200.7 Rev 4.4. We note that during the RI, no dissolved lead concentrations exceeded its respective GWQS in any of the groundwater samples collected from across the Site. Further, no elevated total lead concentrations were identified in groundwater except for a low-level lead exceedance of its GWQS (25 ug/L) at MW-5 (36 ug/L).

Health and Safety Plan

Activities completed pursuant to this Work Plan will be conducted in accordance with the site-specific HASP, provided in Appendix E of the NYSDEC-approved November 2024 Remedial Investigation Work Plan (RIWP)[3].

Community Air Monitoring

Real-time community air monitoring will be performed during all ground intrusive soil/fill activities and soil handling activities at the Site. A Community Air Monitoring Plan (CAMP) is included in Attachment 1. Particulate and VOC monitoring will be performed along the upwind and downwind perimeter of the work. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under NYSDEC's DER-10 (May 2-10) Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring). The NYSDEC and NYSDOH will be notified within one business day of any exceedances and of corrective actions taken to address the exceedances.

Construction Monitoring and Reporting

Roux personnel will be on-site to document the activities specified in this Work Plan. Documentation will include, at minimum, daily field logs with a description of activities completed, photographs, field sketches, and community air monitoring locations and results including CAMP summary tables. The

[3] Roux Environmental Engineering and Geology, D.P.C. *Remedial Investigation Work Plan, North Aud Block, Portion of 130 Main Street, Buffalo, New York*. November 2024.

NYSDEC/NYSDOH will be notified of any CAMP exceedances and completed corrective actions within 24 hours. Otherwise, CAMP data will be provided to the NYSDEC and NYSDOH on a weekly basis.

The completed field logs, subsurface soil/fill analytical results, and bench scale treatability assessment results will be submitted to the Department as part of a letter report. The letter report will also identify the volume of soil/fill to be treated in the RISB-2 Characteristically Hazardous Lead Area and the type of amendment (and concentration) required to treat the lead-impacted soil/fill to render non-hazardous. Groundwater analytical results will be provided to the BSA for review as part of the temporary discharge permit process.

Sincerely,

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.

Bryan W. Mayback
Technical Director

Michael A. Lesakowski
Vice President, Principal Scientist, Co-Operations Manager

Attachments: Figure 1 – Site Location and Vicinity Map
Figure 2 – Site Plan (Aerial)
Figure 3 – Lead Delineation Area
Table 1 – Previous TCLP Lead Sampling Analytical Data
Attachment 1 – Community Air Monitoring Plan

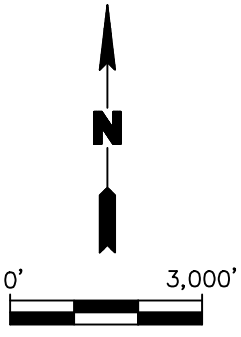
ec: Benjamin McPherson, NYSDEC
Sara Bogardus, NYSDOH
Shaun Surani, NYSDOH
Dylan Salmons, North Aud Owner LLC
David Marin, North Aud Owner LLC
William D'Avella, North Aud Owner LLC
Chelsea Kanaley, Roux

FIGURES

1. Site Location and Vicinity Map
2. Site Plan (Aerial)
3. Lead Delineation Area

QUADRANGLE LOCATION

SOURCE:
BUFFALO, NY, 2023
USGS 7.5 MINUTE TOPOGRAPHIC MAP



Title:

SITE LOCATION AND VICINITY MAP

WORK PLAN FOR BROWNFIELD CLEANUP PROGRAM

(BCP) REMEDIATION SUPPORT ACTIVITIES

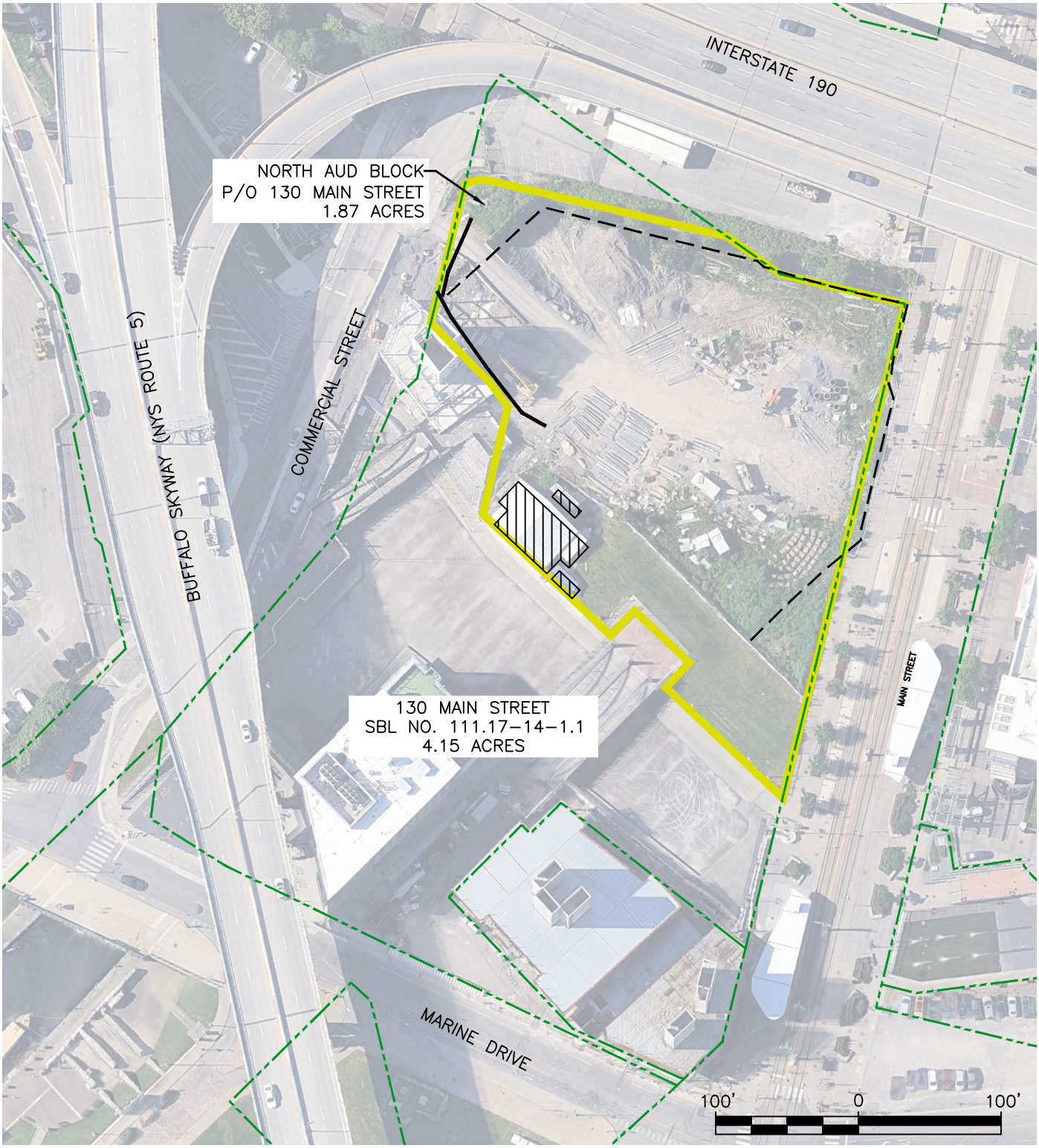
NORTH AUD BLOCK (C915406)
P/O 130 MAIN STREET, BUFFALO, NEW YORK

Prepared for:

NORTH AUD OWNER LLC

ROUX	Compiled by: CNK	Date: OCTOBER 2025	FIGURE 1
	Prepared by: CNK	Scale: AS SHOWN	
	Project Mgr: BWM	Project: 4375.0002B000	
	File: FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG		

F:\CAD\0-ROUX\PENNROSE\NORTH AUD BLOCK\LEAD DELINEATION WP\FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG



LEGEND

- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- WOODEN/SHEET PILE RETAINING WALL
- CONCRETE WALL
- EXISTING STRUCTURES (TO BE REMOVED)

NOTES

1. AERIAL IMAGE SOURCE GOOGLE EARTH 2024.

N

Title:

SITE PLAN (AERIAL)

WORK PLAN FOR BROWNFIELD CLEANUP PROGRAM

(BCP) REMEDIATION SUPPORT ACTIVITIES

NORTH AUD BLOCK (C915406)
P/O 130 MAIN STREET, BUFFALO, NEW YORK

Prepared for:

NORTH AUD OWNER LLC

ROUX

Compiled by: CNK	Date: OCTOBER 2025	FIGURE
Prepared by: CNK	Scale: AS SHOWN	2
Project Mgr: BWM	Project: 4375.0002B000	
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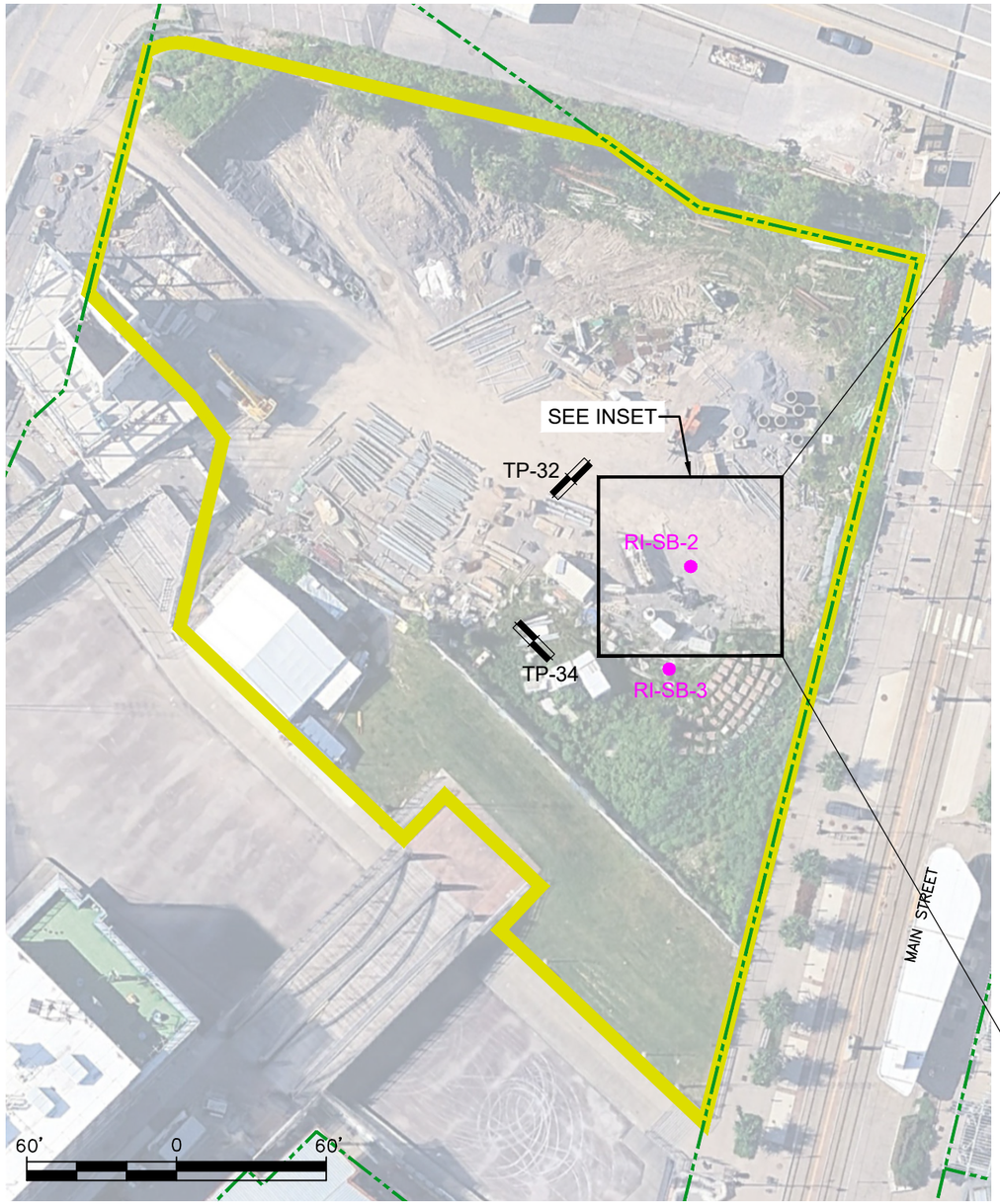
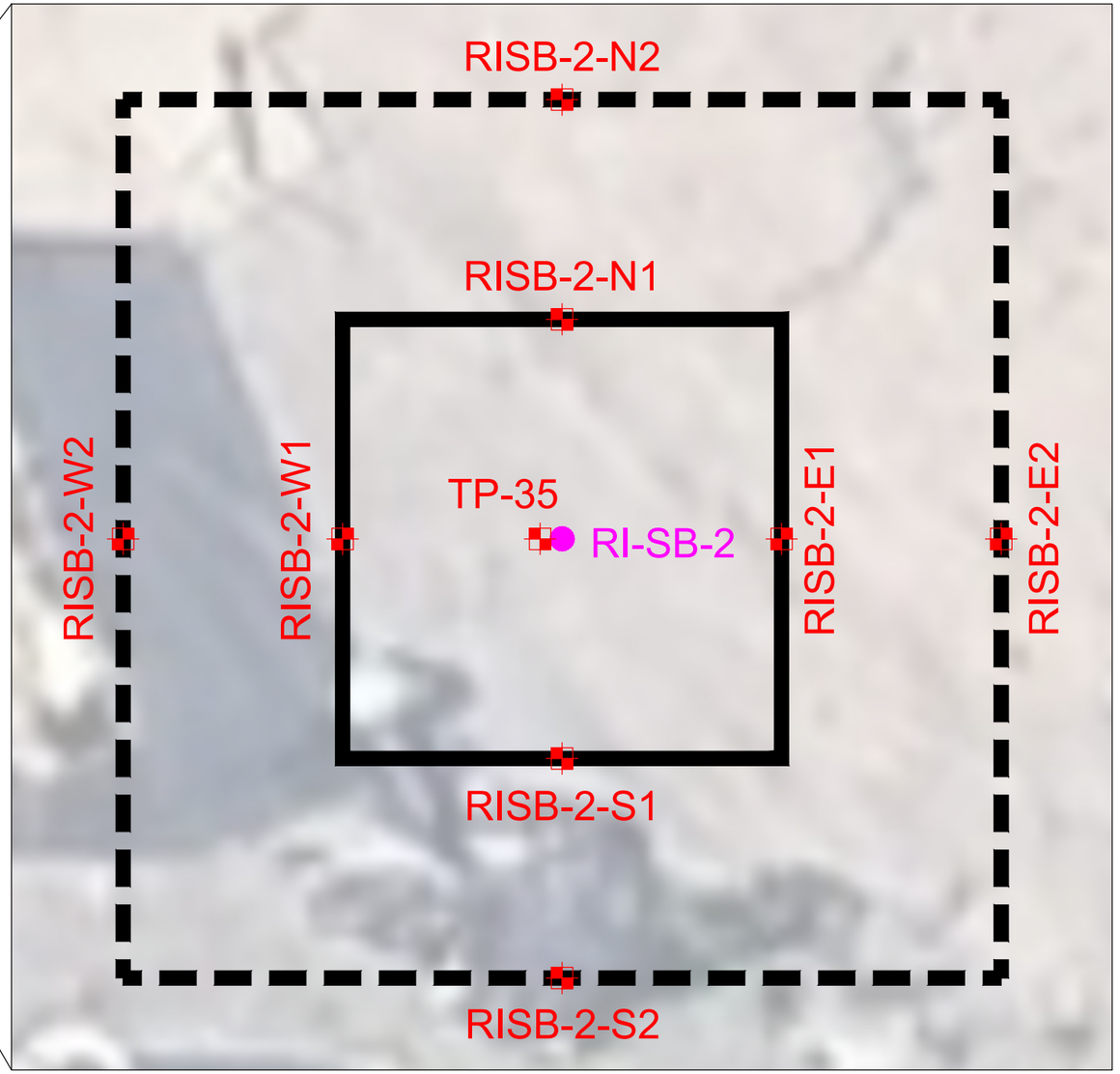
F:\CAD\0-ROUX\PENNROSE\NORTH AUD BLOCK\LEAD DELINEATION WP\FIGURE 2; SITE PLAN (AERIAL).DWG



RISB–2 CHARACTERISTICALLY HAZARDOUS LEAD AREA INSET
SCALE: 1" = 5'



LEGEND

- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- RI-SB-1 ● RI SOIL BORING LOCATION
- TP-32 RI TEST PIT LOCATION
- 15–FT DELINEATION AREA
- 30–FT DELINEATION AREA
- TP-35 VERTICAL DELINEATION TEST PIT LOCATION
- RISB-2-N1 HORIZONTAL DELINEATION TEST PIT LOCATION

NOTES

1. AERIAL IMAGE SOURCE GOOGLE EARTH 2022.
2. DELINEATION AREAS DO NOT REPRESENT PLANNED EXCAVATION AREAS. EXCAVATION AREAS WILL BE DETERMINED BASED ON THE RESULTS OF DELINEATION SAMPLING.
3. TCLP ANALYSIS OF SOIL COLLECTED FROM TP–32, TP–34, AND RISB–3 INDICATED NON–HAZARDOUS RESULTS FOR LEAD.

N

Title:
LEAD DELINEATION AREA
WORK PLAN FOR BROWNFIELD CLEANUP PROGRAM
(BCP) REMEDIATION SUPPORT ACTIVITIES
NORTH AUD BLOCK (C915406)
P/O 130 MAIN STREET, BUFFALO, NEW YORK

Prepared for:
NORTH AUD OWNER LLC

ROUX

Compiled by: JJY	Date: JANUARY 2026	FIGURE
Prepared by: JJY	Scale: AS SHOWN	3
Project Mgr: BWM	Project: 4375.0002B000	
File: FIGURE 3; LEAD DELINEATION AREA_REV1.DWG		

F:\CAD\0-ROUX\PENNROSE\NORTH AUD BLOCK\LEAD DELINEATION WP\FIGURE 3; LEAD DELINEATION AREA_REV1.DWG

TABLE

TABLE 1
PREVIOUS TCLP LEAD SAMPLING ANALYTICAL DATA
WORK PLAN FOR BCP REMEDIATION SUPPORT ACTIVITIES
NORTH AUD BLOCK (C915406)
BUFFALO, NEW YORK

PARAMETER	Characteristic Hazardous Waste Threshold[1] (mg/L)	RISB-2 (1-4 ft)	RISB-3 (0.5-3 ft)	TP-34 (5-6 ft)	TP-32 (2-3 ft)	WC-1	WC-2	WC-3	WC-4	WC-5
		2/11/2025		2/12/2025		2/18/2025				
TCLP Lead - mg/L										
Lead	**5**	**9.1**	0.051	0.2	2.7	0.66 ^+	2.2 ^+	0.046	0.049	1.4

Notes:

1. TCLP/Haz Waste Regulatory Levels per 40 CFR 261, Appendix II, 1993 ed., as amended by 58 FR 46040, August 31, 1993.

Definitions:

^+ = Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

Exceeds Haz Waste Threshold

ATTACHMENT 1

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.