Tivoli Memorial Park

SITE CHARACTERIZATION WORK PLAN

19 Pine Street, Tivoli, New York

(DEC Site No. 314135)

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

May 2024

TABLE OF CONTENTS

FIGURES

APPENDICES

ATTACHMENTS

CERTIFICATION

I, Kiera Thompson, P.G., certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this SITE CHARACTERIZATION WORK PLAN was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER- 10) and Green Remediation (DER-31).

Kiera Thompson

Kiera Thompson, P.G.
NYS Professional Geologist
License No.: 1141-01

Date: May 7, 2024

1.0 Introduction

The Tivoli Memorial Park site (Site) is located at 19 Pine Street, Tivoli, New York (Tax ID 6175-18-459087) on a 1.4-acre lot. The Site consists of one of two (2) lots which makes up Tivoli Memorial Park, which is located just northwest of village center. It is bordered by Pine St. to the south and residential properties to the north and east. The site is located approximately 150’ (feet) above sea level, roughly 0.75 miles east of the Hudson River, and 0.25 miles west of the Stony Creek.

The site consists partly of a basketball court (the remainder on the adjacent parcel), a community garden, a small skate park, and the rest open lawn. It is relatively flat across the site. The site is in residential zoning district, R-15, of Tivoli, NY.

Historically, this site was the location of the Tivoli water tower, which was used as a public water storage facility. Historic imagery suggests a water tower was present on site since around the 1940’s. The tower was demolished in September 2021 as part of the Dutchess County Water and Wastewater Authority (DCWWA) water system upgrade project in the Village. Throughout its history the area has been used as a recreational facility which is still in use today.

Given previous data collected at the Site, the New York State Department of Environmental Conservation (NYSDEC) has determined that a Site Characterization (SC) as defined in DER-10 3.2.1 is required in order to determine if contaminants are present at concentrations exceeding applicable standards, criteria, and guidance (SCGs). Further actions including but not limited to Remedial Investigation and/or listing of the site on the Inactive Hazardous Waste Disposal Site Registry may result from this SC.

1.1 Background

The site is currently owned by the Village of Tivoli. As a part of the demolition procedure, Gianco Environmental Services, of Melville, New York, collected pre and post demolition surficial soil samples adjacent to each leg of the water tower, and at two background locations located east of the former water tower in 2020. There were several soil samples with lead levels above the applicable use-based soil cleanup objectives for the protection of public health. As defined in 6 NYCRR Part 375 Section 1.8(g)(2)(ii), the site is considered for restricted-residential use as it is owned by a single owner and includes active recreational uses, which are public uses with a reasonable potential for soil contact. This potential exposure risk for the site use warranted additional investigation resulting in the classification as a potential site (P-Site), ID #314135, under the inactive hazardous waste disposal site program or State Superfund (SSF).

Tighe & Bond completed a soil assessment summary to further delineate the extent of the lead contamination attributed to the historic water tower. Findings of this investigation were outlined in the *Soil Assessment Summary Report,* dated December 19th, 2022. Samples were collected at the 0-6 inch and 6–12-inch intervals underneath the historic water tower location. An X-Ray Florescence meter (XRF) was utilized within the historic tower footprint and community garden to assess additional areas of the surface soil. Lead laboratory analyses were only performed on select soil samples from both areas. Based on information available, lead, mercury, chromium, antimony, barium, cadmium, copper, zinc, and other heavy metals were historically incorporated into paints. The NYSDEC determined this investigation was not sufficient to reclassify the P-site as it was not conducted under a NYDEC-approved work plan, and the analysis incorporated into the investigation was only limited to lead.

2.0 Geology and Hydrogeology

Based on previous investigations, the site surface soils consist of fine to coarse grained sand and silt, presumably a component of the glacial till identified on the USGS surface soils map for the location. According to the USGS Hudson Mohawk Bedrock geology map, the Site sits above the Austin Glen Formation which consists of greywacke, with alternating intervals of sandstone, siltstone, and shale. Depth to bedrock is unknown. Regarding specific hydrogeology and groundwater flow, it is likely that groundwater flows east towards Stony Creek, but previous work did not include the installation of groundwater wells or piezometers to document water elevations.

3.0 Sampling Activities and Procedures

Surface soil samples will be collected from the site during implementation of the Site Characterization (SC). As stated in NYSDEC DER-10: Technical Guidance for Site Investigation and Remediation, the SC is designed to determine whether lead and other heavy metals may be present at hazardous levels posing a threat to public or ecological health, and if further investigation is warranted.

The site contains lowlands that may collect water. If surface water is present on the day of sampling, then water and associated sediments will be field screened using the X-Ray Florescence meter (XRF). If site-related metals are detected, then a surface water and sediment sample will be collected. Further, if site-related contamination is found to be present in surface water, then sediments will also be collected for lab analysis at the outfall where standing water drains to a receiving stream on the west end of the site.

Field sampling procedures, proposed sampling locations, and analyses performed are described in the following sections of this SCWP. Detailed sample collection/handling and record keeping procedures are presented in the Quality Assurance Quality Control (QAQC) plan found in Appendix A of this document. Qualitative observations of environmental media will be recorded in the field logbook and reported in the Site Characterization Report (SCR).

3.3.1 Surface Soil Sampling and Field Screening

A Niton XL3t GOLDD+ XRF will be utilized to screen the surface soil approximately every twenty (20) feet, in a gridded pattern, at the 0–2-inch interval which is identified as the interval of exposure., Every twenty (20) feet samples will be screened at both at the at 0-2 inches, and at 6-12 inches to determine if contamination is present at depth. Calibration and interference information is presented in the QAQC. The gridded pattern will be laid out prior to sampling, and sampling will be obtained accordingly. Screening locations will include, but will not be limited to, the pad of the historic water tower and upward of roughly forty (40) feet off and beyond the extent of the pad. While the portable XRF can be used in wet conditions, actual concentration data may be biased low. Since this effort will be completed on the same day in the same field conditions, and results of XRF soil screening will only be used to select samples for laboratory analyses, XRF data collected from wet media will not affect the purpose or outcome of this site characterization. Again, the purpose of this site characterization is to determine if contaminants are present at the site at levels above applicable standards, criteria, and guidance (SCGs). All XRF readings will be recorded in the field using a GPS unit and logged in a field book upon obtaining the result.

A total of eighteen (18) soil samples will be obtained for lab analysis from the site. Thirteen (13) discrete samples will be obtained in a gridded pattern on and around the existing pad of the historical water tower. Soil sample locations will be biased based upon field screening results with the XRF. Samples will be obtained at 0-2 inches, and at 6-12 inches and the soils will be characterized and recorded in a field notebook. Based on concentrations detected by the XRF, samples for laboratory analysis will be collected in order from least contaminated to the most contaminated. A discrete background soil sample will be obtained in an open area behind the community garden, which is located on the north-western portion of the site, at each of the specified intervals outlined above. Two (2) composite samples will be obtained in the community garden, one representing soils from the ten (10) southernmost beds, and the other representing soils from the ten (10) northern most beds. These composite samples will be obtained at a depth just below the surface soils, assuming that new material is composted and added every year. Proper QA/QC samples will be obtained as well. Pin flags will be placed at each corresponding location a soil sample is projected to be obtained and recorded in the field using a GPS unit. A licensed New York state surveyor will subsequently locate the flags and locations using a GPS receiver at a time shortly after sampling. Sampling locations are outlined in Figure 2.

Depending on field conditions, a small steel shovel, hand auger, or stainless scoop will be utilized to collect samples. A field calibrated photo-ionization detector (PID) will be used to screen the soils and soil samples both in situ and ex situ. Hand tools will be stored on plastic sheeting and decontaminated using a scrub brush and an “Alconox” solution between each of the sampling locations. When sampling is complete at each location, residual soil will be placed back in the hole and fully restored to the extent practicable. All field observations will be recorded in a field notebook and any deviations from this work plan will be recorded and included in the site characterization report.

It’s not expected that soil sample collection activities will generate excessive waste. Material which is not used for sample collection will be returned to the hole it was removed from. All waste generated, including consumables, i.e., gloves, paper towels, etc., used for sampling activities, will be properly disposed.

3.3.2 Surface Water Sampling

If surface water is present on-site during sampling, the XRF will be utilized to screen the water for metals potentially related to the water tower. Water will be collected and sampled through either a plastic bag or collected in a jar and sampled from the top down, into the specimen. If detected, then the sediment of the outfall location will be field screened. Refer to section 3.3.3 for more details on outfall sediment sampling. If sediment screening suggests site-related contamination is present, then a water sample will be collected and analyzed at the laboratory for VOCs, SVOCs, Pesticides, PCBs, Metals, 1,4 Dioxane, and PFAS. The surface water sample will be unfiltered, collected from an area where surface water is present, adjacent to the pad of the historic water tower. To obtain this sample, an area will be identified from a distance and will be approached from a “downstream” area to not disturb the bottom sediments. When collecting samples for VOC analysis, cascaded and aerating water will be avoided to the best extent possible. The VOC vial will capped underwater and the bottle will be inspected for air bubbles. Figure 2 includes the presumed location of the surface water sample. This location is subject to change based on observations made and whether surface water will be present on the day of sampling.

3.3.3 Outfall Sediment Sampling

As mentioned in section 3.3.1 of this work plan, if heavy metals are detected in the surface water, then the sediments of outfall of the site drainage area will be screened using the XRF. A sediment sample of the outfall location will also be collected for lab analysis. If a sample is warranted, the outfall location will be identified, and all tools will be place on plastic sheeting. Prior to obtaining the sample, any physical, chemical, or biological characteristics will be recorded in a field notebook. To minimize decontamination, a sample will be obtained using a scoop attached to a pole. The area will be approached from downstream and obtained in such a way where the sampler is facing upstream and is scooping in a downstream to upstream fashion.

4.0 Analytical Methods and Procedures

Five (5) surface soil samples will be collected for full suite analysis of VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270) Target Analyte List (TAL) metals, (USEPA Methods 6010/7471) polychlorinated biphenyls (PCBs) (USEPA Method 8082), pesticides (USEPA Method 8081), cyanide (USEPA Method 9010C), 1,4-Dioxane (USEPA Method 8270 SIM), and Per- and Polyfluoroalkyl Substances (PFAS) (USEPA Method 1633).

Thirteen (13) additional surface soil samples will be analyzed for metals referred to the twenty-four (24) metals and cyanide in the TAL. Prospective analytical methods outlined above. All samples will be analyzed by a New York State Department of Health (NYSDOH) ELAP-certified laboratory with Category B deliverables.

One (1) surface water sample may be collected for full suite analysis of VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270) Target Analyte List (TAL) metals, (USEPA Methods 6010/7470) polychlorinated biphenyls (PCBs) (USEPA Method 8082), pesticides (USEPA Method 8081), cyanide (USEPA Method 9014), 1,4-Dioxane (USEPA Method 8270 SIM), and Per- and Polyfluoroalkyl Substances (PFAS) (USEPA Method 1633).

One (1) sediment sample may be collected for full suite analysis of VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270) Target Analyte List (TAL) metals, (USEPA Methods 6010/7470) polychlorinated biphenyls (PCBs) (USEPA Method 8082), pesticides (USEPA Method 8081), cyanide (USEPA Method 9014), 1,4-Dioxane (USEPA Method 8270 SIM), and Per- and Polyfluoroalkyl Substances (PFAS) (USEPA Method 1633).

Sample collection and analysis will be in accordance with the QA/QC plan, provided in Appendix A. A field duplicate, and matrix-spike/matrix-spike duplicate (MS/MSD) will also be included as part of the soil sampling plan.

5.0 Green Sustainable Remediation

The following Best Management Practices (BMPs) will be applied to make site characterization practices greener and more sustainable:

- Hand auguring sampling locations instead of using a drilling rig.
- Using an XRF to screen for metals.
- Limiting IDW by returning soil back to the area it was removed from.
- Carpooling personnel to and from the site while conducting fieldwork.

6.0 Site Characterization Report

Following the completion of the work outlined in this report, a site characterization report (SCR) will be prepared. A narrative discussion will be prepared outlining the methods and results of this investigation. A New York State Department of Health (NYSDOH) Qualitative Human Health Exposure Assessment will be completed as a part of this investigation and will be submitted as a part of the SC report. Maps will be prepared displaying the analytical results of this investigation. Standards and guidance which pertain to the sampled site media will be outlined in text and tables and exceedances of regulatory guidelines will be identified. Conclusions and steps forward will also be identified. Results will be uploaded as an EDD. Once available, data and reports can be accessed on DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/314135.

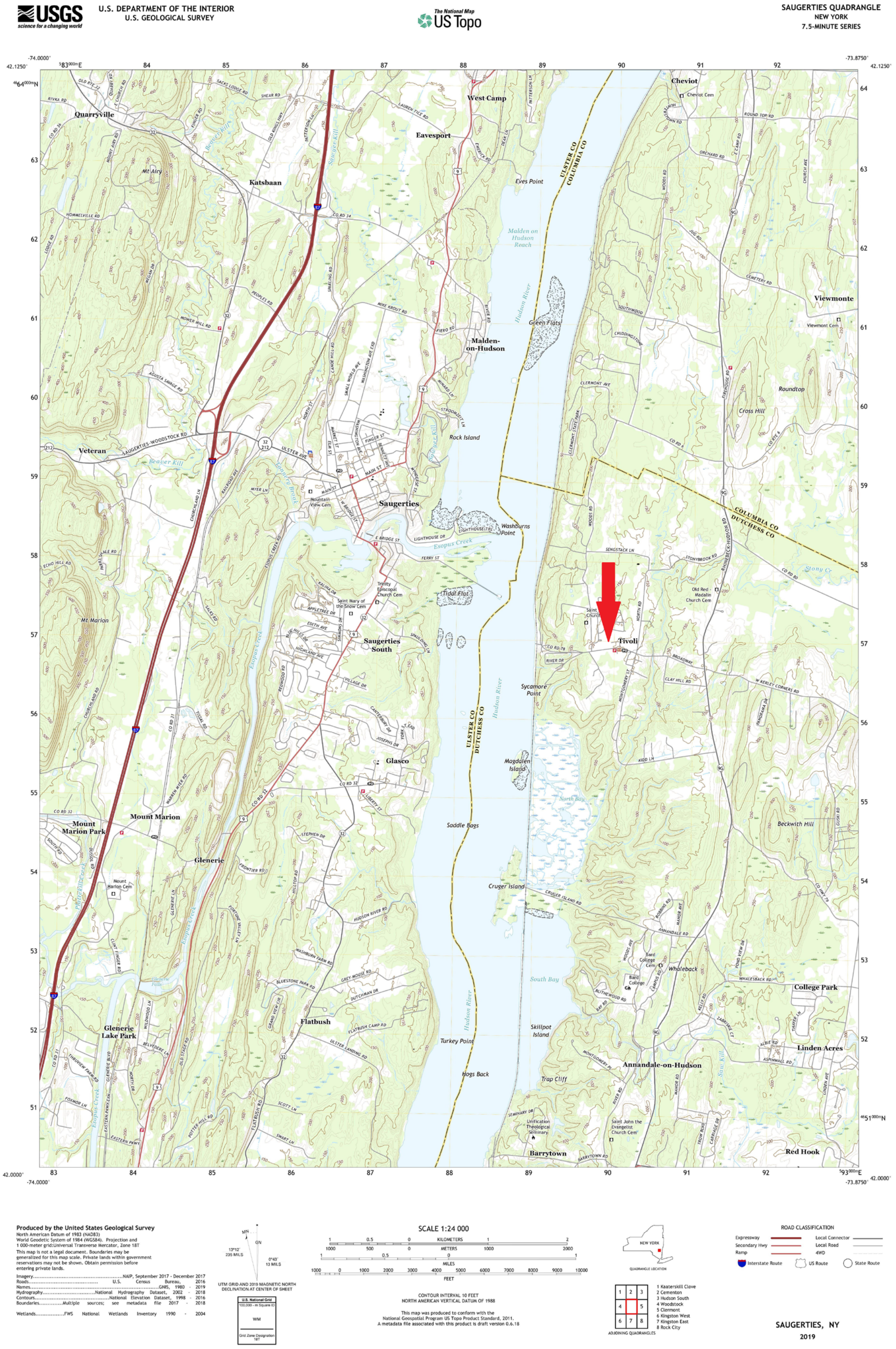
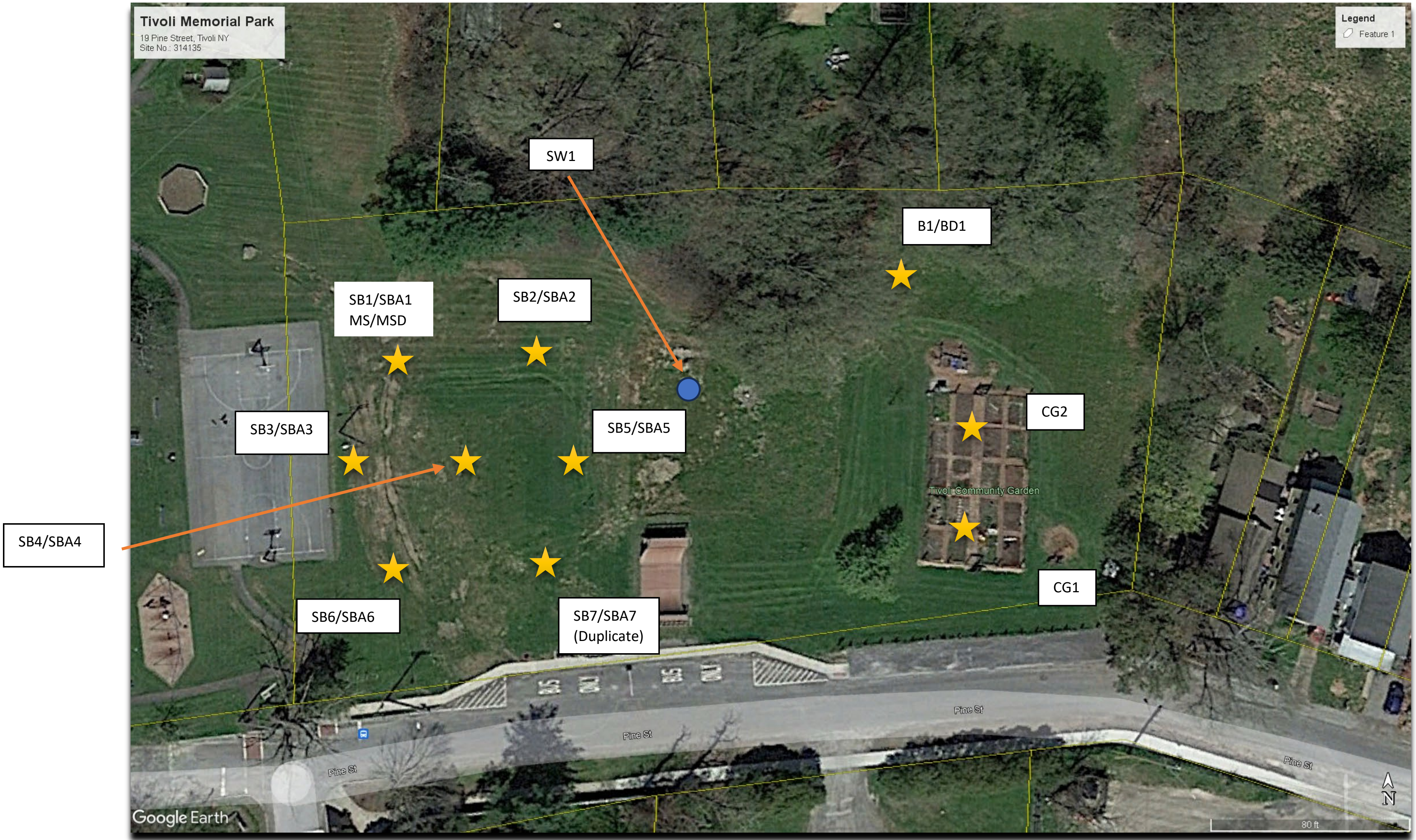


Figure 1: Site Location Map

Figure 2: Soil Sampling Locations



Key:

★ - Approximate surface soil sampling location

● - Approximate location of surface water sample

*MS/MSD – Matrix Spike/ Matrix Spike Duplicate

*SB – Soil Boring *SW – Surface Water

*B – Background

*CG – Community Garden

Appendix A

Quality Assurance/Quality Control Plan

Site: Tivoli Memorial Park
Site No.: 314135

Table of Contents

1.0 Introduction and Purpose

This document is prepared for the Tivoli Memorial Park site, Site no.: 314135. The purpose of this document is to provide quality assurance and quality control (QA/QC) methods, procedures for the collection, analysis, and evaluation of data collected during the work assignments. This QA/QC plan is a supplement to the site-specific documents. The purpose of this site characterization work plan is to determine whether lead and other heavy metals may be present on the site attributed to the historic water tower, and if present, whether the site poses a risk to public health, and if further investigation is warranted.

2.0 Objectives

The QA/QC plan is developed and implemented to ensure that the quality of the data is legally and scientifically defensible and is applicable for its anticipated use. Site-specific objectives have been developed which are based on factors presented in the work plan and below. Sampling protocols and analytical method requirements will be outlined for all contaminant groups, detection limits for all samples will be provided to ensure all results are able to be reported below the regulatory standard, and data validity will be performed for quality assurance.

3.0 Analytical Methods

Any laboratory chosen for this project must be certified, maintain certification under the NYSDOH ELAP and NYSDOH ELAP CLP protocols. NYSDEC has contracted Pace Analytical Services, LLC to perform all laboratory services for this workplan. Matrices to be sampled in this investigation include surface soil and presumably surface water and sediment. Roughly eighteen (18) soil samples will be collected as a part of this investigation and presumably one additional surface water and one additional sediment sample depending on field conditions and screening results.

A matrix spike and matrix spike duplicate will be included as a part of the sampling program. These samples will be analyzed for every 20 samples collected for each medium and sampling method. Analytical parameters for each matrix include VOC's, 1,4-Dioxane, SVOCs, PCBs, pesticides, PFAS, TAL Metals and cyanide. EPA Test Methods include 8260, 8270, 6010/7471/7470,9010, 8082, 8081, 9014, 8270 SIM, and 1633, on samples SSD1, SSD4, SS&, BD1, and CG2. EPA Test Methods 6010 and 9010 will be used to analyze the remainder of the soil samples for TAL metals and cyanide. See the sample summary table below which outlines the sample, and the anticipated analysis to be ran. USEPA SW-846 analytical methodologies with NYSDEC ASP Category B deliverables have been chosen for soil and sediment analyses.

Table 1: Sample Summary Table

Sample ID	Matrix Type	Sample Depth (inches)	Analysis
SB1	Soil	0-2	(TAL) metals, (USEPA Methods 6010/7471) Cyanide (USEPA Method 9010C) **(Metals+Cyanide)**
SB1A	Soil	6-12	VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270) Target Analyte List (TAL) metals, (USEPA Methods 6010/7471) polychlorinated biphenyls (PCBs) (USEPA Method 8082), pesticides (USEPA Method 8081), cyanide (USEPA Method 9010C), 1,4-Dioxane (USEPA Method 8270 SIM), and Per- and Polyfluoroalkyl Substances (PFAS) (USEPA Method 1633) **(Full Suite)**
SB2	Soil	0-2	Metals+Cyanide
SB2A	Soil	6-12	Metals+Cyanide
SB3	Soil	0-2	Metals+Cyanide
SB3A	Soil	6-12	Metals+Cyanide
SB4	Soil	0-2	Metals+Cyanide
SB4A	Soil	6-12	Full Suite
SB5	Soil	0-2	Metals+Cyanide
SB5A	Soil	6-12	Metals+Cyanide
SB6	Soil	0-2	Metals+Cyanide
SB6A	Soil	6-12	Metals+Cyanide
SB7	Soil	0-2	Full Suite
SB7A	Soil	6-12	Metals+Cyanide
Matrix Spike	Soil		
Matrix Spike Dup	Soil		
Field Duplicate	Soil		Full Suite
B1	Soil	0-2	Metals+Cyanide
BD1	Soil	6-12	Full Suite
CG1	Soil	2-4 (prospectively)	Metals+Cyanide
CG2	Soil	2-4 (prospectively)	Full Suite
SW1	Surface Water	0-2	Full Suite (Mercury- USEPA Method 7470)
SED1	Sediment	0-2	VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270) Target Analyte List (TAL) metals, (USEPA Methods 6010/7471) polychlorinated biphenyls (PCBs) (USEPA Method 8082), pesticides (USEPA Method 8081), cyanide (USEPA Method 9010C), 1,4-Dioxane (USEPA Method 8270 SIM), and Per- and Polyfluoroalkyl Substances (PFAS) (USEPA Method 1633) (**Full Suite**)

4.0 Quality Control Sampling

One field duplicate, one trip blank, and an equipment blank will be used for the sampling program outlined in this work plan. If additional soils samples are collected, which is not anticipated, field personnel will collect one (1) duplicate sample for every twenty (20) samples obtained, and for every day sampling is conducted. The steps for collecting a duplicate sample will be by collecting twice as much material from on sampling location, mixing that sample in a stainless-steel bowl, and dividing into two sets of sampling containers. A trip blank is to be included with each shipment of samples which is to be prepared by the lab along with all sampling bottles requested.

5.0 X-Ray Fluorescence Meter

5.1 Introduction

A Niton XL3t GOLDD+ X-Ray Fluorescence Meter (XRF) will be used to detect metals in soil and surface water. This unit works on wavelength-dispersive spectroscopic principles like those of an electron microscope.

5.2 Calibration

The user's manual, included with the unit specified above, will be consulted to determine the required calibration procedures. The unit will be calibrated before performing tests or whenever the unit is powered on Calibration of the unit will be performed per user manual specifications. This step completes the calibration procedure.

5.3 Operating Procedures

The user's manual, included with the unit specified above, will be consulted to determine the proper use of the unit. The XRF uses a "point and shoot" method where the analyzer window is held against the sample when squeezing the trigger of the unit. Results obtained using the XRF will only be used as a field screening measure. The XRF will help determine locations of sample collection. All measurements will be recorded in a field notebook.

5.4 X-Ray Fluorescence Meter Safety

All individuals taking part in the XRF field screening procedures will be required to complete safety training covering the operation, use, and safety of the unit. A few general safety recommendations are outlined below:

- The unit should <u>never</u> be pointed at or toward another individual or any body part at any time,
- Always have a control area established when using the unit Individuals who are not operating the unit should stand outside of the control area while the unit is in use. The defined area should be always unoccupied,
- The unit should be shot into high density materials only; never hold the specimen.

The unit designated for this project is registered with the New York State Department of Health (NYSDOH) under registration number- 01023266. The owner's manual will be consulted to ensure the unit is shipped safely and properly.

6.0 Surface Soil Sampling Procedures

Sampling and analytical procedures are described in detail above and outlined within the site characterization report. The work plan includes sampling implementation, decontamination, site maps, sampling diagrams, and waste management.
Soil samples will be collected using dedicated sampling equipment, a trowel or stainless-steel spoon, a hand auger, or a clean nitrile-gloved hand. Other equipment used during sampling such as bowls and mixing spoons will be made of stainless steel. All samples will immediately be screened upon sample retrieval with a photo-ionization detector (PID). The following materials will be made available during sampling activities:

- Nitrile gloves (supplied by lab?)
- Hand auger
- Table
- Garbage bags
- PID
- Pin Flags
- Engineers Tape
- Field notebook
- Decontamination Supplies
    - Paper towels
    - Alconox solution
    - Scrub Brush
- Steel Shovel (small)
- Stainless-steel bowl and spoon
- Water? Hose on site?
- CAMP stations
- Ice
- Sample Collection Log
- Camera
- Extension pole and scoop (sediment/water samples)
- Glass Jar/Plastic Bag for water XRF Screening

6.1 Sample Collection and Preservation

Samples collected will immediately be contained in laboratory provided sampling jars/containers. Composite samples for all sampling parameters, aside from VOCs, will be mixed and homogenized in a stainless-steel sampling bowl. Samples for VOCs will be collected discretely using the laboratory designated “terra-core” sampling devices and containers.

Samples collected will require preservation. Preservation requirements include ensuring samples are chilled to four (4) degrees Celsius for shipping to the contract analytical laboratory.

6.2 Field Sampling Documentation

Upon retrieval, samples will be logged using a field notebook and/or specific field forms to record subsurface characteristics, PID and XRF screening concentrations, olfactory indications, and any other pertinent observations made. Sample containers will include the following information:

- Site name/number
- Sample name and number
- Sample interval
- Date
- Time
- Sampler initials
- Any other important information

Sampling and XRF screening locations will be identified using a handheld GPS. Field staff will also record personnel present, weather conditions, and other relevant events related to the sampling activities.

7.0 Sample Handling

Each sample will be recorded onto a chain-of-custody (COC) form. Information recorded on the form will include the project name, number, initials of the sampler, sample identification, date, time, constituents to be analyzed, the project manager and other relevant information. The form will also include information and signatures of the individual(s) relinquishing and receiving the samples.

Following the sampling activities outlined in the work plan above, within 24 hours, samples will be either shipped or dropped off to the lab for analysis. Upon receipt of the samples the sample custodian, at the lab, will sign the COC form and claim as relinquished and inspect all samples to verify the integrity, and the number received.

8.0 Data Usability Summary Report

The data review process will consist of a contractual review which will include an evaluation of the analysis and specific requirements of the published method in addition to the laboratory standard operating procedure. Data will either be reviewed by NYSDEC chemists or an approved state contractor to verify reliability. The laboratory will also provide the Category B data package.

9.0 Electronic Data Deliverables

The site characterization report will follow this work plan once all work outlined in this document is completed and all data has been received back from the lab. Analytical data will be summarized in data tables and compared to all appropriate regulatory standards. Figures outlining exceedances compared to standards will be prepared and raw analytical data will be included in the report. All documents, including this one and following, will be prepared electronically. An NYSDEC-standardized electronic data deliverable (EDD) will be prepared for upload to EQuIS.

Appendix B

Health and Safety Plan

Site: Tivoli Memorial Park
Site No.: 314135

SITE HEALTH AND SAFETY PLAN

Site Name: Tivoli Memorial Park
Site Address: 19 Pine Street, Tivoli NY 12583

County: Dutchess County **Region:** 3

Registry Status: "P" Site **DEC Site ID No.:** 314135

Regional contact: Ryan Richard **Phone No.:** 845-256-3118

Plan prepared by: Ryan Richard **Date:** 5/7/2024

Approved by:

- Section Chief, Bureau C: Kiera Thompson Date: 5/7/2024
- R3 RHWRE Steven McCague Date: 5/7/2024
- Proposed date of sampling/investigation: May 8th, 2024

BACKGROUND INFORMATION

- Information sources for background review:
  - Routine O&M Sampling: N/A Last sampled on:
  - Phase I/Phase II Investigation: N/A Date:
  - Preliminary Site Assessment: N/A Date:
  - EPA/NUS Investigation Report: N/A Date:
  - RI/FS Reports: N/A Date:
  - Registry/File Review: Yes
  - Other Reports/Studies:
    - Date: 2020 Type: Pre/post demolition surface soil samples
    - Date: December 2022 Type: Soil Assessment

- Site Status: Active

- Are there any unusual features on the site that may be of concern? (Yes/no, if yes please describe below). **NO**

- Wastes of concern: Lead

- Waste Characteristics: Neurotoxin

- Hazard Levels Anticipated On-site (High/moderate/low/none/unknown):

  Low

- Slip/trip Hazards (Yes/no, if yes describe):

  Yes- wet/muddy site

- Hazard Assessment:

  An XRF will be utilized to field screen samples on site. Safe use of XRF (radiation source) will be mandatory. All persons conducting field screening sampling will be required to complete an XRF use safety training.

  The site is in a wet area, so proper foot protection will be required when conducting work on site. This requirement will hopefully eliminate the slip and fall risk.

ON-SITE ACTIVITIES

Has this site been sampled and/or investigated before?	Yes
Has the site perimeter been identified?	Yes- it is understood.
Is the site fenced?	No
Is a site map/sketch available?	Yes
Have areas of contamination been identified?	Partially
Will air quality monitoring be done on-site?	Yes
Is sampling planned at this site?	Yes

If yes:

Soil/Sediment- Volatile Organic Compounds/Semi Volatile Organic Compounds/Metals/Pesticides/Cyanide.1,4 Dioxane, PFAs
Surface Water- Full suite
Groundwater- No
Waste product- No

List the proposed on-site activities:

1. Sample location layout for XRF screening,
2. Screen surface soils with the XRF, at the surface and at an interval of 6-12 inches,
3. Collect soil samples for lab analysis,
4. Screen surface water with the XRF to determine if heavy metals are present,
5. Screen Surface soils with the XRF, at the surface and at an interval of 6-12 inches,

Will respiratory protection be required (Yes/No)? **No**

Level of respiratory protection anticipated (Levels A/B/C/D): N/A

Are Modifications to respiratory protection anticipated (Yes/No)? **No**

Air quality monitoring equipment to be used (describe)

- ☐ Photo ionization detector: **Yes**
- ☐ Flame ionization detector:
- ☐ Explosimeter/02 meter:
- ☐ Other equipment: **CAMP** (See additional documents attached)

List of personnel anticipated to be on-site:

Name	**Representing (DEC, DOH, etc.)**
1. Ryan Richard	NYSDEC (Project Manager)
2. Emily Barry	NYSDEC
3. Kiera Thompson	NYSDEC

Emergency Planning

Is 911 emergency service available for the county that the site is located in? YES

Hospital: Northern Dutchess Hospital	Phone No. (845) 876-3001
Ambulance: (Dial 911)	Phone No. 911
Police: Red Hook Police Department	Phone No. (845) 758-0060
Other Emergency:	Phone No.

DEC, DOH, County and/or Municipal Contacts

DEC

Project Manager: Ryan Richard	Phone No. (845) 256-3118 Email: ryan.richard@dec.ny.gov

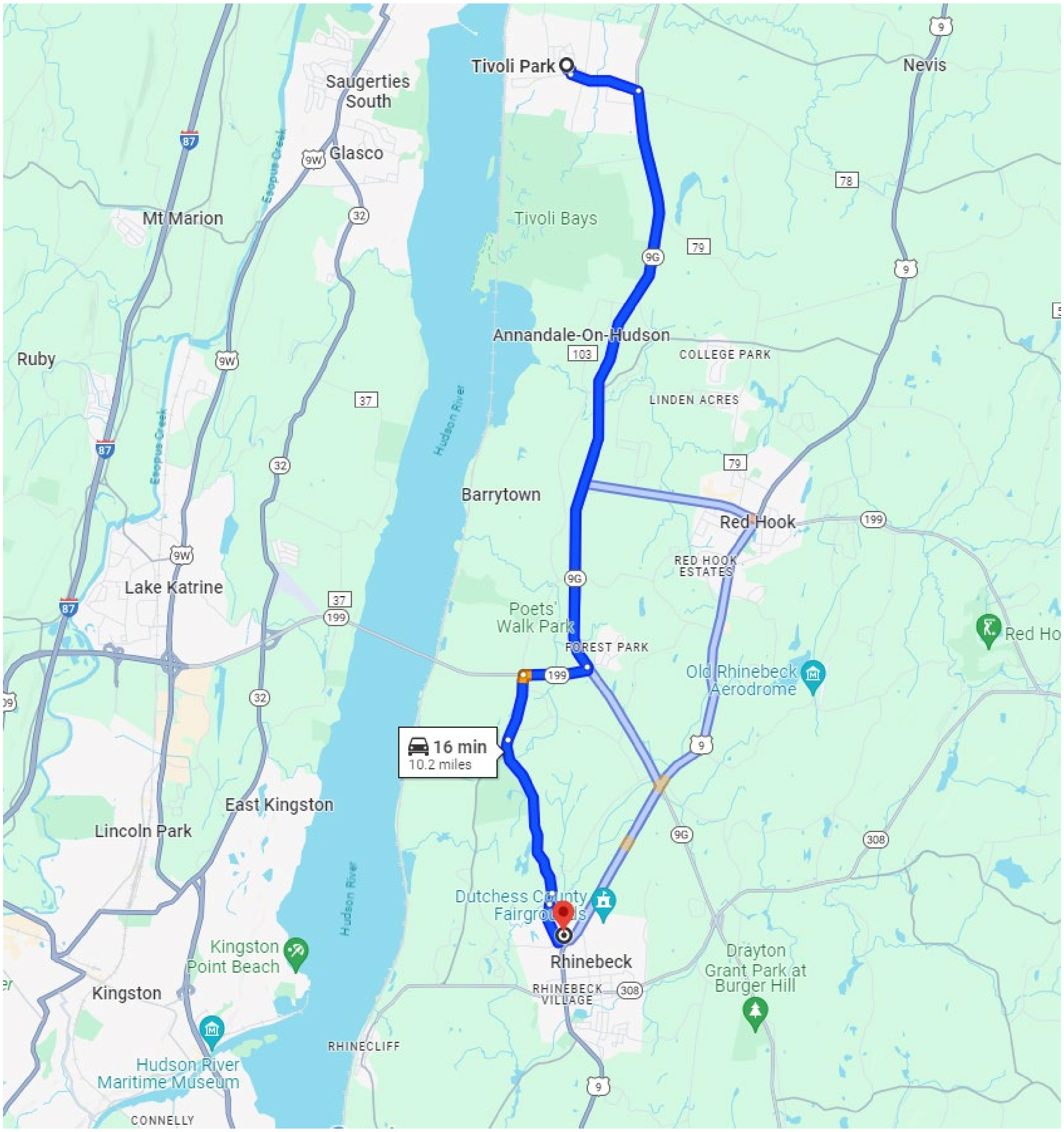
DOH

Project Manager: Mark Sergott	Phone No. (518) 402-7860 Email: mark.sergott@health.ny.gov

Facility Owner

Owner: Village of Tivoli	Phone No. (845) 757-2021 Email: clerk@tivoliny.org

Hospital Route Information



Appendix C

Community Air Monitoring Plan

Site: Tivoli Memorial Park
Site No.: 314135

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.

Attachment A

Safety Data Sheets

SDS #: 432
Revision Date: January 26, 2016

10-25-2021: File reviewed; more current MSDS/SDS not available. JMC

Safety Data Sheet (SDS)

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Signal Word
DANGER

Lead

Flinn Scientific, Inc. P.O. Box 219, Batavia, IL 60510 (800) 452-1261
Chemtrec Emergency Phone Number: (800) 424-9908

SECTION 2 — HAZARDS IDENTIFICATION

Hazard class: Acute toxicity, oral and inhalation (Category 4). Harmful if swallowed or inhaled (H302+H332). Do not eat, drink or smoke when using this product (P270). Avoid breathing dust and fumes (P261).

Hazard class: Carcinogenicity (Category 2). Suspected of causing cancer (H351). Obtain special instructions before use (P201). Do not handle until all safety precautions have been read and understood (P202). Use personal protective equipment as required (P281). Elemental lead is a possible human carcinogen (IARC-2B).

Hazard class: Reproductive toxicity (Category 1A). May damage fertility or the unborn child (H360).

Hazard class: Specific target organ toxicity, repeated exposure (Category 2). May cause damage to organs through prolonged or repeated exposure (H373). Do not eat, drink or smoke when using this product (P270).

Pictograms

SECTION 3 — COMPOSITION, INFORMATION ON INGREDIENTS

Component Name	CAS Number	Formula	Formula Weight	Concentration
Lead Forms: foil, sheets, shot, strips, and wire.	7439-92-1	Pb	207.19	

SECTION 4 — FIRST AID MEASURES

If exposed or concerned: Get medical advice or attention (P308+P313).
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing (P304+P340).
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
If on skin: Wash with plenty of water.
If swallowed: Rinse mouth. Immediately call a POISON CENTER or physician (P301+P310+P330).

SECTION 5 — FIRE FIGHTING MEASURES

Finely divided lead dust is flammable.
Molten metal may release toxic fumes of lead.
In case of fire: Use a tri-class dry chemical fire extinguisher.

NFPA Code
None established

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Sweep up, place in sealed bag or container and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #1. Store with metals and metal hydrides.
Use fume hood when handling powder form.

SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Wear protective gloves, protective clothing, and eye protection. Wash hands thoroughly after handling. Use fume hood when handling powder form.
Exposure guidelines: PEL/TLV 0.05 mg/m^3 (OSHA/ACGIH)

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Heavy, ductile, gray solid. Odorless.
Soluble: Dilute nitric acid. Insoluble in water.
Lead wire also contains 1% antimony (CAS #7440-36-0)

Boiling point: 1740 °C
Melting point: 327.4 °C
Specific gravity: 11.35

SECTION 10 — STABILITY AND REACTIVITY

Avoid strong acids, ammonium nitrate, hydrogen peroxide, sodium azide, zirconium, sodium acetylide, and chlorine.
Shelf life: Indefinite, if stored properly.

SECTION 11 — TOXICOLOGICAL INFORMATION

Acute effects: Convulsions, seizures, weakness, muscle cramps, methemoglobinemia.
Chronic effects: Anemia, reproductive hazard, possible carcinogen.
Target organs: Nerves, brain, blood, kidneys, female/male reproductive system

ORL-Pigeon LDL_0: 160 mg/kg SKN-RBT LD_{50}: N.A.
IHL-Human LCL_0: 10 ug/m^3
Lead is an IARC Category 2B; Possibly carcinogenic to humans. Lead is classified by NTP as Reasonably Anticipated to be a Human Carcinogen

SECTION 12 — ECOLOGICAL INFORMATION

Accumulates in soil and water. Bioaccumulates in animals. Very toxic to aquatic life with long lasting effects

SECTION 13 — DISPOSAL CONSIDERATIONS

Please review all federal, state and local regulations that may apply before proceeding.
Flinn Suggested Disposal Method #27d is one option.

SECTION 14 — TRANSPORT INFORMATION

Shipping name: Not regulated. Hazard class: N/A. UN number: N/A.

SECTION 15 — REGULATORY INFORMATION

TSCA-listed, EINECS-listed (231-100-4), RCRA code D008.

SECTION 16 — OTHER INFORMATION

This Safety Data Sheet (SDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR

N.A. = Not available, not all health aspects of this substance have been fully investigated.
N/A = Not applicable

Consult your copy of the Flinn Science Catalog/Reference Manual for additional information about laboratory chemicals.

Revision Date: January 26, 2016
