Supplemental Site Characterization Work Plan

Former Clinton County Airport

Town of Plattsburgh
Clinton County, New York

Prepared for

Clinton County Government Center

137 Margaret Street
Plattsburgh, New York 12901

Revision 1
June 2026

Barton&Loguidice

Former Clinton County Airport
Clinton County Government Center
Clinton County, New York 12901

Supplemental Site Characterization Work Plan

Revision 01
June 2026

Prepared For

Clinton County Government Center
137 Margaret Street
Plattsburgh, New York 12901

Prepared by
Barton & Loguidice, D.P.C.
10 Airline Drive, Suite #200
Albany, New York 12205

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

Tables

Figures

Appendices

1.0 INTRODUCTION

Barton and Loguidice D.P.C. (B&L) has prepared this Supplemental Site Characterization Work Plan (SCWP) to describe the methods and procedures necessary to complete additional groundwater and soil characterization at the former Clinton County Airport, located at 11 Airport Road, Plattsburgh, New York (**Figure 1 – Site Location Map**) or "Site".

As a part of an Order on Consent between the New York State Department of Environmental Conservation (NYSDEC) and Clinton County, three (3) previous site characterization investigations (Stages 1, 2, and 3) were completed by KAS, Inc. (KAS) and Cumberland Bay Geology, D.P.C. (Cumberland) under the supervision of B&L. Stage 1 included investigation of Lots A, D and J, and a Site Characterization Report submitted to the NYSDEC on June 17, 2022 (accepted June 21, 2022). The Stage 2 investigation included Lots B, C, E, F and G and a site characterization report submitted to the NYSDEC on June 23, 2023 (accepted September 6, 2023). The Stage 3 investigation evaluated site conditions associated with Lots H and I, including site-wide results, with the Site Characterization Report submitted to the NYSDEC on October 10, 2024. Subsequent to the NYSDEC review of the Stage 3 Site Characterization Report, additional delineation and investigation of groundwater and soil were requested in the Department's May 8, 2025, letter correspondence.

Previously completed site characterization work (Stages 1, 2 and 3) included the advancement of eighty-four (84) soil borings at the Site. As a result, 102 soil samples were collected for laboratory analysis, in addition to six (6) sediment samples. Sixteen (16) soil borings were completed as monitoring wells (MW-1 through MW-16). Of the eighty-four (84) soil borings and six (6) sediment samples collected from across the site, sample results did not present any obvious evidence of visual or olfactory contamination, and photoionization detector (PID) readings were recorded at or below background levels. Overall, no evidence of pervasive Target Compound List/Target Analyte List (TCL/TAL), or cyanide impacts in soil, sediment, or groundwater were identified at the Site. As reported by KAS in the Stage 3 Site Characterization Report (October 2024), "No concentrations of VOCs, SVOCs, PCBs, pesticides, cyanide or metals were detected in groundwater during Stage 2 investigation sampling (MW-1 through MW-8)".

Stage 3 groundwater monitoring of the sixteen (16) monitoring wells was conducted for PFAS, only. PFOA and/or PFOS concentrations in groundwater at seven (7) monitoring wells (MW-1, MW-4R, MW-5R, MW-7, MW-8, MW-10 and MW-12) exceeded the NYSDEC guidance values with the highest concentration at MW-7 of 2,570 nanograms per Liter (ng/L) or parts per trillion (ppt).

As a result of the above-described PFAS detections, NYSDEC and the New York State Department of Health (NYSDOH) requested "a Supplemental Work Plan must be submitted to NYSDEC and NYSDOH for review and acceptance, to further delineate the extent of PFAS impacts in the proximity of monitoring well MW-7 and soil boring SB-14(S3)". As such, this Supplemental Site Characterization Work Plan was developed to outline the procedures and processes necessary to investigate the extent of PFAS impacts adjacent to MW-7 and Stage 3 soil boring SB-14(S3).

1.1 Site Description

1.1.1. Site Location

The Site is located north and east of the Saranac River and west of Interstate I-87 in the Town of Plattsburgh, New York. The investigation areas (MW-7 and SB-14(S3)) are on the southern portion of the Site and located south and west of the former runways, respectively. The Site can be accessed from a private road to the north of the Site that connects to Industrial Boulevard. Currently, redevelopment activities for the Site have been limited to the installation of an access road and utilities to support future site development of the property.

1.1.2. Site Geology

The bedrock geology at the Site is described by the Geologic Map of New York State (NYS), Adirondack Sheet (Isachsen and Fisher, 1970) as Beekmantown Group; Fort Cassin Formation dolostones and limestones.

The Surficial Geologic Map of NYS, Adirondack Sheet (Cadwell, 1991) describes soil at the Site as lacustrine sand (ls). Ls is described by NYS as generally well sorted, stratified, quartz sand that is usually deposited in proglacial lakes, but may have also been deposited on remnant ice. Ls is generally a permeable near-shore deposit or near a sand source with variable thickness (2-20 meters). Soils at the site were previously described by KAS during the Stage 1, 2, and 3 investigations to consist of silt to coarse sand, with interbedded clay and gravel lenses.

1.1.3. Site Hydrogeology

Depth to groundwater measurements from the top of monitoring well casing (TOC) collected during the Stage 3 investigation ranged from 3.90 feet (MW-10) to 10.25 feet (MW-11). The groundwater flow direction and gradient beneath the Site was calculated during the Stage 3 investigation by KAS and was approximately 0.93% to the southeast toward the Saranac River. The Saranac River is a Class C water body pursuant to 6 NYCRR Parts 700-705 and is located approximately 1,000-feet to the south and west of the Site.

2.0 SUPPLEMENTAL SITE CHARACTERIZATION

2.1 Preliminary Activities

2.1.1. Health and Safety Plan (HASP)

As per NYSDER-10, any person conducting investigation or remediation activities is required to prepare and implement a site-specific health and safety plan, which will be adhered to by all personnel involved in the investigation and/or remediation at the site. The HASP is a requirement of the federal Occupational Safety and Health Administration (OSHA) and is not subject to the approval of DER.

The plan will be prepared by a qualified person in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of OSHA, the U.S. Department of Labor, as well as any other federal, state or local applicable statutes or regulations.

A copy of the health and safety plan (HASP) will be available at the site during the conduct of all activities to which it is applicable.

2.1.2. Community Air Monitoring Plan (CAMP)

To monitor sensitive receptors surrounding the Site, B&L will implement a Community Air Monitoring Program (CAMP) during intrusive activities (i.e. drilling activities associated with subsurface borings and well installation).

Daily field reports will be provided to NYSDEC and NYSDOH project managers via e-mail, and will include, but not be limited to: CAMP data results, site map presenting wind direction and location of meters, and daily project progress updates. A copy of the NYSDOH Generic CAMP is provided as Appendix A.

2.2 Subsurface Soil Characterization

2.2.1. Soil Boring Installation

The supplemental Site characterization will include the installation of 16 soil borings to investigate groundwater quality adjacent to PFAS impacts previously identified at MW-7 and SB-14(S3). Soil borings will be installed using a truck or track-mounted direct push technology (DPT) drill rig. Four (4) soil borings will be converted to groundwater monitoring wells as described below in Section 2.3.1. Proposed soil borings and monitoring wells are further described below as Table 1, and proposed locations are presented as Figure 2 – Proposed Investigation Locations.

Table 1 - Sample Summary

Proposed Soil Boring/Monitoring Well I.D.	Location	Rationale
SSC-1 (MW-17)	Upgradient of MW-7	Investigate potential for PFAS impacts to soil and groundwater north of MW-7.
SSC-2 (MW-18)	Upgradient of MW-7	Investigate potential for PFAS impacts to soil and groundwater north of MW-7.
SSC-3 (MW-19)	Cross-Gradient of MW-7	Investigate potential for PFAS impacts to soil and groundwater northwest of MW-7.
SSC-4 (MW-20)	Downgradient of MW-7	Investigate potential for PFAS impacts to soil and groundwater south of MW-7.
SSC-5A SSC-5B SSC-5C	Upgradient of SB-14(S3)	Investigate potential for PFAS impacts to soil north of impacts previously identified in soils at SB-14(S3)
SSC-6A SSC-6B SSC-6C	Downgradient of SB-14(S3)	Investigate potential for PFAS impacts to soil south of impacts previously identified in soils at SB-14(S3)
SSC-7A SSC-7B SSC-7C	Cross-Gradient of SB-14(S3)	Investigate potential for PFAS impacts to soil east of impacts previously identified in soils at SB-14(S3)
SSC-8A SSC-8B SSC-8C	Cross-Gradient of SB-14(S3)	Investigate potential for PFAS impacts to soil west of impacts previously identified in soils at SB-14(S3)

Soil borings will be installed to a maximum depth of 10 feet below grade (fbg) or approximately 5 feet into the water table, whichever occurs first. Soil samples will be collected by using a Macrocore® Sampler to penetrate overburden soils. High-density polyethylene sleeves (HDPE) will be used to collect soil in 5.0-foot intervals at each proposed soil boring location (Figure 2).

Soil borings SSC-5 through SSC-8 will be completed using a phased approach to progressively evaluate conditions at increasing distances from SB-14 (S3). In Phase A, initial borings (SSC-5A, SSC-6A, SSC-7A, and SSC-8A) will be installed at a radial distance of 25 feet from SB-14 (S3). Based on the findings from this phase, Phase B will extend the investigation outward, with borings SSC-5B through SSC-8B located 50 feet from the same reference point. Finally, Phase C will further expand the assessment area, with borings SSC-5C through SSC-8C positioned at a distance of 75 feet from SB-14 (S3). This phased approach allows for a more comprehensive evaluation of subsurface conditions while maintaining a structured progression outward from the initial boring location.

2.2.2. Soil Screening and Observations

Macrocores® will be split, examined, and classified by a B&L geologist using the Modified Burmister Soil Classification System. Representative portions of each soil

sample will be collected and placed into a new Ziplock® bag and allowed to equilibrate. Each sample headspace will be screened using a photoionization detector (PID) calibrated to a 100 parts per million (PPM) isobutylene standard. Soil samples will be screened by inserting the probe tip into the headspace of each plastic bag. PID headspace readings will be recorded into a boring log or field notebook. Soil samples will be collected based on PID results and observations. If no obvious indications of impacts are present, soil samples will be collected from the top of the vadose zone.

2.2.3. Soil Sampling

Soil samples from SSC-5, SSC-6, SSC-7, and SSC-8 will initially be collected from the "A" interval (25 feet) in general accordance with NYSDEC's April 2023 Guidance for Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances. Analytical results from the "A" interval will be used to guide subsequent sampling decisions. If PFAS concentrations exceed the unrestricted use interim guidance values, additional samples will be analyzed from the "B" interval (50 feet). Should exceedances persist at that distance, the investigation will be further expanded to include analysis of samples from the "C" interval (75 feet). This tiered approach provides a systematic means of evaluating PFAS distribution while focusing analytical efforts where impacts are identified. Soil samples will be collected at SSC-5, SSC-6, SSC-7, and SSC-8 from the 1-3 fbg interval at each phase (A, B, C), consistent with previous investigations performed at the Site. Soil samples from SSC-1, SSC-2, SSC-3, and SSC-4 will be collected from the area positioned slightly above the water-table (vadose zone), anticipated at approximately 2.0 fbg. To remain consistent with previous investigations (Stage 1, Stage 2, and Stage 3), soil samples will be analyzed by modified laboratory Method EPA 537.1

2.3 Groundwater Characterization

2.3.1. Monitoring Well Installation

Up to four (4) overburden monitoring wells (MW-17 to MW-20) will be installed at locations shown in Figure 2. Monitoring wells will be constructed with 1.0-inch diameter schedule 40 PVC riser and 0.010" (10-slot) screen. A sand filter pack consisting of #1 clean silica sand (Filpro® or equivalent) will be used to backfill the annular space around each monitoring well screen and up to two feet above the screen interval.

A bentonite seal will be placed two (2) feet above the filter sand pack and extend to at least four (4) feet above the filter sand pack. The remaining annular space may be backfilled with native materials (if acceptable), or sand. The monitoring well will extend roughly 2.5 feet above the ground surface and capped/sealed using a 1.0-inch diameter pipe plug or "J-plug".

2.3.2. Monitoring Well Development

Once installed, monitoring wells will be developed by evacuating at least five (5) well volumes or until the well is purged dry. The wells will then be allowed to recover for a

minimum of three (3) to five (5) days prior to the collection of groundwater samples as further described below. Purge water from well development will be handled in accordance with Section 2.7 of this Work Plan.

2.3.3. Monitoring Well Sampling

Depth to water (DTW) from the top of each monitoring well casing (TOC) will be collected prior to sample collection using a PFAS-free water level indicator graduated in 0.01-foot intervals. After collection of DTW measurements, samples will be collected from each monitoring well in general accordance with procedures outlined by the EPA for low-stress (low-flow) groundwater sampling. Groundwater quality parameters will be collected and include: temperature, pH, specific conductivity, oxidation reduction potential (ORP), and turbidity. Groundwater samples will be collected in general accordance with NYSDEC's April 2023 Guidance for Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances.

2.3.4. Groundwater Analysis

Groundwater samples will be collected, decanted into clean glassware provided by the laboratory, and placed in a cooler with ice. Samples will be shipped via FedEx to an Environmental Laboratory Approval Program (ELAP) certified laboratory under chain-of-custody protocol. To remain consistent with previous investigations (Stage 1, Stage 2, and Stage 3), groundwater samples will be analyzed by modified laboratory Method EPA 537.1.

2.4 Base Map Development and Site Survey

Upon completion of the Supplemental Site Characterization Investigation, a survey will be conducted to locate all sampling points such as monitoring wells and soil borings. Elevations of all monitoring well casings will be established to within an accuracy of 0.01 feet based on an arbitrary local vertical benchmark.

A base map of the Site will be updated using Computer Aided-Design (CAD) software that will be utilized to place sampling locations from previous investigations. The sample locations will be placed on the base map by geo-referencing previous figures into the local CAD coordinate system and will include soil borings and monitoring wells installed during the Stage 1, Stage 2, and Stage 3 investigations.

2.5 Quality Assurance and Quality Control (QA/QC)

2.5.1. Records and Chain of Custody (COC)

The B&L sampler's field records will include, at a minimum, the following:

- Site name and location;
- Project number;
- Names and affiliations of Project Manager;
- Sampling personnel involved;
- Sampling point name and description;
- Sample collection procedure and equipment;
- Date and time of collection;
- Sample identification number(s);
- References such as maps or photographs of the sampling site;
- Field observations; and,
- Pertinent weather factors such as temperature, wind direction, and precipitation.

Chain-of-custody records for the samples will be maintained. A sample will be considered to be "in custody" of an individual if said sample is either in direct view of or otherwise directly controlled by that individual. Storage of samples during custody will be accomplished according to established preservation techniques, in appropriately sealed and numbered containers. Chain-of-custody will be accomplished when the samples are directly transferred from one individual to the next, with the first individual witnessing the signature of the recipient on the chain-of-custody record. The chain-of-custody records will contain the following information:

- Signature of the collector;
- Signature of the collector;
- Date and time of collection;
- Sample type (e.g., groundwater, sediment);
- Identification of well or sampling point;
- Number of containers;
- Parameter requested for analysis;
- Signature of person(s) involved in the chain of possession;
- Description of sample bottles and their condition; and,
- Problems associated with sample collection (e.g., breakage, preservatives missing), if any.

2.5.2. Field Sampling QA/QC

To monitor the integrity of field sampling and equipment cleaning techniques, the following field quality assurance/quality control (QA/QC) procedures will be implemented:

- Duplicate samples will be collected and analyzed for PFAS at a frequency of one for every twenty samples from each matrix. If less than twenty samples are collected from any matrix, then at least one duplicate will be collected from that matrix. Duplicate samples are analyzed to check the sample collection and handling process.
- Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed for PFAS at a frequency of one for every twenty samples for each sample matrix. If less than twenty samples are collected from any matrix, then at least one MS/MSD will be collected from that matrix. The purpose of these samples is to evaluate the effect of the sample matrix on the analytical results.

2.6 Decontamination Procedures

Non-dedicated sampling equipment (i.e., submersible pumps, drill tooling, water level indicators, etc.) will be decontaminated prior to sample collection to reduce the potential for cross-contamination. Decontamination will include the use of a scrub wash with a solution consisting of Alconox® detergent and potable water followed by a rinse with DI water. The decontaminated equipment will be appropriately stored in clean environments (i.e., the manufacturer's storage case). Decontamination fluids will be managed in accordance with NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation (DER-10) and properly labeled and securely stored in the designated waste container staging area, if required.

2.7 Investigation Derived Waste (IDW)

Investigation Derived Waste (IDW) that is generated from soil boring installation and monitoring well development will be handled in accordance with DER-10. Excess soil generated from drill cuttings during the Supplemental SC may be disposed within boreholes, provided soils show no evidence of gross contamination. The cuttings and spoil may be collected and disposed at one on-site location if they cannot be disposed in their respective boreholes. Material that is visually stained or exhibits obvious indications of impacts (i.e. staining/odor) shall be appropriately containerized, characterized, and disposed of at a licensed facility.

Decontamination fluids will be containerized separately from other SC derived waste, and any decontamination fluids that do not exhibit evidence of contamination will be handled in accordance with NYSDER-10.

3.0 SITE CHARACTERIZATION REPORT

3.1 Site Characterization Report

The Supplemental Site Characterization Report (SSCR) will be prepared as part of this work assignment following completion of the field activities. The SSCR will provide a description of the field activities, present data collected during field characterization, present a physical description of the Site including geology and hydrogeology, and provide an analysis and interpretation of the available data in the context of existing Site conditions. The report will include tabulated laboratory analytical results, Site maps and a discussion of contaminant concentrations, including a comparison to NYSDEC Standards, Criteria and Guidance (SCGs) as described in Section 3.13 of DER-10.

The SSCR will also provide a summary of the general nature of contamination on the site to the extent investigated by the supplemental evaluation including, without limitation, the numbers of areas of concern requiring further investigation and/or remediation and any significant events or seasonal variation which may have influenced sampling procedures or analytical results. A description of each area of concern identified, including dimensions, suspected and actual contamination, and suspected source of discharge or disposal recommendations for either additional investigation, remediation or no further action for each area of concern.

4.0 PROJECT MANAGEMENT

4.1 Project Schedule

A preliminary schedule of key milestones for the investigation and reporting is provided below. Please note that the following schedule is generic in nature, given the unknown time period regarding review and approval of the Final SCR and associated tasks that are contingent on the findings of the Supplemental SC. As such, a schedule with estimated durations and schedule for each project task is included in the following table.

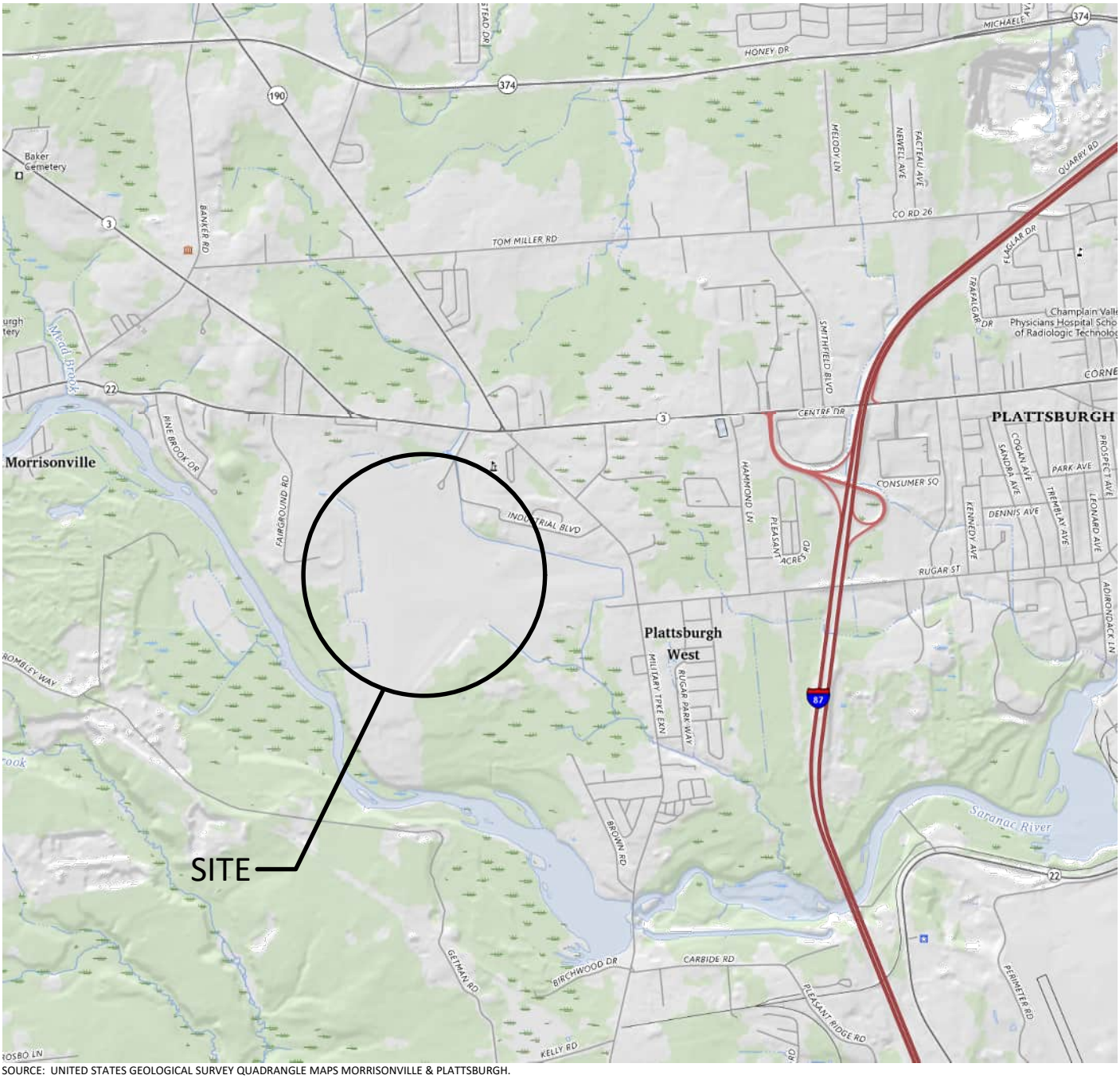
Milestone	Estimated Schedule
Supplemental Site Characterization (SC) Work Plan Submission	Spring 2026
NYSDEC/NYSDOH Review of SSC Work Plan	Spring 2026
NYSDEC/NYSDOH Response to Comments & Final Approval	Spring 2026
Initiate Supplemental SC	Spring/Summer 2026
Supplemental SC Completed	Spring/Summer 2026
Receive Laboratory Data (PFAS)	Spring/Summer 2026
Complete Draft of Final SSCR DRAFT	Summer 2026
NYSDEC/NYSDOH Review of Final SSCR	Summer 2026
Response to NYSDEC/NYSDOH Comments	Summer 2026
NYSDEC/NYSDOH Approval of SSCR	Summer/Fall 2026

4.2 Project Personnel

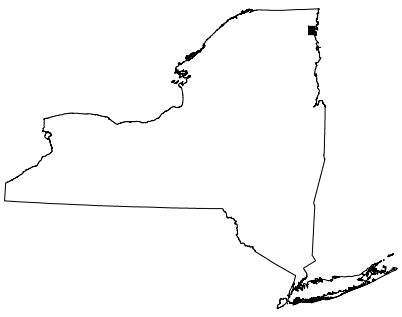
The following project staff will be responsible for the performance of this investigation:

Name	Title	Company	Responsibility
Jeffrey J. Reed, P.E.	Vice President	Barton & Loguidice, D.P.C.	Overall Management
Bryce D. Dingman, P.G.	Senior Associate	Barton & Loguidice, D.P.C.	Project Management
Stefan R. Truex, P.G.	Managing Hydrogeologist	Barton & Loguidice, D.P.C.	Reporting and Field Oversight
Donald Howe	Staff Geologist	Barton & Loguidice, D.P.C.	Soil Characterization, Sampling

Figure 1
Site Map



SOURCE: UNITED STATES GEOLOGICAL SURVEY QUADRANGLE MAPS MORRISONVILLE & PLATTSBURGH.



3000' 0 3000'

1"=3000'

N

TRUE NORTH

Barton & Loguidice
443 Electronics Parkway
Liverpool, NY 13088

CLINTON COUNTY

FORMER CLINTON COUNTY AIRPORT INVESTIGATION

SITE LOCATION MAP

TOWN OF PLATTSBURG CLINTON COUNTY, NEW YORK

Figure Number
FIGURE 1

Project Number
244.128.002

Date
JULY 2025

Scale
AS SHOWN

Plotted: Jul 22, 2025 - 1:39PM SYR By: WBG
Z:\BL-Vault\D2\18217AD2-1C71-4823-8927-99D5C4054147\0\3412000-3412999\3412551\L\L\244128 Fig1 Site Location Map (ID 3412551).dwg

Figure 2
Proposed Investigation Locations

LEGEND

PARCEL BOUNDARY

PROPOSED SUBDIVISION LINES

STAGE 1/ STAGE 2

HISTORICAL BORING/ SAMPLE LOCATION

STAGE 3

SOIL BORING LOCATION
(PFAS SAMPLING AT SOIL/GROUNDWATER INTERFACE ONLY)

MONITORING WELL LOCATION

PROPOSED SOIL BORING LOCATION

PROPOSED MONITORING WELL LOCATION

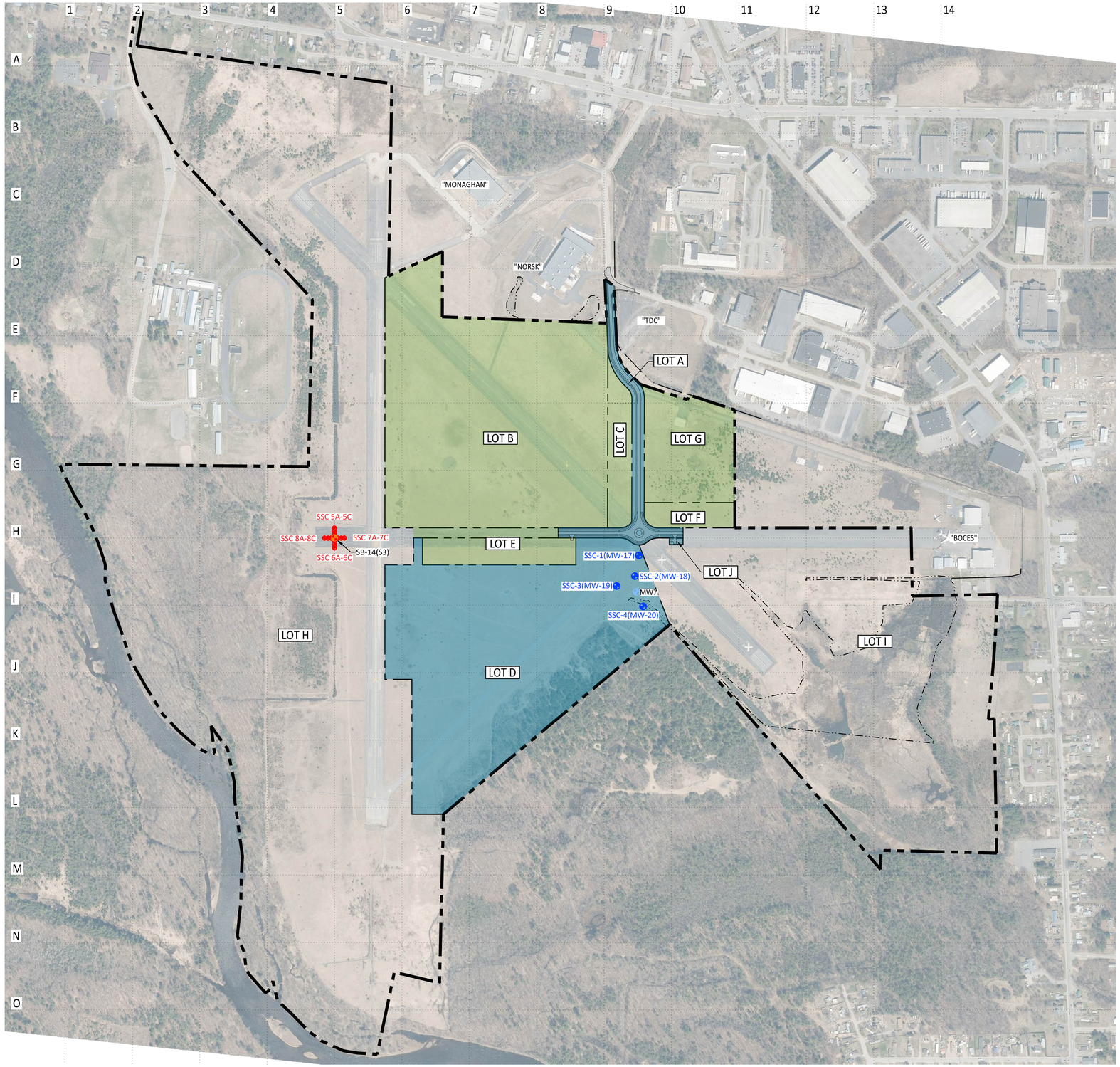
STAGE 1 INVESTIGATION AREA (± 65 AC)

STAGE 2 INVESTIGATION AREA (± 89 AC)

STAGE 3 INVESTIGATION AREA (± 332 AC)

N

TRUE NORTH



SAMPLING LOCATION PLAN

SCALE: 1" = 400'

1"=400' 400' 0 400' 800'

REVISIONS

CLINTON COUNTY

FORMER CLINTON COUNTY AIRPORT INVESTIGATION

PROPOSED SOIL BORING AND MONITORING WELL LOCATION PLAN

TOWN OF PLATTSBURGH

CLINTON COUNTY, NEW YORK

Barton & Loguidice, D.P.C.
10 Airline Drive
Suite 200
Albany, NY
12205

REVIEW ONLY
NOT FOR
CONSTRUCTION

XX/XX/XXXX

Date
JUNE 2025

Scale
AS SHOWN

Sheet Number
FIGURE 2

Project Number
244.128.002

Plotted: Apr 30, 2026 – 11:59AM By: sthrun
Checked by ____ Drawn by JGS Designed by ____ BDD In charge of ____ DHF
Z:\BL-Vault\D2\16217A02-1C71-4823-8927-99D5C405414F\D\3408000-3408999\3408454\L\L\244128 Proposed Boring Locations (ID 3408454).dwg

Appendix A
NYSDOH Generic 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.

The experience to
listen
The power to
solve℠

Barton
&Loguidice

www.bartonandloguidice.com