NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
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Via E-mail

Mr. Emil Filc
Signify N. America Corp.
400 Crossing Blvd. Suite 600
Bridgewater, New Jersey 08807-2863

April 4, 2023

Re: **Addendum #1 - AOC 32 Stormwater and Sanitary Sewer Inspection, Cleaning and Closure Plan**
Philips BCP Site (C851044)
Bath (T), Steuben (Co)

Dear Mr. Filc,

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the Addendum #1 - Revised AOC 32 Stormwater and Sanitary Sewer Inspection, Cleaning and Closure Work Plan dated 3 April 2023 and **approve as modified** below:

- Closure and / or decommissioning of any structure is not approved in this work plan. Reporting of information collected under this work plan will inform subsequent work plans addressing closure.

Please compile Addendum #1 with this approval cover and attach to the approved work plan and place in the document repository prior to the commencement of work or within 10 days.

If further clarification is needed, I can be reached at timothy.schneider@dec.ny.gov or (585) 226-5480.

Sincerely,

Timothy A. Schneider, P.E.
Professional Engineer 1
Division of Environmental Remediation

ec: D. Pratt - NYSDEC
J. Robinson - NYSDOH
T. West / S. Phillips – H&A

HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

3 April 2023
File No. 127981-028

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road
Avon, New York 14414

ATTENTION: Timothy A. Schneider, P.E.

SUBJECT: Addendum to Revised AOC-32 Stormwater and Sanitary Sewer Inspection, Cleaning, and Closure Work Plan
Philips Lighting Company Bath Facility
7265 State Route 54
Bath, Steuben County, New York
BCP Site #C851044

Dear Mr. Schneider:

On behalf of the site owner, Yort, Inc., and the former site owner Philips North America LLC, formerly Philips Electronics North America Corporation, (hereafter referenced as Yort and Philips), Haley & Aldrich of New York (Haley & Aldrich) has prepared this addendum to the New York State Department of Environmental Conservation (NYSDEC)-approved Revised AOC-32 Stormwater and Sanitary Sewer Inspection, Cleaning, and Closure Work Plan. This addendum addresses a modification to the scope of work to include the evaluation and sampling of the contents of the subgrade structures at the former Philips Lighting Company Bath Facility (Site), located in Bath, New York.

Subgrade Structures

The building superstructures at the Site were removed as part of a change in use that included demolition activities that were completed in 2022. However, several subgrade structures that were associated with the facility and former manufacturing operations remain at the Site. These subgrade structures are planned to be removed and the structures closed as part of ongoing work at the Site. The type and location of the subgrade structures that remain at the Site are shown on Figure 1 and include:

- Former lime silo tank – southeast side of the Chemical Intermediates Building
- Sanitary sewer transfer tank – southeast side of Building 3
- Cooling tower concrete pad – west of the Powerhouse
- Dry well in Garage building
- Electrical pull box – south of the Garage building

- Two vaults south of the former water tank
- Vault at the substation
- Cooling tower tank – north of Building 1
- Cooling water cisterns adjacent to the Acid Neutralization building
- Employee parking lot dry wells
- Potential dry wells – north of the Hazardous Materials Receiving Dock and one southeast of the Hazardous Waste Storage building

These subgrade structures have been previously assessed in December 2022 as part of the building demolition, and the dry well in the Garage building and the two dry wells in the employee parking area have been sampled as part of ongoing Remedial Investigation activities conducted at the Site. Field observations and measurements were recorded for each of the structures. As part of the impervious cover system removal activities at the Site, these subgrade features will be excavated and removed. Depending on the structure, the removal of the subgrade structures will be completed as part of various interim remedial measures (IRMs), including the removal of the cooling water cisterns as part of IRM-1 (Acid Neutralization Building and piping closure) or as part of IRM-8 (Soil Consolidation and Cover System Construction) activities or as part of the separate Soil Notifications that will be submitted to the NYSDEC prior to completing the demolition activities and soil disturbances at the Site. However, prior to removal and closure of the subgrade structures, the contents of the structures (liquid and/or solids) will be sampled to characterize the remaining material present within them and to determine appropriate handling and disposal of the materials during decommissioning of the structures.

Work Plans

The NYSDEC has approved two work plans, which will be employed to complete these investigations, along with this addendum, which includes modifications to the scope and schedule. The previously approved Work Plans include:

- Remedial Investigation Work Plan (RIWP), dated December 2014; and
- Revised AOC-32 Stormwater and Sanitary Sewer Inspection, Cleaning, and Closure Work Plan, dated November 2022 and revised in January 2023.

Additional Subgrade Structure Evaluation and Sampling Scope

Based on the observations and notes collected in December 2022, only a subset of the subgrade structures contains liquid or solid contents. The additional proposed scope includes an evaluation of the contents in the subgrade structures at the Site. The structures expected to contain either water or sediment include:

- Former lime silo tank
- Sanitary sewer transfer tank – southeast side of Building 3

- Cooling tower vault
- Cooling water cisterns adjacent to the Acid Neutralization building

If solids or liquids are present at a sufficient and recoverable volume, samples of the material will be collected and submitted for the analysis of:

- Target Compound List (TCL) volatile organic compounds (VOCs) via United States Environmental Protection Agency (EPA) Method 8260;
- TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270;
- Target Analyte List (TAL) metals via EPA Method 6010/7471A (for solids) or TAL total metals via EPA Method 6020/7470 (for liquids);
- Polychlorinated biphenyls (PCBs) via EPA Method 8082;
- Pesticides via EPA Method 8081; and
- Cyanide.

An updated Sampling and Analysis Plan is provided as Table 1.

Modified Project Schedule

An updated project schedule, inclusive of the subgrade structure sampling described in this addendum, is included as Attachment 1. Philips/Yort will provide a minimum of seven days' notice to the NYSDEC prior to commencement of field activities.

Should you have any questions regarding this work plan or wish to discuss the project further, please do not hesitate to contact either Mr. Emil Filc of Signify or the undersigned at Haley & Aldrich.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Titania Ng
Sr. Technical Specialist

W. Thomas West
Sr. Associate | Environmental Geologist

Attachments:
Table 1 – Sampling Analysis Table – Sewer System and Subgrade Structure Sampling
Figure 1 – Subgrade Structures Site Plan
Attachment 1 – Bath Site – Sewer Inspection Schedule Addendum

c: Signify; Attn: M. Manning and E. Filc
NYSDEC; Attn: D. Loew and D. Pratt

NYSDOH; Attn: J. Robinson and J. Deming

\\haleyaldrich.com\share\roc_common\Projects\34201\Sewer Cleaning Work Plan\Addendum - Substructures\2023_0403_HANY-Sewer_WP_Addendum_Substructures_Ltr-F.docx

TABLE

TABLE 1
SAMPLING ANALYSIS TABLE - SEWER SYSTEM AND SUBGRADE STRUCTURE SAMPLING
PHILIPS LIGHTNING COMPANY BATH FACILITY
BATH, NY
BCP SITE #851044

Description		Sample Matrix	Sample Description	Location ID	Collection Method	Sample Depth (Feet b.g.s)	Minimum No. Samples	Sample Type	Analytical Method
Sewer Systems	If sufficient sediment is identified during inspection, samples will be collected to characterize sediment accumulated in sewer system, prior to sewer cleaning activities.	Sediment	Sediment Sampling	Stormwater Sewer Segments A(1) to F(1)	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 8	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
							Minimum of 1	Grab	PFOA/PFOS via EPA Method 537.1 and low-level analysis of 1,4-dioxane via EPA Method 8270
				Sanitary Sewer Segments A1 to C1	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 3	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
							Minimum of 1	Grab	PFOA/PFOS via EPA Method 537.1 and low-level analysis of 1,4-dioxane via EPA Method 8270
				Contingency Sampling	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 7	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
	Waste generated during cleaning process will be sampled for disposal purposes.	Liquid and solid waste	Waste Characterization Samples	Drums, fractional tank or roll-off containers	Hand auger or shovel	Representative of waste generated	Up to 7	Grab	All Samples: Chemical composition: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A, SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide. RCRA Part 260 Waste Classification: Ignitability, Reactivity, Corrosivity, Toxicity Characteristic Leaching Procedure (TCLP) Method 1311.
Subgrade Structures	Subgrade structures remaining at the Site will be evaluated for contents. If sufficient material is identified during inspection, samples will be collected to characterize the material.	Sediment/Solids	Characterization Sampling	For Former Lime Silo Tank: SGS-LIME-01 For Santiary Sewer Transfer Tank: SGS-SSTTANK-01 For two vaults south of former water tank: SGS-FWTVAULT-01, -02 For Cooling tower vault: SGS-CTVAULT-01 For Cooling Water Cisterns: SGS-CWC-01, -02	Ponar dredge or sediment coring device	TBD depth, representative of sediment/solids layer present	Minimum of 1, if present	Grab	TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A, SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
		Liquid			Bailer	TBD depth, representative of liquid depth present	Minimum of 1, if present	Grab	TCL VOCs via EPA 8260B, TAL Total Metals via EPA Methods 6020/7470, SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.

Notes & Abbreviations:
AOC: Area of Concern
EPA: Environmental Protection Agency
PCBs: Polychlorinated Biphenyls
RCRA: Resource Conservation and Recovery Act
SVOCs: Semi-volatile Organic Compounds
TCLP: Toxicity Characteristic Leaching Procedure

FIGURE

LEGEND

COVER TYPE

- BUILDING
- ASPHALT
- CONCRETE/BUILDING SLABS
- VEGETATIVE COVER
- STONE
- AREA OF IMPACTED SHALLOW SOILS EXCEEDING INDUSTRIAL SCOs, TO BE PROTECTED DURING DEMOLITION
- BCP SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. "TOPOGRAPHIC SURVEY," PREPARED BY HOFFMAN LAND SURVEYING AND GEOMATICS, DATED 28 OCTOBER 2020, AND INTERPRETATION OF AERIAL PHOTOGRAPHS.
3. AERIAL IMAGERY SOURCE: NYSGIS, 2020.
3. PHOTOS OF SUBGRADE STRUCTURES WERE TAKEN IN DECEMBER 2022.
4. SUBGRADE STRUCTURES HIGHLIGHTED IN YELLOW LIKELY CONTAIN SUFFICIENT MATERIAL (SOLIDS AND/OR LIQUIDS) FOR SAMPLING.

0 80 160 240 320
SCALE IN FEET

HALEY ALDRICH

PHILIPS LIGHTING COMPANY
BATH FACILITY
7265 STATE ROUTE 54
BATH, NEW YORK

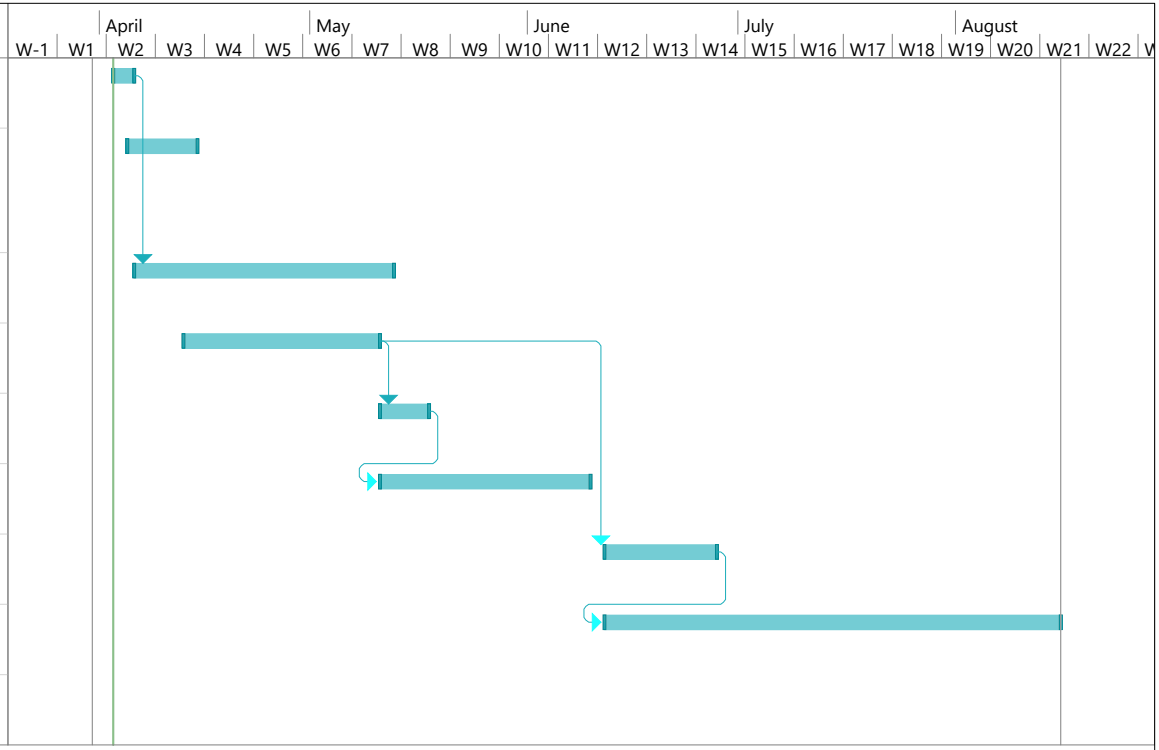
SUBGRADE STRUCTURES
SITE PLAN

APRIL 2023

FIGURE 1

ATTACHMENT 1
Bath Site – Sewer Inspection Schedule Addendum

ID	Task Name	Start	Finish
1	Mobilize to site	Mon 4/3/23	Wed 4/5/23
2	Subgrade structures inspection and sampling	Wed 4/5/23	Fri 4/14/23
3	Video inspection	Thu 4/6/23	Fri 5/12/23
4	Pipe/drain cleaning	Thu 4/13/23	Wed 5/10/23
5	Waste sampling	Thu 5/11/23	Wed 5/17/23
6	Analytical analysis	Thu 5/11/23	Fri 6/9/23
7	Waste transport	Mon 6/12/23	Tue 6/27/23
8	Reporting	Mon 6/12/23	Tue 8/15/23
9			



Sewer Inspection Schedule Addendum
Updated: Mon 4/3/23

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
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Via E-mail

Mr. Emil Filc
Signify N. America Corp.
400 Crossing Blvd. Suite 600
Bridgewater, New Jersey 08807-2863

February 1, 2023

Re: **Revised AOC 32 Stormwater and Sanitary Sewer Inspection, Cleaning and Closure Plan**
Philips BCP Site (C851044)
Bath (T), Steuben (Co)

Dear Mr. Filc,

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Health Department has reviewed and **approves** the Revised AOC 32 Stormwater and Sanitary Sewer Inspection, Cleaning and Closure Work Plan dated 23 January 2023.

Please attach this approval to the work plan and place in the document repository prior to the commencement of work or within 10 days.

If further clarification is needed, I can be reached at timothy.schneider@dec.ny.gov or (585) 226-5480.

Sincerely,

Timothy A. Schneider, P.E.
Professional Engineer 1
Division of Environmental Remediation

ec: D. Pratt - NYSDEC
J. Robinson - NYSDOH
T. West / S. Phillips – H&A

HALEY ALDRICH

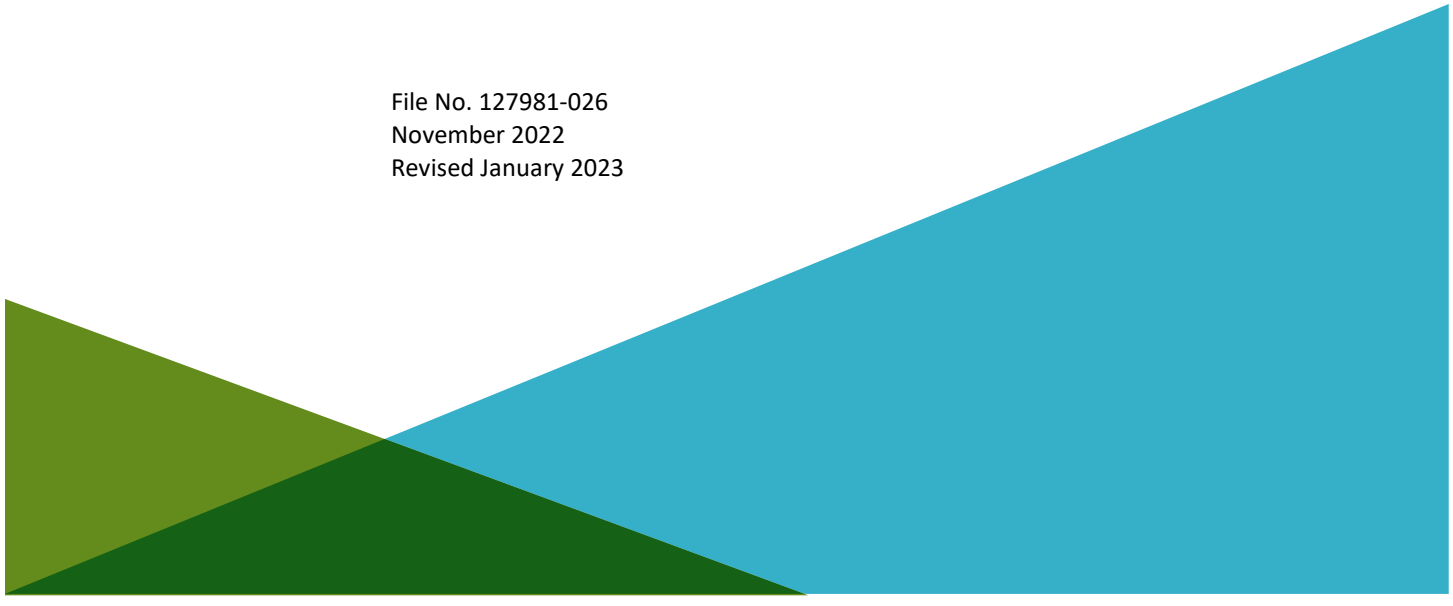
www.haleyaldrich.com

REVISED AOC-32 STORMWATER AND SANITARY SEWER INSPECTION, CLEANING, AND CLOSURE WORK PLAN
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK
BCP SITE # C851044

by
Haley & Aldrich of New York
Rochester, New York

for
New York State Department of Environmental Conservation
Avon, New York

File No. 127981-026
November 2022
Revised January 2023



HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

23 January 2023
File No. 127981-026

New York State Department of Environmental Conservation
Region 8 Division of Remediation
6274 East Avon-Lima Road
Avon, New York 14414

Attention: Timothy A. Schneider, P.E.

Subject: Revised AOC-32 Stormwater and Sanitary Sewer Inspection, Cleaning, and Closure Work Plan
Philips Lighting Company Bath Facility
7265 State Route 54
Bath, New York
BCP Site # C851044

Dear Mr. Schneider:

On behalf of the site owner, Yort, Inc., and the former site owner Philips North America LLC, formerly Philips Electronics North America Corporation, (hereafter referenced as Yort and Philips), Haley & Aldrich of New York (Haley & Aldrich) has revised the Sewer Inspection, Cleaning, and Closure Work Plan that was submitted to the agency in November 2022. The revised Work Plan incorporates comments received from the agency in a 06 December 2022 email and describes proposed activities associated with inspecting, sampling, and where necessary, cleaning of the sanitary and stormwater infrastructure at the former Philips Lighting Company Bath Facility (BCP Site # C851044) located in Bath, New York.

The facility is no longer operational, utilities (including water, gas, and electric) have been disconnected, and the existing buildings have been demolished and the superstructures removed. However, the existing building foundations currently remain, and the penetrations to the sewers at the Site have been capped and sealed to prevent damage or sediment from entering the systems as part of the demolition activities. As discussed with the New York State Department of Environmental Conservation (NYSDEC), evaluation of the condition of the sewers (and where appropriate, sampling and cleaning of accumulated sediment from the systems) is considered necessary prior to removal of the building slab foundations, concrete aprons, and paved asphalt roadways and parking areas.

The following work plan describes the stormwater and sanitary sewer systems and discusses the procedures that will be used to inspect the condition of the subgrade piping networks, collect discrete sediment samples from catch basins and/or manholes (if present), and where appropriate, cleaning of the sewer systems to remove accumulated sediment and debris.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Steven H. Phillips
Senior Project Manager

Mark Ramsdell, P.E. (NY)
Senior Project Construction Manager

W. Thomas West, P.G. (NY)
Senior Associate

Enclosures

c: Signify; Attn: R. Farley and E. Filc
NYSDEC; Attn: D. Loew and D. Pratt
NYSDOH; Attn: J. Robinson and J. Deming

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HALEY & ALDRICH OF NEW YORK
200 TOWN CENTRE DRIVE
SUITE 2
ROCHESTER, NY 14623
585.359.9000

SIGNATURE PAGE FOR

REVISED AOC-32 STORMWATER AND SANITARY SEWER INSPECTION, CLEANING, AND CLOSURE WORK PLAN
PHILIPS LIGHTING COMPANY BATH FACILITY
7265 STATE ROUTE 54
BATH, NEW YORK
BCP SITE # C851044

PREPARED FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AVON, NEW YORK

PREPARED BY:

Steven H. Phillips
Senior Project Manager
Haley & Aldrich of New York

Mark N. Ramsdell, P.E. (NY)
Senior Project Construction Manager
Haley & Aldrich of New York

REVIEWED AND APPROVED BY:

W. Thomas West, P.G. (NY)
Senior Associate
Haley & Aldrich of New York

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1. Background

Philips North America LLC (formerly Philips Electrics North America Company) and Yort, Inc. (hereafter referenced as Philips and Yort) have submitted a Brownfield Cleanup Program (BCP) application and entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate, and where necessary, remediate environmental conditions at the former Philips Lighting Company site in Bath, New York (Site); see Figure 1, Site Location Map. As part of the BCA, Philips and Yort have developed a Remedial Investigation Work Plan (RIWP) that was approved by the NYSDEC in December 2014, have prepared supplemental RIWPs, and are continuing to characterize environmental conditions at the Site. As part of the overall Site redevelopment plans, Yort has authorized the demolition of the existing buildings and removal of the impervious cover systems at the Site, including removal of the buildings, building slabs, foundations, concrete aprons, and surrounding paved asphalt surfaces. Change in Use forms were submitted to the NYSDEC in December 2021 and March 2022 to permit abatement of asbestos-containing materials (ACMs) from the buildings, and for the demolition and removal of the building superstructures. The ACM abatement and demolition of the above-grade buildings were completed between 1 April and 3 October 2022.

To remove the remaining infrastructure and impervious surface covers at the Site, the NYSDEC has required that an Interim Site Management Plan (ISMP) be prepared and approved, along with several supporting Interim Remedial Measure (IRM) Work Plans. In addition, to close the existing sanitary and stormwater sewer systems at the Site, the piping will need to be visually inspected to determine its condition, and if sediment or debris is present in the piping, the sediment will need to be sampled to characterize the material, and the piping will need to be cleaned and all material removed prior to closing the piping systems. The facility had previously maintained a State Pollutant Discharge Elimination System (SPDES) permit (Permit No. NY 016 1730) issued by the NYSDEC for the discharge of non-contact cooling water, boiler blowdown, and stormwater to Outfall 001 on the east side of State Route 54. The SPDES Outfall was identified as Area of Concern (AOC) No. 32, and sampling of the soils and sediment downgradient from the outfall have been completed under separate NYSDEC-approved Work Plans. In addition, the facility had an Industrial User Permit (IUP) with the Bath Electric, Gas, and Water Systems (BEGWS-401) for the discharge of combined sanitary and treated plant wastewater. Treated wastewater had previously included neutralized liquids from Halophosphor production operations and neutralized acid effluent from former etching operations. Sanitary and treated wastewater were discharged to the municipal publicly owned treatment works (POTW) via a sewer connection along State Route 54.

Copies of the previously issued SPDES permit and BEGWS IUPs are attached in Appendix A.

As a result of the demolition of the existing buildings and plans for future Site redevelopment, the existing sanitary and stormwater systems will need to be decommissioned and closed.

1.1 PURPOSE OF THE INSPECTION, SAMPLING, CLEANING, AND CLOSURE PLAN

This plan has been prepared to present information on the proposed inspection, sampling, cleaning, and closure/decommissioning of the existing sewer systems (sanitary and SPDES) at the Site. New York State Regulations, 6 NYCRR Part 750-2.11 – Closure Requirements for Disposal Systems under the SPDES program, requires that closure of existing disposal systems complete the following: 1) removal of all treatment units, outfall lines, and all mechanical and electrical equipment and piping; 2) elimination of

all equipment and/or conditions that could possibly pose a safety hazard, either during or after shutdown of the operations; and 3) proper management and/or removal of all residual materials (collected grit and screenings, scum, sand bed material, and dried or liquid sludges), and all other solids from the treatment process.

Upon completion of the closure requirements specified above, the NYSDEC shall be contacted, in writing, to schedule a final site inspection of any disposal system which had a SPDES discharge permit to verify that influent and effluent pipes have been sealed and that all solid and residual materials related to the process have been removed.

The sewer inspection, sampling, and cleaning work will be conducted in accordance with the procedures and details summarized in the following report sections. During the sewer cleaning and waste removal activities, the manhole and drains will be screened visually and with a photoionization detector (PID). If sediment is present in the catch basins and/or manholes, samples of the material will be collected and analyzed to characterize the contents of the material. The sewer systems will then be cleaned if sediment is present, and the waste material generated during the cleaning will be managed, staged on Site, then transported for disposal based on the results of sampling, as described further in Section 3.3 below.

During the cleaning activities, community air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP) included as an appendix to the NYSDEC-approved RIWP. NYSDEC and NYSDOH will be notified within one business day of any exceedances that occur during active monitoring of the sewer cleaning activities. Notifications will include details of the cause of the exceedance and what actions were taken to correct the issue. The CAMP data summary will be provided to the NYSDEC on a weekly basis. A copy of the CAMP is included in Appendix B.

All Site personnel will work under a Health and Safety Plan (HASP); the NYSDEC-approved RIWP HASP has been included in Appendix C.

2. Existing Sewer System Conditions

The facility previous had both a SPDES permit (Permit No. NY 016 1730) for the discharge of stormwater, non-contact cooling water, and boiler blowdown wastewater and an IUP issued by BEGWS (BEGWS IUP-401) for the discharge of combined sanitary and treated plant wastewater.

2.1 SPDES OUTFALL 001

When the facility was in operation, stormwater and non-contact cooling water (including boiler blowdown) were routed through a series of interconnected pipes that captured and conveyed water from the Site to an outfall (Outfall 001) located on the east side of State Route 54, near a wooded drainage ditch between the Steuben County Veterans Memorial and Steuben County Industrial Development Agency (IDA) properties; the SPDES outfall has been identified as AOC-32 in the RIWP. There are sixteen (16) stormwater header pipes (not including exterior yard drains) that generally capture and convey stormwater from the developed areas of the Site and previous roof drainage from various areas of the buildings. This includes thirteen (13) separate stormwater drain lines that were associated with former Building 1; two (2) stormwater drain lines that had previously served former Building 2/5; and a separate drain line had been constructed to manage stormwater for the former Building 3 addition. The Building 2/5 drains included a primary drain line that conveyed water to the SPDES Outfall and a separate drain line that had been used for non-contact cooling mill water that was passed through a cooling tower on the west side of Building 2. Overflow from the cooling tower was then discharged into a yard drain. A summary of the stormwater piping, including the locations, piping sizes, and former operations is presented on Table 1, and a figure showing the stormwater piping layout[1] at the Site is presented on Figure 2.

In addition to the conveyance of stormwater in subsurface piping, two drywells are located in the southern portion of the employee parking area, and a surface drainage system had been installed to promote and channel drainage from the employee parking area and former Chemical Intermediates Building (CIB) along the south side of the parking lot at the Site. The former drywells were investigated as part of the ongoing Remedial Investigation (RI), and the findings from these studies were provided to the NYSDEC in an interim data report entitled *Manhole Soil and Sampling Report,* dated 19 December 2019. The drywells are scheduled to be removed as part of the demolition and cover system removal activities. The drainage swale has been investigated as part of the ongoing RI studies being completed as part of the BCA agreement with NYSDEC, and surface soils in the drainage swale have been characterized through sampling. The shallow soil impacts, including arsenic above background levels and polycyclic aromatic hydrocarbons (PAHs) present in the shallow soils in the drainage feature will be addressed through the completion of an IRM; See the IRM-9 Work Plan.

[1] Note – the piping layout for the stormwater and sanitary sewer systems was developed from a review of plant drawings, including the four-drawing set by McFarland-Johnson Engineers, Inc. dated 19 September 1985, which included the Building 1 Sanitary System (Sheet 1), the Building 1 Stormwater System (Sheet 2), the Building 2, 3, 4, and 5 Sanitary System (Sheet 3), and the Building 2, 3, 4, and 5 Stormwater System (Sheet 4). In addition, a copy of Westinghouse Electrical Corporation Drawing A-26C0-CY-70, dated 1 May 1975, was also used to evaluate the location of the sanitary sewers in the former offices, manufacturing areas, storage areas, and Powerhouse building. These drawings were then ground-truth inspected during numerous site visits, and drains, catch basins, and other features were surveyed by Larry Hoffman Surveying as part of the demolition of the superstructures and placement of temporary protection of the drainage systems.

With the exception of the drainage swale and drywell manholes, stormwater collected across the Site is conveyed through the subsurface drainage lines, then the flow is routed to a larger complex of subsurface piping on the east side of the property which combines the flows and discharges through a 36-inch concrete culvert at the SPDES's permitted outfall located on the east side of State Route 54. Similar to the drainage ditch and drywells, the downstream reach from the SPDES Outfall is currently being investigated as part of the RI studies being completed under the BCA program; sampling of the SPDES Outfall (AOC-32) and the downstream wetlands is being investigated in accordance with a NYSDEC-approved supplemental RIWP, and the results of these studies are being integrated into an Interim Data Report for submission to the NYSDEC.

2.2 SANITARY SEWERS (BEGWS 401)

There are seven (7) primary sanitary sewer lines that have served the Site. The sanitary sewer lines have been divided into three (3) principal flows that include discharges from former Building 1, Building 2/5, and the CIB. Of the seven (7) primary main sanitary sewer lines, three (3) of the sewer lines collect and transmit flow from Building 1, two (2) primary sewer lines collect flows from former Building 2/5, and a separate collection pit, pump lift, and sewer line were installed to connect the Building 3 infrastructure to the drain line associated with Building 2/5. In addition to these six (6) primary sewer lines, a dedicated sewer drain line was constructed to manage flows from the chemical intermediates production process. The primary trunk lines serving the buildings combine in a metered manhole located in the southeastern portion of the Site along the west side of State Route 54, prior to discharge to the POTW system. The metered manhole in the southeastern portion of the Site was the location used for the collection of permit samples for the previously applicable BEGWS Industrial User Permit. A summary of the sanitary piping, including the locations, piping sizes, and former operations that had discharged to the system is presented on Table 2, and a figure showing the sanitary piping layout at the Site is presented on Figure 3.

Treated wastewater included the neutralized discharge from the Halophosphor production operations, and a separate discharge of neutralized acid liquids from the former etching operations in the acid-neutralization building. Liquids generated in the Halophosphor production process were stored in former 10,000-gallon underground storage tanks (USTs) located on the east and west sides of the CIB building, and the pH of the liquids was adjusted prior to being discharged to the dedicated sanitary sewer line installed to serve the CIB. Liquids generated from the former etching operations included hydrochloric and hydrofluoric acids. The acids from the etching, which was completed in Building 1, were conveyed by a separate drain system from the acid room to the acid neutralization building, located on the northeast side of building, which contained a below-grade lined pit. The former treatment process in the acid neutralization building included adjustment of effluent pH conditions, which was completed using an automatic monitoring system. Depending on the pH of the influent liquids, either muriatic acid or lime was added to the wastewater to adjust the pH of the effluent before it was discharged to a manhole associated with the sanitary system connected to Building 1. The drain system associated with the acid-etching process and the former acid neutralization building and treatment system are being addressed separately under an IRM Work Plan (IRM-1 Work Plan).

2.3 PRIOR INSPECTION/SCREENING/SAMPLING OF THE SEWER SYSTEMS

As part of a Phase II investigation of the Site in 2012, prior to entering the BCA program, a plant-wide inspection and survey of the stormwater and sanitary sewers was completed. The results of this survey

were summarized in the Phase II and Phase IIB Investigation Report dated January 2013 that was included in the original BCP application for the Site and are part of NYSDEC's records.

The Phase II study of the sewer systems at the Site included review of the sewer drawings, and field verification of the location of the sewer drains, connections, and piping throughout the plant. Based on the visual assessment, fifty-five (55) stormwater drains and seventy-seven (77) sanitary sewer drain connections were identified on the interior of the facility. At the time of the Phase II survey, most of the drains had been sealed, capped, or covered with equipment; however, access to eleven (11) stormwater drains and forty (40) sanitary sewer drains, cleanouts, or connections at the Site were identified. The drains and cleanouts that were accessible were screened with a PID to evaluate the presence of volatile organic compounds (VOCs), and a Jerome 431-X instrument was used to screen the openings for the presence of mercury vapors. A summary of the findings from the Phase II sewer survey is presented in tabular format by drain type (storm water or sanitary sewer) and by building location (Building 1 through Building 5 referenced against the source engineering drawing maps); the results are included in Appendix D. The field readings from the 2012 Phase II screening have also been included, where applicable, on the sewer drawing figures that are included as Figures 2 and 3.

2.4 SEDIMENT SAMPLING – MAY 2015 REMEDIAL INVESTIGATION

As discussed in the RIWP, sediment sampling was proposed to be completed at three (3) stormwater manholes as part of the original RI. Inspection and sampling of the stormwater manholes were completed in May 2015; however, only sufficient sediment was present in one of the three manholes (i.e., MH-3) for collection. Consistent with the RIWP, the sample collected from MH-3 was submitted for analysis of Total Organic Carbon, Target Compound List (TCL) VOCs by U.S. Environmental Protection Agency (EPA) Method 8260, and Target Analyte List (TAL) metals via EPA Method 6010/7471A.

As shown on Table 3, the sediment sample collected from MH-3 did not contain VOCs at concentrations above the laboratory detection limit, and most of the inorganic constituents were present at concentrations below NYSDEC Unrestricted Soil Cleanup Objectives (SCOs). Only iron, nickel, and zinc, which are typical metals in the composition of stormwater piping, were detected in the sediment sample at levels slightly exceeding the NYSDEC Unrestricted SCOs, but they were well below the NYSDEC Restricted Industrial SCO criteria.

3. Proposed Sewer Inspection, Sampling, and Cleaning Procedures

As part of the proposed work, existing sanitary and stormwater sewers that have a pipe diameter of 4 inches or greater will be remote video-inspected, and where sediment is noted, they will be sampled to characterize the contents of the sewers, and then cleaned to remove sediment and residuals from the piping. Smaller diameter pipes (less than 4 inches in diameter) are largely limited to the sanitary features present in Building 1. As part of the building demolition, they will be disconnected from the larger manifold drains, and they will be removed and managed for disposal as part of the building slab removal to be completed pursuant to the ISMP and IRM work plans. Inspection and cleaning of the sewer systems will be conducted prior to the removal of existing building slabs, foundations, and asphalt-paved areas at the Site.

3.1 SEWER VIDEO INSPECTIONS

The main distribution and conveyance lines of the sanitary and stormwater system at the Site will be visually located and inspected using non-destructive methods to determine if the sewers are intact or if there has been any failure or breakage in the piping. The results of the pipe inspections will also be used to identify areas of the drainage system that may require cleaning. The following sections describe the proposed steps that will be completed to identify and inspect the larger (4-inch and larger diameter) sanitary and stormwater sewers at the Site. Video inspection of the pipes will be completed by a qualified pipe inspection contractor using closed-circuit television (CCTV) or video camera equipment, which may include robotic mainline crawlers, robotic lateral launch cameras, and/or video-push cameras equipped with a sonde to track the location of the camera in the subsurface.

As part of the initial inspection, available as-built prints, plans, and prior inspections will be used to mark out subsurface pipes. If there is uncertainty in the location or direction of the piping, a private utility locating firm may be used to assist in marking out subsurface pipes in areas where information regarding the piping is limited or unknown. Sewer sections of up to 300 feet in length between entry and egress locations (i.e., cleanouts, manholes, drains, etc.) will be inspected by means of remote camera inspection. In the event that blockage limits the inspection of a sewer segment in one direction, the contractor will attempt to complete inspection of the section by video inspection from the other manhole/drain that was the intended exit point. All obstructions will be noted and identified on a field map of the sewer system being evaluated.

The speed of travel for the inspections shall be slow enough to inspect pipe joints, connections, and structural deterioration. If there is infiltration, the equipment will inspect the debris/deposits present in the piping. The camera will be centered in the pipe to provide measurements of distance in order to identify locations of features in the segments of the pipe being inspected. The video footage measurements will be displayed and documented in the video documentation of each segment of the pipe. The pipe should be clean enough to identify defects, features, and observations as logged. If cleaning is required, then the segment of piping will be identified for cleaning and will be re-videoed after the pipe has been cleaned to determine its integrity; see Section 3.2 for methods to conduct sewer pipe cleaning.

The output of the video inspections will include inspection reports, logs, and video which will then be used to document the condition and integrity of the existing sanitary and stormwater pipe at the Site, and to identify pipe segments that require cleaning or further investigation due to structural failure or

breakage. The location of sediment and/or deterioration along a pipe segment will be identified and recorded on a field map of the sewer system; the field maps will initially start with Figures 2 and 3, they will then be updated and adjusted based on the results of the video inspection. The information developed from the video inspection will be summarized in the final closure documentation discussed in Section 3.4 of the work plan.

3.2 SEWER SAMPLING

Sampling of the sewer systems to characterize the sediment quality was included in the original RIWP (Haley & Aldrich, 2014), which included collection of samples from select manholes for analysis of the full analytical suite, including TCL VOCs, and TAL metals, as well as the analysis of the expanded list of contaminants of concern (COCs), including analysis of semi-volatiles, pesticides/herbicides, and polychlorinated biphenyls (PCBs). However, at the time of the remedial investigation sampling in May 2015, only one manhole (MH-3) contained sufficient sediment to permit the collection of a characterization sample; sediment was not present in the other proposed sampling locations.

To avoid the potential that sediment may not be present in some of the manholes, Section 3.3.1 of the work plan (below) includes the provision for the collection and analysis of representative samples of the sediment and liquid that may be generated during the cleaning process of the sewers to characterize the material. Sampling of the sediment generated from the cleaning is proposed, since some of the manholes connected to the stormwater or sanitary sewer system may not contain sufficient sediment material in readily accessible sampling locations (e.g., catch basins, manholes, etc.) to allow for collection of samples for laboratory analysis. As noted above, the lack of sediment in the manholes prevented sediment sampling in the original May 2015 sampling event.

However, in order to collect representative sediment samples prior to flushing/cleaning of the sewers, Haley & Aldrich proposes to visually inspect catch basins and manholes associated with the sewer systems to determine if sediment is present. During the inspection, observations regarding the condition of the catch basins and manholes and whether sediment is present would be recorded. The visual inspections would be initiated in the furthest downstream access point (catch basin, manhole, etc.), and if sediment is not present, then inspection of upstream catch basins/manholes would be conducted in an iterative manner to identify locations where sufficient sediment may be present to permit sampling. If sufficient sediment is identified, then sediment samples from each “segment” of the sanitary and stormwater sewers would be collected for analysis of characterization parameters prior to initiating any sewer cleaning activities. Sampling of the sediment, if present, would be completed through the use of either a ponar dredge sampler or sediment coring devices, such as a hand core or hand augers.

As shown on Figures 2 and 3, the following inspection and sampling approach will be used:

Stormwater Sewers – up to eight (8) samples may be collected – See Figure 2.

- Stormwater Sewer Segment A(1): One to two sediment samples would be collected from the manholes/catch basins on the stormwater segment on the west side of the facility. If the sewer segment does not contain sufficient sediment in the manifold manhole on the west side of Building 4 (Sampling location A1), then one sediment sample would be collected from each of the northern and southern lateral lines (Sampling Locations A2, A3, and/or A4), if sufficient sediment is present in one or both of the sewer lines.

- Stormwater Sewer Segment B(1): One sediment sample would be collected from the stormwater drain line extending from Buildings 2/5 that discharges to the main stormwater sewers on the south side of Building 1 (Sampling location B1). This manhole also collects flow from the stormwater drains on the west side of the buildings (Bullet 1), lateral lines that include roof drains from Buildings 3/4, and two lateral drain lines from the southwest portion of Building 1. If sediment is present in this manhole (Sampling location B1), then a sediment sample will be collected to characterize the sediment conditions. However, if there is insufficient sediment, sampling upstream and downstream of this location at proposed sampling locations C1 and E1, will provide for characterization of the combined discharge from numerous lateral lines.
- Stormwater Sewer Segment C(1): One sediment sample would be collected from the manhole located beneath Building 4 (Sample location C1). This manhole combines flow from two lateral lines including an exterior catch basin and roof drains from the southwest portion of Building 1. This manhole also collects flow from the stormwater drains on the west side of the buildings that are to be sampled per Bullet 1. If sediment is not present in this manhole, then the sediment sample collected from the manhole that combines the flow from the west side of the buildings will be used (Sample location A1).
- Stormwater Sewer Segment D(1): Six manholes are present along the drain line that extends on the north side of Building 1. Inspection of the sewer manholes will be conducted, starting with the downstream manhole to the east of Building 1 (Sample location D1), and if sufficient sediment is present, one sample would be collected at this location, that would represent drainage from various lateral lines on the north side of Building 1. If insufficient sediment is present, then further upstream manholes (proposed contingency sampling locations D2 through D5), would be inspected until sufficient sediment is identified in the line to permit collection of a sediment sample, if possible.
- Stormwater Sewer Segment E(1): The manhole at the Site entrance consolidates flows from all the drain lines on the developed portion of the property and is located downstream of sampling locations B1 and D1. One sample would be collected from this manhole if sufficient sediment is present. Otherwise, sampling described in the preceding bullets would be used to characterize sediment quality in discrete segments of the stormwater piping.
- Stormwater Sewer Segment F(1): The central manifold manhole located in the southern portion of the employee parking lot collects flow from the entire Site (downstream of the manhole in Bullet 5), and is connected to two separate stormwater lines that drain the employee parking lot. If insufficient sediment is present in this manhole (Sampling location F1), then inspection of the two parking lot drain lines and associated catch basins would be completed, and one to two sediment samples would be collected from the catch basins (at contingency sampling locations F2 and/or F3) to characterize sediment associated with parking lot runoff, if sufficient sediment is present.

Sanitary Sewers – up to three (3) samples – See Figure 3

- Sanitary Sewer Segment A1: Manholes associated with the sanitary sewer from the former Chemical Intermediates Building (CIB) will be inspected, and if sediment is present, one sediment sample will be collected from this drain line at the further downstream sampling location (Sample location A1). However, if insufficient sediment is present in the downstream manhole, inspection of upstream manholes will be completed (contingency sampling locations A2 through A5), and if sufficient sediment is present, a sample will be collected at the further downstream location containing material that can be sampled.
- Sanitary Sewer Segment B1: The CIB and Building 1 sanitary sewer lines combine in a central manhole that also receives flow from Buildings 2/5 and 3/4. If sediment is present in this central manhole (Sample location B1), then one sediment sample will be collected that represents sediment present from all of the facility drain lines.
- Sanitary Sewer Segment C1: Manholes associated with discharge from Building 1 will be inspected, starting with the manhole immediately east of the office parking area (Sampling location C1). If sediment is present, then one sample will be collected representing sediment quality associated with the drain line from Building 1. If insufficient sediment is present, then inspection of the three upstream manholes (contingency sampling locations C2 through C4) will be completed, in an attempt to collect a representative sample from the Building 1 sanitary drain line.

The sediment samples collected from the stormwater and sanitary sewer manholes/catch basins will be submitted for analysis of TCL VOCs and TAL metals. Twenty percent (20%) of the sediment samples (two stormwater samples and one sanitary sample) will be submitted for analysis of the expanded list of analytes, including semi-volatiles, pesticides/herbicides, PCBs, and cyanide. At a minimum, one sediment sample from the stormwater drain system and one sample from the sanitary sewer system would also be submitted for analysis of emerging contaminants, including low-level analysis of 1,4-dioxane and per- and poly-fluoroalkyl substances (PFAS) in accordance with NYSDEC's Sampling for 1,4-Dioxane and PFAS under DEC's Part 375 Remedial Programs and Guidelines for Sampling and Analysis of PFAS under NYSDEC's Part 375 Remedial Programs.

3.3 SEWER CLEANING

Sediment, debris, and residuals identified in pipe segments will require cleaning to remove the material. Should the sediment or debris present obstructions to the visual inspection of the piping condition or integrity, then portions of the sewers may require cleaning and then subsequent video inspection to document the effectiveness of the cleaning, as well as to document the condition and integrity of the sewer segment.

Cleaning to remove sediment, residuals, and debris from sewer piping, manholes including laterals, and sub-laterals, catch basins, and pits will be completed by hydraulic cleaning, augmented by mechanical vacuuming, cleaning, or excavation, as necessary. The specific segments of the piping requiring cleaning will be determined based on the results of the inspections detailed in Section 3.1. The cleaning will use conventional sewer cleaning procedures, as appropriate, to remove sediment materials from the pipe segment. The pipe segment to be cleaned will be isolated from the remainder of the piping conveyance system, and the cleaning will be completed from the farthest buildings, working from upstream to downstream to flush and contain materials in the piping segment. Prior to starting the cleaning process,

the most downstream locations prior to the SPDES Outfall or BEGWS sewer connection must be blocked to retain all solids and liquids that may be present and flushed during the pipe cleaning.

The cleaning will use one or a combination of the following methods:

3.3.1 Hydraulic Cleaning Techniques

High-pressure water jetting equipment will be used that is equipped with forward and rear jetting capability. The equipment should be capable of delivering water through a nozzle at a suitable flow rate. For hydraulic flushing of sewers which cannot be accessed using water jetting equipment, hydraulic flushing equipment will be used to adequately flush the section of the sewer segment requiring cleaning.

3.3.2 Mechanical Bucket Techniques

Mechanical bucket cleaning techniques will be used to clean sewers that cannot be adequately cleaned using high-pressure water jetting or hydraulic flushing methods, as determined by the contractor. If mechanical bucket cleaning methods are used due to the nature of the sediment or debris, then the sewer segment will have a final cleaning using hydraulic cleaning methods to remove loosened materials not removed by the mechanical methods.

3.3.3 Vacuum Cleaning Techniques

Vacuum cleaning techniques can be used for removal of liquid and sediment from the sewer pipes. The sewer cleaning will proceed from upgradient to downgradient manholes, drains, or catch basins using one or more of the alternate cleaning procedures. Cleaning may need to be repeated if video inspection of the sewer indicates that additional cleaning of the sewer segment is required. During cleaning activities, temporary inflatable sewer pigs/plugs will be installed to prevent migration of the sediment to downstream sewer reaches. The contractor will design, construct, and install temporary sumps or containment systems in a manner to prevent the release of sewer sediment and liquids to downstream segments of the sewer piping. Upstream plugging of the sewer may be required where significant flow of water exists to minimize the water accumulation in the manholes or sewer piping segments that are being cleaned.

3.4 SEWER CLEANING WASTE MANAGEMENT

Liquid, sediment, solid debris, and/or residuals will be managed in accordance with New York State Waste Management rules and requirements. Liquids and solids generated from the cleaning of the sanitary sewer system will be separated from the waste generated during the cleaning of the stormwater system; the waste material generated from the cleaning of the sanitary and stormwater systems will be handled, staged, and sampled separately. The following steps will be undertaken during the cleaning of the piping to contain, sample, and manage liquids and solids generated during the sewer cleaning process:

- All liquid, sediment, solids, and residuals will be contained and temporarily stored in fractional tanks or roll-off containers to be provided by the contractor. Liquids will be separated to the extent practicable from solids for sampling and disposal purposes.

- Waste materials generated during the cleaning process will be vacuumed or mechanically removed from the cleaned sewer segment and transported and temporarily stored on Site in the containers provided by the contractor.
- The contractor will be responsible for waste characterization, management, handling, and disposal of the liquid and solids generated during the sewer cleaning process.

3.4.1 Waste Sampling

Liquids and solids generated from the cleaning of the sanitary and stormwater sewer segments will be sampled to evaluate the chemical composition of the waste material to determine appropriate waste management and disposal options. A representative sample of the waste material generated from the cleaning of the primary trunk and lateral lines from each of the buildings will be collected and submitted for analysis of the following:

- Chemical Composition: Samples of solids and liquids will be collected and submitted for analysis of TCL VOCs, Semi-VOCs, Pesticides/Herbicides, polychlorinated biphenyls (PCBs), and TAL Metals.
- Waste Disposal: Samples of the solids and liquids will be collected and submitted for Resource Conservation and Recovery Act (RCRA) Part 260 Waste Classification analysis, including ignitability, reactivity, corrosivity, and toxicity, using the Toxicity Characteristic Leaching Procedure (TCLP) Method 1311.

3.4.2 Off-site Transport and Disposal

The solid and liquid waste material generated from the cleaning of the sanitary and stormwater sewer segments will be transported and disposed off Site.

As part of the transport/disposal of the waste material, the following requirements will be achieved:

- Records: Waste profiles will be prepared based on the results of the waste sampling and analysis completed in Section 3.3.1. The waste profile will need to be accepted by a permitted disposal facility that is able and authorized to accept the waste. Waste disposal records, consisting of a bill of lading, and/or non-hazardous or hazardous waste manifests will be used for the shipment of the waste material from the Site.
- The transport of the waste material will comply with applicable municipal, county, state, and federal regulations regarding the transport of non-hazardous and/or hazardous materials.
- The facilities receiving the waste material must have valid federal and/or state permits for each type of waste accepted. Prior to the shipment of waste from the Site, the contractor will confirm by written communication from the receiving facility that it is authorized, has the capacity, and will provide or assure that the ultimate disposal method is followed for the particular type of waste indicated on the bill of lading or hazardous waste manifest.

3.5 FINAL INSPECTION AND CERTIFICATE REPORTING

Upon completion of the sewer inspections, cleaning, and management of generated waste material, the NYSDEC will be contacted in writing to schedule a final site inspection of the disposal systems which had

a SPDES discharge permit to verify that influent and effluent pipes have been sealed, and that liquids, solids, and residual material related to the treatment process have been removed.

Yort will coordinate the inspection, cleaning, and decommissioning activities with the NYSDEC and will retain consultants and contractors to oversee and document that the closure activities have occurred in accordance with this inspection and cleaning work plan. A certification report documenting the activities will be prepared and submitted to the NYSDEC prior to scheduling the final inspection with the NYSDEC.

4. Project Schedule

A proposed project schedule is shown in Figure 4. Philips and Yort are prepared to complete the sewer inspection, cleaning, and system closure upon NYSDEC's review and approval of this work plan, as described in the attached schedule. Laboratory data receipt/validation/evaluation and final reporting will be completed as generally described in the attached schedule. Consistent with the BCA, a minimum of seven days' advance notice will be provided to the NYSDEC prior to scheduling the start of approved field activities. The inspection and cleaning program is anticipated to require approximately two and one-half months to complete, and laboratory analysis and data validation is anticipated to require one to two months.

References

1. 6 NYCRR 750-2.11; Closure System Requirements for Disposal Systems.

2. Haley & Aldrich of New York. 2011. *ASTM Phase I Environmental Site Assessment, 7265 Route 54, Bath, New York*. December.

3. Haley & Aldrich of New York. 2013. *Phase II and Phase IIB Investigations, Philips Lighting Company Facility, Bath, New York*. January.

4. Haley & Aldrich of New York. 2014. *Remedial Investigation Work Plan, Philips Lighting Company Site, Bath, New York*. 1 May.

5. Haley & Aldrich of New York. 2015. *Progress Report No. 9 – August 2015, Philips Lighting Company Bath Facility, Bath, New York*. 10 September.

6. Haley & Aldrich of New York. 2019. *Manhole Soil and Sediment Sampling Report, Former Philips Lighting Company Bath Facility, Bath, New York*. 19 December.

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TABLES

TABLE 1
STORMWATER SEWER SYSTEM - NOTES AND DETAILS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH , NEW YORK

Sixteen separate Trunk lines +yard drains for Stormwater flow - see below including
Building 1 13 trunk lines
Building 3 1 trunk Line
Building 2/5 Two separate systems - one to main stormwater and other through overflow of former Cooling Tower.

Notes other than Roof Drain/Trench Drain Flows

Building 1	Diameter	Length	13 individual Trunk Lines + exterior yard drains surround Building 1; most roof drain/yard drains, but notes below on nine of the lines
	10"	150	Line (18) included condensate from air conditioning units in offices
	10"	177	Line (17) included condensate from arc tube, inner and chambers exhaust, and solder units
	6"	113	Line (16) floor drains in cement prep and Basefill. (capped - confirmed during Phase II)
	6"	56	Line (15) shown - but no floor drains in building
	12"	124	Line 14 - Drinking fountain, overflow from ultra sonic cleaner (54) and floor drain in men's room (Building 1, room 41).
	12"	195	Line 13 - Floor drains in Elite/Packing/connects to manhole in Wharehouse (five locations identified/screened Phase II)
	8"	63	Line (7) - series of floor drains in Curing/Packing line (AA-GG) sealed/not located - Phase II
	8"	192	Line (6) - No Floor drains, but several process equipment non-contact flows, and lateral vent line. Non-contact equipment includes (27) - Inner Inline (28) - ammonia wash (29)-inner inline (26) - Line 3 exhaust (52) - induction heater (22) - Cart Metal Halide
	4"	54	Line (4) - Replaced with hot/cold tanks in pit for Laser cutters (equipment 31 through #13)
	8"	89	Line (8)
	8"	130	Line (9)
	18"	120	Line (10)
	6"	32	Line (11)
	10"	211	Line (5)
	6"	54	Trench drain to manhole - connected to Line 5
	24"	180	Line (2)
	10"	216	Line (3)
Building 3			Line (19) roof drains also includes all equipment (#1-#14) from labs
Building 2/5	10"	799	Mill Water Return - included cleanouts in Lacquer, floor drains in Phosphor floor - circulated to exterior Cooling Tower, overflow to yard sewer (20)
Building 2/5	15"	365	Roof Drains (flow to east) with three Floor drains (Phase II) location A - PCA furnace area, B - PCA furnace - cement sealed, K - PCA cutting room

TABLE 2
SANITARY SEWER NOTES AND DETAILS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK

Seven Primary inner-Plant trunk Lines (3 in Building 1, 2 in Building 2/5, 1 serving Building 3, and 1 serving CIB) Details below

Building 1	3 Primary Trunk Lines, with 2, 9 and 1 lateral
Building 2/5	2 Primary trunk lines with 6 and 12 laterals, respectively)
Building 3	1 Primary trunk line - all offices/labs
CIB	1 Primary trunk line - separate sewer discharge to BEGWS main

Sanitary Lines				
Building 1	**Three Sanitary Sewer Manholes:**			
Trunk Line	**Location**	**Diameter**	**Length**	**Comments**
1	B1SA :			comprised of two (2) lateral lines - combine in an in-plant manhole.
	B1SAL1:	4	285	(Room 41) Restroom
		3	50	Drinking fountain (chambers)
		3	50	Drinking fountain (chambers) and former Westinghouse seal machine cooling (50, 51 on non-contact cooling study), and an AC drain
	B1SAL2:	4	125	Vent and drains associated with the Powerhouse.
		2&3	280	Various - see above - all lines from Powerhouse to lateral
2	B1SB:	4	240	Comprised of nine (9) lateral lines - combined in an in-plant manhole - also flow from B1SA connection.
	B1SB1	3	110	Roof drains and hot-water heater circulation pump (offices)
	B1SB2	3	110	(three cleanout/drains) associated with former Westinghouse Medical - current offices/covered
	B1SB3	4	195	Former drinking water fountains - Storage and Halogens B department
	B1SB4	3	60	Roof downspout
	B1SB5	4	250	Drinking fountain in Chambers, Short Arc, former Westinghouse CM Electrode furnaces (57, 58) flashers (78).
	B1SB6	2	20	Former Westinghouse White Room lines-stubbed
	B1SB7	2	25	Former Westinghouse White Room lines-stubbed & Backwind (56) and Degreaser (20)
	B1SB8	3	170	Second Floor Restrooms (Rooms 55)
	B1SB9	3	90	Floor Drains - current conference room/former Material Inspection (why drains?)
	B1SA-B1SB	6	360	Connection between two in-plant manholes
3	B1SC	8	100	Drains from combined B1SA & B1SB flow, includes discharge from acid neutralization building.
		10	760	Drain from last Building 1 manhole to Junction with B2-5S combined flow in Meter Manhole.
				2 additional manholes on Building 1 flow prior to combined Meter Manhole.
Buildings 2-5				No Manholes on three individual trunk lines -all combine to single discharge front of Building2/5
				B2-5SA and B2-5SB combine beneath former PCA cutting room
				B2-5SC exterior line added for new drainage associated with Building 3 - exterior of building
Trunk Line	**Location**	**Diameter**	**Length**	**Comments**
4	B2-5SA	6	235	Comprised of 6 lateral lines (1-6) see below
	B2-5SA1	2	55	Former Lacquer Room (Bldg 5, Room 6)
	B2-5SA2	4	100	Center of PCA mfg. floor
	B2-5SA3	2	10	Current breakroom - former Moly Chem lab
	B2-5SA4	2	10	Restrooms
	B2-5SA5	2	10	Restrooms
	B2-5SA6	2	25	Former Cafeteria
5	B2-5SB	6	165	Comprised of 12 lateral lines (1-12) see below
	B2-5SB1	4	150	Beneath PCA offices/Lab - connections in lab?
	B2-5SB2	2	10	Cleanout in PCA doorway near PCA cutting room
	B2-5SB3	2	50	Sink near PCA clean room
	B2-5SB4	2	10	Cleanout in PCA clean room
	B2-5SB5	2	10	Sink in PCA cleanroom
	B2-5SB6	2	10	Cleanout in PCA clean room
	B2-5SB7	2	10	Former drinking fountain in PCA clean room
	B2-5SB8	4	140	Lateral comprised of 7 sub-laterals - see below
	B2-5SB8a	2	170	total of all sub-laterals; cleanout
	B2-5SB8b			PCA furnace Floor drain
	B2-5SB8c			PCA furnace Floor drain
	B2-5SB8d			PCA furnace Floor drain
	B2-5SB8e			Sink in former Development lab (building 2, room 18A)
	B2-5SB8f			Floor drain
	B2-5SB8g			AC unit on former Development lab (building 2, Room 18A) and floor drain
	B2-5SB9	2	10	Former sink in PCA cleanroom
	B2-5SB10	2	10	Former cleanout in PCA cleanroom
	B2-5SB11	3	100	Lateral comprised of 3 sub-laterals - see below
	B2-5SB11a			sink and drains for mechanical equipment on mezzanine
	B2-5SB11b			Drains from Frit Press
	B2-5SB11c			Sink
	B2-5SB12	4	85	Lateral comprised of 4 sub-laterals - see below
	B2-5SB12a	2	15	Purified water overflow
	B2-5SB12b	2	15	Chilled water overflow
	B2-5SB12c	2	15	Women's Locker and floor drain
	B2-5SB12d	2	15	Men's room and floor drain
6	B3SC			Drains from Second floor sinks, drinking fountain, and cooling ABAR equipment
		4	230	In Building 3 to "neutralization/overflow pit
		4	210	From overflow pit to main trunk line
		6	600	B2-5a, B2-5SB and B3-SC combined to Metering Pit
Trunk Line	**Location**	**Dia**	**Diameter**	**Comments**
7	CIB			Outfall from Chemical Intermediates
		8	890	Separate discharge to BEGWS sewer on Route 54
				Six access manholes

TABLE 3
SUMMARY OF SEDIMENT ANALYTICAL RESULTS (MH-3)
PHILIPS LIGHTING COMPANY - BATH FACILITY
BATH, NY
BCP SITE #C851044

	Action Level (mg/kg)			MH-3	
Location	**Restricted Use Soil Cleanup Objectives Protection of Public Health**		**Unrestricted Use Soil Cleanup Objective**	SD-MH-3	
Sample Name				SD-MH-3-0.0-0.5	
Sample Date				05/11/2015	
SDG				L1510153	
Sample Type	**Residential**	**Industrial**		N	
Sample Depth (bgs)				0 - 0.5 (ft)	
Volatile Organic Compounds (mg/kg)					
1,1-Dichloroethene	100	1000	0.33	0.00075	U
2-Butanone (Methyl Ethyl Ketone)	100	1000	0.12	0.0075	U
2-Hexanone	-	-	-	0.0075	U
Acetone	100	1000	0.05	0.0075	U
cis-1,2-Dichloroethene	59	1000	0.25	0.00075	U
Ethylbenzene	30	780	1	0.00075	U
m,p-Xylenes	-	-	-	0.0015	U
Methyl acetate	-	-	-	0.015	U
Methyl cyclohexane	-	-	-	0.003	U
Methylene chloride	51	1000	0.05	0.0075	U
Toluene	100	1000	0.7	0.0011	U
trans-1,2-Dichloroethene	100	1000	0.19	0.0011	U
Trichloroethene	10	400	0.47	0.00075	U
Trifluorotrichloroethane (Freon 113)	100	-	-	0.015	U
Vinyl chloride	0.21	27	0.02	0.0015	U
Inorganic Compounds (mg/kg)					
Aluminum	-	-	-	**6200**	J
Antimony	-	-	-	**10**	-
Arsenic	16	16	13	**3.8**	J
Barium	350	10000	350	**64**	J
Beryllium	14	2700	7.2	**0.2**	J
Cadmium	2.5	60	2.5	**0.69**	J
Calcium	-	-	-	**42000**	J
Chromium	36	6800	30	**9.2**	J
Cobalt	30	-	-	**5.8**	-
Copper	270	10000	50	**25**	J-
Iron	2000	-	-	**19000**	-
Lead	400	3900	63	**14**	J-
Magnesium	-	-	-	**6200**	J
Manganese	2000	10000	1600	**680**	J
Mercury	0.81	5.7	0.18	**0.04**	J
Nickel	140	10000	30	**42**	-
Potassium	-	-	-	**330**	J
Selenium	36	6800	3.9	1.8	U
Silver	36	6800	2	0.92	U
Sodium	-	-	-	**240**	-
Vanadium	100	-	-	**12**	J
Zinc	2200	10000	109	**120**	J-
Other (%)					
Carbon	-	-	-	**1.58**	J-

Notes and Abbreviations:

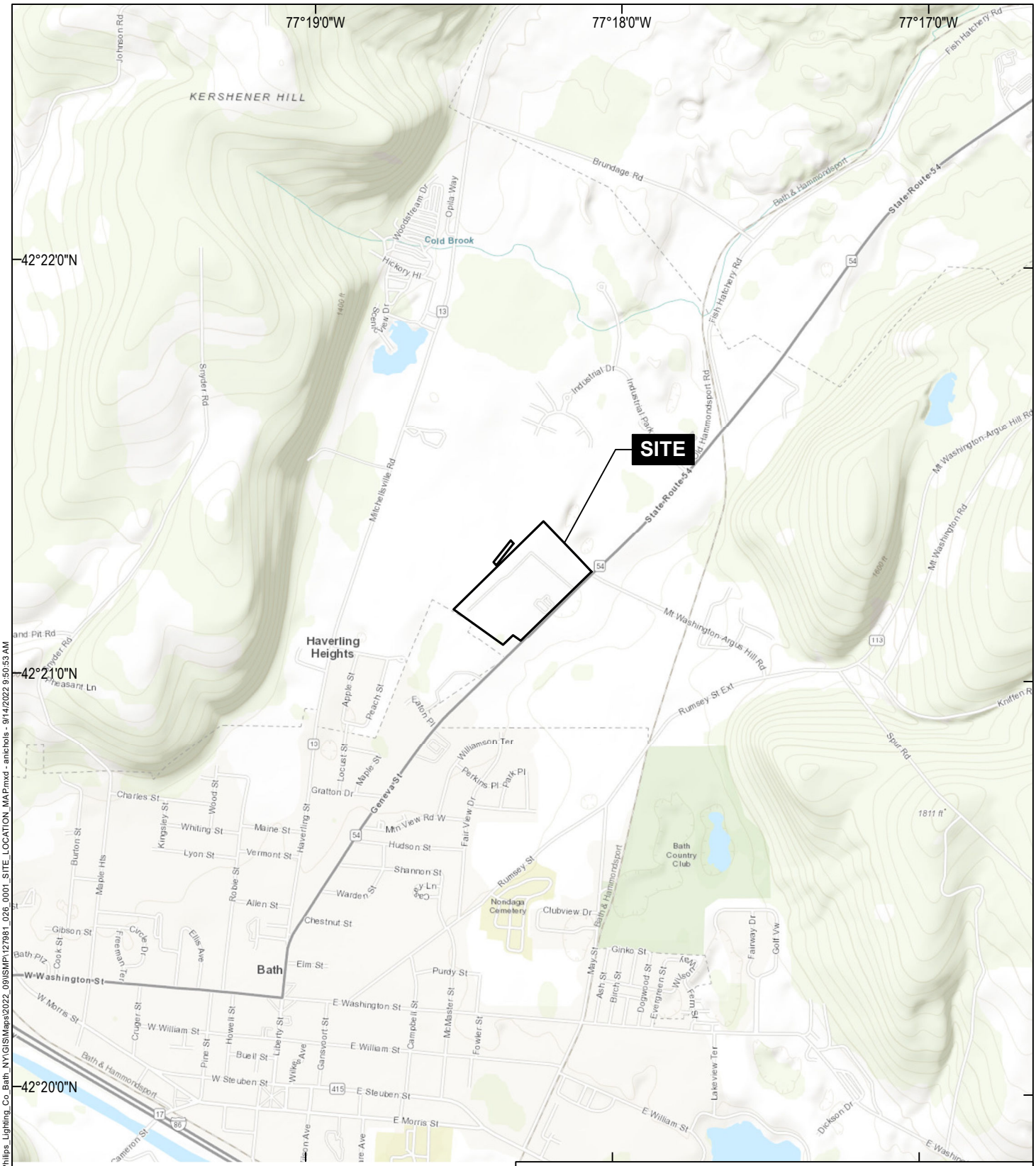
*1. Results in **bold** are detected.*
2. Only detected analytes are shown.
3. Qualifiers defined as follows:
U: Not detected above indicated reporting limit.
J: Estimated value
J+: Estimated value, biased high
J-: Estimated value, biased low
R: Rejected during validation
4. Screening criteria were obtained from Table 375-6.8(b) and Table 375-6.8(a)
http://www.dec.ny.gov/regs/15507.html
5. mg/kg = milligrams per kilogram

TABLE 4
SAMPLING ANALYSIS TABLE - SEWER SYSTEM SAMPLING
PHILIPS LIGHTNING COMPANY BATH FACILITY
BATH, NY
BCP SITE #851044

Description		Sample Matrix	Sample Description	Location ID	Collection Method	Sample Depth (Feet b.g.s)	Minimum No. Samples	Sample Type	Analytical Method
Sewer Systems	If sufficient sediment is identified during inspection, samples will be collected to characterize sediment accumulated in sewer system, prior to sewer cleaning activities.	Sediment	Sediment Sampling	Stormwater Sewer Segments A(1) to F(1)	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 8	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
							Minimum of 1	Grab	PFOA/PFOS via EPA Method 537.1 and low-level analysis of 1,4-dioxane via EPA Method 8270
				Sanitary Sewer Segments A1 to C1	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 3	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
							Minimum of 1	Grab	PFOA/PFOS via EPA Method 537.1 and low-level analysis of 1,4-dioxane via EPA Method 8270
				Contingency Sampling	Ponar dredge or sediment coring device	TBD depth, representative of sediment layer present	Up to 7	Grab	All Samples: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A 20% of samples: SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide.
	Waste generated during cleaning process will be sampled for disposal purposes.	Liquid and solid waste	Waste Characterization Samples	Drums, fractional tank or roll-off containers	Hand auger or shovel	Representative of waste generated	Up to 7	Grab	All Samples: Chemical composition: TCL VOCs via EPA 8260B, TAL Metals via EPA Methods 6010/7471A, SVOCs via EPA Method 8270, and PCBs via EPA Method 8082, Pesticides via EPA Method 8081 and cyanide. RCRA Part 260 Waste Classification: Ignitability, Reactivity, Corrosivity, Toxicity Characteristic Leaching Procedure (TCLP) Method 1311.

Notes & Abbreviations:
AOC: Area of Concern
EPA: Environmental Protection Agency
PCBs: Polychlorinated Biphenyls
RCRA: Resource Conservation and Recovery Act
SVOCs: Semi-volatile Organic Compounds
VOCs: Volatile Organic Compounds

FIGURES



PHILIPS LIGHTING COMPANY
BATH FACILITY
7265 STATE ROUTE 54
BATH, NEW YORK

SITE LOCATION MAP

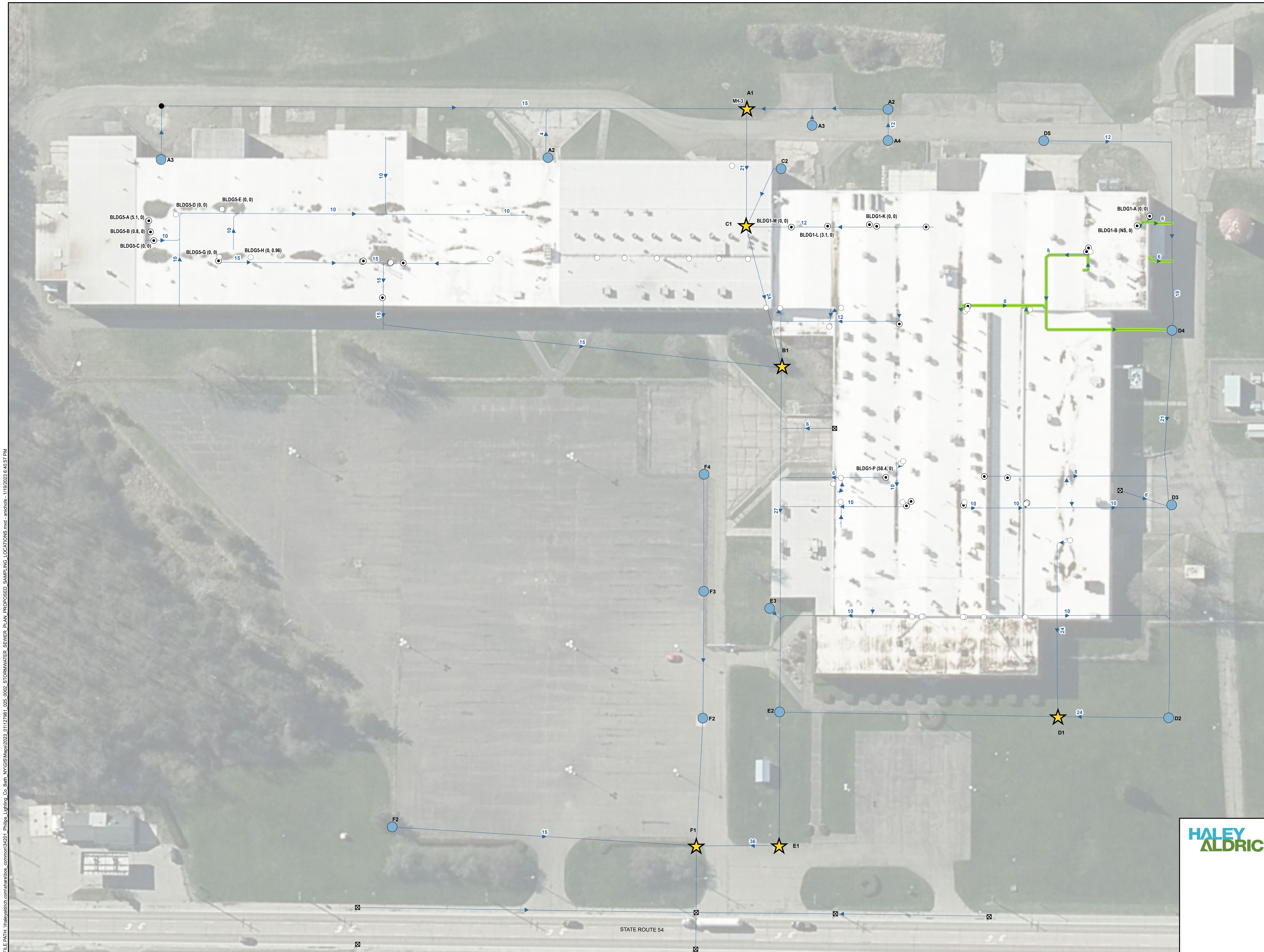
MAP SOURCE: ESRI
SITE COORDINATES: 42°21'13"N, 77°18'18"W

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1

GIS: \\haleyaldrich.com\share\bos_common\34201_Philips_Lighting_Co_Bath_NY\GIS\Maps\2022_09\MXD\127981_026_0001_SITE_LOCATION_MAP.mxd - anichols - 9/14/2022 9:50:53 AM

DRAFT



LEGEND

- PRIMARY SEDIMENT SAMPLE
- CONTINGENT SEDIMENT SAMPLE IF INSUFFICIENT SEDIMENT IS PRESENT IN PRIMARY SEDIMENT SAMPLING LOCATION

SURFACE PENETRATION TYPE, WITH 2012 HEADSPACE READINGS (PID, JEROME 405) PROVIDED WHERE MEASURED

- CATCH BASIN
- MANHOLE
- DRAIN
- PIPE
- CLEAN OUT
- STORM SEWER, WITH PIPE DIAMETER (IN) AND FLOW DIRECTION
- PRESENCE OF PIPE UNCERTAIN

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. STORM SEWER PIPE DATA SOURCES: McFARLAND AND JOHNSON ENGINEERING BUILDING PLANS (1985), HOFFMAN LAND SURVEYING AND GEOMATICS TOPOGRAPHIC SURVEY (2020), PLAN A-100-7 EXISTING YARD SERVICES (1970).
3. STORM SEWER SURFACE FEATURE SOURCE: HOFFMAN LAND SURVEYING AND GEOMATICS TOPOGRAPHIC SURVEY
4. DRAIN HEADSPACE READINGS MEASURED DURING 2012 PHASE II SURVEY. PHOTOIONIZATION DETECTOR (PID) READINGS ARE PRESENTED IN PARTS PER MILLION (PPM). JEROME 405 READINGS ARE PRESENTED IN µg/m³.
5. NS = NOT SAMPLED
6. AERIAL IMAGERY SOURCE: NYSGIS, 2020

0 40 80 120 160
SCALE IN FEET

HALEY ALDRICH

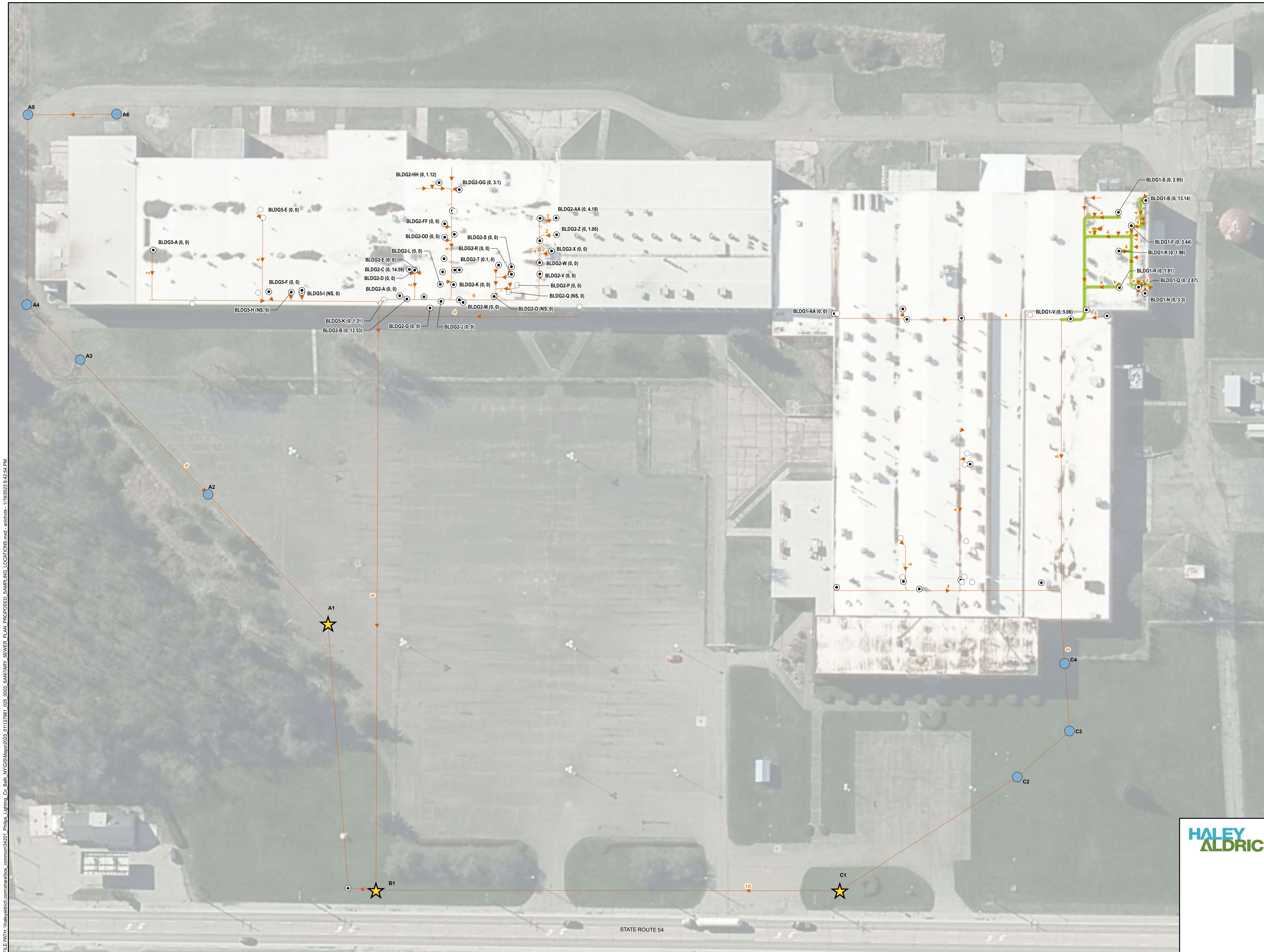
PHILIPS LIGHTING COMPANY
BATH FACILITY
7265 STATE ROUTE 54
BATH, NEW YORK

STORMWATER SEWER PLAN AND PROPOSED SAMPLING LOCATIONS

JANUARY 2023

FIGURE 2

DRAFT



LEGEND

- PRIMARY SEDIMENT SAMPLE
- CONTINGENT SEDIMENT SAMPLE IF INSUFFICIENT SEDIMENT IS PRESENT IN PRIMARY SEDIMENT SAMPLING LOCATION

SURFACE PENETRATION TYPE, WITH 2012 HEADSPACE READINGS (PID, JEROME 405) PROVIDED WHERE MEASURED

- MANHOLE
- DRAIN
- PIPE
- SANITARY SEWER, WITH PIPE DIAMETER (IN) AND FLOW DIRECTION
- PRESENCE OF PIPE UNCERTAIN

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SANITARY SEWER PIPE DATA SOURCES: McFARLAND AND JOHNSON ENGINEERING BUILDING PLANS (1985), HOFFMAN LAND SURVEYING AND GEOMATICS TOPOGRAPHIC SURVEY (2020), PLAN A-100-7 EXISTING YARD SERVICES (1970).
3. SANITARY SEWER SURFACE FEATURE SOURCE: HOFFMAN LAND SURVEYING AND GEOMATICS TOPOGRAPHIC SURVEY
4. DRAIN HEADSPACE READINGS MEASURED DURING 2012 PHASE II SURVEY. PHOTOIONIZATION DETECTOR (PID) READINGS ARE PRESENTED IN PARTS PER MILLION (PPM). JEROME 405 READINGS ARE PRESENTED IN µg/m³.
5. NS = NOT SAMPLED
6. AERIAL IMAGERY SOURCE: NYSGIS, 2020

0 40 80 120 160
SCALE IN FEET

HALEY ALDRICH

PHILIPS LIGHTING COMPANY
BATH FACILITY
7265 STATE ROUTE 54
BATH, NEW YORK

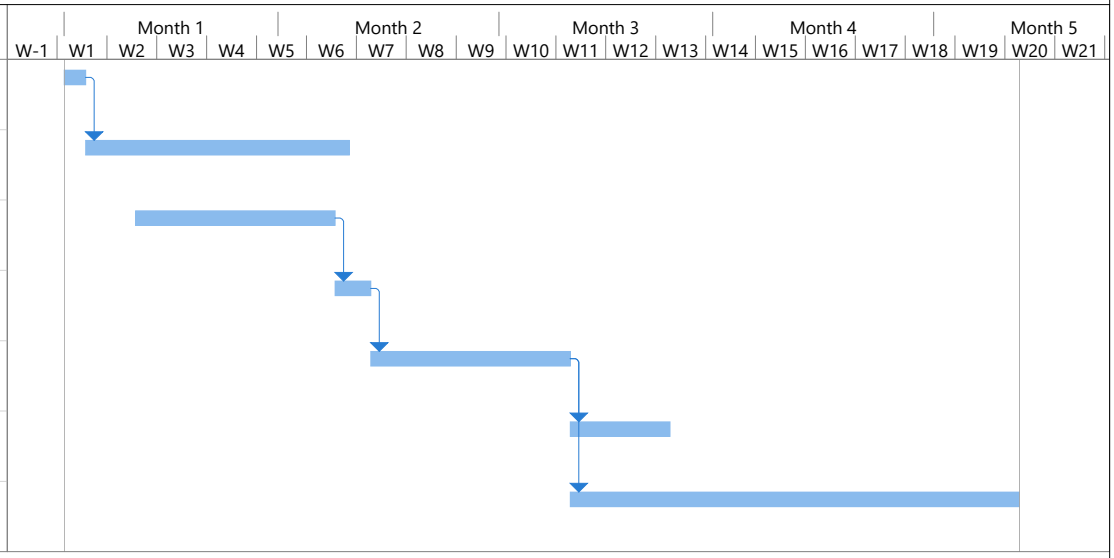
SANITARY SEWER PLAN AND PROPOSED SAMPLING LOCATIONS

JANUARY 2023

FIGURE 3

FIGURE 4: Sewer Inspection & Cleaning Schedule

ID	Task Name	Duration	Start	Finish
1	Mobilize to site	3 days	Mon 4/1/19	Wed 4/3/19
2	Video Inspection	27 days	Thu 4/4/19	Fri 5/10/19
3	Pipe/Drain Cleaning	4 wks?	Thu 4/11/19	Wed 5/8/19
4	Waste Sampling	3 days	Thu 5/9/19	Mon 5/13/19
5	Analytical Analysis	4 wks	Tue 5/14/19	Mon 6/10/19
6	Waste Transport	2 wks	Tue 6/11/19	Mon 6/24/19
7	Reporting	45 days	Tue 6/11/19	Mon 8/12/19



Project: 2022-1020_Sewer Inspe
Date: Thu 10/20/22

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

APPENDIX A

SPDES and BEGWS Industrial User Permits

Bath Electric, Gas and Water Systems

Owned by the Village of Bath

PO BOX 310
BATH, NY 14810
(607) 776-3072

May 9, 2014

Mr. Jesse Weidman
Philips Lighting Company
7265 Route 54
PO Box 145A
Bath, New York 14810

Dear Mr. Weidman:

Enclosed please find the Village of Bath Utilization Agreement and Industrial User Permit (BEGWS-401) for Mr. Dave Whitehead and yourself to review. As we have discussed in the past, these documents cover the agreements of wastewater discharged from Philips Lighting Company into the Village of Bath sewer system for the year beginning June 15, 2014 through June 15, 2015.

We would appreciate **the Industrial User Permit and Utilization Agreement documents and the $100 permit fee returned as soon as possible**, so that the Municipal Utility Commission can also authorize these agreements. At that time, complete copies of both these documents will be returned to you.

Please note that the surcharge amounts for abnormal sewage within the Utilization Agreement have been changed for the coming year. Please also pay close attention in your Industrial User Permit to the requirement of the 25th of each month for your required reporting of sampling results. We also continue to ask to make sure that all discharges from your facilities be in accordance with the terms and conditions of this permit.

Should you have any further questions concerning your permit or utilization agreement, please feel free to contact us.

Sincerely,

Guy Q. Hallgren
Director of Municipal Utilities

GQH/sd

cc: Royce Hoad, WWTP Chief Operator

Attachments: Utilization Agreement
Industrial User Permit

Village of Bath

UTILIZATION AGREEMENT

THIS AGREEMENT, made this 15th day of June 2014, by and between the **Village of Bath Municipal Utility Commission,** hereinafter called the **"Village"** and **Philips Lighting Company**, hereinafter called the **"User".**

WHEREAS the **Village** is the owner and operator of a sewage treatment works and collection system, and:

WHEREAS the **User** is a significant contributor to the system in terms of flow and content, and;

WHEREAS the **Village** and the **User** wish to establish a monthly sewer unit charge, operation & maintenance charge for normal sewage, and a surcharge for abnormal sewage.

NOW, THEREFORE in consideration of the mutual covenants and agreements hereinafter contained, the parties agree with each other as follows:

INDUSTRIAL USER PERMIT REQUIRED

The **User** shall apply for and obtain an Industrial User Permit for the period of time covered by this Agreement. Each and every regulation, limitation and requirement of the Industrial User Permit shall be incorporated herein as though fully set forth in this Agreement.

COSTS

The **User** agrees and promises to pay to the **Village** through billings provided by Bath Electric, Gas and Water Systems, the **Village's** duly authorized agent, certain costs established by the **Village. User** agrees to pay the monthly sewer unit charge, operation & maintenance charge for normal sewage, and the surcharge for abnormal sewage as set forth on Exhibit A attached hereto.

MONITORING

User agrees to monitor its discharge into **Village's** collection system and to promptly provide the **Village** with the reports obtained by or on behalf of the **User**. The frequency and type of monitoring required of the **user** are included in the Industrial User Permit, Exhibit B. The terms, conditions and requirements of the Permit are incorporated as though specifically set forth herein.

LOCAL, STATE AND FEDERAL REGULATIONS

Nothing in this Agreement shall limit or alter the applicability of the Village of Bath Sewer Use Law or State and Federal pretreatment laws, regulations, standards and requirements not in existence. This contract shall be deemed to be amended to the extent that any such regulations may be amended during its life.

The term of this agreement shall be one year from the date above written.

Signed at Bath, New York the day and year first above written.

Guy Q. Hallgren
Director of Municipal Utilities

Dave Whitehead, Plant Manager
Philips Lighting Company

Jesse Weidman, Environmental Engineer
Philips Lighting Company

Philips Lighting Company

24-HOUR EMERGENCY SERVICE 774-3121

BATH ELECTRIC, GAS & WATER SYSTEMS

Costs

Sewer Unit Charge

	$2500 Monthly Charge ($30,000 Annual)	$2,500.00
	36 units @ $2.00 Monthly Charge	$72.00
Monthly Total		$2,572.00

Operation & Maintenance Charge

For Normal Sewage:

Main Plant - Water Meter

Per M.U.C. Sanitary Sewer Rates (9/1/2013)

First 1,700 Gallon	$9.69
Next 31,700 Gallon per 100 Gallon	0.406
Over 33,400 Gallons per 100 Gallon	0.209
Minimum per Month	$9.69

Phosphor Plant - Water Meter

1/2 Above Rate

Surcharge For Abnormal Sewage:

BOD > 300 mg/l	0.157 Per Lb./ Month
TSS > 300 mg/l	0.194 Per Lb./ Month
Ammonia > 50 mg/l	0.516 Per Lb./ Month

Village Of Bath
Utilization Agreement: Exhibit A

VILLAGE OF BATH

INDUSTRIAL USER PERMIT

In accordance with the Village of Bath Sewer Use Law,

Permittee:

Philips Lighting Company
PO Box 145A
7265 Route 54
Bath, New York 14810

is hereby authorized to discharge industrial wastewater from the above identified facility and through the outfalls identified herein into the Village of Bath sewer system in accordance with the conditions set forth in this permit. Compliance with this permit does not relieve the Philips Lighting Company of its obligation to comply with any or all applicable pretreatment regulations, standards or requirements under local, State, and Federal laws, including any such regulations, standards, requirement, or laws that may become effective during the term of this permit.

Noncompliance with any term or condition of this permit shall constitute a violation of the Village of Bath Sewer Use Law.

This permit shall become effective June 15, 2014, and shall expire at midnight on June 15, 2015.

By

Guy Q. Hallgren
Director of Municipal Utilities

Permit No. BEGWS - 401
Issued this 15th day of June, 2014

PART 1 EFFLUENT LIMITATIONS

A. During the period of June 15, 2014, through June 15, 2015, Philips Lighting Company is authorized to discharge wastewater to the Village of Bath sewer system from the outfalls listed below.

Description of outfalls:

Outfall	Descriptions
001	Whole plant effluent

B. During the period of June 15, 2014 through June 15, 2015, the discharge from Outfall 001 shall not exceed the following effluent limitations. Effluent from this outfall consists of discharge from the entire plant.

Effluent Limits - Outfall 001

Parameter	Daily Maximum
Flow	250,000 gpd
pH	6.0 to 9.0 SU
BOD	300 mg/l
TSS	300 mg/l
NH3	50 mg/l
Oil & Grease	100 mg/l
Lead	Monitor mg/l
Phenol	Monitor mg/l
Cyanide	Monitor mg/l

C. The Philips Lighting Company shall not discharge wastewater containing any of the following substances from any of the outfalls:

1. Any solids, liquids, or gases which, by reason of their nature or quantity, are or may be sufficient, either alone or by interaction with other substances, to cause a fire or an explosion or be injurious, in any way, to the Village of Bath Wastewater Treatment Plant, or to the operation of the Village of Bath Wastewater Treatment Plant. At no time shall two successive readings on a flame type explosion hazard meter, at the point of discharge into the system (or at any other point in the system) be more than 25% nor any single reading be more than 40% of the lower explosive limit (LEL) of the meter. Unless explicitly allowable by a written permit, prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, zylene, ethers, alcohols, carbides, hydrides, and sulfides, and any other substance which the Village of Bath, the State, or the EPA has determined to be a fire hazard, or hazard to the Village of Bath Wastewater Treatment Plant.

2. Solid or viscous substances which may cause obstruction to the flow in a sewer or otherwise interfere with the operation of the wastewater treatment facilities. Unless explicitly allowable by a written permit, such substances include, but are not limited to, grease, garbage with particles greater than one-half (l/2) inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, gas, tar asphalt residues, residues from refining or processing fuel or lubricating oil, mud, or glass grinding or polishing wastes.

3. Any wastewater having a pH less than 6.0 or greater than 9.0, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, and/or Village of Bath Wastewater Treatment Plant personnel.

4. Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants (including heat), to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the Village of Bath Wastewater Treatment Plant, or to exceed the limitation set forth in a Categorical Pretreatment Standard. A toxic pollutant shall include, but not be limited to, any pollutant identified pursuant to Section 307(A) of the Act.

5. Any noxious or malodorous solids, liquids, or gases which either singly or by interaction with other wastes are sufficient to create a public nuisance or a hazard to life or are sufficient to prevent entry into the sewers for their maintenance or repair.

6. Oils and grease - Any commercial, institutional, or industrial wastes containing floatable fats, waxes, grease, or oils, or which become floatable when the wastes cool to the temperature prevailing in the wastewater at the Village of Bath Wastewater Treatment Plant, during the winter season; also any commercial, institutional, or industrial wastes containing more than l00 mg/l of emulsified oil or grease; also any substances which will cause the sewage to become substantially more viscous, at any seasonal sewage temperature in the Village of Bath Wastewater Treatment Plant.

7. Any substance which will cause interference or pass through.

8. Any wastewater with objectionable color which is not removed in the treatment process, such as, but not limited to, dye wastes, and vegetable tanning solutions.

9. Any solid, liquid, vapor, or gas having a temperature higher than 65 degrees C (l50 degrees F); however, such materials shall not cause the Village of Bath Wastewater Treatment Plant influent temperature to be greater than 40 degrees C

(l04 degrees F). The Village of Bath reserves the right, in certain instances, to prohibit wastes at temperatures lower than 65 degrees C.

10. Unusual flow rate or concentration of wastes, constituting slugs, except by Industrial Sewer User Permit.

11. Any wastewater containing any radioactive wastes except as approved by the Village of Bath and in compliance with applicable State and Federal regulations.

12. Any wastewater which causes a hazard to human life or which creates a public nuisance, either by itself or in combination, in any way, with other wastes.

D. All discharges shall comply with all other applicable laws, regulation, standards, and requirements contained in the Village of Bath Sewer Use Law and any applicable State and Federal pretreatment laws, regulations, standards, and requirements including any such laws, regulation, standards, or requirements that may become effective during the term of this permit.

PART 2 MONITORING REQUIREMENTS

A.. During the effective dates of the permit, the Philips Lighting Company shall monitor Outfall 001 for the following parameters, at the indicated frequency:

Sample Parameter (units)	Measurement Location	Frequency	Sample Type
Flow(gpd)	See note (1)	Continuous	meter (2)
pH(SU)	See note (1)	Monthly	grab
BOD(mg/l)	See note (1)	Monthly	24 hr.composite
TSS (mg/l)	See note (1)	Monthly	24 hr.composite
NH3 (mg/l)	See note (1)	Monthly	24 hr.composite
Lead (mg/l)	See note (1)	Monthly	24 hr.composite
Phenol (mg/l)	See note (1)	Monthly	24 hr.composite

1. Sample location shall be at the PLC sampling station control manhole
2. Daily flows are to be recorded by the Philips Lighting Company with a flowmeter.

B. All handling and preservation of collected samples and laboratory analysis of samples shall be performed in accordance with 40 CFR Part l36 and amendments thereto unless specified otherwise in the monitoring conditions of this permit.

C. In the event of a dispute over the results of the wastewater sampling, monitoring, and analysis, the Village of Bath or Philips Lighting Company may request that sampling, monitoring, and analysis be obtained by a mutually satisfactory third party, and that the results obtained by the third party will be used to enforce the provisions of this permit. In the event that the independent third party shows the sampling, monitoring, and analysis of either the Village of Bath or Philips Lighting

Company to be in error, the party in error shall pay the costs associated with the independent third party.

PART 3 REPORTING REQUIREMENTS

A. Monitoring Reports

Monitoring results obtained shall be summarized and reported to the Village of Bath monthly, on a NYSDEC Fast Report on Significant Industries Form. The **reports are due on the 25th of each month**. **A summary of the year's data is due January 30th of each year**.

B. Additional Sampling Results

If the Philips Lighting Company monitors any pollutant more frequently than required by this permit, using test procedures prescribed in 40 CFR Part 136 or amendments thereto, or otherwise approved by EPA or as specified in this permit, the results of such monitoring shall be included in any calculations of actual daily maximum or monthly average pollutant discharge and results shall be reported in the reports submitted to the Village of Bath. Such increased monitoring frequency shall also be indicated in the reports.

C. Automatic Resampling

If the results of the Philips Lighting Company wastewater analysis indicates that a violation of this permit has occurred, the Philips Lighting Company must:

1. Inform the Village of Bath of the violation within 24 hours; and

2. Repeat the sampling and pollutant analysis and submit, in writing, the results of this second analysis within 30 days of the first violation.

D. Accidental Discharge Report

1. The Philips Lighting Company shall notify the Village of Bath immediately upon the occurrence of an accidental discharge of substances prohibited by the Village of Bath Sewer Use Law, or any slug, loads or spills that may enter the public sewer. During normal business hours the Village of Bath should be notified by telephone at (607) 776-3072 or (607) 776-3031. At all other times, the Village of Bath should be notified by telephone at (607) 776-3121 after 4:30 p.m. Monday - Friday or weekends and holidays. The notification shall include location of discharge, date and time thereof, type of waste, including concentration and volume, and corrective actions taken. The Philips Lighting Company notification of accidental releases in accordance with this section does not relieve it of other reporting requirements that arise under local, State, or Federal laws.

Within five days following an accidental discharge, the Philips Lighting Company shall submit to the Village of Bath a detailed written report. The report shall specify:

a. Description and cause of the upset, slug load or accidental discharge, the cause thereof, and the impact on the Philips Lighting Company compliance status. The description should also include location of discharge, type, concentration and volume of waste.

b. Duration of noncompliance, including exact dates and times of noncompliance and, if the noncompliance is continuing, the time by which compliance is reasonably expected to occur.

c. All steps taken or to be taken to reduce, eliminate, and/or prevent recurrence of such an upset, slug load, accidental discharge, or other conditions of noncompliance.

E. Report Submittals

All reports required by this permit shall be submitted to the Village of Bath at the following address:

Bath Electric, Gas and Water Systems
Attn: Susan Daniels
P. O. Box 310
Bath, New York 14810

PART 4 SPECIAL CONDITIONS

A. Reopener Clause

This permit may be reopened and modified to incorporate any new or revised requirements developed by the Village of Bath as are necessary to ensure Village of Bath Wastewater Treatment Plant compliance with applicable sludge management requirements promulgated by EPA (40 CFR 503), or other applicable regulations.

B. Compliance Schedule

None

C. Compliance Schedule Reporting

None

PART 5 PERMIT FEES

This Permit shall be renewable annually upon payment of the annual permit fee of $100. The Village of Bath and Philips Lighting Company agree that the terms and conditions of this Permit may be reviewed after a demonstrated change of circumstances or conditions is presented by either party.

PART 6 FEE FOR SERVICE

The fee for discharge of wastewaters from the Philips Lighting Company into the Village of Bath sewer system shall be per separate contract.

PART 7 ENFORCEMENT AND PENALTIES

A. Enforcement shall be per the Village of Bath Sewer Use Law and this Permit.

B. Penalties for the exceedance of the limits set forth in this Permit, shall be based on the costs incurred by the Village of Bath due to such violations. This shall include all costs (administrative, engineering, legal, hauling, disposal, and other) associated with the following:

1. Penalties levied on the Village of Bath by the NYSDEC, USEPA, or other governmental agency.
2. The difference between the cost of sludge disposal by landfilling and landspreading.
3. Any and all additional costs incurred by the Village of Bath due to non-compliance with the conditions of this permit.

Cole, Roger

From: Stuart Thomas [sxthomas@gw.dec.state.ny.us]
Sent: 2011 May 09 12:54 PM
To: Cole, Roger
Subject: SPDES permit
Attachments: Renewal Letter (May 2, 2011).pdf

Roger,

I checked into your question on your SPDES permit and Albany considers your permit a groundwater permit. There is a limit of a 5 year term (new or renewal) on all surface water discharges, but a 10 year limit on groundwater discharge permits. A decision was made by Division of Water and Division of Environmental Permits in the fall to issue all groundwater permits, regardless of class, a 10 year term. There are only 5 EPA major permits to groundwater which will be issued only a 5 year term.

I hope this answers your question on your 10 year permit renewal cycle for your SPDES permit.

Thanks,

Stuart Thomas
Environmental Engineer I
New York State Department of
Environmental Conservation
7291 Coon Road
Bath, NY 14810

Office Phone: (607) 776-2165, ext. 33
Cellular Phone: (585) 519-2733
Office FAX: (607) 776-4392

E-mail: sxthomas@gw.dec.state.ny.us

91-20-5 (5/97)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)

NOTICE / RENEWAL APPLICATION / PERMIT

Please read **ALL** instructions on the back before completing this application form. Please **TYPE** or **PRINT** clearly in ink.

PART 1 - NOTICE

11/15/2010

Permittee Contact Name, Title, Address

PHILIPS LIGHTING CO.
ROGER COLE
7265 ROUTE 54
BATH NY 14810

Facility and SPDES Permit Information

Name: PHILIPS LIGHTING CO.
Ind. Code: 9999 County: STEUBEN
DEC No.: 8-4624-00022/00001
SPDES No.: NY 016 1730
Expiration Date: 09/30/2011
Application Due By: 04/03/2011

Are these name(s) & address(es) correct? if not, please write corrections above.

The State Pollutant Discharge Elimination System Permit for the facility referenced above expires on the date indicated. You are required by law to file a complete renewal application **at least 180 days prior to expiration of your current permit. Note the "Application Due By" date above.**

CAUTION: This short application form and attached questionnaire are the only forms acceptable for permit renewal. Sign Part 2 below and mail only this form and the completed questionnaire using the enclosed envelope. *Effective April 1, 1994 the Department no longer assesses SPDES application fees.*

If there are changes to your discharge, or to operations affecting the discharge, then in addition to this renewal application, you must also submit a separate permit modification application to the Regional Permit Administrator for the DEC region in which the facility is located, as required by your current permit. See the reverse side of this page for instructions on filing a modification request.

PART 2 - RENEWAL APPLICATION

CERTIFICATION: I hereby affirm that under penalty of perjury that the information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to section 210.45 of the Penal Law.

Roger E Cole — Environmental Engineer

Name of person signing application (see instructions on back) — Title

Roger Cole — 3-2-11

Signature — Date

PART 3 - PERMIT (Below this line - Official Use Only)

Effective Date: 10/1/11 Expiration Date: 9/30/21

Stuart Fox

Permit Administrator

Address: NYSDEC - Division of Environmental Permits
Bureau of Environmental Analysis
625 Broadway, Albany, NY 12233-1750

Stuart M. Fox — MAY - 2 2011

Signature — Date

This permit together with the previous valid permit for this facility issued 10/1/06 and subsequent modifications constitute authorization to discharge wastewater in accordance with all terms, conditions and limitations specified in the previously issued valid permit, modifications thereof or issued as part of this permit, including any special or general conditions attached hereto. Nothing in this permit shall be deemed to waive the Department's authority to initiate a modification of this permit on the grounds specified in 6NYCRR §621.14, 6NYCRR §754.4 or 6NYCRR §757.1 existing at the time this permit is issued or which arise thereafter.

Attachments: ~~General Conditions dated ___/___~~

11 MAR -7 PM 1:59
RECEIVED NYSDEC ENVIRONMENTAL PERMITS

91-20-5a (5/97)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Please enter the numbers from your current permit:

DEC Number: 8-4624-00022/00001

SPDES Number: NY 0161730

SPDES RENEWAL APPLICATION
QUESTIONNAIRE

THIS PAGE MUST BE COMPLETED AND RETURNED WITH YOUR COMPLETED APPLICATION

Please **TYPE** or **PRINT** neatly using adequate pressure to make ALL copies legible. Keep a copy for your records.

1. Has the SPDES permit for your facility been modified in the past 5 years ☐ YES ☒ NO

2. Dischargers who use, manufacture, store, handle or discharge toxic or hazardous pollutants are subject to Industrial Best Management Practices (BMP) plan requirements for toxic or hazardous substances. A BMP plan prevents or minimizes the potential for release of pollutants to receiving waters from such ancillary industrial activities, including material storage areas; plant site runoff; in-plant transfer; process and material storage areas; loading and unloading operations, and sludge and waste disposal areas.

   Does your facility conduct ancillary activities as described above, which are not covered by BMP requirements in your current permit? ☐ YES ☒ NO

Please indicate which of the following best describes the situation at your facility:

☒ None of the concerns on the "Self Evaluation List" seem to apply to my facility at this time and I will not be applying for a modification of the SPDES permit in the foreseeable future.

☐ Yes, some of the items on the "Self Evaluation List" have led me to believe that the permit for this facility needs to be modified. I already have a complete modification application pending with the Department.

☐ Yes, some of the items on the "Self Evaluation List" have led me to believe that the SPDES permit for this facility may need to be Modified. I have requested the appropriate forms by phone OR I have completed and attached the "Request For SPDES Application Forms" (included in this renewal package) to allow me to submit a permittee-initiated Modification application. See The "Request For SPDES Application Forms" page for a toll free 800 number.

☐ The items on the "Self Evaluation List" have left me unable to conclude whether my permit needs to be modified at this time. I am reporting the following general concerns about my permit:

_____

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DISTRIBUTION: Regional Water Engineer
Regional Permit Administrator
Central Office (BWP)

APPENDIX B

Community Air Monitoring Plan (Revised)

New York State Department of Health
Bath Site-Specific
Community Air Monitoring Plan

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 volatile organic compounds (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 NYSDEC/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. 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.

- 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.

- 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.

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

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. NYSDEC and NYSDOH will be notified within one business day of any exceedances that occur during active monitoring of the sewer cleaning activities. Notifications will include details of the cause of the exceedance and what actions were taken to correct the issue. The CAMP data summary will be provided to the NYSDEC on a weekly basis. 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.

- 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.

- 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.

NYSDEC and NYSDOH will be notified within one business day of any exceedances that occur during active monitoring of the sewer cleaning activities. Notifications will include details of the cause of the exceedance and what actions were taken to correct the issue. The CAMP data summary will be provided to the NYSDEC on a weekly basis.

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 50o C (14 to 122o 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) check s, 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.

APPENDIX C

Health and Safety Plan (Revised)

HALEY & ALDRICH OF NEW YORK
SITE-SPECIFIC HEALTH & SAFETY PLAN

For

Philips Lighting Company Bath Facility
Supplemental Remedial Investigation

7265 State Route 54
Bath, NY

Project/File No. 0127981-029

Prepared By: Robert Lydell	**Date:** 11/12/2020
Revised By: Santa McKenna	**Date:** 1/20/2023
Approvals: The following signatures constitute approval of this Health & Safety Plan.	
Local H&S Coordinator: Margaret Holt	**Date1/20/2023**
	
Project Manager: Steve Phillips	**Date: 1/20/2023**
HASP Valid Through: January 2024	

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

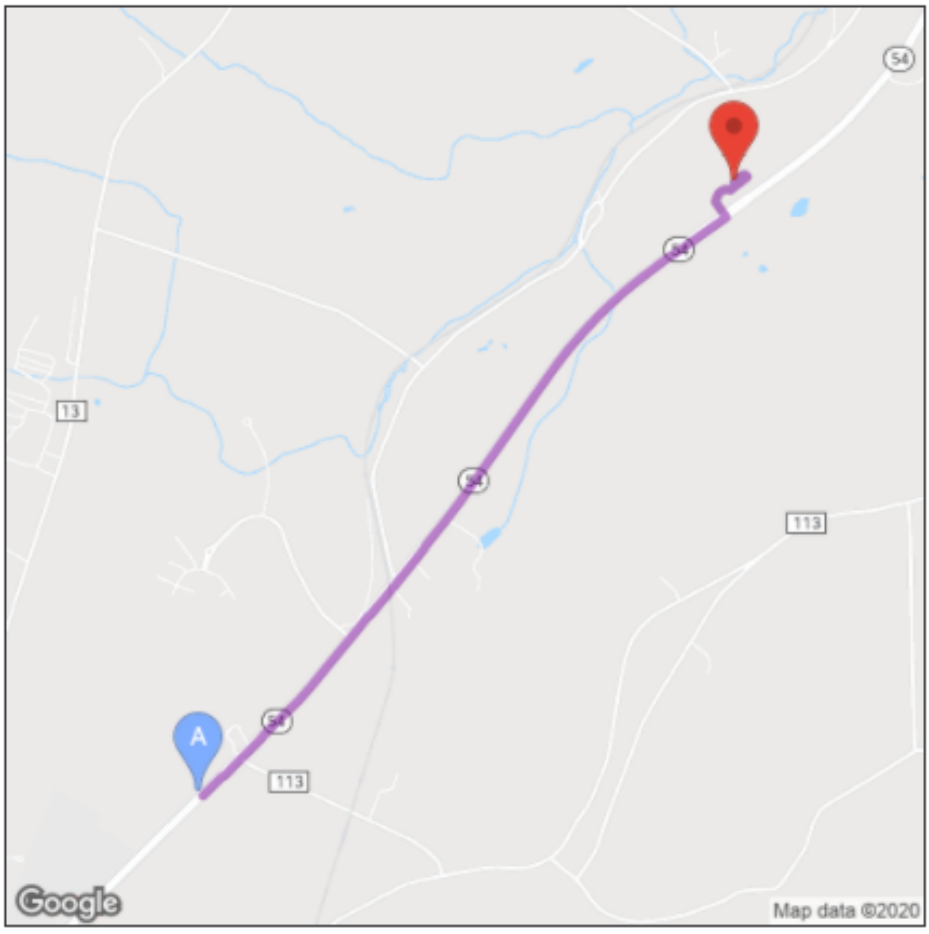
TABLE OF CONTENTS

PROJECT INFORMATION AND EMERGENCY RESOURCES

Project Name: Philips Lighting Facility – Supplemental Remedial Investigation	**H&A File No.: 0127981-029**
Location: 7265 State Route 54, Bath, NY (and neighboring properties included in investigation)	
Client/Site Contact: Phone Number: Emergency Phone Number:	Emil Filc, Manager – US & Canada Liability Portfolio 937.241.1867
Steuben County Industrial Development Agency Contact: **Phone Number:**	Jamie Johnson 607-776-5039
Scofield Automotive	David Scofield 607-569-7001
Credit Union	Randy – Property Manger Debbie – Branch Manger Bank phone number - 607-776-9139
FLCH Construction Site	Chris Wegener 585-247-2907
General Contractor: **Project Manager:** Work Phone Number:	Nothnagle Drilling, Inc. Steve DiLaura 585-538-2328 Additional Contacts to be added as work is awarded
H&A Field Representative: Cell Phone Number:	Emma Loubsky-Lonergan 585-465-9282
H&A Project Manager: Phone Number: Emergency Phone Number:	Steve Phillips 585-321-4240 585-370-6678
Local Health & Safety Coordinator: Emergency Phone Number:	Margaret B. Holt 585-321-4214 585-721-2426
Nearest Hospital: Address: (see map on next page) Phone Number:	Ira Davenport Memorial Hospital 7571 New York 54, Bath, NY 14810 (607) 776-8500
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/ Address: (see map on next page) Phone Number	WellNOW 830 County Road 64 Elmira, NY 14903 (607) 846-2030

Liberty Mutual Claim Policy	**WC6Z11254100033**
Emergency Response Number:	**911**
Other Local Emergency Response Number:	911
Other Ambulance, Fire, Police, or Environmental Emergency Resources:	911
WorkCare (to be contacted in nonemergency (non 911) incidents needing medical attention)	888-449-7787

Directions to the Nearest Hospital:



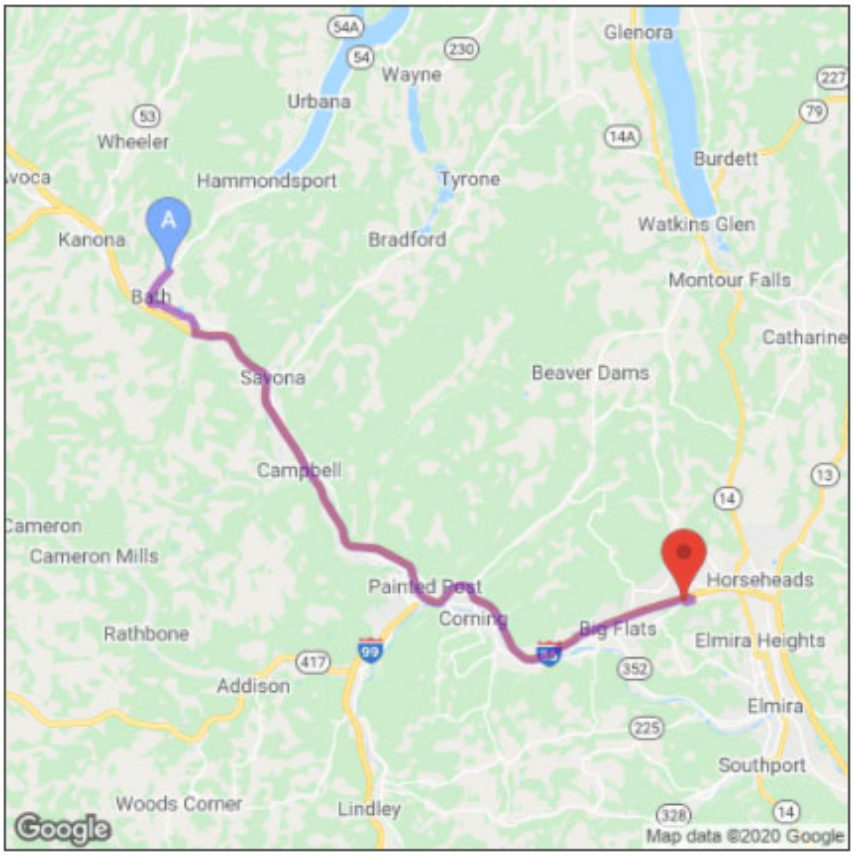
Driving Directions

From: 7265 Sate Route 54
Bath, NY
New Start Address

To: 7571 State Route 54
Bath, NY 14810

1. Head **northeast** on **NY-54 N** toward **Mt Washington Rd**	1.9 mi
2. Turn **left**	243 ft
3. Turn **right**	276 ft
4. Turn **left**	272 ft
5. Turn **left**	213 ft
Destination will be on the right	
Estimated driving time: 4 minutes	2.1 mi

Directions to the Nearest Urgent Care: Contact Workcare to find other authorized location to decrease distance.



Driving Directions

From: 7265 State Route 54
Bath, NY
New Start Address

To: 830 County Road 64
Elmira, NY 14903

1. Head **southwest** on **NY-54 S**	1.4 mi
2. Continue onto **Liberty St**	0.2 mi
3. At Community Bank, N.A., **Liberty St** turns **left** and becomes **E Steuben St**	0.6 mi
4. Continue onto **NY-415 S/E Morris St.**	1.2 mi
Continue to follow NY-415 S	
5. Continue straight onto **Babcock Hollow Rd**	0.7 mi
6. Turn **left** to merge onto **I-86 E/NY-15 S/NY-17 E** toward **Binghamton**	29.4 mi
Continue to follow I-86 E/NY-17 E	
7. Take exit **51A** for **Chambers Rd** toward **Shopping Malls**	0.2 mi
8. Keep **right** at the fork to continue toward **Chambers Rd**	243 ft
9. Turn **right** onto **Chambers Rd**	348 ft
10. Turn **right** at the 1st cross street onto **Big Flats Rd**	0.2 mi
11. Turn **left** at the 1st cross street	128 ft
12. Continue straight	240 ft
13. Turn **right**	463 ft
Estimated driving time: 37 minutes	34.2 mi

Work Scope:

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be employed by all Haley & Aldrich employees participating in the site Remedial Investigation, remedial measures, and demolition activities at the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other project sites. The scope of work for the Supplemental Remedial Investigations include:

Task #1: Site Wide Soil Sampling:

Haley & Aldrich personnel will oversee and monitor the geoprobe sampling of site soils in various Areas of Concern (AOCs). Monitoring will include screening with a PID, logging soil types, logging daily field activities, and collecting soil samples.

Task #2: Sub Slab Soil Sampling

Haley & Aldrich personnel will oversee and monitor the concrete coring and geoprobe sampling, and collectionof site soils for analysis. Monitoring will include screening soil with a PID, carbon monoxide with a gas meter, logging soil types, logging daily field activities, and collecting documentation soil samples. Site soil sample locations may include access under excavated concrete slabs and sewer pipes.

Task #3: Water Level Monitoring and Groundwater Sampling

Haley & Aldrich personnel will complete manual water level measurements and download data from submerged transducers installed in select wells. Initial round of groundwater sampling will be conducted at all wells. Following the site wide gauging event, groundwater sampling will be collected periodically using passive diffusion bag (PDB) samplers, in accordance with investigation procedures in the NYSDEC-approved Groundwater SRIWP dated 5 April 2016. Groundwater samples are collected to determine the concentrations of VOCs.

~~Task #4: MIP Profiling and Confirmation Sampling~~

~~Haley & Aldrich personnel will oversee and monitor the MIP probe profile site soils in AOC-8 and confirmation sampling. Monitoring will include screening with a PID, logging soil types, logging daily field activities, and collecting soil samples.~~

Task #5: Offsite Soil Vapor, Sub Slab Vapor and Indoor/Outdoor Air Sampling

Haley and Aldrich personnel will perform soil vapor, sub slab and indoor/outdoor air sampling at 3 offsite properties in proximity to the facility, (Scofield Automotive, The Credit Union and the FLCH construction site). Haley & Aldrich will oversee geoprobe soil vapor installation at the Scofield and FLCH construction site. Geoprobe depths will vary based on slab elevation and

current ground surface elevation. Haley & Aldrich personnel will construct and install the soil vapor points. Haley & Aldrich personnel with install a sub-slab vapor sample location at the credit union and will be installed using a rotary drill to bore through the floor to the sub slab. A shop vacuum with HEPA® Filter and filter bag will be administered to control and collect dust emissions during drilling. A Helium leak test will be performed on the sub slab locations to ensure integrity of the sampling point. Indoor/outdoor air samples will be collected on the Scofield Automotive, Credit Union, and FLCH construction site properties. Indoor Air and sub slab vapors will be monitored and screened with a PID (PPB Rae) during installation and sampling. Sampling activities will include setup of summa canisters and flow controllers, starting the test, checking in on the test, and retrieving the summa canisters and flow controllers. Haley & Aldrich personnel will restore surfaces impacted (topsoil, asphalt, concrete). The activities and information will be documented on field sampling forms. Activities will be performed in accordance with access agreements.

Task # 6: Offsite Sediment and Surface Water Sampling

Haley & Aldrich personnel will oversee and monitor hand augering sampling of sediment in AOC-32 (located across the street in a currently undeveloped property). Monitoring will include screening with a PID, logging soil types, logging daily field activities, and collecting sediment samples. Surface water samples will be collected in the pond to access water quality and if sufficient standing water from the upstream channel using a surface water sampler. Contractor may be required to clear brush and small trees to access selected areas.

Task # 7: Sub-slab Depressurization System Installation

Haley & Aldrich personnel will oversee the installation of a sub-slab depressurization system (SSDS) at the Steuben County Industrial Development (IDA) property located across the street). A subcontractor will install a 0.25 horsepower (Hp) SSD blower (fan). The blower will be installed on an exterior wall of the building. Suction points to be installed using a 5-inch diameter core drill to advance borings through the concrete floor. After the concrete has been cored, approximately one cubic foot of sub-base material would be hand excavated. The suction pits will then be connected to the vertical conveyance piping, and the concrete surrounding the suction pits would be restored. 3-inch schedule 40 polyvinyl chloride (PVC) vertical and 3-inch and 4-inch horizontal conveyance piping will be routed from the individual suction points to the SSD blower. The conveyance piping within the building, where the piping exits the building, and penetrations would be made to facilitate the installation of the SSD piping.

Task # 8: Onsite Sewer Inspection and Closure

Haley & Aldrich personnel will oversee subcontractors performing inspection, cleaning, and closure/decommissioning of the existing sewer systems (sanitary and SPDES) at the Site. This task includes the collection of sediment accumulated within the pipes for characterization, removal of all treatment units, outfall lines, and all mechanical and electrical equipment and

piping; elimination of all equipment and/or conditions that could possibly pose a safety hazard, either during or after shutdown of the operations; and proper management and/or removal of all residual materials (collected grit and screenings, scum, sand bed material, and dried or liquid sludges), and all other solids from the treatment process. The manhole and drains will be screened visually and with a photoionization detector (PID). Accumulated sediment at select locations will be completed using a hand auger or sampling device. Onsite personnel will not be allowed to enter manholes. In the event sediment is not present at select locations, representative samples of the sediment and liquid that were generated during the cleaning process of the sewers will be collected in order to characterize the material. During the cleaning activities, community air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP).

Task 9: IRM 1, 7, and 8 Building Demolition and Soil Excavation

Task 9 activities include:

- IRM 1 - Haley & Aldrich personnel will oversee subcontractors' activities including the demolition and removal of the Acid Neutralization building structures and associated sub surface structures and influent and effluent acid drainage piping. Surficial and shallow subsurface soil containing metals and SVOCs at concentrations above the Industrial SCO criteria will be excavated. These soils will be stockpiled, and soil sampled to determine their use as backfill beneath the new soil cover system, and if acceptable, the soils will be relocated to an area on the Site that is planned to have a demarcation layer and one foot of clean soil cover placed above the impacted soils. Following excavation, excavation areas will be backfilled and regarded. Monitoring will include screening with a PID, logging daily field activities, and collecting documentation soil samples. During construction activities, community air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP).
- IRM 7 – Haley & Aldrich personnel will oversee subcontractor activities including the removal of the buried glass waste material for off-site transport. Glass waste material will be excavated until visual observations indicate that non-native materials have been removed. Documentation soil samples will be collected from the sidewall and bottom of the excavation areas. Following excavation completion site restoration activities will include backfill using adjacent soils and grading. Monitoring will include screening with a PID, logging daily field activities, and collecting documentation soil samples. During construction activities, community air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP).
- IRM 8 - Haley & Aldrich personnel will oversee subcontractor activities including the excavation and compiling of surficial and shallow subsurface soils from AOC-19, AOC-21, and AOC-30. Excavated soil removed from AOC-19, AOC-21, and AOC-30 will be direct-loaded and transported to the northwestern portion of the Site to be used as contaminated backfill under the new soil cover system that will be constructed. The northwest portion of the Site that encompasses the lateral extent of the eight (8) AOCs with surficial and shallow subsurface soil impacts (AOC-4, AOC-7, AOC-9, AOC-10, AOC-13, AOC-15/33,

and AOC-18) will be covered with a demarcation layer and at least 1 foot of clean soil. Existing impervious surfaces that are present in the area proposed to be covered, including the Powerhouse building slab, Building 1 outbuildings, the former garage building slab, and 90-day storage building slab, will be removed. Prior to demarcation layer placement, documentation soil samples will be collected form the excavation. Monitoring will include screening with a PID, logging daily field activities, and collecting documentation soil samples. During construction activities, community air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP).

Subcontractor(s) to be involved in on-site activities:

Firm Name	Work Activity
Nothnagle Drilling, Inc.	Hand Auguring Geoprobe Borings Temporary Well Installations ~~MIP borings~~ Confirmation borings
Mitigation Tech	Subslab Depressurization System
TBD	Sewer Cleaning, and Decommissioning
TBD	Soils Excavation, Removal of Building Structures, Backfill and Regrading

Projected Start Date: January 1, 2023

Projected Completion Date: TBD

Estimated Duration of Field Work: TBD

SITE DESCRIPTION

Site Classification:

☑ Industrial	☐ Commercial	☐ Other

General Description:

The subject site is currently owned by Signify and was previously owned by Philips Electronics North America Corporation (PENAC) and was operated by Philips Lighting Company. The operation at the facility shutdown in March 2014 and initial plant decommissioning was completed by Philips personnel. In 2022 all onsite building structures were demolished. The site is located in southwestern New York in the town of Bath. The site is approximately 74.24 acres comprised of two parcels. The larger parcel contains the manufacturing facility and is triangular in shape and contains a little over 73 acres and is located in the Town of Bath. The second parcel is located in the southwest corner of the subject site and is rectangular in shape and comprised of 1.2 acres situated in the Village of Bath. The 335,000 square foot L-shaped manufacturing building, out buildings, and parking areas are located in the eastern half of the larger parcel (~43 acres in size), while the western portion of the property has been leased to various parties for agriculture use. The smaller ~1 acre parcel has remained undeveloped since it was purchased by Philips in 1997. The site is bordered by Route 54 and commercial property immediately to the east and the Steuben County Sheriff and county jail complex further to the east. Agricultural land surrounds the subject site to the north, northwest, west and southwest and the southeast portion of the subject site is bordered by a petroleum service station and commercial property.

The subject site was formerly engaged in the manufacturing and assembly of a variety of high-intensity discharge (HID) lighting products including arc tubes, lighting mounts and other lamp components. In addition, to the various manufacturing operations, the Bath facility had offices for administrative and office support staff, a lighting research laboratory, quality assurance/life-cycle testing areas, and a maintenance department to support the operations.

The main building and ancillary building structures were demolished and removed (all superstructure elements) in 2022. The remaining site demolition is planned to remove remaining concrete slabs, paved or other impervious surfaces as part of Task 9.

Background and Historic Site Usage:

The subject site had been used as a manufacturing facility for receiving bulbs and lighting products since it was developed in 1951 by Westinghouse who owned the facility until it was

purchased by PENAC in 1983. The suspected contaminants on the site include solvents (chlorinated and VOCs), metals including Mercury, BTEX, PCBs, and corrosives.

Project Scope:

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be employed by all Haley & Aldrich employees participating in the site characterization of the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other project sites. The scope of work for the Supplemental Remedial Investigation includes:

Task 1: Site wide soil sampling at Areas of Concern (AOCs) and the grassy area utilizing direct push techniques.

Task 2: Sub-slab soil sampling utilizing direct push techniques.

Task 3: Groundwater elevation monitoring and groundwater sampling at onsite and select offsite well locations.

~~Task 4: MIP profiles with confirmation sampling at AOC-8 utilizing direct push techniques~~.

Task 5: Installation of sub slab soil vapor locations using a handheld drill at the Scofield Automotive, Credit Union, and FLCH construction site properties.

Task 6: Sediment and surface water sampling at offsite area AOC-32 in proximity to the facility property.

Task 7: Oversee installation of a blower, suction points and associated piping below the building foundation at the IDA property by a subcontractor using cutting and excavation techniques.

Task 8: Oversee inspection, cleanout, and decommissioning of onsite sewer system by subcontractor.

Task 9: Oversee construction subcontractors soils excavation, demolition and removal of building structures, backfill, demarcation placement, and regrading.

Overview of Hazards:

Physical hazards that may be encountered during site work include hazards associated with heavy equipment (Geoprobe), underground and overhead utilities, hoisting, noise, cold and heat stress. Additionally, soil borings in various AOCs may present unknown physical or chemical hazards. Chemical hazards anticipated include PCBs, metals including Mercury/Tungsten/Molybdenum/Barium/Zirconium, solvents including chlorinated and VOCs, petroleum components and dust.

Site Status: Indicate current activity status and describe operations at the site.

☑ Active Active bank (foot traffic) and construction site (surveyor, excavator) on site and occupied spaces offsite.

☑ Inactive manufacturing closed and decommissioned, structures removed

☑ Partially active Automotive garage (Storage of equipment, tools, etc.)

☐ Other

Site Plan:

Is a site plan or sketch available? ☑ Y ☐ N

Work Areas:

See Figures 1 through 11 in the Supplemental Site Wide Soil Sampling Work Plan, Figure 4 in the Supplemental Sub-Slab Soil Sampling Work Plan, Figure 1 in the Supplemental AOC-8 Work Plan, Figure 4 of the Off Site Vapor Intrusion Evaluation Work Plan and Figure 5 of the Supplemental Area of Concern (AOC) 32 Work Plan, Figure 3 of the Interim Remedial Measures Sub-slab Depressurization System Installation, Figures 2 and 3 of the Supplemental Remedial Investigation Work Plan Groundwater Elevation Monitoring and Sampling Work Plan, and Figures 3 and 4 of the Sewer Inspection, Cleaning, and Closure Work Plan, Interim Remedial Measure Work Plan IRM-1 – Acid Neutralization Systems Removal Figure 4 Excavation Plan, Interim Remedial Measure Work Plan IRM-7 Buried Receiver Tube Waste Figure 3 Regrading Plan and Sampling Locations , Interim Remedial Measure Work Plan IRM-8 Soil Consolidation and Cover System Construction Figure 5 Excavation and Sampling and Analysis Plan and Figure 5 IRM-8 Restoration Plan

PROJECT TASK BREAKDOWN

List and describe each distinct work task below.

Task No.	Detailed Task Description	Employee(s)	Work Date(s) or Duration
1	Site Wide Soil Sampling	2 H&A Employees TBD	1 week
2	Sub Slab Soil Sampling	2 H&A Employees TBD	1 week
3	Groundwater Elevation Monitoring and Groundwater sampling	1 H&A Employee TBD	2 days
4	~~MIP Profiling and Confirmation Sampling~~	~~1 H&A employee Rob Lydell~~	~~1 week~~
5	Offsite Soil Vapor, Sub Slab Vapor and Indoor/Outdoor Air Sampling	2 H&A Employees TBD	6 days
6	Sediment and Surface Water Sampling (property across Rt 54)	1 H&A Employee TBD	1 Week
7	Sub-slab Depressurization System Installation	1 H&A Employee TBD	TBD
8	Onsite Sewer Inspection and Closure	1 H&A Employee TBD	TBD
9	IRM 1, 7, and 8 Building Demolition and Soil Excavation	1 to 2 H&A Employee TBD	TBD

HAZARD ASSESSMENT

Safety Data Sheets (SDS) of hazardous materials used during the execution of work shall be available on site. SDSs are required for chemicals used to prepare samples, calibration gases, etc. SDSs are not required for waste materials.

Chemical Hazards:

Does chemical analysis data indicate that the site is contaminated? ☑ Y ☐ N

Indicate the potential physical state of the hazardous materials at the site.

- ☑ Gas/Vapor
- ☑ Liquid
- ☑ Sludge
- ☑ Solid/Particulate

Indicate the anticipated or actual class of compounds at the site.

- ☐ Asbestos
- ☑ BTEX
- ☑ Chlorinated Solvents
- ☑ Heavy Metals
- ☐ Radioactive Isotopes (Thorium)
- ☑ Inorganics
- ☐ Pesticides
- ☑ Petroleum products
- ☑ Other SVOCs

Impacted Environments:

Indicate media in which contamination is expected.

- ☑ Air
- ☑ Soil
- ☑ Surface water
- ☑ Groundwater
- ☑ Sediment
- ☐ Other Specify

Task 1, 2, 3, 4, 6, 7, and 8 - Estimated concentrations:

Indicate medium of major chemicals potentially encountered by onsite personnel.

Work Activity	Media	Chemical	Anticipated Concentration
Drilling /sampling, documentation soil sampling	SO/SE	Chlorinated VOC SVOCs Metals (incl. Mercury, Barium, Molybdenum, Tungsten & Zirconium) Thorium	ND – 10 ppm ND – 5 ppm ND – 200 ppm Unknown
	GW	Chlorinated VOCs Metals (incl. Molybdenum, Tungsten & Zirconium)	ND – 1,000 ppb ND – 50 ppb
Soil Vapor Installations	A	chlorinated VOCs	ND – 20ug/m3
Sewer Cleaning and Inspection	SO/SE	Chlorinated VOC SVOCs Metals	Unknown

(Media key: A = Air; GW = Groundwater; SW = Surface Water; SO = Soil; SE = Sediment)

Task 1,2,3, 4, 6, and 7 - Chemicals of Concern:

BTEX

BTEX is the common abbreviation for benzene, toluene, ethyl benzene and xylene. OSHA has set permissible exposure limits for all of these contaminants that may be found at this worksite during your work activity. The levels that are set are based on an 8-hour time weighted average. Below are those values:

Benzene	1 ppm / 8 TWA
Toluene	200 ppm / 8 TWA
Ethyl Benzene	100 ppm / 8 TWA
Xylene	100 ppm / 8 TWA

Benzene

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death. The major effect of benzene from long-term (365 days or longer) exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

Toluene

Toluene affects the brain. Low-to-moderate levels from long-term exposure can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea and loss of appetite, and hearing loss. Inhaling a high level of toluene in a short time can make you feel light-headed, dizzy, or sleepy. It can cause unconsciousness, and even death. Repeated exposure to high levels can cause permanent brain and speech damage, vision and hearing problems, loss of muscle control, and poor balance. It can also cause memory loss and decreased mental ability. Toluene also affects the kidneys. Several studies have shown that unborn animals were harmed when high levels of toluene were breathed by their mothers. Babies can have neurological problems and retarded growth and development if their mothers breathe a high level of toluene during pregnancy. We do not know if toluene harms the unborn child if the mother is exposed to low levels of toluene during pregnancy.

Xylene

Xylene affects the brain. High levels from exposure for short periods (14 days or less) or long periods (more than 1 year) can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure of people to high levels of xylene for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and even death at very high levels.

Studies of unborn animals indicate that high concentrations of xylene may cause increased numbers of deaths, and delayed growth and development. In many instances, these same concentrations also cause damage to the mothers. We do not know if xylene harms the unborn child if the mother is exposed to low levels of xylene during pregnancy.

Barium

The Occupational Safety and Health Administration (OSHA) limits the concentration of barium in workroom air to 0.5 mg/cubic meter for an 8-hour workday. Potential symptoms of exposure to barium include irritation of the eyes, skin, and upper respiratory system, skin burns, gastroenteritis, muscle spasms, slow pulse, extra systoles, hypokalemia, abdominal cramps, profuse watery diarrhea, vomiting, severe muscle weakness, cardiac arrhythmia, unconsciousness, and respiratory arrest. Health effects include acute toxicity, gastrointestinal effects, and hypokalemia. Affected organs include the eyes, skin, respiratory system, heart, and central nervous system.

Lead

OSHA limits the concentration of lead in workroom air to 50 µg/cubic meter for an 8-hour workday. Lead can affect almost every organ and system in your body. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common after exposure to high levels of lead. In adults, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect the memory. Lead may cause anemia, a disorder of the blood. It can cause abortion and damage the male reproductive system. The connection between these effects and exposure to low levels of lead is uncertain.

Mercury

Mercury vapor is highly toxic via this route. Causes severe respiratory tract damage. Symptoms include sore throat, coughing, pain, tightness in chest, breathing difficulties, shortness of breath, headache, muscle weakness, anorexia, gastrointestinal disturbance, ringing in the ear, liver changes, fever, bronchitis and pneumonitis. Can be absorbed through inhalation with symptoms similar to ingestion. May cause burning of the mouth and pharynx, abdominal pain, vomiting, corrosive ulceration, bloody diarrhea. May be followed by a rapid and weak pulse, shallow breathing, paleness, exhaustion, tremors and collapse. Delayed death may occur from renal failure. Gastrointestinal uptake of mercury is less than 5% but its ability to penetrate tissues presents some hazard. Initial symptoms may be thirst, possible abdominal discomfort. Causes irritation and burns to skin. Symptoms include redness and pain. May cause skin allergy and sensitization. Can be absorbed through the skin with symptoms to parallel ingestion. Causes irritation and burns to eyes. Symptoms include redness, pain, and blurred vision; may cause serious and permanent eye damage. Chronic exposure through any route can produce central nervous system damage. May cause muscle tremors, personality and behavior changes, memory loss, metallic taste, loosening of the teeth, digestive disorders, skin rashes, brain damage and kidney damage. Can cause skin allergies and accumulate in the body. Repeated skin contact can cause the skin to turn gray in color. A suspected reproductive hazard; may damage the developing fetus and decrease fertility in males and females. Persons with nervous disorders, or impaired kidney or respiratory function, or a history of allergies or a known sensitization to mercury may be more susceptible to the effects of the substance.

The OSHA Acceptable Ceiling Concentration for mercury and mercury compounds: 0.1 mg/m3 (TWA), skin contact is a parameter in determining exposure for mercury.

Molybdenum

The Occupational Safety and Health Administration (OSHA) limits the concentration of molybdenum in workroom air to 5 mg/cubic meter for an 8-hour workday. Molybdenum can be harmful to the human body through ingestion, inhalation, and skin or eye contact. Potential symptoms of exposure to molybdenum include anorexia, incoordination, irritation of the eye, nose, and throat, dyspnea, and anemia. Health effects include cumulative liver and kidney damage, blood disorders, and mild irritation of the eye, nose, throat, and skin. Affected organs include the respiratory system, kidneys, and blood.

While certain forms of molybdenum appear to be more toxic than others, in general, the toxicity of molybdenum is low, as it is an essential element necessary for human health. A 1984 study of mining and metallurgy workers found exposures to 60 to 600 mg/m^3 of molybdenum were associated with nonspecific symptoms such as weakness, fatigue, headache, and joint/muscle pain. Other studies have linked molybdenum exposure to incidences of gout and bone disease, but the U.S. National Research Council (NRC) concluded that those associations were speculative at best. The first human data on molybdenum and cancer was published in 1999, examining the link between molybdenum exposure and lung cancer. The findings raised the possibility that molybdenum could be a human carcinogen.

Tungsten

The Occupational Safety and Health Administration (OSHA) limits the concentration of tungsten in workroom air to 1 mg/cubic meter for an 8-hour workday. Health effects include accumulation in the lung and acute effects to the central nervous system.

Zirconium

The Occupational Safety and Health Administration (OSHA) limits the concentration of zirconium in workroom air to 5 mg/cubic meter for an 8-hour workday. Potential symptoms of exposure to zirconium include skin granulomas, retention in the lungs, and skin and mucous membrane irritation. Health effects include pneumoconiosis and lung and skin granulomas. Affected organs include the respiratory system and skin.

Polychlorinated Biphenyl's (PCBs)

Polychlorinated biphenyl's (PCBs) are a group of manufactured organic chemicals that contain 209 individual chlorinated chemicals (known as congeners). PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. There are no known natural sources of PCBs. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor.

PCBs don't burn easily and are good insulating material. They have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs stopped in the United States in 1977 because of evidence that they build up in the environment and cause harmful effects. Products containing PCBs are old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids.

Trichloroethylene (TCE)

Trichloroethylene (TCE) is a colorless, nonflammable, non-corrosive liquid has a “sweet” odor characteristic of some chlorinated hydrocarbons.

The compound is incompatible with strong caustics, it reacts with aluminum when acidic, and it is incompatible with active metals - barium, lithium, sodium, magnesium, and titanium. Decomposition of TCE, due to contact with hot metal or ultraviolet radiation, forms products including chlorine gas, hydrogen chloride, and phosgene. Dichloroacetylene may be formed from the reaction of alkali with TCE.

The OSHA PEL for TCE is 100 ppm as an 8-hour TWA; an acceptable ceiling concentration of 200 ppm; and an acceptable maximum peak ceiling of 300 ppm for no more than 5 minutes in any 2-hour period. The standard routes of entry in the body are through inhalation, percutaneous absorption, ingestion, skin and eye contact. The points of attack are the respiratory system, heart, liver, kidneys, central nervous system and skin.

Exposure to TCE vapor may cause irritation of the eyes, nose, and throat. The liquid, if splashed in the eyes, may cause burning irritation and damage. Repeated or prolonged shin contact with the liquid may cause dermatitis. Acute exposure to TCE depresses the central nervous system exhibiting such symptoms as headache, dizziness, vertigo, tremors, nausea and vomiting, irregular heartbeat, sleepiness, fatigue, blurred vision, and intoxication similar to that of alcohol. Unconsciousness and death have been reported. Alcohol may make the symptoms of TCE overexposure worse. If alcohol has been consumed, the overexposed worker may become flushed. TCE addiction and peripheral neuropathy have been reported.

Tetrachloethylene (PCE)

Tetrachloroethylene (PCE) is a colorless, nonflammable liquid with a mild, chloroform-like odor.

PCE is incompatible with strong oxidizers and metals such as lithium, beryllium and barium, caustic soda, sodium hydroxide, and potash. Decomposition of PCE, due to fire, forms products including hydrogen chloride, and phosgene.

The OSHA PEL for PCE is 100 ppm as an 8-hour TWA; an acceptable ceiling concentration of 200 ppm; and an acceptable maximum peak ceiling of 300 ppm for no more than 5 minutes in any 3-hour period. The standard routes of entry in the body are through inhalation, percutaneous

absorption, ingestion, skin and eye contact. The points of attack are the respiratory system, heart, liver, kidneys, central nervous system, eyes, and skin.

Symptoms that may occur as a result of exposure to PCE include irritation to the eyes, skin, nose, and throat; respiratory system distress; nausea; flushed face and neck; incoordination; headache; drowsiness; skin erythema; and liver damage.

1,1,1 Trichloroethane

The health effects for 1,1,1 TCA are as follows- Inhalation of vapors will irritate the respiratory tract. Affects the central nervous system. Symptoms include headache, dizziness, weakness, and nausea. Higher levels of exposure (> 5000 PPM) can cause irregular heart beat, kidney and liver damage, fall in blood pressure, unconsciousness and even death. Harmful if swallowed. Symptoms similar to inhalation will occur along with nausea, vomiting. Aspiration of material into the lungs can cause chemical pneumonitis, which can be fatal. If aspirated, may be rapidly absorbed through the lungs and result in injury to other body systems. Causes mild irritation and redness, especially on prolonged contact. Repeated contact may cause drying or flaking of the skin. Liquids and vapors cause irritation. Symptoms include tearing, redness, stinging, and swelling. Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may affect the kidneys and liver. Dioxane is a suspected human carcinogen based on animal data. Personnel with CNS, kidney, liver or heart disease may be more susceptible to the effects of this substance. Use of alcoholic beverages may aggravate symptoms.

The OSHA permissible exposure limit (PEL) for 1,1,1 TCA is 350 PPM for an 8-hour time weighted average.

Vinyl Chloride (VC)

Vinyl Chloride (VC) is a colorless, liquid or flammable gas with a pleasant odor at high concentrations.

VC is incompatible with oxidizers, peroxides, and metals such as copper, aluminum, iron and steel. VC polymerizes in air, sunlight, or heat unless it is stabilized by inhibitors such as phenol. It attacks iron and steel in the presence of moisture.

The OSHA PEL for VC is 1 ppm as am 8-hour TWA, and an acceptable ceiling of 5 ppm in a 15 minute period. The standard routes of entry in the body are through inhalation, skin and eye contact. The points of attack are the respiratory system, central nervous system, liver, blood, and lymphatic system.

Symptoms that may occur as a result of exposure to VC include weakness and exhaustion; abdominal pain; gastrointestinal bleeding; enlarged liver; and pallor or cyanosis of the extremities. Liquid VC can cause frostbite. VC can also cause liver cancer.

PAHs

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

PAHs, as a group, are strongly hydrophobic, and therefore sorb to organic-based soil particles. Exposures to elevated levels of PAHs in the workplace could occur in coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.

Sorption of PAHs to soil and sediments increases with increasing organic carbon content and with increasing surface area of the sorbent particles. Lower molecular weight PAHs may also volatilize from soil. Due to this strong sorption to soil, PAHs do not tend to dissolve easily into and migrate with groundwater. Exposure from affected soil would tend to occur as a result of direct contact with affected soil or inhalation/ingestion of windborne affected soil.

Thorium

See Appendix D: EPA Facts about Thorium

Task 2,5 - Estimated concentrations:

Indicate medium of major chemicals potentially encountered by onsite personnel.

Work Activity	Media	Chemical	Anticipated Concentration
Sub-Slab Soil Sampling	A	Chlorinated VOCs Mercury	ND – 25,000 ug/m^3 Unknown

(Media key: A = Air; GW = Groundwater; SW = Surface Water; SO = Soil; SE = Sediment)

Task 2,5 - Chemicals of Concern:

BTEX

Benzene

Toluene

Xylene

Trichloroethylene (TCE)

Tetrachloethylene (PCE)

1,1,1 Trichloroethane

Vinyl Chloride (VC)

Mercury

See descriptions of chemicals of concern in **Task 1 – Chemicals of Concern**.

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
VAPORS & GASES												
Acetone	R, I, C	2500	-	750 [ACGIH]	1000	500	250	9.69	60	13	-	fragrent, mint-like
Ammonia	R, I, C	300	-	35 [NOSH, ACGIH]	50	25	25	10.18**	-	0.5-2	10	Pungent suffocating odor
Benzene	R,A,I,C	Ca [500]	-	1 [NIOSH]; 2.5 [ACGIH]	1	0.5	0.1	9.24	150	4.68	-	Solvent, aromatic
Carbon tetrachloride (Tetrachloromethane)	R,A,I,C	Ca [200]	25 [instantaneous] 200 [5 min peak in any 4 hrs]	2 [NIOSH, 60-min]; 10 [ACGIH]	2	5	Ca	11.47**	10	50	-	Sweet, pungent, ether-like
Chlorobenzene	R,I,C	1000	-	-	75	10	-	9.07	200	0.68	-	Almond-like
Chloroform	R,I,C	Ca [500]	50 [OSHA]	2 [NIOSH, 60-min]	-	10	-	11.42**	65	50	-	Sweet, pleasant
o-Dichlorobenzene	R,A,I,C	200	50 [NIOSH, OSHA]	50 [ACGIH]	-	25	-	9.06	50	0.3	E 20-30	Pleasant, aromatic
p-Dichlorobenzene	R,A,I,C	Ca [150]	-	-	75	10	Ca	8.98	-	0.18	E 80-160	Distinct, aromatic, mothball-like
Dichlorodifluoromethane (Freon 12)	R,C	15000	-	-	1000	1000	1000	11.75**	15	-	-	Ether-like when at very high concs.
1,1-Dichloroethane	R,I,C	3000	-	-	100	100	100	11.06**	80	200	-	Distinct, chloroform-like
1,2-Dichloroethane (Ethylene dichloride)	R,I,A,C	Ca [50]	100 [OSHA]	2 ppm [NIOSH]; 200 ppm [OSHA, 5-min max peak in any 3 hours]	50	10	1	11.05**	80	88	-	Chloroform-like
1,1-Dichloroethylene (1,1-DCE, Vinylidene chloride)	R,A,I,C	Ca [ND]	-	-	-	5	Ca	10.00**	40	190	-	Chloroform-like
1,2-Dichloroethylene	R,I,C	1000	-	-	200	200	200	9.65	50	0.85	-	Bitter, chloroform-like
Ethanol	R,I,C	3300	-	-	1000	1000	1000	10.47**	25	10	-	Weak, ether-like, wine-like
Ethylbenzene	R,I,C	800	-	125 [NIOSH; ACGIH]	100	100	100	8.76	100	2.3	E 200	Aromatic
Ethylene Glycol	R,I,C	ND	50 [OSHA]; 100 mg/m^3 [ACGIH]	-	-	-	-	-	-	-	-	Odorless
Formaldehyde	I,C	Ca [20]	0.1 [NIOSH, 15-min]; 0.3 [ACGIH]	2	0.75	-	Ca [0.016]	10.88**	-	0.83	-	Pungent, suffocating
Gasoline	R,I,A,C	Ca [ND]	-	500 [OSHA; ACGIH]	300	300	-	-	-	-	E 0.5	Petroleum-like
n-Hexane	R,I,C	1100	-	-	500	50	50	10.18	70	130	E.T 1400-1500	Gasoline-like
Hydrogen Cyanide	R,A,I,C	50	4.7 [ACGIH; Skin]	4.7 [NIOSH - skin]	10 [skin]		-	-	-	0.58	-	Bitter almond
Hydrogen peroxide	R,I,C	75	-	-	1	1	1	10.54**	-	-	-	Sharp
Methanol	R,I,A,C	6000	-	250 [NIOSH; ACGIH; skin]	200	200 [skin]	200	10.84**	12	1000	-	Pungent
Methyl Ethyl Ketone Peroxide	R,I,C	ND	0.2 [NIOSH; ACGIH] 0.7 [OSHA]	-	-	-	-	-	-	-	-	Characteristic odor
Methyl Chloroform (1,1,1-TCA)	R,I,C	700	350 [NIOSH, 15-min]	450 [ACGIH]	350	350	Ca	11.00**	105	20-100	-	Chloroform-like
Methylene Chloride (Dichloromethane, Methylene dichloride)	R,I,A,C	Ca [2300]	-	125	25	50	Ca	11.32**	100	25-50	E 5000	Chloroform-like
Methyl Mercaptan	R,C	150	10 [OSHA] 0.5 [NIOSH, 15-min]	-	-	0.5	-	9.44	-	-	-	Garlic, rotten cabbage
MIBK (Hexone)	R,I,C	500	-	75 [NIOSH; ACGIH]	100	50	50	9.30	-	-	-	Pleasant
Naptha (coal tar)	R,I,C	1000	-	-	100	400	100	-	-	-	-	Aromatic
Naphthalene	R,A,I,C	250	-	15 [NIOSH; ACGIH]	10	10	10	8.12	-	0.3	E 15	Mothball-like
Octane	R,I,C	1000	385 [NIOSH, 15-min]	-	500	300	75	9.82	80	48	-	Gasoline-like
Pentachlorophenol	R,A,I,C	2.5 mg/m^3	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	-	-	-	-	Pungent when hot, benzene-like
Phenol	R,A,I,C	250	15.6 [NIOSH, 15-min]	-	5 [skin]	5 [skin]	5 [skin]	8.50	-	0.04	E.N.T. 68	Sweet, acrid
Propane	R,C	2100	-	-	1000	1000	1000	11.07**	80	1600	-	Odorless (commonly smells foul due to additive for odor detection)
Stoddard Solvent (Mineral Sprits)	R,CI,I	20000 mg/m^3	1800 mg/m^3 [NIOSH, 15-min]	-	500	100	350 mg/m^3	-	-	1	E 400	Kerosene-like
Styrene	R,I,A,C	700	200 [OSHA]	100 [NIOSH]; 600 [OSHA, 5-min max peak in any 3 hours]; 40 [ACGIH]	100	20	50	8.40	85	0.047	E 200-400	Sweet, floral
1,1,2,2-Tetrachloroethane	R,I,A,C	Ca [100]	-	-	5 [skin]	1 [skin]	1 [skin]	11.10**	100	1.5	-	Pungent, chloroform-like
Tetrachloroethylene (Perchloroethylene, Perc, PCE)	R,I,A,C	Ca [150]	200 [OSHA]	300 [OSHA, 5-min max peak in any 3-hours]; 100 [ACGIH]	100	25	Ca	9.32	70	4.68	N.T513-690	Chloroform-like
Toluene	R,A,I,C	500	300 [OSHA]	150 [NIOSH]; 500 [OSHA, 10-min max peak]	200	50	100	8.82	110	2.14	E300-400	Sweet, pungent, benzene-like
Trichloroethylene (TCE)	R,I,A,C	Ca [1000]	200 [OSHA]	300 [OSHA, 5-min max peak in any 2-hours]; 100 [ACGIH]	100	50	Ca	9.45	70	21.4	-	Chloroform-like
1,2,3-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.48	-	-	-	Distinctive, aromatic
1,2,4-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.27	-	-	-	Distinctive, aromatic
1,3,5-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.39	-	-	-	Distinctive, aromatic
Turpentine	R,A,I,C	800	-	-	100	20	100	-	-	200	E.N 200	Pine-like
Vinyl Chloride	R,C	Ca [ND]	5 [OSHA, 15-min]	-	1	1	Ca	9.99	-	3000	-	Pleasant odor at high concs.
Xylenes	R,A,I,C	900	-	150 [NIOSH, ACGIH]	100	100	100	8.56 (m- and o-) 8.44 (p-)	111/116	1.1	E.N.T. 200	Aromatic

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
DUSTS, MISTS, FUMES, AND MISCELLANEOUS COMPOUNDS												
Asbestos	R	Ca (ND)	-	-	0.1 fiber/cc	0.1 fiber/cc	0.1 fiber/cc	-	-	-	-	-
PCBs-42% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	1 mg/m^3 [skin]	1 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
PCBs-54% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
Aluminum - metal dust	R,C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3	-	-	-	-	-
Aluminum - soluble salts	R,I,C	ND	-	-	2 mg/m^3	2 mg/m^3	2 mg/m^3	-	-	-	-	-
Arsenic- inorganic	R,A,I,C	Ca [5 mg/m^3]	0.002 mg/m^3 [NIOSH, 15-min]	-	0.01 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Barium:soluble compounds	R,I,C	50 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Beryllium	R,C	Ca [4 mg/m^3]	0.005 mg/m^3 [OSHA]; 0.025 mg/m^3 [OSHA, 30-min max peak]; 0.0005 mg/m^3	0.01 mg/m^3 [ACGIH]	0.002 mg/m^3	0.002 mg/m^3	Ca	-	-	-	-	-
Cadmium dusts	R,I	Ca [9 mg/m^3]	-	-	0.005 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Chromates (Cr(VI) Compounds) & Chromic Acid	R,I,C	Ca [15 mg/m^3]	0.1 mg/m^3 [OSHA]	-	0.001 mg/m^3	0.05 mg/m^3 [water soluble]; 0.01 mg/m^3 [insoluble]	Ca	-	-	-	-	-
Chromium (III) Compounds	R,I,C	25 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Chromium Metal	R,I,C	250 mg/m^3	-	-	1 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Copper - dust & mist	R,I,C	100 mg/m^3	-	-	1 mg/m^3	1 mg/m^3	1 mg/m^3	-	-	-	-	-
Lead	R,I,C	100 mg/m^3	-	-	0.050 mg/m^3	0.05 mg/m^3	0.050 mg/m^3	-	-	-	-	-
Manganese (compounds and fume)	R,I	500 mg/m^3	5 mg/m^3 [OSHA]	3 mg/m^3 [NIOSH]	-	0.2 mg/m^3	1 mg/m^3	-	-	-	-	-
Mercury & Inorganic Mercury Compounds	R,I,A,C	10 mg/m^3	0.1 mg/m^3 [NIOSH, Skin]; 0.1 mg/m^3 [OSHA]	-	-	0.025 mg/m^3	0.05 mg/m^3 [skin]	-	-	-	-	-
Organo-Mercury Compounds	R,A,I,C	2 mg/m^3	0.04 mg/m^3 [OSHA]	0.03 mg/m^3 [NIOSH]	0.01 mg/m^3	0.01 mg/m^3 [alkyl]; 0.1 mg/m^3 [aryl]	0.01 mg/m^3	-	-	-	-	-
Nickel (metal and compounds)	R,I,C	Ca [10 mg/m^3]	-	-	1 mg/m^3	1.5 mg/m^3 [metal]; 1 mg/m^3 [soluble inorganic compounds]; 1 mg/m^3 [insoluble	0.015 mg/m^3	-	-	-	-	-
Particulate (Not otherwise regulated)	R, C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3 (inhalable); 3 mg/m^3 (respirable)	-	-	-	-	-	-
Portland cement	R,I,C	5000 mg/m^3	-	-	50 mppcf	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3	-	-	-	-	-
Selenium compounds	R,I,C	1 mg/m^3	-	-	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	-	-	-	-	-
Silica, crystalline	R, C	Ca [25 mg/m^3 (cristobalite, tridymite); 50 mg/m^3 (quartz, tripoli)]	-	-	Dependent on silicon dioxide content of silica (see Appendix C of the NIOSH Pocket Guide to Chemical Hazards, 2005)	Dependent on minerology [see ACGIH 2005 TLVs and BEIs Handbook]	0.05 mg/m^3	-	-	-	-	-
Silver (metal and soluble compounds)	R,I,C	10 mg/m^3	-	-	0.01 mg/m^3	0.1 mg/m^3	0.01 mg/m^3	-	-	-	-	-
Thallium, soluble	R,A,I,C	15 mg/m^3	-	-	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Tin (metal)	R,C	100 mg/m^3	-	-	2 mg/m^3	2	2 mg/m^3	-	-	-	-	-
Tin (organic compounds)	R,A,I,C	25 mg/m^3	-	-	0.1 mg/m^3	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Zinc oxide dust & fume	R	500 mg/m^3	15 mg/m^3 [NIOSH, dust]	10 mg/m^3 [NIOSH; ACGIH: fume]	15 mg/m^3 (total dust); 5 mg/m^3 [respirable dust]; 5 mg/m^3 [fume]	2 mg/m^3 [respirable]	5 mg/m^3 (total dust); 5 mg/m^3 [fume]	-	-	-	-	-

NOTES & ABBREVIATIONS:

All units in parts per million (ppm) unless otherwise noted.
R = Respiratory (Inhalation)
I = Ingestion
A = Skin Absorption
C = Skin Contact
-: Not available
ND: Not detectable.
Ca = Carcinogen
** = Use 11.7 eV lamp
IP: Ionization potential
eV: Electrovolts

IDLH: Immediately dangerous to life and health
Ceiling: Highest allowable instantaneous C = Skin and/or Eye Contact
STEL: Short-term exposure limit. Exposure period is 15 minutes unless otherwise indicated
PEL: OSHA Permissible Exposure Limit (legally-enforceable)
REL: NIOSH Recommended Exposure Limit
PID: Photoionization Detector
OSHA: United States Occupational Safety and Health Administration
NIOSH: National Institute of Occupational Safety and Health
TLV: ACGIH Threshold Limit Value
ACGIH: American Conference of Governmental Industrial Hygienists

Physical Hazards:

Indicate all hazards that may be present for each task. If any of these potential hazards are checked, it is the project manager's responsibility to determine how to eliminate/minimize the hazard to protect onsite personnel.

Physical Hazard Checklist									
Potential Job Hazards	**Task 1** Site Wide Soil Sampling	**Task 2** Sub Slab Soil Sampling	**Task 3** Water Level Elevation and Ground-water Sampling	**Task 4** ~~MIP profiling and Confirmation sampling~~	**Task 5** Offsite Soil Vapor, Sub Slab Vapor, and Indoor/ Outdoor Air Sampling	**Task 6** Offsite Sediment and Surface Water Sampling	**Task 7** SSDS Install Over sight	**Task 8** Onsite Sewer Inspection & Cleaning	**Task 9** IRM 1, 7, and 8 Building Demolition and Soil Excavation
Confined space entry*								Potential by subcontract personnel only	
Underground utilities	✓	✓		✓	✓	✓	✓	✓	✓
Overhead utilities	✓	✓		✓	✓				✓
Electrical hazards					✓		✓	✓	✓
Excavations greater than 4' depth								✓	✓
Open excavation fall hazards							✓	✓	✓
Heavy equipment	✓	✓		✓	✓	✓	✓	✓	✓
Drilling hazards	✓	✓		✓	✓	✓			
Noise (above 85 dBA)	✓	✓		✓	✓	✓	✓	✓	✓
Traffic concerns					✓ **Const. Traffic**			✓	✓
Extreme weather conditions	✓		✓	✓	✓	✓		✓	✓

Rough terrain for drilling equipment	✓	✓	✓	✓	✓	✓			✓
Buried drums									
Heavy lifting (more than 50 lbs)	✓	✓	✓	✓	✓	✓	✓	✓	✓
High risk fire hazard									
Poisonous insects or plants	✓		✓	✓	✓				✓
Water hazards: sediment sampling only						✓ **Ice may be present**		✓ **Ice may be present**	
Use of a boat									
Lockout/Tagout requirements									
Other: Chemical Exposure	✓	✓	✓	✓	✓**Dust**		✓	✓	✓

Any indoor operation of combustion engine must have exhaust vented outdoors and frequent monitoring with a CO meter.

***CONFINED SPACE ENTRY REQUIRES SPECIAL PROCEDURES, PERMITS AND TRAINING AND MUST BE APPROVED BY THE CORPORATE HEALTH & SAFETY MANAGER. Confined space entry will be by Qualified Subcontractors Only**

Potential Activity Hazards and Hazard Controls:

Copy and paste a checkmark "✓" adjacent to potential activity hazards and relevant hazard controls.

POTENTIAL ACTIVITY HAZARDS

Abrasions and Cuts ✓
Access
Asphyxiation
Bacteria
Biological Hazards
Bloodborne Pathogens
Cave Ins
Chemical/Thermal Burns
Chemicals✓
Cold Stress ✓
Compressed Gases
Confined Spaces ✓
Congestion ✓
Defective Equipment ✓
Dermatitis ✓
Dropping Materials/Tools to Lower Levels
Drowning or Flowing Water
Electrical Shock
Energized Equipment ✓
Equipment Misuse ✓
Ergonomics ✓
Excavations ✓
Explosions
Fatigue ✓
Fire
Flammability
Flying debris ✓
Foreign Body in Eye ✓
Frostbite/Cold ✓
Fueling and Fuel Storage ✓
Fugitive Dust ✓
Fumes ✓
Generated Wastes ✓
Guards removed
Hazardous Materials ✓
Heat Stress (cramps, exhaustion, stroke)
Heavy Equipment Operation ✓
Heavy Equipment/Stability ✓
Heavy Lifting ✓
High crime area (violence)
High Winds
Hoists, Rigging, Slings, Cables
Housekeeping – Improper ✓
Illumination - Poor
Impact ✓
Inability to Maintain Communication
Inclement Weather ✓
Inclines
Insects/Reptiles ✓
Mold
Moving Equipment, Conveyors or Vehicles ✓
Muddy Site Conditions ✓
New Personnel
Noise ✓
Odor ✓
Overhead Utilities ✓
Overhead Work ✓
Overloaded Equipment
Oxygen deficiency
Pinch Points ✓
Poisonous Plants ✓
Pressure
Pressurized Lines ✓
Radiation
Repetitive Motion ✓
Rigging - Improper ✓
Sharp Objects ✓
Silicosis
Slips, Trips, and Falls ✓
Sprains and Strains ✓
Steam
Sunburn ✓
Surface Water Run-off
Toxicity ✓
Traffic ✓
Underground Utilities ✓
Uneven Terrain ✓
Unsafe Atmosphere
Vibration ✓
Visibility - Poor
Visitors Known/Unknown
VOC Emissions ✓
Weight ✓
Work at Depth
Work at Heights
Work over Water
Working on Ice

HAZARD CONTROLS

Air Monitoring ✓
Appropriate Clothing/Monitoring Of Weather ✓
Appropriate Labels/Signage ✓
Barricades/Fencing/Silt Fencing ✓
Buddy System - Attendant
Chock Blocks
Confined Space Procedures
Decontamination Procedures✓
Derived Waste Management Plan
Drinking Water/Fluids
Dust Abatement Measures ✓
Emergency Action Plan Procedures
Equipment Inspection ✓
Equipment Manuals/Training✓
Exclusion/Work Zones✓
Exhaust Ventilation ✓
Eye Protection ✓
Fall Protection
Fire Extinguisher ✓
Flotation Devices/Lifelines
Gloves ✓
Ground Fault Interrupter ✓
Grounded Hydraulic Attachments
Grounded Equipment/Tanks
Hand Signal Communication
Hard Hat ✓
Hazardous/Flammable Material Storage
Hearing Protection ✓
High Visibility Safety Vest ✓
Hoses, Access to Water ✓
Hotwork Procedures
Isolation of Energy Sources(Lockout/Tagout)
Machine/Equipment Guards
Manual Lifting Equipment ✓
Police Detail
Proper Lifting Techniques ✓
Proper Tool for Job ✓
Proper Work Position/Tools ✓
Protective Equipment ✓
Radio Communication
Respirator, (Specify Type)
Safety Harness /Lanyard/Scaffold
Security Escort
Sloping, Shoring, Trench Box
Spill Prevention Measures
Spill Kits
Stormwater Control
Traffic Controls ✓
Procedures/Methods ✓
Vehicle Inspection
Visitor Orientation Escort
Window Cleaning/Defrost

Safety Meetings

All H&A personnel visiting the site will be given an orientation safety meeting and are required to read and sign this HASP. Daily safety meetings will be conducted onsite and documented on a Health & Safety Tailgate Meeting Form.

Utility Locators and Underground Hazards

Prior to drilling or excavating, Haley & Aldrich staff members will ensure that permission has been gained from the property owner to access the property. Contact site facilities personnel to assist with location of underground utilities. Before marking any proposed exploration location, it is critical that all readily available information on underground utilities and structures be obtained. The estimated location of utility installations, such as gas, electric, fuel, steam, sewer, telephone, fiber optic, water, drainage or any other underground installation that may be expected to be encountered during drilling work, will be identified with the appropriate authority. Appropriate authorities include client representatives, utility companies, nonprofit organizations (e.g., "Dig-Safe), and others. A list of all state “utility locators” is posted on the Health and Safety Homepage under “Guidance Documents”.

Note: It is important to note that not all utilities are participants in the “one-call” agency or process. As such, inquiries must be made with the “one-call” agency to determine which entities do not participate, so they can be contacted independently.

Also, most stake-outs or markings have a limited time period for which they remain valid, typically 2 to 3 weeks. It is critical that this time period be taken into account to prevent expiration of clearance prior to completion of the invasive activities, and the need to repeat the process.

Completion of the utility stake out is not a guarantee that the underground facilities will not be encountered in the boreholes; Very few if any guarantee their work nor do they accept the liability for damage or losses if one may occur. Accordingly, Haley & Aldrich field staff are expected to use extreme caution in the upper 4-5 feet in the event the clearance has failed to identify an existing facility. This may necessitate hand-excavation or probing to confirm the presence of shallow utilities.

When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, geophysical techniques, such as ground penetrating radar and/or magnetometery can be utilized to locate the potential underground hazards. Using any information that can be obtained, the site should be viewed in detail for physical evidence of buried lines or structures. Evidence of surface elements of buried utilities should be documented, such as manholes, gas or water valves, catch basins, etc.

No subsurface drilling activities will be allowed until “all” utilities have been properly located and marked.

Marking locations can be accomplished using spray paint on the ground, stakes, or other similar method. All markings of proposed locations shall be made in white, in accordance with the generally-accepted universal color code for facilities identification (AWMA 4/99).

White:	Proposed excavation or drilling location
Pink:	Temporary Survey Markings
Red:	Electrical, Power Lines, Cables, Conduit, and Lightening Cables.
Yellow:	Gas, Oil, Steam, Petroleum , and Gaseous Materials.
Orange:	Communications, Alarm, or Signal Lines, Cables, and Conduits.
Blue:	Potable Water.
Purple:	Reclaimed Water, Irrigation, and Slurry Lines.
Green:	Sewers and Drain Lines.

The public and private utility entities generally only mark the locations of their respective underground facilities within public rights-of-way. Determination of the locations on private property will most likely be the responsibility of Haley & Aldrich or the contractor. In some cases, it may be necessary to put the ultimate responsibility back on the owner, to assist in the location of the utilities. It is incumbent on Haley & Aldrich and the Contractor to exercise caution and use good judgment when faced with uncertainty.

Cold Temperatures

Cold stress may occur at any time work is being performed at low ambient temperatures and high velocity winds. Because cold stress is common and has potentially serious illnesses associated with outdoor work during cold seasons, regular monitoring and other preventative measures are vital.

Refer to OP1003-Cold Stress for additional information and mitigation controls.

Heavy Equipment

Staff Members must be especially careful and alert when working with contractors who use heavy equipment, since equipment failure or breakage can lead to accidents and worker injury. Cranes and equipment for drilling, pile driving, test pitting and coring is of special concern. Should these devices fail during operation the likelihood of worker injury is high. Equipment of this nature should be visually inspected and checked for proper working order prior to the commencement of field work. Those that operate heavy equipment must meet all of the requirements to operate heavy equipment. Haley & Aldrich, Inc. staff members that supervise projects or are associated with such high risk projects that involve digging should use due

diligence when working with a construction firm. Maintain visual contact with operators at all times and keep out of the strike zone whenever possible. Always approach heavy equipment with an awareness of the swing radius and traffic routes of each piece of equipment and never go beneath a hoisted load. High-visibility safety vests must be worn onsite at all times. Avoid fumes created by heavy equipment exhaust.

Rig Inspection

Each day, prior to the start of work, the driller will inspect the drill rig and associated equipment. The following checks will be made:

- Vehicle condition: Check proper operation of brakes, lights, steering mechanism, and horn.
- Equipment storage: All equipment such as auger flights, split spoon samplers, hammers, hand tools, etc. will be properly stored in an appropriate location and will be secured before moving the rig.
- Wire rope, Cat Line: All wire rope, cable and Cat Line will be inspected for signs of wear such as broken wires, a reduction in rope diameter, abrasion, or signs of rust. Worn, frayed, or otherwise damaged wire, rope or cable will be replaced.
- Safety equipment: Each rig will have at least one fire extinguisher (Type B/C) and one First Aid Kit.

Rig Set-Up

Each drill rig will be properly blocked and leveled prior to raising the derrick. The rig will be moved only after the derrick has been lowered. The leveling jacks will not be raised until the derrick has been lowered.

Blocking provides a more stable drilling structure by evenly distributing the weight of the rig. Proper blocking ensures that a differential settling of the rig does not occur. Wooden blocks, at least 12 by 12 inches and four to eight inches thick, are recommended and should be placed between the jack swivels and the ground. The emergency brake will be engaged and the wheels that are on the ground chocked.

Site drilling will comply with the following rules:

- Before drilling, the Contractor/Consultant Site Coordinator will ensure an adequate safety zone around the drill rig and associated operations.
- Before drilling, the existence of underground utilities in the work area will be determined and conspicuously marked.

- If drilling is conducted in the vicinity of overhead power lines, proper distance will be maintained between the drill rig and the lines as per OSHA 29 CFR 1926, Subpart N. The proper distance or shielding technique will be stated in the project-specific HASP.

Decontamination (Equipment)

Outline the equipment decontamination procedures for this project:

- All drilling equipment (i.e. augers, rods, bits, sampling tubes, etc.) will be steam cleaned with pressurized steam prior to the onset of drilling activities, between boring locations, and before leaving the site.

- Steam cleaning will be conducted in a designated area on site, which will be determined by the onsite H&A representative at the site.

- Water generated from cleaning new monitor well materials or from initial steam cleaning of pre-cleaned drilling equipment prior to its first use on the site will not be maintained.

- Sample collection equipment (split-spoon samplers, hand augers, bailers, collection utensils, etc.) will be decontaminated before initial use, between samples, and before leaving the site with a non-phosphate detergent wash and/or high-pressure steam followed by a tap water rinse.

- After decontamination, sample collection equipment will not be transported to the sampling location on unclean surfaces (e.g., transport in or on new plastic).

- Monitor well development/purge pumps will be decontaminated before and after use in each well with a non-phosphate detergent water wash, tap water rinse, and final deionized water rinse. This wash and rinse sequence will be circulated through the pump system and applied to exterior surfaces that will be or have been in contact with groundwater.

- Contractors are responsible to decontaminate their own equipment.

Noise Reduction

Site activities in proximity to heavy equipment often expose workers to excessive noise. It is anticipated that situations may arise when noise levels may exceed the OSHA Action Level of 85 dBA in an 8-hour time-weighted average (TWA). An example of this possibility is working in close proximity to the subcontractor during drilling activities onsite. If excessive noise levels occur, efforts will be made to control this by issuance of earplugs to all personnel and by implementing a system of hand signals understood by all.

Work Site Access & Controls (Standard Precautions)

The work area is restricted to authorized personnel. Clearly define the work area before beginning activities for the day. Caution tape and safety cones must be provided as necessary for vehicular traffic concerns and to protect passers-by. Proper housekeeping is essential to avoid creating hazards to pedestrian and vehicular traffic. Excavations in progress will not be left unattended at any time. Running equipment will not be left unattended at any time. Test borings and test pits will be backfilled upon completion and the area restored. Drilling equipment will be secured above test borings during work stoppages and at the end of the workday. Test pits will be covered or closed prior to the end of the workday.

Work over Water

Staff and subcontractors working near or above the water shall be provided with a USCG approved lifejacket, personal flotation device (PFD) or buoyant work vest. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used and immediately replaced. Except when working on the barge (with proper railing/ fall protection). Wearing PFD is mandatory when working near or on the water.

A 30-inch-diameter ring buoy with least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.
When working in cold temperatures dress properly. Clothing made from man-made fibers does not protect the wearer for long when wet. Wool insulates better against the effects of hypothermia when dry or wet.

If you fall in Ice:

- DON'T PANIC! Call for help.
- Turn toward the direction you came from.
- Place your hands and arms on the unbroken surface, working forward by kicking
- your feet.
- Once out, remain lying on the ice (do not stand) and roll away from the hole.
- Crawl back to your tracks, keeping your weight distributed until you return to solid ice.

Working around Heavy Equipment

Staff Members must be especially careful and alert when working with contractors who use heavy equipment, since equipment failure or breakage can lead to accidents and worker injury. Cranes and equipment for drilling, pile driving, test pitting and coring is of special concern. Should these devices fail during operation the likelihood of worker injury is high. Equipment of this nature should be visually inspected and checked for proper working order prior to the commencement of field work. Those that operate heavy equipment must meet all of the requirements to operate heavy equipment. Haley & Aldrich, Inc. staff members that supervise projects or are associated with such high risk projects that involve digging should use due diligence when working with a construction firm.

Lightning

- Always pay attention to the weather conditions. You are responsible for your own safety. Use common sense and do not feel pressure to continue to work if you feel there is a threat and others don't, such as contractors and co-workers.
- If you are using conductive tools and equipment, separate yourself from them as far as practical.
- If you are near a drilling rig, lower the mast and move away from the rig.
- Rule of thumb- wait until 30 minutes after the last observed lightning strike or thunderclap before resuming your outdoor activities, warns the National Lightning Safety Institute.
- Protect yourself by taking cover in the best shelter you can find.
- If you are in or near the water, go to land immediately and find shelter. Take extra precaution when on the water and in a boat.
- If choosing between a building and a car, choose the building.
- If choosing between a hardtop and a convertible, choose the hardtop.
- If you're in a car, keep the windows closed.
- If there is no shelter, find a low-lying, open place that is a safe distance from trees, poles, or metal objects that can conduct electricity. Make sure it is not likely to flood. Assume a tucked position: Squat low to the ground. Place your hands on your knees with your head tucked between them. Try to touch as little of your body to the ground as possible.
- Do not lie flat on the ground, as your fully extended body will provide a larger surface to conduct electricity. Stay in a tuck position well after the storm passes.
- Watch for local flooding you may have to move if water begins to accumulate.
- If you feel your hair stand on end in a storm, drop into the tuck position **immediately.** This sensation means electric charges are already rushing up your body from the ground toward an electrically charged cloud. Minimize your contact with the ground to minimize your injury.

Poisonous Plants and Animals

Biological hazards include vector-borne diseases, venomous wildlife and insects, and poisonous plants. Vector-borne diseases may be spread to workers by insects, such as mosquitoes, or ticks. When a mosquito or tick bites a worker, it may transfer a disease-causing agent, such as a parasite, bacterium, or virus. Mosquito-borne diseases include West Nile virus, St. Louis encephalitis, eastern equine encephalitis, western equine encephalitis, and LaCrosse encephalitis. Tick-borne diseases include Lyme disease, babesiosis, ehrlichiosis, Rocky Mountain spotted fever, southern tick-associated rash illness, tularemia, tick-borne relapsing fever, anaplasmosis, Colorado tick fever, Powassan encephalitis, and Q fever.

Outdoor workers in the United States may be exposed to many types of venomous wildlife and insects. Venomous snakes, spiders, and stinging insects can be found throughout various geographic regions. They are especially dangerous to workers who have allergies to the animal. Anaphylactic shock is the body's severe allergic reaction to a bite or sting and requires immediate emergency care. Thousands of people are stung each year, and as many as 40–50

people in the United States die each year from severe allergic reactions. Venomous snakes include rattlesnakes. Stinging insects include bees, wasps, and hornets.

Poisonous plants found in the United States include poison ivy, poison oak, and poison sumac. These plants can cause allergic reactions if the leaves or stalks are damaged and come in contact with workers' skin. These plants can also be dangerous if they are burned and their toxins are inhaled by workers.

Heat Stress

Heat stress on hazardous waste sites or construction sites usually is a result of protective clothing decreasing natural body ventilation, although it may occur at any time work is being performed at elevated ambient temperatures. Because heat stress is one of the most common and potentially serious illnesses associated with hazardous waste site work, regular monitoring and other preventative measures are vital.

Site workers must learn to recognize and treat the various forms of heat stress.

The best approach is preventative heat stress management. In general:

- Workers should drink 16 ounces of water before beginning work, such as in the morning or after lunch. The water should be maintained at 50 to 60°F. Workers should drink 1 to 2 4-ounce cups of water every 30-60 minutes. A cool area for rest breaks should be designated, preferably air-conditioned. The use of alcohol during non-working hours and the intake of caffeine during working hours can lead to an increase in susceptibility to heat stress. Monitor for signs of heat stress.

- Workers should acclimate to site work conditions by slowly increasing workloads, i.e., do not begin site work activities with extremely demanding activities. This acclimation process may require up to two weeks for completion.

- Cooling devices should be used to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear, which acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.

- Installed mobile showers and/or hose-down facilities should be used to reduce body temperature and cool protective clothing in serious heat stress situations.

- In hot weather, field activities should be conducted in the early morning or evening to the extent possible.

- Adequate shelter should be available to protect personnel from heat, as well as cold, rain, snow, etc., which can decrease physical efficiency and increase the probability of both

heat and cold stress. Set up a command post in the shade or erect temporary shade at the workstation if practical.

- In hot weather, rotate shifts of workers with potential heat stress exposure.
- Good hygienic standards must be maintained by frequent changes of clothing and showering. Clothing should be permitted to dry during rest periods. Persons who develop skin problems should immediately consult medical personnel.

Effects of Heat Stress

If the body's physiological process fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to fatal.

Heat-related problems are:

HEAT STROKE: An acute and dangerous reaction to heat exposure caused by failure of heat regulating mechanisms of the body; the individual's temperature control system that causes sweating stops working correctly. Body temperature rises so high that brain damage and death will result if the person is not cooled quickly.

Symptoms: Red, hot, dry skin, although person may have been sweating earlier; nausea; dizziness; confusion; extremely high body temperature; rapid respiratory and pulse rate; unconsciousness or coma.

Treatment: Cool the victim quickly and obtain immediate medical assistance. If the body temperature is not brought down fast, permanent brain damage or death may result. Soak the victim in cool but not cold water, sponge the body with rubbing alcohol or cool water, or pour water on the body to reduce the temperature to a safe level (102oF). Observe the victim and obtain medical help. Do not give coffee, tea or alcoholic beverages.

HEAT EXHAUSTION: A state of definite weakness or exhaustion caused by the loss of fluids from the body. This condition is much less dangerous than heat stroke, but it nonetheless must be treated.

Symptoms: Pale, clammy, moist skin, profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, and breathing is shallow. The person may have a headache, may vomit, and may be dizzy.

Treatment: Remove the person to a cool place, loosen clothing, and place in a head-low position. Provide bed rest. Consult physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have patient drink 1 to 2 cups water immediately and every 20 minutes thereafter until symptoms subside. Total water consumption should be 1 to 2 gallons per day.

HEAT CRAMPS: Caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

Symptoms: Acute painful spasms of voluntary muscles (e.g., abdomen and extremities).

Treatment: Remove the victim to a cool area and loosen clothing. Have the patient drink 1 to 2 cups water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be 1 to gallons per day.

HEAT RASH: Caused by continuous exposure to heat and humid air and aggravated by chaffing clothes. Decreases ability to tolerate heat.

Symptoms: Mild red rash, especially in areas of the body on contract with protective gear.

Treatment: Decrease amount of time in protective gear and provide powder to help absorb moisture and decrease chaffing.

Cold Stress

If site work is to be conducted during the winter, cold stress is a concern to the health and safety of personnel. Without proper protection, cold injuries, such as frostbite, can occur even when the temperature is above freezing (32 degrees F, 0 degrees C). This is especially true if there is a high wind or if a glove or sock gets wet. The cold injuries that may arise include:

Chilblains:

Chilblains are the most common type of cold injury and occur when there is exposure of the affected area to a dry cold. There is no tissue freezing with a chilblain injury. If you have chilblains, you might notice that the affected area may itch, turn reddish-blue, and be swollen and painful. With time, blisters containing clear fluid may form. The injured area may be very sensitive to the cold in the future. However, there is usually no other permanent damage.

Immersion Injury:

Immersion injury, occurs when a body part is exposed to a cold, wet environment. This type of injury may occur when a glove or sock becomes wet. As with chilblains, the affected area is not frozen. The symptoms of immersion injury are similar to those of chilblains, but the damage is usually more serious. The blisters are deeper and resemble the blisters that form after a burn. Again, there is no permanent injury other than cold sensitivity

Frostbite:

Localized injury resulting from cold is included in the generic term "frostbite." There are several degrees of damage. Frostbite of the extremities can be categorized as:

- Frost nip or incident frostbite - sudden blanching or whitening of the skin
- Superficial frostbite - skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient
- Deep frostbite - tissues are cold, pale, and solid; extremely serious injury

Hypothermia:

Hypothermia (significant loss of body heat) is also a potential hazard during cold weather operations. Signs of early hypothermia can be chills, pale skin, cold skin, muscle rigidity, depressed heart rate, and disorientation.

Hypothermia is characterized as "moderate" or "severe." A victim of moderate hypothermia may exhibit any combination of the following: severe shivering, abnormal behavior, slowing of movements, stumbling, weakness, repeated falling, inability to walk, collapse, stupor, or unconsciousness. Severe hypothermia is determined by extreme skin coldness, loss of consciousness, faint pulse, and shallow, infrequent or apparently absent respiration. Death is the ultimate result. The onset of severe shivering signals danger to personnel; exposure to cold shall be immediately terminated for any severely shivering worker. Personnel should wear insulated garments in a layered fashion to prevent hypothermia.

Indoor Work

For Building 2 and 5, sufficient ventilation or exhaust outside the building must be provided to accommodate the exhaust from the Geoprobe rig under Task 2 and 3. Also, carbon monoxide levels in the breathing zone must be monitored with a Multiple Gas Detector.

Reporting Incidents

Detailed reporting procedures for work-related accidents and incidents involving H&A staff members consist of the following sequential steps:

1. **Initial notification** - The staff member who is injured or otherwise directly involved in a work-related incident is responsible for immediately notifying his/her supervisor (staff manager) of the event. Obviously, any other staff member present at the site may make the notification if the injury is serious and/or debilitating.

2. **Secondary notifications** - The staff manager shall notify his/her Local H&S Coordinator (LHSC) of the accident/incident as soon as possible after the initial response is completed. An incident report should be completed as soon as possible through Gensuite.

All work-related injuries, illnesses, and near misses shall be reported to the LHSC and PM, regardless of severity. Thus, at a minimum, all first aid cases must be reported. It is not the responsibility of the staff manager or project manager to determine what shall be reported to the LHSC. The LHSC will work closely with the CHSM to determine reportability and recordability of an injury/illness on each case.

3. **Accident report** - After the initial response (medical attention, etc.) is completed, the staff or accountable staff manager is responsible for initiating an investigation into the cause of the accident/incident and for completing the H&A incident report form.

4. **Report distribution** – If the reporting is not done online through the available systems, copies of the report shall immediately be forwarded to the Corporate HR Representative for placement in the respective incident/injury case and workers' compensation files.

5. **Corrective actions** - The staff manager and LHSC (with input from the injured staff member and other staff members involved in the incident) are responsible for determining a course of action to ensure that the accident/incident does not occur again. Responses to serious work-related accidents or incidents may require the approval of the Corporate H&S Manager and senior management.

It is important that all H&A staff members understand these reporting procedures and the significance of the role of the staff member's staff manager in the process of responding to and reporting on-the-job injuries, illnesses and near misses.

Seeking Medical Attention-

The staff member should seek emergency medical services from an institution that is convenient for the services needed, such as a clinic, hospital, etc. They should call Workcare to expedite and assist on all incidents where medical care is sought: 888-449-7787. If the injury is not an emergency, but medical treatment is required, refer the staff member to Workcare. The staff member may seek medical services from their own physician, but only if a signed notification form is on file with the Company stating that they prefer to be examined by their own physician in the event of a work-related injury.

Site Security

The site/ work area will be taped and coned off during non-working hours to prevent access by unauthorized persons.

PROTECTIVE MEASURES

Personal Protective Equipment Requirements:

Copy and paste a checkmark "✓"into appropriate boxes.

Required PPE	Task 1	Task 2	Task 3	~~Task~~ 4	Task 5	Task 6	Task 7	Task 8	Task 9
Hard hat	✓	✓	✓	✓		✓	✓	✓	✓
Safety glasses w/side shields	✓	✓	✓	✓	✓	✓	✓	✓	✓
Steel-toe footwear	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hearing protection (plugs, muffs)	✓	✓	✓	✓	✓			✓	✓
Tyvek ™ coveralls									
PE-coated Tyvek™ coveralls									
Boots, chemical resistant									
Boot covers, disposable									
Leather work gloves	✓	✓	✓	✓	✓	✓	✓	✓	✓
Inner gloves - Nitrile	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outer gloves - Enter material here									
Tape all wrist/ankle interfaces									
Half-face respirator*									
Full-face respirator*									
Organic vapor cartridges									
Acid gas cartridges									
Other cartridges: Enter type here									
P-100 (HEPA) filters									
Face shield									
Personal Flotation Device (PFD)						✓			
High-Visibility Safety Vest	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other: Face Coverings (see amendment)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Level of protection required [C or D]:	D	D	D	D	D	D	D	D	D

* In the event of sustained detections in the breathing space respirator use may be required. Staff will stand down and secure proper equipment. H&A staff must be medically qualified, fit tested and clean shaven with no facial hair that will interfere with the seal if respirators are required.

The required PPE checked in any box above must be on site during the task being performed. Work shall not commence unless the required PPE is present.

Site Safety Equipment Requirements:

Check all items that are required to be on site.

Site Safety Equipment

☑ Fire Extinguisher	☑ First Aid Kit	☑ Flashlight
Extinguisher (driller supplies)		
☐ Air horn/signaling device	☑ Cellular Phone	☐ Duct tape
☐ Ladder	☑ Barricade tape	☐ Drum dolly
☐ Two-way radio	☑ Safety cones	☐ Harness/Lanyard
☐ Other Specify		

The required equipment checked in any box above must be on site during the task being performed. Work shall not commence unless the equipment is present.

MONITORING PLAN AND EQUIPMENT

Is air/exposure monitoring required at this work site for personal protection? ☑ Y ☐ N

Is perimeter monitoring required for community protection? ☑ Y ☐ N
For certain tasks as required by workplans.

Monitoring/Screening Equipment **Requirements:**

Check all items that are required to be on site.

Required Monitoring/Screening Equipment

☑ Photo-Ionization Detector (PID)	10.6	☐ Combustible Gas Indicator (CGI) (LEL)
☐ Photo-Ionization Detector (PID)		☑ Multiple Gas Detector
☐ Photovac Micro Tip (PID)		☐ Dust Monitors (RAMs)
☐ Organic Vapor Monitor		☐ Colorimetric tubes
☐ Photovac Gas Chromatagraph (GC)		☐ Other

The required equipment checked in any box above must be on site for tasks and AOCs where these hazards have been identified. Work shall not commence unless the equipment is present.

Standard Action Levels and Required Responses:

Exposure Guidelines for common contaminants are listed in Table 1 - Occupational Exposure Limits in the Chemical Hazards section above.

Requirements for PPE upgrades based on monitoring are in Table 2 - Monitoring Methods, Action Levels and Protective Measures following the Specific Monitoring Requirements section below.

Action levels for readings obtained with a multiple gas detector are listed below.

Instrument	Normal	Operating levels	Action levels – required responses
Oxygen Meter	20.9%	Between 19.5-23.5%	Below 19.5 %: leave area, requires supplied air Above 23.5%: leave area, fire hazard

CGI	0%	Less than 10%	Greater than 10%: fire/explosion hazard; cease work
Hydrogen Sulfide	0%	Less than 10 ppm.	Greater than 15 ppm (or 10 ppm for 8 hrs) requires supplied air respirator
Carbon Monoxide	0%	Less than 25 ppm	Greater than 200 ppm for 1 hour (or 25 ppm for 8 hrs) requires supplied air respirator

Standard Air Monitoring Plan (Volatiles):

- Prior to the beginning of work obtain background readings with the PID away from the site.
- Monitor the breathing zone when site soil is exposed (e.g., while drilling or excavating is occurring, etc.) with the PID.
- Monitoring should be conducted most frequently (e.g., every 15-30 minutes) when drilling or excavation first begins in a particular area and when soil is removed from the hole. After this, and if no exceedances of exposure limits are noted (see below), monitoring may be conducted less frequently (e.g., every 60 minutes).
- H&A general exposure limits will be used when a mixture of potentially volatile chemicals are suspected to be present in soil at the site.

In summary, if a reading of 10 ppm above background is detected with the PID for 5 minutes or longer, back away for a few minutes. Screen the air again after any vapors/gases have been given a chance to dissipate. If 10 ppm above background is still noted, evacuate the area and call the LHSC and PM for further guidance.

- Record monitoring data and PPE upgrades in field book or on Record of Field Monitoring form and maintain with project files.

- Air monitoring for exposure should be based on the frequency established under the Standard Air Monitoring Plan or under the Specific Monitoring Requirements. Record time, location and results of monitoring and actions taken based upon the readings.

Specific Monitoring Requirements:

Carbon Monoxide Monitoring:
Applicable tasks: # 2 and 3 (Building 2 and 5)
Frequency: Continuously in worker breathing space when Geoprobe work is indoors.
Description: Air will be screened using a Multiple Gas Detector. Carbon monoxide concentration in air is not to exceed 200 ppm for 1 hour (or 25 ppm for 8 hours).

VOC Monitoring:
Applicable tasks: # 1, 2, 3 and 4
Frequency: Continuously in worker breathing space when soil is disturbed.

Description: Soils will be screened using a PID (MiniRae 2000) for the presence of volatiles.

Calibration and Use of Equipment:

Calibrate all monitoring equipment in accordance with manufacturers requirements, H&A calibration (OP) standards and site specific requirements (e.g., at the beginning and end of each work day). Calibration of equipment shall be documented in the field notes or Daily Field Report (DFR). Documentation should include:

- Date/time
- Zero reading before calibration
- Concentration of calibration gas
- Reading obtained with calibration gas before adjusting span\
- Final reading obtained with calibration gas after adjusting span

DECONTAMINATION AND DISPOSAL METHODS

Personal Hygiene Safeguards:

The following minimum personal hygiene safeguards shall be adhered to:

- No smoking or tobacco products on any HAZWOPER project.
- No eating or drinking in the exclusion zone.
- It is required that personnel present on site wash hands before eating, smoking, taking medication, chewing gum/tobacco, using the restroom, or applying cosmetics and before leaving the site for the day.
- It is recommended that personnel present on site shower or bathe at home at the end of each day of working on the site.

Standard Personal Decontamination Procedures:

Outer gloves and boots should be decontaminated periodically as necessary and at the end of the day. Brush off solids with a hard brush and clean with soap and water or other appropriate cleaner whenever possible. Remove inner gloves carefully by turning them inside out during removal. Wash hands and forearms frequently. It is good practice to wear work-designated clothing while on-site which can be removed as soon as possible. Non-disposable overalls and outer work clothing should be bagged onsite prior to laundering. If gross contamination is encountered on-site contact the Project Manager and LHSC to discuss proper decontamination procedures. The steps required for decontamination will depend upon the degree and type of contamination but will generally follow the sequence below.

1. Remove and wipe clean hard hat
2. Rinse boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves
5. Remove outer boots
6. Remove outer gloves
7. Remove Tyvek coverall
8. Remove respirator, wipe clean and store
9. Remove inner gloves

Location of Decontamination Station:

To be established near the various site investigation locations.

Disposal of PPE:

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles. PPE that is grossly contaminated must be bagged (sealed) and field personnel should communicate with the Project Manager to determine proper disposal.

Tools & Equipment Decontamination:

All decontamination should be conducted at the site and not at the office or lab.

Check all equipment and materials needed for decontamination of tools and other equipment.

☐ Acetone	☑ Distilled water	☑ Poly sheeting
☑ Alconox soap	☐ Drums for water	☑ Steam cleaner
☑ Brushes	☐ Hexane	☐ Tap water
☑ Disposal bags	☐ Methanol	☐ Washtubs
☑ 5 gallon pails	☑ Other Paper towels, disinfectant spray/wipes, sanitizer	

Standard Equipment Decontamination Procedures:

Air monitoring instrumentation and delicate instruments that are difficult to decontaminate or sensitive to water should be protected from contamination during use through the use of plastic sheeting. To the extent possible, efforts should be taken to limit the degree of contamination to hand tools and sampling equipment during use. Proper PPE must be worn while performing decontamination, including the wearing of chemical safety goggles and gloves. Standard equipment decontamination procedures are as follows. Any additional requirements are listed under Specific Equipment Decontamination Procedures below.

Pretreatment of heavily contaminated equipment may be conducted as necessary:

1. Remove gross contamination using a brush or wiping with a paper towel
2. Soak in a solution of Alconox and water (if possible)
3. Wipe off excess contamination with a paper towel
4. If residue still appears, use simple green or similar product and allow to dry

Standard decontamination procedure:

1. Wash using a solution of Alconox and water
2. Rinse with potable water
3. Rinse with distilled water

1. Dispose of dedicated sampling equipment in drums

Standard Disposal Methods for Contaminated Materials:

Excess sample solids, decontamination materials, rags, brushes, poly sheeting, etc. that are determined to be free of contamination through field screening can usually be disposed into client-approved, on-site trash receptacles. Uncontaminated wash water may be discarded onto the ground surface away from surface water bodies in areas where infiltration can occur. Contaminated materials must be segregated into liquids or solids and drummed separately for off-site disposal. Any additional requirements are listed under Specific Disposal Methods for Contaminated Materials below.

Specific Disposal Methods for Contaminated Materials:

If onsite trash receptacles are not available, excess sample solids, decontamination materials, rags, brushes, poly sheeting, etc. that are determined to be free of contamination through field screening will be disposed of in drums staged onsite for future disposal.

Disposal Methods for Contaminated Soils:

Contaminated soil cuttings and spoils must be drummed for disposal off-site unless otherwise specifically directed. Soil cuttings and spoils determined to be free of contamination through field screening can usually be returned to the boreholes or excavations from which they came.

CONTINGENCY PLANNING

How H&A responds to an emergency depends on whether we are at an active facility or another other location. Many active facilities have very stringent requirements for the mitigation of emergencies. Therefore, the PM is responsible for identifying any specific requirements from the client contact.

As a rule of thumb, the following are H&A's basic responses to handling Emergencies. Typically, H&A does not mitigate emergencies. When Clients request or require specific functions such as First Aid/CPR trained personnel on site, we typically conform. Before any Project Manager or LHSC agrees to something more stringent, many issues should be considered such as training, safety, feasibility of an adequate response, insurance requirements, and much more.

Fire:

- Major Fires - Major fires will be mitigated by the local fire departments or by client's on-site fire/emergency response departments.
- Incipient Stage Fires -Incipient stage fires will be extinguished by on-site personnel using fire extinguishers. Only those who have received annual training may use an extinguisher.

Medical:

All H&A employee injuries and illnesses will be reported to the PM and reported through Gensuite app.

- First Aid - First aid will be addressed using the on-site first aid kit. H&A employees are not required or expected to administer first aid/CPR to any H&A, Contractor, or Civilian personnel at any time and it is H&A's position that those who do are doing it on their behalf and not as a function of their job.
- Trauma - Based upon the nature of the injury, the injured party may be transported to the nearest hospital or emergency clinic by on-site personnel or by ambulance. First response to a trauma incident is to call 911 or facility security. H&A staff members are expected to assist in ancillary roles only such as directing ambulances to the scene. It is the discretion of the staff member on site whether an ambulance should be procured in remote locations where ambulance services will not be effective.

Hazardous Materials Spill:

- Small incidental spills (e.g. pint of motor oil) caused by H&A employees and/or by the contractor will be mitigated by the H&A staff member and/or the contractor.
- Large spills (e.g. large leak from heavy equipment fuel tank). The contractor is responsible for cleanup. In the event that it posses a serious human or environmental threat, the local Fire Department and/or client emergency response department will be

contacted. Once emergency has been mitigated typically clean up will be provided by a vendor.

Rescue:

H&A employees will not enter any confined spaces for rescue purposes.

Weather Related Emergencies:

H&A employees and their subcontractors should be aware of potential health effects and/or physical hazards of working during inclement weather. If applicable, safeguards against the effects and hazards of heat stress, cold stress, frostbite, thunderstorms, and lightning, etc., should be included with the section pertaining to physical hazards in this HASP.

Evacuation Alarms:

Evacuation alarms and/or emergency information will be communicated among personnel on site through verbal communication.

Emergency Services:

Emergency services will be summoned via cellular phone.

Emergency Evacuation Plan:

The site evacuation plan is as follows:

1. Establish a designated meeting area to conduct a head count in the event of an emergency evacuation.
2. If the work area is not near an emergency exit, exit via the closest route and meet at the designated meeting area.
3. Notify emergency response personnel (fire, police and ambulance) of the number of missing or unaccounted for employees and their suspected location.
4. Administer first aid will in the meeting area as necessary.

Under no circumstances should any personnel re-enter the site area without the approval of the corporate H&S manager, the H&S coordinator, and the fire department official in charge.

HEALTH & SAFETY PLAN ACKNOWEDGMENT FORM

Note: Only H&A employees sign this page.

I hereby acknowledge receipt and briefing on this Health & Safety Plan prior to the start of on-site work and declare that I understand and agree to follow the provisions and procedures set forth herein while working on this site.

PRINTED NAME	SIGNATURE	DATE

APPENDIX A
HASP Amendment Form

This Appendix is to be used whenever there is an immediate change in the project scope that would require an amendment to the HASP. For project scope changes associated with "add-on" tasks, the changes must be made in the body of the HASP. Before changes can be made, a review of the potential hazards must be initiated by the H&A Project Manager.

Amendment No.	1
Site Name:	
Work Assignment No.:	
Date:	
Type of Amendment:	
Reason for Amendment:	Covid Safe Work Procedures
Alternate Safeguard Procedures:	
Required Changes in PPE:	Face covering per H&A Covid policy, disinfection, 6 ft spacing from others

Project Manager Signature: _____ Date: _____

Local Health and Safety Coordinator: _____

_____ Date: _____

This original form must remain on site with the original HASP. If additional HASPs are in the field, it is the Project Manager's responsibility to forward a signed copy of this amendment to those who have copies.

APPENDIX B

Issuance and Compliance
Site Safety Officer Role and Responsibilities
Training Requirements

This Health & Safety Plan (HASP) has been prepared in accordance with the requirements of Title 29 the Code of Federal Regulations (CFR) Section 1910.120/1926.65 to provide guidance for the protection of onsite personnel from physical harm and chemical exposure while working at the subject site.

The specific requirements of this HASP include precautions for hazards that exist during this project and may be revised as new information is received or as site conditions change.

- This HASP must be signed by all Haley & Aldrich (H&A) staff members who will work on the project, including H&A visitors. By signing the Health and Safety Plan Acknowledgement Form personnel are acknowledging that they are aware of the specific hazards of the site and agree to follow the provisions and procedures required to safeguard themselves and others from those hazards.
- This HASP or a current signed copy must be retained at the site at all times when H&A staff members are present.
- Deviations from this HASP are not permitted without prior approval from the above signed. Unauthorized deviations may constitute a violation of H&A company procedures/policies and may result in disciplinary action.
- Revisions to this HASP must be outlined within the contents of the HASP. If immediate or minor changes are necessary, the LHSC and H&A Project Manager may use Appendix A (HASP Amendment Form), located in the back of this HASP. Any revision to the HASP requires personnel to be informed of the changes and that they understand the requirements of the change.
- This HASP is not for H&A Subcontractor use. Each subcontractor engaged is responsible for all matters relating to the health and safety of their personnel and the safe operation of their equipment. This HASP will be made available as a reference so that subcontractors are informed of the potential hazards associated with the site to the extent we are aware. Subcontractors must develop their own HASP which must be, at a minimum, at least as protective as this HASP.
- This Site Specific HASP provides only site-specific descriptions and work procedures. General safety and health compliance programs in support of this HASP (e.g., injury reporting, medical surveillance, personal protective equipment (PPE) selection, etc. are described in detail in the H&A Corporate Health and Safety Program Manual and within Standard Operating Procedures (OPs). Both the manual and OPs can be located on the Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate to the extent possible. The manual and OPs are available to clients and regulators per request.

Site Safety Officer:

The site safety officer (SSO) is defined as the individual responsible to the employer with the authority and knowledge necessary to implement the HASP and verify compliance with applicable health and safety requirements.

The H&A Project Manager may designate any person as the site safety officer (SSO) and determines the order of authority on site. Usually the highest ranking person on site is the SSO. A site safety officer must be on site at all times. When none of the designated SSOs are present on site, the senior person for H&A on site will default to the SSO. This project has identified the following hierarchy for SSO.

1. TBD_____

Site Safety Officer Roles and Responsibilities:

The SSO is responsible for field implementation of this HASP and enforcement of safety rules and regulations. SSO functions include:

- Act as H&A's liaison for health and safety issues with client, staff, subcontractors, and agencies.
- Verify that utility clearance has been performed by H&A subcontractors.
- Oversee day-to-day implementation of the HASP by H&A employees on site.
- Interact with subcontractor project personnel on health and safety matters.
- Verify use of required PPE as outlined in the HASP.
- Inspect and maintain H&A safety equipment, including calibration of air monitoring instrumentation used by H&A.
- Perform changes to HASP and document in Appendix A of the HASP as needed and notify appropriate persons of changes.
- Investigate and report on-site accidents and incidents involving H&A and its subcontractors.
- Verify that site personnel are familiar with site safety requirements (e.g., the hospital route and emergency contact numbers).
- Report accidents, injuries, and near misses to the H&A PM and Local Health and Safety Coordinator (LHSC) as needed.

The SSO will conduct initial site safety orientations with site personnel (including subcontractors) and conduct toolbox and safety meetings thereafter with H&A employees and H&A subcontractors at regular intervals and in accordance with H&A policy and contractual obligations. The SSO will track the attendance of site personnel at H&A orientations, toolbox

talks, and safety meetings. Subcontractors will document training and provide training rosters to the H&A SSO.

The SSO will report accidents such as injury, overexposure, or property damage to the Local Health and Safety Coordinator, to the Project Manager, and to the safety managers of other on-site consultants and contractors. The SSO will consult with the safety managers of other on-site consultants and subcontractors on specific health and safety issues arising over the course of the project, as needed.

Health and Safety Training Requirements:

Personnel will not be permitted to supervise or participate in field activities until they have been trained to a level required by their job function and responsibility. H&A staff members, contractors, subcontractors, and consultants who have the potential to be exposed to contaminated materials or physical hazards must complete the training described in the following sections.

The H&A Project Manager/LHSC will be responsible for maintaining and providing to the client/site manager documentation of H&A staff members' compliance with required training as requested. Records shall be maintained per OSHA requirements.

40-Hour Health and Safety Training

The 40-Hour Health and Safety Training course provides instruction on the nature of hazardous waste work, protective measures, proper use of personal protective equipment, recognition of signs and symptoms which might indicate exposure to hazardous substances, and decontamination procedures. It is required for all personnel working on-site, such as equipment operators, general laborers, and supervisors, who may be potentially exposed to hazardous substances, health hazards, or safety hazards consistent with 29 CFR 1910.120.

8-hour Annual Refresher Training

Personnel who complete the 40-hour health and safety training are subsequently required to attend an annual 8-hour refresher course to remain current in their training. When required, site personnel must be able to show proof of completion (i.e., certification) at an 8-hr refresher training course within the past 12 months.

8-Hour Supervisor Training

On-site managers and supervisors directly responsible for, or who supervise staff members engaged in hazardous waste operations, should have eight additional hours of Supervisor training in accordance with 29 CFR 1910.120. Supervisor Training includes,

but is not limited to, accident reporting/investigation, regulatory compliance, work practice observations, auditing, and emergency response procedures.

Additional Training for Specific Projects

H&A personnel will ensure their personnel have received additional training on specific instrumentation, equipment, confined space entry, construction hazards, etc., as necessary to perform their duties. This specialized training will be provided to personnel before engaging in the specific work activities including:

- Client specific training or orientation
- Competent person excavations
- Confined space entry (entrant, supervisor, and attendant)
- Heavy equipment including aerial lifts and forklifts
- First aid/ CPR
- Diving certification
- Use of fall protection
- Commercial driver's license
- Use of nuclear density gauges
- Asbestos awareness

APPENDIX D

Phase II Sewer Screening Summary

APPENDIX D
PHASE II SEWER SCREENING SUMMARY RESULTS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK

		Head Space Reading	
Building 1 Sanitary Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SA-A	Blocked	NS	NS
SA-B	Open	0.0	13.14
SA-C	Blocked	NS	NS
SA-D	Not found	NS	NS
SA-E	Not found	NS	NS
SA-F	Open	0.0	3.44
SA-G	Not Found	NS	NS
SA-H	On Wall	NS	NS
SA-I	Not Found	NS	NS
SA-J	Sealed	NS	NS
SA-K	Open	0.0	1.98
SA-L	Sealed	NS	NS
SA-M	Blocked	NS	NS
SA-N	Open	0.0	3.30
SA-O	Missing	NS	NS
SA-P	Sealed	NS	NS
SA-Q	Open	0.0	2.87
SA-R	Open	0.0	1.81
SA-S	Open	0.0	2.95
SA-T	Sealed	NS	NS
SA-U	Sealed	NS	NS
SA-V	Open	0.0	5.06
SA-W	Sealed	NS	NS
SA-X	Covered	NS	NS
SA-Y	Sealed	NS	NS
SA-Z	CO, Covered	NS	NS
SA-AA	Open	0.0	0.00
SA-BB	Sealed	NS	NS
SA-CC	Covered	NS	NS

Notes and Abbreviations:

CO = Clean Out

FD = Floor Drain

µg/m ^{3} = micrograms per cubic meter

MH = Manhole

NS = Not Screened

ppm = parts per million

RD = Roof Drain

PHASE II SEWER SCREENING SUMMARY RESULTS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK

		Head Space Reading	
Building 1 Storm Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SS-A	Open	0.0	0.00
SS-B	Open	0.0	0.00
SS-C	Missing	NS	NS
SS-D	Missing	NS	NS
SS-E	Missing	NS	NS
SS-F	Covered	NS	NS
SS-G	Elite line FD, Covered	NS	NS
SS-H	Storage Room, Not Accessible	NS	NS
SS-I	Bathroom FD	NS	NS
SS-J	FD, Plugged	NS	NS
SS-K	FD, Open	0.0	0.00
SS-L	FD, Open	3.1	0.00
SS-M	FD, Open	0.0	0.00
SS-N	Walk way FD, Sealed	NS	NS
SS-O	Covered	NS	NS
SS-P	Open	58.4	0.00
SS-Q	Missing	NS	NS
SS-R	Sink, Open	3.4	8.07
SS-S	Sealed	NS	NS
SS-T	Sealed	NS	NS
SS-U	Sealed	NS	NS
SS-V	Sealed	NS	NS
SS-W	Sealed	NS	NS
SS-X	Sealed	NS	NS
SS-Y	Sealed	NS	NS
SS-Z	Carts, Missing	NS	NS
SS-AA	Blocked or Sealed	NS	NS
SS-BB	Blocked or Sealed	NS	NS
SS-CC	Blocked or Sealed	NS	NS
SS-DD	Blocked or Sealed	NS	NS
SS-EE	Blocked or Sealed	NS	NS
SS-FF	Blocked or Sealed	NS	NS
SS-GG	Blocked or Sealed	NS	NS
SS-HH	Blocked or Sealed	NS	NS

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PHASE II SEWER SCREENING SUMMARY RESULTS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK

		Head Space Reading	
Building 5 Sanitary Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SA-A	Open	0.0	0.00
SA-B	Stored Glass, Blocked	NS	NS
SA-C	Stored Glass, Blocked	NS	NS
SA-D	Stored Glass, Blocked	NS	NS
SA-E	Open	0.0	0.00
SA-F	Break Room, Open	0.0	0.00
SA-G	Bathroom, Drain w/water	NS	NS
SA-H	Bathroom, Open	NS	0.00
SA-I	Bathroom, Open	NS	0.00
SA-J	Covered	NS	NS
SA-K	Open	0.0	1.31
SA-L	CO, Capped	NS	NS
SA-M	Not Found	NS	NS
SA-N	Not Found	NS	NS

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PHASE II SEWER SCREENING SUMMARY RESULTS
PHILIPS LIGHTING COMPANY BATH FACILITY
BATH, NEW YORK

		Head Space Reading	
Building 2 Sanitary Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SA-A	Open	0.0	0.00
SA-B	Open	0.0	12.53
SA-C	Open	0.0	14.59
SA-D	Sink, Open	0.0	0.00
SA-E	Open	0.0	0.00
SA-F	Blocked	NS	NS
SA-G	Sink, Open	0.0	0.00
SA-H	Covered	NS	NS
SA-I	Sealed	NS	NS
SA-J	Open	0.0	0.00
SA-K	Open	0.0	0.00
SA-L	Open	0.0	0.00
SA-M	Open	0.0	0.00
SA-N	Not Accessible	NS	NS
SA-O	Open	Not screened	0.00
SA-P	Open	0.0	0.00
SA-Q	Sink, Open	0.0	0.00
SA-R	Open	0.0	0.00
SA-S	Open	0.0	0.00
SA-T	Sink, Open	0.1	0.00
SA-U	Offices, Covered	NS	NS
SA-V	Open	0.0	0.00
SA-W	FD, Open	0.0	0.00
SA-X	Open	0.0	0.00
SA-Y	Sealed	NS	NS
SA-Z	Bathroom FD, Open	0.0	1.06
SA-AA	Bathroom FD, Open	0.0	4.18
SA-BB	Sealed	NS	NS
SA-CC	FD, Covered	NS	NS
SA-DD	FD, Open	0.0	0.00
SA-EE	Sealed	NS	NS
SA-FF	FD, Open	0.0	0.00
SA-GG	FD, Open	0.0	3.10
SA-HH	FD, Open	0.0	1.12

Notes and Abbreviations:

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		Head Space Reading	
Building 5 Storm Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SS-A	FD, Open	5.1	0.00
SS-B	MH, Open	0.8	0.00
SS-C	CO, Open	0.0	0.00
SS-D	CO, Open	0.0	0.00
SS-E	Open	0.0	0.00
SS-F	FD, Missing	NS	NS
SS-G	FD, Open	0.0	0.00
SS-H	FD, Open	0.0	0.96
SS-I	FD, Capped	NS	NS
SS-J	Modified RD	NS	NS
SS-K	FD, Not Found	NS	NS

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		Head Space Reading	
Building 2 Storm Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SS-A	FD, Sealed	NS	NS
SS-B	FD, Sealed	NS	NS
SS-C	CO, Capped	NS	NS
SS-D	Capped	NS	NS

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NS = Not Screened

ppm = parts per million

RD = Roof Drain

		Head Space Reading	
Building 4 Storm Drains	**Drain Type and Status**	**Mini Rae 3000 PID (ppm)**	**Jerome 405 (µg/m³)**
SS-A	MH, Covered	NS	NS

Notes and Abbreviations:

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µg/m ^{3} = micrograms per cubic meter

MH = Manhole

NS = Not Screened

ppm = parts per million

RD = Roof Drain