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ENVIRONMENTAL
ASSESSMENT &
REMEDIATIONS

August 13, 2018

George Momberger, P.E.
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

**RE: Pall Corporation, 30-36 Sea Cliff Avenue, Glen Cove, NY; NYSDEC Site No. 130053B –
Offsite Soil Vapor Intrusion Assessment Work Plan**

Dear Mr. Momberger:

The following document provides a work plan for the soil vapor intrusion (SVI) assessment activities to be conducted at the Glen Cove Child Day Care Center and Glen Cove Boxing Club both located at 1 Arterial Highway (Route 107) South. A site location map is provided as Figure 1. This work plan was prepared following guidance outlined in the New York State Department of Health (NYSDOH) document *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (2006).

The foundation construction at the Glen Cove Child Day Care Center has been identified as having a crawlspace, while the boxing club foundation construction has been identified as slab-on-grade. The following proposed air sampling activities at the respective locations are based on these construction types.

Prior to sample collection at each location, a general survey and chemical product inventory shall be compiled by EAR personnel. Applicable survey and inventory forms to be completed in the field are provided as Appendix A. During general survey activities, EAR personnel shall screen indoor air (and crawl-space air as applicable) using a multi-gas monitor (MultiRae or equivalent) capable of detecting methane.

Glen Cove Child Day Care Center

Two (2) crawl-space air samples and seven (7) indoor air samples shall be collected at the Glen Cove Child Day Care Center. The sample locations, as proposed by NYSDOH and NYSDEC during the August 9th, 2018 site walk, are illustrated in Figure 2.



Both crawl-space and indoor air samples will be collected using 6-liter SUMMA canisters equipped with mass flow valves calibrated by the laboratory to collect air samples over a 24-hour period. All SUMMA canisters shall be individually certified clean by the laboratory. Air samples shall be collected over a 24-hour period and submitted to the laboratory for analysis of VOCs via EPA Method TO-15 and methane via modified EPA Method 18/25. A duplicate sample will be collected at a selected location. All samples will be submitted for a standard 10-day analytical turnaround time with NYSDEC ASP Category B deliverables requested.

Both indoor and crawl-space air sample canisters will be placed at a height of approximately 3-feet above the floor. Indoor and crawl-space air samples shall be collected concurrently during such a time that the building ventilation is not operating.

Glen Cove Boxing Club

One (1) sub-slab air sample and one (1) indoor air sample shall be collected at this location. The sample locations, as proposed by NYSDOH and NYSDEC during the August 9th, 2018 site walk, are illustrated in Figure 3.

Sub-slab air samples shall be obtained by drilling a 3/8-inch hole through the slab and inserting 0.25-inch diameter Teflon to approximately 2-inches below the slab. The tubing penetration shall be sealed using modeling clay. A polycarbonate test chamber will be used to create an enclosed atmosphere around the sample point. To install the test chamber, the sample collection end of the teflon tubing is first inserted through the center of a plastic sheet. The plastic sheet is sealed to the floor using modeling clay. The sampling end of the tubing is then inserted through a port on the side of the test chamber. The test chamber is then sealed around its edges to the top of the plastic sheet using modeling clay.

Ultra-pure helium (99.999%) shall be employed as a tracer gas to verify the integrity of the sub-slab surface seals. Once the seals of the test chamber are established, the enclosed atmosphere shall be enriched with helium. To maintain the ambient air pressure inside the enclosed atmosphere, a valve at the bottom of the test chamber is left open while the helium gas is introduced through a valve at the top of the test chamber. Once the atmosphere inside the test chamber reaches 90% helium (to be verified by a Dielectric MGD-2002 Helium Leak Detector), both valves are closed. The test chamber's seals are then checked for leaks with the helium detector.

Three volumes of air shall be purged from the monitoring point and tubing utilizing a Gilian LFS-113® sampling pump calibrated to maintain a low flow rate of approximately 0.2 L/min. The air sampling pump shall be calibrated using a BIOS Defender 510® Flow Calibrator prior to use. Following the purge and prior to sample collection, sampling personnel shall confirm that the sub-slab air contains helium at less than 5% concentration.

Sub-slab air samples shall be collected using 6-liter SUMMA canisters (provided by the laboratory) affixed with mass-flow valves calibrated by the laboratory to collect air samples over a 24-hour period. All SUMMA canisters shall be individually certified clean by the laboratory. Air samples shall be collected over a 24-hour period and submitted to the laboratory for analysis of VOCs via EPA Method TO-15, helium via ASTM D1946, and methane via modified EPA



Method 18/25. All samples will be submitted for a standard 10-day analytical turnaround time with NYSDEC ASP Category B deliverables requested.

Immediately following sample collection and disconnection of the SUMMA canister from the sample tubing, the sample tubing and the test chamber will be screened for helium using the a Dielectric MGD-2002 Helium Leak Detector, as well as methane and total VOCs using a multi-gas monitor (MultiRae or equivalent). Slab penetrations shall be filled and restored using hydraulic cement.

Indoor air samples will be collected using 6-liter SUMMA canisters equipped with mass flow valves calibrated by the laboratory to collect air samples over a 24-hour period. All SUMMA canisters shall be individually certified clean by the laboratory. Air samples shall be collected over a 24-hour period and submitted to the laboratory for analysis of VOCs via EPA Method TO-15, helium via ASTM D1946, and methane via modified EPA Method 18/25. All samples will be submitted for a standard 10-day analytical turnaround time with NYSDEC ASP Category B deliverables requested.

Indoor air sample canisters will be placed at a height of approximately 3-feet above the floor. Indoor and sub-slab air samples shall be collected concurrently.

Outdoor Air

Outdoor air samples will be collected for comparative purposes. Outdoor air samples will be collected during the same period as any indoor and sub-slab air samples and will be collected using 6-liter SUMMA canisters equipped with mass flow valves calibrated by the laboratory to collect air samples over a 24-hour period. All SUMMA canisters shall be individually certified clean by the laboratory. Air samples shall be collected over a 24-hour period and submitted to the laboratory for analysis of VOCs via EPA Method TO-15 and methane via modified EPA Method 18/25. All samples will be submitted for a standard 10-day analytical turnaround time with NYSDEC ASP Category B deliverables requested.

Outdoor air sample canisters will be placed at a height of approximately 3-feet above the ground.

Laboratory Analytical Services

Laboratory analytical services shall be provided by a lab holding current Environmental Laboratory Approval (ELAP) certification for contaminants of concern. All NYSDEC ASP Category B deliverables shall be reviewed for completeness and compliance by a third party, with data usability summary reports (DUSR) and accompanying electronic data deliverable validation completed for all data packages.

Should you have any questions regarding this work plan, please feel free to contact me at 631.241.8741 or via email at IHofmann@enviro-asmnt.com.



Sincerely,

Ian Hofmann
Project Manager

Cc:

Ancona, R. (EAR)

Goetz, S. (EAR)

Lawrence, J. (EAR)

Martin, A. (NYSDOH)



Figures

Figure 1: Site Location Map

Figure 2: Proposed Sampling Locations (Glen Cove Child Day Care Center)

Figure 3: Proposed Sampling Locations (Glen Cove Boxing Club)

Figure 1

Site Location Map

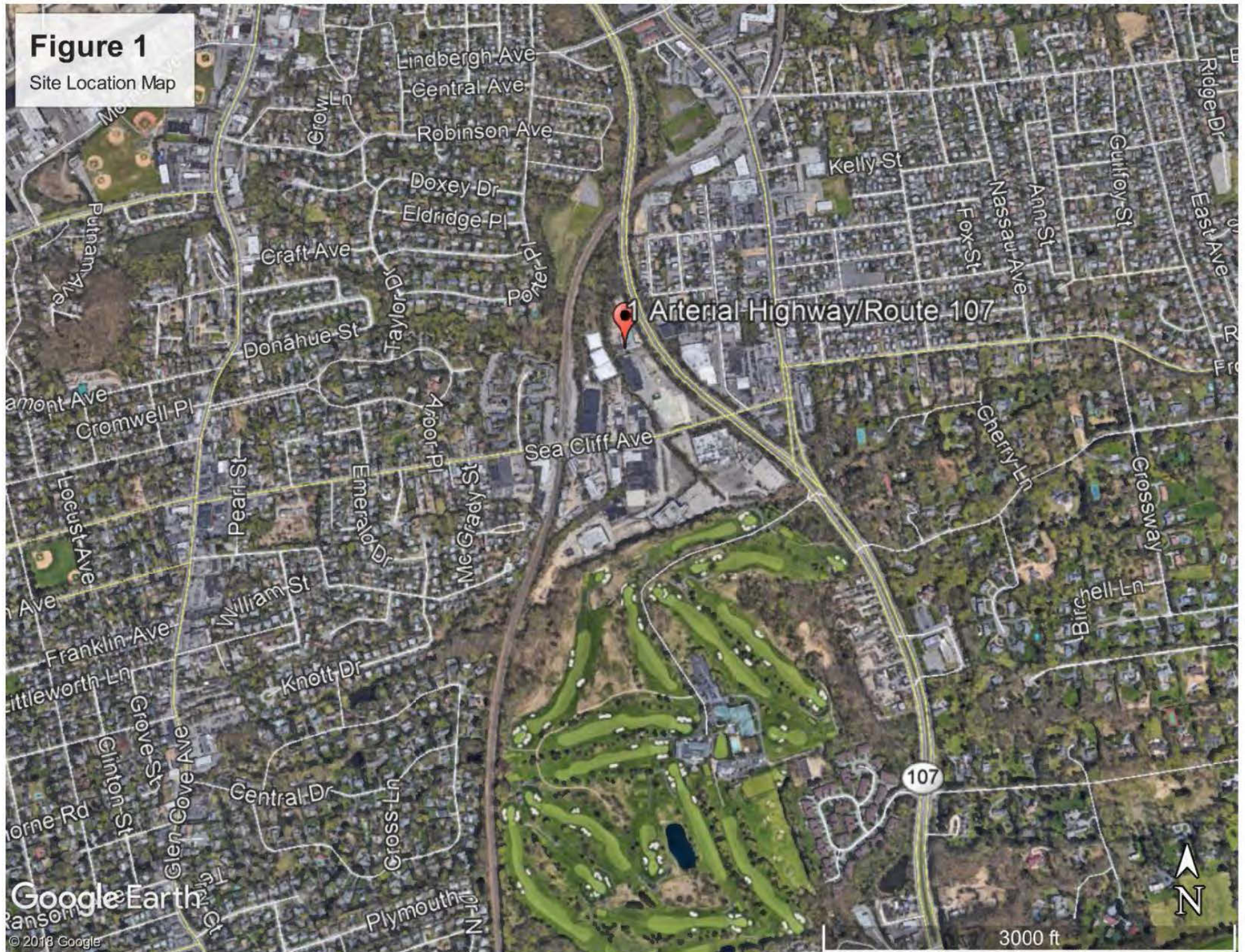


FIGURE 2: Proposed Sampling Locations (Glen Cove Child Day Care Center)

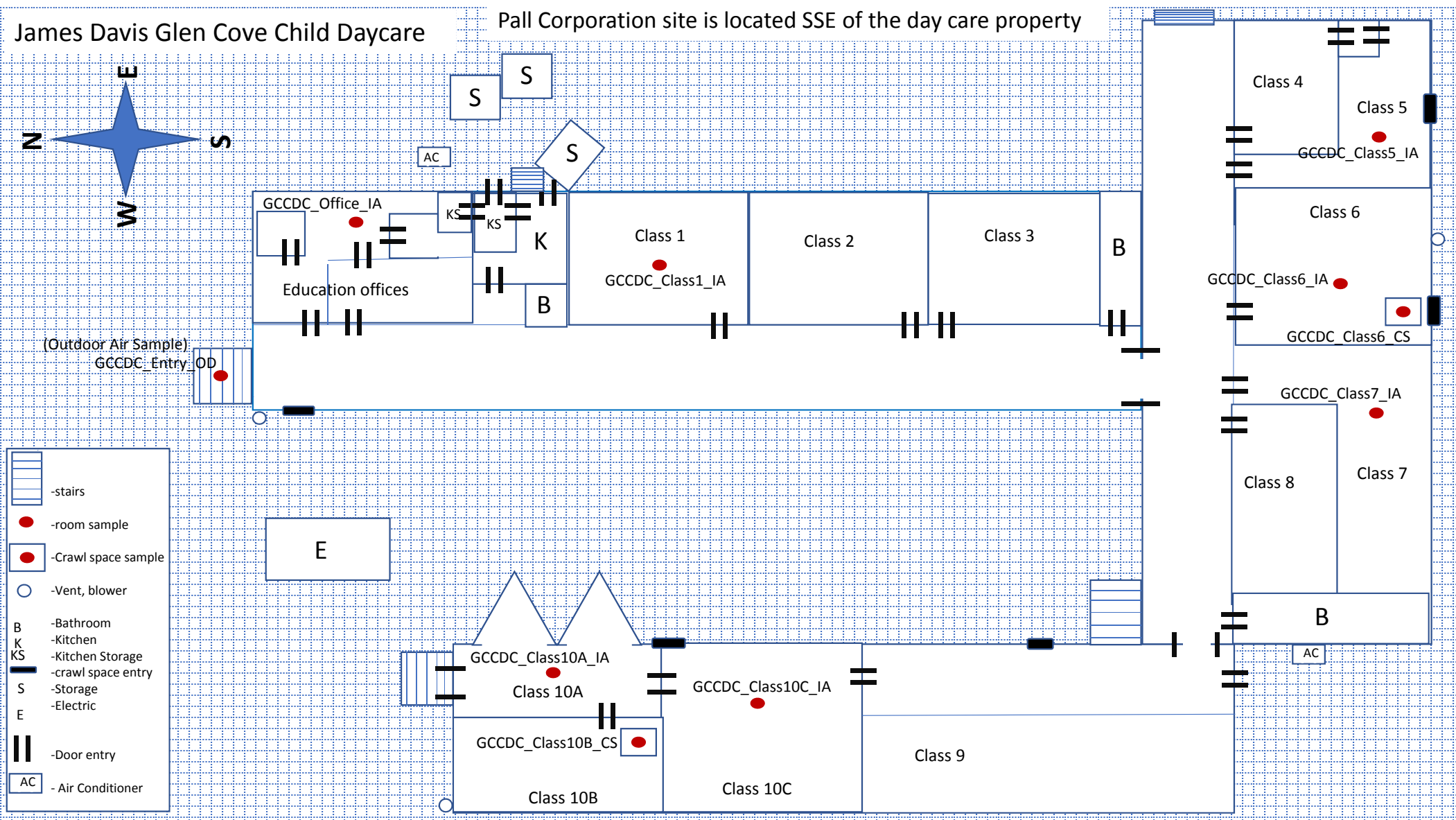
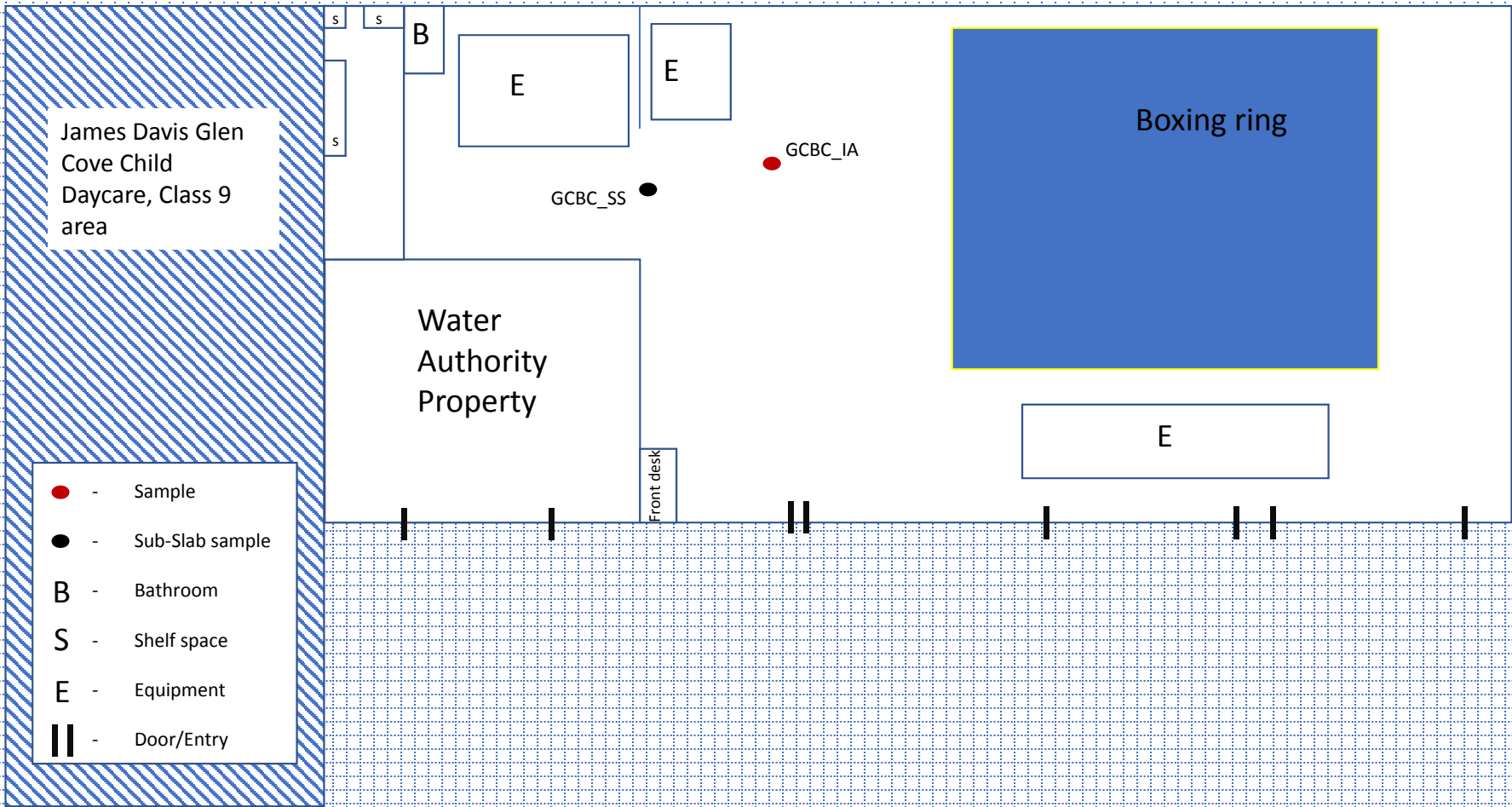
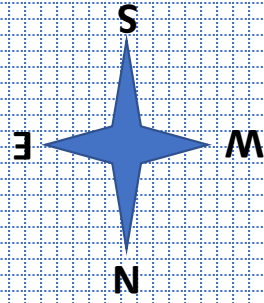


FIGURE 3: Proposed Sampling Locations (Glen Cove Boxing Club)

Howard Davis Jr. Glen Cove Boxing Club Pall Corporation site is located SSE of the boxing club property



- - Sample
- - Sub-Slab sample
- B - Bathroom
- S - Shelf space
- E - Equipment
- || - Door/Entry



Appendix A: General Survey and Chemical Product Inventory Forms

**NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No. _____

Purpose of Investigation _____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

- | | | |
|-------------|--------|----------------------|
| Residential | School | Commercial/Multi-use |
| Industrial | Church | Other: _____ |

If the property is residential, type? (Circle appropriate response)

- | | | |
|--------------|-----------------|-------------------|
| Ranch | 2-Family | 3-Family |
| Raised Ranch | Split Level | Colonial |
| Cape Cod | Contemporary | Mobile Home |
| Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: _____ |

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors _____ Building age _____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

- a. Above grade construction: wood frame concrete stone brick
- b. Basement type: full crawlspace slab other _____
- c. Basement floor: concrete dirt stone other _____
- d. Basement floor: uncovered covered covered with _____
- e. Concrete floor: unsealed sealed sealed with _____
- f. Foundation walls: poured block stone other _____
- g. Foundation walls: unsealed sealed sealed with _____
- h. The basement is: wet damp dry moldy
- i. The basement is: finished unfinished partially finished
- j. Sump present? Y / N
- k. Water in sump? Y / N / not applicable

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

- Hot air circulation
- Space Heaters
- Electric baseboard
- Heat pump
- Stream radiation
- Wood stove
- Hot water baseboard
- Radiant floor
- Outdoor wood boiler
- Other _____

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: _____

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level **General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**

Basement	_____
1 st Floor	_____
2 nd Floor	_____
3 rd Floor	_____
4 th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a. Is there an attached garage? Y / N
- b. Does the garage have a separate heating unit? Y / N / NA
- c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify _____
- d. Has the building ever had a fire? Y / N When? _____
- e. Is a kerosene or unvented gas space heater present? Y / N Where? _____
- f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____
- g. Is there smoking in the building? Y / N How frequently? _____
- h. Have cleaning products been used recently? Y / N When & Type? _____
- i. Have cosmetic products been used recently? Y / N When & Type? _____

- j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____
- k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____
- l. Have air fresheners been used recently? Y / N When & Type? _____
- m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____
- n. Is there a bathroom exhaust fan? Y / N If yes, where vented? _____
- o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N
- p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building?

Y / N

If yes, please describe: _____

Do any of the building occupants use solvents at work?

Y / N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work?

Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

No

Unknown

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____

Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

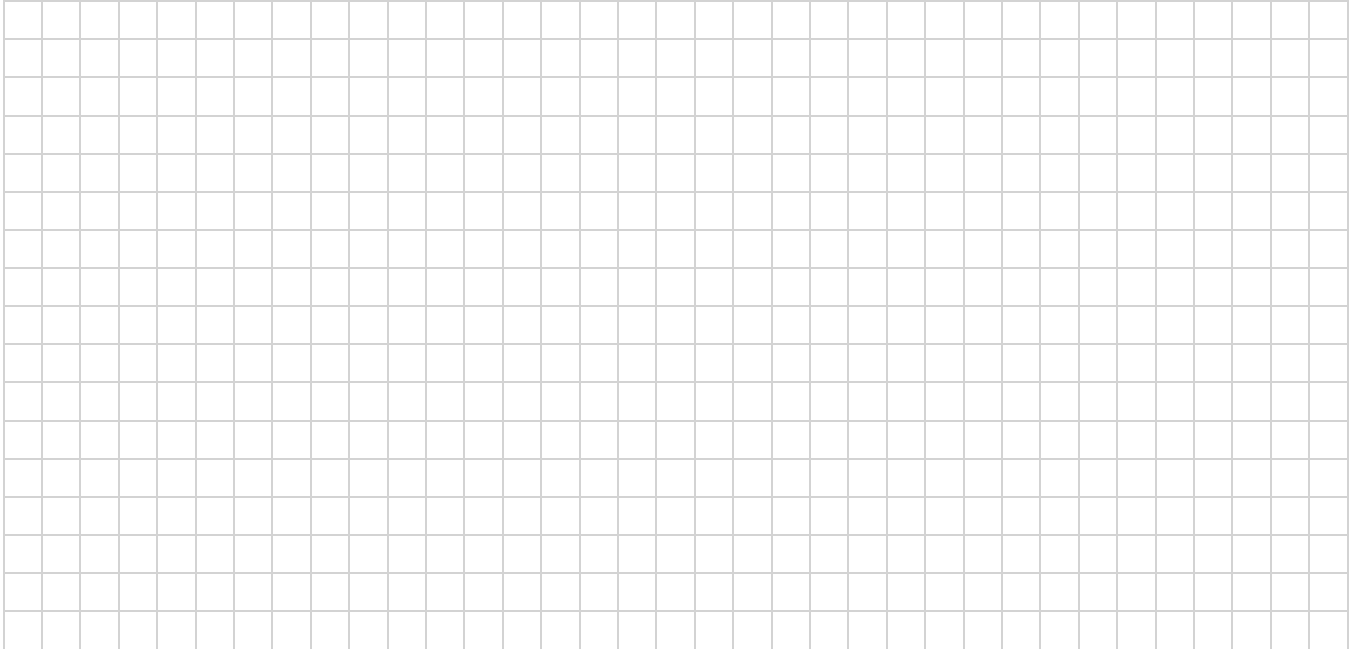
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

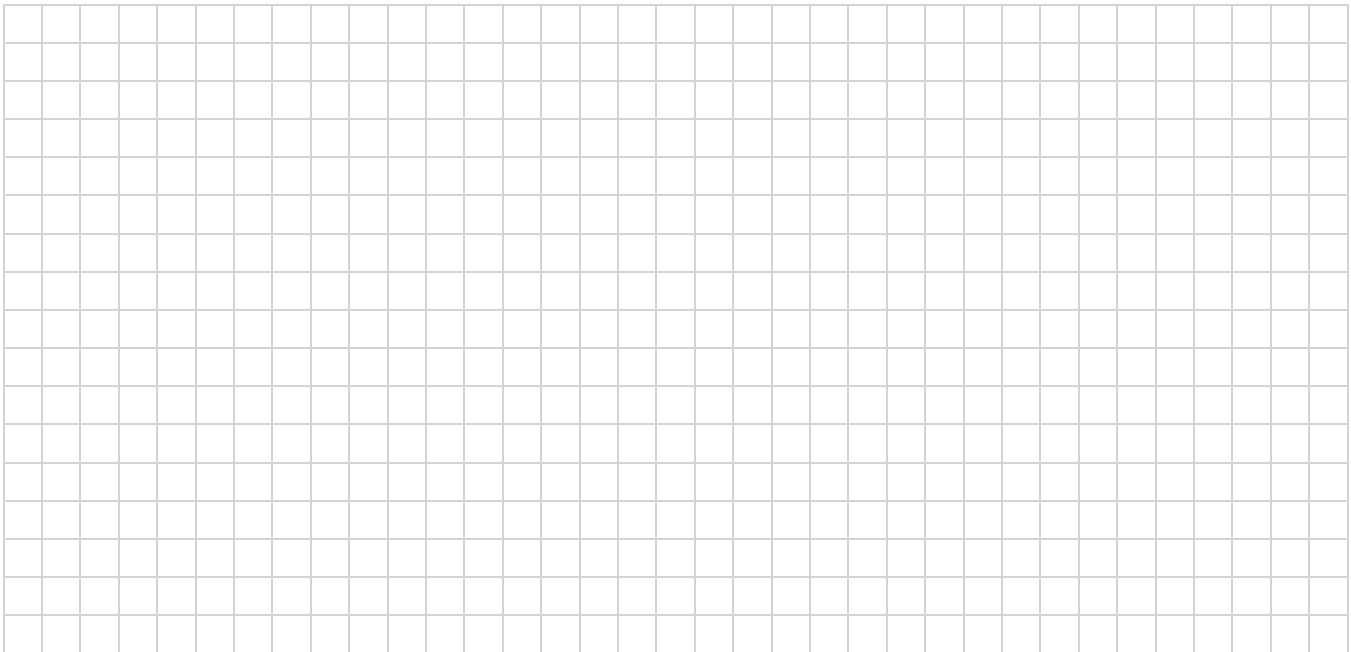
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



First Floor:



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

