

March 6, 2024

Mr. Mark Domaracki, P.G.  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233-7014

Re: **Interim Remedial Measures Pilot Test Workplan  
5 Westchester Plaza  
Elmsford, New York 10523  
NYSDEC Site #: C360205  
Project No. 2847**

Dear Mr. Domaracki:

The 2021 Remedial Investigation Workplan (RIWP) was submitted and subsequently approved by the New York State Department of Environmental Conservation's (NYSDEC) on December 22, 2021. After implementation of the RIWP, a December 2022 Remedial Investigation Report (RIR) was submitted to the NYSDEC. Pursuant to the NYSDEC February 6, 2023 RIR rejection letter and our conversation of March 7, 2023, Peak Environmental, A Nova Group, GBC Company (Peak) prepared an August 11, 2023, Remedial Investigation Workplan on behalf of Mack-Cali CW Realty Associates L.L.C. (Mack-Cali). Pursuant to the NYSDEC August 30, 2023 and February 14, 2024 comment letters, Peak and James Napoli, a New York State certified Professional Engineer (PE) (License # 095911) have prepared this Interim Remedial Measures (IRM) Pilot Test Workplan on behalf of Mack-Cali for NYSDEC's approval, prior to conducting diagnostic testing to obtain the necessary information needed to design a Sub-Slab Depressurization System (SSDS).

The specific objectives of the Pilot Test are to obtain the information needed to design an SSDS capable of depressurizing the sub slab soils to a predefined sub slab pressure differential requirement. Results of the proposed diagnostic testing and SSDS design will be presented in an IRM Report.

## Background

Previous Site investigations conducted during a Phase II environmental assessment in August 2020 identified impacts to the sub-slab soil vapor (SSSV) beneath the Site. Subsequent VI investigations conducted on-Site by Peak in March 2022 confirmed CVOC impacts in the SSSV and indoor air. The results of the March 2022 VI investigation are presented on **Drawing 1**. Based upon the results of the prior vapor intrusion investigations, a vapor mitigation system is required at the Site.

## SSDS Diagnostic Testing Protocols

The purpose of diagnostic testing is to obtain the information necessary to design an SSDS capable of depressurizing the sub slab soils to a predefined sub slab pressure differential requirement. A SSDS is a system that depressurizes the soil beneath the slab of the building. The concept is that by creating a vacuum beneath the slab, the soil gases will be drawn into the system where they can be discharged above the roofline, thus circumventing the building interior. The defining metric for an SSDS is a negative sub

slab pressure differential, most typically this pressure is -0.004 inches of water column ("w.c."). A diagnostic survey will be completed by a vapor mitigation contractor. The diagnostic survey will include a visual investigation of the building to identify any potential physical routes of soil vapor entry and a series of mechanical tests to determine the volume of air and applied vacuum needed to influence the slab areas of concern. Once completed, a report will be generated which will include the results of the diagnostic tests and the design of the mitigation system. The design will include a drawing showing all relevant suction point(s), fan(s), and pipe locations. Fan selection will be made by comparing the diagnostic data to the flow rate and vacuum of blowers used specifically for mitigation systems.

### Extraction Well Details

The method for diagnostic testing and system design will involve coring temporary 2 ½" suction holes in the floor and temporary 5/16" test holes at various distances from the suction holes. After coring through the approximately 6-in thick building slab, the suction hole is hand excavated to a depth of approximately 6-in below the building slab. A specialized Sub Slab Diagnostic Vacuum (SSDV), capable of up to 200 CFM and an applied vacuum of up to 100 "w.c. will be used with a variable speed controller to apply vacuum to the sub slab material via the suction holes. By varying the applied vacuum, the flow and vacuum characteristics of the soil beneath the slab can be defined. This is typically done at 1 to 3 vacuum speeds. The SSDV has a built-in pitot tube to measure air velocity and the suction tube has a port for measuring vacuum at the suction point. Proposed diagnostic testing locations are presented on **Drawing 2**. A detail of the diagnostic set up is provided as **Attachment 1**, this detail includes suction point and test hole construction details as well as the inclusion of an inline carbon vessel.

### Testing Parameters and Monitoring

During the diagnostic testing, the pressure and flow values will be monitored by a vacuum meter capable of measuring 60 "w.c. and a micromanometer capable of reading 0.0001 "w.c. The 5/16" test holes will be used to monitor the pressure differential created by the SSDV with a micromanometer capable of reading down to 0.0001"w.c. The data produced by this process will determine the area of the slab that can be depressurized to the required sub slab pressure differential by using a specific volume of air flow at a specific applied vacuum. Once the area of influence (AOI) per suction point has been determined, a design will be prepared by mapping out the building to provide the proper amount of vacuum coverage with the appropriate number of suction points.

### Effluent Sampling

In addition to the diagnostic testing described above, effluent sampling will be conducted at each of the suction points prior to being run through the inline carbon vessel. This sampling is to help in determining if carbon treatment is required for the SSDS design. The effluent samples will be collected in batch-certified 2.7-Liter (L) Summa® passivated stainless-steel canisters with a regulator-controlled collection time not exceeding 0.2 liters per minute, provided by an ELAP accredited laboratory. The proposed sample duration for these samples will be 15 minutes. The effluent samples will be analyzed by an ELAP accredited laboratory for TO-15 analysis. Analytical results will then be input into the Air Screen Model to determine if carbon treatment is required for the SSDS design.

Following the completion of the diagnostic testing, the contractor will prepare a vapor intrusion mitigation system design plan that contains the diagnostic data collected along with an explanation of the diagnostics

performed. The design will include all information including drawings and specifications required for the installation of the mitigation system.

## Schedule

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An anticipated schedule for the proposed remedial investigation and diagnostic activities, including timelines and target dates for the start and completion of field activities and receipt of analytical results dependent on the availability of subcontractors is between 2-5 weeks after NYSDEC approval of the RIWP. The NYSDEC will be notified at least 7 days in advance of, and be allowed to attend, any field activities. Sample results will be reported in a subsequent revised RIR and the SSDS design plan will be included and summarized in the subsequent IRM for NYSDEC review and approval.

Sincerely,

James Napoli  
New York State Professional Engineer License # 095911

cc. Michael Stopen, Project Manager, Peak Environmental, a Nova Group GBC Company  
Robert M. Edgar, Managing Principal, Peak Environmental, a Nova Group GBC Company  
Jeffrey Campbell, PG, Campbell Geological Services, PLLC  
Jay Jaffe, Esq., Greenbaum, Rowe, Smith & Davis LLP

**DRAWINGS**

DRAFT

**Soil Vapor/Indoor Air Matrix 1**

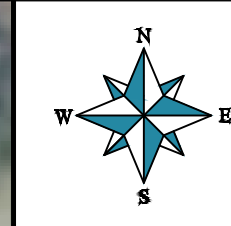
SUB-SLAB VAPOR CONCENTRATION of COMPOUND ( $\mu\text{g}/\text{m}^3$ )	INDOOR AIR CONCENTRATION of COMPOUND ( $\mu\text{g}/\text{m}^3$ )			
	<0.25	0.25 to <1	1 to <5.0	5.0 and above
<5	1. No further action	2. Take reasonable and practical actions to identify source(s) and reduce exposures	3. Take reasonable and practical actions to identify source(s) and reduce exposures	4. Take reasonable and practical actions to identify source(s) and reduce exposures
5 to <50	5. No further action	6. MONITOR	7. MONITOR	8. MITIGATE
50 to <250	9. MONITOR	10. MONITOR/MITIGATE	11. MITIGATE	12. MITIGATE
250 and above	13. MITIGATE	14. MITIGATE	15. MITIGATE	16. MITIGATE

Notes  
Matrix obtained from New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York  
Decision Matrix 1 for carbon tetrachloride and trichloroethene

**Soil Vapor/Indoor Air Matrix 2**

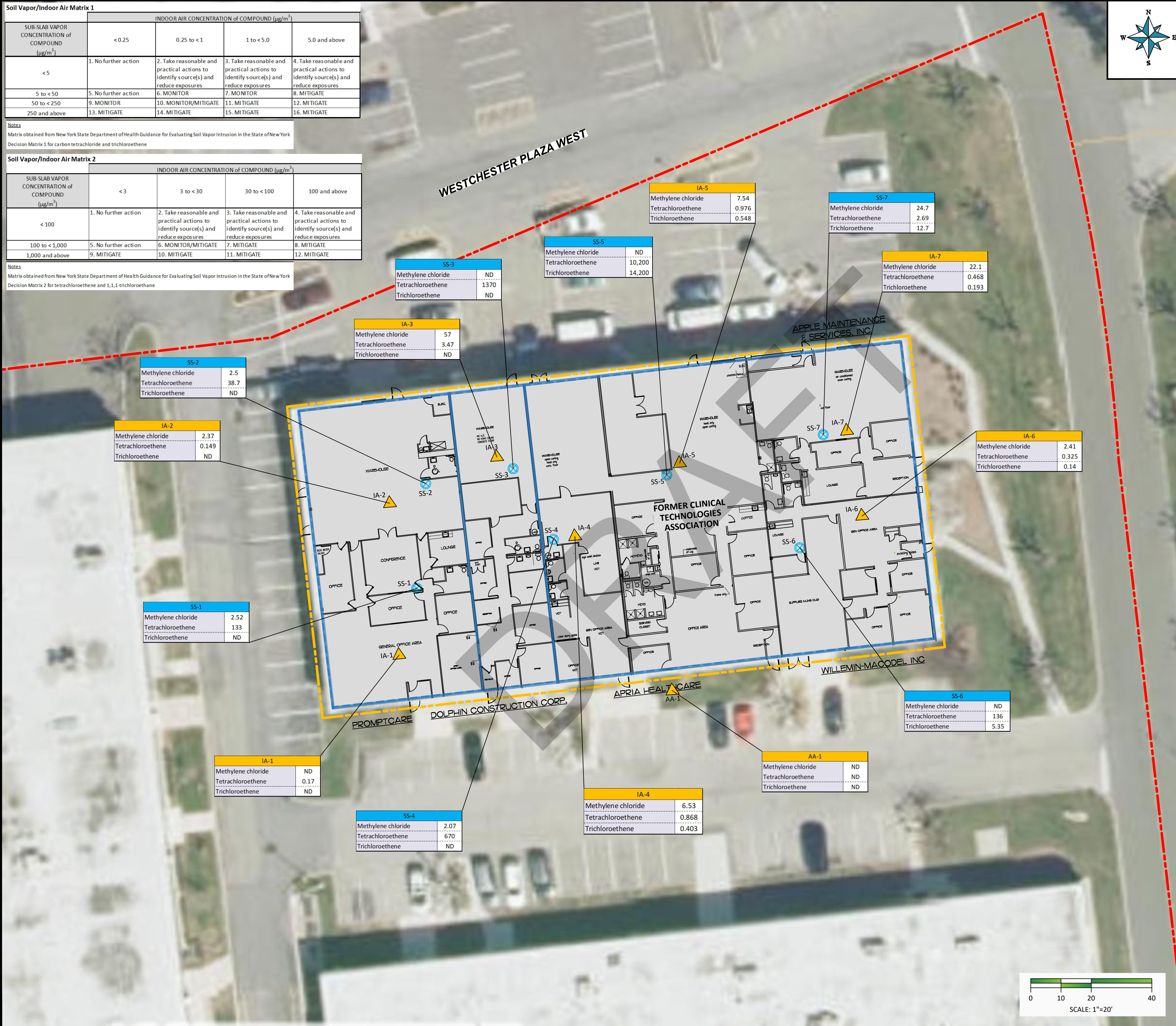
SUB-SLAB VAPOR CONCENTRATION of COMPOUND ( $\mu\text{g}/\text{m}^3$ )	INDOOR AIR CONCENTRATION of COMPOUND ( $\mu\text{g}/\text{m}^3$ )			
	<3	3 to <30	30 to <100	100 and above
<100	1. No further action	2. Take reasonable and practical actions to identify source(s) and reduce exposures	3. Take reasonable and practical actions to identify source(s) and reduce exposures	4. Take reasonable and practical actions to identify source(s) and reduce exposures
100 to <1,000	5. No further action	6. MONITOR/MITIGATE	7. MITIGATE	8. MITIGATE
1,000 and above	9. MITIGATE	10. MITIGATE	11. MITIGATE	12. MITIGATE

Notes  
Matrix obtained from New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York  
Decision Matrix 2 for tetra chloroethene and 1,1,1-trichloroethene



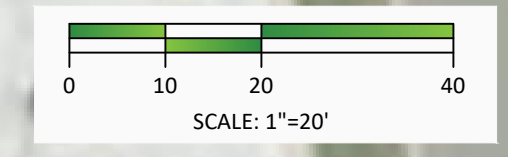
**LEGEND**

- PROPERTY BOUNDARY
- BROWNFIELD SITE BOUNDARY LINE
- LEASEHOLD BOUNDARY LINE
- ▲ INDOOR/AMBIENT AIR SAMPLE LOCATION
- ⊗ SUB-SLAB SOIL VAPOR SAMPLE LOCATION



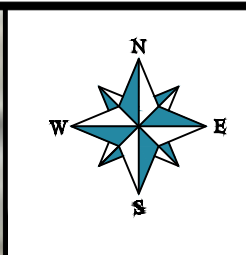
- NOTE:**
- SAMPLE RESULTS WERE COMPARED TO THE NYDOH DECISION MATRICES.
- SOURCES:**
- MAP CREATED IN HARN/NY.NY-EF, NEW YORK STATE PLANE, EAST ZONE, U.S. SURVEY FOOT
  - AERIAL IMAGE FROM 2019 GOOGLE MAPS.
  - SITE BOUNDARY GRAPHICALLY SHOWN PER THE WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEBSITE.
  - BUILDING LAYOUT DETAIL OBTAINED FROM CLIENT SUPPLIED PDF ENTITLED "FLOOR PLAN". UNDATED.

<b>MARCH 2022 VAPOR INTRUSION SAMPLE LOCATION MAP WITH BUILDING INTERIOR WALLS</b>
<b>5 WESTCHESTER PLAZA ELMSFORD, NEW YORK</b>
NYSDC SITE #: C360205
PROJECT: 2847
DATE: NOVEMBER 14, 2022
DRAWN BY: JK
CHECKED BY: MS



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WESTCHESTER PLAZA WEST



**LEGEND**

- - - - PROPERTY BOUNDARY
- - - - BROWNFIELD SITE BOUNDARY LINE
- - - - LEASEHOLD BOUNDARY

- Projected Suction Holes
- Projected Test Holes

**SOURCES:**

1. MAP CREATED IN HARN/NY.NY-EF, NEW YORK STATE PLANE, EAST ZONE, U.S. SURVEY FOOT
2. AERIAL IMAGE FROM 2019 GOOGLE MAPS.
3. SITE BOUNDARY GRAPHICALLY SHOWN PER THE WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEBSITE.
4. BUILDING LAYOUT DETAIL OBTAINED FROM CLIENT SUPPLIED PDF ENTITLED "FLOOR PLAN". UNDATED.

**PROPOSED DIAGNOSTIC TESTING LOCATION MAP**

**5 WESTCHESTER PLAZA  
 ELMSFORD, NEW YORK**

NYSDEC SITE #: C360205

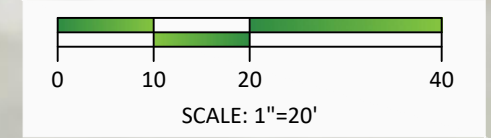
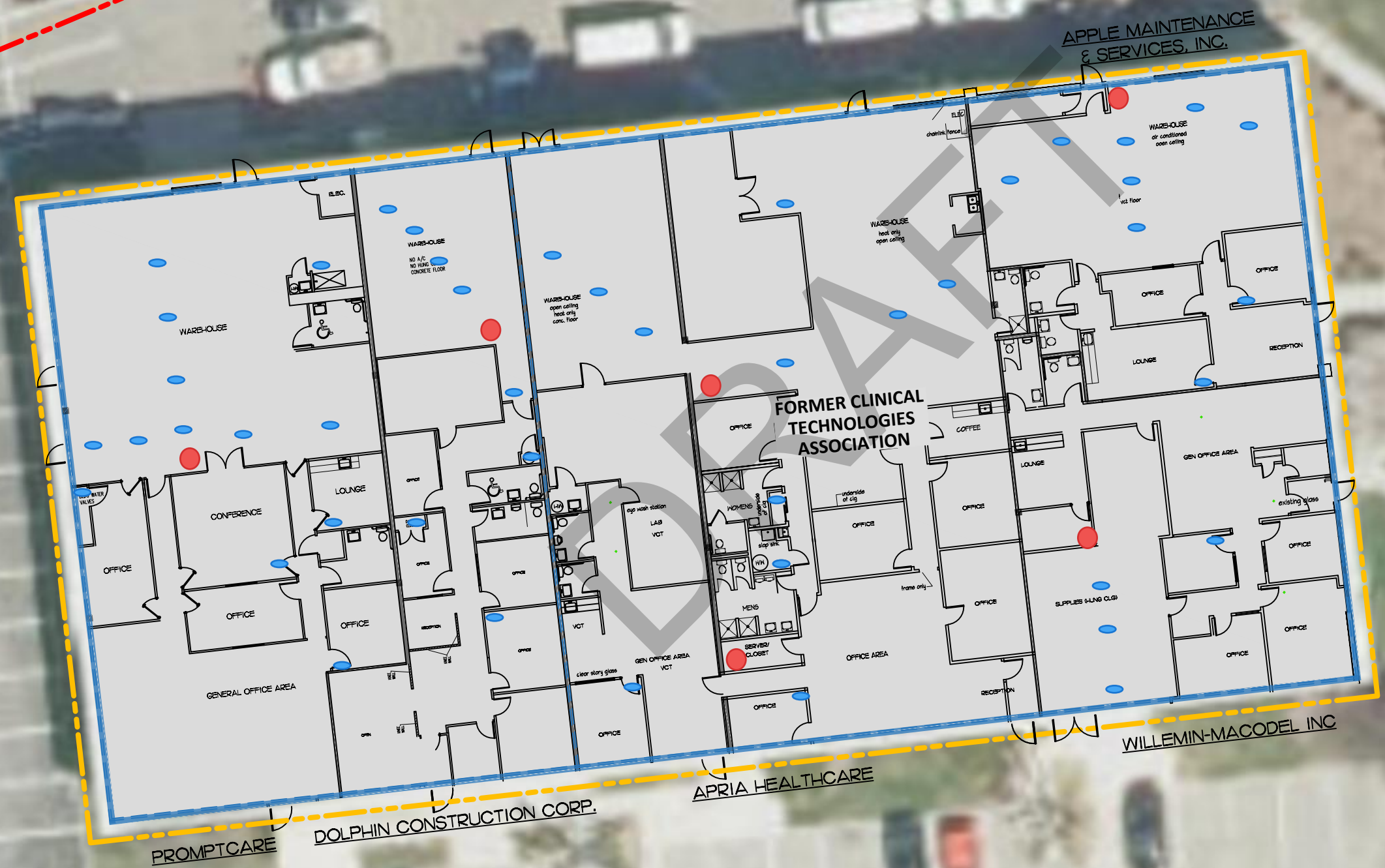
PROJECT: 2847

DATE: NOVEMBER 16, 2022

DRAWN BY: JK

CHECKED BY: **DRAFT**

**DRAWING** 2



Z:\0000 - PROJECTS\2847\_MACKCALI - WESTCHESTER, NY\01-CAD\2022-11-03\_RIR\_SAMPLE\LOCATIONMAP.DWG

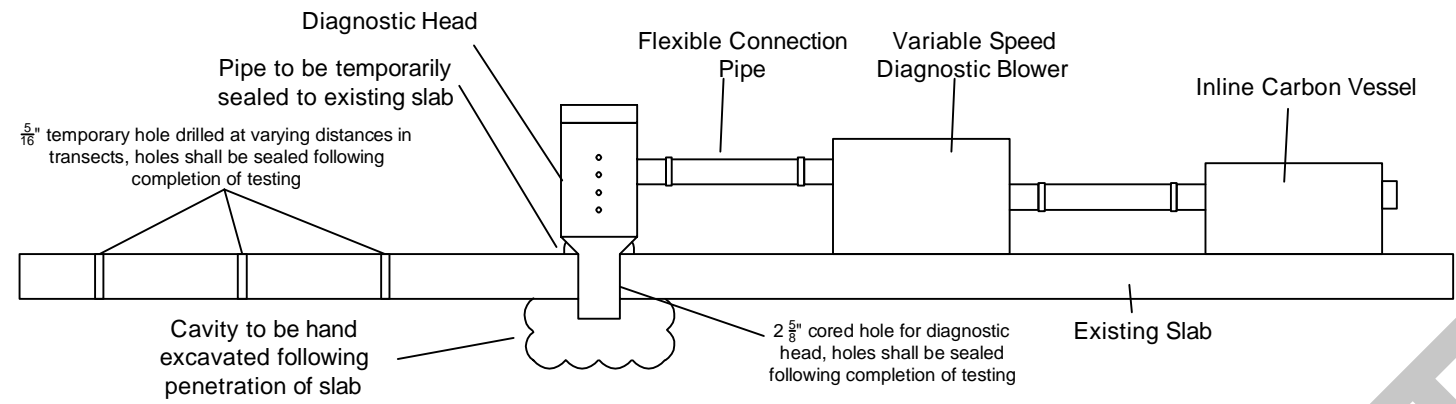
**ATTACHMENT I**

DRAFT

1

# Diagnostic Machine Detail

No Scale



General Notes

1	Original	
No.	Revision/Issue	Date

Firm Name and Address  
**OBAR SYSTEMS, INC.**  
 2969 NJ 23, Newfoundland, NJ, 07435



Project Name and Address

Sheet Name Diagnostic Details	Sheet #
Date 2/16/24	
Sheet Size ANSI B	