NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E 625 Broadway, 12th Floor, Albany, NY 12233-7017 P: (518) 402-9813 I F: (518) 402-9819 www.dec.ny.gov

MEMORANDUM

TO: File (D2)

BY: Josh Haugh, Project Manager, Remedial Bureau E, Section C

DATE: January 27, 2016

SUBJECT: Error Noted and Revisions Made to Construction Completion Report

Ellison Park Apartments – Scobell Chemical – NYSDOT Site (#828076)

Soil Vapor Intrusion Mitigation System Completion Report Originally Prepared by Mitigation Tech and Dated May 6, 2015

The Department callout contractor EmpireGeo Services, Inc. subcontracted the firm Mitigation Tech to install several sub-slab depressurization systems (SSDSs) at the Scobell Chemical Site (#828076) in December 2013.

For reasons unknown, a Construction Completion Report (CCR) was not initially prepared per the callout and the callout was eventually closed. In response to an inquiry by the DER Project Manager in 2015, Mitigation Tech submitted the CCR and the installation information was entered by Remedial Bureau E into the Statewide I & M database.

In December 2015, the Department's standby engineer (Mactec) was tasked with monitoring the Ellison Park apartments and inspecting the SSDSs. In the process of preparing the inspection summary report, Mactec referred to the CCR and identified a discrepancy in it. Specifically, the references to Buildings 1 & 2 were reversed in the CCR.

Rather than request a revised CCR from Mitigation Tech (previously subcontracted by the Department's contractor under a callout assignment that is now closed), the DER PM corrected the references to Buildings 1 & 2 in a modified pdf version of the CCR. Additionally, the information in the Statewide I & M database is being corrected.

The modified version dated January 27, 2016 is found on D2.



mitigation tech vapor intrusion specialists

May 6, 2015

Mr. Joshua Haugh
NYSDEC
Division of Environmental Remediation
Remedial Bureau E
625 Broadway
Albany, New York 12233-7017
Via email: Haugh, Joshua G (DEC) < joshua.haugh@dec.ny.gov>

Re: Ellison Park Apartments -- Scobell Chemical site (#828076) 1 Bobrich Dr, Rochester, NY 14610 Soil Vapor Intrusion Mitigation System Completion Report

CONSTRUCTION COMPLETION REPORT

1. OVERVIEW

This document presents a construction report, performance evaluation, O&M advice and certification of effectiveness for the Sub-Slab Depressurization (SSD) system installed by *Mitigation Tech* at Buildings 1,2 &10, 1 Bobrich Dr, Rochester, NY 14610, as completed December 20, 2013.

The subject area consists of the entire foundation footprints of each of three stand alone apartment buildings currently occupied. Based on an analysis of sub-slab air communication data and a general building assessment, a total of (10) multi-point independent SSD Systems were installed using principles and equipment typically used for soil vapor intrusion mitigation in buildings. All work is in compliance with the NYS DOH document, "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006".

2. BUILDING ASSESSMENT

Preliminary sub-slab air communication testing was performed on June 21, 2013 for a general assessment of the scope of work. In addition, sub-slab air communication testing was continuously performed during the construction process. The test procedure included drilling core borings into the concrete at likely suction cavity locations, at which vacuum was temporarily applied. Small diameter test holes were established to measure vacuum influence away from core boring locations. Because of relatively high resistance to airflow in the some areas of the sub-slab, limited suction cavity placement opportunities, and the presence of dirt crawlspaces, it was determined that a modular approach to fan placement would be most effective. A small number of defects in slab integrity that would require sealing were observed.

As an outcome of these and other findings, *Mitigation Tech* proposed and subsequently installed (10) independent SSD systems variously manifolded to (39) suction points consisting of both sub-slab cavities and sub-membrane air collection lines. Work began with an analysis of appropriate locations for fan, suction cavities and other SSD system components. Both for physical protection and minimum impact on active use areas, riser pipes were place at permanent walls of semi-permanent partitions; horizontal pipe was installed as high as practicable in the basement. Work was coordinated with management to minimize disturbance of work areas, relocate obstacles and control dust. Vacuum testing was performed continuously during construction determine the most efficient system configuration and verify integrity of design. At conclusion, all components inspected for condition and proper operation.

3. SUB-SLAB DEPRESSURIZATION SYSTEM GENERAL DESCRIPTION

- 3.1. Introduction. The system consists of (10) independent SSD systems operating independently at strategic locations throughout the site, as itemized below. Each individual system consists of an exterior sidewall mounted fan and several extraction points. The system was constructed using principles and equipment typically used for radon mitigation in buildings as detailed in the United States Environmental Protection Agency (EPA) EPA 402-K-03-007 (May 2006), and the final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). The SSD system was installed as a permanent, integral addition to the structure. The key components of the SSD system are described below and are shown on the attached diagram titled "Sub-Slab Depressurization System".
- 3.2. Suction Points. The location of each suction point (vapor extraction point) is given in the attachment to this document titled "Sub-slab Depressurization System" which shows a site diagram. The suction point consists of a 5" core boring into the slab through which 1-2 cubic feet of sub-slab material has been removed. Mechanically suspended Schedule 40 3" PVC pipe has been inserted into the boring and sealed with urethane sealant. There are a total of (34) suction cavities. In addition, there are five air collection loops installed beneath 6 mil polyethylene membrane adhered to the sidewalls of each of five crawlspaces. The crawlspaces are accessed by sidewall hatch, have dirt floors and are not routinely entered. The air collection loop consists of perforated ABS drain tile attached to the respective fan system.
- 3.3. Riser Piping. The riser piping consists of 3" schedule 40 PVC pipe that follows a route from the extraction point to a manifold then to an exterior mounted vacuum fan, through a sidewall penetration. Weatherproof flashing or sealant has been applied to all penetrations. Vent pipes were installed at a pitch that ensures that any rainwater or condensation within the pipes drains downward into the ground beneath the slab. Piping is independently supported, and not supported from existing building mechanical systems. Piping is labeled at each level as "Sub-Slab Vent". Risers are protected by strategic placement.
- 3.4. Exhaust Fans. Exhaust fans consist of RADONAWAY GP-501 centrifugal inline fan s. The RADONAWAY GP-501 consumes approximately 150w of electricity and produces a static pressure differential of

up to 4.0 water column inch (wci). The GP-501 is 120V single phase. Fans have an exterior disconnect switch connected to a dedicated circuit. Circuits are switched at the electrical panels as shown on the attached document titled "Sub-Slab Depressurization System". Fans are mounted with rubber Fernco couplings, for simplified replacement ar rear of buildings and adjacent to respective coverage areas.

FAN INFORMATION

Name	Area Covered	Vacuum	# Suc cavities.	Length of drain tile loop		
Building 2						
F1	South third	1.75 wci	2	60'		
F2	Central	0.85 wci	5	-		
F3	North	1.5 wci	4	-		
Building 1						
F4	North	1.9 wci	2	100'		
F5	Central	0.6 wci	5	-		
F6	South	0.9 wci	2	90'		
Building 10						
F7	West	2.5 wci	2	80'		
F8	Central	3.6 wci	5	-		
F9	East (corner)	3.8 wci	5	-		
F10	North	2.1 wci	2	80'		

- 3.5. Instrumentation and Control. There is no centralized instrumentation or control for the SSD System. Individual fans can be switched either from the roof positioned disconnect or at the breaker. Each exhaust fan system is equipped with a vacuum indicator mounted in a visible location on or near a riser pipe as shown on the attached document titled "Sub-Slab Depressurization System. The indicator consists of an oil filled U-tube style manometer (except gauge for F5). The indicator is inspected by observing the level of colored fluid. This indicator is designed primarily to give a simple visual check that vacuum is present in the riser pipe, specifically by observation that the fluid levels on each side of the indicator are not even.
- 3.7. Sealing measures. Polyurethane sealants and mechanical barriers have been applied to floor cracks, slab penetrations and other openings to enhance the barriers between sub-slab and ambient air and improve the efficiency of the SSD System. Sealant has been applied also in the vicinity of suction points and at cracks in concrete bases of columns. Smoke testing has been employed to guide sealing operations.

May 7, 2015 Page 4

3.6. Monitoring Points. There are (26) sub-slab vacuum test points located throughout the buildings. These consist of ³/₄" drill points through the slab into which a digital micromanometer probe can be inserted. They are semi-permanently closed with closed cell backer rod and polyurethane sealant. These were established to aid in original system design and confirmatory testing, and in some cases are difficult to access. The primary future use would be in recertification of system effectiveness.

3.7. PERFORMANCE EVALUATION

In order to verify system effectiveness and as a performance evaluation, test points were established at various distances from the suction cavities suitable to determine that the sub-slab of the entire subject area was being depressurized at least to the objective, as shown in the following table: (locations per schematic)

Test Point	Location	Vacuum in negative wci
Building 2		
1	Stairwell	.006
2	Stairs	.008
3	Midpoint	.148
4	Laundry	.038
5	Hall	.360
6	Stairway S	.152
7	Stairway N	.326
8	Boiler room	.072
9	Office N	.110
10	Office W	.045
Building 1		
11		.007
12	Stairway	.008
13	Middle	.030
14	Stairway	.027
15	Laundry	.072
16	Stairway	.010
Building 10		
17		.042
18		.019
19		.007
20	Stairs	.007
21		.022
22		.012
23		.006
24		.127
25		.013
26		.055

4. SUB-SLAB DEPRESSURIZATION SYSTEM OPERATION

May 7, 2015 Page 5

- 4.1. All fans should be kept in continuous operation. New York State Soil Vapor Intrusion Guidance (2006) specifies that operation, maintenance and monitoring of the SSD system should be included as part of site management. Until subsurface remediation efforts eventually address VOCs in soil and/or groundwater to acceptable levels (i.e. SSD operation no longer required) operation of the SSD system should continue. At that point, the vapor mitigation system may be shut down and/or removed and O&M requirements would cease.
- 4.2. Reset. Fans restart automatically in event of power loss.
- 4.3. In the event of unusual fan noise, failure to start, physical damage, or repeated circuit breaker trip, turn fan off and call for service. MITIGATION TECH 585-637-7430
- 4.4. Regularly inspect fan gauge to verify that value, indicated by a mark on the gauge, has not changed significantly from the position of the mark. Gauge is inspected by observing the level of colored fluid or, in the case of a dial gauge, the position of the indicator needle.
- 4.5. Normal system operation requires unchanged structural conditions. Report any changes in structure, HVAC systems, slab conditions, etc., so that the change can be evaluated for impact on the SSD System. For service, call MITIGATION TECH at 585-637-7430
- 4.6. Ensure that a periodic inspection is performed

5. SUB-SLAB DEPRESSURIZATION SYSTEM PERFORMANCE MONITORING

5.1. Monthly Monitoring

- 5.1.1. Inspect each fan vacuum indicator to verify that value, indicated by a mark on the gauge, has not changed significantly from the position of the mark. Gauge is inspected by observing the level of colored fluid.
- 5.1.2. Record the observed measurement for each fan vacuum indicator on form labeled "SSD System Vacuum Gauge Record". Store all forms in the facility maintenance office.
- 5.1.3. Inspect visible components of SSD system in vicinity of gauge for degraded condition.
- 5.1.4. Investigate and report any gauge reading that deviates 50% or more from its historical average, or any degraded condition of visible components. For reporting, call MITIGATION TECH at 637-7430.

5.2. Annual Inspection

- 5.2.1. Conduct a visual inspection of the complete System (e.g., vent fans, piping, warning devices, labeling)
- 5.2.2. Inspect all components for condition and proper operation;
- 5.2.3. Identify and repair any leaks in accordance with Sections 4.3.1(a) and 4.3.4(a) of the NYS DOH VI Guidance (i.e.; with the systems running, use smoke sticks to check for leaks through concrete cracks, floor joints and at the suction points; any leaks will be resealed until smoke is no longer observed flowing through the opening).
- 5.2.4. Inspect the exhaust or discharge point of each exhaust fan to verify that no air intakes have been located within 10 feet
- 5.2.5. Conduct pressure field extension testing (to ensure that the system is maintaining a vacuum beneath the entire slab). Perform at least one differential pressure reading for each building slab section enclosed by a separate footer

May 7, 2015

Page 6

- 5.2.6. Interview appropriate building occupants seeking comments and observations regarding the operation of the System
- 5.2.7. Check to see that the circuit breakers controlling the circuits on which the soil vapor vent fans operate are labeled "Soil Vapor System"

6. SUB-SLAB DEPRESSURIZATION SYSTEM MAINTENANCE

6.1. Routine Maintenance

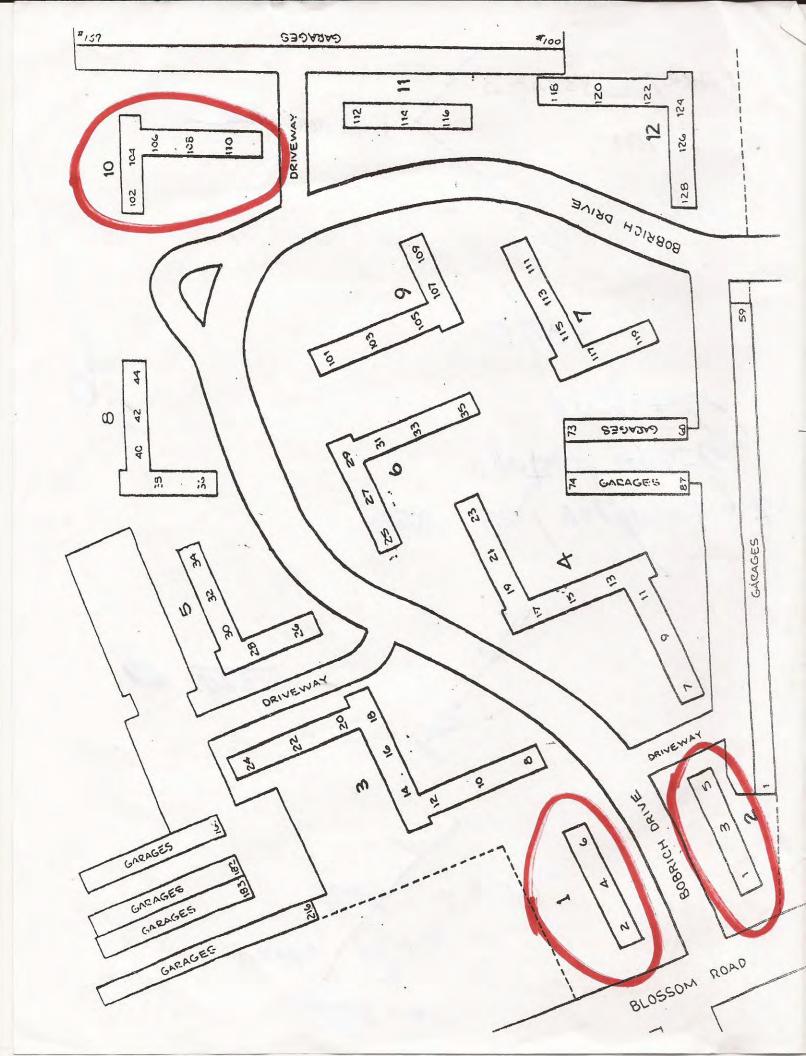
- 6.1.1. There are no routine component replacement procedures; Replace components upon findings of damage or failure
- 6.1.2. All routine and non-routine maintenance activities should be documented and reported to the agencies, as appropriate

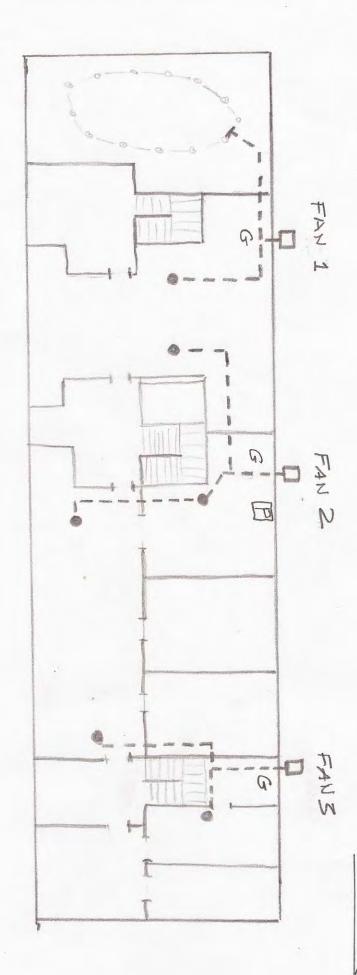
6.2. Non-Routine Maintenance

- 6.2.1. Non-routine maintenance may also be appropriate during the operation of the mitigation system. Examples of such situations include the following:
- 6.2.2. It is determined through inspection or notification by others that the warning device indicates the mitigation system is not operating properly
- 6.2.3. the mitigation system becomes damaged
- 6.2.4. the building has undergone renovations that may reduce the effectiveness of the mitigation system.
- 6.2.5. Activities conducted during non-routine maintenance visits will vary depending upon the reason for the visit. In general, building-related activities may include examining the building for structural or HVAC system changes, or other changes that may affect the performance of the depressurization system (e.g., new combustion appliances, deterioration of the concrete slab, or other significant changes). Depressurization system-related activities may include examining the operation of the warning device or indicator and the vent fan, or measurement of the extent of sub-slab depressurization. Repairs or adjustments should be made to the system as appropriate.

Thank you

Nicholas E. Mouganis EPA listing # 15415-I; NEHA ID# 100722





B2

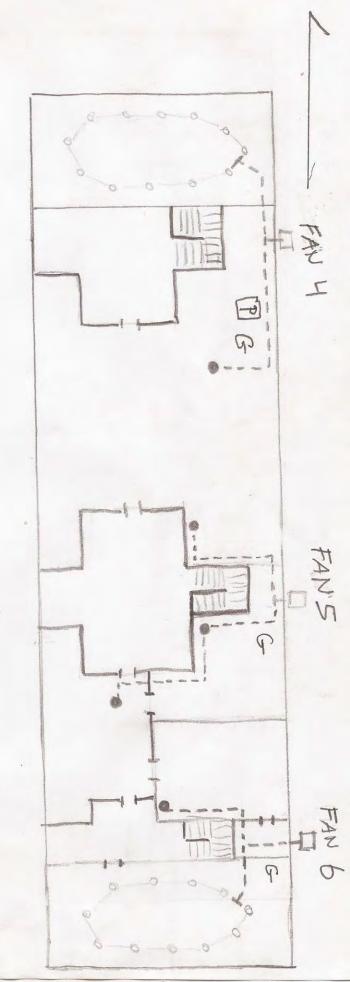
SUB-SLAB DEPRESSURIZATION SYSTEM DIAGRAM Installed by: Mitigation Tech, 55 Shumway Rd., Brockport, NY 14420

Ellison Park Apartments -- Scobell Chemical site (#828076)

Building 2 1 Bobrich Dr, Rochester, NY 14610

[F] = Fan w/exterior switch o = Suction Point [P] = circuit breaker o—o—o = sub-membrane air line

[G] = vacuum gauge ---- = Pipe Run



吸 1

SUB-SLAB DEPRESSURIZATION SYSTEM DIAGRAM Installed by: Mitigation Tech, 55 Shumway Rd., Brockport, NY 14420

Ellison Park Apartments -- Scobell Chemical site (#828076)

Building 1 | 1 Bobrich Dr, Rochester, NY 14610

[F] = Fan w/exterior switch o = St

o = Suction Point

[P] = circuit breaker o—o—o = sub-membrane air line

[G] = vacuum gauge ---= Pipe Run

B 10 FAN 7 2.5" Ellison Park Apartments -- Scobell Chemical site (#828076) Installed by: Mitigation Tech, 55 Shumway Rd., Brockport, NY 14420 -o-o = sub-membrane air line SUB-SLAB DEPRESSURIZATION SYSTEM DIAGRAM Building 10 1 Bobrich Dr, Rochester, NY 14610 o = Suction Point ---- = Pipe Run F4N8 37 9 [F] = Fan w/exterior switch [P] = circuit breaker o-[G] = vacuum gauge 6 1至日 1F419





