SUB-SLAB DEPRESSURIZATION SYSTEM DIAGNOSTIC TESTING

Riverdale Avenue 432
432 Riverdale Avenue
Yonkers, New York 10705
CBRE Project No.: E80505758

Prepared For:
CBRE, Inc. | Debt & Structured Finance

www.cbre.com/Assessment

CBRE

ASSESSMENT & CONSULTING SERVICES

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May 22, 2018

Mr. Samuel Yee
Senior Production Analyst
CBRE, Inc. | Debt & Structured Finance
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RE: Sub-Slab Depressurization System Diagnostic Testing
Riverdale Avenue 432
432 Riverdale Avenue
Yonkers, New York 10705
CBRE Project No.: E80505758

Dear Mr. Yee:

CBRE, Inc., a Delaware corporation ("CBRE") has completed Sub-Slab Depressurization System Diagnostic (SSDS) Testing of the above referenced property. The work was conducted in accordance with CBRE's letter of engagement and generally accepted industry standards. This report was prepared solely for the use of CBRE, Inc Debt & Structured Finance (hereinafter "Client" or "User). No other party shall use or rely on this report or the findings herein, without the prior written consent of CBRE.

Based upon the results of sub-slab air communication testing performed by Mitigation Tech on May 17, 2018, sub-slab depressurization is a feasible technology to mitigate vapor intrusion at the Subject property as identified in the Limited Phase II ESA conducted by CBRE dated May 4, 2018 which is likely related to the adjacent dry cleaner. Of note, access was not provided to the basement apartment and space beneath the liquor store and therefore could not be assessed. As such, Mitigation Tech assumes symmetrical sub-slab characteristics to the areas that could be accessed.

Thank you for the opportunity to provide our services. If you have any questions or need any additional information, please contact the undersigned at paul.stellato@cbre.com.

Sincerely,

CBRE, Inc. – ASSESSMENT AND CONSULTING SERVICES

Prepared By:

Paul Stellato
Senior Environmental Site Assessor

Attachment: Mitigation Tech Work Plan

May 22, 2018

Mr. Paul Stellato
Project Manager
CBRE | Environmental Assessment Services
55 West Red Oak Lane
White Plains, NY 10604
Via email: Paul.Stellato@cbre.com

Re: 432 Riverdale Ave., Yonkers, New York 10701 || CBRE Project # E80505758
Report on Sub-slab Air Communication Testing and Building Assessment
Soil Vapor Intrusion Mitigation System Design

Dear Mr. Stellato,

Based on our recent discussion and site assessment, below please find requested costs to cover the listed services for the above location.

1.0 Introduction

This document presents a Work Plan that consists of the installation and operation of a sub-slab depressurization system (SSDS) that is designed to mitigate the migration or potential migration of sub surface vapors into the building interiors. The subject area is the foundation footprint of 432 Riverdale Ave., Yonkers, New York.

The SSDS is intended to protect the occupants of the subject area and is not intended to remove or diminish the source of the contamination. After start-up, demonstration of SSDS effectiveness will be confirmed and thereafter, a program of periodic maintenance and monitoring will be proposed. A certification of effectiveness will be provided. Post mitigation air sampling is not included, and can be provided by others under separate contract and at additional expense.

2.0 Objectives

This work plan was developed in general accordance with the NYS DOH document, "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006".

The objective of the SSDS is to create and maintain a minimum negative pressure differential of .002 inches of water column (wci) below basement concrete slabs which function as boundaries between sub-slab space and occupied interior space.

3.0 Work Plan Design and Specifications

3.1 Pre-design Communication Testing

Mitigation tech technicians visited the site on May 17, 2018 to perform sub-slab air communication testing and a general building assessment. Sub-slab air communication testing was utilized to design the most efficient system configuration. The test procedure included drilling full scale suction cavities and test holes in the basement slab to measure vacuum influence and design an appropriate SSDS configuration. Because of certain some areas were inaccessible on May17, drilling work was confined to the portion of the basement not set up as a residence. The slabs are in good condition, have no vapor barrier, and measure 2"- 4" in thickness. The sub-slab material in the elevated oil tank area is very dense, necessitating use of a high pressure fan and close network of suction points with 2" and 3" risers. The sub-slab material in the balance of the footprint is generally loose and requires a separate low pressure high air flow blower, with larger diameter pipe. The enclosed design is a result of weighing key elements (fan type, suction point location, pipe diameter, etc.) against the cost of different construction strategies and materials. Fan maintenance, noise and operating cost are considered in system design.

3.2 Scope of Work

The Scope of Work is to furnish and install a multi-point active sub-slab depressurization system with home run wiring to owners electrical panel. The Scope of Work is based on the minimum construction necessary to achieve the design objective of furnishing a minimum .002 wci pressure differential at designated areas of the sub-slab floor. At work conclusion, documentation will be provided for review showing that the installation of the SSDS is effective in reducing migration of sub-slab vapor into indoor air. The system configuration, including fan model, is subject to change based on field observations made during construction so that performance objective can be most efficiently achieved.

Furnish and Install:

- Continuous building assessment and sub-slab vacuum measurement to optimize design
- (1) RADONAWAY HS-5000 high performance vacuum fan, exterior mount at roof exhaust, 3" PVC pipe via exterior pipe and fan to roofline, WITH
- (2) suction cavities at boiler room
- (1) Cut and restore trench to sub-slab material, appx. 25' length, elevated oil tank area per attached sketch.
- (1) RADONAWAY RP-265 or RP-380 high air flow vacuum fan, exterior mount at roof exhaust, 4" or 6" PVC pipe via exterior pipe and fan to roofline, WITH
- (7-10) suction cavities, general areas per attached sketch, exact locations to be determined upon access to all basement areas and based on findings measurements obtained during continuing diagnostics.
- Client to provide, at client's expense and as determined to be necessary: 1) proper cleaning of work areas and removal of obstructing debris, 2) asbestos abatement in designated work areas and where cutting or mounting of components is necessary, 3) dewatering and/or water entry control measures , so that the effectiveness of sub-slab depressurization is not subject to degradation
- Mitigation Tech to consult and make reasonable efforts to accommodate occupants at the property on all activities to be performed under this Scope of Work
- Suction points as follows: connection via 3" Schedule 40 PVC pipe, to sub-floor, with urethane seal, to consist of approximately 1 cu. ft. excavated material in sub-slab; access hole to suction cavity by 5"core drill or hand drill; trenching around footers where required, with concrete restoration; with additional placements where required to meet performance objectives.
- Proportioning valves or plates for suction risers where required
- All exhaust points minimum 10' from any air intakes

- Exterior switch and *Sealtight* and/or MC conduit from fan housings to owner's electrical panel by home run wiring to equipment room; assumes adequate capacity for addition of dedicated circuits; final connection to circuit or panel by licensed electrician
- Oil filled vacuum indicators, on vertical pipe run; one device per fan system, locations TBD
- Audible local alarm for loss of vacuum in system
- Urethane sealant at floor joints, accessible cracks and penetrations in vicinity of suction points
- Horizontal pipe near ceiling, with metal bracketing direct to structure, sloped as required
- At completion, perform backdraft testing, measure pressure differentials and document; label components and provide system description and operational instructions
- Discharge is direct to the atmosphere, above the roof line
- Upgrade to steel or cast iron pipe, where required or desired, available at additional cost
- Preparation and implementation of site-specific Health & Safety Plan covering Mitigation Tech employees in accordance with OSHA requirements
- Estimated total system continuing monthly electrical cost is $35.00
- Permits and inspections, where required, at additional cost
- Consult with client to develop operation, maintenance and periodic inspection plan
- Two year warranty; labor and installed components

3.3 Post Installation Pressure Field Extension Testing

A digital micromanometer will be used to measure pressure differentials and values will be recorded on a floor plan. All test holes will be repaired with urethane caulk (MSDS available) applied over a closed cell backer rod. Smoke tubes will be used to identify floor cracks and other openings to the sub-slab that could "short circuit" the pressure field. Backdrafting testing will be performed.

3.4 System Operation Following Power Loss

The system will restart automatically after power restoration.

3.5 IRM Construction Completion Report

At conclusion of construction, a Construction Completion Report (CCR) will be submitted. This report will include an as-built drawing, showing SSDS locations and components. The CCR will include measurements of created sub-slab to ambient air static pressure differentials, detailed descriptions of SSDS components, and post-installation sampling results.

An Operations, Maintenance, and Monitoring (OM&M) Plan will be submitted with the CCR. The OM&M Plan will be provided to the owner and occupants to facilitate their understanding of the system's operation, maintenance and monitoring. The OM&M Plan will include the following:

- a description of the SSDS Installed and its basic operating principles, with diagram;
- how the owner or tenant can check that the SSDS is operating properly;
- how the SSDS will be maintained and monitored and by whom;
- a description of long-term reporting and annual SSDS certification requirements;
- a list of appropriate actions for the owner or tenant to take if a SSDS warning device (manometer) indicates system degradation or failure;
- a description of the proper operating procedures for the SSDS, including manufacturer's operation and maintenance instructions and warrantees; and
- contact information if the owner or tenant has questions, comments, or concerns.

3.6 Maintenance and Monitoring

Future monitoring will be proposed to monitor system communication via differential pressure measurements. The monitoring will be performed annually until a less-frequent monitoring frequency is approved. This routine monitoring will include:

- visual inspection of the equipment and piping;
- inspection of exhaust points to verify that no air intakes have been located nearby;
- identification and subsequent repair of any leaks;
- audible operational status check of vent fans;
- damper adjustments as required to balance parallel branches of system;
- measurement of differential pressure between the indoor air and the sub-slab to ensure a lower pressure is being maintained in the sub-slab relative to indoor ambient, as indicated by the pressure gauge on the fan suction pipe.

In addition, non-routine maintenance may be conducted should it appear that the SSDS has reduced its effectiveness due to malfunction, renovation, or other unplanned circumstance. Examples of such circumstances include the following:

- the building's owner or tenants report that a warning device indicates that the SSDS is not operating properly;
- the system is accidentally damaged;
- the building has undergone renovations that may reduce the effectiveness of the system.

Thank you.

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