Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

February 16, 2018

Mr. Peter Procida
LPC Developmet Group LLC
456 East 173rd Street
Bronx, New York 10457

Re: Soil Vapor Extraction System Pilot Test Report
337 Berry Street, Brooklyn, New York

Dear Mr. Procida,

On January 28, 2018, a Soil Vapor Extraction (SVE) pilot test was performed at the above-referenced site in accordance with an August 8, 2017 Implementation Plan. The pilot test included the installation of one pilot SVE well and two offsite vacuum monitoring points at the locations indicated in Figure 1.

Description of Pilot System

The pilot SVE well was installed earlier to a depth of approximately 15 feet below the ground surface of neighboring properties, or 13 feet below ground surface at the site. The pilot well consisted of a 4 inch diameter riser pipe installed to a depth of 10 feet followed by a 5 foot long, flush-mounted, 0.02 slotted PVC well screen. Stepped vacuums ranging from 10" to 50" wc were applied to the pilot well using a 4 Hp FPZ variable speed regenerative blower.

Due to the presence of large boulders and extensive construction debris at depth, the pilot well was installed utilizing a track-mounted excavator. The well screen was packed with gravel followed by a bentonite pellet seal utilizing an outer casing consisting of 18 inch diameter corrugated pipe. The well casing was carefully backfilled to grade and compacted in stages with the excavator utilizing boulder and debris-free native soil.

The two offsite vacuum monitoring points consisted of AMS retractable-tip soil vapor probes installed to depths of approximately 6 feet utilizing a hand-held slide hammer. One vacuum point (VP-A) was installed approximately 30 feet from the pilot well in a fenced area adjacent to the site. The other point (VP-B) was installed approximately 50 feet from the pilot well in the side yard less than 6 feet from the northern wall of the apartment building at 345 Berry Street.

Onsite vacuum points were not utilized since the unpaved site is more than 2 feet lower in elevation than 345 Berry Street to the south and boundary conditions would adversely affect the results. In fact, boundary conditions were observed to affect vacuum readings in VP-A, the closest offsite vacuum point, which was less than 5 feet south of the site.

The furthest vacuum point (VP-B) was not as affected by lateral boundary conditions, but showed significant fluctuations in vacuum attributable to the partially paved ground surface in which it was installed. A vacuum point was not installed in the cellar of the apartment building due to extremely limited access in an approximately 100 square foot area.

Discussion

A summary of the SVE pilot test data is presented in Table 1 and Distance vs. Vacuum Response curves are presented in Figure 2. It can be seen from Table 1 that a significant vacuum (greater than 0.004"wc) was first observed in VP-A (30 feet from the pilot well) at an applied vacuum of 30"wc and in VP-B (50 feet from the pilot well) at an applied vacuum of 40"wc. Similarly, Figure 2 indicates that applied vacuums above 10"wc induced significant vacuums 30 feet away and applied vacuums of 30"wc or greater induced significant vacuums 50 feet away.

The following conclusions can be made from the January 28, 2018 SVE pilot test performed at the site:

1. A vacuum greater than 0.004" wc was induced beneath the adjacent property to the south less than 6 feet from the building's northern exterior wall.

2. A vacuum greater than 0.004" wc could be induced 30 feet using a vacuum of 30"H20 for each operational SVE well and 50 feet using a vacuum of 40" wc.

3. As indicated in Figure 3, an operational SVE Well (SVE-1) with a minimum vacuum of 40" wc, will maintain a significant vacuum over a 50-foot radius of influence, including the entire building at 345 Berry Street.

4. Induced vacuums beneath the site and its vicinity will increase significantly once the site is brought up to grade and an asphalt pavement installed.

5. Once the SVE wells and lateral piping have been installed, additional vacuum testing will be performed to determine appropriate size of the regenerative blower required to maintain a negative pressure beneath adjacent properties.

We are prepared to commence installation of the SVE system upon your authorization. Please contact me at your earliest convenience if you have any questions or comments concerning the above.

Very truly yours,

Paul P. Stewart, QEP
President

Cc: Andrew R. Levenbaum, P.E.

Table 1

Soil Vapor Extraction Pilot Test Data
337 Berry Street, Brooklyn, NY (C224233)

January 29, 2018

Vacuum = 10" H20

Distance (ft)	Vacuum Response ("H20)
30	0
50	0

Vacuum = 20" H20

Distance (ft)	Vacuum Response ("H20)
30	0.01
50	0.001

Vacuum = 30" H20

Distance (ft)	Vacuum Response ("H20)
30	0.006*
50	0.002

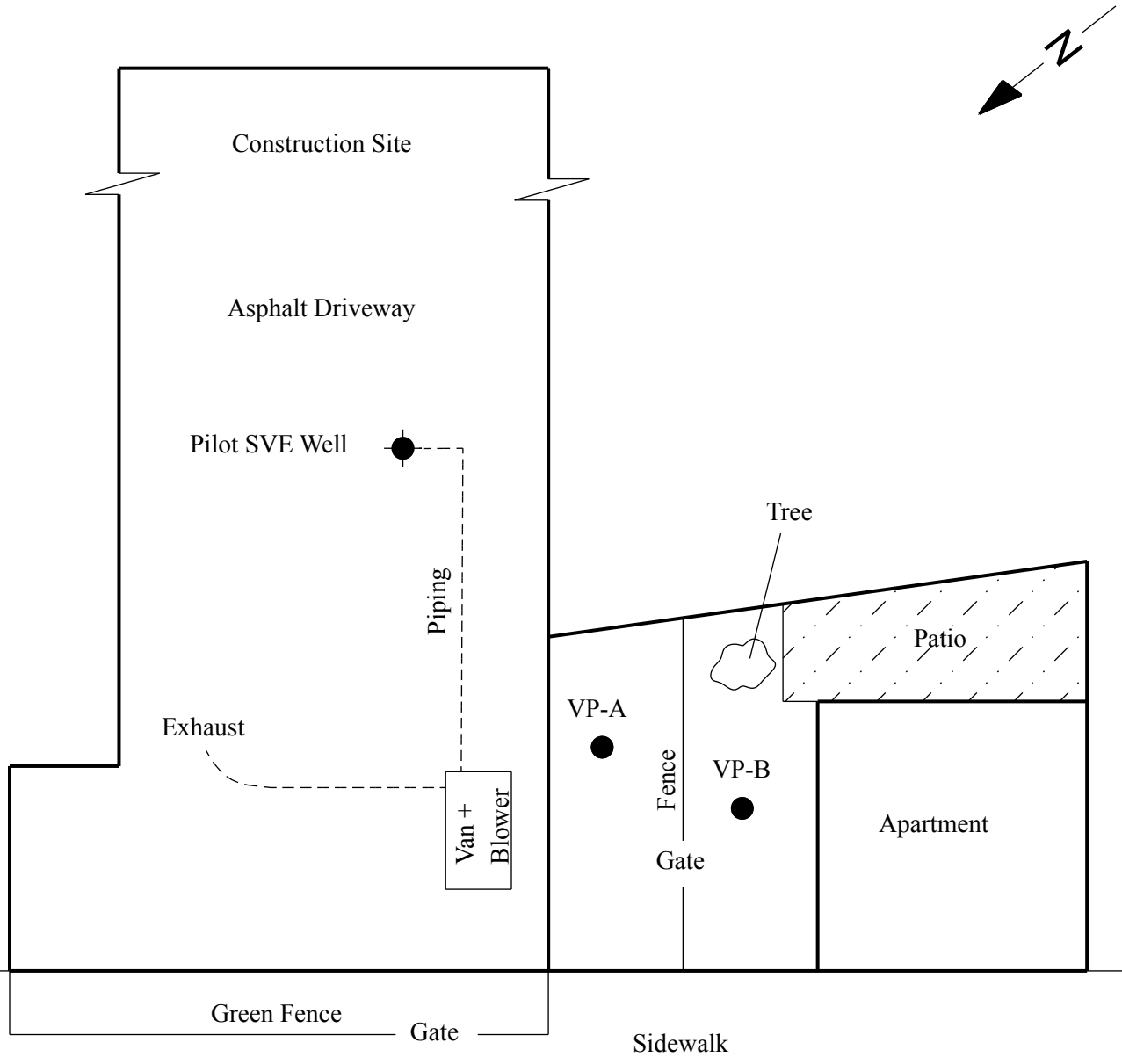
Vacuum = 40" H20

Distance (ft)	Vacuum Response ("H20)
30	0.007*
50	0.005

Vacuum = 50" H20

Distance (ft)	Vacuum Response ("H20)
30	0.006*
50	0.006

*Reduced vacuum from boundary conditions



BERRY STREET

Legend

Pilot SVE Well

VP-A Vacuum Point

0' 5' 10' 20'

Pilot Test Diagram

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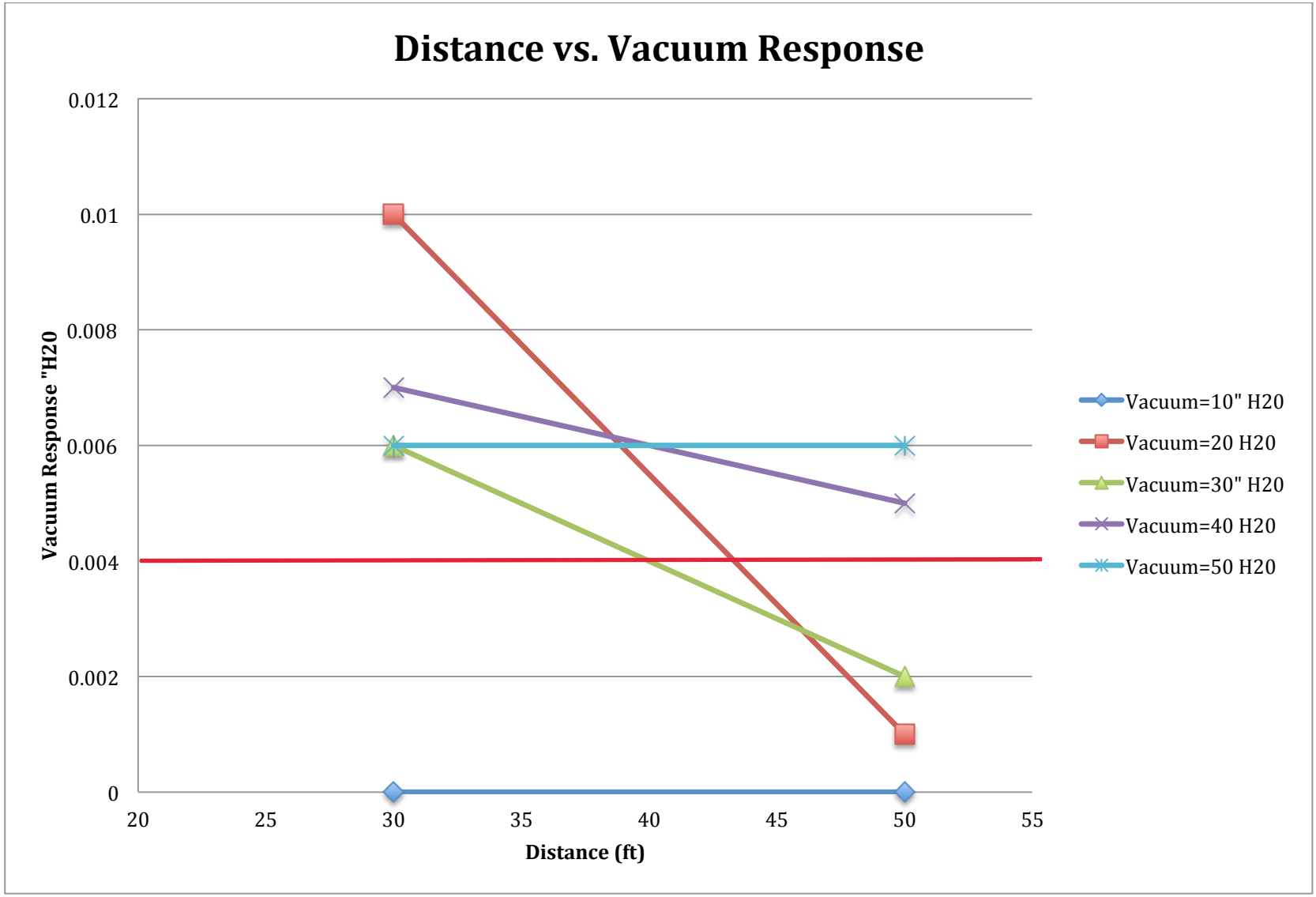
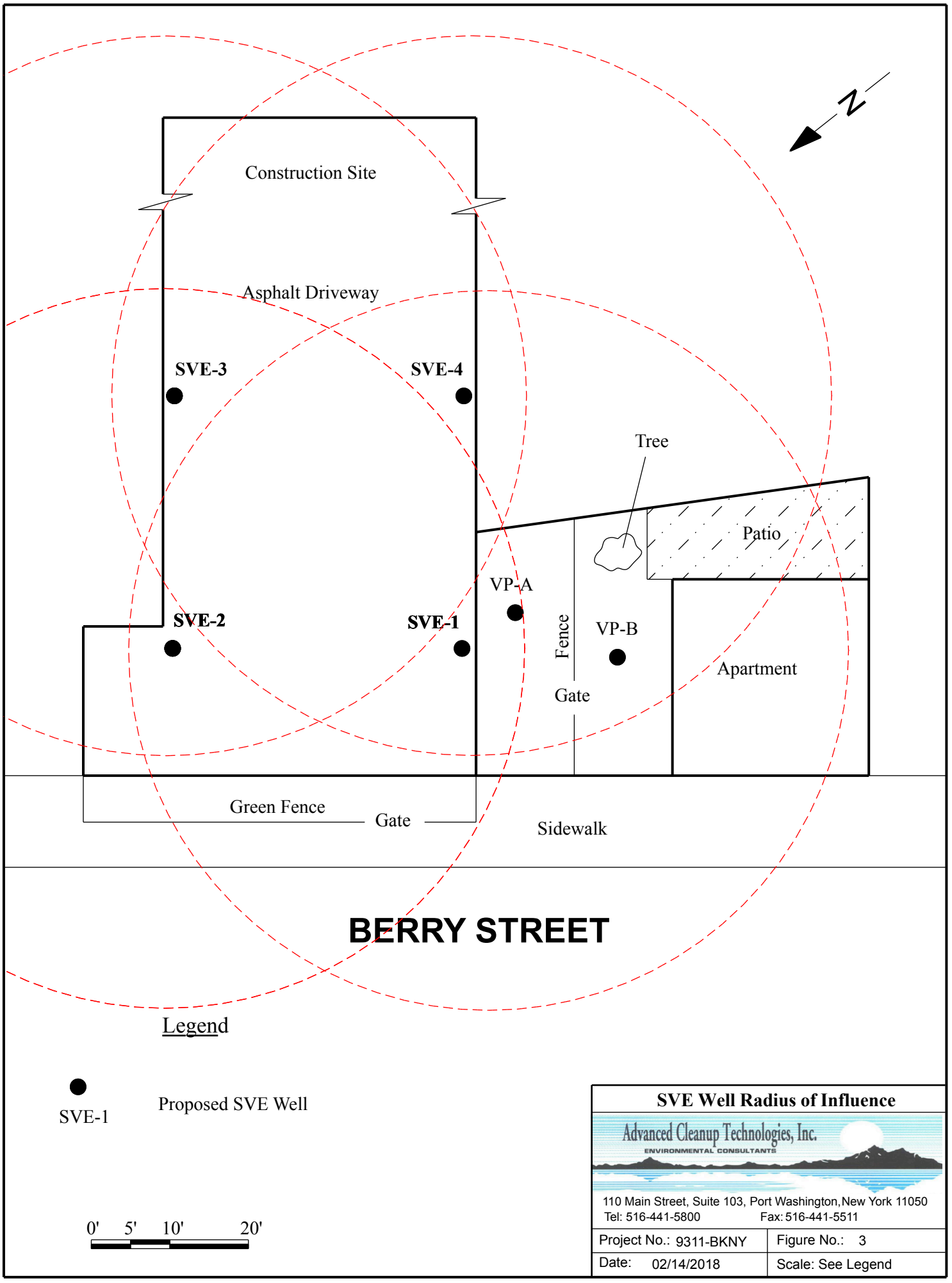
Project No.: 9311-BKNY	Figure No.: 1
Date: 02/14/2018	Scale: See Legend

Figure 2


Distance vs. Vacuum Response
Vacuum Response "H20
0.012
0.01
0.008
0.006
0.004
0.002
0
20
25
30
35
40
45
50
55
Distance (ft)
Vacuum=10" H20
Vacuum=20 H20
Vacuum=30" H20
Vacuum=40 H20
Vacuum=50 H20



SVE Well Radius of Influence

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Project No.: 9311-BKNY	Figure No.: 3
Date: 02/14/2018	Scale: See Legend