

April 1, 2016

Ms. Melissa Matthews  
700 Penn, LLC  
c/o EastBanc, Inc.  
3307 M Street, NW, Suite 400  
Washington, DC 20007

**Subject: Project 15614002.00, Final Vibration Monitoring Summary Report, Hine Jr High Project, Washington, DC**

Dear Ms. Matthews:

**SCHNABEL ENGINEERING, LLC (Schnabel)** is pleased to present the final results of vibration monitoring during construction from March 5 through 30, 2016. These services are provided according to our agreement signed January 15, 2015.

#### **PROJECT DESCRIPTION**

This project consists of the demolition of the existing structure by conventional methods and construction of a new multi-use development up to 9-stories high, with 2 levels of below grade parking. The excavation support piers were pre-drilled and grouted in-place. The proposed structure is supported on a spread-footing foundation. Rock was not encountered during excavation in the building footprint.

#### **VIBRATION MONITORING**

The purpose of the vibration monitoring is to record the vibration levels generated from the demolition and construction activities, so as to minimize excessive vibrations that might damage the adjacent structures, and/or annoy the residents. Five (5) seismic stations were originally installed on three sides (East, North and West) of the project in mid-April. Three of those stations (Stations 1, 4 and 5) have been removed at your request. A plan showing the seismograph equipment locations is attached. Table 1 summarizes the seismograph locations, with recommended trigger levels. The recommended trigger level is lower on the north side of the site, because this station is next to residential properties. The station on the west side is adjacent to commercial properties.

**Table 1 – Seismograph Locations**

<b>Station</b>	<b>Location Description</b>	<b>Vibration Trigger Level (mms)</b>
2	West – 301 7 <sup>th</sup> Street, Basement	12.7
3	North – 239 8 <sup>th</sup> Street, Back Yard	6.4

The stations are equipped with a cellular modem for communications with our computer network. The seismographs are recording vibrations in three perpendicular planes of movement: longitudinal, vertical, and transverse. They are set to monitor the vibrations from 5:00 AM to 7:30 PM daily. The station on the North side of the project will generate an event report with the vibration waveform, if the peak particle velocity exceeds 6.4 millimeters per second (mms). The seismograph on the West side (on 7<sup>th</sup> Street) will record an event report when the vibration level exceeds 12.7 mms. When vibrations exceed these criteria, the seismographs are also programmed to “Call Home” to Schnabel’s server to download the vibration data. The “Call Home” feature allows automatic notification to anyone on the distribution list that vibration levels exceeding the allowable criterion have been recorded.

**CONSTRUCTION MONITORING ANALYSIS**

The table below summarizes the daily peak vibration levels if the vibrations exceeded the respective trigger levels of 6.4 and 12.7 mms. There were no vibration events recorded during this monitoring period that exceeded the 6.4 or 12.7 mms trigger levels.

The monitoring stations were de-mobilized on March 30<sup>th</sup>.

**Table 2 – Recorded Vibration Data**

Date	Daily Peak Vibrations (mms/Hz)	
	Station 2 (West)	Station 3 (North)
3/5	No Triggers	No Triggers
3/6	No Triggers	No Triggers
3/7	No Triggers	No Triggers
3/8	No Triggers	No Triggers
3/9	No Triggers	No Triggers
3/10	No Triggers	No Triggers
3/11	No Triggers	No Triggers
3/12	No Triggers	No Triggers
3/13	No Triggers	No Triggers
3/14	No Triggers	No Triggers
3/15	No Triggers	No Triggers
3/16	No Triggers	No Triggers
3/17	No Triggers	No Triggers
3/18	No Triggers	No Triggers

Date	Daily Peak Vibrations (mms/Hz)	
	Station 2 (West)	Station 3 (North)
3/19	No Triggers	No Triggers
3/20	No Triggers	No Triggers
3/21	No Triggers	No Triggers
3/22	No Triggers	No Triggers
3/23	No Triggers	No Triggers
3/24	No Triggers	No Triggers
3/25	No Triggers	No Triggers
3/26	No Triggers	No Triggers
3/27	No Triggers	No Triggers
3/28	No Triggers	No Triggers
3/29	No Triggers	No Triggers
3/30	No Triggers	No Triggers

## CONCLUSIONS

The seismograph records indicate that there were no vibration events recorded at Stations 2 or 3 that exceeded the respective trigger levels of 12.7 and 6.4 mms during this monitoring period. The monitoring stations were de-commissioned on March 30<sup>th</sup>.

We have endeavored to provide the professional services as reported herein in accordance with generally accepted geosciences practices, and make no other warranties, either express or implied, as to the services provided under the terms of this agreement and included in this report.

We appreciate the opportunity to be of service. Please feel free to contact us if you have questions concerning this final report.

Sincerely,

**SCHNABEL ENGINEERING, LLC**

A handwritten signature in blue ink, appearing to read "Benjamin R. Like".

Benjamin R. Like  
Associate

A handwritten signature in blue ink, appearing to read "Kenneth E. Derrenbacher".

Kenneth E. Derrenbacher, PE  
Principal

KED/BRL

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Enclosures

Figure 1 – Seismograph Location Plan