Approximate Location of Construction Activities

Approximate Location of Vibration Monitor

31 Ellerbeck Street
365 King Street West
26 Centre Street
18 Centre Street
Table 1 - Vibration Exceedance Protocol at Neighboring Structures (Adopted from City of Ottawa SP. F-1201)

<table>
<thead>
<tr>
<th>Frequency Hz</th>
<th>PPV mm/s</th>
<th>Required Action</th>
<th>Description of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>PPV &lt; 20</td>
<td>No Action Required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPV ≥ 20</td>
<td>First Exceedance – Review construction operations and alter procedures as necessary. Proceed with caution with activities subject to the approval of the Contractor.</td>
<td></td>
</tr>
<tr>
<td>≤ 40</td>
<td></td>
<td>Second Consecutive Exceedance – Contractor to cease all operations, review activities and submit revised work methodology to the Owners and Project Team.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPV ≥ 50</td>
<td>First Exceedance – Contractor to cease all operations, review activities and submit revised work methodology to the Owners and Project Team.</td>
<td>Notification email sent, vibration expert to review vibration event for contract compliance.</td>
</tr>
<tr>
<td></td>
<td>PPV &lt; 45</td>
<td>No Action Required</td>
<td></td>
</tr>
<tr>
<td>45 ≤ PPV &lt; 50</td>
<td></td>
<td>Warning Level – Review construction operations and alter procedures if necessary. Proceed with caution with activities.</td>
<td>Notification email sent, vibration expert to review vibration event for contract compliance.</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>PPV ≥ 50</td>
<td>First Exceedance – Review construction operations and alter procedures as necessary. Proceed with caution with activities subject to the approval of the Contractor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Second Consecutive Exceedance – Contractor to cease all operations, review activities and submit revised work methodology to the Owners and Project Team.</td>
<td>Notification email sent, vibration expert to review vibration event for contract compliance.</td>
</tr>
</tbody>
</table>
# Subject
Vibration Monitoring Summary – February 19 to March 4, 2021

# Project
St. Mary's of the Lake Renovations

# Client
Queens University

# Ref No
02101810.000

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**Table 2: Maximum Peak Particle Velocity**

<table>
<thead>
<tr>
<th>Seismograph Location</th>
<th>Date of Installation</th>
<th>Maximum Peak Particle Velocity (PPV) [mm/s]</th>
<th>Date of Maximum Vibration Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 Centre Street</td>
<td>February 19, 2021</td>
<td>0.254</td>
<td>February 19, 2021</td>
</tr>
<tr>
<td>26 Centre Street</td>
<td>February 19, 2021</td>
<td>0.508</td>
<td>February 28, 2021</td>
</tr>
<tr>
<td>31 Ellerbeck Street</td>
<td>February 19, 2021</td>
<td>0.381</td>
<td>February 24, 2021</td>
</tr>
<tr>
<td>365 King Street West</td>
<td>February 19, 2021</td>
<td>1.143</td>
<td>February 22, 2021</td>
</tr>
</tbody>
</table>

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**GLOSSARY:**

- **H**: Histogram
- **W**: Waveform
- *******: Not Available
- **Tran**: Maximum peak particle velocity along the tranverse plane
- **Vert**: Maximum peak particle velocity along the vertical plane
- **Long**: Maximum peak particle velocity along the longitudinal plane
- **Freq**: Frequency
- **PVS**: Peak Vector Sum

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*Highest Vibration level recorded at this monitoring location during this monitoring period*
Queens - PPV vs Hz Vibration Data

- <40 Hz Alert I
- <40 Hz Alert II
- >40 Hz - Warning
- >40 Hz - Alert

Locations:
- 18 Centre Street - Transverse
- 18 Centre Street - Vertical
- 18 Centre Street - Longitudinal
- 26 Centre Street - Transverse
- 26 Centre Street - Vertical
- 26 Centre Street - Longitudinal
- 31 Ellerbeck Street - Transverse
- 31 Ellerbeck Street - Vertical
- 31 Ellerbeck Street - Longitudinal
- 365 King Street West - Transverse
- 365 King Street West - Vertical
- 365 King Street West - Longitudinal

Frequency (Hz)
- PPV Alert I
- PPV Alert II
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32
- 33

PPV (mm/S)