



August 5, 2026

Our File Ref.: 240447

Heritage Investments Ltd.
1010 Polytek, Unit 5
Ottawa, ON K1J 9H9

Subject: **Construction Impact Assessment Report – Proposed 28-Storey Apartment**
595, 601, 603 Laurier Ave W, Ottawa ON

Introduction

LRL Associates Ltd. completed a geotechnical investigation for the proposed 28-storey apartment development at 593, 601, and 603 Laurier Avenue West, Ottawa. The proposed development includes three levels of underground parking and associated municipal servicing, including a storm sewer extension. The site is located in proximity to an existing 1524 mm diameter high-pressure watermain within the Bronson Avenue corridor.

The purpose of this memorandum is to assess potential impacts of the proposed construction activities on the existing watermain and to provide recommendations for mitigating risks associated with ground movement and construction vibration. The assessment also outlines recommended monitoring requirements during construction.

Existing Subsurface Conditions

Based on the geotechnical investigation, the site is underlain by a thin layer of fill material over limestone bedrock. Bedrock was encountered at depths generally ranging between approximately 0.5 m and 1.0 m below existing grade. Groundwater was measured at approximately 7.1 m below ground surface.

The shallow bedrock conditions are considered favourable from a settlement perspective, as foundation loads from the proposed structure will be transferred directly to competent bedrock. However, localized bedrock excavation, hoe-ramming, drilling activities, and installation of municipal services have the potential to generate construction-induced vibration and localized ground movements.

Risk Assessment

Settlement Risk



Based on the subsurface conditions encountered, significant long-term ground settlement is not anticipated due to the presence of shallow competent limestone bedrock. The risk of settlement affecting the adjacent 1524 mm watermain is therefore considered low.

Potential sources of localized movement may include:

- Over-excavation of bedrock;
- Inadequate backfilling and compaction of service trenches;
- Excessive dewatering, if required;
- Installation of the proposed storm sewer extension.

Provided that excavations are properly controlled and backfilled, significant watermain settlement is not anticipated.

Vibration Risk

The greatest risk to the watermain is considered to be construction vibration associated with:

- Hoe-ramming operations;
- Bedrock excavation;
- Line drilling;
- Heavy compaction equipment;
- Potential blasting activities (if required).

Excessive vibration could result in damage to watermain joints, fittings, or thrust restraints. As such, construction vibration monitoring is recommended throughout excavation and bedrock removal activities.

Recommended Mitigation Measures

The following measures are recommended to minimize risks to the watermain:

- Complete a pre-construction condition survey of all accessible watermain structures within the area of influence.
- Utilize controlled bedrock excavation methods and avoid uncontrolled mechanical breaking operations where feasible.
- Implement line drilling at excavation limits where vibration reduction is required.
- Avoid stockpiling heavy materials adjacent to the watermain corridor.
- Ensure all storm sewer trenches are backfilled and compacted as outlined in Geotechnical Report.
- Minimize open excavation durations adjacent to the watermain.
- Immediately investigate any unusual settlement, ground cracking, water leakage, or vibration exceedances observed during construction.

Settlement Monitoring Program

Settlement monitoring should be implemented prior to the commencement of excavation activities.



Monitoring Points

Monitoring points should be installed:

- Along the watermain alignment adjacent to the development;
- At critical structures;

Monitoring Frequency

- Baseline measurements prior to construction.
- Weekly during excavation and servicing activities.
- Daily during critical excavation operations adjacent to the watermain.
- Additional readings following significant excavation events.

Trigger Levels

Condition	Settlement
Alert Level	10 mm
Action Level	15 mm
Stop Work / Engineering Review	25 mm

Exceedance of the Action Level should trigger immediate review by the geotechnical engineer.

Vibration Monitoring Program

Vibration monitoring equipment should be installed at locations approved by the City and positioned between the excavation activities and the existing watermain.

Monitoring should be continuous during:

- Hoe-ramming;
- Bedrock excavation;
- Line drilling;
- Heavy compaction operations.

Recommended Vibration Limits

Frequency	Maximum Peak Particle Velocity (PPV)
≤ 40 Hz	20 mm/s
> 40 Hz	50 mm/s

These limits are consistent with the vibration criteria referenced in the geotechnical report.

Response Plan

Upon exceedance of vibration limits:

- Stop the activity generating vibration.
- Inspect the site and monitoring records.



- Review construction methods.
- Implement alternative excavation procedures if necessary.
- Resume work only after acceptance by the project engineering team.

Conclusions

Based on the geotechnical investigation, the presence of shallow competent limestone bedrock and the relatively deep groundwater conditions indicate that the potential for construction-induced settlement affecting the existing 1524 mm diameter watermain is low.

The primary risk to the watermain is considered to be construction vibration associated with bedrock excavation activities. Implementation of the mitigation measures and monitoring programs outlined herein is expected to reduce the risk to an acceptable level and provide early identification of any adverse impacts during construction

Yours truly,
LRL Associates Ltd.



Brad Johnson, P.Eng.
Geotechnical Engineer

