

Noise & Vibration Study

What is the purpose of this?



A *noise & vibration study* (environmental noise analysis) determines the projected sound and vibration exposures for a proposed development both from and to adjacent uses, for stationary and mobile noise sources, and any mitigation measures needed.

Who should prepare this?



The study is to be prepared by a registered professional engineer qualified in acoustical engineering and experienced in the preparation of *noise and vibration studies*.

When is this required?



This study may be required for any large-scale land development proposal (i.e. pit, quarry, industrial use, or some on-farm diversified uses). This should be completed prior to submitting a development application with the local Municipality and County.

Applications where the County is the approval authority that may require a *noise & vibration study* include, but are not limited to:

- Official Plan Amendment
- Plan of Subdivision / Condominium

Other municipal/provincial level applications that may require a *noise & vibration study* include:

- Official Plan Amendment (local)
- Zoning By-law Amendment
- Consent
- Site Plan Control
- Development Permits (Niagara Escarpment Commission Development Permits are a Provincial requirement. Study requirements must be scoped to adhere to the policies of the Niagara Escarpment Plan (NEP) (2017) and any applicable guideline which may be more restrictive than municipal standards).

Why do we need this?



A *noise & vibration study* is required to assess the cumulative impacts and compatibility of a proposed development with sensitive uses. An example of when the County would require this type of study would be for a pit or quarry application, which would include specific review of neighboring residential properties (sensitive receptors).

How should this be prepared?



A *noise & vibration study* should include the following:

Introduction

- description of the subject site and the proposed development
- location/context map
- identification of the noise source(s)

- location of sensitive receptors (e.g. residential uses) within 500 metres of the proposed development (depending on the proposed development, it may be pertinent to expand the radius distance beyond 500 metres)
- description of the sound level guidelines/standards applied (methods)

Environmental Noise (and Vibration) Assessment

- noise sources and noise level forecasts (e.g. tables showing ultimate projected noise levels from the proposed use combined with existing noise levels and predicted unmitigated sound energy exposures outdoors)
- environmental noise guidelines
- noise impact assessment (including low frequency noise impacts)
- vibration assessment, if applicable

Noise (and Vibration) Control Measures

- indoors: architectural requirements, ventilation requirements
- outdoors: at source requirements, sound barriers (i.e. description and site plan with noise mitigation)
- warning clauses

Conclusions

- Appendix A – base noise level calculations (noise source data)
- Appendix B – ministry of environment noise guidelines
- Appendix C – sample sound exposure calculation

The list may be modified in pre-consultation with the review agencies. A Noise & Vibration Study should not be completed in isolation from other technical development studies/reports. Efforts should be made by the qualified professional(s) to integrate and interpret key findings and mitigation measures from other supporting studies/reports related to the proposed development with the Noise & Vibration Study.

What else should we know?



A *noise & vibration study* (or environmental noise analysis) should be based on the applicable guidelines established by the Association of Professional Engineers of Ontario, the Ministry of the Environment, Conservation and Parks, Grey County, and the applicable local municipality. Some municipalities in Grey County have noise by-laws in place and a Special Events permitting process (if applicable).

The measuring and abatement of noise can be very different if it comes from a stationary industrial source versus another type of source (e.g. special events venue with outdoor noise in non-fixed locations). Recommended mitigation measures should consider the source of the noise, the frequency of the noise, the hours of operation, as well as any sensitive receptors.

Aggregate proposals within the Niagara Escarpment Commission development control area or within the Niagara Escarpment Plan require a noise study as per Part 2.9.3(g) of the NEP (2017).

Further details can be found under section 1.2.6.1 of the Provincial Policy Statement (2020).

What other resources are available?



Association of Professional Engineers of Ontario – Professional Engineers Providing Acoustical Engineering Services in Land-Use Planning -

http://www.peo.on.ca/index.php/ci_id/24010/la_id/1.htm

Ministry of Environment, Conservation and Parks – D-1-2 Land Use Compatibility: Specific Applications - <https://www.ontario.ca/page/d-1-2-land-use-compatibility-specific-applications>

Ministry of Environment, Conservation and Parks – Environmental Noise Guideline - <https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-sources-approval-and-planning>

Ministry of Environment, Conservation and Parks – Primary Noise Screening Method Guide - <https://www.ontario.ca/page/primary-noise-screening-method-guide>

Ministry of Environment, Conservation and Parks – D-6 Compatibility between Industrial Facilities - <https://www.ontario.ca/page/d-6-compatibility-between-industrial-facilities>

[Niagara Escarpment Plan](https://www.ontario.ca/page/d-6-compatibility-between-industrial-facilities) - <https://escarpment.org/LandPlanning/NEP>

*This document is intended to be used for guideline purposes only. It will not be applied as a means of approving or rejecting development proposals, but rather it will be used to provide technical direction throughout the planning and development process.