

Geotechnical Report Guidelines

Effective Date: October 2, 2007

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Reaffirmed Date: July 21, 2015

1. Purpose

The City is relying on the geotechnical engineer's report to avoid, or at least mitigate as specified, any damage to property and/or injury to persons from occurring as a result of geotechnical concerns relating to proposed development.

This policy provides information to prospective applicants and their engineering professionals on when geotechnical reports are required and sets out the standards and requirements to be addressed in those reports.

2. Policy

Application

A geological and geotechnical review, report, study or site specific study is required by the City to support Development Permit, Building Permit, and Rezoning or Subdivision applications in areas as determined by the City from time to time.

A geological and geotechnical review may be required when any of the following conditions apply:

- The project is located on or within 15 metres of a natural, existing or proposed slope greater than 20%
- The project proposes to direct storm water to an existing or proposed slope greater than 20%
- The project will require site grading involving more than 500 m³ or cuts/fills in excess of 1.2 metres in depth or height
- The project will require pre-load or soil consolidation to support a foundation.

Level of Safety

The professional engineer shall consider the following requirements when determining whether a property is “safe” or can be “safely used”:

- The extent of property damage and damage/harm to life and limb which occurs is not likely to be in any way greater than the damage or harm which would occur prior to the development taking place.

A detailed geotechnical review and onsite investigation shall be undertaken by qualified professional geological or geotechnical engineers in order to determine whether the proposed development can occur in a safe manner and to describe mitigation requirements to be employed, where appropriate. The professional shall be guided by the City’s requirement that development shall have a level of safety for any and all geotechnical failures with a 0.5% probability of failure occurring in a 50 year period (a return period of 1:10,000) for applications requiring rezoning, subdivision or development permit approval and a 2% probability of failure occurring in a 50 year period (a return period of 1:2475) for building permit applications.

The City reserves the right to modify this standard to suit the proposed development.

Report Requirements

A geotechnical report shall address the following minimum requirements pertaining to slope and soil stability:

- The professional geotechnical engineer has reviewed all information available to the consultant, including previous geotechnical reports and relevant materials located within the City’s Geotechnical Library. Each report shall describe the specific information reviewed and onsite tests conducted to arrive at the conclusions and recommendations within the report
- Each report shall contain all logs of geotechnical explorations (boring, test pits, trench logs, etc.) conducted on the property, plus a statement explaining the sufficiency in number and depth in order to evaluate site conditions and acquire data to justify all conclusions and recommendations
- The scope and intent of the proposed development
- Statement that there is no net decrease in overall slope and soil stability resulting from the proposed development or works
- Identification, probability and consequences of risks and a statement that slope/soil instabilities will be mitigated by the owner/developer to provide for the safe occupation and use of the development lands and adjacent nearby lands
- Other factors which the professional geotechnical engineer considers relevant to the review, including an assessment of risk, potential consequences, and mechanisms to guarantee ongoing maintenance of slope/soil stabilities over time



- A construction management plan, monitoring and reporting requirements by the professional geotechnical engineer
- Sign and seal each report/letter submitted to the City.

Professional Assurances

The professional geotechnical engineer **MUST** provide in writing the following specific geotechnical assurances **to the City** with each report/letter:

- The professional geotechnical engineer has carried out all necessary surface and subsurface investigations that the Engineer considers necessary to provide the review, design and supervision undertaking being given and adherence to these guidelines
- The professional geotechnical engineer will provide the review, design and supervision such that, in the Engineer's opinion, the site is suitable for the proposed development and the proposed development does not and will not compromise in any way the stability of the soil on-site or soil on lands which are adjacent or nearby, and will not cause or contribute to such soils becoming susceptible to land slip, land slide, rock fall, mud/land flow, debris flow, torrent, erosion, slumping, creeping, settling, avalanches or other such occurrence
- In the professional geotechnical engineer's opinion, in the event of any land slip, land slide, rock fall, mud flow, debris flow, debris torrent, erosion, slumping, settling or other such occurrence, which occurs after the proposed development is completed, the extent of the property damage and damage to life and limb which occurs is not likely to be in any way greater than the damage or harm which would occur prior to the development taking place
- The professional geotechnical engineer's undertaking that he/she is retained by the owner/developer to review, consult, design and fully supervise the construction of the proposed development, and that on completion of the work, he/she will confirm in writing that he/she has fulfilled the review, design and supervision undertakings and the proposed development can be safely used for its intended purpose, taking into consideration future changes which could reasonably occur to the proposed development over time. In the event the retainer is terminated for any reason by the owner/developer, the Engineer shall be obligated to immediately notify the City in writing of that fact
- The professional geotechnical engineer's undertaking that he/she shall notify the City if he/she becomes aware of changes or new information which could affect the outcome of their geotechnical review and/or recommendations.

Professional Liability Insurance

The professional geotechnical engineer shall provide the City with evidence of occurrence based professional liability insurance coverage which does not lapse in the amount of at least \$2,000,000 as provided to their client.

Covenants

The owner/developer may be required by the City to register a covenant against the property title at the Land Titles Office as a notification to future land owners. The covenant will incorporate provisions included in the geotechnical report(s) and indemnify the City against all claims. During the construction phase enforcement of the covenant provisions are the joint responsibility of the owner/developer and the professional geotechnical engineer.

Security

The owner/developer may be required by the City to provide bonding as security for performance of the on-site and off-site construction works and secure the provisions outlined in the geotechnical report(s) pertaining to that construction.

Peer Review

The City may require a professional geotechnical engineer peer review for conformance to good engineering practice and adherence to these guidelines on a case by case basis. The peer review shall be completed by a qualified professional geotechnical engineer engaged directly by the City. Any costs incurred by the City to conduct a peer review shall be borne by the owner/developer. The Engineer engaged by the City shall notify the professional geotechnical engineer and owner/developer in writing of the peer review.