



Infrastructure and Engineering Services Department

Geotechnical Study Requirements

A Geotechnical Study is an objective, science-based sub-surface investigation study, prepared by a qualified expert (Geotechnical Engineer/Consultant) that analyses soil and bedrock composition to determine its structural stability and its ability to accommodate development.

The report provides recommendations for construction including but not limited to earthworks, drainage works, landscaping, sewers and other below grade utilities, road and pavement design to ensure that works constructed by others are built to municipal and other applicable standards.

The study will be used to guide the design and construction of buildings, municipal or private roads and services, as well as to determine feasibility for infiltration of groundwater, if it is part of the proposal.

A Geotechnical Study and drawings shall be prepared and stamped by a professional engineer licensed in the Province of Ontario and has suitable experience in the field.

A Geotechnical Study shall at a minimum contain the following:

Introduction

- Address of the subject property
- General site location of the subject property
- Project Name (if applicable)
- Applicant and owner's contact information
- Author name, title, qualifications, company name and appropriate stamp
- Brief description of the proposed development
- Overview of the study area
- Purpose of the study
- Location and context map

Proposal Description and Context

- A description of the proposal, development stats (such as number of units, site area) type of development proposed, height, parking areas, access points, location of amenity areas, proposed phasing
- A description of the existing on-site conditions as well as surrounding areas, roads, natural areas, buildings, parking areas
- Concept Plan for the development including building location, parking, access, amenity areas, grading and natural features and any natural hazards.

Investigation/Evaluation

Identification of subsurface conditions including:

Geologic setting
Soil, bedrock (if required), and groundwater characteristics
Locations of investigation on site and servicing plans
Factors of safety, feasibility and risk assessment.

Impacts and Mitigation Measures

Discuss the suitability of the site's soils for the proposed development and its planned structures, proposed municipal or private roadways and infrastructure or grading alterations.

Provide a rationale for any recommendations of soil excavation, importing of soil materials, trenching, or backfilling.

Identify recommended construction methods and materials, including those related to backfilling and the placement of fill materials.

Provide recommendations on foundation design and construction based on the site's subsurface conditions.

Identify any concerns or recommendations for the site's drainage, considering pre, during, and post construction conditions.

Mitigation measures and monitoring programs where necessary.

Recommendations regarding below grade watertight structure(s) and/or requirement of PWDS Environmental Compliance Approval (ECA) from Ministry of Environment and Climate Change (MOECC) where applicable.

Recommendations

Summary and conclusions of the studies and how they support the development and any special considerations or conditions that should be imposed.

Any recommendations, or conditions that should form part of a decision on the matter.

Drawings and Supporting Information

Concept plans
Location and context maps.

Site Specific Information

The detailed design of any infiltration facilities will be based on site specific percolation tests

The number of tests will be dependent on the size of the facility and the different types of soils conditions found within the proposed facility footprint zone of influence.

Additional studies such as Slope Stability studies or investigations may be required if the proposed work involves or is influenced by the existing presence or proposed construction of a slope or watercourse. If the proposed work is within areas regulated by Conservation Authorities Slope Stability studies must also meet Conservation Authority geotechnical engineering and design submission requirements for slope stability studies

Additional Resources

[City Standards and Specifications Manual Division H.2.7 – Geotechnical and Hydrogeological Investigations](#)

[TRCA Geotechnical Engineering and Design Submission Requirements](#)

[TRCA Regulation Area Search Tool](#)

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