Development Application Guideline
Terms of Reference – Geotechnical

Description
A Geotechnical Study is a document that is required as part of a development proposal, which serves to analyze the conditions of the soil and aid staff in determining whether the site is appropriate for the development's planned structures, roadways, utilities or other infrastructure. The study aims to obtain information on the physical properties of soil and rock components on site and evaluate the compatibility of the site and surrounding area to accommodate the proposed development. The study should generally provide an assessment of erosion hazards and slope stability, subsurface soil conditions, groundwater conditions, site drainage, vegetation cover, and any other related or pertinent information regarding geological materials and processes. This Terms of Reference document is intended to be applied in conjunction with all other applicable guidelines, such as the City of Kingston's Site Plan Control Guideline and the City of Kingston's Subdivision Development Guideline and Technical Standards.

Rationale
The Geotechnical Study is intended to provide an assessment of geological and subsurface conditions for a proposed development. Based on these conditions and the factors that influence them, appropriate construction methods and materials can be implemented to ensure safety and compatibility of the proposed development with the site and surrounding area. The City of Kingston's Official Plan highlights the importance of a geotechnical study in instances where development is proposed on lands adjacent to or situated on areas of unstable geology or containing significant natural heritage features.

When Required
- Plan of Subdivision
- Zoning By-law Amendment
- Site Plan Control
- Site Alteration
- Or any other development application deemed appropriate by Council or delegate

Applicable Legislation

The Planning Act gives Council the authority to request other information or material that it deems necessary in order to evaluate and make a decision on a proposed planning application.

Section 9.12.3 of the City's Official Plan contains a list of additional information (such as a Geotechnical Study) which may be required upon request.

Furthermore, Section 3 of the Provincial Policy Statement addresses the protection of public health and safety and states:

> Development shall be directed away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards.

Qualified Persons

The study should be prepared by a qualified professional engineer licenced in the province of Ontario with suitable experience in the field.

Required Contents

1. **Site Context & Background**
   - 1.1. Provide a brief description of the proposed development, including any proposed buildings, structures, significant excavations, proposed roadways, utility installations and grading alterations.
   - 1.2. Give a description of the existing site, which should include a map, diagrams or photos, with regards to its location, current land uses, and topography as well as adjacent land uses and their potential impacts on the site.
2. **Geological Conditions & Procedures**
   - 2.1. Discuss the site's existing geotechnical information (e.g.: from previous geotechnical investigations) or the expected conditions based on geologic mapping or previous experience in the area, which should include the following:
     - Slope configuration, height, inclination, shape and profile.
     - Inferred or actual subsurface soil conditions such as soil stratigraphy, soil type and composition, density and strength, bearing capacity, and groundwater levels.
     - External loadings such as structures, traffic, trees, fill, or earthquakes.
     - Site drainage, runoff, and seepage.
     - Erosion considerations.
     - Vegetative cover and species of vegetation.
     - Any historical evidence of geotechnical instability on or near the site.
   - 2.2. Provide the results of any further subsurface geological investigations and testing that may be required in order to accurately gauge soil conditions.

2.2.1. Include all relevant tables, graphs or diagrams.
2.2.2. Describe the techniques or procedures used for subsurface geological investigations and testing including locations of test pits or boreholes.

3. **Discussion & Recommendations**
   3.1. Discuss the suitability of the site's soils for the proposed development and its planned structures, proposed municipal roadways and infrastructure or grading alterations.
      3.1.1. Provide a rationale for any recommendations of soil excavation, importing of soil materials, trenching, or backfilling.
   3.2. Identify recommended construction methods and materials, including those related to backfilling and the placement of fill materials.
   3.3. Provide recommendations on foundation design and construction based on the site's subsurface conditions.
   3.4. Identify any concerns or recommendations for the site's drainage, taking into account pre, during, and post construction conditions.
4. **Conclusion**
   4.1. Briefly summarize the recommendations of the study and identify any limitations in the report.

Submission Requirements

All development applications and accompanying studies and reports should be submitted through the City of Kingston's **DASH Development and Services Hub** which can be accessed online at: City of Kingston DASH

Additional Comments and Information

For additional information, please contact the City of Kingston Planning, Building and Licensing Services Department at:

1211 John Counter Boulevard, Kingston
613-546-4291 ext. 3180
planning@cityofkingston.ca

See the Cataraqui Region Conservation Authority's Guidelines for Geotechnical Investigation for more information and best practice for Geotechnical Studies: Geotechnical Investigation Guideline