

Geotechnical Engineer

Soil and rock. Figure out what the ground will hold before anyone builds a foundation, a dam or a mine on it.

TYPICAL PAY

\$101,000

a year, full time

PAY RANGE

\$67k to \$150k

starting to experienced

TIME TO QUALIFY

4 to 8 years

after high school

DEMAND

Good

job outlook

LICENCE NEEDED

Yes

regulated job

WHERE YOU WORK

Drill sites, soil labs, consulting offices, dams and mines

How you get there

- 1 High school** Grades 11 and 12
Advanced Functions, Calculus, Physics and Chemistry are required for admission. Marks in the high 80s at most schools.
- 2 Civil or geological engineering degree** 4 to 5 years with co-op
Both are accredited. Civil leans toward foundations and structures. Geological engineering leans toward rock: Queen's, UBC (University of British Columbia), Waterloo, Saskatchewan and Laval offer it.
- 3 Master's in geotechnical engineering** 1 to 2 years
Optional but common. It is where you learn soil mechanics in real depth.
- 4 Engineer-in-training** About 4 years
Register as an engineer-in-training (EIT). Log boreholes, run lab tests, then move into analysis and reports under a licensed engineer.
- 5 Exam and P.Eng (professional engineer) licence** After 4 years
Pass the professional practice exam, then apply with your experience record. Now you can sign the geotechnical report a building permit depends on.

Pros and cons

- + Every project starts with you: nothing gets built without a soils report
- + A real mix of outdoors and office
- + Shortage of senior people, so strong job security
- The first years are muddy, cold and early
- Soil is uncertain; you carry liability for what you cannot see
- Field work means travel and time away

Optional boosts

Master's in geotechnical engineering. Mine tailings and dam safety. Tunnelling. Permafrost and cold regions.

Where these numbers come from

Job Bank: Civil engineers (includes geotechnical), wages (updated Nov 2025)
Engineers Canada
Engineers and Geoscientists BC
APEGA (Alberta's engineering regulator)

Numbers checked September 2026. Pay figures are typical full-time annual amounts in Canadian dollars, based on Government of Canada Job Bank wage data and published salary grids. They vary by province, employer and experience. Tuition is for domestic students. Sources, links and the click-through version: <https://career.help/ca/careers/geotechnical-engineer>

Good to know

The grain elevator that fell over

In 1913 a brand-new grain elevator in Transcona, Manitoba tipped about 27 degrees when the clay under it gave way. Engineers dug under the high side and jacked it back upright, and it worked for mor...

Mount Polley

In 2014 a tailings dam at the Mount Polley mine in BC failed and sent millions of cubic metres of mine waste into nearby lakes. The review that followed changed how BC regulates mine dams and put a name...



Scan for the full clicker