

2. GEOLOGY, LANDFORMS, AND THE ORIGIN OF GEOMATERIALS

2.1 WHAT IS GEOLOGY AND WHY IS IT IMPORTANT?

GEOLOGY = SCIENCE OF THE EARTH. CONNECTED WITH HISTORY, FORM, COMPOSITION, STRUCTURE, AND NATURAL PROCESSES ACTING ON EARTH.

GEOLOGY \neq GEOTECHNICAL ENGINEERING. GEOLOGY IS A FIELD OF SCIENCE, GEOTECH IS FIELD OF ENGINEERING. GEOTECHS SHOULD KNOW ENOUGH GEOLOGY TO (i) UNDERSTAND WHEN A GEOLOGIST'S EXPERTISE IS NECESSARY AND (ii) TO BE ABLE TO COMMUNICATE WITH A GEOLOGIST.

LICENCES: GEOTECH: PE = PROFESSIONAL ENGINEER
GE = GEOTECHNICAL ENGINEER

GEOLOGY: PG = PROFESSIONAL GEOLOGIST
CEG = CERTIFIED ENGINEERING GEOLOGIST

GEOLOGY SUB FIELDS

PETROLOGY: STUDY OF ROCKS

MINERALOGY: STUDY OF MINERALS

STRUCTURAL GEOLOGY, GEOPHYSICS, GEOCHEMISTRY,
ENVIRONMENTAL GEOLOGY, HISTORICAL GEOLOGY + PALEONTOLOGY,
ECONOMIC GEOLOGY, GEOMORPHOLOGY, HYDROGEOLOGY

ENGINEERING GEOLOGY = MULTI-DISCIPLINARY INVOLVING
GEOTECH AND GEOLOGY.

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ENGINEERING GEOLOGISTS OBTAIN GEOLOGIC INFORMATION NECESSARY TO DESCRIBE GEOLOGIC FEATURES + PROCESSES, STRUCTURE + CHARACTERISTICS OF ROCKS + SOIL, AND INTERPRET INFORMATION FOR USE BY CIVIL ENGINEER.

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GEO MORPHOLOGY: BRANCH OF GEOLOGY CONCERNED W/ FORM OR SHAPE OF EARTH'S CRUST. PROVIDES INSIGHT TO WHAT TYPES OF SOIL OR ROCK ARE PRESENT AND WHAT PROBLEMS MIGHT BE ANTICIPATED.

GEOLOGY \Rightarrow SPECIFIC LANDFORM \Rightarrow SOIL/ROCK \Rightarrow ENGINEERING INFO + POSSIBLE PROBLEMS

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