PRINCIPIA COLLEGE ENVIRONMENTAL GEOLOGY 225

# Environmental Site Assessment (ESA) Project

*Assignment*

There are many geology-related issues that affect property owners and potential homebuyers like you. You will make more informed and more responsible home buying and home maintenance decisions if you understand the geologic principles and processes relevant to your site. From this perspective, you will write an environmental site assessment specific to your site.

*Outline and Content*

1. **BACKGROUND** – geographic and geologic factors to be described for your specific site.
2. Purpose of paper
3. A description of the terrain of your area, based on your knowledge, a topographic map, and a terrain map (required figures).
   1. A topographic map and aerial photograph or terrain map of your site can be obtained for free on-line at, <http://nationalmap.gov/>, [http://msrmaps.com](http://msrmaps.com/Default.aspx), [www.maps.google.com](http://www.maps.google.com), <http://historical.maptech.com>.
   2. Data you need:

Name of Topographic Map Quadrangle:

Location (Latitude and Longitude):

Highest Elevation: Lowest Elevation: % Slope of Steepest Area:

Major landscape features (mtns., rivers, bluffs, coast…)

1. A description of your site’s geology – bedrock & soil types, based on geologic maps.
2. A statewide map may be available at the website of the state geological survey. You can start at <http://www.stategeologists.org/>. Check [www./usgs.gov](http://www./usgs.gov) also.
3. Data you need:

Bedrock Geology – Age: Rock Type:

Surficial Geology – Age: Type:

Soil Geology – Type: Thickness:

Permeability: Strength:

1. **GEOLOGIC HAZARDS ASSESSMENT**
2. Maps for various types of hazards are available at [www./usgs/gov](http://www./usgs/gov) as well as at some state and community website.
3. Include mitigation efforts
4. Address these potential hazards, some prompts are given:

**Earthquakes?**

**Plate tectonic setting; location of active faults; historic seismic events**

**Volcanoes?**

**Plate tectonic setting; historic volcanic activity**

**River?**

**Flooding (upstream vs. downstream), potential for controlling river channel**

**Proximity to current, old, or filled drainage system? channel migration?**

**Mass Wasting?**

**Landslides? Subsidence? (old mine, sinkholes)**

**Coastal Hazards?**

**Swelling Soils?**

**Radon level?**

1. **WATER**

A description of the source of your site’s drinking water supply, methods of water treatment, and potential contaminants

1. Check the USGS site and your area’s metropolitan water company’s site.
2. Address these parameters, some prompts are given:

**Source of Potable Water:**

**Treatment of Water Supply:**

**Key water issues:**

**Potential Contaminants in Area – Industry? Farming? Metropolitan area? Other?**

**Describe specific contaminants**

1. **WASTE WATER TREATMENT**

A description of the treatment and fate of your site’s waste water

* Check your community’s waste water treatment company’s website.

1. **SOLID WASTE DISPOSAL**

A description of your site’s solid waste management and associated disposal problems

* Sometimes the on-line yellow pages will help find these.

1. **CONCLUSION**
2. **REFERENCE LIST**
3. **FIGURES WITH CAPTIONS**