

# **SNOHOMISH COUNTY JOB DESCRIPTION**

## **ENGINEERING GEOLOGIST**

Spec No. 3036

### **BASIC FUNCTION**

To perform and supervise environmental, geotechnical, geological and materials engineering investigation using applicable standard engineering principles and methods. Assists all departments within Snohomish County in providing technical support or coordinating the work of consultants or engineering staff in the areas of environmental, geotechnical, geological and materials engineering.

### **STATEMENT OF ESSENTIAL JOB DUTIES**

1. Performs geotechnical/geological investigations for various types of projects; conducts vicinity and site reconnaissance to determine existing surficial conditions, vegetation types, wild life habitat, drainage patterns, property uses, existing property improvements, slope conditions and access requirements; conduct sub-surface exploration using a drill rig boring, backhoe test pits or hand-sampling techniques; supervises drilling personnel, working on or around drill rigs and/or backhoes to obtain representative soil-rock samples and identifying samples for later correlation and laboratory analysis; prepares soil/rock logs including field classification of samples in accordance with the Unified Soil Classification or appropriate rock classifications, installation of observation wells and performance of insitu permeability or percolation tests; prepares figures and technical reports of findings with recommendations for design and construction.
2. Performs environmental investigations to determine potential impacts of toxic and hazardous materials on county property or property being considered for purchase by the county; performs environmental investigations include search of county records for ownership and use of property, review of historic aerial photos of property; review of pertinent published reports and maps of the site area in the county files; performs field reconnaissance of site and adjoining properties to determine existing conditions and property uses on and around the site; correlates and reduces data to make determination of potential of contamination or liability to county for contamination on site; prepares figures and technical reports of findings with recommendations for any further investigation requirements; prepares cost estimates for further investigations and obtain approvals from project managers; develop and conduct sub-surface environmental investigations following proper procedures for sampling, personnel health and safety; sets up testing program for collecting samples; reviews data with Washington State Department of Energy (WSDOE), if appropriate, to develop further testing requirements of clean up recommendations; prepares report stating findings, implications; and clean up recommendations if appropriate; coordinates clean up operations if required.
3. Acts as a technical consultant for all departments within Snohomish County in dealing with environmental, geotechnical and geological issues.

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### STATEMENT OF ESSENTIAL JOB DUTIES (Continued)

4. Reviews independent environmental and geotechnical consultant reports for Snohomish County projects to determine if scope has been met and to insure that the recommendations are consistent with site investigation findings, design calculations; project requirements; or county, state or federal regulations.
5. Plans and supervises field drilling and backhoe operations.
6. Acts as a coordinator between the county and WSDOE on Environmental Site Assessment issues.
7. Develops scope of work and cost estimates for geotechnical, geological and environmental investigations for all departments within Snohomish County; prepares plans for sub-surface exploration, field reconnaissance reports and cost estimates based upon the Soil Investigation Request Sheet and a preliminary site reconnaissance; transmits information to project managers for approval.
8. Initiates laboratory testing programs on soil/rock samples based upon project requirements and material types encountered; correlates and reduces data from all sources; performs calculations for the determination of engineering characteristics of materials and their impacts upon structures; performs slope stability calculations, permeability calculations, conductivity calculations, transitivity calculations, pavement design and retaining wall design calculations where appropriate; develops recommendations for project design and construction based upon the reduced data and calculations.
9. Works with Prosecuting Attorney to resolve technical related legal issues.
10. Assists with the preparation of contract specifications for environmental, geotechnical and geological work, assists with the preliminary review of construction plans to determine if contract specifications are complete and in agreement with previously prepared recommendations and calculations.
11. Prepares road/bridge closure notifications, contacts utility locators, obtains authorization for entry on private property where appropriate from Right-of-Way agents, sets up and schedules personnel for field investigations; researches county files, publications, reference manuals and aerial photos for background data on project site or surrounding area.
12. Analyzes new construction and design technologies to recommend improved methods and practices.

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### STATEMENT OF OTHER JOB DUTIES

13. Assumes the duties of supervisor in the supervisor's absence.
14. Coordinates and reviews the work of other engineering and technical staff as it relates to assigned project; provides training in related work as required.
15. Performs related duties as required.

### MINIMUM QUALIFICATIONS

A Master of Science degree in geology (with strong emphasis in soil mechanics); AND, four (4) years of experience in engineering geology or geotechnical engineering; OR, a Bachelor's and Science degree in Geology (with a strong emphasis in soil mechanics); and six (6) years experience in engineering geology or geotechnical engineering; OR, a Bachelor of Science in civil engineering (with a strong emphasis in soil mechanics); AND, six (6) years of experience in engineering geology or geotechnical engineering. Work related experience may be substituted for the required education and training on the basis of two (2) years of education equals one (1) year of related work experience. Must pass job related tests.

### SPECIAL REQUIREMENTS

A valid Washington State Driver's License is required for employment.

A valid Washington State Well Drillers License is preferred.

Certification of Completion of a 40-hour OSHA 29 CFR 1910.120 certified health and safety program may be required.

### KNOWLEDGE AND ABILITIES

Knowledge of:

- principles, practices and techniques of engineering relating to environmental, geotechnical and geological engineering
- federal, state and local laws, rules and regulations relating to environmental, geotechnical and geological engineering
- methods and techniques used in conducting engineering studies and site assessments
- principles and practices of report writing, contract negotiation and contract administration
- literature, trends and developments in the areas of environmental, geotechnical and geological engineering
- operations of environmental, geotechnical and material testing equipment
- engineering plans, specifications and drafting procedures
- characteristics and properties of soils found in the Snohomish County area

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### KNOWLEDGE AND ABILITIES (Continued)

Ability to:

- interpret and assess field soils, asphalt and concrete data used for the design, construction and maintenance of road and bridge projects
- prepare engineering plans, specifications and estimates
- direct and evaluate the inspection and appraisal of the condition of soil and civil structures
- allocate and make effective use of available resources
- assess the relative advantages and disadvantages of alternative course of action
- gather, analyze, and evaluate a variety of data including statistical data
- read, interpret and apply federal, state and local laws, rules and regulations governing environmental and geotechnical practices in Washington State
- analyze and evaluate operations and take effective action to correct deficiencies and resolve problems
- establish and maintain effective working relationships with elected officials, department heads, associates, subordinates, representatives of other agencies and with the general public
- communicate effectively, both orally and in writing
- prepare a variety of correspondence, reports, and other written materials and documents
- plan, schedule and coordinate work assignments of staff and subordinates
- use and care for instruments and equipment employed in environmental and geotechnical practices

### PHYSICAL REQUIREMENT

Manual dexterity is required when writing reports or operating a personal computer. Field work requires walking in difficult terrain. Must lift up to 100 pounds loads on drilling rigs. Seeing is required for field work. Reading is required for reviewing reports, plans and completing required paper work. Must be able to speak and hear when communicating with associates and the general public. An adequate sense of smell is required for detecting contaminated environments.

### SUPERVISION

Assignments are generally broad in scope with opportunity for the use of experience, initiative, considerable independent judgment and discretion in developing and achieving work unit goals and objectives. Assistance from professional supervisors is available when especially difficult problems are encountered. Work is periodically evaluated by a professional supervisor.

### WORKING CONDITIONS

The majority of work performed is in the usual office environment with occasional trips to work sites throughout the county.

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Snohomish County is an Equal Employment Opportunity (EEO) employer.  
Accommodations for individuals with disabilities are provided upon request.

[EEO policy and ADA notice](#)

Class Established: June 1993

Previous Spec No. 420438

Revised: April 2015

EEO Category: 2 - Professionals

Pay Grade: 243 - Classified Pay Plan

Workers Comp: 1501 Hazardous