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SERIES CONCEPT

Geology is a profession that is regulated through statutes and administrative rules by the Oregon State Board of Geologist Examiners (OSBGE). Geologists are licensed by OSBGE to perform work in the “public practice of geology” as Registered Geologists (RG). Geologists may be further registered in the specialty of engineering geology as Certified Engineering Geologists (CEG). The work done by Registered Geologists also includes several specialties that do not have a requirement for additional registration beyond the RG. These typically include hazardous material hydrogeology (environmental geology), and economic geology, along with hydrology, paleontology, and geophysics. The Concept of the Series includes four (4) levels that span the range from entry level graduate employees with no experience, to the expert level with many years of specialized experience and professional registration.

Geologists perform work within the Oregon Department of Transportation on projects, policies, and programs integral to the development of transportation projects, maintenance and operations of highways and other transportation facilities. Geologists work in the specialties of engineering geology, hazardous material hydrogeology (environmental geology), or economic geology.

Geologists work in close association with Civil Engineers and Geotechnical Engineers during project development by performing or directing geologic site investigations in the field; performing independent design of geologic project elements; performing or directing specialized testing of soil, rock, and groundwater; and analyzing the results as they apply to the final design of transportation projects. For example, this work may be done to evaluate the stability of foundation conditions for bridges and walls, or to design repairs for landslides and unstable slopes. Geologists may perform or direct the testing of soil and groundwater for contamination, and direct how contaminated materials will be removed or dealt with by contractors during construction. Geologists may perform investigations on active or potential materials sources like quarries to determine whether the engineering properties of materials are suitable for transportation projects, and whether the source is economically feasible for development. Geologists also work in program and policy areas advising management and coordinating with other agencies, academia, and the public on issues related to operations, planning, funding, and permitting by resource and local agencies, and geologic hazard mitigation.

Geologists may direct the work of consultants and contractors by writing and administering Architectural & Engineering (A&E) contracts, Personal Services contracts, and General Services contracts. This includes responsibility for developing the scope of work, price negotiations, schedule and delivery of final work products, quality review, and ensuring the accuracy of invoice payments.

DISTINGUISHING FEATURES

Associate in Geology 1

This is the first level of a four-level series. Employees learn geologic and engineering standards and how to apply them to geologic investigations for transportation projects, how to use specialized analytical and design software, and how to apply their geology education in a business setting. Employees are assigned small, routine, or less complex projects designed to provide experience and training in specialized geologic disciplines such as engineering geology, hazardous material hydrogeology (environmental geology), or economic geology. Employees at this level receive detailed and

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on-going instruction or assistance from a higher level geologist or supervisor and use limited independent technical judgment.

The lower degree of complexity of assigned work, the limited independent technical judgment and the on-going supervision received, distinguishes this class from the higher levels. The assignments are designed primarily to give practical experience to prepare the academically trained employees for the full range of professional work and responsibility.

Assignments may also overlap with the Associate in Engineering classes, particularly engineering geology work that may overlap with civil or geotechnical engineering work.

Associate in Geology 2

This is the second level of a four-level series. Employees complete routine to moderately complex transportation related projects designed to continue training and development in specialized geologic disciplines such as engineering geology, hazardous material hydrogeology (environmental geology), or economic geology. Employees at this level are able to complete assigned work without continuous supervision, and with more independent technical judgment.

Employees in this classification exercise independent technical judgment in work assignments where they have experience. Employees carry out assignments and investigations that require resourcefulness and originality and do geologic work guided by rough sketches, general information and field measurements.

Employees at this level receive instruction, assistance, and professional oversight from higher level geologists, engineers or a supervisor less frequently than the Associate in Geology 1 classification. This class is distinguished from the next higher level by the lesser degree of responsibility to define complex problems, evaluate methods for their solution, interpretation of rules and regulations, and interaction with regulatory agencies. The lack of professional registration and responsibility for final geology work products further distinguishes this class from the higher level.

Assignments may also overlap with the Associate in Engineering classes, particularly engineering geology work that may overlap with civil or geotechnical engineering work.

PROFESSIONAL GEOLOGIST 1

This is the third level of a four-level series. It represents the journey and full proficiency level. Employees at this level recognize and define geologic conditions, problems, and hazards that may affect transportation projects and evaluate methods for their solution, which requires a background of professional education, training, experience, and licensure through the OSBGE as Registered Geologists or Certified Engineering Geologists.

The nature and degree of complexity of the work distinguishes this class from the lower levels. At this level employees are experienced in the practice of a specialized field of geology, and they are fully licensed to take Professional of Record responsibility as defined in Oregon Administrative Rule for their work, and the work of lower level staff that are led by this employee. This level is further distinguished from the lower levels by the nature and complexity of the assignments, interpretation of rules and regulations, project specific interaction with regulatory agencies, and the absence of close guidance and supervision.

The absence of responsibility to represent the agency as an expert in a highly complex field of professional specialization, or manage significant projects having a broad impact on the State's infrastructure distinguishes this class from the higher level. It is further distinguished by the

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absence of advising management on program or policy-related issues and leading the development and strategic direction of a specialized geology area.

Geologists at this level routinely lead, coordinate, and direct the work of lower level unlicensed staff, and contractors that perform geologic investigations on moderately complex to complex projects. They also write and help administer General Services contracts including drilling contracts, traffic control, rock scaling, and geophysical field surveys. This includes responsibility for the Scope of Work, price negotiations, schedule and delivery of final work products, quality review, and ensuring the accuracy of invoice payments. Geologists at this level often sit on statewide committees providing information and recommendations for technical standards and practices, and they help implement statewide programs within their discipline in their regional areas of responsibility. They provide project level technical advice to supervisors, managers, private industry, professional peers, and local, state, and federal agencies on issues within their areas of expertise including, but not limited to subsurface conditions, landslide and rockfall, material sources, disposal sites, facility siting, and hazardous materials. As professionals of record, they may also represent the Agency and provide testimony during legal proceedings.

Assignments within their area of expertise may also overlap with the Professional Engineering classes, particularly work in engineering geology that may overlap with civil or geotechnical engineering work.

Professional Geologist 2

This is the fourth level of a four-level series. Positions in this class are experts in their field of geology specialization such as engineering geology, hazardous material hydrogeology (environmental geology), or economic geology. They are fully licensed through the OSBGE as Registered Geologists or Certified Engineering Geologists, and also have years of experience working at the journey level. They are fully licensed to take Professional of Record responsibility as defined in Oregon Administrative Rule for their work, and the work of lower level staff who are led by this employee. Employees actively participate in the improvement and strategic direction of their geology specialty within the agency. They advise management on the need to establish or modify agency policies, standards, administrative rules, or proposed legislation.

The application of advanced geologic expertise to solve unusual or complex problems with original solutions distinguishes this class from the lower level. It is further distinguished from the lower class by providing interpretation of rules and regulations and representing the agency by interacting with regulatory agencies where there is the potential of having state-wide or precedent setting implications, or making judgments on significant projects having a broad impact on the state infrastructure.

Geologists at this level routinely lead, coordinate, and direct the work of lower level staff, including other licensed geologists on complex projects. They also direct the work of consultants and contractors by writing and administering Architectural & Engineering (A&E) contracts, Personal Services contracts, and General Services contracts. This includes responsibility for the Scope of Work, price negotiations, schedule and delivery of final work products, quality review, and ensuring the accuracy of invoice payments.

Geologists at this level may be in positions that provide agency leadership by supporting research projects, developing agendas for state-wide and multi-state seminars and technical committees and implement new procedures in support of guiding continuous and long-term agency improvements. They provide technical expertise on difficult or sensitive geologic matters and prepare and coordinate agency or joint proposals for cooperative funding, in-kind service, and joint ventures aimed at meeting large scale geologic needs in topical or regional area of responsibility. They provide expert technical advice to supervisors, managers, private industry, professional peers, and local, state, and federal agencies on issues within their areas of expertise including, but not limited to subsurface conditions, landslide and rockfall, material sources, disposal sites, facility siting, seismicity evaluation, and hazardous materials.

Assignments within their area of expertise may overlap with the Professional Engineer classes, particularly work in engineering geology that may overlap with civil or geotechnical engineering work.

MINIMUM QUALIFICATIONS

Associate in Geology 1: A Bachelor's Degree in Geology or Geologic Science **OR**

A Geologist in Training registration from the Oregon State Board of Geologist Examiners.

KNOWLEDGE & SKILLS

Knowledge of advanced mathematics that may include subjects such as differential equations, calculus, probability and statistics, and advanced analytical methods to define, describe, and interpret geologic conditions, environments, quantities, and hazards.

- Knowledge of college level physics and chemistry, and how they relate to various geologic environments and hazards such as landslides, faults, coastal erosion, and rockfall.
- Knowledge of surveying and geologic mapping techniques including field methods using instruments such as Global Positioning Systems, remote sensing, and geophysical methods.
- Knowledge of field and laboratory sampling and testing techniques for geologic investigations that may include soil and rock identification, water chemistry, and engineering properties of materials.
- Knowledge of geomorphology as it relates to classifying landforms, and the ability to apply that understanding to interpreting the geologic environments, such as flood plains and landslides.
- A thorough knowledge of the basic theories, principles, practices and techniques of geology or geologic science.
- The ability to apply the above knowledge to real world problems and help find reasonable solutions.

SKILL:

- Skill in written communications including technical report writing.
- Skill in communicating orally with a variety of people in a group setting, including presentations.
- Skill in reading geologic and topographic maps, cross sections and profiles.
- Skill in collecting, organizing, interpreting, and summarizing technical information from various resource documents such as published geologic maps and other past studies.
- Skill in preparing basic geological maps, cross sections, and other related maps.
- Skill in identifying and classifying soil and rock types, and maintaining accurate records and logs of field investigations.
- Skill in operating a computer and ability to learn word processing, Computer Aided Drafting, spreadsheets, and analytical software.
- Skill in organizing, presenting and writing reports and papers on findings and making recommendations based on results.

In addition, some or all of the following skills may be required for specific positions:

Valid Oregon Driver's License and an acceptable driving record.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for all positions in this class. Additional KS requirements will be explained on the recruiting announcement.

MINIMUM QUALIFICATIONS

Associate in Geology 2: A Geologist in Training registration from the Oregon State Board of Geologist Examiners

AND

Two years of experience applying geology theory, principles, standards, and methods to real world situations in a business setting.

KNOWLEDGE AND SKILLS:

- All the knowledge and skill requirements for the Associate in Geology 1 level

AND

KNOWLEDGE:

- General knowledge of a geological field of specialization such as engineering geology, hazardous material hydrogeology (environmental geology), or economic geology.
- Knowledge of routine civil engineering projects, and the geologic information required for design and construction.
- Knowledge of the various laws, rules, and regulatory requirements for geologic investigations.
- Knowledge of Data Management or Asset Management systems.

SKILL:

- Skill in the application of geologic principles, theory and techniques to transportation and civil engineering problems.
- Skill in geologic field investigative techniques to collect data that informs geologic interpretations and engineering design recommendations.
- Skill in installing geologic instrumentation in the field and monitoring it to gather information on geologic conditions over time.
- Skill in interpreting information from laboratory test results, drill logs, and other field studies.
- Skill in the mathematical analysis of geologic data using various computer and analytical techniques to evaluate, for example, the likelihood of landslide movement on an unstable slope, or the likelihood of contaminated groundwater impacting the public right of way.
- Skill in the formulation of probable geologic interpretation and determination of effect on transportation infrastructure such as bridges and retaining walls.
- Skill in the development of final geologic reports and recommendations based on investigation and interpretation.
- Skill in explaining and following the laws, rules and regulations that govern geologic programs.
- Skill in providing technical information, advice, or assistance to agency personnel, private industry, professional peers, local, State, and Federal agency officials and the public.
- Skill reading, evaluating and developing plans and specifications for transportation projects
- Skill in preparing project specific specifications, drawings and details.

In addition, some or all of the following skills may be required for specific positions:

Valid Oregon Driver's License and an acceptable driving record.

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MINIMUM QUALIFICATIONS

Professional Geologist 1: A Registered Geologist (RG) license or a Certified Engineering Geologist (CEG) license from the Oregon State Board of Geologist Examiners depending on the position.

KNOWLEDGE AND SKILLS:

- All the knowledge and skill requirements for the Associate in Geology 2 level

AND

KNOWLEDGE:

- Professional level knowledge of a geological field of specialization such as engineering geology, hazardous material hydrogeology (environmental geology), or economic geology.
- Professional level knowledge of the requirements for geologic information on routine to complex civil engineering projects, and the techniques for field investigations, monitoring, and laboratory testing necessary to meet standards of practice.
- Knowledge of the regulatory requirements that apply on assigned projects, and the various individuals and agencies that are involved for coordination and information sharing.
- Knowledge of emerging science and technologies that may be considered or found useful for certain types of projects, geologic conditions, or investigations.
- Knowledge of the kinds of geologic conditions and hazards that are likely to exist in the geographic areas of practice, and the ability to use that knowledge to inform transportation planning, project scoping, design, and maintenance and operations.

SKILL:

- Skill in independently conducting field investigations, recording observations, researching and analyzing data collected, and assessing the significance of geologic conditions.
- Skill in independently planning and organizing equipment, materials, staff, contractors, and consultants to perform investigations. This includes the ability to coordinate and motivate others, schedule, assign, review, and direct work, and make recommendations for performance evaluations.
- Skill to initiate and administer general service contracts for subsurface investigations, including negotiating prices, and ensuring accurate invoicing and payments.
- Skill in interpreting and following the laws, rules, and regulations governing geologic projects.
- Skill in the professional determination of geologic conditions and hazards, their effect on civil engineering projects, and making the appropriate design changes or recommendations as needed.
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Skill in the production of final professionally stamped documents including reports, project construction plans, details, drawings, specifications, and estimates.

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- Skill in the production of manuals, guidance documents, and templates.
- Skill in mentoring, coaching and training lower level employees.
- Skill in providing professional information, advice, or assistance to agency personnel, managers, private industry, professional peers, academia, local, State, and Federal agency officials, and the public.
- Skill in effectively representing the agency to the public and outside contractors, and testify in administrative hearings or court proceedings.
- Skill in planning and organizing equipment, materials, and staff to accomplish work.
- Write clear and concise technical reports, and draft policies, procedures, standards, legislation, and administrative rules.

In addition, some or all of the following skills may be required for specific positions:

Valid Oregon Driver's License and an acceptable driving record.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for all positions in this class. Additional KS requirements will be explained on the recruiting announcement.

MINIMUM QUALIFICATIONS

Professional Geologist 2: A Registered Geologist license or a Certified Engineering Geologist license from the Oregon State Board of Geologist Examiners depending on the position.

AND

Three (3) years of journey level registered geologist or certified engineering geologist experience depending on the position.

KNOWLEDGE AND SKILLS:

- All the knowledge and skill requirements for the Professional Geologist 1 level

AND

KNOWLEDGE:

- Expert knowledge of a geological field of specialization, such as engineering geology, hazardous material hydrogeology, or economic geology. This includes the ability to represent the agency to other agencies, academia, consultants, and the public in the field of specialization within the geographic areas assigned.
- Knowledge of the goals, programs, and staff of local, state, and federal agencies, academia, and consultants with which research projects and joint planning ventures are coordinated or developed.

SKILL:

- Skill in the determination of geologic conditions and their effect on the most complex transportation systems or projects having significant impact on the state infrastructure.
- Skill in evaluating complex situations, applying rules, guidelines and standard of practice; determining appropriate courses of action when standards do not exist, and carrying out appropriate course of action to achieve desired results.
- Skill in mentoring, coaching and training lower level professional employees.
- Skill in planning and organizing equipment, materials and staff to accomplish work.
- Skill in developing and administering contractual agreements to insure that products and services

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are delivered as specified.

- Skill in preparing administrative reports, proposals and summaries.
- Skill in project or program management including oversight of staff progress and budgets.
- Skill in planning and coordinating complex geologic projects on transportation projects having significant impact on the state infrastructure.
- Skill in organizing regional seminars and coordinating and negotiating participation by technical experts from diverse locations and specialties.
- Skill in professional oversight of teams performing large complex geologic investigations, documenting and analyzing results, and preparations of final stamped reports, contract plans, specifications, and estimates for large and complex civil engineering projects.
- Skill in administering general services contracts and A&E consultant contracts including initiation, scope of work, negotiating prices, reviewing work products for conformance to agency and industry standards, and ensuring accurate invoicing and payments.
- Skill in interpreting and explaining the laws, rules, and regulations governing geologic projects. This includes the ability to negotiate with regulatory agencies regarding policies that are unclear, or that fail to meet the desired outcomes
- Skill in evaluating the modification or creation of rules, guidelines, and standards of practice.
- Skill in making oral presentations at public hearings, meetings, and conferences.
- Communicate orally and in writing with a variety of people to answer questions and explain information, specification and policies and to effectively represent the agency as an agency witness in litigation.

In addition, some or all of the following skills may be required for specific positions:

Valid Oregon Driver's License and an acceptable driving record.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for all positions in this class. Additional KS requirements will be explained on the recruiting announcement.

DISTINGUISHING FEATURES FROM SIMILAR SERIES

Engineering Series, Associate in Engineering - Professional Engineer

The Engineering Series classes perform work that is regulated through statutes and administrative rules by the Oregon State Board of Examiners for Engineering and Land Surveying (OSBEELS). The Engineering Series also spans the range from entry level graduate employees with no experience, to the expert level with many years of specialized experience and professional registration. Some assignments and duties overlap with the Geologist Series, particularly in the specialties of engineering geology and geotechnical engineering. The Engineering Series and Geologist Series perform work on transportation projects, policies, and programs that complement one another. Practitioners in both the Geologist and Engineer series perform design work within the scopes defined by their respective regulatory boards.

Adopted:

STATE OF OREGON
 Dept. of Administrative Services
 Chief Human Resources Division