

**TITLE OF GROUP CLASS TITLE: SENIOR CIVIL ENGINEER**

**TITLE OF CLASSES IN GROUP**

(CONSTRUCTION AND MAINTENANCE)	02968301
(DESIGN)	02968302
(MATERIALS)	02968303
(TRANSPORTATION PLANNING)	02968305
(COASTAL RESOURCES)	02968306
(WATER RESOURCES)	02968307

Class Code:

Pay Grade: 31A

EO: B

**CLASS DEFINITION:**

**GENERAL STATEMENT OF DUTIES:** To perform complex civil engineering work in the area of specialization indicated by the title of the class of position; and to do related work as required.

**SUPERVISION RECEIVED:** Works under the general supervision of a superior with whom considerable latitude for the exercise of initiative and independent professional judgment; work is reviewed upon completion for results attained, professional and technical adequacy to desired objectives and goals.

**SUPERVISION EXERCISED:** As required, plans, supervises and reviews the work of civil engineers, technical and clerical personnel assigned to assist.

**ILLUSTRATIVE EXAMPLES OF WORK PERFORMED:**

In the area of specialization indicated in the title in the class of position:

On a bridge or highway construction/maintenance assignment, to supervise and participate in the inspection of all materials going into the project and of all the workmanship and practices of the contractor to see that all plans and specifications are fully observed; to furnish the contractor with all lines, grades and elevations; to make weekly estimates of work accomplished under each contract item; to check the contractor's payroll as to rates, time and classification of personnel; to submit reports as to progress of work and manner in which it is being performed; to submit final estimates for each contract item; to review requests by contractor for changes in the plan in accordance with delegated authority; to supervise the making of materials tests during the process of the work; and to stop the work on any item which has not been prepared according to specifications.

To oversee the preparation of contract specifications for the design, construction and/or maintenance of roads and bridges; to review contracts and specifications prepared by consultants firms for use on specific projects to ensure that all items are covered are in agreement with the appropriate requirements; to review requests by contractors for changes in the plans in accordance with delegated authority; to prepare computations and cost estimates for contract proposals; and to participate in the negotiation with consulting engineers on fees covering numerous studies and design reports; for design contracts; to prepare such consultant agreements, or to exercise supervision for monitoring and evaluating contracts; to ensure compliance with all federal and state regulations; to participate in reviewing and evaluating final quantities used in various construction projects; to ensure that all work accomplished and materials utilized conform with appropriate federal and state specifications and regulations; to check plans, cross sections, diagrams, sketch computation sheets and all mathematical formulas; and to supervise methods and procedure reviews that are conducted on contracts. To design all types of bridges, grade crossings, structures and approaches; to make preliminary designs and comparative alternate types of bridge structures; to make recommendations on the types of structures which may be used; to compute and prepare detailed designs of bridge and grade crossing foundations and superstructures, culverts and form work; and to prepare contract quantities and preliminary cost estimates; and to design all types of roads and road structures; to lay out center lines and curb grades; to compute vertical and horizontal curves and resultant sight distances; to design road cross section, pavement type and manner of super-relevating horizontal curves; to design drainage

systems, roadway intersections and highway interchanges; to lay out right-of-way lines and prepare descriptions of land to be acquired;

To assist in exercising technical supervision over highway materials testing activities; to supervise locating, digging and sampling of test pits elected for materials survey; to evaluate the sampling of such pits and to prepare materials survey reports; to review the work of inspectors stationed at materials plants and construction projects; to perform a geotechnical review of designs and specifications of highway, bridge and other construction projects and make recommendations thereon; and to assist in materials research carried on under the supervision of a superior.

To perform technical engineering work related to all phases of highway planning; to assist in the preparation of preliminary geometric designs, charts and graphs and preliminary reports on speed, no passing zones, parking, traffic signs, accidents, one-way streets, merging and through routes and related matters; and to participate in traffic movement studies, road improvement studies, road improvement priorities and related matters; to assist in supervising: the collection and analysis of field and office data covering factual records of highway physical characteristics; map drafting; and the analytical interpretation of such records and related data to programmed improvements; to assist in the planning and conducting of origin-destination studies and in other highway planning operations.

To design and prepare plans, specifications and contracts for the construction of, or the maintenance and repair of, waterfront structures, such as buildings, piers, breakwaters, jetties, etc.; to make hydraulic computations; to review and process applications for approval of plans to construct and maintain structures and to do dredging in the tidewaters of the state and to construct or reconstruct dams; to inspect existing dams and other river structures and to make recommendations to assure the safety of such structures; to investigate complaints of illegal use of waterfront properties of the state and make recommendations thereon; and to do search titles prepare plans for land acquisition.

To conduct hydrologic and hydrographic studies and surveys involving such activities as: compilation and evaluation of rainfall runoff yield, water consumption, and preparation of reports on watershed developments and service areas; to design and/or review construction plans for water works facilities and related water transmission and distribution systems.

To do related work as required.

## **REQUIRED QUALIFICATIONS FOR APPOINTMENT:**

**KNOWLEDGES, SKILLS AND CAPACITIES:** A thorough knowledge of the civil engineering principles and practices of the area of specialization indicated in the title of the class of position and the ability to apply such principles and practices; the ability to operate all standard engineering instruments; the ability to prepare plans for highways and bridges under class supervision; the ability to perform all computations applied to standard engineering operations; the ability to read and interpret the assigned types of civil engineering plans, maps and specifications; the ability to utilize computer technology for engineering applications; the ability to prepare accurate engineering proposals, papers, plans, and technical correspondence; the ability to understand and carry out complex oral and written instructions; ; the ability to establish and maintain effective working relationships; the ability to write effectively and to make oral presentations; and related capacities and abilities.

## **EDUCATION AND EXPERIENCE:**

**Education:** Such as may have been gained through: graduation from a college of recognized standing with specialization in Civil Engineering; and

**Experience:** Such as may have been gained through: considerable employment at the level of Civil Engineer class of position in a public agency or in private industry which has provided professional experience in an area of specialization indicated in the title of this class of position.

**Or,** any combination of education and experience that shall be substantially equivalent to the above education and experience.

**SPECIAL REQUIREMENT:** At the time of appointment must possess, at least, an Engineer-in-Training certificate of registration issued by the Rhode Island State Board of Registration for Professional Engineers.

Class Revised: March 19, 2006