

HIGHWAY MATERIALS DESIGNER

DESCRIPTION: Under limited supervision, reviews and analyzes highway construction plans and performs other technical paraprofessional engineering work on assigned projects, to identify constructability, phasing, design, and quantities for complex and special highway construction projects; may lead the work of others; performs related work as required.

EXAMPLES OF WORK: (A position may not be assigned all the duties listed, nor do the listed examples include all the duties that may be assigned.)

Determines the quantity of materials needed for assigned projects, including resurfacing projects with complete or partial rebuild, or with full depth asphalt concrete placement; projects with various construction phasing; or projects that combine resurfacing with new and/or existing Portland cement concrete pavements and/or curb and gutter, or concrete joint and panel repair.

Receives or initiates work assignments; schedules, assigns, and coordinates their work in accordance with established requirements to assist supervisory staff in the timely accomplishment of the assigned workload.

Analyzes available project information and determines specific design details and notes to be used on plans.

Checks the calculations and detailed drawings on plans prepared by co-workers, consultants, and others to ensure completeness, accuracy and adherence to standard specifications, special contract provisions and constructability.

Communicates with co-workers, designers, consultants, contractors, the Federal Highway Administration and highway staff in various state and local agencies to interpret plans or guidelines, provide guidance on estimating pay items, make recommendations, solve problems, and explain construction concepts.

Researches, retrieves, and organizes preliminary data necessary for use by pavement design engineer during the pavement design process.

Conducts on-site inspection trips to active projects to gather information and/or review project conditions; troubleshoots construction problems including concrete or base construction problems; provides information and corrective action advice to construction staff.

Assesses and improves materials design practices by reviewing construction projects.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES REQUIRED: (These may be acquired on the job and are needed to perform the work assigned.)

Knowledge of: construction of projects including engineering and geometrics, state and federal guidelines, policies, and regulations regarding construction of highways; functions and uses of highway construction equipment; agency software applications used such as Microstation.

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Ability to: perform mathematical design calculations required for complex construction projects; detect errors, discrepancies, and omissions through examination of detailed drawings and calculations; analyze special and complex construction projects to determine design accuracy and constructability; guide and instruct highway and materials designers.

ENTRY KNOWLEDGE, SKILLS AND ABILITIES REQUIRED: (Applicants will be screened for possession of these through written, oral, performance, and/or other evaluations.)

Knowledge of: Nebraska Standard Specifications for Highway Construction; Nebraska Department of Roads Roadway Design Standards; use of highway plans, manuals, and project files.

Ability to: perform mathematical calculations involving geometry, algebra, and trigonometry manually or with the aid of a calculator; read, understand, and interpret the terminology and symbols used in plans and detailed drawings; accurately transfer information in numerical, written, or sketched form to the plans.

Skill in: operating the agency's computer terminals, personal computers, camcorders and cameras; oral communications resolving issues involving highway design.

JOB PREPARATION GUIDELINES: (Entry knowledge, skills and/or abilities may be acquired through, BUT ARE NOT LIMITED TO, the following coursework/training and/or experience.)

Any combinations of education, training and/or experience that will enable an individual to possess the required knowledge, skills and abilities. A general qualification guideline for positions in this class is high school education or equivalent AND education or experience in highway materials or engineering design, laboratory testing, highway construction or inspection, or specification writing.

SPECIAL NOTE

Some positions may require overnight travel.

Possession of a valid driver's license may be required.