

## HIGHWAY BRIDGE HYDRAULICS ANALYST

DESCRIPTION: Under limited supervision of a Registered Professional Engineer, is assigned own projects and is responsible for the review of complex technical bridge hydraulic reports for both state and county systems; assists with preliminary disposition decision making for state system bridges; responds to consultant questions and requests; 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.)

Reviews hydraulic reports for both state and county systems involving verifying hydraulic computations for compliance with applicable hydraulic analysis guidelines/contract; evaluates the risks and flood plain impacts associated with a proposal; field inspects, documents, and makes recommendations on the disposition of a proposal to the bridge hydraulics engineer.

Prepares scope of work, estimated hours, etc. to assist bridge hydraulics engineer.

Provides bridge division management with information to determine disposition of bridge size structures on state system projects.

Field inspects selected bridge sites to verify hydraulic parameters; documents existing conditions with photographs; verifies bridge stationing, bridge skew, road overflow location, flooding risks and scour problems.

Coordinates preliminary engineering activities with local liaison for county projects, as required.

Checks for existing hydraulic studies at the location, collects data for plans, field inspects by team, selects scour critical bridges, and recommends counter measures where needed, as a member of the interdisciplinary scour inspection team.

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

Knowledge of: computer hydraulic and scour analysis of bridge size structures, hydrologic analysis, including gaging station analysis, application of numerous hydrologic methods, and locating/utilizing hydraulic studies performed by other agencies; extensive knowledge of agency, state, and federal guidelines including Nebraska Department of Roads (NDOR) hydraulic analysis guidelines for both state and county systems; Federal Emergency Management Agency regulations and permit requirements, and engineering principles, such as surveying and geometrics, relating to the predesign phase of county and state system projects; standard bridge plans/sheets; plan development process.

Ability to: perform hydraulic report reviews, enforcing applicable regulations and guidelines; respond to consultant inquiries; coordinate activities with other divisions or consultants.

## HIGHWAY BRIDGE HYDRAULICS ANALYST (continued)

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

Knowledge of: fundamentals of hydraulics; hydrology; basic understanding of engineering principles, including mathematics and surveying; basic understanding of all applicable guidelines (NDOR, state, and federal), and the development process for hydraulic reports.

Ability to: understand hydraulics/hydrology terminology, detect deficiencies in hydraulic reports; understand how and where to obtain hydraulic related information at NDOR.

Skill in: operating and retrieving information from personal and mainframe computers.

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

Any combination of training and/or experience that will enable the incumbent to possess the required knowledge, abilities and skills. A general qualification guideline for positions in this class is high school education or equivalent AND education or experience in hydraulics/hydrology.