

STATE OF MONTANA

JOB DESCRIPTION

Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodations to otherwise qualified individuals with disabilities.

Job Title: Hydraulic Engineering Specialist

Position Number: 27004

Location: HQ

Department: Transportation

Division and Bureau: Engineering / Highways

Section and Unit: Hydraulics

Job Overview:

This position manages the statewide culvert asset inventory and serves as the Department's authority in culvert design, rehabilitation, and advanced hydraulic modeling and design.

Essential Functions (Major Duties or Responsibilities):

CULVERT ASSET INVENTORY

50%

The primary duties to manage the statewide culvert asset inventory include:

- Developing and augmenting culvert inventory databases.
- Developing cohesive MDT-wide processes to better manage and collect culvert data.
- Further developing culvert inspection procedures.
- Assisting with managing culvert inspection efforts and procedures by MDT staff and consultants.
- Notifying Districts of culvert issues and potential projects to address deficient culverts.
- Investigates and participates in specialized research projects to evaluate new methods and technologies for assessing and rehabilitating culverts.

ADVANCE HYDRAULICS ENGINEERING ANALYSIS AND DESIGN

40%

The position develops advanced hydraulic modeling solutions for culvert replacements, rehabilitation, and assessments, and completes simulations in support of floodplain analyses. The primary duties include:

- Developing 1D or 2D hydraulic models of proposed and existing structures.

- Selecting appropriate pipe materials or pipe rehabilitation methods based on comprehensive site analyses.
- Establishing and implementing new approaches and innovative alternatives for culvert design and rehabilitation.
- Obtaining floodplain permits as necessary for culvert work.

ENGINEERING EXPERTISE AND TRAINING

10%

Serves as a technical authority and resource on hydraulic designs within the Hydraulic Section on specialized hydraulic engineering applications including; culvert design, culvert rehabilitation, and advanced hydraulic modeling.

Supervision

The number of employees supervised is: 0

Physical and Environmental Demands:

Predominantly the work is performed in an office environment or occasionally in the field and may require:

- Ability to climb over fencing and walk on steep and uneven terrain or in water
- Minor travel 10%
- Operating a motor vehicle
- Operating a personal computer
- Communication in writing, in person, and over the phone
- Exposure to extreme weather
- Exposure to high-speed traffic

Knowledge, Skills and Abilities (Behaviors):

The following knowledge, skills, and abilities are required for this position;

- Knowledge of the principles of civil engineering, hydrology, hydraulics, fluvial geomorphology, and river mechanics.
- Knowledge of the methods and practices of road and culvert construction.
- Skill to manage, organize, and categorize multiple engineering reports, recommendations, and designs.
- Skill in the use of standard and specialized hydraulic engineering software applications and modeling techniques,
- Skill with data management and database systems, especially within GIS software.

- Written and verbal communications skills required for development of technical engineering reports, specifications, and other technical information.
- Ability to investigate, analyze, and form professional objective solutions to complex hydraulic engineering issues.
- Ability to exercise sound engineering judgement when developing and implementing solutions to engineering problems.

Minimum Qualifications (Education and Experience):

A Bachelor's Degree in Civil Engineering, or other related engineering field.

A minimum of four (4) years of experience in civil engineering, with at least two (2) of those years in hydraulics engineering.

Certifications, licensure, or other credentials include: Registration as a Professional Engineer (PE) is required.

Alternative qualifications include: Any combination of additional related work experience and education equivalent to the minimum qualifications.

Special Requirements:

List any other special required information for this position

☐ Fingerprint check ☒ Valid driver's license

☐ Background check ☐ Other; Describe

MFPE Union Code

Safety Responsibilities

The specific statements shown in each section of this description are not intended to be all inclusive. They represent typical elements and criteria considered necessary to perform the job successfully.

Signatures

My signature below indicates the statements in the job description are accurate and complete.

Immediate Supervisor	Title	Date
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Administrative Review	Title	Date
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My signature below indicates that I have read this job description.

Employee

Title

Date

Human Resources Review

Job Code Title: Professional Engineer Job Code Number: D25021 Pay Band:

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

☐ FLSA Exempt

☒ FLSA Non-Exempt

☒ Telework Available

☐ Telework Not Available

☐ Classification Complete

☐ Organizational Chart attached

Human Resources:

Signature

Title

Date