

Click one of these links to see the Job Description for that class:

Job Code	Title
M56653	Highway Bridge Designer I
M56654	Highway Bridge Designer II
V56655	Highway Bridge Designer Supervisor

Highway Bridge Designer Series

M56653, M56654, V56655

DESCRIPTION OF OCCUPATIONAL WORK

Positions in the Highway Bridge Designer series collectively perform structural design work and technical geometric design work; prepares plans for bridges and related civil or structural engineering projects. Positions within this series may prepare, develop, draft, and/or revise plans for bridge construction projects. The totality of duties assigned, factors such as scope, complexity and impact of work assigned, and the level of decision-making authority determine the classification level of positions allocated to the series.

Highway Bridge Designer I

M56653

DISTINGUISHING CHARACTERISTICS: (A position is assigned to this class based on the scope and level of work performed as outlined below.)

Under limited supervision of a structural designer, performs technical engineering geometric (not structural) design work in the calculation and preparation of plans for bridges and related civil or structural engineering projects; 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.)

Prepares plans as directed by the structural designer for assigned bridge construction projects.

Computes dimensions, curves, profile grades, elevations, and distances necessary for overall bridge layout and ensures proper fit of all bridge components.

Revises data and information on plans, design standards, and the Bridge Office Policies and Procedures Manual.

Transfers survey data, sketches, and information to plans.

Develops plans for continuous concrete-slab bridges using data charts and standard plans.

Communicates with co-workers to ensure proper preparation of plans, to solve problems, and to obtain clarification of design projects.

Reviews shop plans for general compliance and agreement with contract plans.

Develops, drafts, and files county standard bridge plans. Fills requests for county standards from consultants and county agencies.

Revises plans as directed by the structural designer, including investigating the exact nature of the problem, recommending a solution, and revising the plans for the corrective action taken.

Cross-checks calculations and details prepared by co-workers to ensure completeness, accuracy, and adherence to standards.

Reviews consultant hydraulic reports for state and county systems including verifying hydraulic computations and compliance with applicable hydraulic analysis guidelines/contract; evaluates flood plain risks/impacts, field inspection, documentation, and reporting comments.

Assists with preparations for consultant negotiation meetings by compiling required information.

Develops computer-stored master sheets.

Develops standard details.

Provides liaison with Roadway Design and other divisions, discussing design problems and identifying potential situations.

Responds to questions from fabricators and contractors.

Prepares plans for concrete box culverts.

Assists with scour critical bridge inspection and processing as a member of the inter-disciplinary scour inspection team, by providing physical assistance in measuring, offering judgements of conditions, and related input.

KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED: (These are needed to perform the work assigned.)

Knowledge of: NDOT Bridge Design Standards and Bridge Office Policies and Procedures Manual (B.O.P.P.); moderate knowledge of "Nebraska Standard Specifications for Highway Construction"; pertinent parts of "NDOT Roadway Design Standards" and "AASHTO Standard Specifications for Highway Bridges."

Ability to: detect errors, discrepancies and omissions through examination of detailed drawings, calculations and notes; accurately transfer information in numerical, written or sketched form from sources such as survey notes, preliminary sketch sheets and design computations to design plan sheets; read, understand and interpret the terminology and symbols used in roadway plans, traffic signing and lighting plans.

MINIMUM QUALIFICATIONS: (Applicants will be screened for possession of these qualifications. Applicants who need accommodation in the selection process should request this in advance.)

Coursework, training, or experience in reading or preparing bridge and/or roadway construction plans, and experience in using computer aided drafting and design (CADD) applications and practices.

[Return to Specification List](#)

Highway Bridge Designer II

M56654

DISTINGUISHING CHARACTERISTICS: (A position is assigned to this class based on the scope and level of work performed as outlined below.)

Under limited supervision of a Registered Professional Engineer (PE), performs structural design work and technical geometric design work; prepares plans for assigned complex bridges and related civil or structural engineering projects; 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.)

Prepares final plans for typical (concrete slab, prestressed concrete I-beam and double tee, rolled and welded plate steel) bridge projects, which may include new structures and/or rehabilitation, re-decking, widening and overlay, or repair of existing structures. Bridge projects may include stream crossings, grade separations over roadways and railroads, and underpasses.

Prepares shim input data for use by field personnel during construction of the bridge; calculates final shims from survey data provided by field personnel.

Reviews consultant plans for conformity with Nebraska Department of Transportation (NDOT) policies and procedures.

Communicates with other divisions within the department, other agencies and branches of government, utility companies, consultants and contractors to ensure proper plan preparation and to solve problems which develop during fabrication and construction.

Reviews shop plans, including the most complex, for general compliance and agreement with contract plans.

Reviews field construction problems, makes recommendation for corrective action, and oversees plan revisions.

Prepares design information packages for consultants to incorporate into the design plans.

Conducts independent design check and plan review of final plans prepared by co-workers to ensure completeness, accuracy and adherence to design specifications.

KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED: (These are needed to perform the work assigned.)

Knowledge of: "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", "Guide Specifications for Horizontally Curved Highway Bridges" and "Guide Specifications for Bridge Railings"; "ANSI/AASHTO/AWS Bridge Welding Code", "A.R.E.A. Manual for Railway Engineering", and "Americans with Disabilities Act (ADA) Accessibility Guidelines".

Ability to: prepare sketches and design computations for use by others in the development of final bridge plans.

MINIMUM QUALIFICATIONS: (Applicants will be screened for possession of these qualifications. Applicants who need accommodation in the selection process should request this in advance.)

Three years of experience in reading or preparing bridge and/or roadway construction plans, engineering design, or related bridge construction and experience in using computer aided drafting (CADD) applications and practices. Post-high school coursework or training in the design field mentioned above may substitute for two of the three years' experience required.

[Return to Specification List](#)

Highway Bridge Designer Supervisor

V56655

DISTINGUISHING CHARACTERISTICS: (A position is assigned to this class based on the scope and level of work performed as outlined below.)

Under limited supervision of a Registered Professional Engineer supervises a structural design team and performs the most complex structural design work and technical geometric design work; prepares plans for assigned complex bridges and related civil or structural engineering projects; 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.)

Plans, assigns, trains, and supervises the work activities of assigned staff to attain work goals and to ensure consistent application of administrative policies, procedures, and standards.

Supervises, evaluates, and compares work performance of assigned staff with established standards to determine the quality and quantity of employees' work and to recommend personnel actions such as appointments, promotions, disciplinary actions, grievance dispositions, status changes, and separations and to identify employee training needs and to improve career advancement potential.

Prepares final plans for typical (concrete slab, prestressed concrete I-beam, and double tee, rolled and welded plate steel) bridge projects, which may include new structures and/or rehabilitation, re-decking, widening and overlay, or repair of existing structures. Bridge projects may include stream crossings, grade separations over roadways and railroads, and underpasses.

Reviews consultant plans for conformity with Nebraska Department of Transportation (NDOT) policies and procedures.

Communicates with other divisions within the department, other agencies and branches of government, utility companies, consultants, and contractors to ensure proper plan preparation and to solve problems which develop during fabrication and construction.

Reviews field construction problems, makes recommendation for corrective action, and oversees plan revisions.

Oversees and maintains CAD standards for NDOT Bridge Division. Works with internal and external partners in the implementation of new software and technologies.

KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED: (These are needed to perform the work assigned.)

Knowledge of: personnel rules and regulations, union contract and related supervisory personnel policies and procedures; NDOT Bridge Design Standards and Bridge Office Policies and Procedures Manual (B.O.P.P.); moderate knowledge of "Nebraska Standard Specifications for Highway Construction"; pertinent parts of "NDOT Roadway Design Standards" "AASHTO Standard Specifications for Highway Bridges" and Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals"; physics; engineering principles, including statistics, strength of materials and engineering mechanics; soil mechanics; the development process of a final set of bridge plans.

Ability to: detect errors, discrepancies, and omissions through examination of detailed drawings, calculations and notes; accurately transfer information in numerical, written or sketched form from sources such as survey notes, preliminary sketch sheets and design computations to design plan sheets; read, understand and interpret the terminology and symbols used in roadway plans, traffic signing and lighting plans.

MINIMUM QUALIFICATIONS: (Applicants will be screened for possession of these qualifications. Applicants who need accommodation in the selection process should request this in advance.)

Four years of experience in reading or preparing bridge and/or roadway construction plans, engineering design, or related bridge construction and experience in using computer aided drafting (CADD) applications and practices. Post-high school coursework or training in the design field mentioned above may substitute for two of the four years' experience required.

[Return to Specification List](#)

SPECIAL NOTES APPLICABLE TO ALL LEVELS:

State agencies are responsible to evaluate each of their positions to determine their individual overtime eligibility status as required by the Fair Labor Standards Act (FLSA).

Established: 12/95

Note: Classification-specification is subject to change. Please refer to the Nebraska State Personnel Job Specification website at <https://das.nebraska.gov/personnel/classcomp/jobspecs/jobspecs.html> to ensure this represents the most current copy of the description.

The following is a summary of changes made to this class specification.

Section	Change Description	Effective Date
Highway Designer Series	Updated Minimum Qualifications	4/16/24