

## STATE OF SOUTH DAKOTA CLASS SPECIFICATION

**Class Title: Survey Crew Chief/Chief Driller**

**Class Code: 040409**

**Pay Grade: GH**

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### **A. Purpose:**

The Survey Crew Chief/Chief Driller directs a survey crew by prioritizing, organizing, and sequencing daily work and assigning tasks to crew members; operating and maintaining specialized equipment; purchasing and maintaining an inventory of supplies; and recruiting employees and training them on procedures and methods, and use of equipment and safety standards; or is a primary drill operator and assists as a crew chief by completing preliminary site research, developing a work schedule, determining appropriate equipment and procedures for each site, making travel preparations, working with landowners and business owners, and overseeing the work and safety of the crew; or manages a second crew as needed to provide subsurface data for structure foundations.

### **B. Distinguishing Feature:**

The Survey Crew Chief/Chief Driller is a permanent crew chief who manages a survey crew, an assigned work load, equipment, and inventory as a primary function from year to year; or is a primary drill operator, and is a drill crew chief in the absence of the crew manager or when two crews are operating simultaneously; and both are responsible for the efficacy of collected information.

The Journey Transportation Technician performs assigned tasks within established procedures and guidelines; and the impact of decisions they make on duties they perform contributes to services used by others in making decisions.

### **C. Functions:**

*(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)*

1. Serves as a survey crew chief in location, construction, and/or land surveying to facilitate project development and construction.
  - a. Reads and interprets construction plans to determine the needs and priorities of each survey.
  - b. Searches and locates records of ownership, titles, land status, and utilities involved in each project.
  - c. Directs selection of instruments and equipment needed to perform order of precisions required for type of surveying being conducted.
  - d. Assigns tasks to crew members based upon their expertise and experience and provides training as needed.
  - e. Performs trigonometric and differential leveling.
  - f. Adjusts traverse, triangulation, and information to meet required order of precision.
  - g. Establishes control points.
  - h. Runs bench marks, lays out borrow sources, runs center lines for slope-staking and blue-topping.
  - i. Calculates horizontal and vertical curves and various angles, quantities, and mass diagrams.
  - j. Establishes horizontal and vertical control to meet requirements for photogrammetric compilation and bridging.
  - k. Determines elevations through use of barometers.

- I. Edits survey data, ensuring correctness and adequacy of information, develops an initial design in current software, and transports information to universal design files.
2. Serves as a chief driller and assistant drilling crew chief to perform foundation investigations for bridges, walls, light poles, buildings, long-term subsurface monitoring, etc.
  - a. Researches drill site locations to find any information on prior drilling and geological data, records of ownership, land status, and utilities.
  - b. Recommends appropriate equipment, and sampling and drilling methods for each project and site.
  - c. Performs site surveys, clears the site by calling for utility locations; and oversees site entry, access, and cleanup.
  - d. Determines numbers and layout of bore holes and maps them.
  - e. Assigns drill operators based upon their expertise and experience and oversees drill site safety procedures.
  - f. Sets up and operates drilling equipment.
  - g. Determines whether quantity and quality of material samples provides adequate information to determine foundation type.
  - h. Oversees collection of samples and logs them according to protocol.
3. Provides administrative support to ensure an adequate work force to accomplish assigned work within standards and specifications.
  - a. Plans, organizes, and coordinates activities of a major or multiple contract project.
  - b. Estimates equipment, materials, and manpower needs.
  - c. Establishes schedules and priorities.
  - d. Evaluates equipment and materials for adequacy, availability, and serviceability.
  - e. Uses and interprets plans, specifications, aerial photos, and maps.
  - f. Recruits, trains, and evaluates staff, assigns and reviews work, inspects completed work and ensures compliance with standards and specifications.
  - g. Conducts safety meetings and training sessions.
  - h. Coordinates activities with other sections, utility companies, cities, counties, state agencies, property owners, and contractors.
4. Performs other work as assigned.

**D. Reporting Relationships:**

Reports to an Engineering Supervisor. Does not supervise but routinely oversees the work of other technicians and seasonal employees.

**E. Challenges and Problems:**

Challenged to be a Survey Crew Chief. This is difficult because: it requires significant study of plans and planning ahead to coordinate and accomplish surveys and collect data to meet project deadlines; multiple surveys are often scheduled simultaneously; crew members must be recruited from available permanent staff or seasonal staff and the chief must make sure each is appropriately trained to accomplish work assignments; weather often interrupts work schedules which must be readjusted to meet project deadlines that do not change with the weather; data must be monitored and evaluated in the field to determine adequacy and to prevent costly rework; data must be edited and evaluated for completeness, and downloaded into preliminary design files for access by engineering staff; and requests for additional or revised survey data must be included into existing schedules. Further challenged to meet contractor needs when

performing construction surveys, made difficult by short notice and short-term deadlines; and further complicated by performing work in construction zones.

Challenged to be a Chief Driller. This is challenging because: of the inherent danger that goes along with drilling; it requires significant planning ahead to coordinate drilling efforts near each other and to make sure that adequate supplies and repairs are accumulated to take along; it requires research and study of topographical and geological maps and historical data of the areas in which drilling will take place; it requires planning travel routes to accommodate the weight of the vehicles, and to provide lodging for crews; communities and landowners must be made aware of work plans so they are aware of the crew's presence and purpose in their areas; traffic control in each area must be planned and equipment included to ensure safety of the crew and others who may be exposed to the drilling site; it requires making sure drills are set up properly and drill sites are prepared for work; the chief must continually be aware of safety during drilling operations; it requires making sure crews are fully trained in their duties and safety procedures, and making sure they are applying what they have learned; it means often having to find someone locally to repair equipment; it requires extended travel year-around; and the chief must decide when sampling is adequate to provide the base information needed.

#### **F. Decision-making Authority:**

Decisions include analysis of circumstances to determine tasks involved and selection of appropriate procedures and methods to accomplish tasks; managing the work of others which is required but may be limited in scope or duration; planning and accomplishing work under general instruction using guidelines, previous experience, and accepted practices to resolve problems or unusual situations. Decisions have a specific impact on project goals and objectives as responsibilities include duties that produce significant portions of decisions made in conjunction with others.

#### **G. Contact with Others:**

Daily contact with landowners, business people, city officials, other state agencies, etc., to plan, coordinate, and explain work that has an effect on their areas; and with crew members to assign tasks according to skills, guide them in preparation for and accomplishment of work, and inform them of schedules and travel requirements; weekly contact with supervisors to apprise them of progress and scope of work; routine contact with county officials to verify land status and descriptions and current ownerships; and with state mechanics for equipment rehabilitation and repair.

#### **H. Working Conditions:**

Duties involve working in all weather conditions, in hazardous situations, on roads and highways, in considerable noise, around operating equipment; extensive physical ability and stamina to perform strenuous work; and frequent travel with extensive overnight stays.

#### **I. Knowledge, Skills, and Abilities:**

Knowledge of:

- procedures and methods needed to perform duties associated with transportation engineering and construction;
- advanced surveying practices and technical equipment used in location and construction surveys;
- state plane coordinate system;
- drills, drill transport, and safe drilling procedures;

- drill site mapping and sampling processes.

Ability to:

- read and interpret construction plans, specifications, and special provisions;
- read and interpret topographical, geographical, and geological maps;
- communicate with and motivate others to satisfactorily perform their duties and responsibilities;
- analyze and evaluate data and determine whether it is sufficient to meet project needs;
- organize and prioritize work to meet established deadlines;
- work with minimal supervision.

**J. Licenses and Certificates:**

*(Used for announcement purposes only.)*

Incumbents must have a valid driver's license and must have or obtain a valid commercial driver's license (CDL) within sixty days of hire date to retain employment. The incumbent must have a Class A CDL with the tanker endorsement and no restrictions in order to operate any Class A vehicle that is a truck-tractor/semi-trailer, with manual transmission. The CDL must include an N endorsement (tank vehicle) for specific positions and must have no transmission restrictions.