

SENIOR ENGINEERING TECHNICIAN

SUMMARY/PURPOSE

To perform technical and paraprofessional engineering work in the areas of street, bridge, traffic, water, gas, sanitary sewer and storm sewer infrastructure systems.

DISTINGUISHING FEATURES OF THE CLASS

Employees at this level are distinguished from the Engineering Technician by the level of responsibility assumed and the experience held.

ESSENTIAL DUTIES AND RESPONSIBILITIES (other duties may be assigned)

1. Analyze construction plans and specifications for survey purposes.
2. Perform work to locate survey points.
3. Prepare survey field notes.
4. Direct the activities of other survey party members.
5. Operate and maintain survey and GPS (Global Positioning System) equipment to obtain accurate survey measurements and point locations.
6. Collect, analyze, and record data.
7. Create construction plans, maps, and charts manually or using a computer-aided-design (CAD) system.
8. Prepare graphic representations of Geographic Information Systems (GIS) using GIS software.
9. Process survey information, including computer data entry work.
10. Estimate construction quantities and prepare appropriate charts.
11. Recommend upgrades and revisions to project procedures and practices.
12. Prepare individually-tailored hard copies of automated maps using computer base maps.
13. Lead personnel in drafting and design work as assigned.
14. Maintain engineering plans and survey files.
15. Coordinate work activities with contractors, outside agencies, other City personnel, and property owners.
16. Monitor and inspect construction projects to ensure conformance.
17. Maintain daily log of construction activities and write progress and final reports.
18. Prepare change orders and supplemental agreements for approval.
19. Document construction quantities.
20. Perform quality control tests on construction materials.
21. Lead personnel in construction inspections as assigned.
22. Locate underground utilities including water, gas, sanitary sewer and storm sewer systems.
23. Act as lead worker in assigned responsibilities.
24. Review construction plans and specifications for compliance with City standards.
25. Maintain, add, or modify existing GIS databases.
26. Review existing or incoming GIS data for accuracy, quality, and completeness.
27. Maintain, revise, and research manual or computer records.
28. Develop computerized record keeping procedures.
29. Issue required permits.
30. Investigate complaints, inquiries, and requests, and recommend solutions.
31. Prepare and interpret property descriptions.
32. Assist in the development of long-range infrastructure studies and plans, maintenance management plans, and environmental assessments.
33. Participate in technical engineering studies and provide recommendations.
34. Study and report findings, conclusions, and recommendations in oral and written form.

JOB REQUIREMENTS

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skills, and abilities required.

1. License Requirements
 - A. Possession of a valid Minnesota Class "D" driver's license or privilege by date of appointment and thereafter in order to operate City vehicle.

2. Education and Experience Requirements
 - A. Classified as a City of Duluth Engineering Technician, pay grade 28, Step E; or
 - B. Completion of a two-year Civil Engineering Technology degree or equivalent; and five (5) years of verifiable work experience in an engineering position; or
 - C. A combination of education and/or experience determined to be equivalent.

3. Knowledge Requirements
 - A. Knowledge of algebra, geometry, and trigonometry.
 - B. Knowledge of technical engineering principles and practices.
 - C. Knowledge of the principles, methods, equipment, and materials used in construction of streets, sidewalks, water and gas mains, sanitary and storm sewers, and various public works structures.
 - D. Knowledge of traffic engineering principles.
 - E. Knowledge of design and layout methods.
 - F. Knowledge of regulatory agencies affecting design and construction.
 - G. Knowledge of applicable safety principles and practices.
 - H. Knowledge of the principles of technical writing.
 - I. Knowledge of federal, state, and local legislation affecting departmental operations and appropriate professional design standards.
 - J. Knowledge of principles of surveying.

4. Skill Requirements
 - A. Skill in drafting, mapping, and surveying.
 - B. Skill in the operation of drafting and surveying equipment.

5. Ability Requirements
 - A. Ability to operate computers, GIS, and CAD systems.
 - B. Ability to apply standard engineering principles to utility and other public work improvements.
 - C. Ability to prepare specifications, plans, technical reports, resolutions, and petitions.
 - D. Ability to perform supervised design and layout work.
 - E. Ability to communicate effectively in oral and written forms.
 - F. Ability to attain and maintain state certification requirements.
 - G. Ability to establish and maintain effective working relationships with co-workers, supervisors, contractors, consultants, outside agencies, and the general public.
 - H. Ability to provide training to co-workers.

6. Physical Ability Requirements
 - A. Ability to transport oneself to, from, and around work sites.
 - B. Ability to work outdoors year round.
 - C. Ability to walk for long distances.
 - D. Ability to transport and erect survey equipment up to 50 pounds.
 - E. Ability to frequently stand, walk, sit, type, talk, hear, use near, mid, and far vision with frequent field of vision.
 - F. Ability to occasionally lift, carry, push, pull, climb, balance, stoop, crouch, reach, handle, smell, and use depth perception, visual accommodation, and color vision.

HR: MS	Union: Basic	EEOC: Technicians	CSB: 12/10/2013	Class No: 1801
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