



June 2008

## ENGINEERING TECHNICIAN I

### DEFINITION

Under direct supervision, performs basic paraprofessional engineering field and office duties in support of professional engineering staff, involving surveying, design of public works facilities, construction inspection, and drafting; researches engineering topics and prepares basic engineering calculations; provides technical advice to the public; coordinates plan submittals; maintains plan files and engineering records; prepares reports; and performs related work as required.

### SUPERVISION RECEIVED AND EXERCISED

Receives direct supervision from assigned supervisory or management personnel. Exercises no direct supervision over staff.

### CLASS CHARACTERISTICS

This is the entry-level class in the engineering technical support series. Initially under close supervision, incumbents learn and perform a range of duties including maintaining engineering records, performing basic engineering calculations, performing field observations and surveys, researching engineering topics, updating maps and drawings. As knowledge and experience are gained, the work becomes broader in scope, assignments are more varied, include limited project management, and are performed under more general supervision. This is a broad classification and incumbents may specialize in drafting/design, Geographic Information Systems, inspection, and/or may serve as a generalist. This class is distinguished from the Engineering Technician II in that the latter performs more complex work that requires additional knowledge, skills, and experience, as well as functions more independently and without direct supervision.

### EXAMPLES OF ESSENTIAL FUNCTIONS (Illustrative Only)

*Management reserves the rights to add, modify, change, or rescind the work assignments of different positions and to make reasonable accommodations where appropriate so that qualified employees can perform the essential functions of the job.*

- Assists in the preparation of and/or interprets specifications, plans, estimates, and reports pertaining to the construction, maintenance, and operation of a variety of engineering, land development, utility, and other capital improvement projects, including conducting a variety of surveys for creation of sidewalks, utility lines, and topography maps, collecting all pertinent information to create useful maps, issuing work orders required for construction activities to public clients, and evaluating building plans for compliance with public works standards.
- Performs basic design and drafting duties in connection with streets, storm drains, and other projects.
- Performs basic field, office, and computer-aided studies and prepares periodic and special reports based on findings from research, studies, and surveys; and makes recommendations on findings.
- Receives, tags, and logs, and reviews submitted engineering plans, maps, and related documents for plan check; checks calculations used in designs and estimates; tracks status of plan checks and

- original documents; advises parties of revisions; contacts inspectors following plan approval to initiate construction observation.
- Performs addressing of subdivisions and partitions, including working with the City Surveyor, adding addresses, lot numbers, and land use information, updating files and databases, and creating location maps of parcels.
  - Participates in plat review process, including coordinating paperwork to appropriate staff and contacts, compiling, reviewing, and verifying plat conditions and land use, and updating appropriate files and databases.
  - Performs less complex construction inspections of public and private projects to ensure compliance with contractual agreements, plans, and specifications, including preparing and recommending progress payments and change orders, evaluating possible public improvements as needed, ensuring work performed adheres to City standards, determining and noting major and minor defects, and evaluating appropriate actions in order to remedy defects as needed.
  - Calculates cost estimates and participates in the development of contract document for capital improvement projects.
  - Serves on a survey crew as roadman or instrument operator working with distance, angle, and elevation measuring devices and recording data manually or electronically for completion of topographic, boundary, aerial photo control, cadastral, and horizontal and vertical control surveys.
  - Maintains engineering files, including plans, studies, inspections, surveys, maps, and other data related to engineering projects; prepares, updates, reproduces, and distributes maps, drawings, blueprints, and other information recorded in GIS; enters and maintains a wide variety of engineering data in GIS.
  - Receives and responds to information requests from the public, consultants, engineering firms, developers, title companies, inspectors, and staff for base maps, parcel maps and improvement plan information, encroachment permits, benchmarks, copies of maps and other geographical data, soils reports, as-builts, and street improvements; retrieves plans, reports, permits, and files as necessary to comply with requests; responds to complaints from the public and resolves conflicts between owners, contractors, developers, utility companies, and others.
  - Maintains and updates department website, records, tracking lists, permit records, and files of engineering plans, including grading, encroachments, improvements, storm drain, landscaping, and final maps.
  - Utilizes Computer-Aided Drafting software to create and modify engineering drawings, sketches, plot plans, site lay-outs, topographic maps, improvement plans, and illustrative graphics, such as charts, illustrations, graphs for reports, drawings for design manuals, and other projects.
  - Prepares a variety of legal documents, including construction project contract documents.
  - Reviews work product and corrects for quality.
  - Performs other duties as assigned.

## **QUALIFICATIONS**

### **Knowledge of:**

- Basic civil engineering principles, practices, and methods applicable to office and fieldwork involving the design, construction, and maintenance of projects.
- Basic engineering plan types, review practices, and permit filing and approval procedures.
- Basic principles and practices of technical civil engineering drafting and surveying support.
- Drafting and surveying equipment, computers, principles, problems, techniques, and practices.
- Applicable Federal, State, and local laws, codes, and regulations.
- Technical engineering mathematics.
- Technical report writing practices and procedures.
- Record keeping principles and procedures.
- Modern office practices, methods and computer equipment.

- Computer applications related to the work, including specialized software using related concepts, established conventions, standards, and procedures.
- English usage, grammar, spelling, vocabulary, and punctuation.
- Techniques for dealing effectively with the public, vendors, contractors, and City staff, in person and over the telephone.
- Techniques for providing a high level of customer service to public and City staff, in person and over the telephone.

**Ability to:**

- Learn and perform preparation of a variety of plans, specifications, maps, graphic materials, cost estimates, and technical engineering reports.
- Learn and perform modification of engineering drawings, topographic maps, improvement plans, and illustrative graphics using Computer-Assisted Drafting (CAD) software.
- Learn and perform responsible technical engineering support work with accuracy and speed.
- Learn to read and interpret engineering plans, technical drawings, specifications, and subdivision maps.
- Learn to perform standard engineering design under professional engineering supervision.
- Make mathematical calculations and accurate engineering computations and drawings.
- Make and record accurate field engineering observations.
- Learn to use engineering, drafting and surveying instruments and equipment.
- Prepare clear and concise reports, correspondence, policies, procedures, and other written materials.
- Learn to apply technical research methodologies and write technical reports.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical time deadlines.
- Operate modern office equipment including computer equipment and specialized software applications programs.
- Comprehend and use English effectively including producing all forms of communication in a clear, concise, and understandable manner to intended audiences.
- Use tact, initiative, prudence, and independent judgment within general policy, procedural, and legal guidelines.
- Establish, maintain, and foster positive and harmonious working relationships with those contacted in the course of work.

**Education and Experience:**

*Any combination of training and experience, which would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the required qualifications would be:*

Equivalent to completion of the twelfth (12<sup>th</sup>) grade supplemented by college-level coursework in civil engineering, drafting, surveying, mathematics, or related field and no experience is required but one (1) year of paraprofessional civil engineering experience is desirable.

**Licenses and Certifications:**

- Possession of, or ability to obtain, a valid Driver's License by time of appointment.

**PHYSICAL DEMANDS**

Must possess mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle; and to visit and inspect various City development sites; vision to read printed materials and a computer screen; and hearing and speech to communicate in person, before groups, and over the telephone. This is primarily a sedentary office classification, although the job

involves field inspection work requiring frequent walking at inspection sites to monitor performance and to identify problems or hazards; standing in work areas and walking between work areas may be required. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment. Positions in this classification occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 40 pounds.

### **ENVIRONMENTAL ELEMENTS**

Employees work in an office environment with moderate noise levels and controlled temperature conditions; but may occasionally be exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.