



CITY OF URBANA
Human Resources Division

CIVIL ENGINEERING TECHNICIAN III

JOB DESCRIPTION

Department: Public Works	Division: Engineering
Work Location: Urbana Public Works Department	Percent Time: 100%
Job Type: Civil Service	FLSA Status: Non-exempt
Reports To: Assistant City Engineer/Civil Engineer III or designee	Union: Non-Union

JOB SUMMARY:

Under the direction of the City Engineer, the Civil Engineering Technician performs various engineering tasks and duties as assigned. Involved in the planning and implementation of municipal infrastructure improvement projects and maintenance programs; managing the City's regulatory programs; maintaining the City's compliance with state and federal regulations; conducting field investigations and inspections; collecting field data utilizing surveying techniques and instruments; monitoring construction work; and assessing condition of infrastructure.

Defining Characteristics~~Responsibilities range from intermediate to advanced level in support of a broad range of engineering activities.~~

• **Level III:** This is a more advanced level within the Civil Engineering Technician class. Technicians of this level are expected to have a breadth of knowledge and experience to successfully complete projects with considerable independence. ~~–Duties involve interpreting engineering guidelines; coordinating various activities; assisting with the preparation of technical reports; performing engineering drafting and design work; preparing construction plans and contract documents for municipal infrastructure projects; conducting field investigations; collecting and reviewing field data; performing construction layout; monitoring construction work; performing material acceptance evaluations; assessing the condition of infrastructure; measuring and calculating quantities; preparing pay estimates and performing detailed reviews of engineering related projects. and performing detailed reviews of engineering related projects. Technicians of this level may provide leadership and guidance to lower-level Civil Engineering Technicians and Engineering part-time personnel. Positions in this level are normally typically filled by advancement from Level II, or when filled by a person from the outside with prior experience.~~

ESSENTIAL FUNCTIONS

JOB DUTIES:

- ~~Performs construction layout, marks location for various pay items, measures amount of approved materials used and amount of work completed or accepted;~~
- Collects ~~Perform a range of engineering related tasks requiring independent analysis and formulations of solutions to problems;~~
- Perform measurements and reviews ~~calculations accurately;~~
- Assist with planning and implementation of capital improvement projects and maintenance programs;
- Assist with managing the City's regulatory programs, such as Utility / Right-of-Way Permits, Erosion Control Permits, and Development Review.
- Assist with maintaining the City's compliance with state and federal regulations, such as National Bridge Inspections Standards (NBIS), National Pollutant Discharge Elimination System (NPDES) Permits, and others that may be identified in the future.
- Assist with maintaining and updating data for the City's infrastructure assets.
- Collect field data, such as existing topographical data, utilizing surveying techniques and instruments;
- ~~Monitors~~ Monitor construction of contract work to ensure work is performed in compliance with contract plans and specifications and required quality is obtained;
- ~~Conducts on-site observation~~ Assist with design and development of bridge/structure construction plans, specifications, and contract documents;
- ~~Maintains project construction documentation;~~
- Coordinates ~~Prepare exhibits, graphics, and special illustrations and attends public information meetings in conjunction with various City projects;~~
- Coordinate contract work on concurrent projects with other departments and agencies; ~~prepares~~ assists with the preparation of news releases, letters, and any other communication tools distributed to property owners, residents and necessary public or private agencies to effectively and efficiently communicate with impacted parties on any project;
- Draft plans for various contract projects from preliminary design stage through final "record" drawing stage;
- ~~Performs calculations utilizing a personal computer and/or a scientific calculator;~~
- ~~Collects and reviews project data;~~
- ~~Compiles pay estimates of various City projects and contracts utilizing computer spreadsheet;~~

- ~~Reviews preliminary site development plans and related supporting documentation submitted to the City for content, accuracy, and conformance with the City of Urbana Subdivision and Land Development Codes;~~
- ~~Prepares exhibits, graphics, and special illustrations and attends public information meetings in conjunction with various City projects;~~
- ~~Conducts pre-construction meetings and construction progress meetings for various City projects;~~
- ~~Performs computer aided and manual drafting of contract plans, details and location maps;~~
- ~~Prepares contract documents, plans and specifications.~~
- ~~Monitors field work performed by Engineering part-time personnel and contract crews; prepares progress reports;~~
- ~~Conducts inspection and testing of construction materials, as required for various City projects;~~
- ~~Coordinates locations of various construction projects with local utility companies, obtaining locations of their facilities in the project area;~~
- ~~Collects final location data for completed projects and prepares "record" drawings;~~
- ~~May provide leadership, guidance and supervision to lower-level Civil Engineering Technicians and Engineering part-time personnel;~~
- ~~Uses all equipment with proper care and ensures that equipment is maintained in good working order; and~~
- ~~Performs~~ Provide technical support to various City departments;
- Handle requests for information, service or complaints over the phone, via electronic or regular mail and in person, or makes referrals to appropriate staff on behalf of the City of Urbana;
- Ensure that the City vehicle and other equipment to which he/she is assigned is maintained in clean, proper running condition; reporting to supervisor or other appropriate person when vehicle or other equipment is in need of repair;
- Provide leadership, guidance and supervision to lower-level Civil Engineering Technicians and Engineering part-time personnel;
and
- Perform other activities as assigned.

This job description reflects the general concept and intent of the classification and should not be construed as a detailed statement of all of the job requirements that may be inherent in the position.

JOB REQUIREMENTS:

~~In addition to qualifications for Civil Engineering Technician II:~~

PROFESSIONAL EXPERIENCE

- ~~• Minimum of four (4) years' experience in Civil Engineering Technician II position or eight (8) years' equivalent experience in municipal, county, state, or federal engineering, or engineering consulting.~~

Education & Experience

- ~~• Associate's Degree in Civil Engineering Technology or related field from an accredited college or junior college program.~~

LICENSES AND CERTIFICATIONS

~~—GENERAL:~~

- ~~• Possess or obtain a valid State of Illinois Class D driver's license within fifteen (15) days of employment.~~

~~DRAINAGE AND DEVELOPMENT ENGINEERING SECTION: (COMBINATION OF 3)~~

- ~~• Successfully obtain National Association of Sewer Service Companies (NASSCO) Cured In-Place Pipeline Certification.~~
- ~~• Successfully obtain certification as a National Bridge Inspector System (NBIS) Team Leader.~~
- ~~• Successfully obtain certification as a~~

~~TRANSPORTATION ENGINEERING SECTION:~~

- ~~• Successfully obtain Illinois Department of Transportation (IDOT) Hot Mix Asphalt Level II Technician Certification.~~
- ~~• Successfully obtain~~

COMPUTER SKILLS

~~—GENERAL:~~

- ~~• Proficient in Microsoft Office applications, including Word, Excel, Access, PowerPoint, and Outlook; AutoCAD or Microstation; and the Internet.~~
- ~~• Familiarity with drainage analysis programs (e.g., Haestad Methods Programs and Hydraflow Storm Sewers).~~

~~—DRAINAGE AND DEVELOPMENT ENGINEERING SECTION:~~

- ~~• Knowledge of Granite XP Sewer Televising Software.~~
- ~~• Knowledge of ArcGIS.~~

~~—TRANSPORTATION ENGINEERING SECTION:~~

- ~~Knowledge of AutoCAD Civil 3D or Geopak.~~
- ~~Knowledge of IDOT Illinois Construction of Records System (ICORS) software.~~
- ~~Familiarity with project management software (e.g., Microsoft Project), and vehicle turning movement software (e.g., Transoftsolutions AutoTURN).~~
- ~~Familiarity with ArcGIS.~~

KNOWLEDGE & EXPERIENCE

Any combination of education and experience that would likely provide the required knowledge and abilities is qualifying. Typical ways the knowledge and abilities would be attained are:

- Four (4) years of experience in Civil Engineering Technician II position or eight (8) years of equivalent experience in municipal, county, state, or federal engineering, engineering consulting, construction management, or related field.
- A bachelor of science degree in civil engineering technology or a related field may substitute for four (4) years of equivalent experience.

Preferred Attributes

- Familiarity with ArcGIS
- Familiarity with Granite XP Sewer Televising Software

Knowledge of

- Standard practices, procedures, materials, tools, and equipment used in the maintenance, repair, rehabilitation and construction of municipal infrastructure projects.
- ~~Knowledge of engineering~~Engineering drafting techniques and tools.
- ~~Knowledge and skill in the use of field~~Field survey instruments and techniques.
- ~~Knowledge of mathematics~~Mathematics through trigonometry.
- ~~Knowledge of occupational hazards and safety precautions.~~
- ~~Knowledge of the application and interpretation of~~Microsoft Office applications, including Word, Excel, Access, PowerPoint and Outlook
- AutoCAD or Microstation.

Familiarity with ArcGIS is preferred.

- ~~Knowledge of Americans with Disabilities Act (ADA) regulations and experience with design, layout, and construction of ADA right-of-way facilities.~~

Ability to

- Operate equipment, such as a theodolite, level, metal detector, computer, scientific calculator, plotter and mobile radio;
 - Layout construction projects, including sewers, new pavements, sidewalks and bridges/structures;
 - Obtain concrete samples for measurement of air entrainment and slump and cylinder testing; inspect manholes; drill cores; measure quantities; and calculate construction quantities and costs;
 - Make quick and intelligent field judgments required during construction inspection;
 - Stand for long periods of time while inspecting construction projects;
 - Perform AutoCAD drafting and use computer spreadsheet and word processing software;
 - Measure and calculate construction quantities and costs;
 - Read figures quickly and accurately and make mathematical calculations;
 - Follow oral and written instructions;
 - Perform moderately complex technical tasks which are broad in scope and require application of fundamental concepts.
 - Observe, compare, or monitor objects and data to determine compliance with prescribed operating or safety standards;
 - Use graphic instructions, such as blue prints, schematic drawings, layouts, or other visual aids;
 - Communicate clearly and concisely, both orally and in writing, applying strong verbal and written skills for the preparation of technical and administrative reports and the presentation of recommendations;
 - Learn and interpret City policies and procedures, along with other standard policies and
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- Determine which work processes and methods are most appropriate to accomplish technical assignments;
 - ~~Operate equipment, such as a theodolite, level, metal detector, computer, scientific calculator, plotter and mobile radio;~~
 - ~~Layout construction projects, including sewers, new pavements, sidewalks and bridges/structures;~~
 - ~~Obtain concrete samples for measurement of air entrainment and slump and cylinder testing; inspect manholes; drill cores; measure quantities; and calculate construction quantities and costs;~~
 - ~~Make quick and intelligent field judgments required during construction inspection;~~
 - ~~Stand for long periods of time while inspecting construction projects;~~
 - ~~Perform AutoCAD drafting and use computer spreadsheet and word processing software;~~

- ~~Measure and calculate construction quantities and costs;~~
- ~~Read figures quickly and accurately and make mathematical calculations.~~
- ~~Draft plans for various contract projects from preliminary design stage through final “record” drawings stage;~~
- ~~Follow oral and written instructions;~~
- ~~Work effectively and cooperatively with others;~~
- ~~Provide leadership, guidance and supervision to lower-level Civil Engineering Technicians and Engineering part time personnel;~~
- Learn to manage work of paraprofessional staff;
- Learn to apply practical technical expertise toward the completion of projects.
- ~~Observe, compare, or monitor objects~~Interpret and data to determine compliance~~apply City policies and procedures, along with prescribed operating or safety standards;~~
- ~~Use graphic instructions, such as blue prints, schematic drawings, layouts, or other visual aids;~~
- ~~Communicate clearly and concisely, both orally and in writing, applying strong verbal and written skills for the preparation of technical and administrative reports and the presentation of recommendations; and~~
- ~~Learn and interpret IDOT design and construction manuals, standard specifications and highway standards as well as American Association of State Highway and Transportation Officials (AASHTO) design manuals, Standard Specifications of Water and Sewer Construction in Illinois, and Manual on Uniform Traffic Control Devices (MUTCD).~~

RESPONSIBLE FOR:

- ~~Performing a range of engineering related tasks requiring independent analysis and formulations of solutions to problems;~~
- ~~Performing measurements and calculations accurately;~~
- ~~Observing contractor’s work to ensure that work complies with contract requirements;~~
- ~~Ensuring that the City vehicle and policies and procedures from other equipment to which he/she is assigned is maintained in clean, proper running condition; contacts supervisor or other appropriate person when vehicle or other equipment is in need of repair; regulating agencies; and~~
- ~~Investigating problems, designing improvements, and preparing construction plans;~~
- ~~Maintaining project construction correspondence and records from project conception to completion; and~~
- Referring~~Refer~~ highly sensitive issues to higher levels.

Licenses, Certifications, and Memberships Required

- Must possess a valid Illinois driver's license or have the ability to obtain one within fifteen (15) days of employment and have the ability to operate a motor vehicle.
- Possession of at least two (2) of the following certifications (or the ability to obtain within one year of employment or promotion) is preferred:
 - NASSCO Cured-In-Place Pipeline Certification
 - NASSCO Manhole Rehabilitation Certification
 - National Bridge Inspector System (NBIS) Inspector
 - Certified Professional in Erosion and Sediment Control (CPESC)
 - IDOT Hot Mix Asphalt Level II Technician Certification
 - IDOT Portland Concrete Cement Level II Technician Certification

~~CONTACTS: INTERNAL/EXTERNAL~~

- ~~Daily contacts with residents and contractor personnel during construction projects.~~
- ~~Regular contact with utility company personnel, businesses, citizens, other governmental agencies, consultants and other City departments.~~

~~WORK ENVIRONMENT:~~

- ~~Ability to work in varying climates. Job requires outside work in all weather conditions, winter and summer as well as inside office work.~~
- ~~Works around traffic and in and around heavy equipment in construction zones. Works around potentially hazardous fumes and caustic compounds.~~

Supplemental Information

Supervision received

- Works under the direction of the City Engineer; establishes procedures for attaining specific goals and objectives and is assigned responsibility for establishing the methods to attain them. Generally in charge of an area of work, but does not have the authority for approving policy.

Level and complexity of supervision exercised

- This position may supervise lower-level Civil Engineering Technicians and Engineering part-time personnel is not responsible for supervising any staff positions.

Physical Demands and Working ENVIRONMENT: Conditions

The work environment characteristics described herein are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- The work will occur in Physical Demands: ability to lift and carry fifty (50) pounds; sit, stand and/or walk for extended periods and ability to walk on uneven terrain at construction sites and other surfaces; manual dexterity and eye-hand coordination needed to use a variety of office equipment such as computers, telephones, calculators, copiers, and topographic surveying equipment. Position requires visual acuity sufficient to read computer screens and printed documents and visually inspect work in progress and hearing in the normal audio range with or without correction.
- Working Conditions: Work generally occurs in both an office and field environment. Incumbents may be subjected to dusts, fumes, extreme temperatures, inadequate lighting, and intense noises. Typical A typical work schedule: Monday - Friday, 7:00 a.m. - 4:00 p.m. with flexibility depending upon the needs of the department. May be required to work in excess of 40 hours a week and/or work irregular hours, particularly during construction projects or emergency situations. Job requires outside work in all weather conditions, winter and summer as well as inside office work. Work occurs around traffic, in and around heavy equipment in construction zones, and around potentially hazardous fumes and caustic compounds. Incumbents may be subjected to dusts, fumes, extreme temperatures, inadequate lighting, and intense noises.

PHYSICAL REQUIREMENTS:

The physical demands described herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- ~~Must be able to lift and carry fifty (50) pounds.~~
- ~~Sit, frequently stand and walk for extended periods;~~
- ~~Have manual dexterity and eye-hand coordination needed to use a variety of office equipment such as computers, telephones, calculators, copiers, and topographic surveying equipment;~~
- ~~Have corrected vision in order to review plans and specifications and perform other essential functions of the job; and~~
- ~~Walk on uneven terrain at construction sites, etc.~~

ADDITIONAL PHYSICAL REQUIREMENTS:

VISION AND HEARING

~~See in the normal visual range with or without correction; vision sufficient to read computer screens and printed documents; visually inspect work in progress. Ability to hear in the normal audio range with or without correction.~~

The physical demands

Job Dimensions

- General guidelines for work exist, but employee is increasingly responsible for determining the approach for performing the work.
- At the entry level, employee performs technical or trades-based work that requires a solid understanding of basic algebra and statistics at the para-professional level. Work complexity and independence increase relative to demonstrated proficiency and expertise. At advanced levels, employee performs work that encompasses advanced technical, scientific, legal, or mathematical concepts. Work directly contributes to the implementation of specific policies, programs, or initiatives of the organization.

The physical demands and work environment described herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

The duties listed above are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the position.

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

Prepared By: John Zeman and Tim Cowan 03/22/2022
Signature Date

Class Specification History

New classification added: 02/10/2016.

General Revisions: 03/30/2022

For HR/Finance Use

Title Code	Pay Grade
	<u>241</u>
EEO Category	
<u>3-Technician</u>	