



# MARIN MUNICIPAL WATER DISTRICT

## SENIOR ENGINEERING TECHNICIAN

### **DEFINITION**

Under direction, perform difficult and complex technical assignments; provide technical or functional supervision to other staff engaged in sub-professional engineering work; perform other related work as required.

### **DISTINGUISHING CHARACTERISTICS**

This is the advanced journey level of the Engineering Technician series which is distinguished from the Engineering Technician II class by requiring significant technical skills and/or knowledge, a higher level of complexity and difficulty of assignments, as well as a greater degree of independent judgment which is necessary to perform at a satisfactory level. Depending on the assignment, experience and familiarity with engineering principles and practices, automated mapping, drafting and GIS systems, District code, development drawings, plans and specifications for construction projects, permanent records programs and files are required to perform the more difficult work assignments at this level. Positions assigned to this class may provide assistance and/or training to less experienced technical personnel.

### **EXAMPLES OF ESSENTIAL DUTIES**

*Duties may include, but are not limited to, the following:*

- Maintain a variety of files and records;
- review completed work of support staff for compliance with established procedures, accuracy, and proper grammar, make corrections as necessary;
- prepare clear and concise data summaries and written reports;
- ensure that safe working conditions are maintained;
- prepare periodic informational reports for District use; and
- provide lead guidance and training to less experienced technical engineering personnel as assigned.

*When assigned to Development Services:*

- Contact other agencies, developers, property owners, and contractors regarding construction and development in the District's service area; and
- plan, assign, and review the work of a subprofessional engineering staff engaged in the full range of new business activities including representing the District to a wide variety of agencies and the public requesting annexation of territory, extension, relocation, or abandonment of water supply and distribution facilities, and installation of public and private fire protection facilities;
- receive and process pipeline extension applications and prepare agreements;
- make field investigations to determine facility requirements;
- prepare cost estimates and correspondence for pipeline extensions and fire hydrant/fireline and service installations;
- review invoices for all New Business reimbursable projects to insure accuracy prior to final billing;

- annually review service installation costs and propose fee and charge revisions as necessary;
- respond to requests for new service received by mail, email, telephone and walk-in customers;
- process variances to District code involving the facility requirements to provide new service;
- under the direction of a P.E., assist with design of required facilities including hydrants, firelines, and services, and assist with the design of pipeline extensions and relocations;
- prepare contract drawings after completing layouts and amassing necessary information;
- perform basic administration of subdivision projects;
- engage in extensive interaction with the public and local planning agencies, and serve as a point of contact for local fire agencies;
- prepare written reports and orally present pipeline extension projects and variance requests to the Board of Directors for their consideration;
- determine limits of easements that an applicant will be required to provide to accommodate the installation of new water facilities;
- provide information to contractors and the public regarding pipeline extensions, availability of water service, and related subjects;
- conduct cross divisional staff discussions on potential new development projects;
- monitor progress of the installation of services and mains in accordance with written agreements and initiates follow-up action, where necessary;
- enforce District hydrant meter, water theft and unauthorized use policies;
- prepare correspondence regarding availability and location of water facilities;
- review and resolve potential illegal water connections including review, correspondence and collection of delinquent fees, if any;
- review plans and specifications submitted by engineers for construction or modification of facilities; determine if plans and specifications are in compliance with District specifications, requirements and policies; and
- verify that proper permits and approved plans have been acquired to perform specified work.

*When assigned to GIS:*

- Review and correct engineering records created and maintained in CAD and GIS (drawings, ties, maps, schematics), produced by Records & Drafting staff;
- utilize CAD and GIS to create, update, and prepare maps, plans, profiles and detailed drawings from various notes and sketches;
- provide users with technical assistance, training, and support relating to the operation of the GIS and CAD systems to ensure accuracy and maintain quality standards and assist staff in resolving daily operational and technical problems;
- coordinate and prioritize mapping projects and prepare the layout and design of a variety of maps for presentation to the Board of Directors, fire departments and other public agencies;
- may perform GIS application programming;
- establish and maintain reports utilizing the District's application database;
- edit and update ArcSDE versioned geodatabase;
- keep the GIS and SAP(ERP) databases in sync and up-to-date;
- create, edit, maintain and file Engineering Records geodatabases (such as leaks, stamp annotations, Emergency Pump Connections, etc.);

- use ESRI GIS software and SAP(ERP) to analyze MMWD water system as needed;
- maintain MMWD Central Error Reports e-mail box;
- maintain a website of business rules to keep up the integrity of the data;
- develop and maintain system and user documentation and procedures;
- maintain records of all problems, solutions, and resources used;
- analyze user requirements, designs, and develop solutions;
- perform software and QA/QC testing as directed;
- enter and retrieve data from computer information systems;
- create water facility maps and related documents and tables to fulfill requests made by various divisions;
- consult with staff to determine the scope of their GIS data needs; design and execute projects that best serve these needs within the department resources;
- respond to GIS data requests for various departments and public and private agencies;
- assist the public in person, by telephone, and through email, with map related inquiries;
- gather information required for field location of District facilities; make field measurements and sketches;
- perform routine calculations and analysis, and maintain and update a variety of water supply and water distribution system records, charts and maps;
- locate and mark underground pipes and facilities;
- post MMWD contracts to MMWD website for bids; and
- update documents related to contracts at MMWD Website as requested.

*When assigned to Records:*

- Review and correct engineering records created and maintained in CAD (drawings, ties, maps, schematics), produced by Records & Drafting staff;
- utilize CAD to create, update, and use GIS to prepare maps, plans, profiles and detailed drawings from various notes and sketches;
- provide users with technical assistance, training, and support relating to the operation of the CAD system to ensure accuracy and maintain quality standards and assist staff in resolving daily operational and technical problems;
- coordinate and prioritize mapping;
- establish and maintain reports utilizing the District's application database;
- develop and maintain system and user documentation and procedures;
- maintain records of all problems, solutions, and resources used;
- analyze user requirements, designs, and develop solutions;
- enter and retrieve data from computer information systems;
- assist the public in person, by telephone, and through email, with map related inquiries;
- gather information required for field location of District facilities; make field measurements and sketches;
- perform routine calculations and analysis, and maintain and update a variety of water supply and water distribution system records, charts and maps;
- locate and mark underground pipes and facilities;
- post MMWD contracts to MMWD website for bids; and
- update documents related to contracts at MMWD website as requested.

*When assigned to Facility Design:*

- Perform duties required to produce construction contract drawings for District projects beginning with preliminary design and continuing through post project completion activities;
- analyze street and topographic maps, improvement plans, and survey data,
- collect, compute, and compile data on existing underground and above ground facilities;
- confer with project engineers throughout design process to evaluate and revise design criteria, identify potential problems/conflicts and maintain project scheduling;
- conduct site investigation and reconnaissance, topographic survey, field sketching; measurement and photography;
- operate surveying data collection and utility locating equipment;
- utilize surveying software to collect, produce and plot survey data to create topographic base map for design;
- utilize CAD (computer-aided design) software to prepare base drawings depicting existing conditions from field measurements and record drawings;
- use various computer aided software, including three dimensional engineering software, and GIS to design, detail, and draft the proposed improvements, using supplied design criteria, District standards and specifications and accepted construction practices/methods;
- under the supervision of the District surveyor, utilize surveying software to collect, produce and plot survey data to create topographic base map for design;
- revise and maintain contract drawings to produce record drawings for District records;
- assist District surveyor to collect data for topographical and boundary surveys;
- maintain permanent records to include digital and hard copy maps, engineering drawings, data files and system configuration files;
- prepare, assemble and correlate plans; and
- field locate and plot underground utilities (gas, telephone, electric, and cable) within the capabilities of the electronic locating equipment.

#### **QUALIFICATIONS FOR EMPLOYMENT**

Knowledge of (as applicable to area of assignment):

*All employees in this class may be expected to have knowledge of:*

- Principles and concepts employed in a wide variety of difficult and complex subprofessional field and office engineering work;
- principles and uses of algebra, geometry, and trigonometry;
- practices, techniques and instruments used in drafting work;
- hardware and software technology used in providing technical engineering services;
- basic engineering design and construction practices;
- proper spelling, grammar, punctuation and writing practices;
- records management practices and procedures, organizing and maintaining accurate files and records (including computer data storage and retrieval);
- commonly used word processing, spreadsheet and database computer applications such as Microsoft Office; and
- familiarity with Computer systems, technology and vocabulary in a networked computer environment.

*Assignments in the Development Services Section may also be expected to have knowledge of:*

- Planning, zoning and subdivision regulations in accordance with the county and applicable state laws;
- applicable District policies and procedures involved with pipeline extensions; and
- principles of cost estimation, and materials.

*Assignments in the Records and/or GIS Section may also be expected to have knowledge of:*

- Methods and techniques to effectively use Geographic Information Systems software, such as ArcMap products;
- principles and techniques of computer aided drafting using AutoCAD software;
- principles and practices of digitizing, data conversion, data management and cartography; and
- principles and practices used in SAP(ERP) or enterprise database systems.

*Assignments in Facility Design may also be expected to have knowledge of:*

- Principles and techniques of computer aided design using computer aided software including three dimensional engineering software;
- operation of electronic survey data collection equipment; and
- electronic utility location equipment.

Ability to:

*All employees in this class may be expected to:*

- Perform difficult, complex and responsible field or office subprofessional engineering work;
- perform drafting and sketching work;
- analyze situations accurately and adopt an effective course of action;
- understand and carry out written and oral instructions;
- establish and maintain positive working relationships with co-workers, other District employees, and the public using principles of good customer service;
- prepare clear and concise records, reports and correspondence;
- depending upon job assignment, drive a vehicle; and travel to alternative work locations and off-site meetings.
- effectively prepare maps using the commonly accepted practices of cartography; and
- understand and use Geographic Information System (GIS) software.

*Assignments in the Development Services Section may also:*

- Interpret, apply, and explain District policies and procedures to a variety of persons, including the general public, contractors, other District staff, and representatives of other public agencies; and
- provide lead direction and training to staff; coordinate projects; prioritize work.

*Assignments in the Records and/or GIS Section and Facility Design may also:*

- Use computer-aided drafting and geographic information systems (GIS) software to prepare neat and accurate maps, drawings and layouts from notes and sketches and help resolve any application problems;
- understand and conceptualize spatial data;
- update and manage computer file systems. Test software upgrades, maintain map related records; Provide technical support for the implementation and maintenance of specified information systems hardware and software;
- for Facility Design positions, must exhibit proficiency with computer aided design software and field data collection, utilizing survey equipment; and
- provide lead direction and training to staff; coordinate projects; prioritize work.

Training and Experience:

Any combination equivalent to experience and education that could likely provide the required knowledge and abilities would be qualifying. A typical way to obtain the knowledge and abilities would be:

- Graduation from an accredited college with an associate degree and coursework in any of the following areas: planning, drafting, engineering studies, construction management, water distribution, plumbing and pipe fitting, geographic information systems, or other closely related field; and,
- Four years of increasingly responsible technical engineering, planning, drafting , or construction experience, or other related field.

Or

- Completion of the twelfth grade or its equivalent; and,
- Five years of increasingly responsible technical engineering, planning, drafting , or construction experience, or other related field.

Or

- Two years of experience as a District Engineering Technician in a directly related section of the Environmental and Engineering Services Division.

#### **OTHER REQUIREMENTS**

Per California Government Code, Title 1, Division 4, Chapter 8, Section 3100 “all public employees are hereby declared to be disaster service workers subject to such disaster service activities as may be assigned to them by their superiors or by law.”

Work overtime as required.

#### **LICENSES AND/OR CERTIFICATIONS**

Possession of or the ability to obtain an appropriate California driver’s license issued by the State Department of Motor Vehicles and satisfactory driving record.

#### **PHYSICAL DEMANDS AND WORKING CONDITIONS**

During the course of performing job duties the employee will need the mobility to work in a standard office setting, operate equipment, which may include office and/or field equipment, or specialized instruments or tools requiring repetitive arm/hand movement and/or the coordinated movement of more than one limb simultaneously; enter and retrieve data from personal computers and terminals via keyboards which is often performed while sitting for extended periods of time. Employees assigned to Facility Design have additional physical requirements as described below. The employee frequently stands, walks, bends at neck and waist, twists at neck and waist, uses simple and power grasping with both hands, uses fine manipulation of both hands and fingers, and may require use of the arms above the shoulder, climb or balance; stoop, kneel or crouch. While working in the field the employee may walk on uneven or un-level ground surfaces such as hills, slopes, ditches or trenches, on or in tanks, and may work at heights up to ten to twelve feet climbing ladders or stairs. The employee is occasionally required to lift and carry short distances objects such as reams of copier paper, office supplies, files, books, printed materials and other packages or equipment weighing up to 10 to 25 pounds. Those assigned to Facility Design must have the ability to carry survey equipment weighing approximately 40 pounds, for distances up to a 500 feet over sometimes steep, rugged terrain, and also open and move utility access hole covers weighing up to 100 pounds using approved equipment. This position requires that the employee demonstrate adequate hearing and speech to converse in person and over the telephone, and vision to read printed materials, use a computer screen, and operate in safe manner when assigned to outside duties involving traffic.

The noise level in the work environment is quiet to moderate noise, but occasionally loud noise when working outside in heavy traffic or construction areas. Depending on assignment, this position requires a person to be willing to work outdoors under a variety of weather conditions. The employee may be exposed to outdoor temperature, humidity, wetness and dust. The position may require the ability to work overtime and weekends as needed.

Employees who drive on District business to carry out job-related duties must possess a California driver's license for the class of vehicle driven and meet automobile insurability requirements of the District including review of a recent DMV history. In order to drive, individuals must be physically capable of operating the vehicles and equipment safely.

*To be successful in this job, an individual must be able to satisfactorily perform each of the listed duties. These duties are representative of the knowledge, skill and/or ability required for the position. Reasonable accommodations may be made to enable individuals with disabilities to perform the duties and functions of the position. Requests for reasonable accommodation should be directed to the Human Resources Manager.*

Established: January 2013  
Revised: September 2017  
Approved by: Human Resources Manager