

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT CLASSIFICATION SPECIFICATION

TITLE: PRINCIPAL ENGINEER

DATE: 9/9/2025

JOB CODE: 2120

FLSA STATUS: EXEMPT

UNIT REPRESENTATION: MID-MGMT

Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.

DUTIES SUMMARY

For staff assigned to the Planning and Design Group, under general direction, to manage the planning and design of all Water Utility, Water Reclamation, and Sewer Collection capital improvement designed in-house or by outside consultants; to assist in the planning, scheduling, supervision and administration of engineering personnel, resources, projects, and processes; to supervise and participate in the gathering and compiling of data and the preparation and review of designs, plans, estimates, specifications and reports for the construction, alteration and maintenance of water utility, water reclamation, sewer collection, hydro-generation and geothermal systems; and to perform related work as required.

For staff assigned to the Construction Services Group, under the general direction of the Engineering Manager, to plan, direct, supervise, and review the activities of staff engaged in the construction management, inspection, constructability review, and assist in the planning and scheduling for the construction, or alteration of water utility, water reclamation, sewer collections, power generation, and geothermal systems; gather and compile data, prepare, and review design plans for constructability, preparation or review of construction cost estimates, specifications, and reports; direct and assist engineering personnel with matters associated with construction management and construction inspection; oversee the management and coordination of contractor/developer-installed projects; and perform other related duties as assigned.

DISTINGUISHING CHARACTERISTICS

The class of Principal Engineer is the advanced professional level class in the engineering series. Supervision is received from the Engineering Manager. Supervision may be exercised over Engineering Section staff. In the absence of the Engineering Manager, the Principal Engineer may act as his or her designee.

This class is distinguished from the Engineering Manager by the latter's full management authority in planning, organizing, and directing the full scope of programs, projects, and related engineering activities for the entire Engineering Section, including GIS and mapping services, development services, planning and design services, and construction services.

EXAMPLES OF DUTIES

For staff assigned to the Planning and Design Group, the following duties are typical essential duties for positions in this classification. Any single position may not perform all of these duties and/or may perform similar related duties not listed here:

- Provide courteous and expeditious customer service to the general public and City Department staff;
- Routinely adhere to and maintain a positive attitude toward City and department goals;
- Plan, schedule, supervise, and administer engineering personnel resources, projects, and processes;
- Supervise and participate in planning, design and construction for water/wastewater/sewer collection system and geothermal additions and improvements such as reservoirs, pumping plants, pressure reducing/sustaining stations, water distribution and transmission mains, sewer lift stations, wastewater/water reclamation treatment processes (preliminary treatment, advanced primary treatment, biological nutrient removal secondary treatment, tertiary filtration, anaerobic digesters, sludge dewatering, cogeneration, oxidation ponds, chlorine contact basins, UV disinfection, etc.), buildings, and hydro generation installations;
- Formulate program definition and policy;
- Prepare design drawings in AutoCAD format in accordance with Department standards;
- Check design work in progress for accuracy and calculations and conformance with established engineering methods and procedures;
- Prepare technical specifications;
- Review completed designs, specifications, cost estimates, legal descriptions and related documents;
- Direct the preparation and maintenance of maps, drawings, engineering records and files;
- Calculate cost estimates;
- Calculate elevations and approve legal descriptions;
- Write construction orders and purchase requisitions;
- Provide engineering information to contractors, engineers and members of the public;
- Coordinate the compilation of data for audit reports;
- Resolve technical opinion conflicts of engineering personnel;
- Assist the construction management section with construction related issues;
- Take a lead role in management and coordination of consultants and/or sub-consultants; manage consultants who perform professional design services for accuracy of calculations and conformance with established engineering methods, procedures, and Department standards;
- Coordinate utility conflicts with other agencies and sub-consultants; coordinate field site visits to verify survey data;
- Ensure accurate documentation of designs and as-built drawings are to Department standards and placed on appropriate server and Document Management System (DMS);

- Assist the Engineering Manager in the maintenance and updates of Department AutoCAD standards and drawings;
- Work with the GIS Manager on design drawing archiving, GIS mapping updates, and website postings;
- Review and approve the work of engineering staff;
- Develop, explain and implement policies, procedures and objectives of the unit to staff by written directive and by oral communications;
- Conduct staff meetings;
- Instruct assigned staff in work methods;
- Perform the more difficult work of the section;
- Conduct studies and investigations, preparing reports of findings and recommendations;
- Compose correspondence requiring use of judgment based upon a thorough knowledge of the functions and procedures for review by supervisor;
- Temporarily carry out responsibilities and duties of the Engineering Manager when the Engineering Manager is unavailable;
- Operate Department vehicles; and
- Perform related work as required.

For staff assigned to the Construction Services Group, the following duties are typical essential duties for positions in this classification. Any single position may not perform all of these duties and/or may perform similar related duties not listed here:

- Provide courteous and expeditious customer service to the general public and City and Department staff;
- Routinely adhere to and maintain a positive attitude toward City and Department goals;
- Establish and maintain effective relationships with those contacted in the course of work;
- Plan, organize, control, integrate, and evaluate the work of assigned Construction Project Managers, Engineering staff, and support staff; develop, implement, and monitor work plans; supervise and participate in developing, implementing, and evaluating plans, work processes, systems, and procedures;
- Participate in the selection of staff; provide or coordinate staff training;
- Plan, direct, and evaluate the performance of assigned staff; regularly monitor performance and provide coaching for performance improvement and development; recommend/implement disciplinary action to address performance deficiencies in accordance with Department policies and MOUs;
- Participate in planning, developing, implementing, and monitoring the Department's capital improvement budget;
- Participate in the constructability review of design plans and technical specifications for water utility, water reclamation, and sewer collections systems additions;

- Check design work in progress for accuracy of calculations and conformance with established engineering methods and procedures;
- Serve as project manager and/or oversee the construction, renovation, and repair of Department facilities; develop project budget estimates, review and approve plans, specifications, and estimates for capital improvement projects;
- Review and evaluate daily job status reports prepared by subordinate or consultant staff;
- Provide day-to-day leadership and work with staff to ensure a high performance, customer service oriented work environment;
- Oversee and/or perform inspections of engineering projects to determine conformance to plans and specifications and compliance with city, state, and federal standards of construction and safety;
- Coordinate construction meetings; prepare RFPs and RFQs, related invoices, and bid documents; verify that all contract work is completed per the plans, specifications, and other contract documents and make recommendation to issue a Notice of Completion for all facilities and improvement projects;
- Review construction plans, submittals, specifications, reports, work logs, permits, and files with engineering staff;
- Review and comment on completed designs, technical specifications, and cost estimates from a constructability perspective;
- Prepare or review construction cost estimates;
- Conduct studies and investigations and prepare reports of findings and recommendations;
- Compose correspondence requiring use of judgment based upon a thorough knowledge of functions and procedures;
- Recommend implementation of contractual enforcement provisions for inadequate performance of contractors;
- Identify, investigate, and resolve project related problems to keep construction activities on track and moving forward;
- Prepare a variety of reports;
- Prepare interoffice memoranda and other routine correspondence;
- Provide technical assistance regarding specifications, special conditions, and compliance methods to contractors, engineers, developers, architects, and staff;
- Recommend appropriate action on issues of noncompliance;
- Keep informed of changes and new legislation pertaining to laws, codes, and regulations and recommend changes as appropriate;
- Coordinate, delegate, and follow up on work of assigned staff to ensure completion;
- Set work priorities, coordinate and schedule assignments, and maintain records of activities for the Construction Services Group within the Engineering Section;

- Maintain regular contact with consulting engineers, construction project managers, engineering staff, city, county, state, and federal agencies, professional and technical groups, and the general public regarding construction activities as appropriate;
- Visit job sites to inspect progress on projects; provide technical and operations assistance to staff;
- Respond to and resolve difficult and sensitive inquiries and complaints;
- Identify and recommend contract change orders where appropriate;
- Negotiate and mediate contract disputes between the Department and contractors;
- Prepare periodic reports on the progress of projects; compile and maintain statistics and records on project status and contractor performance; perform inspections in the field on special and more complex inspection assignments;
- Coordinate site safety of construction projects; make final acceptance inspections and close projects;
- Confer with engineering staff on design problems;
- Represent the Department at various meetings;
- Maintain a clean and safe work area and adhere to all safety requirements;
- Communicate effectively both orally and in writing;
- Operate Department vehicles;
- Evaluate and document contractual issues during the course of construction and make recommendations to modify or append to the General Conditions, the General Requirements, or other construction contract documents with the goal to eliminate or reduce these issues for future projects.
- Must be able to respond to call-outs or emergencies; and
- Perform related work as required.

QUALIFICATIONS

For staff assigned to the Planning and Design Group, any combination of education, training, and experience that would likely provide the knowledge, skills, and abilities to successfully perform in the position is qualifying. A typical combination includes:

Knowledge of:

- Basic principles of supervision;
- Methods of water utility, water reclamation, and sewer collection engineering and construction;
- Federal and State safety water, wastewater, sewer collection, and environmental laws and regulations;
- Types and variety of equipment, tools, and materials used in water utility construction;
- Basic surveying;

- Appropriate safety precautions and procedures;
- Computer Aided Design and Drafting (CAD);
- Geographical Information System (GIS);
- Personal Computer Operation and standard office word processing, spreadsheet and database;
- Public relations and customer assistance;

Ability to:

- Assist in the Supervision, scheduling, and training of water utility/reclamation/sewer collection engineering staff;
- Read, understand and prepare complex engineering drawings, data, specifications, and contracts;
- Prepare clear and concise technical reports and cost estimates;
- Plan, organize, and administer the work of Engineering Section staff;
- Conduct thorough investigations, organize data, and draw sound conclusions;
- Work in a CAD or GIS environment;
- Review and comment on environmental documents;
- Delegate responsibility to employees at the technical and professional level;
- Operate a vehicle observing legal and defensive driving practices;
- Understand and carry out complex oral and written instructions;
- Establish and maintain effective relationships with those contacted in the course of work;
- Stoop, bend, lift, and transport materials and supplies weighing up to 50 pounds;
- Climb in and out of construction project excavations;
- Work predominately inside; however, subject to a variety of outdoor environmental conditions of noise, vibrations, fumes, odors, dust, including inclement changing outdoor weather conditions.

For staff assigned to the Construction Services Group, any combination of education, training, and experience that would likely provide the knowledge, skills, and abilities to successfully perform in the position is qualifying. A typical combination includes:

Knowledge of:

- Principles of supervision, training, and performance evaluation;
- Construction standards;
- Pertinent federal, state and local laws, codes, and regulations, in particular Public Contract Code requirements as they pertain to Public Works projects;

- Administrative and technical report preparation principles;
- Principles and practices of budget preparation and administration with an emphasis on budgeting for capital projects;
- Principles and practices of purchasing and maintenance of public records;
- Clean Water Act and relevant EPA regulations;
- Advanced principles of capital program design, construction, planning, and management;
- Advanced principles of project management, organizing, coordinating, planning, and scheduling;
- Advanced working knowledge of construction management software, that may include but not be limited to, construction document management and construction scheduling software or platforms;
- Appropriate safety rules and methods applicable to construction sites; safety principles, practices, and procedures of engineering and construction inspection and related facilities, equipment, and materials used in water operations and distribution, wastewater treatment, and sewer collections systems;
- Drafting, surveying, and engineering practices and terminology;
- Technical principles and practices of engineering design, specification, and cost estimate preparation;
- Defects and faults in construction;
- Principles of mathematics and their applicability to engineering work;
- Methods and techniques of conflict resolution and negotiation;
- Principles and applications of critical thinking and analysis;
- Trends and technologies in “green” design and construction;
- Personal computer operations and applicable software applications;
- Proper English usage, including spelling, grammar, vocabulary, and punctuation.

Ability to:

- Supervise, plan, organize, schedule, review, and evaluate the work of professional and technical staff;
- Prepare clear and concise technical, financial, and administrative reports;
- Administer a budget;
- Review and interpret engineering plans, specifications, and estimates of capital projects;
- Communicate clearly, concisely, and effectively, both orally and in writing;
- Operate a personal computer and database, spreadsheet and word processing programs, including project management, construction management, CAD, and permit tracking;

- Work independently, planning day-to-day activities while maintaining deadlines;
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner;
- Anticipate work performance and construction problems and determine appropriate course of action;
- Communicate complex technical ideas clearly and effectively to both technical and non-technical audiences;
- Participate in all phases of the design process in order to provide input from a constructability perspective;
- Review and evaluate engineering plans for constructability and provide recommendations to address potential constructability concerns;
- Evaluate materials, workmanship, and construction methods;
- Read, analyze, and interpret contract data and information, including legal agreements;
- Analyze and make sound recommendations on complex management and administrative issues;
- Exercise tact and diplomacy in dealing with sensitive, complex, and confidential situations;
- Perform highly detailed work under changing, intensive deadlines on multiple concurrent tasks;
- Interpret and apply federal, state, and local construction regulations and standards for water utility, water reclamation, and sewer collections projects;
- Exercise sound independent judgment within general policy guidelines;
- Apply critical thinking and analysis to a broad range of situations;
- Read and understand technical drawings and specifications;
- Recognize and properly deal with hazardous materials/environments;
- Delegate responsibility to employees at the technical and professional level;
- Operate a vehicle observing legal and defensive driving practices;
- Understand and carry out complex oral and written instructions;
- Work under moderate or high stress conditions;
- Evaluate Contractor's baseline schedule and identify potential concerns for resolution prior to approval; Be able to perform complex review of baseline schedule, schedule updates, and Time Impact Analysis (TIA);
- Prepare for and successfully negotiate change orders, construction claims, claims mitigation or other contractual concerns with the General Contractor in a fair and equitable manner while representing the Department to protect the rate payers;
- Maintain a driving record which meets Vehicle Code Standards and is acceptable to the Department and its insurance carrier.

MINIMUM QUALIFICATIONS

For staff assigned to the Planning and Design Group, the following minimum qualifications shall apply:

Education: Bachelor of Science degree in Civil Engineering, Mechanical Engineer, or other related discipline

Experience: Four (4) years of civil engineering experience

Certification: Must possess a valid Professional Engineer License (Civil) in the State of California at the time of application

And

Must obtain and maintain a State of California State Water Resources Control Board (SWRCB) Distribution Operator Grade 2 Certificate and a SWRCB Water Treatment Operator Grade 2 Certificate within 36 months of hire date.

For staff assigned to the Construction Services Group, the following minimum qualifications shall apply:

Education: Bachelor's degree in engineering, construction, architecture, Water Technology, Wastewater Technology, or closely related field.

And

Experience: Four (4) years of increasingly responsible experience in construction management or project management handling multiple large and complex Public Works projects involving pipes and complex process facilities, wastewater collection systems, mechanical equipment, medium voltage and instrumentation systems, tenant improvements, or new facilities, including experience in a lead or supervisory role.

Certification: Must possess a valid Professional Engineer License (Civil) in the State of California at the time of application

And

Must obtain and maintain a California State Water Resources Control Board (SWRCB) Water Distribution Operator Grade 2 or higher and an SWRCB Water Treatment Operator Grade 2 or higher within 36 months of appointment;

General contractor license is highly desirable.

Certified Construction Manager certification is highly desirable.

Obtaining and maintaining required certification is a condition of employment. Failure to obtain and maintain any required certifications noted within the stipulated timeframes shall be considered grounds for termination. The responsibility for obtaining and maintaining certifications is the sole responsibility of the employee.

This position is primarily responsible for overseeing the construction management and inspection of Public Works projects, **not** performing operations, maintenance, construction, repair, or installation of Department assets or systems, therefore, experience in the performance of these tasks shall not be considered as meeting the minimum experience qualifications.

NECESSARY SPECIAL REQUIREMENTS

Must be able to respond to call-outs or emergencies including being on-call

Possession of a valid California Class "C: driver's license is required upon application. For out-of-state applicants, a valid driver's license is required and a valid California driver's license is required within ten (10) days of appointment (CA Vehicle Code 12505c).

PHYSICAL TASKS AND ENVIRONMENTAL CONDITIONS

Work involves exposure to potential physical harm, hazardous chemicals, and infectious disease. There is frequent need to stand, sit, stoop, walk, and perform other similar actions during the course of the workday. Employee accommodations for physical or mental disabilities will be considered on a case-by-case basis.

Incumbents require sufficient mobility to work in an office setting and operate office equipment, transport materials and supplies weighing up to 50 pounds, and to travel to various locations. Must be able to see in the normal visual range with or without correction with vision sufficient to read small print, computer screens and other printed documents. Must be able to hear in the normal audio range with or without correction. Employee accommodations for physical or mental disabilities will be considered on a case-by-case basis.

CAREER LADDER

From: Principal Engineer

To: Engineering Manager

Job Description:

BOWC Approved:

Rev:

5/27/2003

9/5/2006

12/15/2009

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9/9/2025

Testing Standards: App Review/ Supp App Review

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