STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

POSITION DUTY STATEMENT

PM-0924 (REV 7/2014)

CLASSIFICATION TITLE	OFFICE/BRANCH/SECTION	
Mechanical Engineer	D59/SD/OEMWW/Mechanical M&SP Branch	
WORKING TITLE	POSITION NUMBER	EFFECTIVE DATE
Mechanical Engineer, Range D	559-240-3583-xxx	05/01/2015

As a valued member of the Caltrans team, you make it possible for the Department to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. Caltrans is a performance-driven, transparent, and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork.

GENERAL STATEMENT:

This position exits in the Office of Electrical, Mechanical, Water & Wastewater Engineering. Under direction of a Senior Mechanical Engineer, performs difficult mechanical engineering design, specification preparation, estimating, and inspection work involved in the design, construction and maintenance of storm drainage pumping plants and sewage lift stations, vehicular tunnels, movable bridges, roadside rests, highway maintenance stations, toll plazas, truck weigh and inspection stations, water well and water supply systems, solar heating, and other transportation-related facilities. PE and California Driver Licenses are required.

TYPICAL DUTIES:

Percentage	Essential (E)/Marginal (M)[1]	Job Description
40%	E	Responsible for conducting routine and emergency maintenance engineering inspections of Department facilities and systems. Inspections consist of field inspections, troubleshooting, testing and providing technical engineering consultation for Caltrans maintenance personnel. Inspections are performed to ensure the safety, reliability and proper operation of the facility or system and to preserve and protect the investment in the facility or system.
20%	E	Writes reports and correspondence that outline the condition of the facility or system after a routine or emergency maintenance inspection and includes recommendations and estimates for necessary repairs.
15%	E	Responsible for performing professional design work, such as preparing plans, writing specifications using standard special provisions, manufacturer's data and departmental guidelines and standards, and computing estimates of mechanical systems for Department facilities and systems. Specifications are combined with the plans and engineer's estimate to form the construction documents package. The package is used for competitive bidding and construction of the project. Design duties typically consist of conducting site visits to determine existing field conditions, using engineering principals, methods, codes, design guides, publications, equipment and computers to create engineering drawings showing the information necessary for constructing facilities requested by the customer. These drawings include layouts, typical sections, cross-sections, elevations, details and equipment schedules. Customers include public and internal contacts defined below. Coordinates with project design team and stakeholders to ensure contract documents are accurate, complete, and satisfy the project requirements. Project design team includes architects, civil engineers, electrical engineers, specification engineers, estimators, construction engineers, and project managers. Stakeholders include district personnel, state fire marshal, local agencies, contractors, suppliers, and consultants. Is responsible in charge of performing professional design work, such as preparing plans, writing specifications using standard special provisions, manufacturer's data and departmental guidelines and standards, and computing estimates of mechanical systems for Department facilities and systems. Specifications are combined with the plans and engineer's estimate to form the construction documents package. The package is used for competitive bidding and construction of the project. Design duties typically consist of conducting site visits to determine existing field conditions, using engineering principals, methods, codes, design guides, publications, equipment and computers to

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10%	E	Provides construction engineering for these projects, including reviewing shop plans and lists of equipment, and inspecting and testing of completed work for compliance with contract documents. Prepares Recommended Contract Change Orders when necessary and reviews and completes As-Built plans.
05%	E	Checks plans, specifications and cost estimates for in-house designed and consultant designed transportation facilities to ensure conformance with Office and Department standards, for accuracy, completeness and applicable codes.
05%	M	Directs and reviews the work of Mechanical Engineers and Mechanical Engineering Technicians.
05%	M	Develops standard plans, specifications and estimates for standard mechanical systems used in designing transportation-related facilities.

[1]ESSENTIAL FUNCTIONS are the core duties of the position that cannot be reassigned.
MARGINAL FUNCTIONS are the minor tasks of the position that can be assigned to others.

SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

This position does not supervise other employees.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

Knowledge of:
- Mechanical engineering methods, materials, and equipment used in the design, construction and maintenance of transportation facilities.
- Engineering fundamentals and mathematics
- Designing and preparing plans, layout, specification writing, and estimates for heating, ventilating, instrumentation, pumping, lubrication, piping, air conditioning, refrigeration, plumbing, sanitary, pressure tank, and drainage systems.
- Mechanical methods of power and material transmission.
- Thermodynamics, and hydraulics pertaining to the design of water systems, pressure tanks, pumps, sewer systems, and other similar installations.
- Computer-Aided Drafting and Design (CADD).

Ability to:
- Do mechanical design work.
- Prepare plans, specifications, and estimates for heating, ventilating, air-conditioning, refrigeration, plumbing, sanitary, water, and drainage systems.
- Accurately convey technical engineering information in English both verbally and in writing.
- Prepare correspondence and make effective oral and written reports.
- Use a computer workstation with software programs such as Microsoft Word, Excel and FileMaker Pro.
- Use Computer Aided Drafting and Design (CADD) software such as Microstation.
- Analyze situations accurately, and adopt and take effective action.
- Inspect field construction operations or make field inspections and tests of mechanical installations
- Establish and maintain cooperative relations with employees and with those contacted in the work and whose work is being inspected.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Responsible for assuring the safety of the traveling public at a cost that is an effective use of public funds. Errors in

judgment and decisions could affect public safety or result in liability for the Department. Mechancal failure can be catastrophic due to loss of life, disruption in goods movement, and/or delays to the traveling public.

PUBLIC AND INTERNAL CONTACTS

Employee maintains communications with personnel working on projects to which he/she is assigned. These contacts may include units such as architecture and other engineering design sections, construction staff, maintenance personnel, district personnel, outside Agencies, and internal or external approving authorities.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

- Ability to move, lift or carry up to 40 pounds for a medium distance.
- Ability to climb ladders with appropriate safety harnesses 50 feet at a time for heights and depths of up to 250 feet.
- Must be able to travel throughout the State.
- Must be able to work on elevated catwalks and landings.
- Must be able to walk within construction sites that are wet, have uneven surfaces and contain construction vehicular traffic.
- Once trained, must be able to work on confined spaces, as defined by OSHA, and other cramped environments.
- Once trained, must be willing to work near operating heavy machinery safely.
- Must be willing to fly in commercial aircraft routinely throughout the State.
- Must be willing to drive a State automobile for up to 8 hours a day.
- Must be willing to work along active highways, near construction areas and equipment.

WORK ENVIRONMENT

While at their base of operation, incumbent will work in a climate-controlled office under artificial light. However, due to periodic problems with the heating and air conditioning, the building temperature may fluctuate. Incumbent will be required to travel and work outdoors, and will be exposed to dirt, noise, uneven surfaces and/or extreme heat or cold.

I have read, understand and can perform the duties listed above. (If you believe you may require reasonable accommodation, please discuss this with your hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

EMPLOYEE (Print)

EMPLOYEE (Signature)	DATE

I have discussed the duties with, and provided a copy of this duty statement to the employee named above.

SUPERVISOR (Print)

SUPERVISOR (Signature)	DATE