STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

# POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

| CLASSIFICATION TITLE | OFFICE/BRANCH/SECTION | |
|---|---|---|
| Materials and Research Engineering Associate (Specialist) | 04 / Construction / Construction Services | |
| WORKING TITLE | POSITION NUMBER | REVISION DATE |
| Laboratory Materials & Plant Specialist | 904-501-3381-XXX | 01/21/2026 |

As a valued member of the Caltrans team, you make it possible to improve lives and communities through transportation.

## GENERAL STATEMENT:

In the Division of Construction, under the general supervision of a Senior Transportation Engineer, the incumbent serves as a Construction Field Laboratory worker acting as a lead. The incumbent independently plans, organizes, and implements materials sampling and testing for State Highway Construction Projects.

## CORE COMPETENCIES:

As a Materials and Research Engineering Associate (Specialist), the incumbent is expected to become proficient in the following competencies as described below in order to successfully perform the essential functions of the job, while adhering to and promoting the Department's Mission, Vision, Values, Strategic Imperatives and Goals. Effective development of the identified Core Competencies fosters the advancement of the following Leadership Competencies: Change Commitment, Risk Appetite, Self-Development/Growth, Conflict Management, Relationship Building, Organizational Awareness, Communication, Strategic Perspective, and Results Driven.

- **Creativity and Innovation:** Thinks beyond the confines of traditional models to recognize opportunities, seek creative solutions and take intelligent risks. (Safety, Employee Excellence - Collaboration, Innovation)
- **Dealing with Ambiguity (Risk):** Can comfortably handle risk and uncertainty, as well as make decisions to act without having the total picture. (Safety - Equity, Integrity, Stewardship)
- **Ethics and Integrity:** Demonstrated concern to be perceived as responsible, reliable, and trustworthy. Respects the confidentiality of information or concern shared by others. Honest and forthright. Conforms to accepted standards of conduct. (Equity - Integrity)
- **Problem-solving and Decision-making :** Identifies problems and uses logical analysis to find information, understand causes, and evaluate and select or recommend best possible courses of action. (Safety - Collaboration, Innovation, Stewardship)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Employee Excellence - Collaboration, Equity, Innovation, Stewardship)
- **Organizational Awareness:** Contributes to the organization by understanding and aligning actions with the organization's strategic plan, including the mission, vision, goals, core functions, and values. (Employee Excellence - Equity, Integrity)
- **Interpersonal Effectiveness :** Effectively and appropriately interacts and communicates with others to build positive, constructive, professional relationships. Tailors communication style based on the audience. Provides and is receptive to feedback. (Employee Excellence - Collaboration, Equity, Innovation, Integrity, Stewardship)
- **Planning and Results Oriented:** Organizes and executes work to meet organizational goals and objectives while meeting quality standards, following organizational processes, and demonstrating continuous commitment. (Safety - Innovation, Stewardship)
- **Thoroughness:** Ensures that work and information is complete and accurate. Ensures that assignment goals, objectives, and completion dates are met. Documents and reports on work progress. (Employee Excellence - Collaboration, Innovation, Integrity)

## TYPICAL DUTIES:

| Percentage Essential (E)/Marginal (M)[1] | Job Description |
|---|---|
| 30% | Perform tests on materials using prescribed procedures published in the California Department of Transportation Standard Test Methods (CTM); and American Association of State Highway and Transportation Officials (AASHTO); and those test methods deemed necessary as determined by the Engineer. By periodic examination and review, is responsible to maintain certification and proficiency in the required test methods. Samples materials being incorporated into the work, prepares samples for appropriate test, and fabricates test specimens for later testing. Prepares reports of tests performed, analyzes the results of all tests and groups of tests to determine whether specifications have been met. Maintains records of all tests performed. Makes field investigations and reports on construction materials and methods. |

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| | | |
|---|---|---|
| 15% | E | Coordinate and schedule all training and test certification for laboratory Caltrans and Consultant staff. Provides on the job training to laboratory technicians. By periodic examination and review, will assist the Senior Transportation Engineer in ensuring that all field lab personnel are certified and proficient in the required AASHTO and CTM testing procedures. |
| 15% | E | Prepare and maintain all documentation, including electronic databases and spreadsheets, pertaining to materials testing, and materials plant inspection activities. These include but may not be limited to: all Materials Testing databases, such as: Provide support to other MREAs and construction field laboratories to maintain the: MPQP / CT109 database; Portland Cement Concrete (PCC) mix design database; Hot Mix Asphalt (HMA) mix design database; Surface Mining and Reclamation Act (SMARA) database; annual PCC source testing database; DIME and Construction Project materials testing status and materials test result reporting database. |
| 10% | E | Consults with Resident Engineers to determine project material and testing needs. Reviews construction project schedules relative to testing needs. Plans and schedules sampling and testing services needed for the various construction contracts. Arranges to obtain any special testing equipment. |
| 10% | E | Conducts technical research and prepares presentations regarding materials and technical industry advances. Presentations are to be computer generated and utilize Microsoft PowerPoint. |
| 10% | E | Obtains, processes and follows up on safety requirements as indicated on the Material Safety Data Sheets. Ensures cleanliness and proper maintenance of lab areas and lab equipment in the course of the work and at periodic intervals to ensure proper equipment functioning and to comply with safety and health requirements of the Department's Illness and Injury Prevention Program. |
| 10% | M | Provides the Resident Engineer with a written record of all test results. Provides interpretation of test results as requested by the Resident Engineer. Attend training as deemed mandatory or necessary, which may require travel and overnight stay. Incumbent may perform other duties within the scope of the unit as required. |

[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

The position does not have supervisory responsibilities. The candidate may act as a lead over Transportation Engineering Technicians and student assistants.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

The Materials & Research Engineering Associate (MREA) must have knowledge of materials and test methods; know test requirements for all types of materials; be able to evaluate all test results; be able to prepare all test reports and records; be able to train personnel in all test methods; be able to organize a staff such that all testing requirements are satisfied with a minimum of delay; have knowledge of the construction and operation of all types of materials supply plants, such as to determine possible inaccuracies in weighing or mixing; where material problems arise, be able to analyze the situation and be able to recommend appropriate courses of action. Valid Driver’s License required.

Training and Certification. The MREA shall: 1) complete all Department training required to satisfy requirements of the position/ pay differentials; 2) maintain certification in a variety of test methods in order to perform the essential duties of this position. The MREA, by periodic examination and review, is responsible to maintain certification and proficiency in prescribed test procedures published in the California Department of Transportation Standard Test Methods. (CTM); and American Association of State Highway and Transportation Officials (AASHTO); and those test methods deemed necessary as determined by the supervisor.

The following is a partial list of REQUIRED AASHTO and CTM certifications and proficiencies for a Materials & Research Engineering Associate working in a Construction Field Laboratory:
AASHTO T11: Sieve Analysis (Washing) - Fine Aggregates, AASHTO T27: Sieve Analysis - Fine and Coarse Aggregates
ASHTO T30: Mechanical Analysis of Extracted Aggregates, AASHTO T176: Sand Equivalent
AASHTO T209: Max SpG and Density - HMA AASHTO T275: Bulk SpG - HMA
AASHTO T308: AC Content (Ignition Oven) - HMA AASHTO T329: Moisture Content (Oven Method) - HMA CT 105: Calculations - Gradings
CT 106: Definitions - Specific Gravity (SpG) CT 125 ADMIX: Sampling - ADMIXTURE CT 125 AGG: Sampling - AGGREGATES
CT 125 BIT: Sampling - BITUMINOUS
CT 125 GEN: Sampling - GENERAL CT 125 HMA: Sampling - HMA
CT 125 PCC: Sampling - PCC
CT 201: Sample Preparation - Soil and Aggregates CT 216: Relative Compaction - Soils and Aggregates CT 231: Relative Compaction - Nuclear Gage
CT 308: Bulk SpG and Density - HMA CT 309:Max SpG and Density - HMA CT 382: AC Content by Ignition Oven

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CT 384: Combined Gradations for HMA using up to 25% RAP CT 523: Flexural Strength - PCC
CT 523: Flexural Strength of Concrete-CT 524: Flexural Strength of Rapid Strength - PCC CT 539: Sampling Fresh Concrete
CT 342: Method of Test for Surface Skid Resistance
Other test certifications and proficiencies may be added to this list when deemed necessary, as determined by the supervisor.

The MREA shall maintain an accurate record of his/her training and test method certifications. At least one-month prior to expiration of any certification, the MREA shall inform the supervisor of any deficiencies in the MREA's certification records.

The supervisor will establish the schedule for all MREA training; and all test method certification, examination and review. The MREA is responsible to adhere to that schedule. Failure to attend training or maintain the required test method certifications shall be deemed as inability to perform the essential duties of the position.

The MREA must analyze the results of all tests and groups of tests, to determine whether contract specifications have been met. The MREA must decide, in relation to any specific contract, if further testing of any kind is needed. Where material failures or plant deficiencies occur, a determination must be made of the causes of failure and the possible corrective action necessary.

Must be able to conduct and analyze independent research of construction related materials and prepare special research reports utilizing a computer and associated software such as; MS Word, MS Excel, MS Access, and MS PowerPoint. Therefore, the MREA must develop practical knowledge and ability to interact with electronic mail, spreadsheets, word processors and databases.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Failure of all staff to properly perform tests could cause errors and/or inaccuracies in test results with could have serious consequences: Potential claims; failure of the roadbed or of structures; excessive cost to the State for materials; failure of the State to receive federal reimbursement on federally funded projects.

PUBLIC AND INTERNAL CONTACTS

The laboratory lead worker has contact during the course of the work with the contractor and subcontractors, the material suppliers, the Resident Engineer and other construction laboratory personnel. Must be able to coordinate staff to ensure that all testing needs of the Resident Engineers are met. To do this, work must be coordinated with the contractor's schedules, which may conflict or change with very little notice. Must be able to maintain relations with material suppliers, and at the same time be assertive enough to request and get corrective action taken when necessary.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Employee may be required to move large or cumbersome reports, plans, nuclear gages, and materials testing equipment from one location to another; occasional bending, stooping and kneeling; required to walk about on slopes or uneven terrain; required to move about on foot. Typical routine physical tasks include, but are not limited to: physically moving samples weighing approximately 40-60 pounds, moving test equipment from and to test sites weighing approximately 35 pounds, driving firmly into compact materials compaction pins approximately 8 inches with an 8 pound sledge hammer, collecting material with a pick and shovel from each compaction site representing the full depth of the compaction pin, and moving a 10 pound tamper 18 inches high and dropping it over 300 times per test as required by the test method. Employee must be able to correctly use personal protective equipment appropriate for the tasks involved. The workload is subject to frequent, substantial, and unexpected changes within a few months. Needed are the following requirements:

Mental requirements include sustained mental activity needed for report writing, problem solving, analysis and reasoning. Must have the ability to multi-task, adapt to changes in priorities, and complete tasks or projects with short notice. Must have the ability to develop new insights into situations and apply innovative solutions to make organizational improvements; enable others to acquire the tools and support they need to perform well; understand linkages between administrative competencies and mission needs.

Emotional requirements include the ability to develop and maintain cooperative working relationships; respond appropriately to difficult situations; recognize emotionally charged issues or problems; and acknowledge the various responses. Must be able to deal effectively with pressure, maintain focus, and intensity yet remain optimistic and persistent, even under adversity. Will consider and respond appropriately to the needs, feelings, and capabilities of different people in different situations; is tactful and treats others with respect.

WORK ENVIRONMENT

While at their base of operation, employee will work in a climate-controlled field office under artificial light. The Senior Transportation Engineer will set working hours, overtime and night work may be required, and vacations may be restricted, during peak times of the construction project. Employee may work at another construction field office or may work for another senior and/or a different project due to operational needs.

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In the field, the employee may be exposed to loud noise, dust, odors, fumes, machinery activity and extreme weather conditions at the project sites. Use of personal protective equipment will be required to comply with the Department's Illness and Injury Prevention Program.

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.)

I agree that by providing my electronic signature for this form, I agree to conduct business transactions by electronic means and that my electronic signature is the legal binding equivalent to my handwritten signature. I hereby agree that my electronic signature represents my execution or authentication of this form, and my intent to be bound by it.

| 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 |

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