

**POSITION DUTY STATEMENT**

DOT PM-0924 (REV 01/2025)

CLASSIFICATION TITLE <b>Materials and Research Engineering Associate (Specialist)</b>	OFFICE/BRANCH/SECTION Engineering/District Materials Engineering	
WORKING TITLE Materials Testing and Plant Inspection Specialist	POSITION NUMBER 911-320-3381-013	REVISION DATE 05/27/2026

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

**GENERAL STATEMENT:**

Under the general direction of the Senior Transportation Engineer, Caltrans (District Materials Engineer), the Materials and Research Engineering Associate (Specialist) serves as a District 11 Materials Testing and Plant Inspection Specialist responsible for performing difficult and complex materials inspection, sampling, testing, and quality assurance activities that support the acceptance of construction materials on Caltrans projects. The incumbent conducts field, plant, and laboratory testing of soils, asphalt, concrete, and other construction materials to verify compliance with contract plans, specifications, approved mix designs, and established testing standards. This position independently interprets technical requirements, evaluates test data, identifies nonconforming conditions, and prepares accurate documentation to support engineering decisions.

A valid driver's license is required to travel to field, laboratory, and plant locations as necessary.

**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.

- **Flexibility and Managing Uncertainty** : Adjusts thinking and behavior in order to adapt to changes in the job and work environment. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **Dealing with Ambiguity (Risk)**: Can comfortably handle risk and uncertainty, as well as make decisions to act without having the total picture. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **Continuous Professional Development**: Seeks to obtain knowledge and improve performance while supporting others in doing the same. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **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, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **Teamwork/Partnership**: Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **Customer Focus**: Considers, prioritizes, and takes action on the needs of both internal and external customers. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **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. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)
- **Forward Thinking**: Anticipates the implications and consequences of situations and takes appropriate actions to be prepared for possible contingencies. Anticipates and prepares for future developments. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, 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. (Safety, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, Stewardship)

**TYPICAL DUTIES:**

Percentage  
Essential (E)/Marginal (M)<sup>1</sup> Job Description

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30%	E	<p><b>FIELD INVESTIGATION AND TESTING</b></p> <p>Performs field sampling, inspection, and testing of a wide variety of construction and other materials including, but not limited to, soils, Portland Cement Concrete (PCC), pavement skid resistance, and pavement cores to verify material compliance with contract plans, specifications, and Department quality assurance procedures. Witnesses material sampling, collects quality assurance samples, maintains proper chain of custody, takes possession of materials, and ensures the secure delivery of samples to designated testing facilities. Documents field observations, test results, and nonconforming conditions and communicates issues requiring correction action or engineering review.</p>
30%	E	<p><b>MATERIAL EVALUATION</b></p> <p>Conducts Hot Mix Asphalt (HMA) and PCC plant inspections to verify that material production processes comply with approved mix designs, contract plans, standard specifications, and Departmental quality assurance requirements to support material acceptance determinations. Collects and submits quality assurance samples, maintains proper chain of custody, takes possession of materials, and coordinates the secure delivery of samples to the appropriate entity. Documents inspection findings, identifies nonconforming materials or production deficiencies, and communicates inspection findings and recommends correction actions.</p>
25%	E	<p><b>LABORATORY TESTING</b></p> <p>Performs laboratory testing of construction materials in accordance with California Test Methods (CTM), American Association of State Highway and Transportation Officials (AASHTO), American Society for Testing and Materials (ASTM), and American Concrete Institute (ACI) procedures, standard specifications, contract special provisions, and Department quality assurance requirements to verify material compliance and support construction acceptable decisions. Evaluates test results for accuracy, completeness, and conformance with required standards. Documents findings, identifies discrepancies or non-conforming materials, and communicates issues requiring corrective action or engineering reviews. Follows the Laboratory Procedures Manual, Quality Control Manual, Caltrans Laboratory Accreditation Manual, and Quality Management System Manual to ensure testing integrity, laboratory accreditation compliance, and adherence to established quality practices when performing required tests.</p>
5%	E	<p><b>CONTRACT DOCUMENT REVIEW AND TECHNICAL REPORTING</b></p> <p>Reviews contract plans, special provisions, standard specifications, approved mix designs, testing requirements, and related documents to interpret material acceptance criteria, determine inspection and testing requirements, and ensures compliance with contractual and Department quality assurance standards. Prepares accurate, complete, and timely inspection reports, test documentation, sample tracking records, shipping forms, and associated records using appropriate computer softwares and Department systems.</p>
5%	E	<p><b>LABORATORY OPERATIONS AND EQUIPMENT MAINTENANCE</b></p> <p>Calibrates, operates, maintains, and performs minor troubleshooting or repairs on laboratory and field testing equipment in accordance with written procedures, manufacturer recommendations, laboratory accreditation requirements, and Department quality standards to ensure accurate and reliable test results. Performs, verifies, and documents equipment calibrations to ensure test methods yield accurate and valid results. Ensures laboratory facilities, tools, equipment, machines, and devices are maintained in a safe, clean, orderly, and operational condition consistent with laboratory safety and quality assurance requirements. Identifies equipment malfunctions, damaged tools, or operational deficiencies and promptly reports conditions requiring repair, replacement, or further evaluations to the District Materials Engineer. Monitors and organizes laboratory supplies, testing materials, equipment, and related resources to ensure uninterrupted laboratory and field operations. Maintains and expands technical testing knowledge, qualifications, and required certifications through continuous monitoring of updated test methods, procedural changes, and participation in required trainings.</p>
5%	M	<p><b>OTHER RELATED RESPONSIBILITIES</b></p> <p>Provides support for other team members during absences, workload surges, or operational needs to maintain continuity of operations. Assists with special assignments, emergency response activities, training, procedural updates, or other job-related duties as assigned.</p>

<sup>1</sup>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 staff.

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**KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS**

The incumbent must possess knowledge of Department and District policies, procedures, and organizational structure related to materials engineering, quality assurance, laboratory operations, and construction support activities. Knowledge of highway construction materials inspection, sampling, and testing principles is required, including soils, aggregates, HMA, PCC, as well as applicable CTM, AASHTO, ASTM, ACI standards, contract plans, specifications, approved mix designs, laboratory accreditation requirements, and Department procedures. The incumbent must also be knowledgeable in laboratory safety practices, equipment calibration and maintenance, chain or custody procedures, and computer systems and software used for project documentation and materials data management.

The incumbent must have the ability to perform field inspections, material sampling, and laboratory testing accurately in accordance with established procedures, specifications, and quality assurance requirements. The position requires the ability to interpret and apply technical manuals, plans, specifications, and test methods, analyze test data and inspection findings to identify discrepancies or nonconforming conditions, perform mathematical calculations and technical measurements, and prepare accurate, timely reports, and technical documentations. This role requires effective written and verbal communication skills and the ability to safely operate, calibrate, maintain, and troubleshoot laboratory and field testing equipment.

Analytical skills are required to analyze and interpret test results, inspection findings, technical data, contract requirements, evaluate material compliance with established standards and specifications, identify discrepancies or nonconforming conditions, apply sound technical judgment, and determine when matters require escalation for engineering review or management resolution.

**RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR**

The incumbent is responsible for exercising sound technical judgment in performing materials inspections, sampling, testing, documentation, and quality assurance activities, and for the accuracy and timeliness of assigned work. Errors in testing, inspection, documentation, or interpretation of results may result in the acceptance of non-compliant materials, reduced construction quality, safety risks, project delays, increased costs, contractual disputes, or costly corrective work.

**PUBLIC AND INTERNAL CONTACTS**

The incumbent is required to develop and maintain effective working relationships with team members, District functional units, construction staff, and Headquarters personnel to support coordination of materials inspection, testing, and quality assurance activities. Regular contact is required with contractors, material suppliers, private material laboratories, and testers. The incumbent may also coordinate with other governmental agencies and the public, as needed, in a professional manner.

**PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS**

The incumbent must be able to perform the essential functions of the position in office, laboratory, and field settings, including remaining stationary for extended periods, moving about work locations, construction sites, laboratories, and materials production facilities, positioning self to perform inspections, obtain and move samples weighing 50-plus pounds, operate testing equipment, access materials or equipment, and transporting tools, equipment, or materials as necessary to perform assigned duties.

This position requires sustained concentration, attention to detail, and the ability to interpret technical information, analyze test results, review specifications and documentation, perform mathematical calculations, and prepare accurate and timely reports. The incumbent must be able to organize workload, manage multiple assignments, adapt to changing priorities, and exercise sound technical judgment in a dynamic operational environment.

The incumbent must be able to communicate effectively, maintain professional working relationships, interact appropriately with internal and external stakeholders, and respond professionally to challenging situations, changing operational needs, and time-sensitive deadlines.

**WORK ENVIRONMENT**

Work is performed in a variety of settings, including office, laboratory, construction, roadway, and commercial material production environments. Office work is performed in a climate-controlled environment with natural and artificial lighting. The majority of duties are performed in the field and may involve exposure to moving traffic, heavy equipment, uneven terrain, varying weather conditions, elevated temperatures, and construction-related materials and byproducts, including but not limited to asphalt, concrete, aggregates, dust, noise, and petroleum-based fumes. Work may require proximity to hot materials and industrial operations.

The incumbent is required to wear appropriate Personal Protective Equipment (PPE) in accordance with the Department Safety Manual, Laboratory Safety Manual, and applicable California Office of Safety and Health Administration (CAL/OSHA) standards, including but not limited to hard hat, safety vest, respiratory protection, safety glasses, hearing protection, gloves, and appropriate footwear. Travel, night shift, overtime, and emergency response may be required to support operational needs. This

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position is subject to occasional non-standard shifts, with minimal notice to address critical needs. The incumbent must possess a valid driver's license to operate a State-owned or leased vehicle.

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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.

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EMPLOYEE (Print)

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EMPLOYEE (Signature)

DATE

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

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SUPERVISOR (Print)

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SUPERVISOR (Signature)

DATE