

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

Current/Proposed

CLASSIFICATION TITLE Transportation Engineer (Civil)	OFFICE/BRANCH/SECTION DES/GS/OGDPP	
WORKING TITLE Geotechnical Engineer	POSITION NUMBER 559-325-3135-xxx	REVISION DATE 11/01/2022

As a valued member of the Caltrans leadership team, you make it possible for the Department to provide a safe and reliable transportation network that serves all people and respects the environment.

GENERAL STATEMENT:

Under the direction of a Senior Transportation Engineer, the Transportation Engineer (Civil), you are expected to:

Develop and update Geotechnical Design modules of the Geotechnical Manual, including geotechnical design related standards, guidelines, and details.

Develop geotechnical design and analysis tools for Geotechnical Design offices. Provide technical support to Geotechnical Design offices, and performs quality review of deliverables produced by Geotechnical Design offices. Work with Geotechnical Services (GS) technical teams for assigned tasks, and participates in Division of Engineering Service's technical committees. Provide support to the development and maintenance of the geotechnical design quality management policies.

Provide geotechnical engineering expertise, support, and recommendations. Perform geotechnical reconnaissance and investigation for projects and emergency response.

Work on projects, including planning, design, construction, and operation phases of the State Transportation System, which may require traveling to the Districts and job sites for periods of several days to weeks.

As part of your employment with DES there is a mandatory TE-Civil Professional Development Rotation Program that applies to all permanent full-time TE-Civils hired after January 1, 2017. Temporary relocation more than 50 miles from your permanent unit may be necessary for rotation assignments.

CORE COMPETENCIES:

As a Transportation Engineer (Civil), 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. (Cultivate Excellence - Innovation)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Strengthen Stewardship and Drive Efficiency - Engagement)
- **Continuous Professional Development:** Seeks to obtain knowledge and improve performance while supporting others in doing the same. (Cultivate Excellence - Engagement, Innovation)
- **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. (Cultivate Excellence - Engagement)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Cultivate Excellence - Engagement, Innovation)
- **Customer Focus:** Considers, prioritizes, and takes action on the needs of both internal and external customers. (Strengthen Stewardship and Drive Efficiency - Integrity)
- **Communication:** Expresses oneself clearly in all forms of communication. Gives feedback and is receptive to feedback received. Knows that listening is essential. Keeps others in the Division and other functional units informed as appropriate. (Strengthen Stewardship and Drive Efficiency - Integrity)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Strengthen Stewardship and Drive Efficiency - Engagement)

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- **Technical Expertise:** Depth of knowledge and skill in a technical area. (Cultivate Excellence - Engagement)

TYPICAL DUTIES:

Percentage		Job Description
Essential (E)/Marginal (M) ¹		
40%	E	Develop and maintain geotechnical design modules of the Geotechnical Manual consisting of geotechnical design related standards, guidelines, and details. Develop and maintain geotechnical design and analysis tools. Perform geotechnical reconnaissance and investigation. Assist in the development of GS geotechnical design quality management system and policy.
20%	E	Perform quality review based on established design standards and guidelines at all phases of project delivery.
15%	E	Perform geotechnical engineering for projects, including geotechnical investigation, assigning laboratory test, conducting geotechnical analysis and design, providing recommendations and producing geotechnical reports, assisting on compilation of construction contracts. The geotechnical projects include bridge foundations, earth retaining systems, highway embankments, stability of slopes, geotechnical earthquake engineering, emergency response, and ground modification.
10%	E	Participate in the Division of Engineering Services technical committees, and provide geotechnical support to DES Structures Policy and Innovation.
5%	E	Provide technical support to the DES Office of Special Funded Projects/Structures Local Assistance, SFP/SLA, and provide design guidance on projects with alternative contracting methods, including Design Build (D-B) and Construction Manager/General Contractor (CM/GC).
5%	E	Work with the GS technical teams tasked with geotechnical design modules.
5%	M	Work on special projects assigned by the Supervisor.

¹ESSENTIAL 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

Supervision is not a requirement of this position but the incumbent may act as a lead worker over employees in the Transportation Engineer (Civil), Engineering Geologist, Transportation Engineering Technician, or Foundation Driller classifications.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

A thorough knowledge of soil mechanics principles; geotechnical engineering practices including deep and shallow foundations, earth retaining systems, slope stability, settlement, and ground modification; soil and rock classification; laboratory and in-situ soil and rock test principles, and methods; geotechnical investigation and subsurface material sampling techniques and equipment; geotechnical field instrumentation methods and practices; ability to characterize subsurface conditions based on geotechnical investigation, geological mapping, landforms, outcrops, and other features.

Knowledge of earthwork and geotechnical construction methods, specifications, and quality assurance and quality control practices.

Advanced course work on geotechnical engineering and soil mechanics.

Knowledge of Caltrans project development process, design and construction standards, and maintenance practices.

The ability to acquire additional and new knowledge of geotechnical engineering through additional course work or self-study.

The ability to produce concise, organized, logical, and effective reports and presentations.

The ability to communicate effectively, both in written and oral form.

The ability to work in teams and interact with individuals and groups from the Department, governmental agencies, and private consulting firms.

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The ability to work with engineering and office application software

Perform geotechnical analysis and design in an effective and efficient manner. Diagnose potential geotechnical problems and evaluate their probable effects on design options and constructability, and provide viable geotechnical recommendations.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

This position requires effective and timely response in all aspects of preparing and/or reviewing geotechnical design reports for internal-designed or contracted-out projects. Delays in response to requests for services or failure to detect omissions and/or inadequacies in design and recommendations can affect public safety, result in tort liability, and result in contract delays, construction difficulties, wasteful practices and design, and substandard performance of completed work.

PUBLIC AND INTERNAL CONTACTS

This position requires frequent and regular contact with personnel in the Department concerning engineering matters related to in-house developed projects and projects developed by consultants. The incumbent will also have regular communication with engineering consultants, contractors, manufacturers, vendors, local agencies, and other government agency personnel.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

You must be able to work in the field and construction sites, lift and transport heavy equipment and materials, work with exploratory equipment and collect field data, work in the vicinity of large drilling and construction equipment while logging borings. Landslide and undeveloped sites are often rugged and heavily vegetated. Construction site surfaces are often uneven, may have open excavations and may be located on steep slopes. Weather conditions can vary between icy, slippery and wet to hot and dry. You must have the ability to traverse these sites and withstand exposure to the aforementioned environments for long periods of time.

You must be able to periodically travel to the Districts and field sites for periods of several days but occasionally can extend to a few weeks. You may be required to periodically working at night and during weekends.

You must be able to carry and use field engineering equipment, such as hand augers, geotechnical instruments, and core boxes. Other physical requirements of the job include the ability to lift and carry 50 pounds, reach overhead, push or pull, twist, climb, balance, bend, crouch, squat, crawl, and perform fine manipulation. You must be able to hear and see directions, traffic, equipment, and other warnings or hazards to allow you to perform duties safely. Corrected hearing is acceptable. Corrected sight must meet the CA DMV minimum visual acuity requirement. Your night vision must be good for working safely after dark. You may be required to work at night under artificial light.

While in the office, you may be required to sit for long periods of time using a keyboard and video display terminal.

You must perform assigned tasks in a professional, safe, and exacting manner, and comply with existing policies, specifications, rules, work plans, and guidelines.

You must grasp the essence of new information and master new technical and engineering knowledge. You must have the ability to multi-task, adapt to changes in priorities, and complete tasks or projects meeting strict deadlines in short notice.

You must be able to develop and maintain cooperative working relationships, have a positive and friendly attitude, and be willing to learn.

WORK ENVIRONMENT

While at the base of operation, you will work in a climate-controlled office setting under artificial lighting. As a statewide organization, DES adjusts to periods of fluctuating workload to successfully deliver projects. In some cases, you will be required to travel and perform fieldwork that will expose you to dirt, dust, sunlight, uneven surfaces, extreme temperatures, noise, vibration, and odor associated with fieldwork as described in the previous section. You will be required to work around bulky/heavy materials and equipment, and in proximity to vehicles traveling on active highways.

DES employees may be given temporary assignments on DES projects throughout the State as workload demands.

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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.)

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