

SCOPE OF WORK
December 1, 2020
CONSTRUCTION MANAGEMENT, CONSTRUCTION INSPECTION and
MATERIALS TESTING SERVICES
NHPP 0831-125 (SH-83 Parker Road) Sub-Account 23485
Description and Overview of Project & Required Services

The administration of this contract will be delegated to the following:

David Herzog, Resident Engineer
Michael Kucey, Project Manager - administration of consultant contract only
Region 1, South Program
400 Inverness Pkwy, Ste 410,
Englewood, Colorado 80112

General Scope of Work:

Services are requested to provide Project Construction Management, Construction Inspection and Materials Testing to support the referenced CDOT Project. This project has a floating start date subject to the Prime Contractors discretion. The earliest start date for full-time services is approximately February 8, 2021. Working times on the project will vary, work will be required night and/or day and on weekends, and/or on a split shift basis. Work may be required on holidays. Workweeks may be in excess of or less than the standard 40-hour week.

Project 23485 will be advertised to contractors requiring overtime hours and multiple crews to complete on time. The project schedule is aggressive. The completion date for the project is based on a 6 to 7 days a week construction schedule.

State Highway 83 Arapahoe and Douglas Counties:

Items include Concrete White Topping panel replacement, Curb ramp improvements, Guardrail, Signing, Striping, Erosion Control, Traffic Control Management and Final Landscaping. CDOT will require (1) full time Project Engineer (1) full time Assistant Project Engineer (2) full time Construction Inspectors (1) half time Construction Inspector (1) full time materials tester and (1) half time materials tester for the duration of this project.

Project Engineer

He or she is in charge of the engineering details of the construction project and is responsible for the administration and satisfactory completion of the project. The Project Engineer will answer to the CDOT Resident Engineer. The Project Engineers requirements are outlined in **Section 2**.

The Project Engineer will be the EIRC (Engineer in Responsible Charge) for the duration of the project. This responsibility can be designated to the Assistant Project Engineer as an alternative. The EIRC shall be a Colorado Registered Professional Engineer with demonstrable construction administrative experience and prior experience acting as EIRC.

Assistant Project Engineer

The Assistant Project Engineer shall have CDOT construction experience with an emphasis on highway reconstruction work along with traffic control and erosion control management experience. The Assistant Project Engineer shall be available to review work, resolve problems, and help make decisions in a timely manner as requested by the Project Engineer and/or CDOT. Specific responsibilities include: construction of the project in accordance with the plans, enforcement of governing specifications and special provisions, control of inspection and testing, and proper documentation. The Assistant Project Engineer has frequent personal contacts with the Contractor, property owners, municipal officials, utilities, and the traveling public; thus, personal conduct should be a credit to both the individual and CDOT. The Assistant Project Engineers requirements are outlined in **Section 2**

Project Inspectors

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The project inspectors will be responsible for day to day activities on the project. These responsibilities may include documentation and inspection of construction activities, supervision and documentation of time and materials work, preparation of daily diaries, documenting contractor activities and relevant observations. The project inspectors shall have sufficient education, training, and experience to meet the minimum qualification comparable to CDOT's Engineer/Physical Science Tech III level employee, and be experienced and competent in all aspects of highway construction within the scope of this project. Inspector's requirements are outlined in **Section 2**.

Project Testers

The material tester will be responsible for all materials sampling, testing, documentation and project inspection as required by CDOT and/or Project Engineer. The materials tester shall be proficient in CDOT/AASHTO testing methods, LIMs and understand CDOT procedures, forms and computer programs when applicable. The Consultant shall furnish personnel, materials, and equipment required to perform the work. CDOT's Contractor will provide a field laboratory. References of testing experience shall be available for testers, and may be requested during the contract. Tester's requirements are outlined in **Section 2**.

Section 1 - General Requirements

A. Project Standards

Construction management, inspection and testing shall be in accordance with the latest versions of the Colorado Department of Transportation's Construction Manual, Field Materials Manual, Colorado Department of Transportation Inspector's Checklist, Standard Specifications for Road & Bridge Construction, the Supplemental Specifications, if any, Standard and Project Special Provisions, applicable M & S standards, and the plans, permits, and other documents governing the construction of the project. All Consultant activities performed shall be as authorized by CDOT's Resident Engineer. All Consultant personnel shall comply with CDOT's Safety, Sexual Harassment, Discrimination, and Workplace Violence Policies and Procedures. For the purposes of this document, Construction management, inspection and testing shall be known as "the work." Proposed work procedures shall be coordinated with CDOT Resident Engineer prior to the start of work.

B. Labor, Materials, Vehicles & Equipment

The Consultant shall furnish their personnel, materials, equipment, and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing amber beacon), cellular phones, computers, and miscellaneous equipment and supplies (printers, calculators, manuals, office supplies, safety equipment, etc.) required to perform the work as approved by the CDOT Resident Engineer. Vehicle mileage will be based from the nearest consultant home office to the project. The Consultant shall provide the Testers with all forms necessary for testing, recording results and submitting samples. Field Office and Field Laboratory will be provided by contractor.

The Consultant's work shall be under the direction of, and shall be reviewed by, a Professional Engineer, registered in the State of Colorado, or as appropriate by a Licensed Professional Land Surveyor, registered in the State of Colorado.

The Consultant shall assign personnel for the duration of the Contract, unless otherwise approved by CDOT's Resident Engineer. The Consultant is to be aware that number of personnel required on the project may vary due to seasonal workloads, project status, phasing and the availability of CDOT staff as other projects begin or are completed.

The Consultant managers, inspectors and testers assigned to the project shall be competent in road and bridge construction and must be thoroughly familiar with CDOT's specifications, manuals, forms, and documentation requirements. The consultant team must consist of one person experienced with B2G and LCP Tracker. The level of qualification provided shall be approved by the CDOT Resident Engineer. A copy of work experience and/or proof of Licensing shall be provided before work begins to the CDOT Resident Engineer. Consultant personnel who do not meet all of the specified requirements, or who fail to perform

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their work in an acceptable manner, shall be removed from the project when determined and directed by the CDOT Resident Engineer.

C. Project Staffing Authority

The Consultant Project Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications and Standard Special Provisions, within the guidelines of the Contract. The Consultant Project Engineer reports directly to the CDOT Resident Engineer. The Consultant Project Engineer will approve and set work hours for project construction personnel. The Consultant staff reports directly to the Consultant Project Engineer. Consultant personnel shall be on the project when the Contractor is working.

D. Submittal of Final Documentation

Final documentation shall be submitted to the CDOT Resident Engineer within 2 months after project acceptance. A completed CDOT Form 250 shall be submitted to the CDOT Resident Engineer 1 month after the Consultant has been notified of final quantities. Failure to submit final documentation as required may result in withholding Consultant payments received subsequent to project acceptance until this material is received.

E. Routine Billing & Reporting

The consultant shall provide the following on a regular basis:
Monthly billing reports in formats suitable to the Resident Engineer for all contract activities performed by the consultant's project personnel authorized to perform work on this project.

Task 1.0 Construction Inspection and Materials Testing Support

Provide CDOT Resident Engineer/ Consultant Project Engineer with the following construction inspection support:

- 1.1 Traffic Control: Monitor the Contractor's implementation of traffic signing, barriers, and other traffic control measures.
- 1.2 Daily Quality Control Inspection & Quantity Control: Perform daily quality control inspections of construction activities to document activities performed and assessment of conformance with the contract documents in accordance with Section 2 of this Scope of Work. Inspection items will include, but are not limited to, concrete white topping panel replacement, curb ramps, guardrail, traffic control installations and erosion control installations.

Quantities of work elements constructed will be measured and recorded to support the preparation and processing of progress pay estimates to the Contractor. Quantities will be documented in an interim quantity book for tracking of quantities constructed as compared to the original design quantities on the project. Consultant Management, Inspectors and Testers shall assist in resolving disputes in quantities, price adjustments and test results with the Contractor prior to the preparation of the pay estimate.

- 1.3 Project Documentation: Inspection work shall conform to the CDOT Construction Manual, the Inspector Checklist and SiteManager requirements. Each of the Consultant's field inspectors shall maintain a daily diary for each day the Consultant performs work on the project. They shall use CDOT's Form 103, automated 103a - Project Diary, or other form approved by the CDOT Resident Engineer. SiteManager documentation procedures will apply. The contents of the diary shall be brief, with accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be given to the Project

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Engineer within three (3) working days of its date and will become a part of the permanent project record.

Task 2.0 Post Construction Support

- 2.1 As-Constructed Drawings: Assist in completion of 11"x 17" as-constructed drawings of work completed by the Contractor, including final pay quantities.
- 2.2 Preparation of Final Pay Estimate: Assist in determining final pay quantities with appropriate supporting documentation and checks.

Task 3.0 Project Support

- 3.1 Progress Reports: Prepare weekly progress reports documenting project progress in accordance with the contract.
- 3.2 Certified Payroll: Review certified payroll documentation provided by the Contractor and conduct random interviews of Contractor employees to determine if the Contractor is in conformance with CDOT's EEO/Labor Compliance policies.

Deliverables generated during the project will include the following and will be submitted throughout the duration of the project, or at specific dates commensurate with the deliverable's intent:

- Weekly Progress Reports.
- Project diaries, inspection reports, quantity records, and other documentation prepared during the course of construction in accordance with CDOT requirements.

Section 2 - Construction Management, Inspection and Testing

General Work Description

The Consultant Project Engineer shall be responsible for day-to-day project management. Consultant Project Engineer responsibilities may include, but are not limited to the following:

- EIRC, unless designated to Assistant Project Engineer
- Construction schedule reviews of initial schedule and progress schedules Periodic reports and billing required by CDOT Procedural Directive 400.2.
- Preparation of monthly progress estimates for monthly and final billings for Consultant fees and construction contractor payments.
- Conducting weekly progress meeting with contractor, subcontractors, utilities, and other interested parties.
- Email weekly meeting minutes to the Resident Engineer and other interested parties following the weekly meeting.
- Prepare Contract Modification Orders (CMO) and Minor Contract Revisions (MCR) for the CDOT Resident Engineer's approval.
- Monitor traffic control and safety for compliance with the approved MHT.
- Prepare responses to Contractors' and suppliers' request for information, submittals, change notices, claims, and correspondence

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- Shall be well versed in the use of AASHTOWare SiteManager Software.

The Consultant Assistant Project Engineer shall be responsible for day-to-day activities and documentation, or other duties assigned by the Consultant Project Engineer or CDOT's Resident Engineer. Assistant Project Engineer responsibilities may include, but are not limited to the following:

1. Review, provide comments, and acknowledge completeness of required submittal resulting from but not limited to:
 - CDOT 205 Permit to Sublet
 - Methods of Handling Traffic (MHTs)
 - Progress schedule
 - Methods Statements
 - EEO requirements
2. Provide the following documentation, reports and billings on a routine basis:
 - Maintaining project files, project diaries, and time counts.
 - Monitoring contractor payroll compliance.
 - Monitoring project contractor for fulfillment of project plans and specifications.
 - Securing project documentation from the Contractor.
3. Prepare and transmit updates of construction activities to the CDOT Public Information Office, including weekly Lane Closure Reports.
4. Review of drawings and data submitted by the construction Contractor and suppliers for general conformance with the intent of the specifications. Inform and obtain concurrence as needed from the CDOT Resident Engineer and keep relative documentation for project records.
5. Communicate with adjacent landowners, as required, to resolve issues that arise due to construction.
6. Monitor traffic control and safety for compliance with the approved MHT.
7. Verify project compliance with CDPHE and other environmental permits issued for the project.
8. Prepare a punch list of uncompleted work, non-conformance reports, and deficiency notices.
9. Prepare responses to Contractors' and suppliers' request for information, submittals, change notices, claims, and correspondence.
10. Shall be well versed in the use of AASHTOWare SiteManager Software. This project will use the SiteManager Materials and Laboratory Information Management System (SMM/LIMS) software. The Consultant Assistant Project Engineer will be required to have a basic knowledge of the procedures for the SMM/LIMS software.
11. Shall have successfully completed a TECS training program authorized by CDOT and be currently certified as a TECS for the duration of this Contract.

The Consultant Inspectors shall be responsible for day-to-day activities and documentation, Inspection responsibilities may include, but are not limited to the following:

- Performing duties described in the CDOT *Inspector's Checklist*.
- Preparing and transmitting updates of construction activities to the Consultant Project Engineer.
- Preparing and transmitting periodic reports required by CDOT.
- Monitoring and documenting Contractor payroll compliance.

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- Participating in weekly progress meetings with contractor, subs, utilities, and other interested parties.
- Securing project documentation from the Contractor.
- Anticipating project problems and directing recommended solutions to the Project Manager.
- Reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the intent of the specifications. Informing and obtaining concurrence as needed from the Project Engineer and keep relevant documentation for project records.
- Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
- Communicating with adjacent landowners to resolve issues that may arise due to construction, as required.
- Reviewing and approving the Contractor's Method of Handling Traffic (MHT).
- Monitoring compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT) and the Manual of Uniform Traffic Control Devices (MUTCD).
- Providing initial, follow-up, and final inspections of work in progress including interim and final measurements and coordinating with the materials testers to ensure testing requirements are met.
- Notifying contractors and the Project Engineer of non-compliance with the contract plans and specifications in a timely manner.
- Performing special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT Inspection Program.
- Preparing inspection documentation for development of progress payments for the Contractor in accordance with prescribed procedures.
- Submitting standard documentation reports no later than the following working day.
- Preparing routine correspondence to the Contractor, Project Engineer, local agencies, etc.
- Providing liaison and communication to contractor field crews.
- Assisting in preparing the final "As-Constructed" plans upon project completion.
- Assisting in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
- Assisting in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondences.

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The Consultant Project Tester shall be responsible for day-to-day testing and documentation activities as required to meet contract. Testing responsibilities may include, but are not limited to the following:

- The tester shall sample, test, inspect, and document materials incorporated into the project.
- The tester shall perform inspection duties when not performing testing duties. Contractor activities to be inspected will be assigned by the Consultant Project Engineer as necessary.
- Test results and sample submittals transmitted to CDOT's Region 1 or Central Laboratory shall be recorded on appropriate CDOT Forms. It is the responsibility of the consultant to get and use CDOT forms.
- The Materials Testing Technician shall furnish the Project Engineer with original copies of all worksheets and test results.
- The tester shall review project quantities on a regular basis to verify that sufficient tests have been performed for the material placed to date.
- The Project Engineer and Contractor shall be informed immediately of any non-specification materials.

Inspectors Qualifications

The Project Inspection Technician(s) (PIT) shall be permanently assigned to the project and shall perform all materials inspection and construction documentation as directed by the Project Engineer. The PIT shall have a minimum of one (1) year experience in related road and bridge construction. The PIT shall have thorough knowledge of the use and completion of CDOT forms and documentation, including the CDOT Construction Manual, the CDOT Materials Manual, and the CDOT Inspector's Checklist. References of inspection experience shall be available for all staff, and may be requested at any time during the Contract. This person/people should have history of performing preconstruction input and analysis. MHT and traffic control experience, erosion control inspection, CDOT reporting requirements Capable of independent construction observation, Understands order of precedence, methods of measurement and payment. Has completed CDOT basics, basic math, plan reading and surveying

Tester Qualifications

Testers shall be experienced with LIMs, the Field Materials Manual and the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction and have minimum one (1) year experience on CDOT projects in each specialty field (soils, aggregates, asphalt paving, concrete, etc.) that requires testing. Be certified by the American Concrete Institute (ACI) if testing concrete, be certified Level A/B by the Colorado Asphalt Technician Certification Program (LabCAT) if testing HMA, be certified through the WAQTC Qualification Program if testing soils and/or aggregates Testers shall also have necessary certification for handling and operating Nuclear Moisture/Density Gauge. Copies of Certifications shall be provided to CDOT's Resident Engineer and Project Engineer prior to the start of work on the project. The testers shall have relevant construction inspection experience on at least one recent CDOT project.