



**COLORADO**  
Department of Transportation  
Region 1

West Engineering Program  
425A Corporate Circle  
Golden, CO 80401-5635

## CONSTRUCTION MANAGEMENT SCOPE OF WORK

**Date: November 17, 2022**  
**CDOT Region 1 West Program**

**SH-93 Resurfacing from US-6/SH-58 to 58<sup>th</sup> Ave.**  
**Construction Management, Inspection & Materials Testing Services**

**Project Number: NHPP 0931-033**

**Project Code: 23327**

**Estimated Contract Start Date: February 13, 2023**

**Estimated Contract End Date: October 31, 2023**

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### **The Contract Administrator for this Contract will be:**

Cody Daigneault, PE  
CDOT R1 Resident Engineer  
425 A Corporate Circle  
Golden, CO 80401  
Phone: (720) 628-6919

### **Active day-to-day administration will be delegated to:**

Cody Daigneault, PE  
CDOT R1 Project Engineer  
425 A Corporate Circle  
Golden, CO 80401  
Phone: (720) 628-6919



## **Introduction**

CDOT Region 1 is requesting construction management services and materials testing services for the construction of NHPP-093-033 (23327), SH93 resurfacing from US-6/SH58 to 58<sup>th</sup> Avenue in Jefferson County. This project consists of a 2.5” mill and fill for 3 miles of highway. This project also includes a widening of the highway with the addition of a through lane and auxiliary lane between Washington Avenue and Golden Gate Canyon Road. Other improvements consist of curb ramp installation, traffic signal replacements, guardrail installation, drainage improvements, and snow fence installation.

## **Project Location**

SH-93 between US-6/SH-58 and 58<sup>th</sup> Ave (MP 0.0 to 3.1)

## **Specific Scope of Work**

During construction, CDOT anticipates the need for the following Consultant personnel:

- One full-time Consultant Project Engineer – 100% commitment
- One full-time Consultant Assistant Project Engineer – 100% commitment
- One full-time Consultant Inspector – 100% commitment
- One part-time Consultant Inspector – 50% commitment
- One full-time Consultant Materials Tester – 100% commitment
- One part-time Consultant Schedule Reviewer - < 5% commitment

The assigned personnel will be responsible for the day-to-day responsibilities as assigned by the CDOT Resident Engineer and the Consultant Project Engineer. CDOT may provide an Inspector during the project for additional staffing support. These positions may be adjusted as necessary to part-time as directed by the CDOT Resident Engineer. Additional staff may be required for schedule reviews, project closeout, during periods of heavy workload and other support as necessary. Work will be required during day and nighttime hours as well as weekends, holidays and/or on a split shift basis.

The time for the work is as described below. It is anticipated that the Consultant Project Engineer and Materials Tester remain on the project for approximately 30 days beyond project completion to assist CDOT in the completion of the final project documentation and punch list work. It is anticipated that the consultant staff will begin work on the project approximately 30 days prior to the commencement of construction.

Estimated construction commencement date: March 14, 2023

Estimated construction completion date: October 01, 2023

## **Definitions**

1. CDOT Resident Engineer – Refer to section 101.02 of the CDOT Standard Specifications for Road and Bridge Construction, version 2022
2. Consultant – The individual, firm, or corporation under contract to perform construction management services as outlined in this Scope of Work
3. Project Engineer – Refer to section 101.02 of the CDOT Standard Specifications for Road and Bridge Construction, version 2022



4. Consultant Professional Engineer – The consultant employee in responsible charge of the Consultant services performed as described in this scope of work. The Consultant Professional Engineer must be licensed in the State of Colorado
5. Consultant Assistant Project Engineer – The Consultant employee who assists the CDOT or Consultant project engineer in managing the construction and documentation of the project as outlined in this Scope of Work.
6. Consultant Inspector – The Consultant employee who performs construction inspection, documentation, and other project related services as outlined in this Scope of Work.
7. Consultant Materials Testing Technician – The Consultant employee who perform materials testing and documentation services as outlined in this Scope of Work
8. Contractor – Refer to section 101.02 of the CDOT Standard Specifications for Road and Bridge Construction, version 2022
9. Engineer in Responsible Charge – The CO State, PE licensed Engineer who is in direct control of, and personally supervises, the construction work to ensure conformance of the contract and engineered design.

## **Personnel Qualifications**

Personnel qualifications and staffing level shall be subject to the approval of the CDOT Resident Engineer. The Consultant shall assign personnel for the duration of the Contract unless otherwise approved by the CDOT Resident Engineer and CDOT Project Engineer. Employees required to operate vehicles must possess and maintain a valid State of Colorado driver's license. The Consultant Project Engineer, Assistant Project Engineer, Inspector, and Materials Tester permanently assigned to a project shall be competent in road and bridge construction and be thoroughly familiar with CDOT specifications, manuals, forms, and documentation requirements.

The Consultant staff shall have sufficient education, training, and experience to meet the minimum qualifications, and be experienced and competent in all aspects of highway construction within the scope of this project. Personnel who do not meet all the specified requirements, or who fail to perform their work in an acceptable manner, shall be removed from the project when determined and directed by the CDOT Resident Engineer. Back-up Consultant resources should be available in case of loss of staff, sickness, or vacations or as required for the project.

The level of qualification provided shall be as requested and approved by the CDOT Resident Engineer.

- Consultant Project Engineer - Ten (10) or more years of experience and will be responsible for the supervision of the Assistant Engineer, Inspectors and Materials Tester. Experience shall include the inspection and management of CDOT projects and CDOT construction electronic documentation. Experience as a Project Engineer on CDOT resurfacing and widening projects is required. Professional Engineering License is preferred.
- Consultant Assistant Project Engineer – Five (5) or more years of experience and will be responsible for the supervision of the inspectors, project management and construction inspection. Experience shall include the inspection and management of CDOT projects and CDOT construction electronic documentation. Experience as a Project Engineer on CDOT resurfacing and widening projects is preferred.



- Consultant Inspector(s) – Three (3) or more years of experience and will be responsible for inspecting construction activities to ensure compliance with the contract. The Inspector must be experienced and competent in road and bridge construction. Asphalt placement experience is required.
- Consultant Materials Testing Technician – Three (3) or more years of experience and shall be thoroughly familiar with the CDOT testing procedures, forms, and documentation requirements (LIMS). It is preferred that the Materials Tester have Junior Inspector capabilities during times when testing is not needed. If oversight of the materials tester is necessary, the consultant shall provide the supervision and guidance needed for completion of the work. Oversight required by the consultant will not be paid for by CDOT.
- Consultant Schedule Reviewer – Shall be experienced in CPM schedule review for CDOT road and bridge construction projects. The schedule reviewer shall be familiar with Microsoft Project and Primavera and other scheduling software’s as needed to review contractor submitted project schedules. The schedules shall be thoroughly reviewed in accordance with the project and CDOT specifications to provide recommendations to the Consultant Project Engineer and CDOT Resident Engineer.

The following chart, with the appropriate checked certifications, shall be maintained by consultant employees engaged in this type of work performed for the State.

Class/Certification	Consultant Project/Assistant Engineer	Consultant Inspectors	Consultant Materials Tester
Basic Highway Math	X*	X	X
Basic Highway Surveying	X*	X	X
Basic Highway Plan Reading	X*	X	X
Transportation Erosion Control Supervisor (TECS)	X	X	
Traffic Control Supervisor**	X	X	
<b>Specialty Certifications</b>	To be determined by the Resident Engineer and Consultant		
CAPA Asphalt Inspection	X	X	X
LabCAT Level A & B		Level A	X
WAQTC		X	X
ACI Field Testing Tech I			X
ACI Concrete Strength			X
CDOT Materials Technician Certification Program			X
Certified Nuclear Gauge Operator Certification			X

\*Not required if the Consultant Assistant Project Engineer is a licensed Professional Engineer

\*\*CDOT Traffic Control Supervisor, Technician and Flagger certifications are required if/when the personnel’s CCA certification expires. This training required by CDOT Procedural Directive 1512.1 (Effective September 2022)

A copy of work experience, references and/or proof of Licensing shall be provided before work begins to the CDOT Resident Engineer. Personnel provided by the Consultant who do not meet the specified requirements, or who fail to perform their work in an acceptable manner shall be removed from the project when determined and



directed by the CDOT Resident Engineer.

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.

### **Initial Project Meeting**

The consultant personnel and CDOT project personnel shall meet to coordinate and schedule the required work. The Consultant shall complete all work in accordance with the approved schedule.

### **Project Standards**

All sampling, testing, and documentation shall be in accordance with *the Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards and applicable Project and Standard Special Provisions in the construction project contract and the applicable CDOT Standard Specifications for Road and Bridge Construction*. The applicable *CDOT Field Materials Manual*, including *Colorado Procedures and Colorado Procedure-Laboratory*, shall be the one currently in use when the construction project is advertised. If the required method is not described in the *CDOT Field Materials Manual*, the required work shall be completed in accordance with the current *AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (as revised and supplemented) or the *ASTM Standards and Tentatives*. Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

References to "the specifications" shall include all applicable CDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications, Project Standard Revisions and Project Special Provisions, and project plans and specifications.

All activities performed shall be as directed and authorized by the Consultant Project Engineer, and as approved by the CDOT Resident Engineer.

### **Routine Billing & Reporting**

The Consultant shall provide the following on a routine basis:

- a) Coordination of all contract activities by the Consultant's Project Engineer.
- b) Monthly billing formats, suitable to the CDOT Resident Engineer, for all contract activities performed by the consultant's Project Engineer, Assistant Project Engineer, Inspector and Materials Tester.
- c) Periodic reports and billings required by CDOT Procedural Directive 400.2.
- d) Weekly timecard for Consultant personnel. The CDOT Resident Engineer, prior to billing, must sign these timecards.

### **Authorization to Proceed**

Work shall not commence until the consultant receives the written Notice to Proceed for the contract or any individual Task Order if Task Order Directed Agreement. Work shall be completed within the allotted contract time. Time charged shall be exclusive of time lost for:



- Reviews and approvals
- Responses/direction from CDOT

## **Status of Contract**

The Consultant shall monitor the fiscal status of the Task Order and the status of the work throughout the duration of the contract. The Consultant will advise the CDOT Resident Engineer of any potential for supplementing their Task Order or negotiation an additional Task Order. The Consultant shall notify CDOT in a timely manner of any changes that need to be made. Failure to monitor contract status and provide timely notification may result in non-payment and possible discontinuation of the Consultant's services.

## **Work Description**

The Consultant Project Management services shall support CDOT staff through management of the SH-93 Resurfacing project. The Consultant Project Engineer and Assistant Project Engineer shall be available to review work, resolve problems and make decisions in a timely manner as requested by CDOT.

The Consultant shall provide support to CDOT through assignment of personnel to construction management, construction administration, inspection responsibilities, and materials testing support. Specific responsibilities include:

1. Pre-Construction: Assist with project showings, pre-bid meetings and Q&A's while the project is under advertisement. Complete submittal review, baseline schedule review and other duties as necessary to get the project up and running per CDOT requirements.
2. Meetings: The Consultant personnel shall be present at and assist with the facilitation of all project meetings as required including weekly progress meetings with the Contractor, Subcontractors, utilities, and other interested parties. The Consultant staff shall be required to attend and assist with facilitation of the Project Preconstruction Meeting, Project First Meeting, and other meetings prior to commencement of the project as directed by the CDOT Resident Engineer.
3. Documentation: Maintain project submittal register, track project correspondence, track installed quantities, check daily diaries, prepare inspectors progress reports, and complete appropriate CDOT paperwork and forms. The Consultant shall provide all correspondence, and other construction administration documentation required per the CDOT Construction Manual, and applicable CDOT forms to the CDOT Resident Engineer for review and signature. Submittal of standard documentation reports shall be submitted and filed electronically on a weekly basis.
4. Project Schedules: Review of Contractor schedules in accordance with 108.03 of the Standard Specifications.
5. Quality / Conformance with Plans and Specifications: Monitor and inspect the Contractor's construction activities with respect to the contract documents and relevant schedule submittals governing the performance of the work. Resolve construction problems and/or recommend action for their resolution, as they relate to changed field conditions or conflicts in the contract documents. Perform special tests, investigations, or monitoring to fulfill the intent of the CDOT inspection program. Notify Contractor and CDOT Project and Resident Engineer of non-compliance with the contract documents.
6. Submittals and Shop Drawings: Submittals, design drawings, shop drawings, working drawings, materials, and test procedures received from the Contractor will be reviewed and/or forwarded to appropriate CDOT personnel for review. Approved drawings will be returned to the Contractor, as well as a copy retained for use during the remainder of the project.
7. Methods of Handling Traffic (MHT) / Safety: Review the Contractor's Method(s) of Handling Traffic



(MHT) submittals. During construction, monitor the Contractor's MHT for implementation of traffic signing, barriers, and other traffic control measures in accordance with the approved plan. Monitor 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).

8. **Quantity Tracking:** Perform daily inspections of construction activities to document activities performed and assessment of conformance with the contract documents. Quantities of work elements constructed will be measured in accordance with the CDOT Construction Manual and recorded on an electronic Form 266 to support the preparation and processing of progress pay estimates to the Contractor. Quantities will be documented in an interim quantity spreadsheet for tracking of quantities constructed as compared to the original design quantities on the project. Quantities of work will be agreed upon with the Contractor and then reflected in monthly progress pay estimates prepared by the Consultant's staff. Assist CDOT in resolving disputes in quantities with the Contractor prior to the preparation of the pay estimate.
9. **Pay Estimates:** Determine quantities with appropriate supporting documentation and checks and prepares pay estimates in Site Manager.
10. **Daily Diaries:** Consultant's personnel shall maintain a daily diary for each day they perform work on the project. They shall use CDOT's Form 103a - Project Diary, unless otherwise approved by the Consultant Project Engineer or Resident Engineer. Use of the digital Form 103 through the Survey123 Application may be required. The contents of the diary shall be brief and 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.
11. **Change Orders:** Capable of preparing project change orders and minor contract revisions as necessary, justification for CMO's and MCR's, price justification (Force Account Analysis) per the CDOT Construction Manual.
12. **Civil Rights Compliance:** Review certified payroll documentation in LCP Tracker provided by the Contractor and conduct random interviews of Contractor employees to determine if the Contractor is in conformance with CDOT EEO/Labor Compliance policies. Review 205's and sublet compliance in B2GNow.
13. **Stormwater Management:** Inspect erosion control, review SWMP notebook, and participate in Erosion Control Compliance Reviews.
14. **Check Surveying:** Provide quality control surveying and quantity verification as needed. If the Construction Contract includes a Construction Surveying pay item, then the Contractor is responsible for performing all surveying required to properly layout and constructs the work covered.
15. **Completion, Inspection, and Punch List:** Participate in the final inspection with the Contractor, Consultant Project Engineer, CDOT Resident Engineer and CDOT Maintenance representative(s) upon substantial completion. The result of the inspection is the development of a punch list of remaining and/or outstanding work to be performed by the Contractor prior to final project acceptance.
16. **As-Constructed Drawings:** Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans. Complete as-constructed drawings of work completed by the Contractor including final pay quantities.
17. **Communication:** Provide communication to Contractor field crews. Communicate with adjacent landowners as required to-resolve issues that arise due to construction.
18. **Miscellaneous project related duties** as requested by the CDOT Resident Engineer or other CDOT units.
19. **Project documentation** shall be stored in a shared drive such as Google Drive or other approved application. At the end of the project, all required finals documentation shall be transferred to CDOT's ProjectWise on premise or the ProjectWise Cloud system by the Consultant.



The Consultant Project Engineer and Assistant Project Engineer shall perform construction project management, inspection of construction activities and other project-related activities as directed by the CDOT Resident Engineer. The Consultant Assistant Project Engineer will be capable of replacing the Consultant Project Engineer and fulfilling all their duties should the need arise.

The Consultant Inspector(s) shall assist the Consultant Project Engineer in performance of construction inspection activities and other project-related activities, as directed by the Consultant Project Engineer and/or the CDOT Resident Engineer.

The Consultant Materials Tester shall sample, test and inspect those specified materials utilized in construction. Test results and inspection observations shall be documented and approved by the Consultant Project Engineer and/or CDOT Resident Engineer in accordance with the references cited under PROJECT STANDARDS.

The Consultant Project Engineer, Resident Engineer and Residency Head Tester shall follow the requirements of CP-16 to meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule. The consultant materials testing evaluation form shall be completed by the CDOT Resident Engineer and head tester and distributed as described in CP-16. The Consultant Project Engineer shall forward a copy of the completed Pre-Testing Meeting Agenda for Consultant Materials Testing to the Region Materials Engineer.

The Consultant Project Engineer, Assistant Project Engineer, Inspectors and Tester shall provide daily, or routine certifications as shown below. The Consultant Project Engineer in responsible charge of all the Consultant inspectors shall also provide this certification monthly, and shall certify as follows:

- *"The items listed above this certification were tested or inspected and found to be in reasonably close conformity to the plans and specifications except as noted".*

## **Documentation**

Each of the consultant personnel shall maintain a daily diary for each day the tester performs work on the project. They may use CDOT's Form 103, Project Diary, or a form as approved by the CDOT Resident Engineer. The contents of the diary shall be an accurate statement 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 Consultant Project Engineer and/or CDOT Resident Engineer within three working days of its date. Test results, sample submittals and inspection documentation transmitted to CDOT's Region or Central Laboratory shall be recorded on appropriate CDOT Forms.

The Consultant Project Engineer and Materials Tester shall be required to review project quantities on a weekly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant may use CDOT worksheets or worksheets approved by the CDOT Resident Engineer. CDOT Forms and worksheets are available through the Residency Head Tester at no cost to the consultant.

The consultant shall furnish the CDOT Resident Engineer with copies of all worksheets on a daily basis. The Consultant shall also keep the CDOT Form 626 up to date at all times and provide copies of this form to the Consultant Project Engineer, CDOT Resident Engineer and the Contractor within 12 hours for any material found to be out of compliance with the specifications.

The Consultant shall coordinate the schedule for Independent Assurance Tests for the project in accordance with CDOT Form 379, with the Residency Head Tester, or directly with the Region IAT person.





## **Submittal of Final Documentation**

Final pay documentation shall be submitted to the CDOT Resident Engineer within 20 working days after completion of the construction project work. The Consultant Project Engineer and Assistant Engineer shall finalize the project. This includes assisting the CDOT Resident Engineer and Finals Engineer in obtaining and correcting documentation and completing as-constructed plans during the final checking process. All documentation shall be completed electronically and placed on CDOT's ProjectWise Cloud server. This shall be completed within 45-days of project acceptance.

A completed CDOT Form 250 shall be submitted to the Consultant Project Engineer and CDOT Resident Engineer no more than 14 calendar days after the Consultant has been notified of final quantities. Failure to submit final documentation as required will result in withholding of Consultant payments.

## **Project Authority**

The Consultant Project Engineer, or other CO State licensed PE designated by the Consultant, shall be the Engineer in Responsible Charge of the work and is in direct control and supervision of construction work. They shall be responsible for contract conformance as defined in the CDOT Standard Specifications and engineered plans and specifications.

The Consultant Project Engineer will be responsible for approving and setting work hours for both project construction inspection and materials testing. The CDOT Resident Engineer shall have the final authority for project staffing.

The Consultant Project Engineer and/or CDOT Resident Engineer shall be the final authority regarding acceptance of work not conforming to the plans and specifications. The Consultant Project Engineer and CDOT Resident Engineer shall be responsible for signature approval of all construction contract modification orders (CDOT FORM 90) and all construction contract payments.

## **Labor, Vehicles, Materials and Equipment**

Personnel qualifications, staffing level, and number and types of vehicles shall be as approved by the CDOT Resident Engineer.

The consultant shall furnish all personnel, vehicles, materials, and equipment required to perform the work in a timely manner:

- Computer with appropriate software
- Clipboard, string line, 4-foot carpenter level
- Miscellaneous equipment to include calculator, officer supplies, and personal safety equipment
- Cell phone
- Project transportation

## **Field Laboratory**

The Contractor will provide a field laboratory for many of the construction projects and the required traffic control for all of the construction projects. When a field laboratory is not provided, the consultant shall use their own facilities. When the consultant is required to use his own facility, he shall follow the Laboratory



Qualification Program requirements contained in the applicable CP-10.

The following equipment and supplies shall be furnished by the consultant for each project in sufficient quantity to ensure performance of all work required in a timely manner. Such equipment and supplies shall remain the property of the consultant.

1. A.C. content gauge and/or extraction equipment and solvents
2. Nuclear Asphalt Content Gauge
3. Nuclear Moisture/Density gauge
4. Concrete air meter, slump cone, and other concrete testing equipment
5. Sieves for aggregates and soil gradations
6. Scales
7. Asphalt & A/C sample containers and small tools
8. Proctor equipment for soil curves and 1 point tests
9. Atterberg, Rice Value, and Sand Equivalent equipment
10. Sample drying equipment
11. Miscellaneous equipment for performing the required soils, concrete and asphalt field tests
12. Concrete cylinder molds, which conform to AASHTO requirements, except that PAPER MOLDS SHALL NOT BE USED, AND PLASTIC MOLDS SHALL NOT BE REUSED
13. Cell Phone for each tester
14. Computer and printer for each test lab (CDOT or Consultant). This equipment needs to have capability to operate all current CDOT project software as defined in the current migration plan. This includes Site Manager.
15. Ignition Oven for determining asphalt binder content meeting specifications of CPL 5120.

Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Resident Engineer. The CDOT Resident Engineer and the Consultant Project Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing on the project. Sampling and testing personnel qualifications shall be in conformance with the requirements of the applicable CP-10.

### **Specific Testing Requirements**

The Consultant shall sample, test, inspect, and document all materials generated and produced on the project. This includes: materials delivered to the project that are listed in the Summary of Approximate Quantities in accordance with the Field Materials Manual; materials that may be added to the project through contract modification; and altered material quantities whether increased or decreased.

Testing of materials that are specifically designated to be pre-inspected or pretested by this or any other Department of Transportation shall remain the responsibility of CDOT. The consultant shall document and transport samples of any and all materials to the CDOT Central Laboratory that are required to be tested by CDOT regardless of pre-inspection or pretesting responsibilities.

