

**Scope of Work**  
**Construction Inspection and Materials Testing Consulting**

Estimated Start Date: January 1, 2012

Region 3

Project:

I-70 West Parachute Interchange  
Project # IM 0702-310 Sub-Account # 18018

Scope of Work Date:

July 19, 2011

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The Contract Administrator for this Task Order will be:

Roland Wagner, Resident Engineer  
Region 3 – Glenwood Springs Residency

Office: 970-384-3334  
Mobile: 970-379-9109

Active Day to Day administration and monitoring of this contract will be delegated to the following CDOT employee:

Adam Cornely, Project Engineer  
Region 3 – Glenwood Springs Residency

Office: 970-384-3334  
Mobile: 970-379-9517

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## **General Scope of Work**

The scope of work is for construction management, inspection and materials testing services for the referenced project. The scope of work will be for 1 full-time inspector and for 2 full-time materials testers.

The inspector will be responsible for day to day activities as assigned by the CDOT Project Engineer. These responsibilities may include documentation and inspection of construction activities, computing quantities of acceptable of work, oversight and documentation of time and material work (Force Account), and preparation of daily diaries and inspection reports documenting construction activities and relevant observations.

The materials testers will be responsible for the project materials sampling, testing, and documentation as directed by the CDOT Project Engineer.

## **Definitions**

**CDOT Resident Engineer** – The CDOT Resident Engineer is responsible to the Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to Contracts for all Consultants and Contractors.

**CDOT Region Materials Engineer** – The CDOT Region Materials Engineer (RME) assists the Resident Engineer and Project Engineer on this project with materials related issues including concrete, asphalt, and other construction materials.

**CDOT Assistant Materials Engineer** – The CDOT Assistant Materials Engineer is responsible to the Region Materials Engineer.

**Consultant** – The individual, firm or corporation contracting with CDOT to perform quality assurance inspection and testing.

**Consultant Engineer** – The Consultant's Professional Engineer who is available for meetings and review of services performed as described in this Contract. The Consultant's Professional Engineer must be licensed in the State of Colorado.

**Materials Testing and/or Inspection Consultant** – The Consultant employee who performs concrete, soils, asphalt testing and/or inspection of soils, concrete or pavement structures.

**Contractor** – The individual, firm or corporation contracting with CDOT to construct a transportation project.

**CDOT Project Engineer** – The CDOT employee assigned by the Resident Engineer who is the Chief Engineer's duly authorized representative. The CDOT Project Engineer is in direct charge of the work and is responsible for the administration and satisfactory completion of the project under contract. The Project Engineer duties are further described in the CDOT Construction Manual.

**Work Duration**

The time period for the work described in this scope of work covers the period from approximately January 1, 2012 to December 31, 2012. Work may be required at night and/or day, on weekends and holidays. The inspector and materials testers will be required when construction activities commence.

**Authorization to Proceed**

Work shall not commence until written Notice to Proceed is received by the Consultant, and shall be completed in the time specified.

**Routine Billing & Reporting**

The Consultant shall provide the following on a regular basis:

- 1.) Monthly billing formats, suitable to the CDOT Resident Engineer, for all contract activities performed by the Inspection Consultant.
- 2.) Monthly billings should include the contract status.
- 3.) Periodic reports and billings required by CDOT Procedural Directive 400.2.
- 4.) Weekly time, mileage and expense reports for consultant personnel. Prior to billing, the Project Engineer must approve and sign these reports.
- 5.) Supporting documentation for all direct costs.

**Status of Contract**

The Consultant shall monitor the fiscal status of the contract, and advise the CDOT Resident Engineer of any potential for supplementing their contract or negotiating an additional task order. Failure to monitor contract status and provide timely notification may result in discontinuation of the Consultant's services on the project until a supplemental agreement can be effected.

**Project Standards**

All documentation shall be in accordance with the latest versions of the Colorado Department of Transportation's Construction Manual, Field Materials Manual, CDOT Laboratory Manual of Test Procedures, Colorado Department of Transportation Inspector's Checklist, Standard Specifications for Road and Bridge Construction, the Supplemental Specifications, applicable M & S standards, and the plans and specifications currently in use when the construction project is advertised or revised under advertisement.

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.

Proposed work procedures shall be coordinated with the Project Engineer prior to the start of work.

**Labor, Materials, Vehicles & Equipment**

The Consultant shall furnish all 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. Personal protective equipment shall be in accordance with CDOT PD 80.1. Computers shall be fully capable of running SiteManager, including necessary communications hardware, software and Internet Service. The Consultant's staff shall include personnel experienced at effectively monitoring and managing progress schedules and construction delays. Field Office and Field Laboratory will be provided by Construction Contract pay items.

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Resident Engineer. The Consultant shall assign personnel for the duration of the Construction Contract unless otherwise approved by the Resident Engineer.

The inspection Consultant must be thoroughly familiar with CDOT specifications, manuals, forms and documentation requirements including Site Manager. Personnel provided by the Consultant who do not meet all of 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 Resident Engineer.

The Consultant Engineer, materials tester, and inspector(s) must be thoroughly familiar with CDOT specifications, manuals, forms and documentation requirements, including SiteManager. Inspectors assigned to the project by the Consultant shall have successfully completed SiteManager training provided by CDOT. Inspectors and materials testers shall possess the required certifications as required by the Construction Inspector Qualification Program in accordance with the Chief Engineers Policy Memo 25. Personnel provided by the Consultant who do not meet all of 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

**Engineer's Certification**

The Resident Engineer shall be the final authority regarding acceptance of work performed by the inspection Consultant. The Consultant Testing Firm will review and sign the Form 250 as it relates to the testing and acceptance of materials. The CDOT Resident Engineer shall be the final authority regarding acceptance of work not conforming to the plans and specifications.

## **Work Description**

### **CONSTRUCTION ADMINISTRATION SERVICES**

#### **INSPECTION SERVICES**

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 or automated 103a - Project Diary, or other form approved by the Resident Engineer. SiteManager documentation procedures will apply. 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. A copy of the daily diary shall become a part of the permanent project record.

Inspection responsibilities may include but are not limited to the following:

1. Preparing and transmitting updates of construction activities to the CDOT's Public Information Officer.
2. Periodic reports and billings required by CDOT Procedural Directive 400.2.
3. Monitoring and documenting contractor payroll compliance.
4. Participation in weekly progress meetings with contractor, subs, utilities and other interested parties.
5. Securing project documentation from the contractor.
6. Anticipating project problems and directing solutions to the Project Engineer.
7. Reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the specifications. Inform and obtain concurrence as needed from the Project Engineer and keep relevant documentation for project records.
8. Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
9. Communicating with adjacent landowners as required toward resolving issues that arise due to construction.
10. Review and approve the Contractor's Method of Handling Traffic if delegated by the Project Engineer.
11. 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).
12. Initial, follow up, and final inspections of work in progress including interim and final measurements and coordination with Consultant Tester to ensure materials testing requirements are met.
13. Promptly notifying contractors and Project Engineer of non-compliance with the contract plans and specifications.
14. Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program.
15. Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
16. Submittal of standard documentation reports no later than the following working day.
17. Preparation of routine correspondence to the contractor, CDOT Staff, local agencies, etc.
18. Providing liaison and communication to contractor field crews.
19. Assist the Project Engineer with preparation of final "As Constructed" plans.

20. Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
21. Assist in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.

## **MATERIALS TESTING**

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 SCHEDULE in the Field Materials Manual; materials that may be added to the project through contract modification; and altered material quantities whether increased or decreased. The Project Engineer and field tester(s) shall review project quantities on a monthly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant shall also provide any other services as requested by the Resident Engineer or Project Engineer.

Testing of materials that are specifically designated to be pre-inspected or pre-tested 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 pre-testing responsibilities. The items and test frequencies of Department tested materials shall be in accordance with the column titled "Central Laboratory" in the SCHEDULE. The EXCEPTION shall be when the specific project task order is set-up to randomly sample and test highway striping paint. The consultant shall have the ability to sample and submit paint samples to a certified lab designated testing.

The consultant shall sample, test and inspect those specified materials utilized in construction. Other services may be requested in writing by the Resident Engineer. Test results and inspection observations shall be documented by the consultant and approved by the Project Engineer in accordance with the references cited above in Project Standards. The materials tester will be responsible for materials sampling, testing, and documentation as directed by the Project Engineer. The materials tester needs to be certified to perform the project sampling and testing in accordance with CDOT requirements, CP 10 in latest Field Material Manual. These requirements typically include the following certifications: CAPA levels A&B, ACI, and WAQTC, and nuclear gauge operation.

## **Initial Project Meeting**

The Consultants, Resident Engineer and Project Engineer shall meet to coordinate and schedule the required work. The Consultant shall complete all work in accordance with the approved schedule.

## **Documentation**

The Consultant shall provide all correspondence and applicable CDOT forms to the Resident Engineer or his/her authorized representative for review and signature.

**Personnel Qualifications**

1. Personnel qualifications and staffing levels for the project shall be subject to the approval of the Resident Engineer.
2. The inspection consultant must have relevant construction inspection experience on at least 2 recent CDOT projects.
3. The materials tester consultant should have at least one-year of materials testing experience and have the appropriate certifications as described in the “Work Description” section above, and must have relevant construction materials testing experience on at least 1 recent CDOT project.
4. The Consultants shall be thoroughly familiar with CDOT forms and documentation requirements.
5. Personnel provided by the consultant who do not meet all of 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 Resident Engineer.

CONSTRUCTION REQUIREMENTS  
**CHECKLIST**

The following checklist shall be used to establish the Construction Management responsibilities of the individual parties for this project.

The checklist shall be prepared by placing an “✓” under the responsible party opposite each of the tasks listed below.

When a task does not apply to the project, not-applicable “NA” shall be placed under both parties.

Tasks that will be performed by CDOT Headquarters staff will be so indicated.

The Region in accordance with established policies and procedures shall determine who will perform all other tasks that are the responsibility of CDOT.

DESCRIPTION OF TASK	<u>CONSULTANT</u>	<u>CDOT</u>
1. Conduct the Pre-Bid conference, answer all questions, and maintain a log of all decisions given and/or made.		✓
2. Show project work site to prospective bidders, answer all questions regarding plans and specifications, and maintain a log of all decisions given and/or made.		✓
3. Coordinate all construction contract activities with appropriate stakeholders.		✓
4. Distribute <u>ten</u> award sets of plans and specifications to the CDOT Resident Engineer.		✓
5. Issue Notice to Proceed to the Contractor.		✓
6. Schedule, conduct and prepare minutes of all project meetings as follows:		
a. Job Showing		✓
b. Pre-construction Conference		
c. Partnering Workshop (if required)		✓
d. Weekly Project Meetings		✓
e. Pre-Survey Conference (if required):		✓
(1) Construction Staking		✓
(2) Survey Monumentation		✓
f. Bridge Construction Communications		✓
g. Structural Concrete Pre-pour Conference		✓
h. Concrete Pavement Prepaving Conference		✓
i. HBP Prepaving Conference		✓
j. Contractor Weekly Safety “Tool Box” Meeting		

<b>DESCRIPTION OF TASK</b>	<b><u>CONSULTANT</u></b>	<b><u>CDOT</u></b>
8. Public Relations:		
a. Prepare and coordinate with CDOT and others to publish and distribute public notices of all planned construction activities and schedules to the media, property owners, local residents, tenants, and other appropriate stakeholders affected by the project.		✓
b. Perform public relation tasks with appropriate individuals as requested by CDOT.		✓
c. Explain construction and work with adjacent property owners to resolve issues that arise during construction.		✓
9. Review, comment, accept and/or approve as appropriate the following submittals: <i>Note: This list is not all-inclusive and other submittals may require action as directed by CDOT.</i>		✓
a. CDOT Form # 205 – Sublet Permit Application after Form #713 has been checked by the Region EEO Administrative Program Specialist.		✓
b. Method of Handling Traffic		✓
c. Progress Schedules		✓
d. Method Statements		✓
e. Shop drawings per 105.02		✓
f. Working drawings per 105.02		✓
g. Other submittals per 105.02		✓
h. All EEO, Labor compliance requirements		✓
i. Other submittals as directed		✓
10. Construction inspection including calculations, measurements, and documentation of interim and final pay quantities.	✓	
11. Perform required EEO/AA/DBE/OJT or labor compliance tasks as requested as follows:		✓
a. Conduct Contractor/Subcontractor reviews to ensure conformance with the Equal Employment Opportunity (EEO)/Affirmative Action (AA)/DBE/OJT requirements contained in the contract. (Standard Special Provisions, Project Special Provisions and FHWA Form 1273.)		✓
<b>DESCRIPTION OF TASK</b>	<b><u>CONSULTANT</u></b>	<b><u>CDOT</u></b>
b. Complete and submit to the CDOT Region EEO Administrative Program Specialist, the required number of CDOT Form 280 – Equal Employment Opportunity and Labor Compliance Verification.		✓
c. Monitor DBE participation to ensure compliance with the “commercially useful function” requirements.		✓

d. Complete and submit to the CDOT Region EEO Administrative Program Specialist, the applicable number CDOT Form #200 – OJT Training Questionnaire, when project utilizes OJT's.		✓
e. Check certified payrolls to verify contractor/subcontractor compliance with contract requirements. Project personnel trained in payroll checking shall complete the checking. (Contact the Region EEO Administrative Program Specialist for training requirements.)		✓
f. Coordinate submittals by Contractor and all subcontractors of FHWA Form 1391 (Highway Construction Contractor's Annual EEO Report) to the CDOT Region EEO Administrative Program Specialist.		✓
12. Materials:		
a. CDOT Form # 250 – Materials Documentation Record:	✓	
(1) Fill out and distribute CDOT Form # 250 before the Contractor commences work.	✓	
(2) Complete Form # 250 after work is completed; distribute per instructions in CDOT Materials Manual.	✓	
b. Approve changes to the Typical Section (requires a CMO).		✓
c. Development, checking and design mix approvals:		
(1) Concrete		✓
(2) Hot Bituminous Pavement		✓
d. Acceptance of manufactured products		✓
e. Inspecting fabrication of structural steel and pre-cast concrete structural components.		✓
f. Inspecting fabrication of bearing devices	NA	NA
g. Laboratory check testing.	✓	
h. Acceptance testing.	✓	
i. Independent assurance testing - develop, complete and distribute CDOT Form # 379 – Project Independent Assurance Sampling Schedule.		✓
j. Approve sources of materials.		✓
<b>DESCRIPTION OF TASK</b>	<b><u>CONSULTANT</u></b>	<b><u>CDOT</u></b>
13. Maintain time counts		✓
14. Maintain project files for documentation; provide duplicate documentation to CDOT Resident Engineer when requested.		✓
15. Obtain, accept, and approve all required contractor submittals.		✓
16. Approve shop drawings		✓
17. Perform Traffic Control Inspections		✓

18. Approve traffic signal equipment		✓
19. Construction surveying – quality control checking and quantity verification as needed.		✓
20. ROW Monumentation – quality control checking		✓
21. Prepare monthly estimates of the Contractor's work performed, materials placed or stockpiled materials on hand in accordance with the Contract. <i>Note: Only a CDOT Resident Engineer can approve and sign vouchers for interim and final Contractor pay estimates.</i>		✓
22. Review interim and final billings for Utility relocation work. <i>Note: Only a CDOT Resident Engineer can approve and sign vouchers for interim and final Utility Company billings.</i>		✓
23. Prepare CDOT Form # 90 [Contract Modification Order (CMO)] and/or # 90 [Minor Contract Revision (MCR)] including letter of explanation for CMO/MCR <i>Note: The Consultant may negotiate costs for extra work but only CDOT can approve costs. Only the CDOT Resident Engineer can approve and sign CMO/MCR's for modifying CDOT's Contract or paying the Contractor.</i>		✓
24. Monitor project financial status and submit monthly in a format acceptable to the Region, such as CDOT Form # 65a – Project Financial Status Report.		✓
25. Prepare and submit monthly progress reports to the Region Program Engineer: CDOT Form # 110a – Status of Active Construction Projects and CDOT Form # 517a – Status of Construction Project Finals		✓
26. Prepare appropriate responses to Contractor, subcontractor or supplier requests for information, submittals, disputes, claims, change notices, or other correspondence.		✓
27. Prepare response for Project Engineer status of claim & Claim Status Report Form		✓
28. Prepare complete claim record		✓
<b>DESCRIPTION OF TASK</b>	<b>CONSULTANT</b>	<b>CDOT</b>
29. Give oral or written presentation to Region Director for claims.		✓
30. Give presentation for Claim Review Board or AAA Arbitration board.		✓
31. Conduct routine, random, project reviews to ensure the project is being administered in accordance with the terms of the construction contract.		✓

32. Conduct final project inspection of completed or unacceptable work and prepare punch list for final acceptance.		✓
33. Prepare and submit CDOT Form # 1212a – Final Acceptance Report		✓
34. Prepare final project acceptance letter and distribute per procedures in the CDOT Construction Manual.		✓
35. Advertise for final settlement.		✓
36. Maintain accurate as constructed notes and prepare and distribute final as-constructed plans per procedures in the CDOT Construction Manual.		✓
37. Check final quantities, final plans, and prepare the final pay estimate. <i>Note: Only CDOT can sign final pay estimate sheets and voucher.</i>		✓
38. Check material records.		✓
39. Submit final materials certifications		✓
40. Obtain and review CDOT Form # 17 – Contractor DBE Payment Certification from the Contractor and submit to the Region.		✓
41. Obtain and review FHWA Form PR 47 (Statement of Materials and Labor Used) from the Contractor, check and submit to the Region.	NA	NA
42. Complete and submit CDOT Form # 950 for project closure.		✓
43. Submit original of all project records to the CDOT Resident Engineer. (CDOT will retain project records for six years from the date of project closure.)		✓