

## **SCOPE OF WORK**

### **Construction Management, Materials Testing & Construction Inspection Services SCOPE OF WORK**

### **COLORADO DEPARTMENT OF TRANSPORTATION Statewide**

#### **SCOPE OF WORK FOR:**

- I. Project Materials Testing**
- II. Regional Materials Laboratory Testing**
- III. Project Management / Construction Inspection**
- IV. Highway Materials Evaluation**
- V. Personnel Qualifications**
- VI. Construction Management Requirements Check List**

#### **CONTRACT ADMINISTRATION:**

**Administration of these contracts will be delegated to the CDOT Region Materials (or TBD) Engineer:**

**NAME:**

**TITLE: P.E. II, CDOT Region \_\_\_ Materials Engineer (or TBD)**

**ADDRESS:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**FAX:** \_\_\_\_\_

**E-Mail:** \_\_\_\_\_@dot.state.co.us

**Day-to-day administration of task orders will be delegated to the CDOT Engineer or Project Manager named on the Task Order.**

**General Scope of Work:**

**CDOT has a need of a consultant(s) to provide construction management support, Project Engineering, inspection materials-testing services for several bridges as shown in Appendix A. The specific types of services are to be provided as determined by the CDOT Region.**

## **GENERAL REQUIREMENTS**

CDOT has a need of a consultant to provide construction administration support, Project Engineering, inspection, and materials-testing services for the construction of the following Project(s):

**See Appendix A – Project List**

CDOT intends to award individual contracts for each project. Each contract shall be negotiated separately to meet the Region’s project goals and staffing requirements for the Project. CDOT reserves the right to select One Consultant for multiple project awards.

The Scope of Work has been carefully reviewed by the Department and reflects a plan of approach based on the known goals. The Consultant’s analysis of the project goals, its evaluation of the work elements, and its formulation of the work plan, coupled with its understanding of the sensitivity to the key issues, may produce new approaches or modifications to the project’s work elements. Therefore, the Final Scope of Work for the project may change in some details to incorporate the Consultant’s input. This work is located in all Regions of the Colorado Department of Transportation.

### **INITIAL PROJECT MEETING:**

The Consultant and CDOT project personnel shall meet to coordinate and schedule the required work prior to active construction. The Consultant shall complete all work in accordance with the approved schedule or as approved by the CDOT Project Engineer.

### **WORK DURATION:**

The time period for the work described in this scope is to be established by each individual construction project.

Work may be required: night or day; weekends; holidays; or on a split shift basis.

### **AUTHORIZATION TO PROCEED:**

Work shall not commence until the consultant receives the written Notice to Proceed. 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

## ROUTINE REPORTING AND BILLING:

The consultant shall provide the following on a routine basis:

- Coordination of all contract activities by the Consultant's Project Manager when required
- Periodic reports and billings required by CDOT Procedural Directive 400.2

## STATUS OF PROJECT:

The consultant shall monitor the status of work, and advise the CDOT Project Engineer/Manager of any potential need for supplementing their contract. Failure to monitor work status and provide timely notification may result in discontinuing the consultant's services relative to the task order until a supplemental agreement can be affected.

## **I. GENERAL WORK DESCRIPTION FOR PROJECT MATERIALS TESTING:**

The consultant shall sample, test and inspect those specified materials utilized in construction. Test results and inspection observations shall be documented and approved by the CDOT Project Engineer in accordance with the references cited below under PROJECT STANDARDS. Project specific work will be defined by task order, prior to work commencing.

## MANAGEMENT OF CONSULTANT PROJECT MATERIALS TESTING:

The consultant, CDOT 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 Project Engineer and head tester, and distributed as described in CP-16. The CDOT Project Engineer shall forward a copy of the completed Pre-Testing Meeting Agenda for Consultant Materials Testing to the Region Materials Engineer.

## PROJECT STAFFING AUTHORITY:

The CDOT 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. This includes approving and setting work hours for both project construction and the materials testing.

## 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.

#### LABOR, MATERIALS, AND EQUIPMENT:

The consultant shall furnish all personnel, materials, and equipment required to perform the work. CDOT will provide a field laboratory for many of the construction projects and the required traffic control for all of the construction projects.

The CDOT Project Engineer will advise the consultant on the availability of the field laboratory. When a field laboratory is not provided, the consultant shall use his 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 Moisture/Density gauge
3. Concrete air meter, slump cone, and other concrete testing equipment
4. Sieves for aggregates and soil gradations
5. Scales
6. Sample containers and small tools
7. Proctor equipment for soil curves and 1 point tests
8. Atterberg equipment
9. Sample drying equipment
10. Miscellaneous equipment for performing the required soils, concrete and asphalt field tests
11. Concrete cylinder molds, which conform to AASHTO requirements, except that PAPER MOLDS SHALL NOT BE USED, AND PLASTIC MOLDS SHALL NOT BE REUSED
12. Cell Phone for each tester
13. 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 and an email account.

14. 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 Project Engineer. The CDOT 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. Additionally the tester must possess a current and valid Colorado Driver's license.

The Consultant's work shall be under the direction of, and shall be reviewed, stamped and signed by a Professional Engineer registered in the State of Colorado. The only work to be stamped will be the summary sheets; i.e., CDOT Forms 6, 9, 58, 69, 212, 250, and 554. The CDOT Project Engineer may request that additional forms be stamped. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the CDOT Project Engineer, and must be experienced and competent in road and bridge construction materials testing.

Copies of the tester's required certifications and a resume including his/her materials testing experience shall be provided to the CDOT Project Engineer.

The materials testing technician(s) shall be thoroughly familiar with CDOT testing procedures, forms and documentation requirements. If oversight 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. The materials testing technician(s) and inspector(s) shall be thoroughly familiar with CDOT forms and documentation requirements.

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 Project Engineer. Failure to perform the testing and documentation processes may result in termination of the task order as determined by the Task Order Administrator (Project Manager).

**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 **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 consultant's Project Manager, field tester(s) and CDOT's Project Engineer shall be required to 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 CDOT Project Engineer.

Testing of materials that are specifically designated to be preinspected 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 preinspection or pretesting responsibilities. The items and test frequencies of Department tested materials shall be in accordance with the column titled "Central Laboratory" in the SCHEDULE.

#### DOCUMENTATION:

Each of the consultant's field testers 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 Project Engineer. The contents of the diary shall be brief and 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 CDOT Project 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's Project Manager and field tester(s) 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 Project Engineer. CDOT Forms and worksheets are available through the Residency Head Tester, Project Manager or Region Materials at no cost to the consultant.

The consultant shall furnish the CDOT Project 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 CDOT Project 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 documentation shall be submitted to the CDOT Project Engineer within 20 working days after project acceptance. A completed CDOT Form 250 shall be submitted to the CDOT Project Engineer 10 days after the consultant has been notified of final quantities. Failure to submit final documentation as required may result in withholding any and all consultant payments.

## **II. GENERAL WORK DESCRIPTION FOR REGIONAL MATERIALS LABORATORY TESTING:**

This work consists of materials testing at the Regional Materials Laboratory (located in TBD), the Regional mobile laboratories (potentially located anywhere within the Regions) or an approved laboratory furnished by consultant or contractor. Materials testing could involve a wide range of projects consisting of, but not limited to, the resurfacing, reconstruction, maintenance and new construction projects. When the consultant is required to use his own facility, he shall follow the Laboratory Qualification Program requirements contained in the applicable CP-10.

### **MANAGEMENT OF CONSULTANT REGION \_\_\_REGION \_\_\_ LABORATORY MATERIALS TESTING:**

The consultant, CDOT Regional Materials Engineer and CDOT Regional Materials Lab Manager shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

### **PROJECT STAFFING AUTHORITY:**

The CDOT Regional Materials Engineer is in direct charge of the work in the Region Materials Lab and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for the materials testing.

### **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.

The consultant tester(s) must meet the requirements of Chapter 800 of the Field Materials Manual, be a minimum of 19 years of age and possess a personnel-monitoring device. Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Project Engineer. The CDOT Project Engineer shall receive and review the testing personnel qualifications prior to commencement of the work. When required, the consultant tester's work may be required

to be under the direction of a Professional Engineer in the State of Colorado. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the Region \_\_\_ Materials Engineer. Personnel Staffing level and qualifications of testing personnel and laboratories for this work shall be subject to the approval of the Region \_\_\_ Materials Engineer. The Region \_\_\_ Materials Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing.

Activities will include sampling, sample reducing, and testing materials supplied to and/or produced on the projects. This includes but is not limited to performing the following tests:

1. Rice Test (CP 51)
2. Gradations of aggregate (CP 31)
3. Bulk Specific Gravity of cores and/or compacted mix (CP 44 and CP-L 5103)
4. Fine aggregate angularity (CP-L 5113)
5. Standard Method for Preparing and Determining the Density of Bituminous Mixture Test Specimens by Means of the Superpave Gyratory Compactor (CP-L 5105 and CP-L 5115)
6. Hveem Stability (CP-L 5106)
7. Lottman Testing (CP-L 5109)
8. AC Content by Nuclear Method (CP 85)
9. AC Content by Ignition Method (CP-L 5120)
10. Sand Equivalent Test (AASHTO T-176)
11. Liquid Limit and Plasticity Index of Soils (AASHTO T-89, T-90)
12. Moisture Density Relations of Soils (AASHTO T-99, T-180)

Assist with documentation, general cleanup and routine laboratory equipment upkeep as needed. The consultant may enter results into a computer database. The tester(s) may assist Region Materials lab personnel (using mobile drill rig) in the collection of soil profile data and samples.

Tests will be performed in accordance with the applicable CDOT Field Materials Manual, CDOT Laboratory Manual of Test Procedures, and/or AASHTO Test Procedures. The Region Materials Engineer will determine testing frequency.

The contract tester(s) may be allowed the use of the Region Materials Laboratory and all equipment, except for nuclear moisture density gauges, in order to conduct the required testing, when deemed necessary by the Region's Materials Engineer. Unless designated, the consultant tester will conduct his/her testing services in the lab provided.

The Region's Materials Engineer may designate a member of his staff to represent him in the contract.

#### SPECIAL QUALIFICATIONS OF REGIONAL LABORATORY MATERIALS TESTER(S)

Tester(s) must have a working knowledge, a minimum of 320 hours relevant experience, and possess and maintain current relevant certifications in the following programs for the duration of the task order:

- *CAPA (LABCAT) asphalt technician Certification in Levels A,B, and C*
- *WAQTC Embankment & Base Testing Technician Certification*

Tester(s) must possess a current and valid Colorado Driver's License.

### **III. PROJECT MANAGEMENT / CONSTRUCTION INSPECTION**

CDOT is seeking construction management and inspection on multiple projects. The teams may include a Consultant Professional Engineer, a Consultant Project Engineer, a Consultant Assistant Project Engineer, Consultant Inspector(s), Consultant Erosion Control Supervisor(s) (ECS) and Consultant Materials Testing Technician(s) (on an as-needed basis), as well as a second Consultant MTT to perform quality assurance (approximately 1.5% of the consultant's time on the project) of the first Consultant MTT's work if needed. The Consultant shall provide personnel to work all shifts as required by the Contractor's schedule. The exact personnel requirements will be determined upon receipt of the successful bidder's construction schedule.

In addition to the construction inspection tasks identified in **I. Project Materials Testing**, the construction inspector(s) shall assist the CDOT Project Engineer in performance of construction inspection activities and other project-related activities, as directed by the CDOT Project Engineer. Inspection responsibilities may include but are not limited to the following:

- Reviewing periodic reports and billings
- Participation in weekly progress meetings with contractor, sub contractors, utilities, and other interested parties;
- Anticipating project problems and suggesting solutions to the CDOT Project Engineer
- 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 and the Manual of Uniform Traffic Control Devices;
- Initial, follow-up, completion, and final inspections of work in progress, including interim and final measurements;
- Notifying contractor and CDOT Project Engineer of non-compliance with the contract plan and specifications;
- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program;
- Completing inspection documentation using CDOT forms for the development of progress payments for the contractor in accordance with CDOT's prescribed procedures;

- Submittal of standard documentation reports no later than the following working day;
- Preparation of routine correspondence to the contractor, CDOT Staff, local agencies, etc;
- Providing liaison and communication to contractor field crews;
- Assisting in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices;
- Maintaining accurate field notes during construction reflecting actual construction details to be used in preparation of the as-constructed plans;
- Miscellaneous project-related duties as directed by the CDOT Project Engineer.

Inspection observations shall be documented and approved by the CDOT Project Engineer in accordance with the references cited below under PROJECT STANDARDS. Project specific work will be defined by task order, prior to work commencing.

#### MANAGEMENT OF CONSULTANT PROJECT CONSTRUCTION INSPECTION

The consultant, CDOT Project Engineer, and Resident shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

#### PROJECT STAFFING AUTHORITY:

The CDOT 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. This includes approving and setting work hours for both project construction and inspection.

#### PROJECT STANDARDS:

All inspection and documentation shall be in accordance with the *Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards, CDOT Inspector's Checklist* 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.

#### LABOR, MATERIALS, AND EQUIPMENT:

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

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

Personnel qualifications, staffing level and number of and types of vehicles shall be subject to the approval of the CDOT Project Engineer.

**SPECIAL QUALIFICATIONS FOR CONSTRUCTION PROJECT INSPECTORS / MANAGERS**

The construction inspector(s) must possess a current and valid Colorado Driver’s license  
 The construction inspector(s) must be certified in the areas of inspection to be performed by the CDOT Construction Inspector Qualification Program.

**CDOT has developed a Construction Inspector Qualification Program, the following requirements will be mandatory on all CDOT projects after March 1, 2006.**

**The following chart, with the appropriate checked certifications, shall be included in all scopes of work.**

<b>Class/Certification</b>	<b>Consultant Project Engineer</b>	<b>Consultant Inspector</b>	<b>Consultant Tester</b>
Basic Highway Math	X	X	X
Basic Highway Surveying	X	X	X
Basic Highway Plan Reading	X	X	X
Erosion Control Supervisor	X	X	X
<b>Specialty Certifications</b>	To be determined by the Resident Engineer and Consultant		
CAPA Asphalt Inspection			
Asphalt Inspection			
WAQTC			
Major Structures			
Other (As defined by the RE)			
Concrete Pavement Inspectors	X	X	X

#### **IV. GENERAL WORK DESCRIPTION FOR HIGHWAY MATERIALS EVALUATION:**

The scope includes all necessary work to assess product performance relating to material utilization on highway projects.

The purpose of the highway materials work is to accomplish field investigation, literature review or technical evaluation to determine suitability of material for inclusion or exclusion pertaining to highway projects. This work may be accomplished in a preliminary phase, construction phase or post-project investigation. The processes necessary to conduct Materials work may include, but are not limited to, the following activities: material source investigation (aggregate pit processing methods, quality verification), recommendations on aggregate pit suitability and involvement with maintaining and concluding pit permits, material additive issues (e.g. lime), test result variance, material property correlation with test results, review of construction techniques as they affect material properties, roadway distress evaluation, value engineering proposal evaluation, selection of pavement types and determination of typical sections for the pavement structure.

#### **MANAGEMENT OF CONSULTANT HIGHWAY MATERIALS EVALUATION**

The consultant, CDOT Region Material Engineer shall meet, coordinate and schedule the required work

#### **DOCUMENTATION:**

The final product of Material work will be reports containing problem descriptions and recommendations for solutions or a synopsis of the issues. Included in reports may be appropriate test results and analysis of findings.

Project specific work will be defined by task order, prior to work commencing.

#### **V. PERSONNEL QUALIFICATIONS**

Interested consultant firms are strongly encouraged to visit the project site in advance of preparing a scope and fee to perform the work.

#### **Definitions:**

**CDOT Resident Engineer** – The CDOT Resident Engineer is responsible to the CDOT 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 the Contract for all Consultants and Contractors.

**CDOT Project Engineer** – The CDOT employee assigned by the Resident Engineer to be Chief Engineer’s duly authorized representative. The Project Engineer is in direct charge of the project work and is responsible for the administrative and satisfactory and safe completion of the project under the contract.

**Consultant** – The firm or corporation providing personnel under this agreement to perform construction management services.

**Consultant Professional Engineer** – The Consultant employee that manages the consultant contract, and is in direct responsible charge of Consultant personnel and services performed as described in the Contract. This person shall be a currently licensed Colorado Professional Engineer. Additionally, this person prepares reviews, certifies and signs billings for consultant services, and provides quality assurance of services performed on the project.

**Consultant Assistant Project Engineer** – The Consultant Assistant Project Engineer is present on the project site on a daily basis, provides daily supervisory management of the consultant personnel, and assists with the administration of the Consultant contract on a daily basis.

**Consultant Inspector and Materials Testing Technical** – Consultant employees who perform construction inspection, construction materials-testing services, and other project-related services under the responsible charge of the Consultant Assistant Project Engineer, and at the direction of the CDOT Project Engineer. Additionally, a separate MTT will be required to perform to perform quality assurance-level checks and additional testing of the work performed by the Consultant MTT. The quality assurance Consultant MTT is needed for approximately 1.5% of the consultant’s time on the project.

**The selected Consultant(s) will have strong experience in developing and analyzing critical path scheduling (primavera and MS Project), public relations, bridge construction, roadway construction, utilities, environmental work and compliance, and retaining walls. The CDOT Project Engineer will be expected to handle the schedule and daily public-relations issues. The Consultant will be expected to work in Site Manager. Previous experience in coordination with utility companies, public and private entities and with CDOT policies and procedures is strongly preferred.**

**Personnel qualifications and staffing levels for the project shall be subject to the approval of the CDOT Resident Engineer. CDOT will reserve the right to review the resume and interview any new proposed staff to the project. The Consultant shall be certified as defined by the requirements set forth in this scope of work.**

**The Consultant Professional Engineer will be physically present on the project site as much as necessary to assure the safety of the project, the personnel and the traveling public, and the quality of work performed by the Contractor and by the consultant. Bridge construction experience is highly desirable. This level of**

**involvement could be considered quality assurance of safety and the consultant's and Contractor's work and operations.**

**The Consultant Assistant Project Engineer and the Consultant Inspector shall have the qualifications and certifications described in CDOT Policy Memo #25, dated March 4, 2005 (attached), the mandatory Traffic Control Supervisor training as described in CDOT Policy Memo #22, dated September 9, 2004 (attached), as well as other certifications relevant to the project.**

**The Consultant Assistant Project Engineer shall have the following experience or skills:**

- **Review and analyze construction schedules and methods statements**
- **Prepare Contract Modification Orders**
- **Force account analysis**
- **Public relations (working with local communities and agencies)**
- **Bridge construction**

**Consultant Inspector(s) may be required on the project. The Inspector(s) will primarily perform inspection on roadway, bridge, retaining wall, and traffic control work as needed. Other inspection and paperwork duties may also be required.**

**The Inspector(s) shall also have the following experience:**

- **Review and approve, in accordance with the Plans and Specifications, the Method of Handling Traffic and shall have taken the Traffic Control Supervision class.**
- **CDOT experience with the federal project requirements such as OJT, review of 205's, have done interviews to complete CDOT form 280, and have reviewed Davis-Bacon wages.**
- **Perform erosion control inspections and audits per CB 2011-7.**

**Erosion Control Supervisor(s) may be required on the project. The ECS(s) will primarily perform monitoring and observation of erosion control. Duties may include:**

- **Review and approve SWMP**
- **Perform erosion control inspections and audits per CB 2011-7**

**Other skills to be highly considered for all personnel:**

- **Utility coordination**
- **Wide load coordination**
- **Working with CDOT Public Relations representative for periodic and timely press releases for construction activities**
- **Wetlands (404 Permit)**
- **Survey experience**
- **Bridge-inspection experience**

**All the Consultant staff (except the tester) shall be familiar with and possess experience using the Site Manager program to enter CMO's, 266 inspection forms, and other areas if needed. All Consultant Staff shall be thoroughly familiar with CDOT forms and documentation requirements.**

**The Consultant shall also provide any other services as requested by the CDOT Project Engineer.**

The Consultant Materials Testing Technician (MTT or Tester) shall have experience in precast and cast in place concrete, asphalt, earthwork, and certifications accordingly. The MTT shall review project plans, specifications, and the current version of the CDOT Field Materials Manual and the project specific CDOT Form 250 to determine the number of testers required to complete the project and the number and type of test that will need to be performed on the project. The MTT and the CDOT Project Engineer shall meet on a regular basis prior to start of project to address any questions or issues involving testing procedures, frequency, or documentation. Additional testing may be required if requested by the CDOT Project Engineer or CDOT Resident Engineer. The MTT shall be thoroughly familiar with CDOT forms and documentation requirements. The consultant-supplied Materials Testing Technician shall be permanently assigned to the project and shall provide copies of the following qualifications:

- The MTT performing concrete tests shall be certified by The American Concrete Institute (ACI).
- The MTT performing hot bituminous pavement tests shall be Level II, A&B certified by The Colorado Asphalt Technician Certification Program (LabCAT).
- WAQTC, Soils Certification

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 Project Engineer or 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.

## **VI. CONSTRUCTION MANAGEMENT REQUIREMENTS CHECKLIST**

### **CONSTRUCTION MANAGEMENT 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	CONSULTANT	CDOT
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		

DESCRIPTION OF TASK	CONSULTANT	<u>CDOT</u>
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 as directed by the CDOT Project Engineer.		
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.)		

DESCRIPTION OF TASK	CONSULTANT	<u>CDOT</u>
b. Complete and submit to the CDOT Project Engineer, 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		
g. Laboratory check testing.		

DESCRIPTION OF TASK	CONSULTANT	<u>CDOT</u>
h. Acceptance testing.		
i. Independent assurance testing - develop, complete and distribute CDOT Form # 379 – Project Independent Assurance Sampling Schedule.		
j. Approve sources of materials.		
13. Perform erosion control monitoring. Prepare erosion control inspections and audits according to CB 2011-7.		
14. Maintain time counts		
15. Maintain project files for documentation; provide duplicate documentation to CDOT Project Engineer when requested.		
16. Obtain, accept, and approve all required material certifications.		

17. Approve shop drawings		
18. Perform Traffic Control Inspections		
19. Approve traffic signal equipment		
20. Construction surveying – quality control checking and quantity verification as needed.		
21. ROW Monumentation – quality control checking		
22. 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 Project Engineer or Resident Engineer can approve and sign vouchers for interim and final Contractor pay estimates.</i>		
23. 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>		
24. 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>		
25. Monitor project financial status and submit monthly in a format acceptable to the Region, such as CDOT Form # 65a – Project Financial Status Report.		
<b>DESCRIPTION OF TASK</b>	<b>CONSULTANT</b>	<b><u>CDOT</u></b>
26. 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		
27. Prepare appropriate responses to Contractor, subcontractor or supplier requests for information, submittals, disputes, claims, change notices, or other correspondence.		
28. Prepare response for CDOT Project Engineer status of claim & Claim Status Report Form		
29. Prepare complete claim record		
30. Give oral or written presentation to Region Director for claims.		

31. Give presentation for Dispute or Claim Review Board or AAA Arbitration board.		
32. Conduct routine, random, project reviews to ensure the project is being administered in accordance with the terms of the construction contract.		
33. Conduct final project inspection of completed or unacceptable work and prepare punch list for final acceptance.		
34. Prepare and submit CDOT Form # 1212a – Final Acceptance Report		
35. Prepare final project acceptance letter and distribute per procedures in the CDOT Construction Manual.		
36. Advertise for final settlement.		
37. Maintain accurate as constructed notes and prepare and distribute final stamped as-constructed plans per procedures in the CDOT Construction Manual.		
38. Check final quantities, final plans, and prepare the final pay estimate. <i>Note: Only CDOT can sign final pay estimate sheets and voucher.</i>		
39. Check material records.		
40. Submit final materials certifications		

DESCRIPTION OF TASK	CONSULTANT	<u>CDOT</u>
41. Obtain and review CDOT Form # 17 – Contractor DBE Payment Certification from the Contractor and submit to the Region.		
42. Obtain and review FHWA Form PR 47 (Statement of Materials and Labor Used) from the Contractor, check and submit to the Region.		
43. Complete and submit CDOT Form # 950 for project closure.		
44. Submit original of all project records to the CDOT Project Engineer. (CDOT will retain project records for six years from the date of project closure.)		

**Note: The CDOT Project Engineer will use the cover sheet on the following page, together with the Contract Scope and CM requirement checklist, in order to provide a consistent Task Order request template. The CDOT Project Engineer will fill in the Task Order #, the Scope request date, and the other Project information. The CDOT Project Engineer will also indicate the requested services for the Task Order by marking one or more of the listed materials services, and will also attach any additional project-specific details or information necessary to complete the Scope package for the Task Order.**

## 1. Scope Of Work

Task Order # \_\_\_\_\_  
Region \_\_\_ Construction Management, Materials Testing and  
Construction Inspection Services

Date: \_\_\_\_\_

Project Number: \_\_\_\_\_

Project Location: \_\_\_\_\_

### Scope of Work For:

- I. Project Materials Testing
- II. Region \_\_\_ Materials Laboratory Testing
- III. Project Construction Inspection
- IV. Highway Materials Evaluation
- V. Personnel Qualifications
- VI. Construction Management Requirements Check List

Active day – to – day administration of this contract will be delegated  
to:

NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

## **ADDITIONAL INFORMATION:**

### **ORGANIZATIONAL REFERENCES FOR PERSONNEL CERTIFICATIONS**

American Concrete Institute (ACI):

**Stacy Ehrlick**

**Office Manager**

**CRMCA – Colorado Ready Mixed Concrete Association**

**6880 South Yosemite Court Suite 100**

**Centennial, CO 80112**

**[stacy@crmca.org](mailto:stacy@crmca.org)**

**303-290-0303 - office**

**303.501.6091 - Cell**

**303-290-8008 - fax**

Construction Inspector Certification:

**Donna Stretz**

**303-796-4664**

**FAX: 303-930-6040**

**[donna\\_stretz@urscorp.com](mailto:donna_stretz@urscorp.com)**

or Allison Wilson

Colorado Department of Transportation

PH 303-757-9298

[allison.wilson@state.co.us](mailto:allison.wilson@state.co.us)

<http://www.dot.state.co.us/CHRMEmpCorner/empdev.cfm>

Western Alliance for Quality Transportation

Construction (WAQTC):

Alan Hotchkiss

Colorado Department of Transportation

PH 303-398-6587

[Alan.Hotchkiss@state.co.us](mailto:Alan.Hotchkiss@state.co.us)

Laboratory for Certification of Asphalt

Technicians (LabCat):

Tom Clayton

Rocky Mountain Asphalt Education Center

6880 South Yosemite Court, Suite 110

Centennial, Colorado 80112

PH 303-741-6148

[RMAEC@co-asphalt.com](mailto:RMAEC@co-asphalt.com)

## APPENDIX A

Project Accounting Number	Original Bridge Number	Region	Facility Carried over Featured Intersection	Current Estimated Construction Cost	Current Ad Date	
18155	L-27-S	2	US 50 ML over DRAW; E of LAMAR	See L-28-C	Spring 2013	<b>PACKAGE A</b>
18155	L-28-C	2	US 50 ML over BNSF RR; E of GRANADA	\$5,300,000	Spring 2013	
19055	M-16-P	2	SH 69 ML over MILLIKEN ARROYO	\$2,500,000	June 2013	
19054	N-17-C	2	I 25 BUS RT over SULL CREEK	\$3,600,000	June 2013	
19053	P-23-A	2	US 160 ML over SMITH CANYON	\$1,100,000	June 2013	
19123	I-17-O	2	I-25 FRONTAGE ROAD over PINE CREEK	\$3,240,000	March 2014	
19304	K-14-J	2	US 50 over DRAW	\$2,200,000	December 2013	
18138	C-09-C	3	US 40 ML over E FORK ELK RIVER	\$6,301,200	December 2012	<b>PACKAGE B</b>
18159	F-11-AC	3	I 70 ML EBND over US 6, RR, EAGLE RIVER	\$30,000,000	January 2014	
18159	F-11-AB	3	I 70 ML WBND over US 6, RR, EAGLE RIVER	See F-11-AC	January 2014	
18770	E-16-HA	6	SH 58 ML over FORD STREET, WASH	\$8,139,986	March 2013	<b>PACKAGE C</b>
18206	E-17-ER	6	SH 44 ML(104TH AVE) over BULL SEEP	\$6,300,000	August 2013	
18206	E-17-CA	6	SH44 ML(104TH AVE) over SOUTH PLATTE RIVER	See E-17-ER	August 2013	
18204	F-17-GO	6	US 40 ML(E COLFAX) EBND over TOLLGATE CREEK	\$21,100,000	December 2013	
18204	F-17-GA	6	US 40 ML(E COLFAX) WBND over TOLLGATE CREEK	See F-17-GO	December 2013	
18370	K-16-S	2	SH 120 ML over DRAW, UP RR	\$4,175,000	January 2013	<b>PACKAGE D</b>
18152	E-17-EX	6	PEORIA STREET over I 76 ML; NE of JCT US 85	\$4,500,000	March 2013	
18151	E-17-DC	6	I 76 ML EBND over UP RR; E of JCT US 85	\$15,300,000	May 2013	
18151	E-17-DU	6	I 76 ML WBND over UP RR; E of JCT US 85	See E-17-DC	May 2013	
19339	E-17-JP	6	I 70 ML over HAVANA ST, UP RR	\$14,150,710	May 2013	